VOLUNTARY GREENHOUSE GAS REPORTING

WORKSHOP MATERIALS
AND TRANSCRIPT FOR MEETING IN

Houston
December 12-13
Houston Airport Marriot

December 2002

VOLUNTARY GREENHOUSE GAS REPORTING WORKSHOPS
HOUSTON WORKSHOP MATERIALS AND TRANSCRIPT

TABLE OF CONTENTS

1. WORKSHOP AGENDA

Voluntary Greenhouse Gas Reporting Workshops

VOLUNTARY GREENHOUSE GAS REPORTING WORKSHOPS

Workshop Agenda
Chicago (5-6), San Francisco (9-10), Houston (12-13)
December 2002

DAY 1

8:30-8:45 Welcome and Opening Remarks

8:45-9:00 Workshop Objectives and Background. President's charge; July 2002 recommendations; related Federal efforts; process for completion.

9:00-9:30 Overview of Existing Voluntary Greenhouse Gas Reporting (1605b) Program

9:30-10:00 Agenda and Workshop Program

10:00-12:00 Session I. Emission Reporting: Improving Accuracy, Reliability, and Verifiability. Plenary session. Discuss options to improve emissions reporting accuracy, reliability, and verifiability. Crosscutting issues: rigor v. practicality, relationship to other reporting programs and protocols, confidentiality, verifiability, comparability. Main topics for discussion:

1) Organizational and geographic boundaries
    a. Entities and entity-wide reporting
    b. Corporate boundaries
    c. Institutional / Governmental boundaries
    d. U.S. v. non-U.S. emissions

2) Operational boundaries and related issues
    a. Treatment of direct and indirect emissions
    b. Gases and sources covered
    c. Exceptions?

3) Measurement and accounting methods
    a. Initial reporting year(s)
    b. Emissions measurement / estimation methods
    c. Emission / conversion factors

12:00-1:00 Lunch

1:00-3:00 **Session IIa. Emission Reductions and Sequestration: Characterizing and Measuring.** Plenary session. Starting point: accurate, reliable, verifiable. Discuss options for defining and measuring credible reductions. Topics:

1) Characteristics of credible reductions
    a. Purpose of identifying emission reductions
    b. Who receives recognition or credit
    c. Absolute changes or output adjusted
    d. Other causation issues (e.g., weather, technology, voluntary programs / commitments, regulations)
    e. Entity-wide, sub-entity or project-specifics
    f. Avoided emissions

2) Calculation methods
    a. Absolute emission reductions
    b. Emissions intensity baselines
    c. Projects
    d. Base years
    e. Multiyear reporting / averaging

3:00-5:00 **Session IIb. Emission Reductions and Sequestration.** Facilitated breakout sessions. Discuss topics from Session IIa. Four groups:

1) Electricity generation (including grid-connected renewable generation
2) Industrial and other large sources,
3) Small distributed sources (residential / commercial buildings, transportation and end-use renewables), and
4) Agriculture and forestry sequestration (including ethanol production)

5:00 **Adjourn**

DAY 2

8:30-8:45 **Opening Comments and Agenda for Day 2**

8:45-10:30 **Session IIc. Emission Reductions: Reports from Breakout Sessions and Discussion.** Plenary session.

10:30-12:00 **Session III. Verifying Emissions and Reductions.** Plenary session. Options for verifying emissions and emission reduction reports. Topics:

1) Types and frequency of verification
2) Maintenance of records
3) Approving / certifying verifiers

12:00-1:00 **Lunch**

1:00-3:00 **Session IV. Managing the 1605(b) Registry.** Plenary session. Topics:

1) Certifying reports and reductions
2) Public v. confidential data
3) Prior year reports
4) Not penalizing under future climate policy / transferable credits

3:00-3:30 **Wrap up and Next Steps**

3:30 **Workshop Adjourns**

2. HOUSTON WORKSHOP PARTICIPANTS LIST

Voluntary Greenhouse Gas Reporting Workshops

Voluntary Greenhouse Gas Reporting Workshops
Houston Workshop Participants
December 12-13, 2002

FirstName	LastName	Title	Organization
Margot	Anderson	Deputy Assistant Secretary	Department of Energy
Richard	Anderson	Manager of Air Programs	Waste Management, Inc.
Joe	Araiza	Senior Environmental Engineer	Reliant Energy
Karen	Armstead	Strategic Analyst	Texas Commission on Environmental Quality
John	Bins	Director of Air Programs	Waste Management, Inc.
Michael	Biondi	Environmental Scientist	ConocoPhillips
Jesse	Blackwell	Regional Sales Manager	ESP (Environmental Software Providers)
Doug	Brookman	Facilitator	Public Solutions
James	Burnham	Air Quality Engineer	Lynx, Ltd.
Rayburn	Butts	Manager, Environmental Services	Florida Power & Light Co.
Carl	Carlsson	Manager, Environmental Engineering	Tractebel Power, Inc.
Ben	Carmine	Director, Air & Waste Management	Reliant Energy
Brad	Condley	Senior Chemist	East Kentucky Power Cooperative, Inc.
Stanley	Dabney	Environmental Engineer/Manager	Alamo Cement Company, LTD
Mark	Deese	Environmental Analyst	ConocoPhillips
Thomas	Dingo	Director - Energy and Utilities	Bayer Corporation
Peter	Dryburgh	Special Project Enginner	North American Coal Corporation
Henry	Eby	Sr. Regulatory Analyst	Lower Colorado River Authority
Jerry	Ferrara	Vice President, Government Affairs	Celanese
Sarah	Forbes	Analyst	National Energy Technology Laboratory
Juene	Franklin	Project Manager	EMCON/OWT, Inc.
Mark	Friedrichs	Policy Analyst	Department of Energy
Peter	Galusky	Environmental Professional	Marathon Ashland Petroleum LLC
Lee	Gilmer	Principal Consultant	Shell Global Solutions
Adrienne	Gvozdich	Consultant	Navigant Consulting
James	Hrubovcak	Economist	USDA
Sangem	Hsu	Technical Specialist	DNV Certification
Doug	Huxley	Senior Project Manager	CH2M HILL
Jerry	Ivie	Environmental Advisor	Shell Oil Products US
Patrick	Kelly	Environmental Scientist	US EPA-Region 6(6PD-Q)
Doug	Krings	Manager - Air Programs	Bayer Corporation
Joseph	Kruger	Branch Chief	Clean Air Markets Div./USEPA
Mike	Krumland	Environmental Protection Supervisor	Nebraska Public Power District
Michael	Laney	Sr. Environmental Engineer	Lockheed Martin Aeronautics Co.
George	Lyons	Managing Partner	GHG Partners, LLC
Joe	Machado	Manager, Sustainable Development	Shell Chemical LP
Bill	Marston	Senior Ventilation Engineer	Jim Walter Resources, Inc.
Thomas	Mason	Senior Consultant	Det Norske Veritas (USA), Inc.
Paul	McArdle	Program Manager	Energy Information Adminstration
Denny	Migl	Senior Petroleum Engineer	CDX Gas, LLC
Michael	Mondshine	Asst. Vice President, Climate Change Services	Science Applications International Corp
Michael	Moore	Managing Partner	Falcon Environmental Services
Bill	Nail	Manager, Compliance and Consulting	Shell Oil Company
Robert	Narvaez	Corporate Manager Environmental, Health and Safety	CommScope
Fabien	Nilsson	Business Development Analyst	EnLink Geoenergy Services, Inc.
Declan	O'Cleirigh	Senior Environmental Engineer	Lower Colorado River Authority
John	Orynawka	Director, Energy & Air Program	Temple Inland Forest Products Corporation
Catherine	Peddie	Senior Manager	Ernst & Young, LLP
Paul	Pike	Environmental Services Scientist	Ameren Corporation
Mary	Quillian	Manager, Environmental Programs	Nuclear Energy Institute
Richard	Richards	Senior Scientist	Science Applications International Corp
Arthur	Rypinski	Economist	Department of Energy
Chris	Schafer	Environmental Coordinator	The Empire District Electric Co.
Michael	Scholand	Senior Consultant	Navigant Consulting
Barbara	Schuppener	Environmental Protection Specialist	US EPA
Terri	Shires	Senior Engineer	URS Corporation
Reid	Smith	Environmental Advisor	BP
Carrie	Sonneborn	PhD Intern	National Renewable Energy Laboratory
Greg	Spencer	President	Blue Source LLC
John	Staub	Economist	Department of Energy
Randall	Stowe	Sr. Expertise Specialist	The Dow Chemical Company
Theresa	Takacs	Senior Engineer	ExxonMobil Research and Engineering
Heather	Tansey	Program Analyst	US EPA
Russell	Thornton	EHS Manager	DNV Certification
Sonja	Turner	Engr Tech	CDX Gas
Charles	Urdy	Environmental Science & Technology Coordinator	Lower Colorado River Authority
Scott	Vann	Senior Engineer	ERM
Jeffrey	Williams	Sr. Lead Env. Analyst	Entergy

EIA 1605(b) Website	www.eia.doe.gov/oiaf/1605/frntvrgg.html
DOE GHG Registry Website	www.pi.energy.gov/enhancingGHGregistry
DOE GHG Registry Email	ghgregistry.comments@hq.doe.gov
USDA Workshops	www.usda.gov/agency/oce/gcpo/greenhousegasreporting.htm Agriculture Workshop, Washington DC, January 14-15 Forestry Workshop, Washington DC, January 23

3. WORKSHOP OBJECTIVE AND BACKGROUND SLIDES

Voluntary Greenhouse Gas Reporting Workshops

Voluntary Greenhouse Gas Reporting Workshops

Washington, D.C. , November 18-19
Chicago, December 5-6
San Francisco, December 9-10
Houston, December 12-13

1

U.S. Policy Context

June 11, 2001:

- Committed U.S. to Work Within UN Framework
- Directed U.S. to develop flexible, science-based response to climate change
- Supported UNFCCC goal to stabilize GHG concentrations
- Established National Climate Change Technology Initiative
- Established Climate Change Research Initiative

February 14, 2002:

- Established U.S Goal to reduce GHG intensity by 18% by 2012
- ***Directed Improvements to the DOE GHG Voluntary Emissions Registry***
- Supported transferable credits
- Supported financial incentives
- Challenged businesses to take action

2

What We Were Directed to Do?

- Directed the Secretary of Energy, in consultation with the Secretary of Commerce, the Secretary of Agriculture, and the Administrator of the Environmental Protection Agency, to propose improvements to the current voluntary emissions reduction registration program under section 1605(b) of the 1992 Energy Policy Act within 120 days. These improvements will enhance measurement accuracy, reliability, and verifiability, working with and taking into account emerging domestic and international approaches.
- Directed the Secretary of Energy to recommend reforms to ensure that businesses and individuals that register reductions are not penalized under a future climate policy, and to give transferable credits to companies that can show real emissions reductions.
- Directed the Secretary of Agriculture, in consultation with the Environmental Protection Agency and the Department of Energy, to develop accounting rules and guidelines for crediting sequestration projects, taking into account emerging domestic and international approaches.

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What is the Voluntary Greenhouse Gas Registry?

- Created by Energy Policy Act of 1992
- Managed by DOE's Energy Information Administration (EIA)
- Records results of voluntary measures to reduce, avoid, or sequester greenhouse gas emissions
- During 2000, a total of 222 U.S. companies and other organizations filed GHG reports
- Reporting guidelines are flexible, designed to encourage participation

4

Process– 2002 Actions

- Set Goal: January, 2004
- Interagency coordination process and web site
- Issued Federal Register Notice of Inquiry (May, 2002)
- 4-Agency letter to President with recommendations (July, 2002)
- Met with stakeholders; Hosting 4 public workshops

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Process – 2003 Actions

- Accept post-workshop written comments (winter 02/03)
- DOE drafts revised guidelines (winter)
- Public comment period (late spring)
- Revise guidelines (summer/fall)
- Prepare and review new reporting forms (spring/summer/fall)
- Issue new guidelines

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Workshop Topics – Focus is on *Technical Issues*

Topics are built on the President's instructions, the NOI, the 4-Agency letter, and stakeholder interaction.

Topics address **HOW** to "substantially improve" the registry and "protect and provide transferable credits for emissions reductions"

I. Emissions Reporting: Improving Accuracy, Reliability, and Verifiability

II. Emissions Reductions: Characterizing and Measuring

III. Verifying Emissions and Reductions

IV. Managing the GHG Registry

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Crosscutting Themes

- Balancing rigor with practicality; stringency with flexibility.
- Balancing voluntary approach within a goal-focused program.
- Balancing confidentiality with verifiability to promote credibility.
- Building, where appropriate, on current 1605 (b) and other reporting programs.
- Comparability within and across sectors.

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Web Addresses & Points of Contact

http://www.pi.energy.gov/enhancingGHGregistry

ghgregistry.comments@hq.doe.gov

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4. THE 1605(B) VOLUNTARY REPORTING OF GREENHOUSE GASES PROGRAM OVERVIEW SLIDES

Voluntary Greenhouse Gas Reporting Workshops

The Voluntary Reporting of Greenhouse Gases (1605b) Program

Paul F. McArdle, Ph.D.
Office of Integrated Analysis & Forecasting
Energy Information Administration

Department of Energy
Voluntary Reporting of Greenhouse Gases Workshops
Chicago, Illinois
December 5, 2002

www.eia.doe.gov

Presentation Objectives

- Provide Program Background
- Highlight Reasons People Report
- Discuss Organization of Reporting Form & Form Review Process
- Give Program Results/Indicators
- Review Current 1605b Greenhouse Gas Accounting Methods

www.eia.doe.gov

1605b Program Background

- Required by Section 1605(b) of the Energy Policy Act of 1992
- Chance to Establish Public Record of GHG Emissions; Reductions; & Commitments
- Broad Range of Actions Reportable
- Flexible Program to Encourage Participation
- Reports are Self-certified
- First Data Submitted in 1994

www.eia.doe.gov

Benefits of Voluntary Reporting

- **Public Recognition** - Gain Public Recognition for Environmental Stewardship
- **Record of Achievement** - Establish a Public Record of Actions to Reduce Greenhouse Gases
- **GHG Estimation** - Gain Experience in Calculating Greenhouse Gas Emissions
- **GHG Technologies** - Gain Knowledge of Innovative Technologies to Reduce Greenhouse Gas Emissions
- **GHG Accounting Issues** - Gain Knowledge of Important Greenhouse Gas Accounting Issues
- **Others**

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Voluntary Reporting Program Indicators, 1994-2000

Voluntary Reporting of Greenhouse Gases
Program Reporting Indicators
1994-2000

Indicator	1994	1995	1996	1997	1998	1999	2000
Total Reporters	108	142	150	162	207	207	222
Projects Reported	634	960	1,040	1,288	1,549	1,721	1,882
Project-Level Reductions (Million Metric Tons Carbon Dioxide)	73	147	157	151	223	226	269

www.eia.doe.gov

Reporting Forms

Form EIA-1605 (long form)

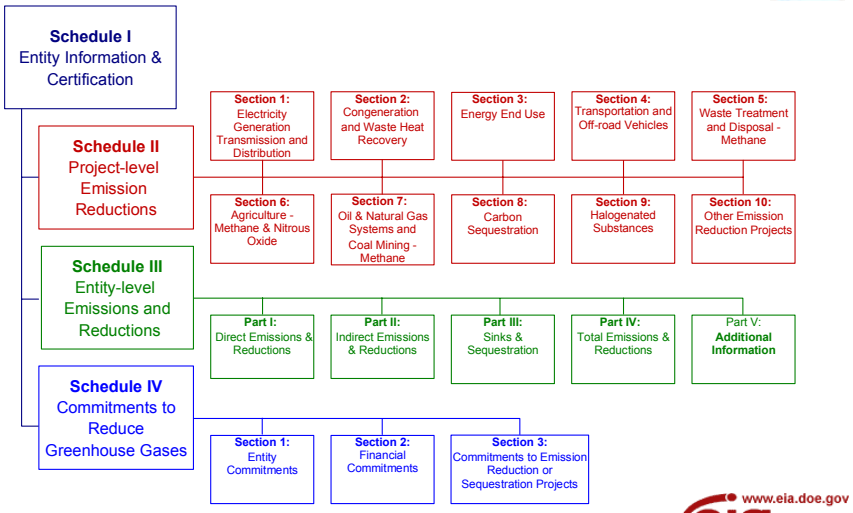
- Two categories of report: entity and project;
- Two categories of baselines: basic and modified reference cases;
- Two categories of emissions/reductions: direct and indirect;
- Ten categories of emission reduction projects;
- All greenhouse gases covered, annual emissions from 1987, annual reductions from 1991;
- Commitments to future reductions added to support voluntary programs.

Form EIA-1605EZ (short form)

- Provided to support reporters with simpler projects;
- Fewer data requirements:
  - Single Year Reporting Only
  - No International Activities
  - No History, No Commitments;
- Intended for smaller entities.

www.eia.doe.gov

Organization of Form EIA-1605



www.eia.doe.gov

Forms Review Process

- **Analyst Review** - Report is checked for internal consistency, accuracy of calculation, and comparability with other sources.
- **Electronic Edit Checks** - Reports are screened using the edit checks incorporated into the electronic software to check for errors and inconsistencies.
- **Methodological Edit Checks -** Manual review of the information to determine the accuracy and relevance of the estimation methodologies used in the report.
- **Reporter Follow-up -** If necessary, reporter is contacted to clarify/correct information or possible errors/miscalculations.

www.eia.doe.gov

EIA Assistance to Reporters

- Communications Center:
  - Phone: 1-800-803-5182
  - E-mail: infoghg@eia.doe.gov
- www.eia.doe.gov/oiaf/1605/frntvrgg.html
- Multi-User, networkable electronic form, email transmission/filing of reports.
- Methodological and Computational Advice
- Forms Review
- Worksheets, Spreadsheets and Reporting Aids

www.eia.doe.gov

Voluntary Reporting Program Indicators, 1994-2000

Table 1. Reporting Indicators for the Voluntary Reporting of Greenhouse Gases Program, Data Years 1994-2000

Indicator	1994	1995	1996	1997	1998	1999	2000
Entities and Projects Reported							
Number of Entities Reporting	108	142	150	162	207	207	222
Number of Projects Reported	634	960	1040	1288	1549	1722	1882
Number of Entity-Level (Organization-Wide) Reports Received	40	51	56	60	76	83	100
Project-Level Reductions Reported (Million Metric Tons of Carbon Dioxide Equivalent)							
Direct	63	88	90	95	148	155	187
Modified Reference Case	59	76	75	88	127	126	153
Basic Reference Case	4	13	15	7	21	29	35
Indirect	5	52	53	38	43	57	61
Modified Reference Case	5	52	51	36	38	51	56
Basic Reference Case	0	1	3	2	5	6	5
Sequestration	1	1	9	10	12	10	9
Unspecified	4	6	6	9	19	13	12

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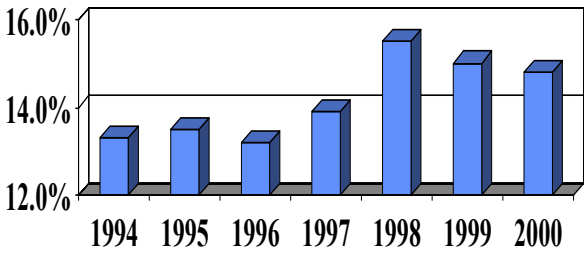
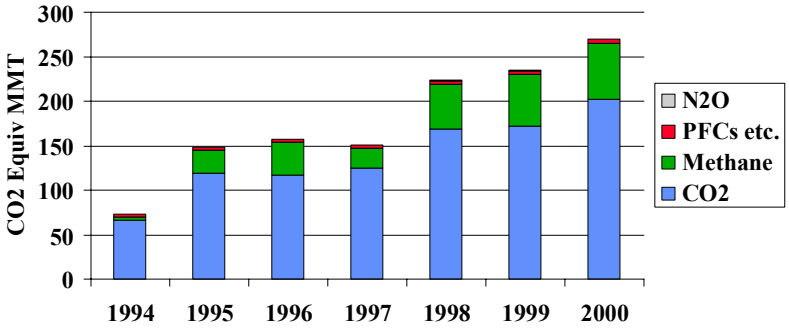
Reported Entity-level Emissions As a Percent of Total U.S. GHG Emissions



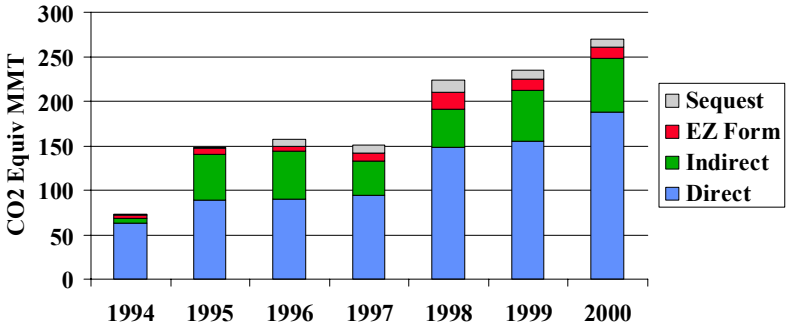
- Reported entity-level emissions have increased from 13.3% of total U.S. GHG emissions in 1994 to 14.8% in 2000, with a peak of 15.5% achieved in 1998.
- Reported project-level reductions have grown from 1.1% of total U.S. GHG emissions in 1994 to 3.9% in 2000.

Project-level Reported Reductions



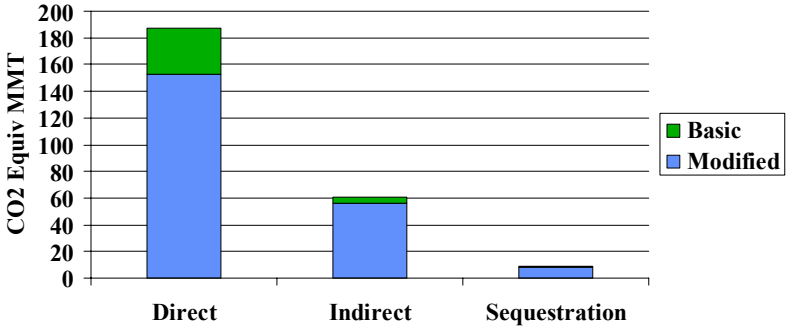
- Project-level reported reductions have more than tripled from 73 million metric tons (MMT) in 1994 to 270 MMT in 2000. Total reporters have increased from 108 in 1994 to 222 in 2000.

Project-level Reported Reductions Direct v. Indirect



- Direct emissions reductions represent the majority of reported reductions, ranging from 57 to 86 % of total reported reductions over the life of the Program. Indirect emission reductions have ranged from 7 to 34 % of total reported reductions.

Project-level Reported Reductions Reference Cases in 2000



- Modified reference cases were the predominant reference case used in 2000, varying from 81% for direct emissions, 92% for indirect emissions and 93% of sequestration reductions, which demonstrates reporters preference for a business-as-usual, rather than an historical, reference case.

5. PROJECTED WORKSHOP AGENDA

Voluntary Greenhouse Gas Reporting Workshops

Voluntary Greenhouse Gas Reporting Workshops

Workshop Agenda

Chicago (5-6), San Francisco (9-10), Houston (12-13)

December 2002

Projected Agenda

Emissions Reporting

- Cross-cutting issues:
  - Rigor versus practicality
  - Confidentiality
  - Verifiability
  - Relationship to other reporting programs and protocols
  - Comparability within and across sectors

Organizational and Geographic Boundaries

- Encouraging entity-wide reporting?
- What defines an entity?
- How to define corporate and institutional boundaries: equity share; operational control; governance?
- How much flexibility in defining boundaries?
- Reporting non-US emissions: whether and how?

Operational Boundaries and Related Issues: Direct vs. Indirect Emissions

- Should end users report electricity and steam purchases?
  - How to convert to emissions?
- Reporting other indirect emissions such as those associated with materials used; business travel; employee commuting; and use of manufactured products
  - How to estimate?

Operational Boundaries and Related Issues: Gases and Sources Covered

- Require / encourage reports on all six UNFCCC gases? Others?
- How to treat or exempt:
  - Very small sources?
  - Difficult sources to measure?

Measurement and Accounting Methods

- Specifying an initial reporting year(s) (e.g., 2003 or after? 1987 or after?)
- Which emissions measurement or estimation methods should be used:
  - Fossil fuel use or actual emissions?
  - Fuel and GWP conversion factors?
  - Methods for non-fossil gases?

Emission Reductions and Sequestration

Starting Point: Accurate, Reliable, Verifiable

- What are the characteristics of credible emission reductions?
- What methods should be used to produce credible estimates of such reductions?

Characteristics of Credible Reductions

- Why identify emission reductions?
  - Credits and trading?
  - Recognition under voluntary programs?
  - Future use?
  - Other?
- Who receives recognition or credit?
  - Electricity generators or users ?
  - Product manufacturers or end-users?
  - Outside corporate boundaries? Outside U.S.?
  - Project owners or investors?

Characteristics of Credible Reductions, continued

- Should reductions be absolute changes in emissions or adjusted for changes in output?
- Should other causes of reductions be considered, such as weather, technology, voluntary programs, regulations, new investment, improved management?
- Recognize only net entity-wide reductions or sub-entity or project-specific reductions?
- Recognize actions that displace or avoid emissions?

Calculation Methods

- Absolute emissions reductions:
  - Restricted to entity-wide?
  - Should adjustments be made (e.g., divestitures)?
  - Fixed or dynamic baselines?
- Emissions intensity baselines:
  - Intensity metrics (for electricity sector; manufacturing?)
  - Restricted to entity-wide?
  - What if no entity-wide metric exists?
  - Fixed and dynamic baselines?

Calculation Methods, continued

- Projects:
  - Types of qualifying projects:
    - Sequestration and emission avoidance
    - Efficiency improvements
    - Other
  - Fixed or dynamic baselines?
  - Minimizing leakage?
  - Calculating avoided emissions?

Other Issues

- Base years (starting when? averaged?)
- Multi-year reporting

Breakout Groups

- Electricity Generation including Grid-Connected Renewable Generation
  (Stay in the plenary room)
- Industrial and other Large Sources
  (Breakout room number 34)
- Small Distributed Sources: Residential/Commercial Buildings,Transportation, and End Use Renewables
  (Breakout room number 33)
- Agricultural and Forestry
  (Breakout room number 32)

Electricity Generation including Grid-Connected Renewable Generation

- Options for intensity baselines?
  - Applying intensity baselines for utilities and utility systems
  - Estimating displaced emissions
- Treatment of acquisitions / divestitures?
- Should causes of reductions, other than output, be considered, such as weather, technology, voluntary programs, regulations, new investment, improved management?
- Minimizing double-counting:
  - Green power sales / purchases?
  - DSM incentives / programs?

Industrial and Other Large Sources

- Options for Intensity Baselines:
  - Entity-wide physical measures of output, e.g., tons of cement?
  - Sub-entity measures of output, e.g., for business-lines, plants?
  - Economic measures of output?
  - Who chooses output measures?
- If no measures of output, then what?
- Treatment of non-carbon emissions? Are output measures needed?
- Protecting confidentiality

Small Distributed Sources: Residential / Commercial Buildings, Transportation, and End Use Renewables

- How to credit emission reductions by small users in residential, commercial and transportation sectors?
- Should manufacturers / builders qualify for credits? Others?
- Minimizing double-counting?
- Calculating emission reductions associated with efficient products?
- Should efficiency thresholds to qualify for credits? Existing or future standards? Energy Star levels? Other?

Session IIb. Emission Reductions and Sequestration – Breakout Groups

Agricultural and Forestry

- Treatment of agriculture and forestry within 1605(b)
  - Entity versus project-level reporting
  - Baselines
- Sequestration
  - Methods of calculating effects of sequestration projects
  - Permanence
  - Leakage

Session III. Verification Methods

Verifying Emissions and Reductions

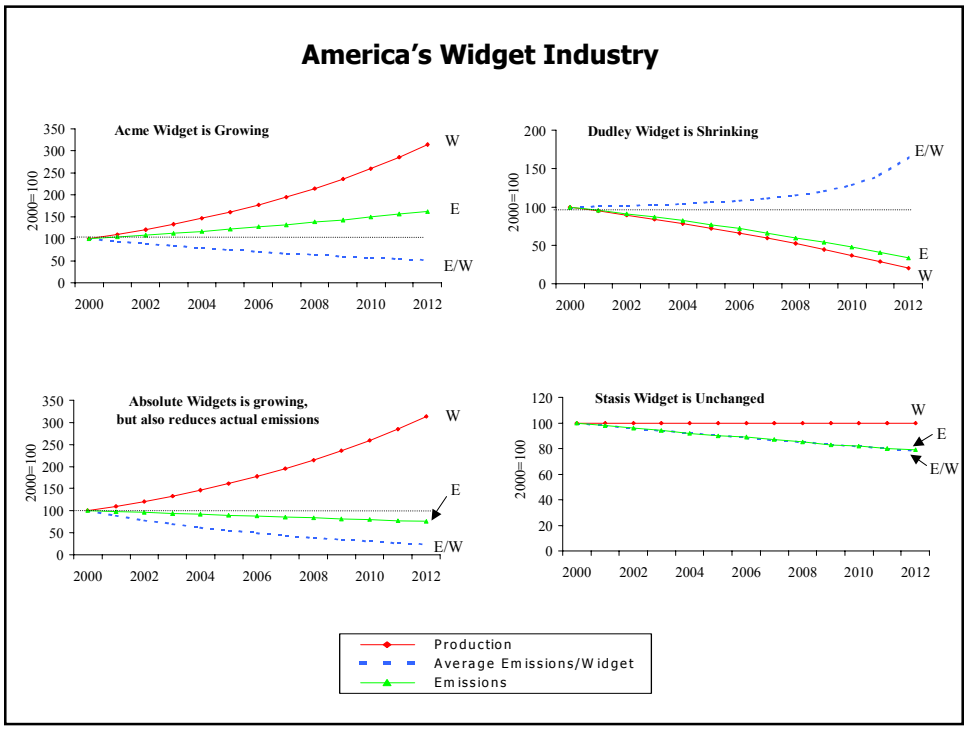
- Types and frequency of verification:
  - Periodic? All reports?
  - Process and methods?
    - Checking data
    - Physical inspections?
    - On-site or off-site?
- Maintenance of records
- Who should verify?

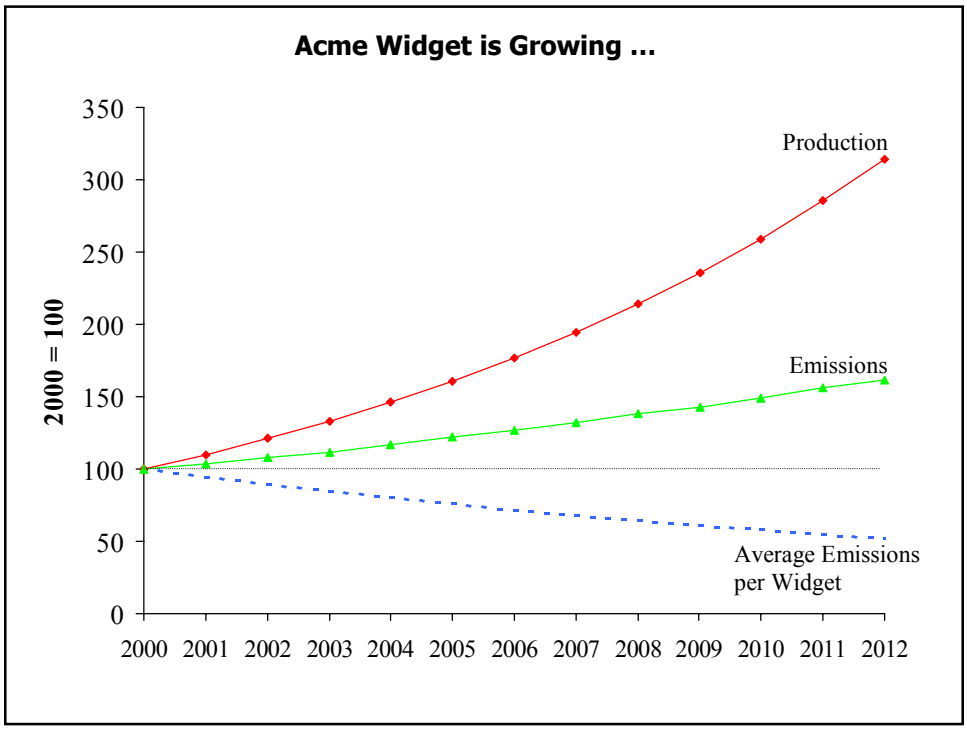
Managing the Registry of Emission Reports and Reductions

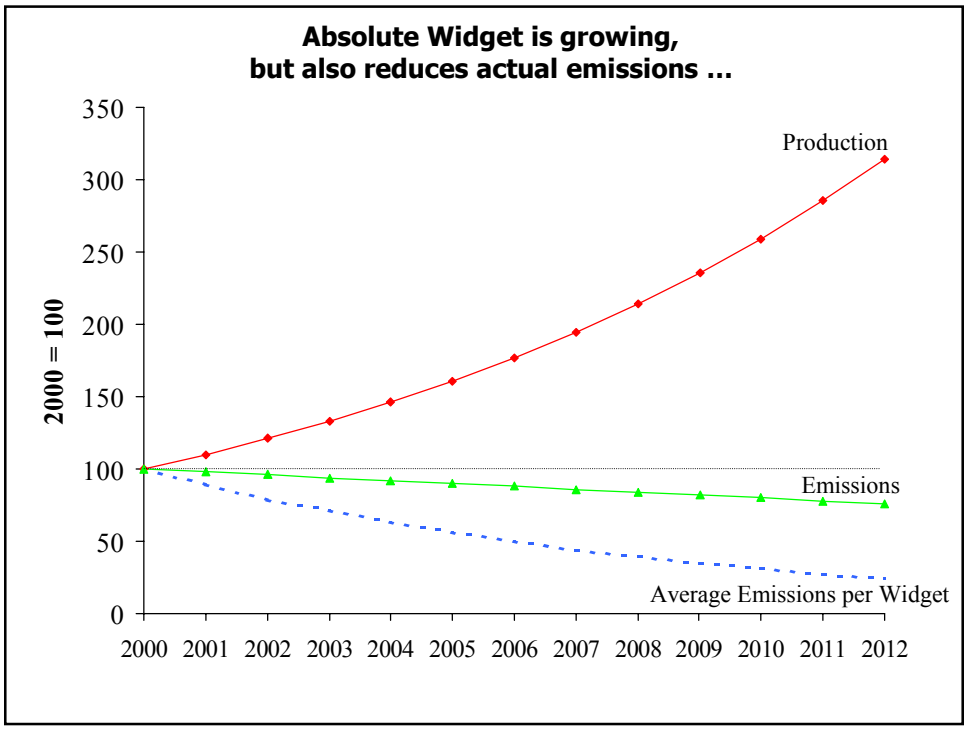
- Certifying Reports and Reductions:
  - Government review process?
  - Documentation of reductions? Of transfers?
  - DOE database of certified reductions?
- Public versus confidential data:
  - Should data submitted to DOE be made publicly available?
  - Can DOE effectively protect confidential data?
- Treatment of prior year reports?
- Not penalizing under future climate policy / transferable credits?

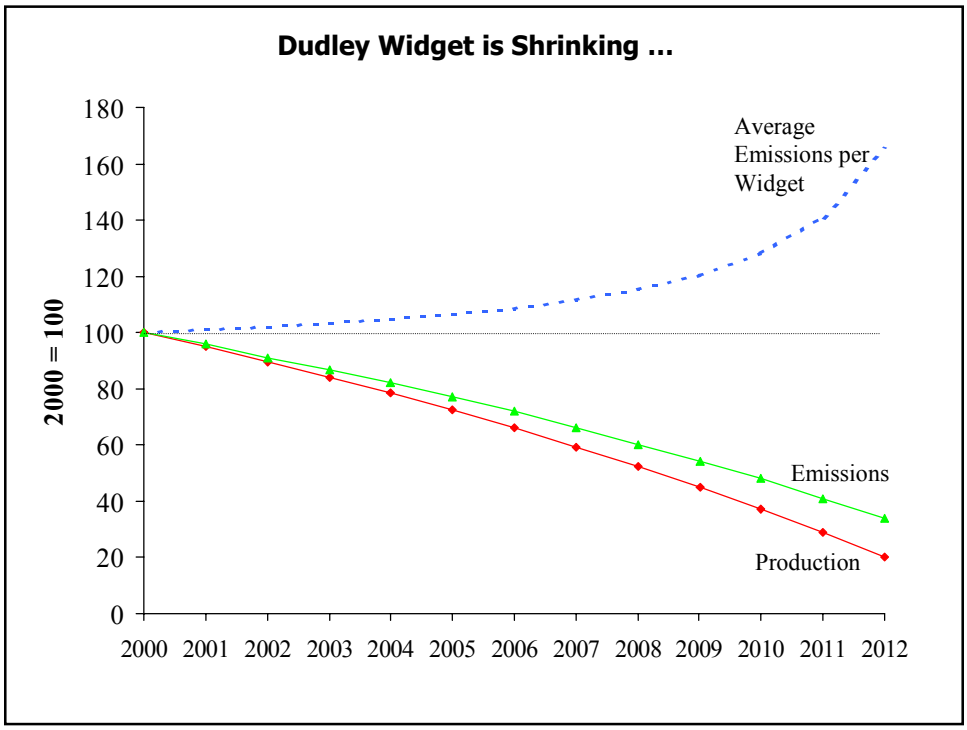
6. WIDGET SALES SHOWING EMISSIONS INTENSITY

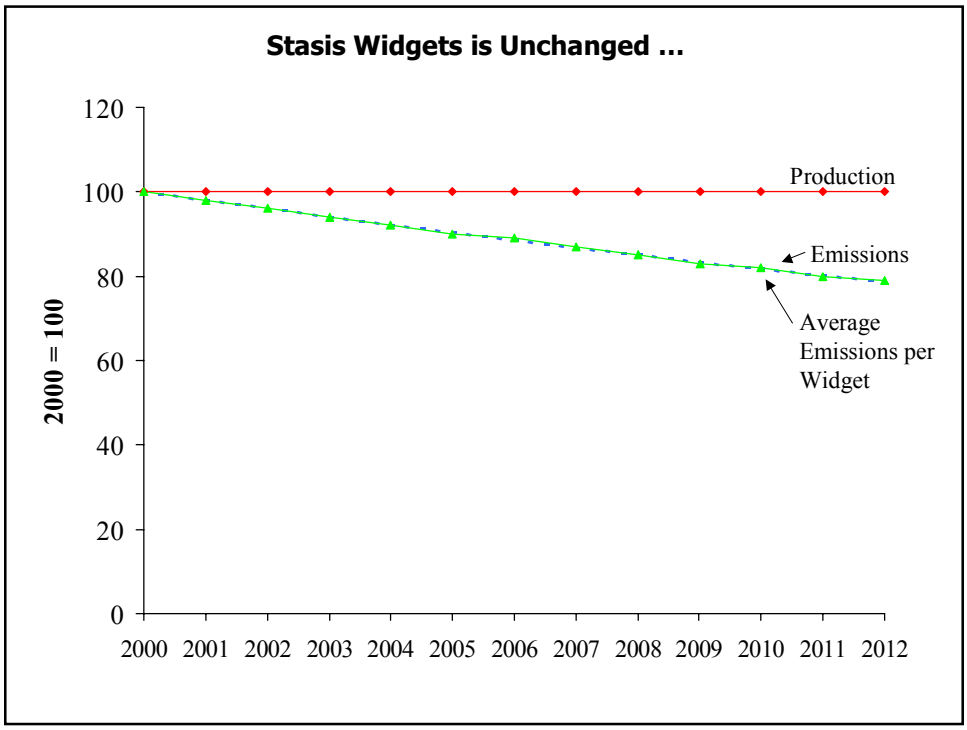
Voluntary Greenhouse Gas Reporting Workshops


America's Widget Industry
Acme Widget is Growing
2000=100
W
E
E/W
Dudley Widget is Shrinking
E/W
E
W
Absolute Widgets is growing,
but also reduces actual emissions
Stasis Widget is Unchanged
Production
Average Emissions/Widget
Emissions


Acme Widget is Growing ...
350
300
250
200
150
100
50
0
2000 = 100
Production
Emissions
Average Emissions
per Widget
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012


Absolute Widget is growing,
but also reduces actual emissions ...
350
300
250
200
150
100
50
0
2000 = 100
Production
Emissions
Average Emissions per Widget
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012


Dudley Widget is Shrinking …
2000 = 100
180
160
140
120
100
80
60
40
20
0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012
Average Emissions per Widget
Emissions
Production


Stasis Widgets is Unchanged …
2000 = 100
120
100
80
60
40
20
0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012
Production
Emissions
Average Emissions per Widget

7. SUPPMENTARY SLIDES USED TO INTRODUCE SESSIONS I-IV

Voluntary Greenhouse Gas Reporting Workshops

Why Are Organizational Boundaries Important?

- President's Initiative requires that the program be suitable for "transferable credits:" i.e. enhance comparability, credibility, verifiability.
- May imply more standardized organizational boundaries.
- What does a reporter report on? Emissions of a corporation or organization (entity); or consequences of an action (project)
- If the reporter is an entity, what are the limits of the entity? Parents? Subsidiaries? Fully-owned? Minority owned? Suppliers/contractors? Domestic vs. foreign?

Three Approaches to Reductions

- **Absolute Reductions** (aka Basic Reference Case) (corporate emissions decline over time)—usually entity based.
- **Causation or avoidance**—emissions are lower than they would have been in the absence of some action(s) (aka modified reference case)—most projects, also entities.
- **Intensity Reductions** (aka unit of production) (emissions per unit of output decline)—entity or project.
- Intensity reductions are a hybrid, in which a single form of causation (output) is introduced into the format of an absolute reduction. Other forms of causation might be introduced, at the cost of increasing ambiguity and complexity.

Current 1605b Accounting Methods - Organizational/Geographic Boundaries

- Entity (Corporations, Associations, Organizations) and Sub-entity Reporting (Corporate Subsidiaries, Joint Ventures, Etc.) Allowed
- A Reporter Must Be a Legal U.S. Person (e.g., A Company That Is Recognized by U.S. Law)
- Federal, State and Local Government Agencies May Report
- U.S. and Non-U.S. Activities Can Be Reported

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Current 1605b Accounting Methods - Reporting Level

- **Entity-level Reporting** - Emissions and/or reductions of the entire entity.
- **Project-level Reporting** - Emission reductions caused by specific actions.
- **Some Combination**

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Current 1605b Accounting Methods - Operational Boundaries

- Direct & Indirect Emissions/Reductions may be Reported
- **Direct Emissions:** Emissions from sources owned (wholly or in part) or leased by an entity.
- **Indirect Emissions:** Emissions from sources not owned or leased by an entity that occur, wholly or in part, as a result of its activities.

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Current 1605b Accounting Methods - Operational Boundaries (cont.)

- Gases Covered include:
  - CO2, methane, N2O, HFCs, PFCs, & SF6
  - Other Halogenated substances (e.g., HCFCs, CFCs)
  - Other Radiatively Enhancing Gases (CO, NOX, NMVOC)
- Sources Covered
  - Wide variety of activities reportable
  - Ten Project Types
  - Each Project Type has a number of project codes

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Current 1605b Accounting Methods - Emissions Measurement

- Reporting Years
  - Entity-level reporting
    - Emissions from 1987 onward
    - Reductions from 1990 onward
  - Project-level reporting
    - Emissions and Reductions from 1990 onward
- Default Emission Factors/Methods Provided
  - Alternative Factors/Methods Allowed if Justified
- Consistency with Guidelines

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Current 1605b Accounting Methods Baselines

- **Basic or "Historical" Baseline**. The difference between emissions in 200X and emissions in an earlier baseline year or average of years.
  - Easy to measure and verify
  - Often not meaningful for projects or a single facility
  - Measures outcome, not cause
- **Modified or "Business-as-Usual" Baseline.** The difference between actual emissions and what emissions would have been in the absence of the action.
  - Difficult to verify reference case
  - Measures effects of a particular action
- **Unit of Production Baseline**:
  - Easier to construct for industries with homogenous output

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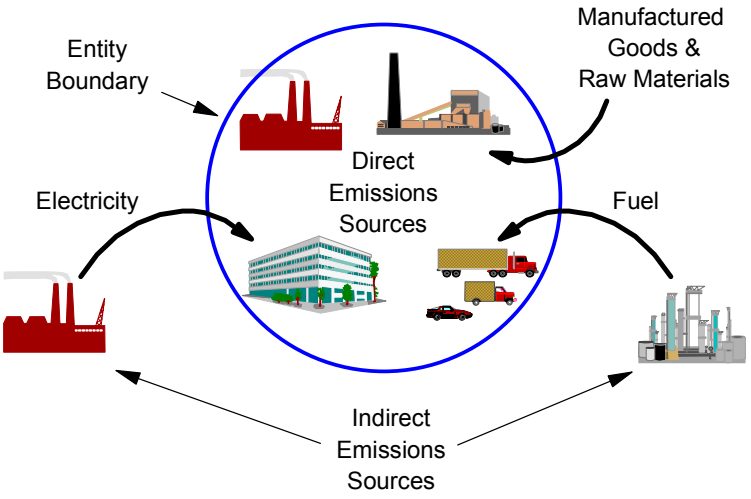
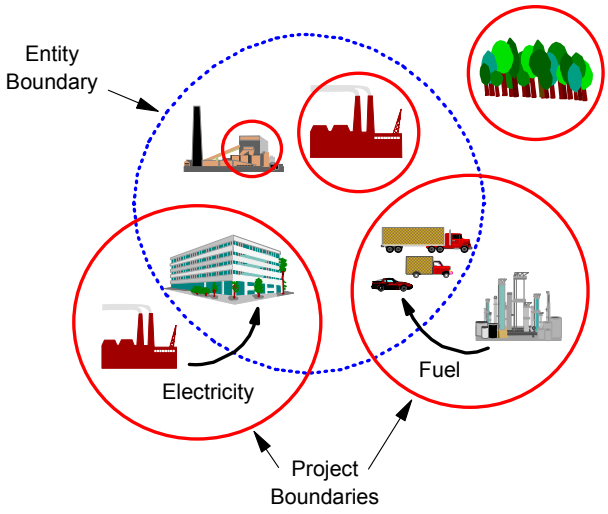
Current 1605b Accounting Methods - Verification

- Current Program requires self-certification by the reporting entity;

Direct and Indirect Emissions



Project-level Reporting



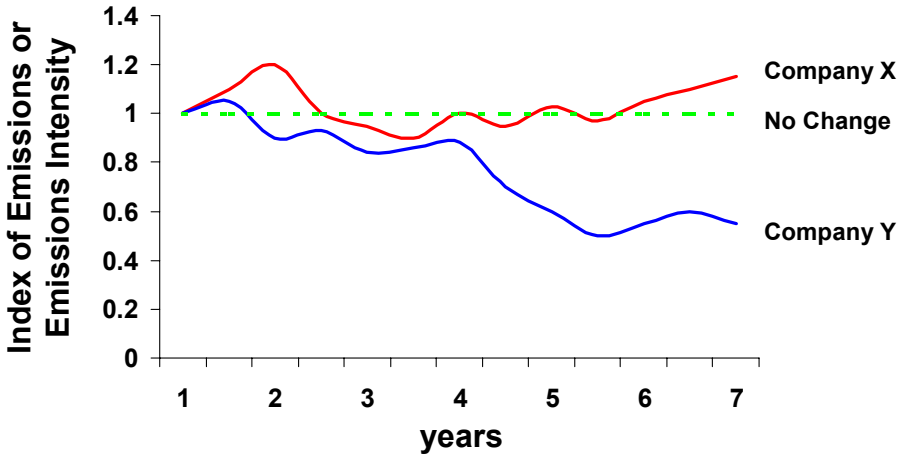
Emission Reductions

Possible Output Metrics

Utilities	kWh, gross output ($), revenue ($), mmbtu
Manufacturing	pounds of chemical products, tons of cement or steel, barrels of beer, numbers of widgets, gross square feet of office or retail space
Projects	kWh, acres of land, fixed assumptions (e.g., hours per day for lighting)

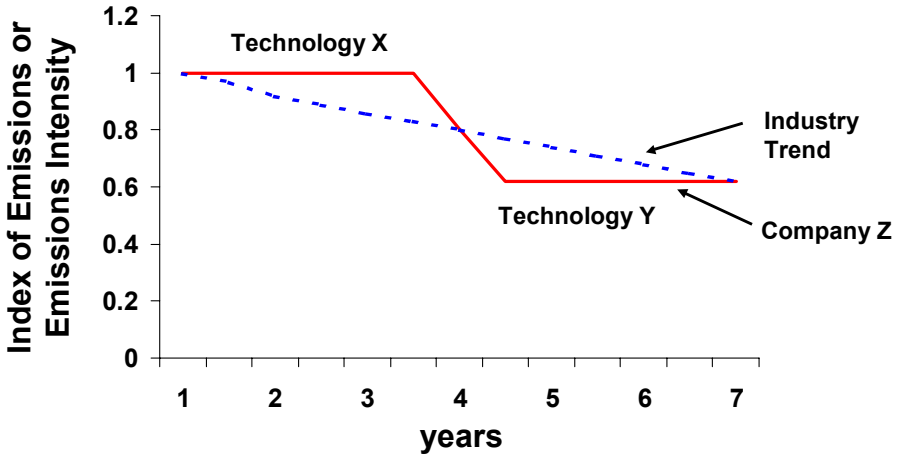
Emission Reductions

Annual Variability of Emissions or Emissions Intensity



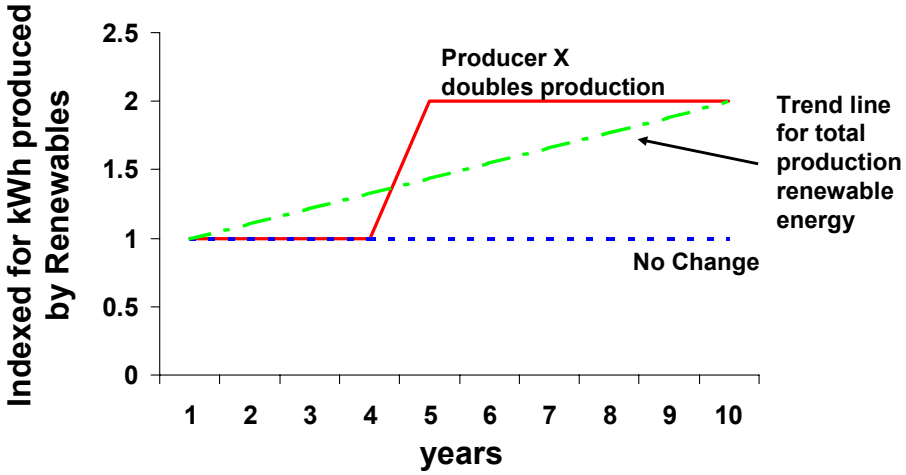
Emission Reductions

Technology Y reduces intensity
Industry trend toward technology Y



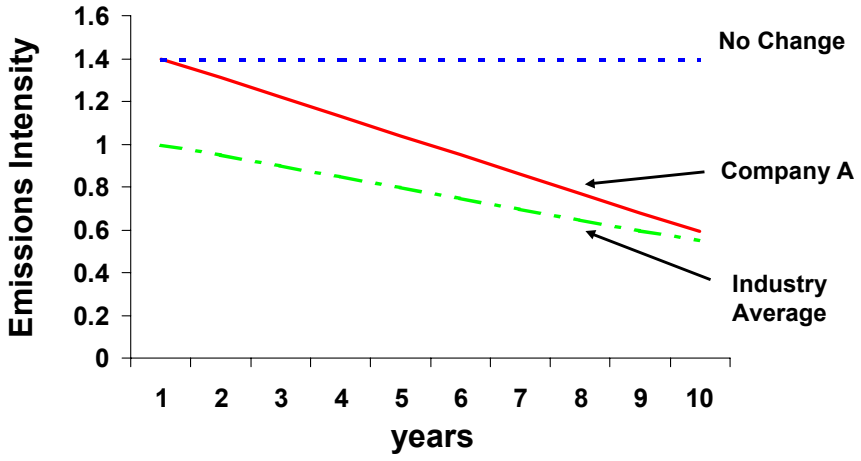
Emission Reductions

Renewable Producer X doubles production in year 4. Industry doubles over 10 years.



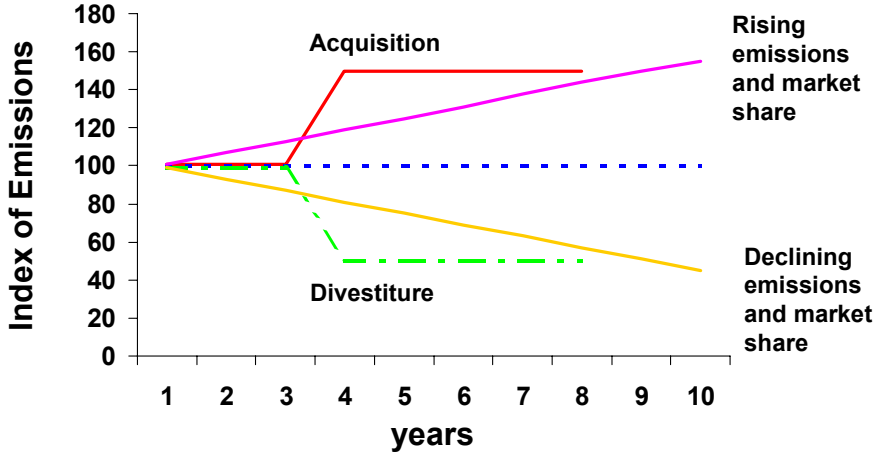
Emission Reductions

Company A Reduces Intensity to Industry Average



Emission Reductions

Acquisitions and Divestitures versus Shifts in Market Share



Session IV: Managing the Registry

- Discuss how revised guidelines and data can provide information necessary meet multiple needs (such as credits, “protection”).
- Discuss DOE role in managing reported data? Certify reports? Issue credits? Keep track of transfers?
- Discuss process for reviewing reductions already recorded.

8. TRANSCRIPT OF PROCEEDINGS FOR DAY 1

Voluntary Greenhouse Gas Reporting Workshops

PROCEEDINGS

MS. ANDERSON: I'm Margot Anderson; I'm the Deputy Assistant Secretary for Policy in the Office of Policy and International Affairs of the Department of Energy. And we're in charge of putting together this process to revise 1605b voluntary reporting guidelines for the Department of Energy at the request of the President.

We're working with several of our sister agencies. And I wanted to provide to you some general background about why we're doing what we're doing and why we're asking you to help us out.

We will also have an opportunity to go around the room and introduce ourselves. And I think that will help grease the conversation a bit.

Next slide, please.

(Pause.)

MS. ANDERSON: As many of you know, the President has made two major announcements regarding climate change. The first announcement was in June of 2001, and this announcement was more geared toward enhancing the science and technology programs at the federal level.

And the President kicked off a science initiative and a technology initiative. Just two weeks ago in Washington, D. C., there was a very large science workshop dealing with the next generation of the kinds of scientific processes that we're going to have to put into place in order to better understand climate change.

He also kicked off the National Climate Change Technology Initiative, which is another multi-agency effort, to build the kinds of technologies -- and develop them and disseminate them -- that are going to be needed to mitigate greenhouse gas and sequester carbon over the next ten, 20, 30 or 40 years.

More importantly to the work that we're going to be doing here is the announcement that came on February 14, 2002, where the President did a couple of things. And the first and most important was the establishment of a U.S. greenhouse gas intensity goal: A reduction of 18 percent by 2012. Our economists at the Department of Energy tell us that we're likely to get to a 14 percent with no additional action but to get to that 18 percent, we're going to have to do more.

And one of the mores that we have to do involves the other initiatives that the President announced in June of this year. And the first was that he directed improvements to DOE's GHG Voluntary Greenhouse Gas Emissions Registry, and that's what we're doing here today, and that's what we were doing in San Francisco and Chicago and Washington, as well, to talk to our stakeholders about the kinds of revisions that you think we need to make in the registry.

He also supported the concept of transferrable credits and protection against future climate policy, so that this is a new addition to the registry system that we have in place now, which is now to provide transferrable credits for real reductions. He also supported a number of financial incentives and R&D tax credits in order to enhance the kinds of technologies that are needed to get us to this goal.

Finally, he challenged businesses to take action through voluntary programs with the federal partners. And we have EPA here to talk about climate leaders. Larisa Dobriansky is here to talk about business challenges. There are any number of programs that are springing up to work with stakeholder groups to get them to do their part in taking on actions that can reduce greenhouse gas emissions.

I want to go over a bit of what the president specifically asked us to do, because you will hear us refer to it over and over and over again over the next two days. And this is all from the June 14 directive. And basically, he directed the Secretary of Energy, working in consultation with Commerce, EPA and USDA, to propose improvements to the current voluntary emissions reduction registration program to enhance measurement accuracy, reliability and verifiability.

Second, he recommended -- he asked the Secretary of Energy to recommend reforms to ensure that businesses and individuals that register reductions are not penalized under a future climate policy, and to give transferrable credits to companies that show real emissions reductions. And, finally, he directed the Secretary of Agriculture, working with their partner agencies, to develop accounting rules and guidelines for crediting sequestration projects.

So we're going to talk a bit about all of these over the next two days. We're going to have -- after my discussion, Paul McArdle from EIA is going to speak with you about what's in current 1605b, but I want to run over it just briefly.

Many of you may be not familiar with the 1605b program, which was created by the Energy Policy Act in 1992. It's managed by DOE's Energy Information Administration, and it records the results of voluntary measures to reduce, avoid or sequester greenhouse gas emissions. During 2000, the last year for which we have data, a total of 222 U.S. companies and other organizations filed reports with the 1605b program.

And as some of you know, the reporting guidelines are flexible -- they were designed to encourage participation -- but it is just this flexibility that may mean we can't do some of the things that the President wants us to do. So we've got to go back in and take another look at 1605b and make sure that it's consistent with the new directives of the President.

So what did we do when we got the assignment in February? The first thing we did was set a goal that by January of '04, the new guidelines will be in place. That means, for those of you that would report, you'll be reporting on 2003 data during the 2004 reporting year.

We set up an interagency coordination process to make sure that we were working with our partner agencies. And we've set up a web site. Many of you registered for this workshop through our web site, and I think that's where you can go to get all of the information you need to know about our progress to date and what we're going to do on the way forward, as far as the background papers and the already annotated agenda and all the information to keep you up to date.

In May of this year, we issued a Federal Register notice of inquiry. And we got over 60 sets of comments from stakeholders who told us -- who gave us some ideas about what we could do to revise 1605b. And we'll be referring to those, as well, over the next couple of days.

In July of 2002, Secretaries Abraham, Evans, Veneman and Administrator Whitman sent a letter to the President with ten recommendations on the way forward
for 1605b; these recommendations built on the conversations with stakeholders, the NOI process. And we will be referring to those ten recommendations repeatedly, as well.

All of that is in your background papers, so you might be familiar with those ten recommendations. But those are the recommendations that encourage entity-wide reporting encourage focusing on intensity matrices, et cetera. We'll be referring to these a lot, as well, because they in a sense provide a basic architecture for our way forward.

Finally, we've been meeting with stakeholders almost continually since February, and we are hosting these four public workshops. This is the last of this series of workshops. We may need to do additional meetings next year. And I want to talk about the process for the way forward, on the next slide.

What are we going to do after the workshops? The first thing we're going to do is make sure that you understand that we are accepting written comments well into the winter months. So if you go back home and decide that there's something that you weren't able to fully explore here, something you will need to consult with your colleagues about and then write to us, please do so.

We'll give you all the web sites at the end of the conference and at the end of this presentation, actually, as well, about where you can send your comments in. So if you can't get everything in today or you feel that you weren't able to describe your issues fully, you will have plenty of -- you will have an opportunity to get back to us.

During the winter months of '03, we will be drafting revised guidelines; we need to go into a public comment period through a Federal Register notice in late spring of the revised guidelines. That gives you -- those are proposals. That give you an opportunity to write back to us on what you like and what you don't like about our proposals. We will then spend summer and fall revising those guidelines in order to get them out by January of '04.

During that entire time, the Energy Information Administration will be working on reviewing and revising the reporting forms and the software that needs to accompany the new guidelines. So that will

be going on continuously through '03. And as I said, in January of '04, we'll be issuing the new guidelines.

Well, what are we going to talk about over the next couple of days? Our topics that we've put into these workshops are built on the President's instructions, our notice of inquiry, the four-agency letter and stakeholder involvement, and they really focus on how to substantially improve the registry and how to protect and provide transferrable credits for emissions reductions.

So we're going to kind of get into the nuts and bolts of what we need to do to revise the registry in order to improve accuracy, verifiability and reliability of the data that are in the registry.

We've broken up the workshops into four areas, and the first area that we don't spend a lot of time on but we focus on right at the beginning of the workshop is the issue about emissions reporting -- not reductions; emissions reporting. We want to get some views from those that are reporting on emissions, which is, of course, necessary before you get to the reductions part, what we need to do within the guidelines to improve the accuracy, reliability and verifiability.

Secondly, we move into a discussion of emissions reductions where we try and characterize just what is a reduction and why it might be different for different kinds of companies: Can you measure a reduction the same way in agriculture that you do in power generation or that you do in the chemical industry? Is it different? How is it different? And how do you measure it?

We then want to talk about verifying emissions and reductions. One of the recommendations that was sent to the President encouraged independent verification of emissions reports. What does that mean? How might we do that? How often do we need to do that? So we need to have a discussion on that, as well.

Finally, we need to have a discussion on managing the registry. Once you register emissions and emissions reductions with the EIA, what is the responsibility of the federal government to manage the information that's in the registry? And so we'll be spending a little bit of time on those kinds of issues, as well.

There are several crosscutting themes that I think you will hear throughout this exercise, and they were certainly evident in the ten background papers that we put on our web page, and they're the kinds of themes that you might expect in a process that is this complicated and has this many stakeholders that are involved. One is balancing rigor with practicality and stringency with flexibility.

We're well aware of the difficult task of making the 1605b registry more reliable and verifiable and more rigorous, and we recognize that if we make it too rigorous, we're not going to have many people that want to report to a voluntary program. So how do we balance the rigor with the practicality to make the program -- to continue to make the program attractive to stakeholders but to make sure that we are improving it in terms of its accuracy?

Secondly, we need to worry about balancing the voluntary approach within a goal-focused program. It is a voluntary program; nevertheless, the President has set some national goals for us. And how can we use this program to assist the country in getting towards that goal? We're not going to be using 1605b as the report card for our greenhouse gas intensity goal, but how can we use it in order to help us get to that goal?

Third, we need to balance confidentiality with verifiability in order to promote credibility. We recognize that a lot of the kinds of data and information that we may be asking for in the new -- in the revision may ask companies to provide data that they are reluctant to provide, and there may be confidentiality issues. How do we balance that or assure and protect confidentiality while maintaining a database that can be verified and is more credible than the database that we have now?

We also need to build where appropriate on the current 1605b, where a lot of work has already gone on over the last ten years, and other reporting programs. There are a number of organizations and private companies who've come up with rules that can be used for their kinds of businesses, and we want to make sure that we're relying on those. API Compendium comes to mind. The World Resources Protocol comes to mind. But there are a number of different kinds of rules and guidelines that different organizations have been working on that we would be remiss not to consider those in our efforts.

There are many of the states that have registries. There are also registries being developed in Canada and in Australia. We need to take a good look at those and see what we can learn from those and where we might be able to balance our interests with the interests of other registries.

Finally, we also need to think about the issue of comparability within and across sectors. In all the workshops that we've been in, everybody has stressed the need to be flexible. But sometimes flexibility means that everybody can kind of do their own thing. Is that going to be appropriate in a revised registry where we need to compare reductions or emissions reporting across the different sectors?

Do we need to worry about comparability? If so, what can we do to ensure within the revisions that we have comparability across the sectors.

These are two web addresses. We have others that we'll want to give you. At the end of the workshop, we hand out a list of everyone who registered. And there are a couple of other web sites that are there, but the first web site is the one many of you went to to actually register for this workshop. The second one is the registry for comments. We'll be giving you an EPA registry and then a USDA registry and another EIA registry or -- I'm sorry -- web sites, as well, so that you can get information from those agencies.

We are going to spend some time introducing each other, but I want to introduce our federal partners because you may want to button-hole them at some time and chat with them about issues that only they can address.

And first off, from EIA, we have Paul McArdle. From our office at DOE, we have Arthur Rypinski, Mark Friedrichs, John Staub.

Where's John?

(Pause.)

MS. ANDERSON: There's John.

From EPA, we have Joe Kruger and Heather Tansey over here on this side. From USDA, we have Jim Hrubovcak.

Did I miss any of our partners from headquarters? I think that's it.

(Pause.)

MS. ANDERSON: We have a facilitator, Doug Brookman. We have his assistant, Mike Sholand. And we have Adrienne Gvozdich, who is the person that helped you get registered, and she is outside.

Doug Brookman will be facilitating over the next two days; we're here to listen and to help him along on some of the more technical matters.

And I'm going to turn it over to Paul McArdle, who's going to run through the current 1605b program, so you get a sense of where we're starting from and what we can build on what we've already got. Thank you, very much.

MR. McARDLE: Thank you, Margot.

My name is Paul McArdle; I'm the current program manager for the voluntary reporting program, otherwise known as 1605b. And I just want to run over briefly what I'm going to talk about in the next ten or 15 minutes.

I want to give you some program background. I want to highlight some of the reasons people report to a voluntary program such as ours, and I want to discuss some of the organization of the reporting form, as well as the form review process that EIA conducts of the incoming reports.

And I want to give you some of the program results or indicators of how high the level of participation has been in the program since 1994 through to the current year data. And the last bullet point I'll cover as we go through this session is dealing with current accounting mechanisms or methods within 1605b.

Now, just for program background, as Margot was saying, the 1605b program was required by Section 1605(b) of the Energy Policy Act of 1992. It gives folks a chance to establish a public record of greenhouse gas emissions -- well, three things: Emissions and emissions reductions, as well as commitments to reduce future emissions.

A broad range of actions are reportable, and that's kind of what Margot was highlighting in terms of the flexibility. It's designed specifically to encourage participation. The legislation was enacted in the early '90s, and the congressional intent seemed to be getting people aware of the issue, getting them involved.

The reports are self-certified. And as I was saying, the first data were submitted in 1994. Now, why, you say, would people voluntarily go through this process of collecting their data and sending it to us? Well, there's a number of reasons, and we've gotten this from feedback from reporters as well as in terms if divining it ourselves from the feedback we get. There's a number of reasons.

Public recognition is certainly -- a number of the companies look at this as a good opportunity to establish a record of environmental stewardship. It also puts on the record what achievements they've done in terms of in the greenhouse gas area.

The next two bullets, I think, are learning bullets. The reporting companies certainly gain experience in estimating greenhouse gas emissions. It's not obvious when you first go into this how to do this, but as you go and get more involved in the program, you can develop your own people, and they become familiar with methods of estimating greenhouse gas emissions.

And certainly, on the greenhouse gas technologies, a number of reporters have mentioned to us, well, they get a feel for what some of their competitors are doing in terms of reducing greenhouse gases and what types of technologies they're using.

And last but not least are greenhouse gas accounting issues. The more you get into this, the more you find that the accounting issues become very thorny in terms of ownership of the emissions, indirect versus direct emissions, what is the appropriate reporting level, how should the reports -- should they be self-certified, or should they be -- use third-party verification, et cetera. There's a whole cadre of accounting issues, in fact -- accounting issues upon accounting issues -- as you go deeper into this.

Here's just a very -- the view from 30,000 feet on the program. Total reporters has jumped from 108 in 1994 to 222. So there's a doubling there in the number of reporters.

Projects reported and project-level reductions have tripled, as you can see, going from 634 projects in 1994 to 1,882 in 2000, and that mirrors the project-level reductions; where there were 73 million metric tons of carbon-dioxide equivalent in 1994, they've moved up to 269 million metric tons of carbon-dioxide equivalent in 2000. And if you do a quick sum there, you can see that the amount of reductions that have been reported up to this point are in excess of 1 billion metric tons of carbon-dioxide equivalent.

Now, we have two reporting forms: A long form and a short form. Our long form is our 1605 form; that's the form used by the majority of the reporters. It's a very fulsome form -- it's about 47 pages -- and allows a very broad range of actions to be reported.

You can report at the entity level or the project level. You can use two baselines: A historical baseline, or what we call the basic reference case in 1605b parlance, or you can use a modified reference case, which is kind of the counter-factual baseline of, "What would have happened had you not taken the project versus your actual emissions." That delta gives you an emissions reduction.

Two categories of emissions reductions. As I was mentioning before, you can report direct reductions, those occurring inside your fence, so to speak. Or you can report indirect emissions reductions, those outside your fence. And often times, that deals with purchased electricity.

Ten categories of emissions reductions projects, and I'll go over that in the next slide. We cover all the greenhouse gas; those are the six Kyoto gases, CO2, N2O, CH4, HFCs, PFCs and FS6. We also allow the reporting of some of the criteria pollutants: CO, non-methane, volatile organic compounds, NOX, as well as some of the other hallogenated substances.

We -- in terms of emissions baselines, we allow entities to report their emissions all the way back to 1987. If you're reporting at the project level, you can report your emissions back to 1990. And reductions for both entity-level reporting and project-level reporting start in 1991 and move onward. As well, under Schedule 4, you can record commitments to reduce future reductions [sic].

Now, in terms of the short form, it's our equivalent of the 1040A. It's two pages long. It was

designed for small entities, simple projects. You can only report on one year. No international activities can be reported, nor can any history or future commitments be delineated on that form.

Here's the form. And just real briefly -- I don't know if you can read it from way in the back; it's kind of small -- I just wanted to highlight -- it's a good highlight of the project. It lays out the form by schedule: Schedule 1 for your entity information, Schedule 2 for your project emission reductions, Schedule 3 on entity-level emissions and reductions and, lastly, Schedule 4 on commitments.

But -- you probably can't read this, although I think it's in your packet. If you -- I can go through it real quick.

The project types -- we have electricity-generation projects, co-generation and waste heat projects, energy end-use, transportation, waste treatment and disposal -- and those -- that deals with methane emissions reductions -- ag. projects on methane an N20, oil and natural gas systems and coal mining -- that deals with capturing methane in those areas, carbon sequestration, hallogenated substances and other emissions reductions.

You basically can really report any project type, because we can always fit it within the "Other" category under Section 10.

Okay. A little bit about the review process in terms of, What does EIA do with the data once we get it. It's a four-step process. It's basically a desk review. Initially, the analyst gets the report and looks it over and just eye-balls it for internal consistency: Does it make sense; Is it plausible; Is it consistent with the guidelines.

After that step -- and just to take a step back, most of our reporters file electronically. So it's -- we already have this built into our software. In those rare instances where people report by paper, we actually enter the data ourselves into the electronic software.

And built into the electronic software are system edit checks to find out where there may be inconsistencies in the numbers. Where there may be an addition error or a mathematical error that doesn't make sense, the software will it, and then we'll actually go to the form to look to see if that flag is legit. or not.

The third step is a methodological edit check. And that's where we in many cases end up checking the supplemental text, where people are going over their reference cases to determine if the reference case makes sense, because -- if you're familiar with this business -- everything gets back to the reference case or the baseline, whether it's a reduction or not. I mean that's where it all comes together.

And lastly, after we go through those three initial steps, we have what we call a report of follow-up. So if there's an error or a flag, we're to call the reporter, and we're to go through an exchange -- sometimes it's a number of phone calls and e-mails -- where we finally determine and we get down to these flags and we discuss them and we decide the best way to address the issue and see if it can fit within the guidelines and is mathematically correct and methodologically correct.

Okay. Assistance to reporters. A number of areas we are -- provide assistance. We have a communications center; it's staffed Monday through Friday, 8:30 a.m. to 5:00 p.m. Eastern Standard Time. We've got an 800 number you can reach us at at the communications center. If you've got questions, you -- more detailed questions, just send it to us via e-mail on the infoghg e-mail address.

We have a web address highlighted up there. And I think you'll have this packet on our web site or the policy web site. And you can just get the web site there for the 1605b program. But we have the reporting forms, we have the database, we have supporting documents, and we have links to other sites that could help you in your calculations. So it's -- we try to be very helpful to the reporters.

The software we put on a CD every year. We mail it to our existing reporters or -- I think, maybe actually, everybody who has ever reported before, we have sent them a CD. It has the reporting software, and it has the database, et cetera, and those items that I was mentioning before, but it goes directly to the reporter. And they can install this multi-user networkable software.

So, you know, in the comfort of their own homes, so to speak, they can sit down and do all their GHG calculations. And when they're ready for us, they'll e-mail us the file. It's called the GHG File. And we -- it just comes to us, and we just plug it in the database. And then we go through our review

process.

In certain instances, we'll offer methodological and computational advice to folks who have questions on how to calculate emissions or emissions reductions. Obviously, the forms review process is assistance in itself.

And lastly, we have some work sheets and spread sheets and reporting aids in terms of recycling work sheets and forestry work sheets and sequestration work sheets that we offer to folks, where they can plug in their coordinates, so to speak, on emissions. And they can calculate their reductions from the spread sheets.

A further breakdown on the summary statistics. I always like to add this later because then I've talked about direct and reference cases because, if I use this initially, I have no background for the lower portion of the data. Now, there's another line in here that you didn't see, and that deals with entity-level reporting. That's the third line, and you may not be able to see it back there.

But in 1994, we had 40 entity-level reporters, i. e., they reported for their entire entity. And sometimes that entity's a corporation, and sometimes it can be a subsidiary of a corporation, what we might call a sub-entity. But they're looking at their emissions across the board as opposed to project-level reporting, where you're just taking a slice for that particular project out of your entity.

Now, that has gone from 40 in 1994 to 100 in 2000. So we've got more than a doubling there. And just highlighted here under, "Direct versus Indirect," as you notice here -- well, you may be not able to see it -- 187 million metric tons are direct reductions, versus indirect, which are 61 million metric tons. So it shows a preference there for people reporting direct reductions.

And, also, reference cases -- the reference case preference by far is the modified reference case, which is the counter-factual reference case where you're comparing your reductions to what would have happened under a theoretical case had the project not occurred.

And here's where I tried to put the level of reporting into some larger aggregate U.S. number. In terms of entity-level reporting that number expressed -- the total entity-level emissions reported to the program expressed as a percentage of total U.S. greenhouse gas emissions has varied from 13.3 percent in '94 to 14.8 percent in 2000, with a peak of 15.5 percent in 1998. The reason -- and that's a fairly significant number in my opinion.

But you get that large number mainly because we've had such great participation from the electric utilities. So that brings up the number in terms of percentage of total greenhouse gas emissions reported at the entity level.

The bullet down below actually tries to put project-level reductions -- not emissions -- project-level reductions in perspective expressed as total U.S. greenhouse gas emissions. That has grown from 1.1 percent in 1994 to 3.9 percent in 2000.

Here's another illustration on the project-level reductions by gas. As you can see here, the predominant gas reported is C02, which shouldn't surprise too many people since C02's probably on the order of, oh, 83 percent of total greenhouse gases in the United States.

Now, what's interesting, I think, about this chart is the growing segment of the methane, which was very small initially, but what you've seen is a large number of landfills starting to report the 1605b because they put -- they began to recapture their methane emissions that are coming from their landfills due to anaerobic decomposition of the biogenic materials in the landfills. So that's actually quite a growth area under the 1605b program. And, also, coal mine methane recapture, as well, is another area that has brought that up.

Okay. Project-level reported reductions, direct versus indirect. And this gets back to the issue of, you know, "What is the degree of double-reporting in terms of direct emissions versus indirect," because, as you know, someone's direct emission is another person's indirect emission, and vice-versa.

And under the program, you can report either direct or indirect, or both, although we ask reporters to single out right on the form if they have any idea of who might own the indirect under this scenario or the direct under this scenario -- to note it on the form.

But as you can see, direct has varied from 57 percent of the total to 86 percent of the total

reported reductions. So over the life of the program, I think, the current number is about 75 percent. So currently, about three out of every four emissions reductions that are reported to us are direct reductions.

Okay. Now, this is just again meant to illustrate the importance of reference case and the type of reference case that's used by reporters at this point in time. The large majority of folks, as you can see, use the modified reference case, or the counter-factual reference case. And this is kind of endemic to project-level reporting because sometimes when you start a project, it really has no history, particularly if it's a new project; there's nothing to fall back on.

So in many cases, under project-level reporting, a modified reference case is the preferred mode. In terms of under direct emissions, about 81 percent use the modified reference case, 92 percent under indirect, and 93 percent under sequestration reductions.

And I think that's -- yes. The next slides -- these slides on 1605b we'll cover during the sessions. And if you have any questions, I'm here, and feel free to ask me. Thank you.

MR. BROOKMAN: Good morning, everybody. Am I on?

(Pause.)

MR. BROOKMAN: Yes.

My name's Doug Brookman, and I'll be helping to facilitate the meeting today along with the help from a lot of different people. Thank you for being here on time. I think we have a rather interesting and engaging and, hopefully, participative day for you.

Let me ask everybody to do something at the outset. I think these microphones will pick up your voice if they're within about two feet of your face. So at each of the tables, I'd like for you to coordinate taking the water jugs and glasses and pushing them toward me and taking the microphone and kind of putting it in the center of the table.

(Pause.)

MR. BROOKMAN: And this may be the most complicated thing we do today.

(Laughter.)

MR. BROOKMAN: I'd like to give everyone a chance to introduce him- or herself. And that's the reason we just moved those microphones around. This is also a test to see whether it's going to work the way I think it does.

So I may start back here? And I'm going to work my way around. If you could, say your name and organization.

We don't need this for the record; we have a registration list.

(Whereupon, participant introductions were provided.)

MR. BROOKMAN: Thank you.

Did everybody get a chance to introduce him- or herself? I'm looking around the posts to make sure that I didn't miss anybody.

(Pause.)

MR. BROOKMAN: Let the record reflect that no one spilled a single glass of water or coffee during that exercise, which is a very good omen for the rest of the day.

(Laughter.)

MR. BROOKMAN: But not that we care if you spill any water.

I'd like to get a brief sense of who's in the room in terms of your participation previously in this program. How many of you have kind of detailed experience or knowledge of these registries and these -- and the 1605b program in particular -- you know, kind of or -- experienced in it?

(Pause.)

MR. BROOKMAN: So maybe a third of the room.

And how many of you are quite new to this or here to kind of hear about what's going on and get a sense of what might be happening looking ahead?

(Pause.)

MR. BROOKMAN: And that's perhaps half the room.

And how many of you kind of find yourselves in the middle somewhere, betwixt and between?

(Pause.)
MR. BROOKMAN: A few.
And how many present 1605b reporters do we have?
(Pause.)
MR. BROOKMAN: Wow. A lot. One, two, three, four, five, six, seven, eight, nine, ten, 11, 12 -- about 15 or so. Okay. That's a lot of reporters. That's good. Well, your experience in this will help us a lot to kind of not only think about what is there presently but to think about what the President has asked the Department of Energy with the other federal partners to do and how it might apply.
I myself have a couple of objectives for this workshop, and that is: To provide an opportunity for a detailed exchange of views and to really get through all the major content areas.
How many of you have had a chance to look at the agenda already?
(Pause.)
MR. BROOKMAN: So you can see by looking at the agenda and by listening to Margot Anderson's comments that we have a lot of content that we're going to try and get through. And I feel an obligation to get through all of it since most people came here to talk about some of it and perhaps all of it.
The format for this present -- this workshop today will be slides projected on this screen up here. We'll start off with brief presentations on the questions, the specific questions which are in your blue packet. All the slides are listed there. And let me say that all the slides will be made available on the web. They'll -- all of them will be there for you as a record of this meeting. So those of you that like to take copious notes, please do so, but you'll get -- all of this content information will be available after the meeting.
So we're going to be going slide by slide through this packet here. And let me ask those of you that have your agendas not handy to pull them out, and that will give you a sense of how we intend to proceed with this.
After the Department of Energy gives a brief overview of what's intended by the slide that you will see projected up on the screen, EIA is going to come back, and Paul McArdle's going to describe what the current practice is, what's going on there.
So you can see as you look at your agenda we are finishing up the background stuff and the agenda review. We're going to start off this morning with a discussion on emissions reporting. Sometimes it's hard to tease out reporting from reductions, but we want to see if we can keep it focused on the reporting side today. And you can see three sub-elements there: Organizational and geographic boundaries, operational boundaries and related issues, and measurement and accounting methods.
We'll take lunch around about mid-day. If we are really still working a subject and there's more to be done, we could easily go until 12:30 before we eat. We have a buffet set up in the restaurant over here across the way. So we've allotted an hour for lunch. Michael Sholand, our capable person, has arranged that for us. And so we ought to be able to get back in about an hour or so.
After lunch or as soon as we get to it -- we may get to it earlier; you never know -- emissions reductions and sequestration. And we will finish out the day today in smaller groups talking about emissions reductions and sequestration. And you can see there listed on page 2 in the middle of the page of your agenda the four groups: Electricity generation; industrial and other large sources; small distributed sources and end-use renewables, and; agriculture and forestry sequestration.
As I understand it, we only have one person or two persons registered for forestry so far. Is that correct?
(Pause.)
MR. BROOKMAN: I'm making -- are you registered? Yes.
I'm making a plug in case there's someone else, some other brave soul, that would like to participate in forestry. They're a friendly bunch, I know --
(Laughter.)
MR. BROOKMAN: -- because I've worked with them previously.

Does anybody else have an interest in forestry? We're trying to -- I mean, obviously, this is a really important issue. And I want to make sure we get representation in that group. If there -- so I'll give you time to think on it since no one volunteered immediately. We'd like to compose that group with a few more persons if that's possible.

VOICE: Or else they can go home early. Right?

MR. BROOKMAN: Yes, right-- no.

(Laughter.)

MR. BROOKMAN: No going home early, until the job is done.

And then so we'll be probably working today until about five o'clock or maybe even 5:30 to get through the first day. And then, tomorrow, when we return, we will start again, as we did today, at 8:30. We'll have reports back from the four different break-out groups, and we'll have some discussion following each report back.

We'll go from there to describing verifying emissions and reductions, have lunch mid-day and then talk about managing the 1605b registry. The -- all three of the previous workshops got done a little bit early, that is: We didn't go all the way until three o'clock or 3:30 in the afternoon.

So it's quite possible that tomorrow right around lunch time or, you know, getting toward one o'clock or a little after 1:00 we may be finished. And if we're closing in on it, I'm not going to stop for lunch; we're just going to keep pressing ahead. Okay? So just to let you know what the plan is so everybody can go about their business as quickly as possible. Okay?

So that's the general plan. Questions or comments at the outset about the agenda?

(Pause.)

MR. BROOKMAN: As you look at the agenda, are there key issues that any of you have that you don't see can find a place in this agenda?

(Pause.)

MR. BROOKMAN: I'm looking around. I don't see any. If any other key issues show themselves, we'll see if we can find a way to wedge them in. Okay?

Finally, I'd ask for your consideration and help in observing what have observed as norms for these public workshops and many others that I've worked with and on. I'm going to ask simply that you speak one at a time. Please say your name for the record. I'm going to be trying to recognize you by name so that that's in the record, and if I say your name, then you don't need to repeat it; it'll be there.

This will all be recorded. There'll be both a written transcript and an audio file available of this meeting and the other three meetings that we've done already.

If everybody could, take their table tents and turn them so that I can read them as best is possible. That'll make it easier for me.

(Pause.)

MR. BROOKMAN: I'm going to ask that you be concise. Please try and keep your comments as brief as possible and share the air time. There are a lot of people here, and a lot of people have a lot to say. I'm going to also ask that you keep the focus here. Please turn off your cell phones or put them on buzz. And as I said at the last workshop, if someone can show me how to do that on my phone, I'd really appreciate that a lot.

(Laughter.)

MR. BROOKMAN: If you've got a side-bar conversation you need to participate in, I understand completely, but just don't do it in here. Okay? Take it out of the room if it's going to be more than about 20 seconds, because it will distract other people.

And finally, I'm going to queuing people to speak, name by name and person by person. I also wish to engage in follow-ons so we have a little bit of back-and-forth discussion. Please make it possible for me to do that. Help me to do that. Keep those follow-on comments brief. And if I drop you out of the queue, don't let me get away with it. Start waving your hands or something. Inevitably, I'll do that, and I sure don't intend to.

Okay. So that's the general plan, the focus. Questions before we begin?

(Pause.)

MR. BROOKMAN: Let's see if I've forgotten anything. One other housekeeping item: Apparently, parking is free, but you need to see Adrienne out at the front desk to get a voucher or something. That's a little voucher that looks like this. Okay? It looks like a fortune cookie message.

Okay. So as I said, the general plan is to have a slide where the Department of Energy will give a very brief statement of overview on what's intended by the slide, and then go from there to EIA to describe current practice. And this one doesn't really need much introduction; Margot Anderson referred to this one.

You know, I like the scale of this screen better than the other really huge ones that we had in some of the other meetings.

These crosscutting issues that the Department will have to reckon with -- the Department plus the other federal partners: Rigor versus practicality; confidentiality; verifiability, relationship to other reporting programs and protocols and; comparability within and across sectors. Margot did an excellent job in describing some of those issues.

Let's go to the next slide.

And what's going to -- these are all in your packet. Arthur Rypinski's going to talk about this briefly.

MR. RYPINSKI: Thank you.

Organizational boundaries is not a topic that's intuitive to the new-comer, but it turns out to be important. The President's initiative requires that the revised voluntary reporting program be suitable for transferrable credits and, also, in the presidential language, to ensure that the people who make real reductions are not penalized in the future regulatory regime.

Now, that charge associated with the revised program may turn out to have implications, and one of those implications are more standardized organizational boundaries. So the most fundamental organizational boundary issue is: When someone reports an emissions reduction, what exactly is it they're reporting on? And there the most fundamental conceptualization is, Are we reporting on the emissions of a corporation or an organization, which is called a 1605b(c) entity reporting, or on the consequences of an action, which is -- which we call a 1605b(c) project.

You can conceptualize the emissions of a corporation as being like, Well, my firm, however defined, emitted so much this year, so much last year and so much the year before. And you can conceptualize the consequences of an action as, Well, I did something; I put up a wind turbine; I screwed in a compact fluorescent light bulb; I planted a tree, and that action had various consequences that reduced emissions, and how do we calculate them?

This morning, as we focus on entity reporting and the reporting of a corporation, then you have to decide -- or a public body or some other organization, then we have to decide, Well, what are the limits of that organization for reporting purposes; What is it that's reportable, and what is it that's outside the limits of the report and is not reportable?

So when we talk about organizational boundaries, what we're conceptualizing in this then is what are the -- what would be reported, and what would not be reported, what is within the limits, what is within the organizational boundary and what is outside the organizational boundary. And this produces then a series of more complicated issues.

If a firm that's reporting is a subsidiary of some other firm, should it report on behalf of its parents? If it's a parent corporation and has multiple subsidiaries, should all of the -- should it report on all of the subsidiaries? Okay? Fully owned subsidiaries? Okay? How about if they're minority owned? If they're -- if the parent has a minority share, how would it deal with the reporting on the minority share?

If the corporation is a public body? How would you deal with, say, a government agency or municipal utility? Suppose a municipal utility is part of a city government. Should the city government be in, or not? How about supplier/contractor relationships? How about if you don't -- if you contract for services? Should the emissions of your contractors be included within that organizational boundary?

How about domestic emissions versus foreign emissions? These are all sorts of organizational boundary questions.

What we'll be queuing up to discuss -- I've got to stop using the word queue so much. I -- Doug keeps doing it. I find that every other word I say is, Queue. Would you like queue for breakfast?

(Laughter.)

MR. RYPINSKI: Anyway, what we'll be discussing this morning are the specific questions listed on the left-hand side: "Should we be encouraging entity-wide reporting," which is one of the Secretaries -- one of the recommendations of the Secretaries to the President in their letter of July; "What defines an entity; How do we define corporate and institutional boundaries," and then there are some options that have been discussed and other protocols for this -- for minority owned subsidiaries, questions like -- ideas like equity share, operational control, and governance -- and, "How much flexibility should we offer or permit or encourage in defining boundaries," and emissions outside of the United States. Should we permit them, encourage them or prevent them? And if we do permit them or encourage them, how would we -- under what sorts of emissions, and how would we do it?

And we're anxious to hear your views on all of these topics.

MR. BROOKMAN: Thank you.

And Paul McArdle is going to give a very brief -- yes -- current practice based on EIA's work.

MR. McARDLE: Okay. Thank you, Doug.

I hope everybody can see this. And, real brief, this slide just deals with, "What is the organizational unit that can report to the program," and not to be confused with entity-level reporting versus project-level reporting. We're just defining, "What is the organizational unit that can report to the program," regardless if it's at -- they report at the entity level or project level.

Now, in terms of the current program, an entity can be a corporation, an association or an organization. And an entity also can be reported at what we call the sub-entity level, that would be: A corporate subsidiary can report on its own. A joint venture between two corporations can report as an entity or organizational unit.

Under the current guidelines, a reporter must be a legal U.S. person, and that's defined as a company that is recognized by U.S. law -- it's actually a company or person that's recognized by U.S. law. And in some instances, we do have foreign multi-nationals reporting to us, and they report on their U.S. operations.

Also, federal, state and local government agencies may report to the program. We have gotten reports from elements of federal agencies, as well as elements of local government. I'm not sure about at the state level. I can't recall any state agencies reporting, but I could be wrong.

Now, just adding further to this list, I've got the report form under entity type. And just to go through it more specifically, we allow an individual or a family to report. It can be a partnership and, obviously, a corporation or a subsidiary of the corporation, government agencies, joint ventures, trade associations reporting on the behalf of their members or reporting on their own operations and limited liability companies and others, of course. We always have the, "Other," if you can't find your category, and we'll consider it.

Now, in terms of geography, this deals with, Can you report U.S. emissions as well as international emissions and reductions. Under the current program, yes, you can. If you fit the entity definition, you can report on your international activities. We do have a fair amount of international activities reported; they're largely carbon sequestration projects and in the tropics largely with some tree planting going on and preserving tropical rain forests, et cetera.

We do ask, however, that the reporters under their project-level reductions specifically ear-mark that as an international project and not to mix any international reductions with domestic, because we clearly segment and draw a bright line between those emissions and emissions reductions.

MR. BROOKMAN: Thank you.

So let's start with these first few bullets here. The four-agency letter that went to the president specified: Trying to encourage entity-wide reporting; What defines an entity; How to define corporate

and institutional boundaries; Should it be through equity share, operational control or governance. Is there some other standard or basis for defining those institutional and corporate boundaries?

In the previous workshops, persons have been trying to address these three issues as kind of contiguous.

So now we get to hear from you. It has been a long time. So we'll give you a chance.

Yes, please. And your name for the record?

MR. GALUSKY: Peter Galusky, Marathon Ashland.

MR. BROOKMAN: You can read it from back there?

MR. GALUSKY: No. But I can fake it.

(Laughter.)

MR. BROOKMAN: You've got it in your packet. Right?

MR. GALUSKY: Thank you, yes.

MR. BROOKMAN: Yes.

MR. GALUSKY: Not to be a loaded question or -- well, yes, to put you on the spot. Does the Department of Energy participate in your program?

MR. BROOKMAN: Does the Department of Energy participate in the 1605b program?

MS. ANDERSON: As an agency?

MR. BROOKMAN: As an agency do you mean?

MR. GALUSKY: Yes.

MR. BROOKMAN: As an agency?

MS. ANDERSON: No.

MR. BROOKMAN: No. They're --

MR. GALUSKY: Is that on track? I trust that the -- and honestly, I'm not -- I don't mean to put you on the spot in a negative sense but in a positive light. Do you anticipate that as -- simply because that would set an example in providing leadership.

MR. BROOKMAN: Oh. Okay.

MR. GALUSKY: That would --

MR. BROOKMAN: Mark Friedrichs, do you want to respond to that?

MR. FRIEDRICHS: Mark Friedrichs. It may be a good idea to get all agencies involved. I -- all agencies do participate in what we call the Federal Energy Management Program, which submits annual reports to congress -- and they're publicly released -- that report on all energy use by federal agencies and greenhouse gas emissions associated with the use of energy in federal agencies.

So although agencies do not participate now in 1605b, all of the information on their greenhouse gas emissions is at least available.

MR. BROOKMAN: Thank you.

MR. GALUSKY: Thank you.

Just a quick follow-up?

MR. BROOKMAN: Yes.

MR. GALUSKY: I wanted to clarify the reasons -- the primary reason I asked is because of the complexity of government operations, it would be, I think, useful to us to see how a large government agency would track all of your emissions, which are mostly going to be indirect. I think that would be very informative to all of us when you get to that point.

MR. BROOKMAN: Okay. Thank you.

Patrick Kelly?

MR. KELLY: The executive order that rules what the federal government does is EO 13123, which is basically greenhouse gas emissions reductions. And some organizations have as high as 30 percent reductions. And, you know, that was signed under the Clinton administration, and the Bush administration has adopted it and said, Yes, it holds.

So it is required that all federal agencies in some capacity reduce emissions and report those using such programs as Energy Star. And not even all of the federal agencies, you know -- like in EPA

land, where I work, you know, not all the regional offices have gone through and benchmarked and done all of that type of stuff, as well. So --

MR. BROOKMAN: Okay. Thank you, very much, for that clarification.

Thomas Dingo?

MR. DINGO: Just being new to this, I have a question from just listening to the definitions of reporting and stuff like that. If we report indirect emissions -- let's say that we're buying electricity from some power company -- and that power company also reports its emissions, isn't there double-counting there?

MR. BROOKMAN: We're going to get into that discussion considerably as we go on today, and it is a concern. It's a definite concern which is -- and that's one of the reasons why we're -- the Department is encouraging entity-wide reporting, so there's a sense of the larger picture where you can then tease out double-counting and things like that. But we'll address it in much greater detail.

So I'm looking opening comments, kind of threshold, start-us-going comments, on entity-wide reporting and what defines an entity and whether you would define it based on equity share or operational control or governance or if there is some other basis for that definition.

Yes, please. And your name for the record? And then I'll go to Jerry next.

MR. MACHADO: Joe Machado. I'll just -- may I start out --

MR. BROOKMAN: Yes.

MR. MACHADO: -- with two comments?

I think, for purposes of additivity in terms of dealing with these numbers in the long term, entity-wide reporting is where you have to start evolving. You know, just an opinion on that. What defines an entity is going to get complicated. I mean I'd suggest that any legal entity is acceptable if it's a legal business and you'd have to sort of probably accept that level of flexibility.

And in terms of, you know, the question of equity share versus operational control in a corporate sense, I'd suggest, based on Shell's experience of having reported emissions globally for five or so years, operational control seems to be the most pragmatic definition because equity share gets you in a situation where different joint ventures, if you report no their behalf, may have different standards and different approaches to counting emissions.

And until there's a sort of global consistency, operational control is probably the only thing that companies can actually deal with and institute within their own organizations. If there becomes a global standard that everyone accepts, then equity share would seem a lot more logical, but I think it's going to be some years before we get there.

MR. BROOKMAN: Okay. Thank you.

MR. MACHADO: So I'll just stop there.

MR. BROOKMAN: All right. Thank you.

Jerry Ferrara?

MR. FERRARA: I guess I wanted to go to the point where we started, with the President and the administration moving us from absolute to looking at intensity. And I think we need within the 1605b mechanism a strengthening of how we go about reporting intensity.

And I would argue that when we look at intensity, it's going to drive us to the point that was made earlier, that you're going to look at the action that was taking place, and some way of doing the accounting for, One, What's the proper process to be inclusive of the process to be able to show its before and after.

And if people give documentations of where they start in this process, whether there's credits now or credits 20 years from now, you could show where your baseline was and where the process originated, and it might take a little bit of the pressure off people wanting to drive to that end point sooner.

MR. BROOKMAN: So do your comments lead you toward a bias toward entity-wide, or other than that? I couldn't quite tell.

MR. FERRARA: I'm personally against entity wide. I mean I think that the whole reporting is,

you know, taking resources away from national productivity. So I think we should be minimizing the resources we put toward the reporting effort --

MR. BROOKMAN: Okay.

MR. FERRARA: -- and get more toward doing things that actually cause reductions.

MR. BROOKMAN: Okay. On a project basis?

MR. FERRARA: I think -- when you take an action, I think, that tends to drive you more towards a project than doing the entity-wide reporting.

MR. BROOKMAN: Okay.

MR. FERRARA: I mean we're -- we belong to the American Chemistry Council, which has been reporting greenhouse gases. And I know we spend hundreds of man-hours every year collecting this information. And that's -- I mean you do learn something from that, but that's not what's really driving reductions and doing the types of things that other people can learn from.

MR. BROOKMAN: Yes. And we've heard that in all the other workshops. So there's large concern about how much resource -- how much effort is involved on the part of all these players in collecting the data and reporting and doing all that stuff.

Are there -- yes, please. You're Ben Carmine.

MR. CARMINE: Ben Carmine, Reliant Energy. We support the 1605 program to continue to allow project-level reporting as well as sub-entity reporting just simply to provide flexibility and keep it simple.

MR. BROOKMAN: Okay. And if it is project-level, I guess, then among equity share, operational control and governance, is there -- how would you address that?

MR. CARMINE: I don't have an opinion on that.

MR. BROOKMAN: It seems to me it could be all three perhaps. Maybe it would -- there's -- can other people address that?

Those of you that are supportive of the project --

Arthur Rypinski?

MR. RYPINSKI: In sort of a very broad sense, usually, those issues are more salient in the context of entity reporting. Because the underlying notion of project reporting is causation, it's -- project reporting tends to be more focused on what was the consequence rather than who owned the consequence. So that's -- but not always.

MR. BROOKMAN: So most of the projects were reported in the context of entity-wide?

MR. RYPINSKI: No. Most projects are reported sort of cross-wise with entity-wide.

MR. BROOKMAN: Oh. That's -- okay. Thank you. Yes. It -- okay.

Are there comments?

Yes, Jeffrey Williams. And you may need to turn or -- yes.

MR. WILLIAMS: I believe that we need to evolve to an entity-level reporting, but I think we need to recognize up front that various business units and processing within are easier to measure and are more verifiable than others. And the issue of the burden of collecting information and how verifiable it is throughout the organization is something that has to evolve.

I'll give you an example. Power plant emissions -- fossil power plant emissions have [inaudible]. There's accurate measurement there. If you go to a transmission organization that has nine vehicles, for example, you would -- those types of issues are more difficult.

MR. BROOKMAN: And as you think about the document and their intending to revise or enhance 1605b, how would you suggest that they approach specifically that, I mean, allowing for a kind of an evolution, perhaps, or allowing companies to kind of adjust?

MR. WILLIAMS: I think the key issue is defining up front what the footprint is.

MR. BROOKMAN: For the company, for the entity?

MR. WILLIAMS: Correct.

MR. BROOKMAN: Okay.

Is it Henry Eby?

MR. EBY: Henry Eby.
MR. BROOKMAN: Yes.
MR. EBY: Henry Eby, Lower Colorado River Authority. Along the same lines as the last comment, there certainly are entities which are made up of multiple business units or industrial sectors, and it may be appropriate from a sub-entity category that if the lines are drawn around industry sectors -- for instance, a public utility may entail a wastewater utility and an electricity utility -- it would be easier for the electricity utility, which is more energy-intensive and, obviously, more greenhouse gas emission-intensive, to be a participant, and maybe not so much the water utility.
So I think if the lines are drawn around those industry sectors, it would prevent leakage and still get the proper reporting done.
MR. BROOKMAN: And you think that differentiating by those industrial sectors creates enough of a structural boundary that you would get considerably less leakage?
MR. EBY: I don't think you'd have -- if there are industry-specific sectors within a given entity, I don't think you're going to see leakage across those sectors. I don't see leakage from an electricity utility business unit of a public utility leaking into, say, a water utility.
MR. BROOKMAN: Right. Okay.
MR. EBY: Now, it may be that the entire --
MR. BROOKMAN: I could see that that --
MR. EBY: It may be that the entire entity would want to report, but I think that flexibility would be appealing to entities.
MR. BROOKMAN: Okay.
Other comments?
Yes, please. Your name? Is it John?
MR. ORYNAWKA: Yes.
MR. BROOKMAN: Yes.
MR. ORYNAWKA: John Orynawka, Temple Inland Forest Products. We'd like to encourage DOE to push for trade association filing.
MR. BROOKMAN: Oh. Push for it, or allow for it?
MR. ORYNAWKA: Allow for it and encourage it.
MR. BROOKMAN: Okay.
MR. ORYNAWKA: I think, from a uniformity standpoint and confidentiality issues, I think it would help companies feel more relaxed about giving up their numbers if they were doing it through their trade associations. And in most cases, we're already generating that data for our trade association, and it would be easily accessible to be filed as one lump number with 1605b. So --
MR. BROOKMAN: Let me ask if there are other trade associations or representatives of different industries that feel the same way in the room. We'll gather that on the record.
Reid Smith, do you wish to comment?
MR. SMITH: Reed Smith with BP. We're certainly proponents of entity-wide reporting. We believe that the reporters should have the flexibility to define their entity as long -- and that should be acceptable as long as it is well defined and understandable.
MR. BROOKMAN: Is there some basis from your perspective?
MR. SMITH: We're also --
MR. BROOKMAN: Just because, here again, we're trading off between flexibility and kind of consistency or, at least, knowing what's being -- what the organization is.
MR. SMITH: Well, it should be a describable sub-part or an entire corporation. It can cover the gamut in that entire range, but it needs to be well defined, what the reporting is on the basis of.
MR. BROOKMAN: Okay.
MR. SMITH: And then also allow for project reporting. That's where your reductions come from.
MR. BROOKMAN: In the context of the larger entity-wide?

MR. SMITH: In the context of whatever the entity is defined as. For example, if you define your entity as your entire corporation, then reduction projects in your entire corporation would fall under that entity boundary.

MR. BROOKMAN: And do you have a -- oh. I'm sorry.

MR. SMITH: Reporting also on both the gross and equity share basis and opening it up to international reporting from multi-national sets is a very important characteristic.

MR. BROOKMAN: Do you have a bias or -- I'll open this to everybody else, as well -- on how project reporting alone would be handled?

MR. SMITH: We see a lot of danger in project reporting alone without an entity-wide report to stand behind it.

MR. BROOKMAN: And so, being specific, the danger is?

MR. SMITH: The danger is double-counting. The danger is leakage.

MR. BROOKMAN: Okay.

MR. SMITH: We see a lot of issues with that.

MR. BROOKMAN: So we've raised a couple of issues there. One is specific project-related reporting. And, also, he brought in the issue of non-U.S. emissions, as well.

Yes, Greg Spencer?

MR. SPENCER: Greg Spencer. I thought you were going to defer this until a later part of the discussion. But we don't believe that project reporting in any sense undermines the total process of entity-wide reporting.

As we get into the issues of verification at subsequent point, if there is a third-party verification, particularly from an engineer, that encompasses all -- everything causally related to the action that has been taken by allowing people project reporting and entity reporting, you develop the market and encourage additional reductions, you provide incentives for innovation and new product development and new process development.

In terms of how projects are reported within -- in this part of the country in particular, there are a number of projects that involve multiple entities. And those entities in a partnership context often go through the specific process of allocating the credits associated with a particular project activity.

So whether it is equity share or operational control, all of the entities involved in the project can go through a process of allocating those credits. The way you avoid double-counting is by having a representation or warranty from the entity that is registering those credits that they will use it for no other purpose that -- in terms of an offset or a resale or future credit against the baseline.

As long as there's a clear representation of warranty associated with the registration, then you eliminate -- and you allocated those credits -- those reductions among any participant in a group, you've eliminated double-counting with a verification that the reduction actually took place.

MR. BROOKMAN: I mean the issue we heard in the other workshops was that it seemed possible -- if you were principally reporting projects, you could imagine a large corporation that was doing some very good work and reporting on projects and, at the same time, the aggregate which was not being reported -- you could be gaining in projects and losing ground with the rest of the corporation.

Margot Anderson?

MS. ANDERSON: A clarification, I think, on the intent of encouraging entity-wide reporting. It certainly isn't to discourage action. We certainly feel that actions can be recorded and emissions can be recorded in through many different kinds of actions. The concept behind entity-wide reporting of emissions is that -- the question is: Is this a better way or a good way to capture all of the activities that are occurring within the corporate boundary -- defined how we don't yet know -- in order to make sure that we have a more complete picture of what the reporting entity is doing?

And so it certainly isn't designed to discourage any positive actions. It's just a different way to take the snapshot of what actions are being taken. And I think it follows up on the BP point of, Is it important to capture this at the entity level, or is it not important to capture it at the entity level? And the recommendations from the four-agency letter said that in fact it was a good idea to try to capture

reporting at an entity level so that all the different activities of an entity can be duly recorded as -- in a single report.

MR. BROOKMAN: And in that case, like Greg's last comment --

You said that sometimes there'd be multiple entities. So you would exceed the entity-by-entity reporting. Right?

MR. SPENCER: Right. And we don't oppose entity-wide reporting; we just think that you need to allow for both, and then all of the concerns associated with project-wide reporting are, frankly, fairly easy to address.

MR. BROOKMAN: I want to make sure we get other perspectives on this point.

Jerry Ferrara?

And then I'd like to address non-U.S. emissions, as well.

MR. FERRARA: I wanted to speak to the point you made about the company having a good action taking place in one part and growth causing emissions to rise in another portion. I think that comes into the demand aspect and what's causing the demand on the entity on the emissions.

Most of the energy-intensive industries tend to be basic commodity producing materials. These are not company-pushed products; these are products that are demand driven, and there's a demand out there calling for those products.

So we should really -- you know, if we want to reduce emissions, we should be looking at what's creating that demand, not putting extra activities on the company that's producing those products.

MR. BROOKMAN: Right. And that gets back to what you said earlier about having an intensity-based matrix. And we're going to get into that in considerable depth as we go along in the next day-and-a-half or two days.

What about non-U.S. emissions? How should they be treated? We've heard a little bit about that so far. I think Reid said that they should definitely be allowed to be reported.

Right?

MR. SMITH: Certainly.

MR. BROOKMAN: Yes.

Other perspectives on that or support for that perspective?

Yes, Thomas Dingo?

MR. DINGO: I guess I would raise the question of, What do other countries feel about that? You know, we have operations world wide. We're part of an international company, and we've had -- you know, they're going through the reporting, too. So I don't know how that clashes with what's going on in the European community or something like that.

MR. BROOKMAN: I wonder who could -- who might address that, what other countries are doing.

Margot Anderson?

MS. ANDERSON: At this stage, there are not as many well developed registries that are -- I mean there are registries that are being developed certainly under -- the signatories of the Kyoto protocol will develop their own registries under an international cap and trade program. There are voluntary registries under development in the UK and in Australia.

There are -- we do have to bifurcate the issue of reporting the emissions that take place domestically and internationally currently, as Paul said. In the current 1605b, as long as you bifurcate and indicate which are U.S. and which are international, no problem.

It may become an issue when we talk this afternoon about reductions. And then it matters probably more what's going on internationally, and then you may have the problem of double-counting reductions that occur overseas. That, of course, is a reductions issue that we'll cover later.

But in terms of just straight emissions reporting to track emissions associated with an entity, I would assume that other countries will allow that in voluntary registries. I do think the difficulty will come in whether you're counting that up to meet a requirement if you're a signatory to Kyoto or if you have domestic objectives in terms of meeting requirements.

MR. BROOKMAN: Okay.

Any counterpoint to the idea that non-U.S. emissions should be allowed to be reported?

(No response.)

MR. BROOKMAN: None that's showing itself at t his time? Okay.

Let's go on to the next slide, "Operational Boundaries and Related Issues: Direct versus Indirect Emissions." Let me see.

John?

MR. STAUB: Yes?

MR. BROOKMAN: Please, John Staub.

MR. STAUB: Operational boundaries are really distinct from organizational boundaries. And the fact that -- these two ideas of operational and organizational boundaries are fairly distinct from each other in the sense that organizational boundaries are looking at emissions in terms of where they occur within the corporate structure, and operational boundaries are looking in terms of where the emissions occurred within the operation of an electric power plant or an office or a factory or something like that.

And as the slide up on the right hand shows you with direct and indirect emissions, direct emissions occur within the facility within the fence, whether they're produced as you burn coal in a power plant or whatever in that sense, and indirect emissions occur outside of the facility.

And a good example is an office building which uses electricity. It doesn't generate -- it might not generate any greenhouse gases within or at the office building, but its demand for electricity creates greenhouse gases at a power plant beyond its boundaries.

And so what we're trying to think about here is, How do the operations of a business or an organization affect greenhouse gas emissions? And I think that's all we want to talk about at the moment.

MR. BROOKMAN: Okay.

Paul McArdle?

MR. McARDLE: Yes.

Paul McArdle, EIA. Just real briefly, under the current program, under operational boundaries, the current program allows both direct and indirect emissions to be reported.

In terms of definitional properties, the current program defines direct emissions as emissions from sources owned wholly or in part or leased by an entity. Meanwhile, indirect emissions are defined as emissions from sources not owned or leased by an entity that occur wholly or in part as a result of its activities. And, again, as I was saying earlier, the most prevalent indirect emission we have reported to us is the emissions from purchased electricity.

MR. BROOKMAN: Thank you.

So perspectives on this? Should end users report electricity and steam purchases? How to convert to emissions? Let's deal with those two first.

Yes, Greg Spencer?

MR. SPENCER: Well, I do think that indirect emissions represent a huge segment of what our economy's trying to achieve with respect specifically to electricity purchases. That's one of the most obvious examples of an opportunity where it's the end user who really has the ability to control the energy assumption and, therefore, the emissions associated with it.

In terms of how to convert it, people who understand the electricity grid better than I do would have to determine, Are you as likely in consuming power, electricity, in Chicago to -- is that energy as likely to have been produced in three different parts of the country, or within the location? Obviously, there have to be estimates made, and those could be refined from time to time.

Simplicity would argue for a single conversion rate. Accuracy would argue for a state-wide or more specifically, even, a facility-specific entity reporting. Maybe it's even a regional number. But that's what the best examples of indirect are that I know of.

I would also suggest that the other opportunities for indirect need to be included. And if DOE provides some guidance on title, that title to the reductions owned by the entity taking the risk and investing the money -- the market will find a way to sort out the ownership of that. There's a whole body

of common law and regulatory law that were developed behind that. So that shouldn't be discouraged.

MR. BROOKMAN: Thank you.

Yes. Your name, please?

MR. MOORE: Mike Moore of Falcon Environmental.

MR. BROOKMAN: You're going to have to turn the mic.

MR. MOORE: Okay.

(Pause.)

MR. MOORE: On the indirect side, with power consumption, I don't know of too many industries or operations where that -- the power that gets to their site is not metered. So you could easily quantify what changes are taking place or whatever actions are happening at that location.

So it would be easy to directly attribute any changes in consumption regionally down to the individual business or actual individual households; at that point, that's where the credits would belong.

MR. BROOKMAN: Okay.

MR. MOORE: I don't know that -- and unless there was a change in pricing structures that forced lower consumption or increased consumption because of demand patterns or because of economic reasons, but -- the value of the emissions and the work done to reduce them could be easily quantified back to the individual who's the user of the service.

MR. BROOKMAN: Additional comments and perspectives?

Yes, Mary Quillian?

MS. QUILLIAN: Mary Quillian, the Nuclear Energy Institute. I think that if you're going to allow indirect emissions, you need to be somewhat flexible in how people report that. And what I mean is I agree there needs to be some sort of average emission calculated for the use of companies -- whether it's a national average or a regional average, DOE or EIA could supply that average -- but I think you also need to allow entities that have made an effort to go out there and purchase low-emission or no-emission power to be able to acknowledge that on their forms.

MR. BROOKMAN: Hmm. Okay.

Yes?

MR. SMITH: Yes. BP agrees with those comments. We believe that you should report indirect emissions from import of energy. If you're buying off the grid, grid-average factors, which have been talked about before, is probably a great way to go with that; regionally is probably appropriate. If you contract for and purchase low-emission energy or no-emission energy, renewables, then you should be able to take credit for that.

MR. BROOKMAN: Okay.

That comment was by Reid Smith, for the record.

Yes, please, Jeffrey Williams?

MR. WILLIAMS: I agree with those comments. And I also think that indirect emissions are important to incentivize energy-efficiency investments by entities, that they need to be able to recognize a benefit from end-use.

MR. BROOKMAN: Those of you in the room, you see electricity and steam purchases being treated similarly or equivalently. Right?

MR. WILLIAMS: Yes.

MR. BROOKMAN: I haven't heard anything other as I've looked around the room yet.

Yes, Jerry Ferrara?

MR. FERRARA: I guess I'd comment. If we were looking at a process and looking at an intensity change across the process, we may need to have the resources that come in as inputs to that process, you know, which typically would include like electricity and steam. But there could be other resources that also would have indirect effect on emissions elsewhere in the system.

MR. BROOKMAN: Okay.

MR. FERRARA: And so we need to look at being inclusive in terms of that process so that we're really looking at the total process.

MR. BROOKMAN: John Bins?
MR. BINS: Yes.
John Bins, Waste Management. Two separate issues here that we're starting to confuse a little bit.
MR. BROOKMAN: Thank you.
MR. BINS: And one is the indirect emissions, the viability, trying to give people credit. Because those are good projects and need to go forward, it needs to be controlled by the end-user, the person who's putting out the capital.
The other issue you have out there that's a big sleeper and is going to be one that's one of contention is: Who owns up for the emissions from utility plants. Is it the utilities, or is it the end-user at the large manufacturing facility?
And I think the only way to be consistent with other countries and the only way to really address that is to keep the emissions at the base source; if you try to distribute those emissions from utilities to everyone outside of that, they don't have control of reducing that or what the mix of coal, gas or nuclear power is. You really can't take that emission baseline and increase it for other end-users.
MR. BROOKMAN: And so when you say, "Base source" --
MR. BINS: Well, it's the issue of allowances versus crediting projects on indirect emissions. So it's something to think about.
Now, there is an equity issue. If we go out and put a power plant on line using landfill gas and generate electricity and sell that back into the grid -- that landfill gas is a biomass -- it's a renewable energy that has zero emissions under some protocols.
But there's an equity issue on, How do we get part of that credit back to the utility, as well. And I think that needs to be addressed. And that's probably beyond your issue right now, but that's one --
MR. BROOKMAN: Well, how would you address it or how would you suggest it get addressed, in ten words or less?
MR. BINS: In ten words or less? I think we need to sit down and talk about it because --
MR. BROOKMAN: Yes.
MR. BINS: -- I think there needs to be some --
MR. BROOKMAN: That is -- are you suggesting that it's a contractual relationship? That --
MR. BINS: I think that's one of the best places to start with. If -- because we're seeing now that people -- in selling electricity, especially when we sell from our landfill gas and energy projects, you're not just selling electricity. You're also selling green tags, or renewable energy credits, and you're -- also, there's the question of who owns or who generates the greenhouse gas emission credits.
Those are all questions that are being answered right now or they're being answered kind of on contractual issues. You see NEPOL [phonetic] forming right now, and there's issues right now on some of the green tags, who owned them. And they weren't things necessarily addressed in original contracts, but people are getting very quickly on board with that there is value and that the only way to really track it is to track it by the generator, the person who's controlling the project and has the capital investment.
MR. BROOKMAN: Hmm. That --
MR. BINS: I didn't mean to make it a more complicated issue --
MR. BROOKMAN: No. We want this to be as complicated as it needs to be. We need it to be adequately described in this context. We need it, yes, please.
Ben Carmine?
MR. CARMINE: Just quickly. The reporting of electricity and steam should be optional simply to keep the process as simple as possible.
MR. BROOKMAN: Okay. So there's the counterpoint. I think, in at least one of the other workshops --
Yes, I'll go to the two of you next.
-- they -- some commentator suggested that the reporting of the emissions should follow the fuel, that it would -- you know, if you're burning the fuel, then you should take the first responsibility for it,

and then maybe it's possible to negotiate between direct and indirect beyond that, or some kind of a scheme like that.

You're first.

MR. MACHADO: Thank you. Joe Machado.

I agree with a lot of these comments. I think probably -- of all of the questions on the agenda today, this direct versus indirect is probably the most important and the most complicated, just to comment.

From my point of view, the answer as to how you go depends a lot on what you're going to do with the data. I think if you're looking at a policy environment where these emissions become a fungible property right and something like a cap and trade system in which you've got contractual issues -- like some of the comments there -- then direct emissions is probably the only way that you can end up that you can really deal with.

But I think if it's a situation more on a voluntary point of view like what we're talking about today and you want to incent certain behaviors and be able to demonstrate good performance, then you look at, What do you do especially from a heavy manufacturing point of view to influence the demand for that power, whether it's steam, electricity or something else? Then I think you're talking about indirect being really important.

And I think we're in that second category here today, where the indirect is very important, and I'd put that forward as the most logical decision based upon what you're trying to achieve. And then it becomes a question of, Okay; If you start reporting indirect, what level of indirect? And I don't think there's a short answer to that question.

But I think materiality is the principle that you're going to have to deal with: What level of indirect emissions is material to your operations? And you're going to certainly start with steam and electricity --

MR. BROOKMAN: Yes.

MR. MACHADO: -- in most cases, and you may go further or you may not depending on your operation.

MR. BROOKMAN: Well, we'll get into those specifics as we go along.

MR. MACHADO: Oh, sure.

MR. BROOKMAN: Henry Eby?

MR. EBY: Yes. I just wanted to follow up on a previous comment regarding the purchase of power.

Often, utilities, as part of their resource mix, will have assets that they own and then, also, power purchased under a long-term contract. And it may be methane gas, it may be renewable wind, or it may be fossil fuel. And I would suggest that as part of the definition of direct emissions, it be, "Emissions from sources owned or leased or under contract." And that may be that, "Or leased," definition, but I think it's somewhat separate and unique. So --

MR. BROOKMAN: Okay.

MR. EBY: -- if it's contractually part of the agreement that the emissions or environmental attributes are part of it, then those emissions should go to that utility.

MR. BROOKMAN: Thank you.

Additional comments on this? I'd like us to shift also to describing, "Reporting other indirect emissions such as those associated with materials used, business travel, employee commuting and use of manufactured products." Should the -- should you as a -- if you're a corporate entity, should you be responsible for your employees that commute? Should you be responsible for the inputs into materials and the consequent manufactured products? How should all of that be handled?

(Pause.)

MR. BROOKMAN: Not a simple subject.

MR. SMITH: Reid Smith, BP. And we're --

MR. BROOKMAN: Yes, Reid?

MR. SMITH: We are not proponents of reporting indirect emissions for consumer goods, purchased products.

MR. BROOKMAN: Things that are --

MR. SMITH: Things such --

MR. BROOKMAN: -- further down the supply --

MR. SMITH: -- as that.

MR. BROOKMAN: Yes?

MR. SMITH: Yes.

MR. BROOKMAN: Okay.

MR. SMITH: Yes. We believe that you can draw a fairly bright line for imports of energy; we believe that line gets a whole lot harder to draw when you start talking about chairs and tables and things like that.

MR. BROOKMAN: Okay.

Other comments on this? It's a thorny issue.

Yes, John Bins, and then to Tom Dingo.

MR. BINS: I would agree with BP's comments, but, also, in reality, part of that issue may be defined for is and may not be under our control. Under the Kyoto Protocol and the World Resource Institute standards, they do look at a lot of these indirect emissions sources like travel and other things.

And I think as far as whether we're talking a U.S.-only or NAFTA-only system, as soon as we start integrating with other countries, we need to be cognizant that their standards, because we're late to the game, may preempt us on some of these issues. And this is one of those issues that [indiscernible] administrative costs tremendously in trying to get all these little details, but we both know we might be stuck with part of this whether we want it or not.

MR. BROOKMAN: Yes. And, well, a couple of things occurred to me. You heard Margot Anderson at the outset say that the Department and other federal partners have been directed to look at the other protocols and things that are afoot and just to see to the extent -- what was the word, coordination -- how much that could work.

But the Department -- also, I think, if they thought there was a better way to do it or a more efficient way to do it, or whatever, they would not be constrained in that way. You know, that is: They're looking for your best advise on how to do it.

So are -- you said -- essentially, you said WRI and Kyoto may be constraining or boxing you?

MR. BINS: Yes. Well, it's outside the box of our discussions today, because that may be an international trade issue more than it is a DOE or a greenhouse gas issue, because we may seed trade import barriers developing on some of these indirect issues.

MR. BROOKMAN: So the reason I'm raising it again is not to -- is to ask you if you generally endorse what's being done in those --

MR. BINS: No.

MR. BROOKMAN: -- other protocols.

MR. BINS: No, we don't. We don't think you need to go down to that level of detail. We think it -- the benefits don't outweigh the down-sides.

MR. BROOKMAN: And it's specifically that level of detailed reporting?

MR. BINS: Yes.

MR. BROOKMAN: Okay.

Other comments on this?

Yes? I'm sorry, Tom. Tom Dingo?

MR. DINGO: I think that we should avoid trying to do all this thing. It's just hard enough to measure your own direct emissions than to try to figure out what your employees are doing when they're traveling and stuff like that. You know, if you look at manufactured products, too, I guess I would turn around and say, Okay; My company makes insulation and makes plastics and stuff like that, which saves energy; So I want to get a credit for manufacturing those products.

MR. BROOKMAN: Do you?
MR. DINGO: Do we get a credit for it?
MR. BROOKMAN: I don't know. Do you?
MR. DINGO: No.
MR. BROOKMAN: No?
MR. DINGO: No.
(Laughter.)
MR. BROOKMAN: I can't see your name. It's Catherine --
MS. PEDDIE: Catherine Peddie.
MR. BROOKMAN: -- Peddie?
MS. PEDDIE: Two comments. One, consider materiality. Is, for example, greenhouse gases from business travel material relative to greenhouse gases from running a refinery? Probably irrelevant.
MR. BROOKMAN: Uh-huh.
MS. PEDDIE: Second, if you are going to consider going upstream in the supply chain, you should also consider going downstream in the supply chain and, as the previous speaker mentioned, getting credits or penalties for the use of your products. For example, what about an oil company, where your entire product line ends up as greenhouse gases?
MR. BROOKMAN: Uh-huh.
And so I'm wondering if there's a different perspective; I'm hearing one perspective so far. And I'm -- because I understand that these indirect emissions, you know, in the aggregate are huge. Right? I mean there are --
Arthur Rypinski first, and then Greg Spencer.
MR. RYPINSKI: Just a point of clarification. Hydro-carbons are composed of both hydrogen and carbon, and only the carbon part ends up as greenhouse gases.
(Laughter.)
MR. BROOKMAN: Greg Spencer?
Do you see what we've had to put up with on the road and in all these workshops?
Greg Spencer.
MR. SPENCER: If the goal is to achieve the greatest environmental effect and transportation represents the second-largest source, as I understand it, why you wouldn't want to allow a developer of a new logistics program, for example, that would through intermodal or some other mechanism achieve dramatic reductions that could easily be allocated by contract between the party developing the program and those who ship or receive goods on either end I don't understand.
There is complexity if you're talking about an individual product all the way down the line, but, if there's a materiality threshold, if you have third-party verification, you ought to allow any form of indirect emission that ultimately supports the ultimate objective here.
MR. BROOKMAN: And we're going to cover this in the following slide.
Is there an easy answer to the question of materiality? Is there a standard? Is there anything that could be said on this subject?
I'm coming to you in a moment, Mary.
(No response.)
MR. BROOKMAN: We'll return to it.
Mary Quillian?
MS. QUILLIAN: Mary Quillian, Nuclear Energy Institute. It just seems to me that if you've got a large number of companies reporting, then, theoretically, your employee's travel is already covered under the airlines reporting their emissions or the tables and chairs that you purchase for your offices should be covered under the furniture companies' reporting.
And so it would seem to me that that's an awful lot of trouble, for the end-user to have to report on other stuff they purchase, as well as trying to figure out how -- if consumers of your products use your products correctly or incorrectly and account for their subsequent emissions.

MR. BROOKMAN: Okay.

And let me note that one of the break-out sessions includes small and distributed sources. So for those of you who have got an interest in this subject, we've got quite a good exploration in the last workshop in San Francisco.

Jeffrey Williams?

MR. WILLIAMS: I think the issue kind of turns if we're to report emissions -- extend our footprint out to report our emissions related to these things. There's a great deal of difficulty and perhaps not a lot of benefit or payback.

But I don't think that we should ignore the power of consumer choice and our ability to affect it. And if we can structure a deal where we encourage our employees or some other entities to become more efficient and generate a credit from that, then we shouldn't preclude that.

MR. BROOKMAN: Okay. Because one of the Department's larger interests here is to create incentives for all of this to happen in a voluntary context, for a voluntary program, in that respect to be an incentive to succeed.

Yes, Mary Quillian?

MS. QUILLIAN: I just -- I agree with that. And I would say that you just -- you can just handle that in a project type of system. I mean I think that in the grand scheme of reporting, it should be flexible, and you should allow entities and companies to report all types of projects that they do that better the situation, but having them go through a whole lot of rigorous accounting is actually going to reduce the number of people that voluntarily report. And that should be kept in mind.

MR. BROOKMAN: Yes.

Mark Friedrichs?

MR. FRIEDRICHS: One of the criticisms that the program has had in the past is that reporters could be selective about what kinds of projects they report -- obviously, those that result in the reductions -- while not taking account of other actions that might result in increased emissions from related activity.

So if you have a logistics or a transportation project that results in indirect emission reductions, does that mean you should also report all of your other logistics- and transportation-related emissions just to make sure that this was a net reduction?

MR. BROOKMAN: Jeffrey Williams?

MR. WILLIAMS: I understand the issue. And --

(Laughter.)

MR. WILLIAMS: -- I -- what I'm saying is that I don't believe that we need to report the emissions, that if we can justify and structure a deal on the reduction that shows that there's real reductions from this, that should be creditable.

MR. BROOKMAN: Okay. Thank you.

Other comments on this subject?

Yes, Robert --

MR. NARVAEZ: Robert Narvaez.

MR. BROOKMAN: -- Narvaez?

MR. NARVAEZ: One of the things that I'd like to capture is that there's much similarity between the first bullet and the second, and I do not feel that we should be reporting things that we have very little control over. However, there are some external factors that I feel have not been mentioned, and those apply to some of the Kyoto accords and the ISO 14001 issues.

The European communities are starting to require exclusions of certain greenhouse gas-producing chemicals and products. So it might not be that we wish to or do not wish to do something on the second bullet, because we are going to be doing it via the external pressures we have with the European community.

MR. BROOKMAN: This one, this bullet here?

MR. NARVAEZ: Not business travel. The materials --

MR. BROOKMAN: Yes, right. Materials, yes.
MR. NARVAEZ: -- and manufactured products.
MR. BROOKMAN: Okay.
MR. NARVAEZ: You know --
MR. BROOKMAN: That trend -- you were pointing to the trend line there. And --
MR. NARVAEZ: Sure.
MR. BROOKMAN: Yes? Okay. But it's -- I guess -- okay.
Final thoughts or additional comments on this slide and, particularly any other perspectives we haven't heard so far?
(No response.)
MR. BROOKMAN: Okay. Let's go to the next slide.
MR. STAUB: What we'd also like to talk about next -- this is John Staub from DOE -- is whether or not we should require or encourage the reporting of all of the United Nations Framework Convention Climate Change gases -- there are six of those -- or other gases like the hallogenated gases, and then, How should we treat sources of -- real small sources of gases and really difficult sources of gases, in a manufacturing plant, for example? Is there a cut-off point based on quantity or percentage wise that we should look at?
And often, these are referred to as de minimis issues. So that's kind of the next section.
MR. BROOKMAN: Thank you.
And Paul McArdle, EIA?
(Pause.)
MR. BROOKMAN: For those of you that are wanting to know, in probably 15 minutes or so, we'll take a break.
MR. McARDLE: Paul McArdle from EIA, just to follow up on what John said. Under the current program, we allow the reporting of emissions and reductions on CO2, methane, N20, HFCs, PFCs and SF6, the traditional kind of six Kyoto gases. We also allow the reporting of emissions of some other hallogenated substances, including HCFCs and CFCs, as well as reporting on other radiatively enhancing gases. And these are some of the criteria pollutants that are thought to have indirect climate effects, those being CO, NOX and non-methane volatile organic compounds.
In total, we allow the reporting, I believe, on 41 gases, including these here. So it's -- there's a wide array of gases you can report on, and that's kind of how the legislation and the guidelines were originally set up.
In terms of sources covered, again, a wide variety of sources and activities can be reported: Ten project types. And within the ten project types -- and that goes back to that schematic of the reporting form I showed you. Under each one of those sections, Sections 1 through 10, of Schedule 2 of the project-level reductions, there's a number of what you might call sub-project types within each one of those ten. So there's a wide variety of activities that could be reported.
And just to follow up, on this slide here, we have no -- we do not have a materiality or de minimis standard. So you can report on very small sources if you choose to do so.
MR. BROOKMAN: Thank you.
So, first, to the issue of the six U. N. framework gases, should that be what is required or encouraged? Are there others? Let's deal with that one first.
Yes, Thomas Dingo?
MR. DINGO: If this is a voluntary program, why do we even have the word, "Require," in there?
(Laughter.)
MR. BROOKMAN: That's a good point.
Margot Anderson?
MS. ANDERSON: We think that the voluntary component of the program is whether you make a voluntary decision to report or not report. But once you report, we think that there needs to be some consistent set of guidelines, and these might be termed as requirements. If there is going to be a

reporting program and if you are agreeing to report, then, under that, there needs to be some rules, just like there are now, or guidelines about what's being reported.

So it isn't a requirement that you join the program; that is truly a voluntary decision. But once you're in the program, one of the questions that we're asking is how -- what is the consistency for these kinds of guidelines, and if -- under the multiple greenhouse gas issue, is it okay to allow flexibility that you decide how much you're going to report on, or, in fact, is there a minimum amount of reporting or minimum number of gases that all should report on if they're going to report at all.

So the -- we look at the voluntary side of it as the decision to be in or out.

Do you want to comment on that?

MR. BROOKMAN: Yes.

Randall Stowe?

MR. STOWE: Well, first of all, I'd just like to state that it's unusual that everybody always says, "The six gases," because there are two of them in there that are actually families of gases: The HFCs and the PFCs. There's quite a number of those. And personally, I'd like to have any gas included in the program that has a potential for global warming as long as they include the global warming potential factors.

MR. BROOKMAN: Uh-huh. And -- but then there are --

Paul McArdle, EIA, this came up in the earlier workshop.

MR. McARDLE: Yes. And under the current program, we do allow the reporting of, as you've mentioned, the family of the HFCs and the PFCs. And we allow people to delineate which HFCs are reported and which PFCs are reported.

And, also, on the HCFCs and the CFCs, there are direct GWPs that the IPCC has calculated. We actually supply that --

MR. BROOKMAN: That is Global Warming Potential from the --

MR. McARDLE: The radiated forcing --

MR. BROOKMAN: Yes.

MR. McARDLE: The direct radiated forcing from those gases using hundred-year GWPs relative to the reference gas, which is CO2. And, however, we do require the folks to report their -- the native gas -- in units of native gas, not to convert it over using the GWP. But, again, we have that option right now for all of the wide variety of gases.

MR. BROOKMAN: So under the current program, people can report about as many gases as they choose to report?

MR. McARDLE: Basically, I think if you went to the IPCC report and looked at anything that they gave a direct GWP for, and that includes the traditional six or six families plus the hallogenated substances like CFCs, HCFCs, methyl-bromide and those types of things, that we have in there and -- they're allowable --

MR. BROOKMAN: Okay.

MR. McARDLE: -- but not required.

MR. BROOKMAN: Uh-huh.

So this, I think, then leads you to the discussion on materiality or at what point it's de minimis or at what point -- right. That -- and so maybe we could go there next.

Yes, Thomas Dingo?

MR. DINGO: Again, I'd go back to the point that if you're trying to encourage voluntary reporting, there should be no requirements.

MR. SMITH: Reid Smith, BP.

MR. BROOKMAN: Yes.

MR. SMITH: We think to have any credibility, the program has to cover at least the six Kyoto gases. Other gases should be allowed as long as there is an established global warming potential that's internationally recognized --

MR. BROOKMAN: Okay.

MR. SMITH: -- the IPCC obviously being the body that -- if it's recognized in there.
MR. BROOKMAN: Thank you.
Other perspectives on this?
Yes, please, Ben Carmine?
MR. CARMINE: Ben Carmine. We believe that the reporting of the six gases should be optional. For power generators, CO2 is the predominant emission. Yes, there'll be some methane and some others, but the lion's share is the CO2. And a lot of effort is going to be spent chasing those other gases, and they won't add up to very much.
MR. BROOKMAN: Mark Friedrichs?
MR. FRIEDRICHS: This goes to the de minimis question that's the second bullet there. That only is meaningful if we presume that there is some kind of requirement. If there is some kind of requirement for certain gases to be reported, should there be an exemption from that requirement for small sources or for other reasons? And so that's one of the things we wanted to hear about.
MR. BROOKMAN: Yes.
Are there other -- do you -- is there somewhere to specify a threshold, a de minimis level, a report that would be so small that you would recognize that you wouldn't want to report it?
MR. SMITH: We've -- Reid Smith, BP. We've done quite a bit of discussion around that internally, and we feel like somewhere around 1 percent of an entity's emissions ought to be some kind of a materiality threshold.
MR. BROOKMAN: Thank you.
MR. SMITH: And you should make a one-time demonstration that it's below that, and you shouldn't have to demonstrate that going forward. And that addresses things where, you know, people essentially don't have any SF6.
MR. BROOKMAN: Other perspectives on materiality or what is de minimis?
Mark Friedrichs, do you want to follow on?
MR. FRIEDRICHS: Just a question for the previous comment.
Ben, would that solve your problem in terms of the small non-CO2 emissions?
MR. BROOKMAN: Ben Carmine?
MR. CARMINE: Offhand, I'm not aware of the quantity, but I suspect that it would. Now, as long as we're referring to the report of 99 percent of the gases, of, say, CO2 versus -- am I also trying to account for 99 percent of the methane or 99 percent of the SF6?
MR. BROOKMAN: Do --
MR. CARMINE: And I'm not certain 1 percent is the right number. I mean there is a number, and whether it's 1 percent or 10 percent -- you know.
MR. BROOKMAN: Catherine Peddie?
MS. PEDDIE: The accounting standard for materiality is considering how the decision -- a decision on that number would be altered by including or excluding at that level. So it really needs to be on a case-by-case basis. In the example of the power plant, are you going to change your decision on managing your greenhouse gases based on your methane emissions? I doubt it.
MR. BROOKMAN: Uh-huh. And --
MS. PEDDIE: In a different example, where you may have a very small source of a gas with very high warming potential, you may change your decision if you know that number and you report that number. So --
MR. BROOKMAN: So it's case by case, but it's driven by both quantity and global warming potential?
MS. PEDDIE: Well, more how you would use that number.
MR. BROOKMAN: Whether it's material in your accounting, in the way you package it, put it together?
MS. PEDDIE: Right, whether it has any influence over the decisions that you make.
MR. BROOKMAN: Well, that doesn't provide a lot of rather specific guidance to the

Department of Energy, I would suggest.
(Laughter.)
MR. BROOKMAN: Right?
MS. PEDDIE: Right.
MR. BROOKMAN: Right. Nor does it allow for them to look across a spectrum of reporters and see that there's consistency there.
MS. PEDDIE: Right.
MR. BROOKMAN: Right. I'm wondering if there are other issues or other standards.
Yes, Mary Quillian?
MS. QUILLIAN: I'd just like to point out, hopefully, without spilling the water here that although I think setting a de minimis -- a percentage de minimis works well for most entities, if you've got a generation source like a hydro-electric a nuclear or a renewable, chasing our emissions -- since the bulk of our process isn't a greenhouse gas-emitting process --
MR. BROOKMAN: Right.
MS. QUILLIAN: -- chasing this other stuff to get 99 percent of our emissions becomes a real hassle and will actually encourage us not to voluntarily report.
MR. BROOKMAN: And so can you suggest a quantitative threshold or some other way of handling that? Should there be a stiffer kind of threshold for renewable and non-major-carbon-emitting kinds of --
MS. QUILLIAN: I'll think about that.
MR. BROOKMAN: Think on it, yes.
Other perspectives on this?
Yes, Greg Spencer?
MR. SPENCER: I'm not sure I agree with your earlier conclusion that the materiality standard used in GAP isn't helpful to DOE. If you have --
MR. BROOKMAN: Good.
MR. SPENCER: -- a two-tiered reporting process of entity-wide and project based, in the entity-wide context, what's relevant or material for BP, obviously, is going to be dramatically different from most --
MR. BROOKMAN: Yes. But let me stop you because I didn't mean to say it was not helpful. I just said I couldn't in my own mind untangle it or see the consistency in it. So maybe I just -- I didn't mean to disparage it. But --
MR. SPENCER: No. I -- the point is that I think in entity-wide reporting materiality is an appropriate -- that definition of materiality is the appropriate response level. In project-based reporting, I think, an absolute number would keep the registry from being so overwhelmed --
MR. BROOKMAN: Oh.
MR. SPENCER: -- with, you know, what I did in the back yard-kinds of projects that it would become very difficult to use or manage.
MR. BROOKMAN: Okay. Thank you.
Are there other perspectives?
That was a -- helpful because I didn't get the link before or the --
MR. SPENCER: Yes.
MR. BROOKMAN: Yes.
Other comments? Additional --
Yes, please. Your name, for the record?
MR. HSU: Sangem Hsu. Should these be linked to uncertainty? Because, you know, when we estimate -- make an estimation, I would say, usually, the uncertainty level probably could be as high as as much as 10 percent. And you have such a large quantity of uncertainty -- and we talk about 1 percent or 5 percent -- I mean semantically, it doesn't -- you know.
MR. BROOKMAN: And what's your perspective on that? Should there be an uncertainty factor,

or should it be tied to uncertainty?

MR. HSU: I think it should be tied to uncertainty, but I don't have an answer. Just a question.

MR. BROOKMAN: Is there a broad spectrum of uncertainty in these things? I would -- isn't -- or is it --

Arthur Rypinski?

MR. RYPINSKI: There are lots of small sources that are also difficult to measure. And difficult to measure has a couple of dimensions. You could think of it as an -- there's an inexpensive way of measuring it that's really inaccurate.

MR. BROOKMAN: Yes.

MR. RYPINSKI: And so it has a high level of uncertainty. And then there's a really, really expensive way of measuring it that's --

MR. BROOKMAN: Quite certain?

MR. RYPINSKI: -- more accurate.

MR. BROOKMAN: Yes.

MR. RYPINSKI: And so this -- there's an interaction, in effect, between cost and uncertainty. And then there's a small category of emissions sources which are both really, really uncertain and really difficult to measure at any cost, particularly some of the ag. nitrous-oxide stuff.

So -- but companies will often find that there are -- that they have a very small source that they could measure accurately, though at immense cost. And so -- or they could use a default that's highly uncertain. A classic would be methane emissions from power generation or nitrous-oxide emissions from power generation.

MR. BROOKMAN: Okay.

MR. RYPINSKI: By all accounts, it's a tiny number; it could be measured accurately, but at immense cost.

MR. BROOKMAN: Greg Spencer?

MR. SPENCER: Clean Up Canada, formerly -- we've submitted several protocols for different projects. They formerly had a requirement for uncertainty analysis. The cost of doing that work and making the calculations can be extremely complicated and burdensome. And they have dropped that requirement now for registration of projects.

MR. BROOKMAN: Thank you.

MR. SMITH: I would suggest that the uncertainty analysis comes in more on valuing of credits or valuing of transferrable credits and plays a bigger role there than in reporting.

MR. BROOKMAN: So we'll take that up later then, when we get to credits and the like.

That was Reid Smith with that last comment.

Other perspectives on -- particularly on approaches to very small sources, difficult sources, to measure? I thought that was pretty complete, the issues of de minimis, those -- some way to describe materiality.

MS. ANDERSON: One more follow-up?

MR. BROOKMAN: Yes, Margot Anderson.

MS. ANDERSON: One more follow-up question that kind of builds on Greg's question and Arthur's comment, which is: Not de minimis in terms of a percentage of gases emitted, but in terms of very small sources, some have suggested at other workshops that anyone emitting less than an absolute number of tons of -- maybe 10,000, I think, came up -- or another number would not be acceptable to report, that the reporting program can't be overwhelmed by a number of very small emitters.

And is there any thought around this room that there is some small size, small-scale households, individuals, that may want to report that in fact we draw the line and don't accept reports for a certain level of emissions? So it's different than the type of gas that you're emitting, but, overall, should there be a limit?

MR. BROOKMAN: Additional comments on that?

Greg Spencer.

MR. SPENCER: I may be being somewhat redundant, but only that -- the market has, again, developed a mechanism for that. There is an entity-developing commuting-based project where all of the reductions associated with a large, metropolitan-wide commuting program are aggregated for the purpose of registration of those credits.

I thought that Fannie Mae or one of the federal agencies was doing the same thing in the context of the Energy Start program, where individual household appliance purchases that met the Energy Star rating were then aggregated as part of a program. So on a project-wide basis, again, I think you can have an absolute threshold number, and the market will find mechanisms of ways to aggregate small projects so that it doesn't become burdensome.

MR. BROOKMAN: Okay.

Yes, please?

MR. DABNEY: Stan Dabney, Alamo Cement. Because of the diversities of entities and industries, creating a threshold would be kind of difficult from industry to industry. So my question is: Should you loop different industries into a certain category to determine those factors?

MR. BROOKMAN: Different standards or different thresholds for different industries?

MR. DABNEY: Right.

MR. BROOKMAN: That's a question open to the group. Perspectives on that?

(Pause.)

MR. BROOKMAN: No one has got an answer for you at this moment.

(Laughter.)

MR. BROOKMAN: And, also, I would say that it seems as though we're ready to take a break. It's now a little after 10:35. Let's take a break, and we'll start back up at 9:50. And Thank you for a very good start. We're covering ground fast here; in fact, we're ahead of schedule.

(Whereupon, a short recess ensued.)

MR. BROOKMAN: Did everybody get their parking validation sticker? If you drove, make sure and get one from Adrienne at the front desk there.

I think we're ready to go to the next slide. As you can see -- and this is on page 3 of your handout: "Measurement and Accounting Methods." And Mark Friedrichs is going to explain this.

MR. FRIEDRICHS: Let's take this one in two pieces, the first bullet first: "Specifying in an initial reporting year." The existing 1605b program in the statute referenced a base period of 1987 to 1990. These revised guidelines are not likely to be issued until January 2004, which would normally be in time for the 2003 reporting data.

There's a question about, Should we establish any requirements about what types of data we accept from previous years? Should we direct essentially that all reporting under the new guidelines begin with 2003, or should we allow companies to report previous years?

Paul, do you have anything more to add about how it's addressed under 1605b now?

MR. McARDLE: Sure.

MR. FRIEDRICHS: Paul McArdle.

MR. McARDLE: Paul McArdle, EIA. Dealing with the current operational procedures of 1605b in terms of reporting years, as I mentioned, we've got two levels of reporting: Entity-level reporting and project-level reporting. At the entity level, you can report emissions from 1987 onward and reductions -- actually, I should say reductions from 1990 -- I'm sorry -- I should say 1991 -- reductions from 1991 onward and, at the project-level reporting, emissions and reductions from 1991 onward.

And in terms of getting back to the bullet here, under the current system, for your baseline you can or -- base year, I should say, you could specify a specific year or you could specify an average of years in order to smooth out what you might, you know, if you have -- sometimes corporations have -- there's randomness in their emissions. And they may want to specify an average of years to smooth out that randomness.

MR. BROOKMAN: Thank you.

So as your slide -- as the slide suggests, we're looking at measurement and accounting methods

and talking about an initial reporting year of potentially what, a base year or a starting year and what that might be? Let's start with that.

(Pause.)

MR. BROOKMAN: Any specifics?

MR. SMITH: Okay. If there's no other takers, Reid Smith, BP.

(Laughter.)

MR. BROOKMAN: Reid, we appreciate you, buddy. We do. Get us going.

MR. SMITH: We think that the selection baseline year ought to be open to the reporting entity subject to the ability to provide verification around that.

MR. BROOKMAN: Hmm. And -- okay.

MR. SMITH: And we think that's very important particularly for entities that have taken early action. You know, it gets back to the protection and early action.

MR. BROOKMAN: Those persons that have acted early and that that they should be able -- and that have been proactive and demonstrated their willingness to do that good stuffed they should not be penalized for having a base year that's further upstream?

MR. SMITH: That's correct.

MR. FRIEDRICHS: This is Mark Friedrichs. I take that to mean that if the reports could meet the new guidelines, you think that we should accept them even if they're reporting on data way back to 1987?

MR. SMITH: That's correct.

MR. BROOKMAN: Reid Smith following on.

Other thoughts on this, about establishing baselines and when to begin?

Rayburn --

MR. BUTTS: Butts.

MR. BROOKMAN: -- Butts?

MR. BUTTS: Florida Power and Light.

MR. BROOKMAN: Let's turn the microphone toward him. I'm sure he has got a big voice, but --

(Pause.)

MR. BUTTS: One little catch there is that -- the reports that meet the new guidelines was a big concern. There weren't a lot of guidelines in 1987. There certainly are some activities that happened prior to the new guidelines coming out that those who have performed early actions will want to get credit for.

I mean, clearly, as organizations, as environmental managers, we've gone to our managements and CEOs and said, You know, we do this voluntarily, but someday we're going to get credit for it; Yes, it's costing you a little bit of money and some man-power, but you'll get credit for it; And we're going to want to do that. And we may not meet the new guidelines, but --

MR. BROOKMAN: That's the potential rub. And what -- and how -- say more about that. To what extent may they not? And how -- what should the level of attainment be?

MR. BUTTS: Well, I think to the extent that they may not meet the guidelines is one of the problems with 1605b in the past in that there wasn't a clear-cut protocol for determining what was an emission reduction. People -- and it's because it was a fledgling process and people were asking, you know, What would be an emission reduction to you.

So a lot of different types of projects, including emissions avoidance projects and some that environmental groups might say, "Well, that's not real reduction; Those are anyway tons" -- I'm sure most of you have heard that -- "You would have had had that reduction anyway, whether there was a program or not" -- there was no true guidance as to how some of that should have been done.

But there are folks out there that feel like many of those projects are valid projects and they did reduce CO2 or other greenhouse gases, and they should get credit for them. So --

MR. BROOKMAN: Mark --

MR. BUTTS: I don't have the answer for it.
MR. BROOKMAN: Mark Friedrichs?
MR. FRIEDRICHS: I just wanted to say that we are going to get back into sort of this same issue in the context of emission reductions and projects a little later on in the day.
MR. BROOKMAN: Okay. Thank you.
MR. SMITH: And we tend to agree with that viewpoint, as well. That --
MR. BROOKMAN: That --
MR. SMITH: If you can provide credible evidence and if you have third-party verification, then it should be acceptable.
MR. BROOKMAN: That -- I think your point then was different than Rayburn's. The -- his concern --
Rayburn, your concern is that the difficulty in meeting these revised standards --
MR. BUTTS: [inaudible].
MR. BROOKMAN: Right, and that, somehow -- nevertheless, what you had reported previously, even if it does not meet that revised standard, then you somehow then have the opportunity to get credit for that.
Reid, you said, I believe -- don't let me put words in your mouth -- that you've got to meet the new standard and you've got to have both the data and that it has got to be verified?
MR. SMITH: I don't think that --
MR. BROOKMAN: Reid Smith following on.
MR. SMITH: -- I would carry it quite that far in saying that you need to meet the new standard because, obviously, we haven't seen the new standard.
MR. BROOKMAN: Yes.
MR. SMITH: And we don't know what it's going to say or be.
MR. BROOKMAN: Mark Friedrichs?
MR. FRIEDRICHS: I was just going to comment that I actually heard something in between.
MR. BROOKMAN: Uh-huh?
MR. FRIEDRICHS: That there's --
MR. BROOKMAN: Good.
(Laughter.)
MR. FRIEDRICHS: There's some kind of credibility test that does need to be applied to the old emission reductions, but the speakers aren't quite sure it should be the same credibility test as might apply to -- under the new guidelines.
MR. BROOKMAN: I see some heads nodding up and down in the room. I see -- okay.
So I'm glad you were listening hard.
Yes, please. Your name for the record?
MR. MACHADO: Joe Machado.
MR. BROOKMAN: Say it again.
MR. MACHADO: Sure. Joe Machado. I think, again, you have to look back at, you know, what are the objectives of what you're trying to achieve. And one of the objectives that I heard was baseline protection that, I think, has been part of this program.
So, again, I think that the first speaker there was right on. Is -- if a company is going to try to engage in this baseline protection, if that's their objective and that's the objective of the program, then the data -- if it beats the standards of the day, that should be respected.
MR. BROOKMAN: Okay.
MR. MACHADO: So I think that the data from the year and if it's meeting that standard, that's fine. If you go back, you're meeting the -- you know, you should be able to report earlier years with regard to more stringent standards or, at least, as a minimum, the standards of the day, and that should be acceptable.
It's probably going to cause problems, but I suspect we're going to have to live with those

problems because baseline was part of those -- part of the drivers --

MR. BROOKMAN: Yes. I --

MR. MACHADO: -- for the program.

MR. BROOKMAN: And I anticipate those problematic areas we'll cover in considerable depth when we get to reductions, which will be shortly, I suspect.

What about this second bullet? Well, let me -- before we move to the second bullet, any additional perspectives -- let me just confirm that -- on initial reporting years, anything in addition to what we've heard so far?

Yes, please. Your name, for the record?

MR. URDY: Charles Urdy, LCRA. Will there be a 2003 report?

MR. BROOKMAN: Will there be a 2003 report?

MR. URDY: Yes.

MR. BROOKMAN: I'm looking at DOE.

Mark Friedrichs?

MR. FRIEDRICHS: Certainly. The reporting program is going to continue year to year. And as soon as the new guidelines are put in place, those will be put into effect. It's just a question of, To what reports should the new guidelines apply.

MR. BROOKMAN: Uh-huh. Okay.

Additional thoughts or comments on this?

(No response.)

MR. BROOKMAN: Which emissions measurement or estimation methods should be used: Fossil fuel or actual emissions; Fuel and global warming potential conversion factors; Methods for non-fossil gases? How should this be actually done?

MR. FRIEDRICHS: Mark Friedrichs, again. Under the existing program, there are a wide range of conversion factors, emission factors, under the WRI protocol and other reporting protocols. There are also a large number of standards for converting emissions, converting fossil fuel use into emissions.

We're looking here for comments on those factors that are used under the existing program or those used under parallel reporting programs. To what degree should the revised 1605b program continue with the factors used under the existing program, adopt those under the WRI protocol or other reporting protocols?

For specialized industries like the oil and gas industry, certain specialized protocols have been developed by industry associations or other professional groups. Should the guidelines try to incorporate those or simply permit the use of those industry-based methods? A lot of questions in this area, obviously, at a fairly technical level.

MR. BROOKMAN: Thank you.

Paul McArdle, EIA's perspective?

MR. McARDLE: Paul McArdle, EIA. I just want to expand on the EIA slide over there.

Currently, EIA supplies reporters with default emission factors on fossil fuel combustion, some renewable activities, as well as electricity emission factors by state. They're basically three-year rolling averages of all the electricity produced in that state and their CO2 per megawatt hour, as well as methane and N2O emission factors.

Under the current program, we do allow folks to use alternative measures. They have to be justified to us, and they have to be consistent with the current guidelines.

And, also, just to expand on the other slide up there that Mark has put up there in terms of which emission measurement or estimation methods should be used, largely, in terms of fossil fuel combustion, people use default emission factors rather than actual emissions. And when EIA first set this up, basically, the idea was that if you measured the fuel properly, you could measure or estimate the carbon-dioxide emissions accurately, as well.

I don't know. There may be a few utilities that give us actual emissions, but I think that by and large, people use emission factors to supply us with emission estimates. In terms of GWP conversion

factors, we currently, as I said earlier, ask people to report in the native gas. So the GWP activities are not in the hands of the reporters.

We convert the native gases over to CO2 equivalents using the GWPs and the IPCC third assessment report. That's their most current report. That came out in 2001, I believe. There are still some protocols that use the 1996 second assessment report, and I think that's still being used under the framework convention, as well.

And, lastly, methods for non-fossil fuel gases. As Arthur Rypinski was saying, there's a fair amount of uncertainty in some of the gases other than CO2. N2O, methane -- certainly, there's more uncertainty in N2O than methane, but there's still a fair degree of uncertainty in both. And there's certainly more uncertainty in the HFCs, PFCs and SF6.

So largely, we look at the methodology that's submitted to us: Does it make sense; Does it fit the guidelines. And often times, say, in the case of methane from landfills, we kind of fall back on what we do in terms of estimating aggregate methane emissions.

We take a step back and see what type of methods we use in calculating our total U.S. inventory estimates and, Are they in conformity with those methodologies. And, also, on some of the other gases, we see that -- if they're in conformity with some of the methods that EPA has developed on some of the other gases.

MR. BROOKMAN: Thank you.

What about this slide -- well, I mean this segment of the slide here: "Which emissions measurement or estimation methods should be used"?

Margot Anderson with a follow-on question?

MS. ANDERSON: Really a follow-on question. And one way perhaps to look at this question is: For those of you that are reporting, are you finding the flexibility and the degree of detail that you need to continue reporting under this program or what you might see as the revised program?

What information is out there that you think we ought to rely upon? Or what might a trade association that you belong to -- what might they be doing to assist us in becoming more sophisticated about what we're asking folks to report?

MR. BROOKMAN: Mark Friedrichs?

MR. FRIEDRICHS: A related issue is: How important is consistency between various reporting protocols that are in use now? Should 1605B strive for consistency with other reporting programs, or is it okay if we sort of lead the way, or exactly how much emphasis should we put on consistency?

MR. SMITH: Reid Smith, BP. I think that you need to keep the flexibility on how emissions are estimated and that you need to keep the ability to use default factors. You need to allow the use of more accurate methodologies if people want to use them.

And it kind of depends on the reporting entity and what they intend. Are they simply reporting emissions, or do they intent ultimately to try and establish transferrable credits? And clearly, the bar is raised if the second option is your goal. And the --

MR. BROOKMAN: In terms of actual measurement?

MR. SMITH: Yes, in terms of actual measurement.

MR. BROOKMAN: Beyond and before any verification or anything like that?

MR. SMITH: Yes.

MR. BROOKMAN: Okay.

MR. SMITH: And as far as consistency with other protocols, we're clearly proponents of one over-arching protocol. We're required to report in various countries around the world and voluntarily property in the various programs here in the U.S., and there are different protocols in every program.

MR. BROOKMAN: So do you have a preference among the ones that are out there?

MR. SMITH: Oh, that's a loaded question.

(Laughter.)

MR. SMITH: Certainly, our internal one.

(Laughter.)

MR. BROOKMAN: And to what extent does your internal one conform to or fit with the other ones that are out there?

MR. SMITH: Our internal one basically meets the requirements for 95 percent of the external reporting obligations, or voluntary report obligations, that we have.

MR. BROOKMAN: On --

MR. SMITH: There's a few where we have to get a bit tighter.

MR. BROOKMAN: So WRI and whatever else you're doing, you -- no?

MR. SMITH: WRI and the API Compendium and ours are almost 100 percent compatible.

MR. BROOKMAN: Okay.

Yes, please?

MS. SHIRES: I'm Terri Shires with URS Corporation. I'd like to speak a little bit about the API Compendium.

The oil and gas industry has certainly put a lot of effort into developing a document that entails many different calculation methods specific to the oil and gas industry. And so we would certainly discourage DOE from prescribing emission factors and, rather, encourage them to incorporate by reference some of these documents developed by the industry.

Another kind of effort that API has under way is a comparison of the compendium to many other protocols that are out there that affect oil and gas industry emission sources, and we've certainly found a number of differences. And as an industry organization, API is reaching out to these other groups and trying to develop consistency within the industry.

MR. BROOKMAN: Thank you. And we've heard in our other workshops other sectors -- other industrial sectors saying similar sorts of things.

Yes, please, Tom Dingo?

MR. DINGO: Yes. Again, if you're expecting industry to voluntarily report, I don't see how you can have actual emissions because, I think, if you took a poll of how many of us measure CO2 -- I think anybody measures CO2. So --

MR. BROOKMAN: As a requirement --

MR. DINGO: CO2 is not a pollutant --

MR. BROOKMAN: Yes.

MR. DINGO: -- and that's a natural fact.

MR. BROOKMAN: As a requirement. However, if a company was measuring it --

MR. DINGO: You know, if -- the way I'm reading that is that you're going to require actual emissions. And you -- it won't work. We don't report -- I mean we don't measure actual --

MR. BROOKMAN: Mark Friedrichs, maybe --

MR. FRIEDRICHS: And, actually, large sources that do -- that are regulated for SO2 and other emissions often or perhaps always measure their CO2 emissions now even though they're not regulated. There actually have been some differences, too, between our fuel conversion -- fuel use conversion factors and the actual emissions measured. And then there's some question about which is more accurate. So we are concerned about whether or not we should require one or the other.

MR. DINGO: Required of the utilities, but not us.

(Laughter.)

MR. BROOKMAN: That was Tom Dingo with his distinct preference there.

Rayburn Butts?

MR. BUTTS: Ray Butts. I would -- I'd just mention that both of those are -- I think, are important -- both of those options. And that -- for the facility that's a smaller facility that wants to be part of the program but doesn't want to put big bucks into the monitoring equipment, they certainly should have the emission factors and be capable of using those.

And under a voluntary program, I see the emission factors as also very important for even larger facilities that simply want to show that they're working toward reducing CO2 and measuring CO2. But in the end, when and if the day comes that CO2 is -- reductions are required and these credits become real

money, someone's going to want to start measuring them very accurately -- some accountant somewhere. And then you would want that option.

So if you're going to build your program now, you might as well have that option in there, that folks who want to be more accurate and want to spend that money or, ultimately, have to spend that money for monitoring equipment should be allowed to put that in.

MR. BROOKMAN: Thank you.

MR. SMITH: And kind of in between direct measurement and the default factors is fuel analysis and the establishment of customer custom factors based on the actual fuel that they're burning, recognizing that there's different carbon intensities even in natural gas depending on where you are in the country or what stage in the gas business you're using that at.

MR. BROOKMAN: Okay.

That was Reid Smith.

Mary Quillian?

And then I'll return -- I saw one or two hands over here.

MR. BROOKMAN: Yes?

MS. QUILLIAN: Just addressing -- I'm Mary Quillian, NEI, just addressing a question that Mark had on whether the DOE should be using accounting systems that trade associations have come up with. I think, Why not? If the trade association has put a lot of effort into improving an accounting system, whether it's for entity-wide or project, it only makes sense for you all to consider using those things, because that increases -- it solves part of your accounting issues.

MR. BROOKMAN: Jeffrey Williams?

MR. WILLIAMS: Yes.

MR. BROOKMAN: Thank you for using the mic, yes.

MR. WILLIAMS: EPA has had kind of a top-down protocol for estimating emissions -- you know, where available, continuous emissions monitoring, stack testing. If that isn't available, you cascade down to emission factors. And that seems to make sense to me: That where it's there, we use it, but we don't necessarily specify that we go to the lowest common denominator to allow everyone to do the same factor.

MR. BROOKMAN: And which EPA --

MR. WILLIAMS: It's a policy that has been set up. I can't remember exactly where within. It might be part of their chief program.

MR. BROOKMAN: Okay.

MR. KELLEY: It's part of National Emissions Inventory.

MR. BROOKMAN: Thank you.

National Emissions Inventory.

Patrick Kelley, Thank you.

MR. KELLEY: Or criteria pollutants.

MR. BROOKMAN: Thank you. I appreciate that.

Okay. Yes, Jerry Ferrara?

MR. FERRARA: This may be an obvious point, but, for those of us that use fuel as a raw material, we certainly wouldn't want to have all the gross fuel amount that comes into our facilities counted in anything that would go towards an emission because, you know, the fuel that we use as a raw material that ends up in a product --

MR. BROOKMAN: Ah. Got you.

MR. FERRARA: -- you know, should not be included here.

MR. BROOKMAN: If it's a feed stock?

MR. FERRARA: Yes.

MR. BROOKMAN: Oh. Okay. And are you -- does your -- the way that you keep track of such things, does it show, does it separate, a feed stock from a -- I see that --

MR. FERRARA: Well, what we tend to do is account for the carbon coming in that ends up in

our product --

MR. BROOKMAN: Yes.

MR. FERRARA: -- and assume that if it didn't end up in a product, it ended up as a fuel source.

MR. BROOKMAN: Okay.

MR. FERRARA: And then we would convert the emissions based on that.

MR. BROOKMAN: Okay.

Other -- that was a useful differentiation right there. Other useful differentiations for these purposes?

Arthur Rypinski?

MR. RYPINSKI: I would just make the point of clarification that the measurement problem for criteria pollutants and for carbon-dioxide and the combustion of energy are a little different and that it's quite difficult to accurately measure emissions of criteria pollutants usually without direct measurement. In the case of carbon-dioxide from energy, while it's possible to screw up mass balance particularly in many ways, in general, if you measure your fuel consumption accurately and you know something about your fuel quality, you can get good numbers out of mass balance for carbon-dioxide --

MR. BROOKMAN: Okay.

MR. RYPINSKI: -- which, of course, is not the case for some other fuels --

MR. BROOKMAN: Okay. Thank you.

MR. FRIEDRICHS: -- and other pollutants.

MR. BROOKMAN: Thank you.

MR. GALUSKY: Peter Galusky with Marathon Ashland. I would corroborate that. I believe, in going back --

MR. BROOKMAN: Peter, can you get just a little closer?

(Pause.)

MR. BROOKMAN: Thank you.

MR. GALUSKY: I would corroborate that. I believe -- I'm Peter Galusky with Marathon Ashland Petroleum. Our accountants take very accurate -- and probably all other companies account for fuel consumption and fuel use probably more accurately or as accurately as we could measure at the stack. I'd just offer that as a point of conjecture.

Carbon is probably one of the rare elements that mankind can track its consumption of going into the past for a long time, and we just naturally do that because it's expensive. So I would raise the question of -- while it's fine, I supposed, if companies want to measure their stack emissions, I would wonder if you really gain anything.

You know, I suspect that in just doing the stoic geometry and the mass balance, since that's already accounted for with real dollars, that might as accurate if not more accurate than what you might measure with some instrument at the stack.

MR. BROOKMAN: So we have two things -- well, several things at work here: Accuracy plus convenience and, also, flexibility perhaps. Other additional perspectives on this?

Randy Stowe?

MR. STOWE: Yes. Randy Stowe, Dow Chemical. I just wanted to interject one thought here. If you suddenly change your estimation method from one year to the next, you could affect your actual or your estimated emissions by quite a bit. And I'm just wondering if that should be stated somewhere: That you have to re-adust your baseline if you change your methods.

MR. BROOKMAN: I'm looking to Paul McArdle.

How is that handled presently under 1605b?

MR. McARDLE: Paul McArdle, EIA. Under the current programs, you can do that. What you would do is submit a revised report.

MR. BROOKMAN: To adjust your baseline?

MR. McARDLE: You can adjust your baselines and your emissions accordingly if you have something that has changed that appreciably.

MR. BROOKMAN: Thank you.
Mark Friedrichs?
MR. FRIEDRICHS: Yes. Just an add-on to Paul's comment. Many of the conversions factors, as he indicated earlier, are actually applied by EIA because --
MR. BROOKMAN: Not by the companies themselves?
MR. FRIEDRICHS: -- the existing program asks for fuel use and emissions to be reported in their physical units, not in carbon-equivalent.
MR. BROOKMAN: Uh-huh.
MR. FRIEDRICHS: So from time to time, those emission conversion factors used by EIA do change, and EIA simply applies the new conversion factor to all its reports. That's my understanding.
MR. BROOKMAN: Arthur, do you want to say something here?
(Laughter.)
MR. RYPINSKI: Paul, do you want --
MR. McARDLE: Okay. I -- Paul McArdle, EIA. Getting back to what Mark was saying, yes, if we have a change in emission factor, we will put that into our revised guidelines or -- not the revised guidelines, but the -- our new instructions for folks to use in the future.
We -- I'm going to -- I'm thinking back. And I do not think we have changed our fossil fuel combustion numbers. However, we will be changing our coal/carbon co-efficients. Some work was just recently done on coal/carbon co-efficients using more recent geological samples of coal. So those will change maybe on the order of 1 percent.
The basic idea behind mass balance accounting is: When you get the product, you know how much carbon is in the fuel and you assume a combustion efficiency. Now, normally, I think we assume 99.5 percent on natural gas and 99 percent on coal and oil. And basically, that 99 percent -- we basically assume that that carbon is eventually oxidized and becomes CO2.
MR. BROOKMAN: Okay. All right. And the global warming -- the GWP, Global Warming Potential factors -- don't they also get revised slightly --
MR. McARDLE: They --
MR. BROOKMAN: -- over time?
MR. McARDLE: They get revised, but, again, as I said, reporters report in the native gas. So they actually do not use the GWPs to report to us. However, when we compile our annual report, we convert over the non-CO2 gases into COS equivalents, and we use the GWPs.
So right now, we're using the third assessment report from the IPCC. Now, if you'll remember those summary statistics I showed at the beginning of the session this morning in reductions denominated in CO2 equivalents, those were calculated using the IPCC third assessment report GWPs.
Now, a couple of years ago, we were using the second assessment reports, the IPCC second assessment reports, and those numbers would be slightly different because the CH4 GWP went up from 21 to 23 while the N2O GWP went down from, I believe, 310 to 298. And some of the other HFCs, PFCs and SF6 also changed.
MR. BROOKMAN: Arthur Rypinski?
MR. RYPINSKI: Far be it from me to dispute with my colleagues.
MR. BROOKMAN: Not in public, anyway?
MR. RYPINSKI: Not in public and whom I sit with every day. The -- Mark's remarks actually refer to the calculation of GWP, not the calculation of emissions. 16O5b reporters are responsible for reporting for their emissions using emission factors or whatever method they choose to do so, and the emissions report is that of the reporter as reported in the native gas.
The EIA also requires people or -- asks people to report their fuel consumption. And we -- and the EIA compares fuel consumption with the emissions as a consistency check, but the responsibility for that conversion lies with the reporter, not with the EIA, and the EIA doesn't adjust it.
If it's -- though if the number looked odd -- if the implicit conversion factor from the comparison looked odd, that would certainly be an issue that would require review.

MR. BROOKMAN: Okay.

MR. RYPINSKI: The EIA also, as Paul has said, does require people to report emissions of each greenhouse gas in its native units: Carbon-dioxide, methane, nitrous-oxide. And so reporters are not responsible for calculating CO2 equivalent. That is -- they're responsible for reporting in the native gases.

So the conversion from native gas -- carbon dioxide to methane to nitrous-oxide -- to CO2 equivalent for summary reporting purposes in the EIA's annual reports is done by EIA using global warming potentials that change from one time to another --

MR. BROOKMAN: Okay.

MR. RYPINSKI: -- but the responsibility for emissions reporting, however derived, lies with the reporter and not with the government.

MR. BROOKMAN: Thank you.

So back to the slide.

MR. SMITH: Reid Smith with BP. For the Department of Energy, I'd like to raise a question of adjusting the GWPs to the latest IPCC convention report; if the signatories to the framework convention are still using the second edition, for entities that may be looking down the road to transferrable credits, that has some implications.

MR. BROOKMAN: All right.

Who would like to address that input? If you -- who would like to address that?

Arthur? Paul?

MR. McARDLE: I will --

MR. BROOKMAN: Yes, Paul McArdle.

MR. McARDLE: I will not handle the decision on which to use, but I will address what EIA did in their -- both in their national estimates of greenhouse gases which we carry out under 1605a of the Energy Policy Act, as well as 1605b under this current program.

EIA is an independent statistical agency within DOE. And when the IPCC came out with their third assessment report, we looked at that, and we said, That's the most current snapshot of the science, and generally recognized around the world are those GWPs by -- that are calculated by the IPCC. They're generally the source everybody looks to.

And EIA felt that those are the most -- those factors are the most current science. And therefore we used them in our emissions estimates, as well as in the 1605b program. In our emissions estimates, we also publish the same estimates using the second assessment report; basically, the basic difference is about .07 percent. So the difference is relatively small, but -- and I recognize the point from -- by the gentleman from BP.

But, again -- getting back to 1605b, again, we have these in the native gases. So when you report to 1605b, they're in the record in native gases. And if some program -- there's ever a training program that comes out of this, they certainly can easily be converted to using whatever GWP is deemed the appropriate one.

MR. BROOKMAN: Yes.

I'm not sure that was in the record. That was Reid Smith followed up by Paul McArdle.

Okay. Arthur Rypinski?

MR. RYPINSKI: I believe it would be fair to say --

MR. BROOKMAN: You're not on.

MR. RYPINSKI: Am I not on?

MR. BROOKMAN: Let's just leave it on.

(Pause.)

MR. RYPINSKI: I believe it would be fair to say that the Department is aware that there might be some interest in exactly which set of GWPs would be applied. And we're anxious to seek your input as to whether we ought to use the second assessment report, the third assessment report or change it arbitrarily underneath you from time to time.

(Laughter.)

MR. BROOKMAN: So that's to anybody, but we're all looking at Reid Smith first.

MR. SMITH: Reid Smith. And in responding to that, you know, clearly, being a multi-national corporation and, clearly, having operations in a lot of countries that are signatories to the framework convention, at this point, our preference would probably be for the second.

MR. RYPINSKI: Okay. So we'll change it arbitrarily.

(Laughter.)

MR. SMITH: And, having said that, if the framework convention updates, then -- you know. And this goes back to the consistency with other countries, other international protocols and within the U.S. And that's a big issue. I don't have an answer. I don't have a silver bullet, either.

MR. BROOKMAN: Yes, Jerry FERRARA?

MR. FERRARA: Jerry FERRARA. I guess I would just comment that if we ever get to the point that there's any value associated with this, we'd want the best science tied to the factors that were tied to that. And as long as people are generally aware that these changes are made -- I think that's important to the people that are working on it -- from there's a step change from two to three to three to four, or whatever, it's out there well enough for people to know that, you know, These are the rules that we should be working within.

MR. BROOKMAN: Okay.

Yes, Jeffrey Williams?

MR. WILLIAMS: I'd just like to point out that when you're buying a credit, it's really important that you know what you're getting. And I'm a little bit uncomfortable about retrofitting it down, you know, and discounting it based on new science. It seems to me that when you have a contract, it should be based on the science at the time and not devalued down the road.

MR. BROOKMAN: Greg Spencer, do you want to follow on there?

MR. SPENCER: Just to clarify that for some of us, these reductions do have value now.

MR. BROOKMAN: Thank you.

Additional comments on these three bulleted items: "Fossil fuel use or actual emissions: Fuel and GWP conversion factors, and; methods for non-fossil gases? Did we touch on non-fossil gases adequately?

(Pause.)

MR. BROOKMAN: Yes? Okay.

Final comments on this?

(No response.)

MR. BROOKMAN: We're going to go to the next slide. So in the context of emissions reductions and sequestration, the starting point is: "Accurate, reliable and verifiable." These are the kind of broad questions: What are the characteristics of credible emission reductions -- once again, we're dealing with -- now we're making the transition into emission reductions and sequestration -- "What are the characteristics of credible emission reductions? What methods should be used to produce credible estimates of such reductions?"

Let's now go to the next slide. And who's queuing this one up, Arthur Rypinski?

MR. RYPINSKI: Right.

In the -- one can distinguish between three sorts of conceptual approaches to the question of, What is a reduction. And -- but I'll back up a little. And what you -- what is a reduction may depend on why you think it's important to identify emission reductions and sequestration and for what purposes.

And some of the purposes that we've heard about and the President has identified is the transferrable credits and this notion of not being penalized under a future regulatory regime. Reductions -- one could imagine reductions being used to achieve recognition under voluntary programs. One can imagine reductions being used for possible future use. But having decided that we need reductions, we would like to identify reductions for whatever purpose.

Perhaps we can conceptualize what people mean when they say, Reduction. And this is always a

hard thing for new-comers to decide, you know, because one always has a notion that the definition of reduction ought to be obvious. And the trouble is it is obvious, but it's not -- the same obvious thing is not always obvious to everyone, and different people have different obvious notions of what a reduction ought to be.

And three of the sort of most common notions of reductions that we see are listed in the slide on the right. The first one is an absolute reduction, i. e., it's usually a reductio over time: My emissions today are less than they were yesterday; therefore my emissions have declined, and I have a reduction. And we call that kind of reduction in 1605b parlance a basic reference case or sometimes an absolute reduction.

Absolute reductions are usually associated with corporate or entity reductions, that is: It's the emissions of an organization that are declining. Absolute reductions are rarely used in projects, though that does occur sometimes.

A second notion of a reduction is an avoided emission or a reduction through causation. Here the notion is not that emissions are necessarily lower than they were before, but, rather, that emissions are lower than they would have been in the absence of some action or situation.

I'm an electrical generator; I have a mix of generating capacity. I add some new hydro- or nuclear or wind capacity; now my emissions are lower than they would have been had I not added this new capacity. And that kind of reduction is called in 1605b parlance a modified reference case.

In general, most project reductions are causation based, but not universally; however, entities' or corporate emissions can also be defined in terms of the modified reference case or causation-based reductions.

A third category of reductions that we observe is this notion of intensity reductions. And an intensity reduction is a hybrid; it's the notion that your emissions per unit of output have declined. That measuring of output can sometimes be tricky, but the -- a way of thinking about an intensity reduction is that it tests for a single form of causation, this form of causation being output, and apply some of the rules of an absolute reduction.

And if you could, queue the first widget slide.

(Pause.)

MR. RYPINSKI: The -- and to sort of illustrate these issues, we will take a tour through America's widget industry, which makes --

MR. BROOKMAN: Good.

MR. RYPINSKI: Worldwide, you know, America's a world leader in widget production.

(Laughter.)

MR. RYPINSKI: And so we're going to look at the three widget companies: Acme Widget, the Dudley Widget and the Stasis Widget companies.

MR. BROOKMAN: It's pretty hard to see, Arthur.

MR. RYPINSKI: Yes. So let's look at the big slide.

MR. BROOKMAN: Let's look at the big slide first.

MR. RYPINSKI: Yes.

MR. FRIEDRICHS: And we have changed some of the names, Arthur. So just -- I'm sorry about that.

MR. RYPINSKI: I'll try to figure out what they are as I'm going along then.

The Acme Widget Company is America's most successful. Its output -- its sales and production are rising rapidly. Its emissions are rising, however, less rapidly. Its average emissions per widget are declining. So Acme Widget would not have an absolute reduction.

If the decline in average emissions is caused by actions on the part of Acme Widget, then it would have a causation or avoidance-based or modified reference case reduction. And, of course, it would have an intensity reduction because its average emissions per widget are declining. And you could calculate the amount of tons associated with the average emissions per widget and with the actions.

So let's go to the Stasis Widget. Okay?

Stasis Widgets is -- its production is neither rising nor declining; however, its average emissions per widget are declining as its -- and emissions are declining at the same rate. In this case, Stasis Widgets would have an absolute reduction that would be equal to its intensity reduction. And if there was causation applied, if the decline in average emissions per widget was due to some actions, then the modified reference case reduction would be the same.

Then, lastly, let's look at Dudley Widget.

MR. FRIEDRICHS: Which has been renamed as perhaps a derogatory name --

MR. RYPINSKI: Hot Air Widget.

MR. FRIEDRICHS: --Hot Air Widget, which is a term often used in the sort of international debate on climate change.

MR. RYPINSKI: Right. Okay.

Hot Air Widget is shrinking, and its production is declining, but its emissions are falling more slowly than its production. And this would be characteristic of a situation where there is in effect operating leverage like -- there's a plant that requires a lot of energy just to keep it open. And so through-put -- as through-put declines, average emissions don't decline as much.

So we see in the case of Hot Air Widget that its average emissions per widget are rising while its emissions in production are declining. In this case, the Hot Air Widget would have an absolute reduction; it would not have an intensity reduction. And whether it would have a causation or avoidance-based reduction would depend on whether or not they've actually done anything.

And then this -- is there another slide?

MR. FRIEDRICHS: Yes. We added a new, "Absolute Widget," which is basically the cousin of Acme Widget. But in this case, they have achieved such a dramatic reduction in emissions per widget that their total emissions are declining. So they have a very dramatic increase in production and a very small decrease in emissions.

MR. RYPINSKI: In this case, Absolute Widget has a small absolute reduction and a somewhat larger intensity reduction.

So that concludes our little primer on reductions. And here we see the -- America's widget industry in its manifold glory. All of the lines we're seeing are index numbers, which is how we managed to get them on the same graph. So they don't actually do tons, but you could convert any of those lines into tons by multiplying them by the underlying production number.

And so the question we're interested in asking is -- among other things, we're going to start with, Who should receive the recognition or the right to report these reductions when there are multiple claimants. And the areas where there are multiple claimants usually turn out to be along the seam between direct and indirect emissions, so, for example, between producers and consumers of electricity.

Another case where there are prospectively multiple claimants might be manufacturers of energy-efficient or energy -- low-emissions products, like super-efficient refrigerators, so that if the product is electricity -- if the product which is used efficiently is electricity, then there are actually three or more claimants.

We also are interested in the question of, "Who ought to receive recognition or be able to report emissions that occur outside project boundaries, sometimes called offsets, and foreign projects, projects or activities that take place outside the United States," and, "In activities where there are multiple participants like a project implementor or a project investor, who ought to be the default person who has the responsibility for reporting?"

So we're interested in your views on all of these topics.

MR. BROOKMAN: Thank you.

Paul McArdle, the current practice of the EIA?

MR. McARDLE: Paul McArdle, EIA, just real briefly. And some of this may be repetitive of what I've said earlier and Arthur just mentioned, but, under 1605b, the calculations of emissions reductions basically boils down to reference case. And at this point, we call them reported reductions, and not creditable reductions as mentioned in that slide, just to be clear.

And as I mentioned earlier, it all boils down to the reference case. If you're going to calculate emission reductions, you have to calculate your actual reductions no matter which baseline or reference case you use.

Now, under a basic or historical baseline, it's basically the difference between actual emissions and what your emissions were in that particular year, emissions in the year 200X. And as I mentioned, your base year can be an actual year or it can be an average of a number of years.

Now, generally, when you're using the basic reference case -- this is largely -- more often used when you're doing entity-level reporting, rather than project-level reporting. It's easy to measure and verify, generally speaking, because they're actual numbers in both cases.

It's not often meaningful for projects or a single entity because, like I mentioned earlier, in some cases, projects are Point Zero, so they have no history. They don't have any historical emissions you can fall back on. And it measures the outcome, not the cause. When you do entity-level reporting using a historical baseline, it's -- sometimes it's a black box. You don't know why it happened; you just see the aggregate numbers. You know there was a reduction, but you don't know why.

The modified or business-as-usual baseline? This is prevalent in project-level reporting. It's the difference between actual emissions and what emissions would have been in the absence of an action, or your counter-factual.

However, since the reference case is a counter-factual or a hypothetical, it's difficult to verify the counter-factual or the reference case, and that's where we get in a lot of these discussions: What is the reference case when you use the counter-factual? And often times, it's subject to debate.

However, one good thing about project-level reporting is that you see the causation. You can see a specific action and the causation of that action.

And, lastly -- not many people have done this -- 1605b actually does allow unit-of-production baselines or what you'll hear later in the afternoon, intensity-based baselines, where it's your greenhouse gas emissions divided by your output and the changes in that output relative to a base year.

And they're generally easy to construct when you have a homogeneous output, so the denominator is a homogeneous product, so it's easy to aggregate. We've had a couple of reporters, I believe, in the cement industry report to 1605b using unit-of-production baselines. Other than that, it really hasn't been used extensively.

And I'm looking to see if I have anything to say on this slide here. I don't have a lot to add at this point on the other slide.

MR. BROOKMAN: Thank you.

So let me ask you to focus on one word on this slide here, which is this one: "Characteristics of credible," not creditable. Presumably, if they were credible, then perhaps it might be creditable, but we're looking for characteristics of credible reductions first.

And I think this whole slide we could probably -- well, let's deal with this top block here first: "Why identify emissions reductions: Credits and trading; Recognition under voluntary programs; Future use and; Other."

Comments on this cluster of issues?

Yes, Mary Quillian?

MS. QUILLIAN: Mary Quillian, NEI. I'd just like to say that I think it's important that the revisions specify that a reduction includes anything that is a direct reduction, an avoidance or a sequestration, because I believe that all of those sources can create real verifiable reductions in the total greenhouse gas emission output of the country. And so all of those types of reductions should be creditable.

MR. BROOKMAN: And I know that, having had you at a previous workshop, the word, "Avoidance," has special meaning to you. Do you want to make that clear on the record?

(Laughter.)

MS. QUILLIAN: Well, I think that, you know, any source of electricity generation, such as nuclear, large hydro- and all the renewable sources of electricity generation, are producing electricity in a

way that does not produce greenhouse gas emissions. And we'd like to make that known and receive credit that that process is actually going on.

MR. BROOKMAN: Okay.

MS. QUILLIAN: And that's why I'm here.

MR. BROOKMAN: Thank you.

(Laughter.)

MR. BROOKMAN: And the reason that the rest of you are here, hopefully, will be to respond to these other points.

MR. BUTTS: Well, I would second what Mary said.

MS. QUILLIAN: Thank you.

(Laughter.)

MR. BROOKMAN: And that was --

MR. BUTTS: Ray Butts.

MR. BROOKMAN: Thank you.

-- Ray Butts with a second to what Mary says.

Okay. Other comments on this top cluster, "Credits and trading," or, "Recognition under voluntary programs?

MR. FRIEDRICHS: One of the things we'd like to hear -- I'm sorry; this is Mark Friedrichs -- is, Why would you participate and identify emission reductions? Do you think you'd be participating because you were looking for credits and possibly trading those credits, or is it mainly for recognition, or mainly for possible future use?

MR. BROOKMAN: Yes, please, Catherine.

MS. PEDDIE: Catherine Peddie. In today's practical world, the primary reason, I think, industry is looking at industry reductions is because there is an economic incentive. It is energy savings. It is raw materials savings. There is a real financial incentive now.

MR. BROOKMAN: Thank you.

MR. FRIEDRICHS: "Why would you be interested in reporting under the program, is my sort of main interest.

MR. BROOKMAN: Follow on, Catherine.

MS. PEDDIE: Well, I think, the reasons you've put there for possible future credits trading, primarily. Also, in cases where a particular entity has made public commitments to reduce -- BP is one of those --

MR. BROOKMAN: Okay.

MS. PEDDIE: -- that would be a reason to report, as well.

MR. BROOKMAN: Mary Quillian, and then Reid Smith.

MS. QUILLIAN: I'd just like to also add, however -- I agree that under this voluntary program, all of the reductions are made because they make economic sense at this point. However, that should not be a prerequisite for receiving credit. In other words, any project that's done that fundamentally reduces greenhouse gas emissions should be creditable no matter what the incentives for actually having done that project.

MR. BROOKMAN: We'll get into more of that, I'm sure.

Reid --

MR. SMITH: Yes. I agree with --

MR. BROOKMAN: -- Smith?

MR. SMITH: I agree with Mary. And speaking to Catherine's point that the only reason that people are making them now is that it makes economic sense from a purely commercial standpoint, that isn't exactly true.

There are -- there is a developing carbon market. There are those corporations out there, us among them, that believe that carbon is going to be essentially a commodity in years to come and depending on how you view it, whether you view that as an opportunity or cost, might determine some of

your future profitability, you know. So certainly, that's an issue under there.

Having said, that, we think the DOE ought to have the ability of an entity to report emissions if they're just looking for recognition under a voluntary program, which meets a different standard than if they're looking for transferrable credit registration.

MR. BROOKMAN: If you would expect that they would -- in what way different?

MR. SMITH: Certainly, for transferrable credit registration that's going to demand -- the market's going to demand some higher level of verification around that. And I think you ought to recognize that in your program.

MR. BROOKMAN: Okay. And so that -- there would be a higher level and then perhaps a lower level?

MR. SMITH: That's certainly one way to do it.

MR. BROOKMAN: And would you suggest that as a way, or other ways?

MR. SMITH: I would suggest that way.

MR. BROOKMAN: Okay.

Yes, Doug --

MR. KRINGS: Doug --

MR. BROOKMAN: -- Krings?

MR. KRINGS: Doug Krings. I've got to go along with Reid there. I -- in responding to Mark's question, "Why would we want to do this," there really are two answers. The first is fairly low-level. You would do it for, you know, PR benefits or recognition. And at that level, the hurdle for us to participate has to be pretty low.

The second reason is that, you know, in looking to the future, the potential for creditable reductions and getting some monetary value for it, there we can accept a higher hurdle. And quite honestly, looking at it almost from an information technology point of view, those are two different things. You need two different databases. You're -- you have to handle them differently.

So I would say that within this program, you almost need two sub-programs. One is just an entity-based, you know, score card. The second is a creditable -- something that would lead to monetary exchange at some point in the future.

MR. IVIE: May I?

MR. BROOKMAN: Yes, please.

MR. IVIE: I think there are three reasons. I'm Jerry Ivie with Shell Oil Products, U.S. The public relations thing is good. We would like to see the President's initiative succeed, as well. And there are a lot of reasons for that, but the primary reason is that we believe that it's a way to forestall regulations. So we would have that as a motivation. If we were into the program, it would be to participate in order to make that succeed.

In pursuit of that, I see a need to make the process as simple and user-friendly as possible. And so I think that the standards for getting in and participating should be fairly lax. We want credibility because we want these numbers to carry weight when the President advertises them, but we do not want to put all of the effort into it that might be required for us to develop a creditable program.

So that's the first. The second is that this gives us an opportunity -- should regulations come down the road, it gives us an opportunity to demonstrate the things that work and things that don't work. And I think that it behooves all of us to be involved simply from that standpoint.

The third is that when the time comes that credits are traded and they have monetary worth, then I believe that we will have much more stringent requirements for those credits. And I think, as a program, you need to build both in.

You need to build the open door to invite all the volunteers in so that we can demonstrate what works, but then, at the same time, if people feel that they have credits that they want to ultimately trade, they need to be able to meet a very stringent standard that will assure a person who's buying them that these are real credits and, I'm getting my money's worth.

MR. BROOKMAN: Thank you.

Yes, please?
MR. MOORE: Mike Moore with Falcon.
MR. BROOKMAN: You've got to get -- turn the --
MR. MOORE: This?
MR. BROOKMAN: Yes.
MR. MOORE: Okay. Is that better?
MR. BROOKMAN: Yes. Mike?
MR. MOORE: Mike Moore with Falcon. One of the components in a market place is going to be a degree of visibility and standardization of the products that help a market clearly define a place of activity. That does not happen overnight. And so a lot of the work that you'll do here will begin putting up the framework of what a market will ask for.

As we go forward with this, everybody in these rooms will have different reasons and different ideas and different components that make a fungible component work for them. If tomorrow afternoon something is mandated, that does not necessarily mean the market will take off around that. There'll be a lot of components that will have to come out.

This is -- knowing that going into this -- in the reporting process, the different companies that are represented here will begin shaping what a market could look like. And even under a voluntary environment, you could still end up with a tradable market that has components that standardize out of the information that's reported voluntarily.

I think that you see these transactions taking place today. And those transactions begin shaping what other components will be required to build confidence in this.

MR. BROOKMAN: Thank you.
Yes, please?
MR. MACHADO: Joe Machado. I just thought that was an excellent point. In thinking about this, it seems like --
MS. ANDERSON: You're not on.
MR. BROOKMAN: I think that it is. You've just got to speak right square at it. But --
MR. MACHADO: Is it on now?
MR. BROOKMAN: Yes. Thank you.
MR. MACHADO: Reflecting on this, it sounds like you're -- I mean the slowest step in the developing of this market, because it's a voluntary program, is going to be developing the customers who actually want to buy this product and what we're doing is sitting around asking suppliers, Okay; So what do you want to make. And that's not the way to develop a market. It's more of asking customers, So what is it you want to buy.

And I think that whenever you have a voluntary program like this, it's going to be -- the incentive is going to be to the people who have the reductions who can make the product, and you're going to be naturally long. I think the real question is to ask, What would you buy.

MR. BROOKMAN: Would you say your name again, please?
MR. MACHADO: Joe Machado.
MR. BROOKMAN: Thank you.
Greg, do you -- yes, Greg Spencer?
MR. SPENCER: A question that kind of follows on that lost comment. In either a single-tiered -- in the context of credibility, in under either a single-tiered or dual-tiered structure, is DOE contemplating continuation of the historical baseline? The last --
MR. BROOKMAN: The basic baseline, versus modified baseline?
Yes?
MS. ANDERSON: Well, I --
MR. BROOKMAN: Margot Anderson.
MS. ANDERSON: Margot Anderson. I -- the baseline issue is really options that companies or entities -- reporters need to discuss about what's most appropriate for the kinds of reductions that we

think lead to credible reductions. So we can't really answer the question.

The question is: What kinds of reductions ought to be recognized as credible reductions? And so if everybody says, "Well, the only real reduction is an absolute reduction," that means there's a certain kind of base year or baseline that needs to be consistent with that.

If most people think, "Well, intensity baselines are the only -- intensity reductions are the only real reductions that ought to be recognized," then that causes us to have a different conversation about baselines. So we can't say which one we would continue. The issue really is, What's -- how do you measure a real reduction, and then what are the consistent pieces of data that you need in order to be consistent with that measurement?

MR. SPENCER: I guess my question was in the -- under each of those different alternatives, the -- whether it's a modified baseline or an absolute reduction, if the goal is credible reductions, in the hypothetical of the widget company that has no change other than a change in business productivity, is -- that remains in consideration as a credible reduction?

MS. ANDERSON: If it is your view that an intensity reduction is a real reduction and one that ought to be eligible for transferrable credits, then, in that case, that would be measured as a reduction. It's an intensity reduction.

MR. BROOKMAN: Yes, Jeffrey Williams?

You're next.

MR. WILLIAMS: Jeff Williams, with Entergy. We have set an absolute goal for ourselves, and it comes from the recognition that from 1991 up to 2000, we had significant intensity reductions, but our absolute emissions were growing at a fairly rapid rate.

And if you believe as we do that we need to take action now to avoid serious damage in the future, the environment demands an absolute level. We can all feel good about our intensity reductions, and we have, but I think that we need to recognize that the ultimate goal is to get to an absolute reduction.

MR. BROOKMAN: Mark Friedrichs?

MR. FRIEDRICHS: If you -- we go back to those widget slides, we actually had three different types of absolute reductions. One was an absolute reduction caused solely by a decline in output. One was a result -- and two were resulting from declines in intensity. In one case, production was rising significantly, and intensity was dropping even more rapidly. And in the other case, production was flat, and there was also some reduction in intensity.

Do you believe all three of those types of absolute reductions should be recognized equally, or do you think there should be a distinction between them, or do you think some of those -- one or more of those types of absolute reductions should not be recognized?

MR. WILLIAMS: I believe that we should incent reductions, any of the reductions that are there. But as a goal for ourselves, I think we shouldn't feel happy about the fact that we reduced our intensity but haven't -- but are still seeing a large increase in emissions.

MR. BROOKMAN: Margot Anderson?

MS. ANDERSON: And the follow-up to that is: If a company's production is declining in the U.S. because it's now producing a lot of its product overseas, so it's U.S. absolute emissions have declined substantially, is that a credible reduction? Its actual emissions have declined, but production has gone overseas or, worse, the company went out of business or parts of the company went out of business, so that absolute emissions, again, declined? And where does that fit into your thinking about credit for absolute reductions?

MR. WILLIAMS: I believe that we can't have that kind of leakage, that we need to take a look at what's happening to the company overall.

MR. BROOKMAN: Reid Smith, and then Jerry Ferrara.

MR. SMITH: Yes. Building on what Mary said about tying reductions to economic gain or economic cost, there have been several environmental groups -- NGOs -- that have said -- and that's where the term, "Anyway reductions," comes from: "You would have done it anyway because it makes

money."

I don't think that tying reductions to economics belongs in the picture. I mean it -- I think that's an individual choice by individual entities.

MR. BROOKMAN: Any improvement that is achieved, any reduction that is achieved, however you achieve it, you should be incented and be able to get credit for it provided the documentation, verifiability and all those tests are met?

MR. SMITH: Yes.

MR. BROOKMAN: And so if -- okay. Well, I'll just leave it there for a moment.

Jerry Ferrara?

MR. FERRARA: There's a couple of areas here that I'll take on one at a time, I guess. One, I see us going down the common road, from what I've seen from earlier workshops, that we have different ways of reducing emissions that finding a common credit for divides the group. You know, everybody starts fighting for their approach that's good for them.

You know, if you've got a process industry and you can improve efficiency, that's going to be useful. If you can add nuclear energy or renewables, that's going to be useful -- and if you can sequester emissions, you know. But finding a common credit that people can sell among themselves in these industries that have different needs -- in a big, capital-intensive industry, we need lower-cost capital to put into our projects.

And I would argue that in the renewables area, they need more research to bring their economics to a level that people can use those products. Half the people don't want to use them; they're too expensive right now.

Going -- switching to the intensity-versus-absolute argument, I guess I'm well in the intensity camp. You know, I think what we are -- if everybody does their process as well as it can be done, we end up with the resultant emissions, you know. The fact that our population is growing means we're going to have higher emissions.

We need more products. "Are we going to say to new people, You can't have a house; You can't have clothes; You can't have all the things that create emissions," you know, so as to go too far overboard in terms of absolute emission reductions? We can look at how we provide things to people, but -- you know, and maybe we can do things that improve those things that reduce emissions, but to say, "We're going to make less insulation this year," because you've made as much emission as you can make in insulation, you know, just seems a poor premise.

MR. BROOKMAN: Uh-huh.

Yes, Catherine?

And then I'll go over to these two gentlemen here.

MS. PEDDIE: Catherine Peddie. One term I haven't heard in terms of credible reductions is, Sustainable.

In the example of the widget company that was -- had reduced emissions because they had reduced production, I would argue that that's not a sustainable reduction because, next year, they may produce more. And therefore that reduction is not credible, should not be creditable.

MR. BROOKMAN: Arthur, follow on.

And then I'm going to John and then to Peter.

MR. RYPINSKI: I'm sorry.

MR. BROOKMAN: Leave it on, Arthur.

MR. RYPINSKI: Okay.

Well, how would we define and recognize a sustainable reduction?

MS. PEDDIE: I think it's easier to define than recognize what the sustainable was --

(Laughter.)

MR. BROOKMAN: Yes.

MS. PEDDIE: -- the reverse of that. But certainly, if action has been taken that reduces the intensity or the actual -- the absolute emissions, if you can point to an action --

MR. BROOKMAN: We're going to get into some of these --
MS. PEDDIE: -- that is not a function of market factors or of weather, for example.
MR. BROOKMAN: Right. When we get to the next slide, we're going to discuss these one by one: Weather, technology, voluntary programs, regulations, new investment and improved management, and all of those kinds of factors that could contribute to those ultimate --
VOICE: Qualified causation?
MR. BROOKMAN: John Bins?
MR. BINS: John Bins, Waste Management. Direct or hard baselines versus intensity index baselines? Intensity index baselines are kind of academic, and they're kind of sexy; they let us increase emissions and still improve business processes as we go along.
You know, anything -- I think if I'm sitting in Washington trying to make a policy, I love that. But on a practical basis, it's never going to work guys, and I've got to tell you this now. Direct emissions reductions has to be our starting point. But --
MR. BROOKMAN: Well, why will it never work?
MR. BINS: Wait. Let me finish, please.
MR. BROOKMAN: Okay.
MR. BINS: Let me finish.
MR. BROOKMAN: Yes.
MR. BINS: Direct emission reductions has to be our policy baseline and what we track, and I think that's the only way we're going to be consistent. A reduction here, if we want to take credit for it in Canada or take credit for it in Mexico, has to be off a direct baseline.
If we spend our resources, you're going to have a lot more problems and a lot more policy conflicts even within Washington if you try to index it to baseline or production. It's going to take a lot more effort for you guys to come up with those standards and evolve to that level.
I think you need to take care first, with your resources you have within DOE, of getting the 1605b program as strong in the possible, and then, in the future, we can look at intensity. But to skip over a direct baseline to go to intensity just means that you'll never get anything that's going to work. I mean I'm just being honest with you guys, and that's a personal opinion.
That's a personal opinion, but -- it's just not going to work. I'll --
MR. BROOKMAN: Well --
MR. BINS: I'll give you a direct example. We're the third largest -- third or fourth largest fleet in the U.S. We have probably 33,000 diesel fleet vehicles. When we look at emissions -- one of the things we did is we indexed it toward milage or per -- ton of trash moved per mile.
When you look at that, it's actually a good business tool because you can look at fuel efficiency and minimizing your fuel. And we actually have some internal routing efficiency programs that help us.
But the policy mine-field for you guys in Washington is enormous. As soon as you index it to miles traveled, you're also indexing it to fuel efficiency in large vehicles. So now you're going to have two parts of DOE with different, consistent guidelines for conflicting policies.
On the one hand, you're going to say, "We want to index it to intensity. And therefore, your de facto all the way down the line is your -- you're going to have milage standards in one part of DOE. And the other part of DOE says, We don't want milage standards, and the automobile manufacturers aren't going to support that.
You're going to have the Department of Justice filing a brief to support the auto manufacturers suing the California state government on their greenhouse gas emission controls for vehicles while, at the same point, you're going to be promoting testing programs that the bottom line aspect is going to be the same point.
So I think I just wanted to point out a policy mine-field. And that's just one. That's just -- that's an easy one. There's going to be hundreds of those that you have not seen or thought about yet when you go to intensity-level stuff.
MR. BROOKMAN: So --

MR. BINS: So I would like us to do the simple, basic stuff first and keep the academic and the evolved stuff for later on. We can't go to third or fourth -- we can't go to, you know, third base before we finish up on first and second.

MR. BROOKMAN: Peter Galusky?

MR. GALUSKY: Thank you. Pete Galusky, Marathon Ashland. A few simple, fundamental points. Getting at the excellent question, What is a sustainable reduction?

MR. BROOKMAN: Peter, you've got to get closer to the mic.

MR. GALUSKY: Getting at the excellent question of, "What is a sustainable reduction," I submit that such a reduction would have two properties. Number One: There would be an economic reward for that. That already occurs for everyone in this room in their personal lives and in whatever company that they operate. Any company that operates more efficiently with respect to energy use will be rewarded.

So increasing energy use efficiency or -- they're the same thing -- decreasing carbon production intensity has its own economic reward. But the second point that needs to be underscored is that this economic reward must not be tied to a government subsidy, because benefit subsidies of any kind are inherently unsustainable; they tend to reward inefficiency.

Therefore I wish to come down strongly against any government-mandated reductions in the absolute emissions of greenhouse gases. And I'm closing with a question. However, if that nightmare were to occur, if the government were to say, "We are going to carbon constrain our future" -- it was pointed out that this will reduce industrial productivity; industrial productivity is reduced, and the economy goes down -- who will pay for this if that were to happen?

MR. BROOKMAN: Thank you.

Additional -- yes, Tom Dingo?

MR. DINGO: In listening to that discussion and the arguments going around here is -- maybe trying going back to what Doug said here, I think that for credible emissions reductions, it has to be a project-based and it can only be given on a project, not an entity-based.

MR. BROOKMAN: Hmm.

MR. DINGO: Document what you did to save. That way, you don't reward someone -- you know, I'm not trying to pick on the utilities, but, let's say, if electricity demand goes down in an area because of population change or something like that, why should they get an emission credit because they're generating less electricity? They haven't done anything.

However, if they go out in the community and fund something to lower emissions by giving out, you know, free light bulbs that are more efficient or something like that, they ought to be rewarded for that. So it should be project basis only for credible reductions.

MR. BROOKMAN: And they should be rewarded based on the investment they made? That would be the nexus that you would --

MR. DINGO: No. On the savings that they made.

MR. BROOKMAN: I -- yes, right. Okay.

Robert, did you want to chime in here?

MR. NARVAEZ: No.

MR. BROOKMAN: No?

Jeff Williams?

MR. WILLIAMS: I just wanted to point out that, you know, Entergy is looking and aspiring to be profitable and competitive and do what's right for future generations. And if -- that's definitely a higher bar, but, if we don't aspire to that, well, we won't get there. And I believe that if we challenge ourselves, we can.

Entergy electric generation increased by 50 percent since '98, and, yet, our intensity -- emissions intensity was reduced by 33 percent. So, you know, we're looking to grow and make decisions that are right for future generations, and it's important to the sustainibility of our business going forward. I mean our headquarters are down in New Orleans, and there are a lot of assets down there that are particularly

at risk from flooding, for example. And there's -- and our customers live in that flood-prone area, also.

So I mean there's a number of different things there, but the point I want to make is that if we don't challenge ourselves to do it, we definitely aren't going to get there.

MR. BROOKMAN: Jerry Ferrara?

MR. FERRARA: I guess the way the discussion is going, I would just bring up the point that we have little information about the life cycle emissions of a lot of the needs that we meet, you know. And when we talk about absolute reductions, we're generally looking at a very narrow scope and often don't know what the repercussions of making that reduction in the one area would be overall to meeting the needs that that product was contributing to.

MR. BROOKMAN: Okay.

This -- yes, Reid Smith?

MR. SMITH: Reid Smith. At the end of the day, the CO2 concentration in the atmosphere depends on absolute emissions. And I don't have any answers, but that's a given. Now, whether that's important from the Human Cause Commission standpoint or not is a matter for personal opinions, and I'm not going to even offer one there.

MR. BROOKMAN: Thank you.

I think the comments were -- this has been kind of broad ranging. And let me note that as we continue on with the specifics of emission reduction and sequestration, we're going to deal with this additional block of content here and, also, talk in greater detail about intensity and other causes of reductions to be considered and get into more depth on that.

I think maybe we should go to lunch. This has been a very useful conversation that has been -- we've covered a lot of ground. And we're going to perhaps go into a little more depth as we come back from lunch.

I don't wish to remove this slide yet. Particularly, we haven't addressed I don't think fully who receives recognition and these bullets here.

So it's now 12:20. Maybe we could try to be back here by 1:30. Okay? And straight across the hall is the American Grill, and there's a buffet set up -- a fixed-price buffet for those of you that are -- there ought to be adequate time -- for 10.95. And for those of you that wish to order off the menu, please do so. But please be back here so that we can start up at 1:30. Okay?

My thanks for a really good morning.

(Whereupon, at 12:20 p.m., this workshop was recessed, to reconvene at 1:30 p.m. this same day, Thursday, December 12, 2002.)

AFTERNOON SESSION

(Time Noted: 1:30 p.m.)

MR. BROOKMAN: I didn't want to truncate this discussion. I thought the discussion we were having just prior to lunch was really good, and I want to make sure it was as complete as possible. I get the general impression that we've finished with this block. I wanted to return to who receives recognition or credit. I think we've touched on this much.

Specifically, should electricity generators get recognition or credit, or should it be the end-users? Should it be product manufacturers or end-users? And we've touched on that somewhat in the context of reporting. Is it analogous in this context? Outside corporate boundaries? Outside of the U.S.? Project owners or investors, or some other confabulation?

Thoughts on this subject?

Yes?

MR. FERRARA: Just to get things --

MR. BROOKMAN: Jerry Ferrara, thank you for getting us going.

(Laughter.)

MR. FERRARA: I would say that the person that improves the process, that does the work to take a starting process and convert it to a better process, is the one who should get the credit.

You know, if that means that they end up using less electricity, you know, then their process should be credited for using less of the resource. If an electricity generator develops a process where he gets more electricity out of fuel used to create it, he should get credit.

MR. BROOKMAN: And if the electricity generator does that and then the end-user makes improvements at the end-user's site, then that end-user, by extension, should get credit?

MR. FERRARA: If they're the ones whose process was changed. If they took the action --

MR. BROOKMAN: They invested the money or they did whatever it was?

MR. FERRARA: Okay.

Other perspectives on that specific point?

(Pause.)

MR. BROOKMAN: I see no additional ones. He got us going. Now the rest of you need to keep us going.

(Pause.)

MR. BROOKMAN: What about product manufacturers and end-users? We started with that one earlier, and, as I recall, the -- well, actually, it was not quite that clear. Comments on product manufacturers or end-users?

We did say that there seems to be a -- normal drivers and production processes, One, drive one toward increasing efficiency over time. And, Two, more and more materials are being specified that are more environmentally benign, or whatever -- right -- of less carbon content. Those were the two comments that I singled out from this morning.

Margot Anderson, yes?

MS. ANDERSON: Maybe I can raise a specific question, because it came up in the other workshops, where we had folks that were in the business of manufacturing energy-efficient equipment, more energy-efficient refrigerators or washing machines.

And the question comes up: If they were to get credit for reporting their emissions reduction, how would they do that? And how could that be differentiated from the purchaser of that equipment, whether it's an individual or whether it's a Marriott Hotel, who's purchasing energy-efficient equipment?

So how might we think about that? I don't know if there are folks representing that component of our economy that might be able to shed some light on their thinking about that.

MR. BROOKMAN: Yes, Mike Moore?

MR. MOORE: Mike Moore, with Falcon. If I buy --

MR. BROOKMAN: You've got to get closer, Mike.

MR. MOORE: If I buy an energy-efficient refrigerator, it's not efficient unless I turn it on; I'm

paying for the electricity or the efficiencies thereof to use it. I would expect the credit. I made the investment, and I'm the one that gets the benefit. Why would the manufacturer then get that same benefit?

MR. BROOKMAN: Greg Spencer?

MR. SPENCER: Well, I think the argument is that the developer of the refrigerator has invested a lot in the technology to create that efficiency and that there are a lot of these indirects that are not obvious. The demand-side management electricity generator who's incenting his electricity consumers to save electricity is another example.

I think -- it is clear, I think, to most that you want to avoid double-counting. I also think that if DOE provides some guidance consistent with Jerry's comment about, "He who makes the investment and takes the risk is entitled to the reduction," the market will ultimately sort out so that the manufacturer of the refrigerator can include in the contract negotiations or the purchaser and carrier of the heating and air-conditioning equipment -- they can negotiate for allocation of those credits appropriate to the project involved.

The home consumer wouldn't normally want that credit of someone who is outfitting a thousand facilities in a large purchase contract with a carrier and that may well want to retain the rights to those.

MR. BROOKMAN: So in that case where someone goes out and buys 1,000 air-conditioning units or refrigerators, certainly, that company -- that manufacturing company made a significant investment to achieve those efficiency gains in their products, but then there was another investment. And so the way you address that is you have a default -- you have an expectation -- that the person who makes the investment obtains the credit; however, it's possible to negotiate, I guess, especially if you have enough purchasing power to negotiate?

MR. SPENCER: Well, if the old air-conditioning equipment had a ten-year useful life and, half-way through the process, part of your rationale for the investment is the energy efficiency and the environmental benefit, then, you know, maybe there are scenarios in which the technology investment is entitled to a credit that's separate from the emissions reduced by the earlier investment before the end of the product life. You know, I --

(Pause.)

MR. BROOKMAN: Mike Moore?

MR. MOORE: I have a warehouse filled with 15,000 refrigerators. Who gets the credit? They're not operating, but does somebody gets a credit because they made them, or does somebody get a credit for actually operating -- displacing a non-efficient refrigerator? I mean that goes back to the -- again, the household may not have the incentive, because there have been no incentives given to him, but, at the end of the day, he would be who you would want to influence in the manufacturing process, not because -- you got a credit because it's a pretty refrigerator.

MR. BROOKMAN: Yes, Tom Dingo?

MR. DINGO: Since we're talking about refrigerators, just to bring some complexity to the problem, you know, how does that refrigerator save energy? It doesn't -- very little of it came from a compressor. Most of it came from insulation. So do you give it to the insulation manufacturer?

(Laughter.)

MR. BROOKMAN: That's -- yes.

Okay. Fabien Nilsson?

MR. NILSSON: Yes. I'm coming from EnLink Geoenergy Services. We're selling a geothermal heat pump. That is to say that we have reduced the consumption of electricity and gas. And from our point of view, the idea is that we want to get the benefit of this and give it to our customer because our customer buys, you know, a system that is more expensive than a traditional H/VAC.

And for us, it would be a good benefit if the end-user could get all the credits from, you know, the U.S. policy or whatever, and it would help us because we would market more products. I don't know if I'm clear.

MR. BROOKMAN: Yes. That was clear, yes.

MR. NILSSON: By the way, I'm French. That's why my name's --
(Laughter.)
MR. BROOKMAN: Thank you.
Yes? Your name for the record?
MR. MASON: Tom Mason with DNV. I think, ultimately, in all commercial industry here, it's the end-user that drives the --
MR. BROOKMAN: The purchasing decision?
MR. MASON: The purchasing decision. And --
MR. BROOKMAN: Yes.
MR. MASON: -- the reason people make efficient or -- manufacturers make efficient equipment is so that they'll have an edge on the market. And so the end-user should get that. If it -- particularly from a verification standpoint, if a large company, say a refinery, was to buy a new air-conditioning system or cooling system for one of their processes, they're going to do that so they can get the benefit and the reduction, not give it back to the --
MR. BROOKMAN: A brief follow-on, and then I'll go to Mark Friedrichs.
MR. GALUSKY: This is quick, I promise.
MR. BROOKMAN: This --
MR. GALUSKY: Yes. And the credit --
MR. BROOKMAN: This is Peter Galusky.
MR. GALUSKY: Peter Galusky, Marathon Ashland. And the credit is the dollar credit by buying your refrigerators. That's the credit which is the credit that really matters: The market.
MR. BROOKMAN: Mark Friedrichs?
MR. FRIEDRICHS: Just a variation. What about green power. Renewable energy generators, often independent, expand their wind production, and a utility buys it and sells it to customers who have specifically paid for green power. Who gets the credit?
MR. BROOKMAN: And Reid Smith has got his --
MR. SMITH: Reid Smith, BP. From our perspective, if we're willing to pay a premium for renewable -- generated renewable power, then we would expect the contractually as part of that arrangement to receive at least some of the credits that go along with that.
MR. BROOKMAN: But it gets specified in a contract?
MR. SMITH: Again, I think it -- in the end, it's probably a contractual arrangement.
MR. BROOKMAN: One could imagine that in the -- among this stream, between manufacturers and the supply chain and the end-users, you could have a series of defaults, and then you could then have the prospect of it being negotiated beyond that series of defaults. Right, that sort of thing? And we've heard that in other workshops.
Arthur Rypinski?
MR. RYPINSKI: Just a follow-up to my friend Fabien's. I wonder -- not every household is prepared to report their emissions and reductions of greenhouse gases. I wonder if your firm would be interested in or prepared to assist your customers in undertaking this reporting or how you might imagine that would work.
MR. NILSSON: Well, actually, we're selling to institutional and commercial buildings. We're targeting this kind of customer. And in -- we have a software that can model the emissions savings from -- you know, we -- our system doesn't consume natural gas for heating, and it reduced the electricity consumption by 50 percent.
So our software can model, you know, the emissions savings in CO2, SO2 and NOX. And we would like to get, you know, the benefit of those credits for our customer.
MR. BROOKMAN: Ah.
MR. NILSSON: Am I clear?
MR. RYPINSKI: But would you be willing to help them do that?
MR. NILSSON: Yes. You know, we want to sell our product. And so if we can take advantage

of, you know, these credits to sell our products, we will. Yes, we would be willing to help them. Of course.

MR. FRIEDRICHS: Well, what I'm hearing is that you would like to be able to get the credits directly and pass on the benefits of those credits to your customers. No?

MR. NILSSON: No.

MR. FRIEDRICHS: You would like the customers to get that directly?

MR. NILSSON: Yes.

MR. FRIEDRICHS: And -- okay.

MR. NILSSON: And if we need to -- if they want to -- us to do the --

MR. BROOKMAN: The analysis?

MR. NILSSON: Yes, to help them --

MR. BROOKMAN: Yes.

MR. NILSSON: -- and provide them the service, we could aggregate all the credits for our customers and give them back the benefit, you know.

MR. BROOKMAN: Huh. Okay. So back to the notion -- the model of aggregation.

Mary Quillian?

MS. QUILLIAN: Mary Quillian, NEI. I actually think that at the end of the day, particularly in the near term, this is going to all come down to contractual agreements. So whether it's a situation where somebody is purchasing refrigerators or H/VAC units or renewable electricity, it's wise for everybody to think about these things as they contract for those energy supplies or pieces of equipment.

I'd just bring up the touchy issue here: Actually, it may be, if companies are trying to retroactively get credit for stuff, for renewable power they purchased, or something like that, and it was not addressed in a contract. And I don't have a good answer for that except to what so many people on that side of the room that I can't credit -- because I can't quite see your name tags -- said, and that is, you know: Where the dollars were spent to invest in the process that reduces greenhouse gas is probably where the credits should go.

MR. BROOKMAN: Robert, did you want to --

MR. NARVAEZ: I think --

MR. BROOKMAN: Use the microphone, please.

MR. NARVAEZ: Sure.

MR. BROOKMAN: Robert Narvaez.

MR. NARVAEZ: Robert Narvaez. I think that this conversation is bringing back again to me the trends that are occurring outside of the United States that are having impact.

You look at, for example, the processes that we used whenever we were making our larger communications cables, we used in years past CFCs as the blowing agent. Now the signatories of the Kyoto Accord are saying you can't do that. Also, with packaging materials -- you can't have any of the CFCs in packaging materials.

So if we want to pursue the markets that are the largest right now, like Nokia and Germany and France, we have to look at reducing greenhouse gas emissions, and we do that in the United States. Is that going to help us with these projects? Yes, it is. But you already are seeing customer-driven focus on these types of efforts.

MR. BROOKMAN: Okay. Thank you. Which, by extension, might cause you to say, If there was something tradable or negotiable in the transaction, then there might be an incentive among those parties to negotiate?

MR. NARVAEZ: It's an incentive for us just to have the business.

MR. BROOKMAN: Yes.

MR. NARVAEZ: It's simple.

MR. BROOKMAN: Yes.

Mike Moore, and then --

MR. MOORE: I'm fine.

MR. BROOKMAN: You're fine?

And did I see you? Did you wish to comment? No? I must have -- okay.

And what about, "Outside corporate boundaries," or, "Outside the U.S.?" Anything additional to be said about that?

(No response.)

MR. BROOKMAN: Does -- in the context of reductions, do you feel the same way about reductions? And I guess, also, sequestration is another major issue. We talked this morning about how things would be reported -- how emissions should be reported. Do you have a similar perspective about reductions as they apply to outside the corporate boundaries and outside the U.S.?

Yes, please?

MR. MASON: Tom Mason with DNV again. I guess the concern is, using an example we talked about this morning, shutting down a refinery in the U.S. and building one in Malaysia. Do you get total credit for shutting it down here even though you're building another one someplace else in the world? Is it on a corporate -- you know, I -- it seems to me that the clearest line is then on a corporate basis. I don't know, you know.

MR. BROOKMAN: Kind of entity-wide for that larger corporation?

MR. MASON: Correct.

MR. BROOKMAN: Yes.

MR. MASON: Correct. And whether -- I mean like in the case of BP, you know, they're a British company. And so, you know, is it on a corporate? And where do they report that corporate reduction? I'm not sure. And once we get in a world scheme, fine; maybe it evens out. But in the interim, I'm not sure how it gets handled.

MR. BROOKMAN: Okay.

Yes, Reid Smith?

MR. SMITH: Ultimately, we believe that corporations and companies and organizations should have the ability to bring credits obtained outside their corporate boundaries into their systems, be that something like a clean development mechanism or something akin to that.

MR. BROOKMAN: So is outside the U.S. analogous?

MR. SMITH: Yes.

MR. BROOKMAN: Yes, it is analogous? Okay.

Are there other perspectives on that, on outside the U.S. boundaries? Certainly, there are a host of other issues related to outside U.S. boundaries.

Jeff Williams?

MR. WILLIAMS: I agree. I mean this is kind of unique thing. Scale 2, for example, or greenhouse gases, is global. And so, you know, the ability to purchase an offset from Europe, I think, should be creditable.

MR. BROOKMAN: Okay.

Who receives recognition or credit, project owners, or investors? We've already described that someone who put the money in may be from your -- what I've heard so far the first person or the first entity to be in line to receive credit, and then, subject to negotiation thereafter perhaps or other -- maybe the purchasing power of the person who would be the end-use buyer or consumer.

That's what I've heard so far. Add to me, folks. Anything else that you'd like to say on this score?

MR. WILLIAMS: What are some of the examples that are going on right now? For -- I mean we've got -- for the last half-dozen years, there has been work done in the United States where other entities outside the U.S. are working on creating credible environments that they can take back to their resident countries.

For Canada, for example, there are transactions done in the U.S. that make it on Canadian-type registries. There are some ventures out of the European -- out of the UK and out of Denmark, as well, and even Japan exploring how to do U.S. or -- do transactions in the U.S. with U.S. entities but match

their resident registries. I'm not familiar with a lot of them, but I hear that is taking place.

So there is a frame-up of this taking place and the acceptance of it at this juncture. I'm just curious.

MR. BROOKMAN: Yes. I'm casting my eyes around the room for somebody that's --

Reid Smith?

MR. SMITH: I'll take a very short stab at that. And we've done some of that. It's contractual.

And I think, for the most part, if you've got a joint venture or partnership or whatever with folks, that in the future, it should be a contractual arrangement on who gets the credits. Certainly, if we've got a working interest partner and we go do a project and make reductions, then they own part of that; they own whatever their interest is in that they're paying their part of the investment.

Now, whether they choose to assign those to us -- and the value would depend on how they value them -- that's a contractual matter, I think.

MR. BROOKMAN: Okay.

Greg Smith -- Spencer? Greg Spencer?

MR. SPENCER: Ultimately, I don't think the issue is where it occurs or where it's registered; ultimately, the issue is that as long as it's only accounted for once -- whether it's in a compliance scheme or in a market, as long as you control the recognition of that reduction so that it can only be applied once, I think that's the -- that would permit offsets and multi-national reporting and all of those other variables.

MR. BROOKMAN: Okay.

Yes, Jeff Williams?

MR. WILLIAMS: This is a question. I understand that there's an agreement with Australia, and I was wondering if someone could maybe explain how -- what the mechanism is for that.

MR. BROOKMAN: An agreement?

Arthur Rypinski?

MR. RYPINSKI: Well --

MR. BROOKMAN: You're not on.

(Laughter.)

MR. RYPINSKI: There's a lot of diplomacy, and my window on it is rather small. So the -- I'll keep my answer in the very range of material that I'm specifically familiar with.

In July -- there's a lot of diplomacy? That is to say that there's a lot of it, or they're accomplishing a lot?

MR. RYPINSKI: There's a lot of talking about it.

MR. BROOKMAN: I'm sorry.

MR. RYPINSKI: That's okay.

In July, the United States and Australian government signed a climate --

VOICE: Climate action plan --

MR. RYPINSKI: No. It wasn't Climate Action Plan. I believe it was Climate Action Partnership Plan. They're all caps, but there are many different varieties of caps in this case.

(Laughter.)

MR. RYPINSKI: And under the Climate Action Partnership, the American and Australian governments are talking about how we might collaborate in the area of registries and voluntary reporting. And we've had a number of discussions with our Australian counterparts.

And we have a staffer with the Australian Greenhouse Office actually sitting with us in the Department of Energy -- Fiona Gilbert. She came to the first two workshops, but not the last two. And so people on both sides of the Pacific are thinking hard, but there's nothing specific at the moment.

MR. BROOKMAN: Okay.

MR. RYPINSKI: But we're aware of the possibility of thinking about how things might work. As you know, you know, the more people that are involved, the more complicated things get. So there's that complexity problem just in, you know, making up your minds on where to have lunch.

(Laughter.)

MR. BROOKMAN: Unless someone supplies the buffet in advance. Right?
MR. RYPINSKI: Yes.
MR. BROOKMAN: So any final comments on this cluster? I'm about to move on to the next slide.
Yes, please? Joe?
MR. MACHADO: Joe Machado.
MR. BROOKMAN: Thank you.
MR. MACHADO: A comment on the idea of reporting outside the U.S. In just reflecting on that, I think the only thing meaningful for reporting outside the U.S. would have to be a sort of project-based reduction because, if you do entity reporting outside the U.S., it just becomes some arbitrary addition of some CO2 emissions in one year and not the other, and I don't know what you would do with it.
Project-based reductions might be meaningful. The simplest way to handle that would be if the rules for those project-based reductions mirrored the rules for the clean development mechanism or joint implementation. Now, if they did, I don't think you'd get any, because they're going to be attracted in to the European trading system, which is going to have a higher price for those because we'll be dealing with a more draconian system with stronger rules starting in 2005.
And if there's any compatibility with those projects, they're going to go there because they're going to probably get a higher price than they will in the U.S. under a voluntary system. So if you -- that would be the simplest way, but you probably wouldn't end up with anything reported. So I don't know if you'd want to do that.
The second way would be to have less stringent rules than CDM or JI. And then you'd get sort of the reduction projects which don't quite make whatever the requirements are for CDM and JI but are good in a certain sense. And they'd probably get a sort of secondary value. So you'd end up with a secondary market for overseas reductions in the U.S., which might be a worthwhile thing to do. I'm not necessarily advocating that, but I think that's the only actual choice.
MR. BROOKMAN: Thank you.
Additional comments on this?
(Pause.)
MR. BROOKMAN: Let's move on to the next slide.
Mark, are you queuing this one?
MR. FRIEDRICHS: No. Arthur is.
MR. RYPINSKI: Okay. We continue to -- well, I hope that by Saturday, I'll learn how to do this.
(Laughter.)
MR. RYPINSKI: We continue to pursue some specificity of the notion of what would constitute a credible reduction. And if you'll recall, at the head end of this section, I showed you some examples of absolute changes or adjustments in unit-of-production or intensity baselines.
So our first question to you is: Is a credible reduction an absolute change in emissions, or might it be adjusted for changes in output? Now, you'll recall that I suggested that -- well, maybe rather precisely that adjusting for a change in output is adjusting for a particular form of causation, that is in this case changes in production. But there are other such adjustments beyond output that one could make.
One could also adjust or take into consideration forces that are outside the control of the reporter, such as weather or government regulations. Some people see government regulations as sort of akin to an act of God. Others -- well, we won't go there.
(Laughter.)
MR. RYPINSKI: Others might view -- no. Right. Other things that we might -- that might be considered are changes in technology, participation in voluntary programs, new investment and improved management.
And one can think of these as successively more complicated and intricate tests for causation in

the adjustment of a reduction to make it credible. So our question is really, What other causes should we -- might we be -- ought we to consider, and what might those be?

We also are interested in whether we should recognize emission reductions that occur only through entities -- that is: Corporations' or public bodies' -- emissions over time or whether we should also deal with whether we should also recognize sub-entity or project-specific reductions. And lastly, should we recognize --

MR. BROOKMAN: Let me take this down a notch.

(Pause.)

MR. RYPINSKI: Or should we recognize actions that displace or avoid emissions? And this, of course, is the hypothetical reference case from our original example and would be reductions that occur through action.

And we're interested in your views on all of these points.

MR. BROOKMAN: Okay. Thank you.

So let's start with, "Absolute changes in emissions, or adjusted for changes in outputs?" We touched on this, and I think that, basically, most of what I heard was --

MR. FRIEDRICHS: I think it was --

MR. BROOKMAN: Hmm?

MR. FRIEDRICHS: -- split --

MR. BROOKMAN: Split --

MR. FRIEDRICHS: -- between --

MR. BROOKMAN: Yes.

MR. FRIEDRICHS: -- intensity and non-intensity.

MR. BROOKMAN: Yes, right. We heard both viewpoints in the room.

Additional thoughts on that? Additional persuasive articulations?

(Laughter.)

Yes, Doug Huxley?

MR. HUXLEY: In that regard, I just wanted to bring up the example of somebody, of an entrepreneur, that wants to start up a small business and -- you know, Acme Widgets -- they hope to sell ten widgets in their first year of business, and they've got ultimate dreams of 10 million widgets. I mean, clearly, if they're held to an absolute goal, they've got a disincentive to invest in that business.

MR. BROOKMAN: One of the comments that came up in other workshops is that it does seem as though some sectors of the economy are, obviously, growth sectors and others don't seem to be growing or, at least, not at the present, and, you know, Would it be fair to disadvantage those growth sectors compared to the non-growth sectors or the ones that are in the present not growing. So that's a related point.

Yes, Mary Quillian?

MS. QUILLIAN: Mary Quillian, NEI. With regard to the fourth bullet on that slide, I absolutely think that actions that displace or avoid emissions should be creditable because those are -- as long as you can show real and verifiable reductions from a -- you know, I realize that it's a business-as-usual, or a, "What would have happened if you didn't do that project," quite often, but I think that you can make a good guess and a very reasonable guess at that.

The second thing I'd like to point out --

MR. BROOKMAN: And, before you go on, though, do -- you'd say that for entity-wide, sub-entity or project-specific, all three, or any combination of those?

MS. QUILLIAN: Yes.

MR. BROOKMAN: Any combination?

MS. QUILLIAN: I -- yes. I mean I think that if an action results in a displaced or an avoided greenhouse gas emission.

MR. BROOKMAN: Based on somebody's figuring of a baseline?

MS. QUILLIAN: Yes. I mean that baseline may not be something that happened in the past,

though. Right? You're projecting out that electricity demand is going to be this and, if you didn't build wind turbines, you would have to generate that electricity from some other source. And, you know, I mean you can --

MR. BROOKMAN: Right.

MS. QUILLIAN: You can do educated guesses on that kind of stuff.

MR. BROOKMAN: Yes.

MS. QUILLIAN: You can even do -- from current operations, you could actually show which generators are on at any one given time, because the grid system keeps track of all of that, and show which ones were displaced. If you do an upgrade at a nuclear unit, for example, you show the dispatch order shifts, and you can show which units reduce their load and where the load is picked up from.

MR. BROOKMAN: Right. Okay.

MS. QUILLIAN: I wanted to follow on on the sort of absolute absolute and the intensity argument. I think that from an -- from the economy-wide point of view, we do need to be thinking about an intensity target. And that's the way that small businesses and any sort of production business that's growing likes to look at those sorts of things.

However, from a crediting program point of view, to be consistent with what other programs internationally are doing and if we hope to at all interact with other programs, it appears that an absolute ton value is what is creditable. And so --

MR. BROOKMAN: Michael?

Pardon me.

Before you go, pardon me. On the left-hand box, just take down the master switch a little bit and see if that helps. I already fiddled with the smaller box and flipped down the master switch on that one a tad, and it didn't seem to help much.

(Pause.)

MR. BROOKMAN: I thought you were finished, Mary. I just wanted to catch Michael --

MS. QUILLIAN: I am.

MR. BROOKMAN: -- before he walked out the door.

MS. QUILLIAN: I am.

MR. BROOKMAN: Okay.

Other comments on this point?

Yes, Jerry Ferrara?

MR. FERRARA: Yes. I feel the need to follow up there. I think, again, the President and the administration made a big, positive change moving us towards intensity. And I have no allegiance to the rest of the world going down a path that caps and takes away options from how we go about improving productivity. And if we limit materials by raising the cost of materials, we're just taking away options.

I do, however, sympathize with the fact that there are other ways of reducing emissions and they need their own incentives so that they will work effectively. And I would say the things that are looking for credits basically are shy of knowledge. So we need incentives that create the knowledge so that the economics eventually will work.

I mean if wind power was economical, people would be delighted to use wind power, instead of fossil fuels, and avoid all this. We don't use it, because it's not economical, you know. And like -- you know, you can make various arguments for nuclear, whether it's economical or not.

But if it was clear, people would use these things. And so we need incentives to increase either the knowledge, I think, in most areas. And in the big process industries, we need lower cost to capital, and then more projects will go forward.

MR. BROOKMAN: Peter Galusky?

MR. GALUSKY: I completely agree, though, to state it -- not to put words in your mouth, but -- and if I understood you correctly, again, I'm convinced that the best and the most sustainable incentive is and always will be the market. Consider the so-called alternative energy supplies, for example, wind, solar, ethanol and things of those natures.

Just a point I would like to leave for consideration: If we were to move to a government-mandated reduction in energy use, a carbon-constrained future ala Kyoto, it is very likely that would have the effect -- it's almost certain it would have the effect of lowering economic growth.

That would actually drive down the price of fossil fuel energy; that institutionalizes and deincentivizes efficient use. And, by the way, it collapses the market for these less efficient forms of energy, such as solar and wind and so forth.

MR. BROOKMAN: Thank you.

Additional comments on this one?

(Pause.)

MR. BROOKMAN: What about the second question, "Should other causes be considered, such as weather, technology, voluntary programs, regulations, new investment or improved management?" What about weather, first? We've already mentioned weather briefly. Weather can go up and --

VOICE: No.

MR. BROOKMAN: No? Who said, No?

On the record says Doug Krings, No.

MR. KRINGS: No.

MR. BROOKMAN: Say more about that, Doug.

(Laughter.)

MR. KRINGS: Well, I look at it almost like --

MR. BROOKMAN: Why don't --

MR. KRINGS: On? Hello?

MR. BROOKMAN: Yes. Okay.

MR. KRINGS: I look at it as something that you could plan for and contractually commit to. And then, if you find a way to contractually commit to what the weather's going to be, tell me about it, because I think there's money to be made there.

VOICE: Right.

(Laughter.)

MR. BROOKMAN: Well, but one could imagine schemes statistically to kind of reckon with the variability, as complicated as that would be?

MR. KRINGS: And --

MR. BROOKMAN: Averaging and -- right?

MR. KRINGS: We were talking about it at lunch. And there are systems out there. There are hedging systems, and things like that. And if you are willing to commit to those contractually, then I can see getting a credible reduction out of that.

MR. BROOKMAN: But given the variability we've seen in recent years in weather where it seems as though we have one hot summer and one record-cold winter and one record-warm winter, should an electric utility that is responding to the demand based on weather from year to year, should -- where there is a year or two of significant reductions based on kilowatt hours or megawatt hours sold, should that electric utility or gas company -- natural gas company get credit for those reductions?

MR. KRINGS: If they have entered into some kind of binding contract, sure. They are then at risk. If they are betting on a warm winter and they get a cold winter, they're at risk, and I would assume the contract would specify some kind of penalty.

MR. BROOKMAN: Yes. I'm not familiar with the contracts that you speak of. My --

MS. ANDERSON: Yes. And who are they contracting with? If they're --

MR. KRINGS: Who's buying their credits?

MS. ANDERSON: Well, right now, we're talking about a situation where the government may be recording the reduction to provide a credit, and the market's going to determine the value of those credits. And we'll certainly talk about that later today.

But I guess what we're concerned about or the question that we have is: If your emissions are declining, if you have reductions, and it's because of an unpredictable weather event, does that really

qualify as a real reduction, or do you need to adjust your emissions or your emissions reductions commensurate with weather-related events outside from any contractual relationship? You're just reporting.

MR. KRINGS: Right.

MS. ANDERSON: There's no contracts; you're just reporting.

MR. KRINGS: No. That --

MS. ANDERSON: Okay.

MR. KRINGS: That's not creditable.

MR. BROOKMAN: Mike Moore?

MS. ANDERSON: It's not credible?

MR. KRINGS: It's not.

MS. ANDERSON: Okay.

MR. MOORE: There's all kinds of physical and financial hedging programs out there for anybody in the energy sector. I mean they're tried and true, and there have been a lot of them worked, and there are a lot of them in place right now as we speak. The beauty of open markets and competition is that you can't guess the weather; everybody's weather man is going to be a little bit different.

And then the response would be, If I get a credit for reducing my emissions, do I get dispensation when I have to over-produce on a hot day that I didn't plan on?

MR. BROOKMAN: Uh-huh.

MR. MOORE: You know, there's an act of God that I didn't plan for.

MR. BROOKMAN: Paul?

MR. McARDLE: Yes. Paul McArdle, EIA.

Just to put this weather issue in context within the current program, the current guidelines and instructions allow folks to adjust their reference case for the weather or normalize it, so to speak, for weather. I do not believe anybody has taken us up on that at this point; I could be wrong, but if they have, it's one of the few projects out of the thousands we've looked at.

But, also, just to close the loop a little more, you would think if you're going to do a weather-normalized reference case, you'd have to weather-normalize both your actuals and your reference cases; otherwise, you'd be matching a weather-affected year versus a non-weather affected year. So it would -- you would think that if you're using a basic reference case, that reference case would be built into it.

Your historical year, so to speak -- that year would actually be for normalized for weather, and all your future actuals would be normalized for weather. And if you're using a modified reference case, your modified reference case, your counter-factual, would also be based on normal weather as well as your actual emissions.

MR. BROOKMAN: Yes, please?

MR. EBY: Henry Eby, LCRA. You know, I think that if we really want to take weather or some of these other variables out of the equation, then we -- it pushes us back toward looking at intensity. From an electric utility perspective, I think that it's probably not unreasonable, though, to couple intensity with avoidable projects.

And in even using the widget example, a company could improve intensity and, in addition to that delta of intensity, also get credit for investing in a tree-planting program, for instance. So I don't think we need to pigeon-hole ourselves into just one method of scoring these reductions.

MR. BROOKMAN: Thank you.

What about technology generally? If your reduction is created by improvements in technology, should or -- well, let's deal with that one separate. Should you be able to obtain credit for the improvements you make in technology? I think we heard about this earlier this morning. Right? I think the short answer is yes, but is there any counterpoint to that that people would like to offer?

(Pause.)

MR. BROOKMAN: I see no counterpoints. So what about voluntary programs like, say, Energy Star? You make some investment or you, being a good corporate citizen take some actions, and that

results in your emissions being reduced. How should that be treated?

Yes? I see -- no, I'm not leaving you. I see heads going up and down, for the record.

(Laughter.)

MR. BROOKMAN: Okay. What about regulations? The -- some government entity, a state entity or other entity establishes some regulation and, at that point, it's mandatory, you know, as of the year 2004 or 2005. If you're being told as a matter of practice across the industry that you need to do something and that results in you having reduced emissions, should you get credit for that?

VOICES (in unison): Yes.

MR. BROOKMAN: Yes? They like the yes side of this equation.

Yes -- no

Patrick, go ahead.

MR. KELLEY: The state of Texas has done it --

MR. BROOKMAN: And --

MR. KELLEY: -- with the PUC.

MR. BROOKMAN: And so, Patrick --

And as a consequence?

MR. KELLEY: And as a consequence, they now have IHCC 2000 in place to help bolster the plans for Houston and Galveston and Dallas and Fort Worth non-attainment areas and near non-attainment areas. It's just a goal in there, but the PUC is running with it and has a market-based approach toward energy efficiency --

MR. BROOKMAN: And --

MR. KELLEY: -- with Energy Star and above codes -- building codes.

MR. BROOKMAN: It's above code? So that mandatory -- that non-voluntary program has resulted in reductions, and those actors that adhered -- they should get credit?

MR. KELLEY: They did.

MR. BROOKMAN: And -- they did in this case, and they should?

MR. KELLEY: It's the utilities.

MR. BROOKMAN: Okay.

MR. KELLEY: The utilities get credit.

MR. BROOKMAN: Peter Galusky?

MR. GALUSKY: Nothing.

MR. BROOKMAN: No? Nothing to say.

Anybody want any -- to add anything additional to that?

Paul McArdle?

MR. McARDLE: Paul McArdle, EIA. Again, adding more perspective on the regulation issue, under the 1605b statute, it's clearly stated that to report to 1605b, you can report voluntary actions, actions that occur due to regulation and, also --

MR. BROOKMAN: Pull that a little further away.

MR. McARDLE: -- actions due to plant closings.

MR. BROOKMAN: That's better.

MR. McARDLE: To put -- those are actually check-boxes that people check when they submit data on a project. The last time I looked at this, about 7 percent of all the projects -- and that's 1,882 projects -- about 7 percent checked the box for either federal regulations, state regulations or whatever -- for regulations and plant closings. So most of the reductions reported, about 93 percent or -- 93 percent of the projects, they've checked the voluntary action box.

MR. BROOKMAN: Okay.

Yes, Margot Anderson?

MS. ANDERSON: Just before we -- I don't want anybody to think there's unanimity on this issue. In the last three workshops, almost everybody -- somebody in the room raised the issue by saying, Oh, no, you cannot get credit for reductions that occur with actions you were going to undertake anyway;

So unless you can demonstrate that this was something in addition to what you were going to do anyway, it's not credible.

And I would love to hear your views on this. I would hasten to guess that a resounding response would be that shouldn't be the way it is, but a lot of folks did raise the issue of, If you're going to -- if you're already going to invest in new technology -- new, state-of-the-art technology, you don't get credits for doing that because it was already in your investment plan and you were going to do it otherwise. Just for the record, we'd like to get some comments on that, as well.

MR. BROOKMAN: Yes, Ray Butts?

MR. BUTTS: Ray Butts, Florida Power and Light. My position on that would be that, you know, if the goal is to reduce emissions, the sky doesn't care whether you were going to invest in it or not, to begin with. The goal is to reduce CO2 emissions, and that's what you're doing, and you should take credit for it. As a country, we should take credit for it if -- for no other reason than we're trying to show the rest of the world that we're reducing our CO2 emissions. And we should have that.

MR. BROOKMAN: Henry, did you --

MR. BUTTS: And, thus, credit should be given to that company that did it.

MR. BROOKMAN: Henry Eby?

MR. EBY: Yes. I would just second that and use as an example that some states have noble energy requirements -- such as Texas -- and meeting that requirement should not preclude entities for also taking credit for the greenhouse gas reductions resulting from investing in renewables.

MR. BROOKMAN: Jeff Williams?

MR. WILLIAMS: Maybe I'm taking this too far, but it almost leads me to believe that the only things that you could get credit for would be those things that you couldn't make a business case for. And that just -- that's not right.

MR. BROOKMAN: Yes. I think -- yes.

Yes?

MR. GALUSKY: I concur. If the government --

MR. BROOKMAN: Peter Galusky.

MR. GALUSKY: Peter Galusky. I concur. If the government continues to or expands its subsidy of alternative or so-called green energies, it will stunt their growth or kill them.

MR. BROOKMAN: Thank you.

Additional, yes?

MR. SMITH: Reid Smith. I agree with the comments thus far that as long as there's reductions of emissions, it doesn't matter if you make money doing them, and it doesn't matter if you were going to buy the technology anyway. There should be credits.

MR. BROOKMAN: Any other viewpoints on this? I mean we seem very consistent.

Ray Butts?

MR. BUTTS: I have -- Ray Butts, Florida Power and Light -- regarding the statement about stunting the growth of alternative energies by providing a subsidy. FPL group is the largest developer of wind energy in the United States. And what we see is that that subsidy has brought the technology forward.

I mean we now -- when we first got into the wind energy business, we were buying egg-beaters that were small, just a few kilowatt hours, out in California. And now, we're building 1.2- and 1-1/2 megawatt wind turbines that are 220 feet high. And that's what has happened with that subsidy. It has brought that technology forward. And I think that's an excellent way to do it.

It's -- I personally am not a big fan of government subsidies, but there's one I think that has really worked in helping that industry.

MR. BROOKMAN: Thank you.

I would say if we get into a larger discussion on subsidies for different energy uses, we could be here for a long, long time. Right?

(Laughter.)

Mary Quillian?

MS. QUILLIAN: I agree with these comments that it's not about a financial additionality issue, which is a term that a lot of groups that would like to have it have to be an economic thing use. And I'll give a perfect example that is outside of the energy industry.

If you've got an organization that wants to plant a bunch of trees and reforest an area to allow a specific species, for example, to survive and that's why they're doing it, then you shouldn't give -- under other arguments that you shouldn't give them credit -- they're doing it for a species' purpose -- they shouldn't get CO2 sequestration credits.

Or if somebody's planting trees as a wind-block in Minnesota for snow drifts, then are you going to say they can't get sequestration credits? No. It's back to the economic argument. So what if you're doing it for another reason? If it ultimately allows a reduction in CO2 emissions or CO2 in the atmosphere, then you should get credit for it.

MR. BROOKMAN: Okay.

Mark Friedrichs?

MR. FRIEDRICHS: At our last workshop or, actually, two ago, I think, in Chicago, the reverse of some of these questions came up. One of the utilities present, a coal utility, said, Our coal use has gone up because of government environmental regulation which has decreased the efficiency of our plants, and we believe we should be able to adjust our baseline to take account of the effects of that government regulation.

What do people think about that?

MR. BROOKMAN: Jerry Ferrara?

MR. FERRARA: I shouldn't jump in like this, but I'd say you should fix the regulation.

(Laughter.)

MR. FERRARA: I mean why are -- if we're doing things that are contrary to our goal here, we should work on those things that are issues within our society.

MR. BROOKMAN: Other comments on that?

MR. NARVAEZ: Just one question.

MR. BROOKMAN: Yes, a question?

MR. NARVAEZ: This is my first --

MR. BROOKMAN: Robert Narvaez?

MR. NARVAEZ: Robert Narvaez. This is my first seminar on this subject, but a lot of the comments have led me to one question in my mind. How much interface is there between the Department of Energy and the EPA to make sure that there are not contradictory regulatory actions?

MR. BROOKMAN: Margot Anderson?

MS. ANDERSON: Well, I can't tell you how much interaction there is on any other issue, but, on this issue of 1605b, there's quite a bit. And that's why we have, I think, four people from the Environmental Protection Agency with us today -- two from headquarters, and two originally -- and we've had that kind of participation from the very beginning.

Clearly, we're trying to harmonize the way we count up emissions and emissions reductions. There's a wide range of regulations that affect energy and that are under the purview of the Environmental Protection Agency, and we certain work with EPA on any number of other issues that are indirectly impacting actions taken by companies to reduce greenhouse gas emissions.

So we're not going to be able to solve all of those kinds of interfaces through this process, but this process is certainly a process we're not only working with EPA but we're working with USDA and the Department of Commerce on, as well. So there's quite a bit of interaction; that doesn't mean that there aren't other areas where this group is just not going to affect changes in other kinds of regulations that may have an impact, but it could certainly inform that process, I think.

MR. NARVAEZ: An additional question is that -- we discussed credits outside of the, if you will, plant boundaries and then outside of the United States. We really can't do too much, in my opinion, without a lot of interface and input from our international partners. Is that a -- correct?

MR. BROOKMAN: Margot Anderson?

MS. ANDERSON: Most definitely. And this is why Arthur was talking about the interaction with Australia. And we're certainly talking to the folks in the UK --

MR. NARVAEZ: Okay.

MS. ANDERSON: -- because they are undergoing a similar kind of activity. So we are opening that up. And we are in touch with and we had representatives from the WRI with us at our first workshop because they have been working on their guidelines. And that is an international activity. We are engaged with the ISO in that activity, as well.

So there are a variety of things that are happening internationally, not just bilaterally, but multi-laterally, in an attempt to figure out what everybody else is struggling with. It doesn't mean we're all going to come to one conformable system in the next year, but it means that we are paying attention to what others are doing and struggling with.

MR. BROOKMAN: Carrie?

MS. SONNEBORN: Carrie Sonneborn, National Renewable Energy Lab.

MR. BROOKMAN: Get close to the mic, please.

MS. SONNEBORN: Yes.

I just wanted to make a comment about -- related to, you know, working with companies overseas and, particularly, if people are interested in how Australian companies are dealing with greenhouse response. In what's a very similar economic and sort of policy environment to the U.S., Australia has also stepped outside of Kyoto and has a very strong fossil fuel sector, and it also has a lot of political support for market-based approaches.

I've got a report -- and I'll be submitting it to the record -- on how five industry -- about five industry roundtables that were carried out in Australia last year. And these roundtables focused on how companies are getting up to speed on market-based approaches to greenhouse.

And just on that point, I'm also carrying out five industry roundtables here in the U.S., and, in fact, there'll be one here in Houston on the 24th of January of next year. So it would be very keen, if people are interested, to talk to myself or Jeff Williams from Entergy, who's hosting that local roundtable.

MR. BROOKMAN: Thank you. And thank you for that contribution to the record, as well. That's helpful

I saw Arthur Rypinski first, and then to Paul McArdle.

MR. RYPINSKI: All right. Just to follow up briefly on Margot's earlier remark, also, there was a delegation from the Canadian Baseline Protection Initiative present at our San Francisco workshop on Monday and Tuesday. And so we're chatting with the Canadians, as well.

MR. BROOKMAN: Paul McArdle, EIA?

MR. McARDLE: Paul McArdle, EIA. I just want to get back to the question someone raised on DOE and EPA and how they're working together.

I can't speak for DOE, but I can speak for EIA. And EPA and EIA have a strong relationship in terms of the 1605b program because a number of reporters that report to the program come to EIA via EPA and their voluntary reporting programs. We also get reporters from DOE's voluntary reporting programs. So we have a long-lasting relationship on 1605b.

And, lastly, EIA had met with the EPA folks early in the summer as they were starting to develop their protocol on climate leaders. And they've been kind enough to send us their protocols as they're being developed to give us ideas on how EIA would develop a form for the revised 1605b.

MR. BROOKMAN: Let me ask you about some of these others, these few that are left: "New investment," and, "Improved management." To me, in some respects, that's kind of like the answer -- that would be analogous to technology, since you all have been pretty much in the S category consistently here. Right?

Is there any different viewpoint about new investment or improved management in terms of whether that should cause reductions to be credible or creditable?

(No response.)
MR. BROOKMAN: I captured it then? Give me a sign.
(Pause.)
MR. BROOKMAN: Yes, I did? Okay.
What about recognizing net entity-wide reductions or sub-entity or project-specific reductions? We talked before, and the comments to date, I think -- well, I won't try to characterize it. Someone else try and characterize it. I've heard from some of you that all three should be creditable. Are there different perspectives?
Mark Friedrichs?
MR. FRIEDRICHS: In some of our other workshops, participants have had a kind of hierarchy among those three. Some felt that some of those types of reductions would be more credible than others. We'd like to hear your views on that as well.
MR. BROOKMAN: Mark, just tell them what we've heard in the other workshops.
MR. FRIEDRICHS: Well, actually, I think we've heard both.
MR. BROOKMAN: Yes.
MR. FRIEDRICHS: We've heard that -- some people say the projects are going to be more credible than entity-wide emissions intensity reductions or other kinds of measurements of reductions. And, on the other hand, we've heard that projects are always suspect because people think that they're cherry-picking and they're only looking at the good things and not reporting the increases elsewhere, and so they're less credible for that reason, and only entity-wide reporting is really credible.
MR. BROOKMAN: Yes. And then, therefore, entity-wide is the way to go.
MR. FRIEDRICHS: Right.
MR. BROOKMAN: All right.
Reid Smith?
MR. SMITH: Well, certainly -- Reid Smith, BP. Certainly, our approach has been net entity-wide reporting in reductions backed up with the specific project information to make them credible. And that's -- if that's what you're talking about when you say, "A tiered or a hierarchy look at it," then, you know, that's one viewpoint.
MR. BROOKMAN: Yes. Okay.
Mary Quillian?
MS. QUILLIAN: I think it cuts the other way, too: That you can have a situation where a project is done in a company where they may not actually be showing the reductions. And I'll use the oil industry as an example. If they invest in a co-generator to put on one of their refineries, their emissions actually go up on site, although emissions overall go down because you've reduced the electric load and the electricity that had to be produced somewhere else and it's a more efficient process.
So just using an entity-wide reporting in that situation doesn't actually give credit to the company that put the investment in in terms of the co-generator. Or if you've got a company that only operates wind farms or only operates nuclear power plants, they don't have anything fro which to deduct; so you have to allow basically project-type reporting in order to be able to show the reductions.
MR. BROOKMAN: So that last comment gets to the last bullet, also: "Recognize actions that displace or avoid emissions."
Yes, please, Catherine?
MS. PEDDIE: Catherine Peddie. I think that for any reduction to be credible, it has to be explainable. If you report an entity-wide reduction but you don't know how you got there, then it's not credible.
MR. BROOKMAN: Thank you.
Yes, Peter?
MR. GALUSKY: Just a quick point, however. If the organization, entity, refinery, or whatever the boundary is, let's say, adopts a co-gen project and its direct emissions go -- increase on site, if in fact they are accounting for their indirect emissions, that's where it would show up; it won't be lost.

MR. BROOKMAN: Okay.
Final comments on this?
Mark Friedrichs, go ahead.
MR. FRIEDRICHS: I just have a follow-up question on the explainable point. Some projects are -- involve a single action or a few actions. And some efforts to reduce emissions involve, you know, hundreds of actions within a facility or within a firm.
Do you want somebody to -- firms to really document everything they've done to affect greenhouse gas emissions? Or --
MR. BROOKMAN: Catherine Peddie?
MS. PEDDIE: Yes, Catherine Peddie.
Again, I think it would be a materiality question. Document enough of those kinds of activities to make the credible case that you can -- you do understand what caused the reductions and, therefore, those actions can continue into the future.
MR. BROOKMAN: Okay.
Yes, Greg Spencer?
MR. SPENCER: Certainly, there are some projects that -- like an energy efficiency project that may involve software development, hardware purchases, operational changes and management directives that could still be reported; it still has a common causal purpose: Energy efficiency.
The concern, I think, about cherry-picking is highlighted in certain industries like the power industry, where maybe I can -- because I can produce power onto the grid, I can manipulate the system so that a project reduction here is offset somewhere else. We discussed another industry at lunch where that's also possible.
Many of the projects, though, are not -- in other industries are not causally related to the other activities within a firm. And so a reduction that is project-based within many industries has no causal connection that would cause a corresponding increase on the other side.
And so the cherry-picking context is relevant in some industries where I can reduce manufacturing output here and push it over somewhere else. It's not relevant -- it shouldn't be a concern in many industries where the projects are really isolated in causal effect relative to emissions.
MR. BROOKMAN: Okay.
Additional comments on, "Recognize actions that displace or avoid emissions"?
(No response.)
MR. BROOKMAN: We've -- have we covered that adequately? I think so. Other comments on that?
(Pause.)
MR. BROOKMAN: Okay. We're going to the next slide, "Calculation Methods."
What time are we -- are they serving the break? Right about now?
(Pause.)
MR. BROOKMAN: This final --
Who's --
MR. FRIEDRICHS: That's me.
MR. BROOKMAN: Good.
Mark Friedrichs.
MR. FRIEDRICHS: Yes. Actually, we've gone over a lot of this already.
(Laughter.)
MR. FRIEDRICHS: So let me see if I can skip to the things that we haven't really talked about very much. In terms of measuring reductions using changes in total emissions -- certainly one approach; that's our absolute emission reductions -- one of the adjustments that many people think should be made is to take account of divestitures or acquisitions to adjust baselines. And these individuals see divestitures or acquisitions as very different from organic growth or loss of market share, which is another way in which companies increase production or decrease.

We want views on whether or not you feel that divestitures and acquisitions are very different from organic growth and/or declines in production. And if so, how should they be accommodated?

MR. BROOKMAN: Yes, Reid Smith?

MR. SMITH: Yes, Reid Smith. Certainly, our approach has been to adjust for divestitures and acquisitions; in our case, mostly acquisitions. And --

MR. BROOKMAN: Louder? Certainly, our approach has been?

MR. SMITH: Yes. Certainly, in our case, we've adjusted for divestments and acquisitions, mostly acquisitions. And I think that needs to be in the system. You know, that's certainly consistent with WRI and certainly consistent with most of the practices developing out there.

MR. BROOKMAN: Mark Friedrichs, with a slide in hand?

MR. FRIEDRICHS: This is just an example. In this case, the end result of an acquisition and an organic growth can be close to the same over time. And the same with the divestiture. But they do certainly result in substantial changes within a very short period of time.

MR. BROOKMAN: Okay.

Yes?

MR. FERRARA: Jerry Ferrara. I guess I would just comment that, you know, if it's important to have an ongoing baseline, then making adjustments for acquisitions and divestiture I would agree with. But if you're only going to report projects or items where you've changed a process, you know, I think you simplify or reduce the work load associated with that if you just go into your before and after snapshots of the process change, whether it's in the acquired division or whether it's in an existing division.

MR. BROOKMAN: Other comments on acquisitions and divestitures?

MR. SMITH: If you go to an intensity measurement, then I don't think it matters.

MR. BROOKMAN: But --

MR. SMITH: However, in saying that, there's kind of a basic conflict between actually reducing absolute emissions in an intensity metric.

MR. BROOKMAN: That was Reid Smith.

Okay? Yes?

MS. PEDDIE: Catherine Peddie. I think whichever you choose, it has to be consistent. In other words, the acquiring entity and the divesting entity should use the same methodologies so that the emissions from that acquisition and/or divestiture -- because they are the same thing, different halves of the contract.

MR. BROOKMAN: So even if they were different, at the point of acquisition or divestiture, they would have to be reconciled somehow going forward?

MS. PEDDIE: Well, the entity who is doing the acquisition -- there is another entity who is divesting that asset.

MR. BROOKMAN: Yes.

MS. PEDDIE: Both need to follow the same guidance: Either adjust their baselines or not.

MR. BROOKMAN: Okay.

Yes, Margot Anderson?

MS. ANDERSON: Even though maybe only one is actually in the voluntary reporting program?

(Laughter.)

MR. BROOKMAN: Yes, please, Joe?

MR. MACHADO: Sure. Joe Machado. I'm guessing there's another materiality test to making these corrections to baselines, because there's a lot of very small transactions that probably would be a nuisance in terms of making adjustments around acquisitions and divestments.

And, of course, whenever you establish a rule, there's always the possibility of gaming. So if you say, "Acquisitions correct the baseline, and organic growth does not," you can imagine a scenario where your contractor will actually start up the plant and then you'll acquire it from them. Right -- the construction company? And that will be an acquisition; it won't be organic growth or something like

that.

MR. BROOKMAN: Oh.

MR. MACHADO: So there's all sorts of things. I think materiality tests will actually take care of most of those.

MR. BROOKMAN: Okay. Thank you. That's a good example.

Yes, Paul McArdle?

MR. McARDLE: I actually have a question.

And, Mark, can I pose a question?

MR. FRIEDRICHS: Certainly.

MR. McARDLE: Okay. I --

MR. FRIEDRICHS: Not to me, but --

MR. McARDLE: No. I --

(Laughter.)

MR. McARDLE: I wasn't sure if you were finished yet.

And my question is -- under the WRI protocol, in an absolute emissions world, if I build a new plant, I do not go back and adjust the prior years of my baseline or reference case; however, if I acquire a plant that was in existence prior to my base year, then I go back and re-rack the whole reference case and bring that in throughout the years.

Now, I guess my question is: What do people think about that approach? Should -- if you acquire a plant or build a new plant -- well, let's stick with acquiring a plant, because that plant was in existence. If you acquire a new plant, should you go back and re-rack the whole baseline, or should that just be added on from that point on? Does that make sense?

MR. BROOKMAN: Sure.

Anybody who'd like to take that up?

Yes, Reid Smith?

MR. SMITH: We started out with going back and re-racking all of the prior years and recently have come to the conclusion that it's probably better to take it point-forward.

MR. BROOKMAN: Hmm. And what -- based on?

MR. SMITH: Based on, As it gets from whatever baseline year, which in our case was '90 -- as you get further from that, the availability of data gets worse, worse and worse.

MR. BROOKMAN: It's more and more --

MR. SMITH: So you can't generate a credible baseline.

MR. BROOKMAN: It's more and more bad guess-work at that point?

MR. SMITH: Yes.

MR. BROOKMAN: Okay. Yes. Well, we're going to talk some tomorrow about retention of records and that kind of issue, as well.

Yes, Mark Friedrichs?

MR. FRIEDRICHS: The fixed or dynamic baseline issue. That gets to the modified reference case and additionality and so forth, and I think we've touched on that enough. And I think there's almost a consensus in this room.

MR. BROOKMAN: Unlike the other room?

MR. FRIEDRICHS: Unlike the other rooms.

MR. BROOKMAN: Yes.

MR. FRIEDRICHS: "Emissions intensity baselines." We would like to hear a little bit more specifically about what people think about the complexity of using intensity baselines. Obviously, it requires the identification of some kind of output measure. For the electric utility sector, there seems to be a general consensus that kilowatt hours would work, although we've heard some suggestions that we should leave the options open for other kinds of output measures, as well.

We've heard from some people that intensity measures -- output measures for certain industries are fairly clear, like a barrel of beer, which, I think, is used by some brewery, or a ton of cement or a ton

of steel or a ton of aluminum. In the case of other industries -- and we've also heard today from waste management -- they see output measures as just an impossibility.

And so we have -- I have two questions. How do you think we should address this problem of an industry not being able to identify a single output measure? One approach is -- as an alternative is to allow those participants to use a number of different output measures that correspond to individual facilities and then roll up the emission reductions for the entity. Another option is to allow those entities to take a project-based approach as an alternative.

Thoughts on this issue?

MR. BROOKMAN: Yes?

MR. MACHADO: Joe Machado. I think there's always a default, and that's revenue. Ultimately, you're selling all your products. So you've got a revenue stream that can be your ultimate denominator. There's lots of reasons you wouldn't want that. In cyclical industries like the chemical industry, for example, that would give rise to things that look like the weather but over longer periods of time.

And then I think the idea of having a composite output of several products where you know the energy -- you know, you have a sort of energy-per-output benchmark for each discreet product, I think rolling it up is okay. And I think you're going to reach a point where you've got maybe too many multiple products that that's unworkable and then you'll have to default to revenue. I can't think of anything else.

MR. BROOKMAN: Mike Moore?

MR. MOORE: On the electricity side --

MR. BROOKMAN: You've got to get by the microphone.

MR. MOORE: I'm sorry. On the electricity side, your kilowatt hours would be your best judge and carrier for that, as you are very responsive to load these days. And your fuel mix will dictate your emissions, but your volume of kilowatt hours will reflect what your activity level is.

MR. BROOKMAN: Okay. Thank you.

Yes, Jeff Williams?

MR. WILLIAMS: I think another point for kilowatt hours is that it embeds an efficiency goal in there. You can affect it by improving efficiency of your production.

And just one other comment. I know that Dupont uses an output-per-profit metric.

MR. BROOKMAN: Hmm. Okay.

Yes, Jerry Ferrara?

MR. FERRARA: Jerry Ferrara. I just sensed a note of concern when I was hearing the other comments. In the utility sector, our concern would be fuel switching. I mean we really don't want to be rewarding moving from one fuel to another; we want to reward more efficient use of specific fuels. And, you know, their fuel are raw materials. So as they use more and more of it, we have less opportunity.

MR. BROOKMAN: Uh-huh. Okay.

Yes?

MR. BUTTS: I have to respond to that.

(Laughter.)

MR. BUTTS: Jerry, I would just say --

MR. BROOKMAN: This is Ray Butts.

MR. BUTTS: Ray Butts, Florida Power and Light Company.

Fuel switching, of course, will get you reductions, and you're still using the same measure in pounds of CO2 per kilowatt hour. And you could switch from oil over or -- coal over to gas, and you're still going to get a reduction as a result of that fuel switching. Either way, your unit of measure is the same, and it is a measure of efficiency; you just happen to have a cleaner fuel.

Again, the sky doesn't care whether it's more efficiency or cleaner fuel; it's still less emissions, and that's what you ought to get credit for.

MR. BROOKMAN: Other comments?

(No response.)

MR. BROOKMAN: Do you want to talk about projects?
MR. FRIEDRICHS: Yes. Let's move to the next slide down.
Obviously, there are whole bunches of different kinds of projects.
MR. BROOKMAN: And this is the final slide before we take a break.
MR. FRIEDRICHS: No.
MR. BROOKMAN: No?
MR. FRIEDRICHS: We've got one more after that.
MR. BROOKMAN: Oh.
I'm sorry.
MR. FRIEDRICHS: But the next one is short, so it's not so bad.
MR. BROOKMAN: I'm sorry. I jumped ahead.
MR. FRIEDRICHS: "Sequestration and emission avoidance; Renewable energy; Nuclear; Efficiency improvements, and; Other." In the case of renewable -- independent renewable energy power generation or nuclear -- independent nuclear power generation, we -- the question of baseline may not be critical. It's the starting point of production. And if you increase production, you count that.

In the case of many other types of projects, the question of baseline gets a little bit more complicated, especially when -- for projects where you're not actually measuring fuel use before and after and you're instead estimating or -- the effect on emissions of particular kinds of technology changes.

There are a variety of different approaches to setting baselines for projects, and we wanted to explore in a little bit more detail what people thought were the most credible.

MR. BROOKMAN: You can see the list, "Types of qualifying projects: Sequestration and emission avoidance; Efficiency improvements; Other." What about that?
Mary?
MS. QUILLIAN: I'll let him go first.
MR. BROOKMAN: Jeff Williams?
MR. WILLIAMS: I think it ultimately comes down to, What types of reductions can you get most cost effectively. The ability to do market transactions in addition to doing reductions and improvements within your footprint, I think, all lead to being able to get to the goal with less economic output.

And there's an economic efficiency to including sequestration and opening up your ability to trade with others, who may have a lower cost.

MR. BROOKMAN: Okay.
Yes, Mary Quillian?
MS. QUILLIAN: Mary Quillian, NEI. I think there's a strong argument, to follow up with what Jeff was saying, not to be very restrictive on the types of projects that can count, because the more restrictive you are, the less innovation you allow.

And, you know, I mean maybe somebody's out there and can figure out a better feed for cows so that they -- flatulence is less methane-producing, or something like that that nobody has really maybe though of. Or maybe somebody has thought of that. I don't know. But --
(Laughter.)
MS. QUILLIAN: -- you know, you don't want to stifle that kind of innovation. And so I think that you need to make sure that as long as a project has -- can show real and verifiable emissions and there's some action that was taken to do that, those kinds of projects should count.
MR. FRIEDRICHS: Which gets to the question of how you count -- how you estimate the actual emissions reductions resulting from a project. And are there kinds of principles that should be followed in setting reference cases? Actually, there are some under 1605b.

Do you want to say anything, Paul, about what 1605b asks for in terms of different types of baselines for projects?
MR. McARDLE: Well, I mean I think I covered it earlier. Paul McArdle, EIA. I mean for project baselines, again, we're looking largely and you -- obviously, you can use an absolute or basic

reference case, but that's not the norm for project-level reporting.

In virtually every case, project-level reporting revolves around some modified reference case, or counter-factual, of, What would have happened had the project not occurred. I don't know that --

Do you want more than that, Mark? Were you looking for more information?

MR. FRIEDRICHS: That's fine.

MR. McARDLE: Okay.

MR. BROOKMAN: Catherine Peddie?

MS. PEDDIE: Catherine Peddie. Using the modified baseline approach addresses the question of absolute versus intensity reductions, as well, because if your modified baseline accounts for the increase in production, then your reduction is over and above whatever would have happened even with that increase in production.

MR. BROOKMAN: Okay.

Yes, Paul McArdle?

MR. McARDLE: A little more on an intensity baseline. It's kind of like --I don't know if I'd call it the best of both worlds, but it's kind of a basic reference case in that you're looking back at what your intensity was at a point in time, yet it's being adjusted for output as you go forward so that you're looking back at an intensity measure. So it's kind of a cross between a historical baseline and a counter-factual baseline.

MR. BROOKMAN: Okay.

MR. SMITH: Reid Smith, BP. While we agree that intensity is certainly a valuable measure and it can certainly help you figure out what your emissions would have been in the absence of a certain action or set of actions, at the end of the day, if the goal is stabilization of the atmospheric CO2 content, then it has to be some type of an absolute number at some point. It can't solely be an intensity metric, although I understand that's what your charge is.

MR. BROOKMAN: Other comments on this point?

(No response.)

MR. FRIEDRICHS: Let's move to the last slide here.

MR. BROOKMAN: Greg -- yes, Greg Spencer?

MR. SPENCER: A dangerous question. If you allow both entity-wide and project-based reporting, what -- I'm sure I'm missing several obvious things, but why not have an intensity measure for the entity-wide and an absolute measure for the project-wide and not preclude project-wide reporting for those who want to obtain some kind of a tradeable credit for entities that are still doing the voluntary entity-wide reporting?

MR. BROOKMAN: Yes, Tom Dingo?

MR. DINGO: It sounds like a great idea.

(Laughter.)

MR. BROOKMAN: I saw a few heads going up and down, yes.

Yes. Okay.

MR. FRIEDRICHS: Okay. The last slide.

MR. BROOKMAN: Yes.

MR. FRIEDRICHS: "Base years," and how to set a base year for calculating emission reductions, and, "Multi-year reporting." Should emission reductions always be counted year to year, or should we provide for some kind of multiple years of reporting? And these issues come up in the context of the variability that all firms experience in one form or another.

We've talked about this previously. Weather is certainly one of those variable, but capacity utilization changes from year to year have lots of effects on both the total emissions and on emissions intensity.

Here are two firms. Company X that -- has swings year to year but, over the period of time indicated here, actually has a slight increase in total emissions or emissions intensity. And Company Y has the same swings but, clearly, is on a downward path.

If you gave both firms full flexibility in defining their starting years, Company X would clearly start in Year 2 and probably end their reporting in Year 3-1/2 or 4, and they'd have a significant reduction. They might start up again over here and start up there and get all the downward swings, but you obviously wouldn't be capturing what's really happening to Company X.

Company Y would have similar options. And they clearly would not want to start here if they could start in Year Half or Year 2, or whatever that is, where they had an even larger drop.

How can this program try to take account of those types of year-to-year changes?

MR. BROOKMAN: Mike Moore?

MR. MOORE: Well, we tried with income tax in the '80s. We did income averaging. And you could also have an option to either do a five-year forward-running average or go to a year-to-year baseline. And that probably cleans it up pretty quick. You take the risk that you don't know what the next five years bring you by taking the averaging approach; by the same token, you take the risk that you don't know what the year-to-year is going to give you, but either one of them might give you a solution that works.

MR. BROOKMAN: Yes, Tom Dingo?

MR. DINGO: Perhaps an approach could be that, again, if you're going to use a project-based system for coming up with credible emissions trading, every year, if -- you have to go and report on that project that you still are sustaining it, per se. And if you don't, you don't get your credits.

MR. BROOKMAN: Okay.

Other comments on base years, when they should start, whether they should be averaged and, particularly, multi-year reporting?

(No response.)

MR. BROOKMAN: I see no more. I think we're ready to take a break. Okay?

It's now three o'clock. And we're going to go straight from break to small group discussion as follows.

Those that wish to participate in the electricity generation are going to stay right here in the room, and I'll ask you to come down here and cluster a little bit.

Industrialized sources are in the Amarillo Room. All these additional rooms are upstairs just one level.

Industrialized sources are in Amarillo. Small distributed sources, residential/commercial and end-use renewables are in the Victoria room up one level. Agriculture and forestry are in Fort Worth, upstairs one level.

We'll leave this on the screen so that you -- if you forget while you're having your coffee.

And we have cookies, don't we?

MR. FRIEDRICHS: I wanted to make small pitch for the small distributed sources.

(Laughter.)

MR. FRIEDRICHS: We always have a very small group, but I want to try to get as many people who might be interested. We're essentially going to be looking at how this program might try to reach that 50 percent of the U.S. emissions that occurs in the residential and commercial and transportation sectors that are unlikely to report directly.

MR. BROOKMAN: We're going to try and return -- that is: Start the small group discussions -- at 3:20. And then you're not coming back until 8:30 in the morning, which is when we'll resume here in this room. Okay?

So thank you, so much. And we look forward to seeing most of you at 8:30 in the morning right here.

(Whereupon, at 3:00 p.m., this workshop broke into small group discussions and then recessed, to reconvene at 8:30 a.m. Friday, December 13, 2002.)

9. TRANSCRIPT OF PROCEEDINGS FOR DAY 2

Voluntary Greenhouse Gas Reporting Workshops

PROCEEDINGS

MR. BROOKMAN: Good morning, everybody. Thank you for being on time so we can get started. A couple of housekeeping items at the outset. For those of you that need a parking voucher, please get them from the registration desk.

And for those of you that have your table tents, if you can kind of turn them toward me so that I can read your name again today, since that's really -- that will be helpful. As I understand it, the parking is very expensive, so you may want to get one if you can.

The plan for today is to start off this morning giving most of you who were here yesterday, or even brand new fresh today, an opportunity to say anything additional that you didn't think came out adequately yesterday. Just kind of reflections, additional thoughts and ideas that you'd like to have on the record.

But from there, we will go to report-backs from the smaller group sessions that we had yesterday afternoon. We will close out the morning, perhaps, by describing verifying emissions and reductions. We'll -- if we go through that rapidly even, we'll go straight into managing the 1605(b) Registry.

In the previous workshops we've ended a little bit early. It's quite possible we'll do that today. So that's the general plan. Questions or comments before we begin? Okay. So let's then start.

This -- frequently, people work a whole day, they go away, they talk with their friends and colleagues. They go to bed, they wake up in the morning. They say, You know what? There's this thing that we didn't raise that we should have raised. And they say -- you know, sometimes walk into a meeting like this in the morning, and there's something that they feel like it's useful to say, you know, a contribution to the record.

And so that's why I'd like to have that opportunity right now. Additional thoughts and reflections based on yesterday, or even looking ahead to today.

Yes, please. Terri.

MS. SHIRES: Terri Shires with URS Corporation.

MR. BROOKMAN: Yes.

MS. SHIRES: Is this on?

MR. BROOKMAN: Yes, I think it is. But speak right into it.

MS. SHIRES: We were just talking --

MR. BROOKMAN: Speak right into it. Yes.

MS. SHIRES: -- just before you got started. One topic that didn't really come up yesterday was --

MR. BROOKMAN: You've got to go right into that mike, Terri.

MS. SHIRES: One topic that didn't come up yesterday was geologic sequestration --

MR. BROOKMAN: Uh-huh.

MS. SHIRES: -- as a means of reducing greenhouse gases. And I was just hoping that DOE could comment on that. Because currently 1605(b) doesn't have any mechanism for reporting geologic sequestration reductions.

MR. BROOKMAN: Okay. And so at some point today, we'll -- Paul McArdle, do you want to address it now, or is it -- does it --

MR. MCARDLE: It won't take long.

MR. BROOKMAN: Okay.

MR. MCARDLE: I don't think.

MR. BROOKMAN: Paul McArdle.

MR. MCARDLE: Paul McArdle, EIA. On the geological carbon sequestration, that was raised in the D.C. workshop. And what I mentioned there was actually have a project code under the other category, which is a Section 10 project under Schedule II. And we actually have a project code for geological sequestration of carbon dioxide.

So it's probably not what people in the industry want. They probably want a full-blown section

on that. But we do offer it, and when we go forward to revise the reporting form, we'll take that into consideration, of having maybe something more fulsome on that particular activity.

MS. SHIRES: All right.

MR. BROOKMAN: Terri, is that -- go ahead.

MS. SHIRES: Yes. I guess it's something on the order of the agriculture-type sequestration or forestry sequestration --

MR. MCARDLE: Right. Because the ag -- or the ag and forestry sequestration actually has its own section, whereas, geological sequestration actually is in the other category.

MS. SHIRES: Right.

MR. MCARDLE: Okay.

MR. BROOKMAN: Terri, it's my general impression that a lot of work's being done here. Right?

MS. SHIRES: Yes. I know --

MR. BROOKMAN: Yes.

MS. SHIRES: -- we are spending significant research in the area. And we kind of see that as a prime opportunity for reducing atmospheric CO2 emission.

MR. BROOKMAN: Okay. Great. Other thoughts, comments, or questions? Yes, please. Your name for the record?

MR. MIGL: Danny Migl, CDX Gas. Could you give us some examples of geological sequestration?

MR. BROOKMAN: Do you want to do that, Terri?

MS. SHIRES: Well, for instance, enhanced oil recovery, you know, pumping the CO2 back into the ground to increase crude production. You could store CO2 in expired gas fields, expired oil fields, saline aquifers. And there is a number of different opportunities.

MR. BROOKMAN: There are a lot of exotics that they're considering. They're talking about, you know, deep in the ocean. They're thinking about trying to take CO2 and densify it, somehow. You know, there's lots of things that are being considered.

Other comments, reflections from yesterday? Yes, please?

MR. GALUSKY: Yes.

MR. BROOKMAN: You've got to -- get to the microphone, please. Peter Galusky.

MR. GALUSKY: Just a note to those to whom this technology might be new, the limiting step to putting CO2 in the ground is capturing it. As most -- many of you know in the room, geologists -- petroleum engineers -- in the states we do a lot of CO2 flooding for enhanced oil recovery.

But virtually all -- correct me if I'm -- if you know differently. But I think virtually all of the CO2 that is used for those operations are coming from CO2 gas reservoirs.

MR. BROOKMAN: Uh-huh.

MR. GALUSKY: It's not as though we're taking CO2 from a powerplant at this point --

MR. BROOKMAN: Uh-huh.

MR. GALUSKY: -- capturing that, and putting it in the ground. However, there is one active research underway to do that very thing.

MR. BROOKMAN: Thank you. Greg Spencer.

MR. SPENCER: Actually, there are projects both here in Texas and in Wyoming where we have verified the credits and sold the credits where the -- and in Mississippi, where the CO2 is collected from a vent stack, compressed, and injected in EOR.

So it's a true net reduction of what otherwise would have been emitted.

MR. BROOKMAN: On a project basis?

MR. SPENCER: Yes. Always.

MR. BROOKMAN: Okay. Additional comments? Yes, please, sir.

MR. GILMER: Yes. My name is Lee Gilmer. I work for Shell Global Solutions. And I was talking to some people who were here yesterday, and I missed part of the session yesterday about

sequestration/reforestation. And the question I had was how it's been accounted for, and is it being accounted for as a flux as opposed to a rate?

And are things such as that the rate of sequestration decreases over time for trees, and they eventually get to the point where they don't absorb any CO2?

MR. BROOKMAN: Uh-huh. Are you going to address that, Jim, in your breakout report, or not?

MR. HRUBOVCAK: I can address it during breakout report.

MR. BROOKMAN: Yes.

MR. GILMER: Okay.

MR. BROOKMAN: So one of the sessions -- one of the breakout sessions addressed that topic yesterday.

MR. GILMER: All right.

MR. BROOKMAN: Other thoughts, comments at the outset? Okay. Well, then let's go straight, then to our first report-back, which -- we don't need to do them in this order, but this is the way they're stacked in the agenda. Okay?

And so reporting for Electricity Generation, including good connective renewable, is Henry Eby and Mary Quillian.

MR. EBY: Do you want me to --

MR. BROOKMAN: Yes, come on up here. And there's a microphone, in fact, here for the two of you to use. And if there's any music involved in any of these report-backs, you get extra points.

MR. EBY: No singing on my behalf. I guess I'll state just for the record that my comments are intended to reflect our discussions yesterday, and are not intended to reflect any consensus or agreement that we reached yesterday.

MR. BROOKMAN: And do you wish to be further, and say that they don't reflect the Lower Colorado River Authority's --

MS. QUILLIAN: Or NEI.

MR. EBY: I'll even go that far.

MR. BROOKMAN: Yes. I just wanted to give you that opportunity for full disclosure.

MR. EBY: Why don't we go ahead and jump to the second slide. This slide was pulled together last night. I didn't get a chance to review it for this morning. So I've got -- until this morning. I have some notes that -- to talk from. But I think it will comport fairly well with some of the items up here.

First off, we spent a fair amount of time talking about intensity. And it appears that from a utility sector, that emission reductions based on intensity can work. And those can -- for -- let me just back up a little bit.

They can work for a certain portion of the reductions from the electric utility, those that are system-based. The most apparent intensity metric would be emissions per output of electricity. So in terms of tons per kilowatt, tons per megawatt hour-type metric.

But there may be others. And we talked about some of the other metrics that might be looked at, such as emissions per input, and MBTU, or emissions per cost per hour, or cost of output.

MS. QUILLIAN: The disadvantage with emissions per MBTU --

MR. BROOKMAN: Let's make sure that's on the record --

MS. QUILLIAN: The difficulty with emissions per MBTU is that you're not taking into consideration the efficiency that the unit might have. So if you were to do a project that increased your efficiency from 30 to 31-and-a-half percent, then that doesn't necessarily show up if you do an MBTU, which is why kilowatt hours works better.

MR. EBY: Right. Right. I'm going to talk a little bit more about that, too. I do want to note, though, with intensity it would be an intensity-based emission reduction. So ultimately, we would end up with emission reduction in terms of tons.

And the way that that exercise would proceed, and I think we have that as one of the points -- and it would be the second bullet. The intensity factor could be used to derive tons.

What we'd be looking at is the incremental change in intensity, improvement in intensity, hopefully, from some baseline. So intensity factor would be in terms of that delta, that change in tons per kilowatt hour from a baseline, and then multiplied by the output during that given period of time.

So for instance, during one year's period, to determine the total reduction from intensity improvement, the incremental change in intensity times the output in terms of megawatt hours over those -- over that year, to determine the amount of tons that have been avoided.

Okay. So the ultimate number reduction would be in tons. The benefits of an intensity-derived tonnage reduction would be, for one, that it would comport well with the president's goal of improving the overall greenhouse gas intensity of the economy.

It captures a lot of actions and decisions made on the part of a utility, such things as supply-side improvements, addition of renewables, fuel switching, new efficient units, dispatch decisions, and it would -- can also accommodate purchase power and green labels.

Now, some of that would have to be handled contractually to get it into the overall profile or generation mix of a utility.

It would also minimize some of the impacts of the external variables, such as weather or overall population growth with an area.

One thing we did recognize, though, is that the intensity factor-derived emission reduction would not capture all of the actions that a utility may decide to pursue to reduce greenhouse gas measurements, but not capture those on-system type reductions like geological sequestration, tree planting, DSM.

We talked a little bit about cogen steam, things like that that are not metered, but would be off the system. For those projects, we felt it's appropriate that they be handled as projects -- avoidance projects in terms of total tonnage.

And at the end of the day, you would have a total tons reduced from that utility from two directions. There may even be more options. But you'd have a -- an intensity-derived tonnage reduction, plus a project-derived tonnage reduction for total tons.

And we felt that mixing those projects -- or at least we talked about that, the mixing those projects, where the mixing -- the derivation of the reductions is appropriate.

We also spent a fair amount of time talking about contractual agreements. And if you can -- if you can maybe back up to the previous slide. One of the issues was, how do you minimize double counting, such things as Green Power purchase, Green Power sales purchases, DSM incentives, et cetera?

From a power purchase perspective, or a Green Power purchase perspective, we felt that that could easily be handled and accommodated within the contract, and that even today folks, when they purchase renewables wholesale-wide, need to think in terms of who has the renewable energy credit, who gets the environmental attributes, and then of course, you know, the price of the energy.

So that could easily be accommodated. With respect to DSM, it would probably be appropriate to look at who was financing those projects. With a DSM project, demands on management is financed by the utility. Then the utility would probably want to get credit for the reductions, and could do so through a contractual agreement.

If it's going to be financed or paid for by the end-user, then it's appropriate for that end-user to go ahead and submit a request or try to get credit for those reductions -- report those reductions as such.

MS. QUILLIAN: We strongly encourage everybody to think about this, though, as you get involved with any sort of project in the future, and put it in the contract now. We see, looking backwards at projects that may have already occurred or may have already started, to be somewhat of the problematic point. And that's where we suggest you go, with where the money came from.

MR. EBY: Thanks, Mary. With respect to the treatment of acquisitions and divestitures, yes, obviously, there could be -- if you looked at absolute emissions, there could be a big step up or step down as a result of an acquisition or of a divestiture, and that deserves some kind of transition.

And Mary is going to talk a little bit about maybe how that can be accommodated as far as using financial-type examples. But I would -- do think that an intensity-based metric would help to minimize

the sum of that effect, yet it may -- there may be a need to reset the intensity-based baseline in moving from -- you know, either a merger or acquisition, or some kind of change in the overall company structure.

Now, with that, Mary, I think maybe -- maybe if you want to talk a little bit further about divestiture issues?

MS. QUILLIAN: Although the accounting -- financial accounting industry is not the brightest example right now, I do think that we can take a cue from them in how they account for mergers and acquisitions in things like annual reports.

And that is, if you're going to -- if you buy -- let's say one utility buys another utility, and they want to give an intensity factor, or show tons reductions. They are going to need to have to recalculate the emissions that would incorporate the new assets -- what the new assets did last year, to have a good apples-to-apples comparison from year to year.

This may mean that you have to adjust your baseline, or your base year. And I know that that is somewhat of a touchy issue. I understand Reid from -- I think he's from BP. Hi. I know what you're talking about in terms of the further back you get, the data just gets not so good.

And so it may be that what you're doing is, particularly with an intensity factor, you're only going to recalibrate for the last year, or maybe the last two years.

So that -- and in my opinion, if you bought a utility and you made improvements, or you bought any kind of company and you made improvements to reduce the CO2, you're going to be comparing it to just that year or two before you purchased the asset, anyway.

So you're going to be showing the improvements with what you did, and so you can calibrate accordingly in that short time frame. That's just one way, I think, you could account for divestitures and acquisitions. But there are several. And I think that we can look towards traditional financial accounting to deal with some of those things.

MR. BROOKMAN: Thanks. Does anybody that participated in yesterday's breakout session wish to offer any comments?

MS. QUILLIAN: Did we miss anything?

MR. BROOKMAN: Did we miss anything?

VOICE: Good job.

MR. EBY: Okay. Thank you.

MR. BROOKMAN: Okay. Thanks. Thanks very much. And of course, we appreciate them asking the question. Anybody that has anything addition to add to these breakout reports, we want to hear them now.

Okay. So the -- who is reporting for the industry breakout group?

MR. GILMER: I am.

MR. BROOKMAN: Why don't you come up here. Is it Lee? Lee Gilmer.

MR. GILMER: I'm reporting for the industry -- Large Industry breakout group. And as it showed there, my name is Lee Gilmer. I work for Shell Global Solutions, which is the technology arm of Shell -- Royal Dutch Shell.

We talked about the bullets that were put on the overheads for the facilitators to use yesterday. And we talked around the bullets and about the bullets, and we came up with some things that are somewhat related to the bullets. And this is a collaborative effort. And I'm not speaking just for myself or Shell. I'm speaking for everyone.

And then Arthur Rypinski to stay around and help us put together the slides, along with Michael Scholand. So they're our DOE and Navigant Consulting people involved in putting the actual slides together, as well as myself.

We identified a number of problems with intensity-based metrics, particularly the physical aspects of intensity-based metrics. For large industries, you may have multiple products within the same entity. For example, you have a person that you think makes airplanes. They do make airplanes. They also make rockets. They also make satellites. They also make computers. They also make software.

And all of these have different types of units of measurement as far as what they're producing and what their output is.

Entities have diverse portfolio of sub-entities, and that's kind of related to what I said previously. But there are a lot of large conglomerates now that absorb a lot of different entities, so you get to Beatrix, or someone like that, that owns a whole lot of different types of products.

Then there's also changes in product over time. We've called that quality within. And we got to thinking about quality as a broad word that has a lot of definitions. So the example that we came up with is a Model-T versus a Thunderbird.

And you also have the new products introduced, and old products retired. So that also can create some problems as far as trying to use a single factor for intensity for industry.

Then we talked about intensity-based metrics from a financial perspective. And of course, as was mentioned previously, this gets down to actually becoming a financial accounting example. And we all know issues associated with financial accounting right now.

We identified a number of problems with financial metrics. We did identify some potential financial metrics, emissions per sales, emissions per value added, emissions per profit. And we came up with some specific aspects related to that.

They're influenced by price, which is beyond the manufacturer's control. The market sets the price for a lot of industry products. And so that's something that's beyond our control.

It's also a volatile measure over time. The -- it's -- most of the large industries, the stocks -- you look at them. They're very cyclical. So you get to volatilities in various things like revenue, sales, profits.

Multi-product allocation -- that's difficult to attribute this over different products. There is a lot of products from big industries. And you also get into confidentiality issues if you start talking about things that are, you know, beyond the annual reports, or that you may get into some confidentiality issues, that people may be able to determine how their competitors are operating, which could create some problems.

We talked about exploring intensity metrics. And we had a couple of counterpoints in the group on that issue. The first one was that a single metric is problematic. And the other idea was let's just pick one and go with it, although it might be imperfect.

And we talked about both of those issues and debated them and discussed them. And we came out that really, industry-specific, at least in our opinion of the -- pretty much all the people who were present at our meeting, was that that was probably a better way to go. And we looked at this should be selected by the reporter -- the actual industry, or even the segment of the industry that is actually doing the reporting, in cooperation with or in addition to industry associations -- trade associations such as American Petroleum Institute, American Chemical Council, and so forth.

Our industry, the petroleum industry, indicated that we -- because we have a lot of different types of operations within the purview of our overall business, we may specify as many as six intensity metrics, depending on which section of our business you're actually talking about, whether you're talking about the exploration for the crude, or whether you're talking about refining of the crude, or whether you're talking about transportation of the feed stocks and the products.

And we identified several difficulties for, and we came up with a -- just a generic name here, Widget Manufacturers, people who make a single product. And this is something that, you know, being from a really large industry with a lot of segments, it hadn't occurred to me, but you get to -- they've got problems with the GHG intensity of their feed stock and their energy inputs, because they really don't have any control over any of those things, and they don't know what they are. They just -- you know, it's things that come from some other source to them, and they use it to manufacture their product.

So if you're in the final end of being a product manufacturer, there is issues associated with you don't know about. You don't have a real good handle on what happened with all the stuff that actually came into that you used to finalize and make your product.

And we had a couple of other topics on exploring intensity metrics. One was that in the financial

community -- and there was a consensus that the financial community will evolve their own metrics over time, because of interest in corporate sustainability, which of course involves continuing to be in business, continuing to make a profit, and environmental consciousness, as pointed out by the second bullet there.

And then there was a question that was raised within our group. Why participate? What do I get out of this? And there is a concern that the program is leading to a cap in trade, and that there is an assumption that the future may have a carbon tax.

And some of the things that we came up with that might be favorable -- it's one, the favorable publicity, shows the corporate responsibility and environmental stewardship.

Another one is allocation of emission rights. It may be that -- and we've already heard some examples today of people that have already actually sold some emission rights in this area, hedging against a future cap in trade options.

And of course, that was pointed out in our group that that's kind of like playing the options market in a lot of other things, and basically, that past performance is no guarantee of future -- is not prediction of future performance.

And then there's also, again, the assumption that the future may have a carbon tax, and that's what -- I guess, our consensus was it's really based on that. That there is some long-term expectation that there will be a carbon-restricted economy, which we may or may not see.

And then on non-carbon emissions, such as methane and others, N2O, SF6, HFCC, FCs, O, our conclusion was continue to report by the gas as currently doing, and units of a report should be consistent with the carbon report. That we shouldn't have different intensities for methane emissions versus CF2 emissions.

And finally, that a materiality test, we think, would help us as far as limiting the number of different pollutants we had to report. In our industry, primarily it's CO2 and methane. And there may be a little bit of some of these others.

But if you take a materiality test, and it's 1 percent or less of the CO2 equivalent emissions, then we don't think it should have to be reported. We would recommend a 1 percent materiality test.

And that's pretty much what we talked about. And I'll get one more slide. I'm sorry. Okay. We had one more slide that I forgot about, Confidentiality Issues.

Reporting absolute emissions we don't think is a real problem, that we're already doing it. Several of the people who participated in our session yesterday are already reporting their absolute emissions, maybe not just in the United States. But it's not that hard to just break them out, U.S.-based only.

And second is intensity reporting could be problematic, e.g., the financials. And so our position on confidentiality is to let the individual industry choose its intensity metric. That industry roll-ups are an option to protect confidentiality, such as providing them to your trade association, and your trade association reporting a total rolled-up number for your industry.

Corporate versus facility reporting -- we think corporate is better. That facility reporting can create some problems for us in that you get into some facilities that may be very remote, and may not really understand what they might be doing, or what -- and it's important to have some corporate oversight so that it's all on the same basis, it's all consistent.

Sales versus emissions reporting. Our preference is it's based on emissions. And that is the last slide. So does anybody else who was at our session yesterday like to add anything or correct me on anything I messed up? Or mentioning something that I missed?

Could you -- Art? Right. Arthur Rypinski, Department of Energy. There were two points that were made with respect to the widget manufacturers that didn't exactly fit with the widget concept.

Some of our colleagues in the chemical industry suggested that they -- it was important to distinguish between feed stock and fuel use of fossil fuel inputs, in the sense that the fuel was combusted. The feed stock was converted into products and went out the back door. And that the stuff that was combusted, of course, went up in the atmosphere.

And they were just offering that as a caution to naive use of fuel inputs as an emissions metric. There was a second, and somewhat similar argument that was offered on -- but -- on a related issue that was -- let's see if I can remember this.

Another one of my colleagues argued that they didn't want to march up the fuel cycle into measuring the carbon or emissions content of their product inputs, because there was a knowledge problem. They couldn't actually know what the emissions inputs to the products they were buying were.

And so their argument was, Let's stick to what we know, and what we know in this case is the fuel we buy directly, not the fuel embedded in aluminum or paperclips, or other inputs. Did I get that right?

MR. BROOKMAN: Additional comments following the Industry Breakout group? Thanks very much. Okay. Nothing else to be said from industry participants? Questions? Any additional questions?

The next one, then, is Agricultural and Forestry. Who is going to report back for that group?

MR. HRUBOVCAK: I am.

MR. BROOKMAN: All right. Jim, pronounce your last name for me.

MR. HRUBOVCAK: Hrubovcak.

MR. BROOKMAN: That's what I thought. Hrubovcak -- Jim Hrubovcak.

MR. HRUBOVCAK: Let me start out by saying that before I took this job, I was an economist. And economists always believe that once information gets provided and copyrights are treated, the private market will solve all the problems.

And I took notice yesterday, when Doug made the -- we only had one person in the Ag/Forestry breakout group at noon. When Doug made the announcement that we only had one, by three o'clock we had actually a representative from someone who is interested in selling credits, a couple of people who were interested in buying credits, and actually someone who represented a verifier.

So they worked. So you've proved me right. Great. And we did have a good group. I think we did have a good group of, basically, people who were interested in supplying credits, and people who were interested in buying credits. And -- pardon me? VOICE: [inaudible]

MR. HRUBOVCAK: We're working on that part of it. And if we go to the first slide -- I think we tried to follow the DOE guidelines that were provided in the handout. But one of the things that came out pretty clearly was, over and over again, is the stringency of any program is going to be tied to the purpose of the program. And if you're just going to do a program just for reporting purposes, it has to be low-cost, and you have to ensure a high degree of confidentiality. And that's where we also got the suggestion from at least someone that a trade association, in terms of reporting, might be a good idea for that, because it maintains the confidentiality. But you get a high degree of uniformity in what gets reported. One option that DOE should consider.

But if it's going to be used for crediting, then I think there is acknowledgement that the whole thing must be more transparent than just for reporting. And basically, once -- a term I came up with -- increasing value, increasing responsibility.

So once these things have value, there is an increased responsibility on both buyer and seller to make sure that the product -- you're getting to a real product here. So there has to be more transparency in what that product represents.

And I think the problem facing DOE right now is we're somewhere in the middle between this. We're trying to create a reporting program that will ensure some form of future crediting.

And I don't think there's a unique solution anymore for them, unfortunately. There's just not one way to go about it, because we're kind of in this sort of middle ground, that there has to be options for a lot of different avenues.

And we got into an entity versus project reporting. The reporting aspect -- again, I think, again the industry idea of trade associations came up, and a value that, you know, it could give you uniformity in what you get, but also reduce the cost of individual companies within that.

Crediting -- I think the trade -- once you got the crediting, I think the trade association approach kind of fell by the wayside. That once it got -- took in something of value, firms wanted that, and were

kind of willing to work through their trade association to allocate something of value again.

So again, we're kind of mixing around here, depending on the purpose of the program. But when it gets into calculating effects, I want to point out. Some of this is actually happening.

We have people out there right now who are buying and selling credits. It may not be as rich of a market, but -- and these examples are illustrations of what's happening.

And in terms of calculating baseline, I think there was some agreement that there is some need for averaging, because just of natural fluctuations and in any annual year of emissions or sequestration. It might be a good idea just to pick a base year and average over.

One example is four years. Again, nothing unique about that number. That was just the agreed-upon number between the people who were interested in doing something like that.

When it came to methods to estimate baselines, again, there's various methods in use right now. One -- the common one that was discussed yesterday was there was a modeled and merit verify. That they were using modeled approaches to actually estimate how much carbon sequestration was taking place.

But then they would go back in a year, two years, three years, and basically make sure that amount of sequestration was actually occurring on the ground.

Permanence is somewhat unique to sequestration projects, because if there is this potential for this temporary nature of a carbon sequestration, you basically pull it out of the atmosphere, and it gets stored either in soils or in trees.

And at any time, that carbon can then be released, in a year, two years, ten years, or in some cases, it's not a problem if it goes into long-life wood products. These things could stay around for hundreds of years.

But it is something unique, which makes the DOE program -- well, it turns it into more of a dynamic program, in that you now have to be worried about this time element. It's no longer what happens in any one year, in developing rules for that year. It's how do you make sure that this continues over time.

And again, when it comes to reporting, some people said, Well, maybe -- an idea was kicked around. Maybe you -- once you report a sequestration project, you're locked in to reporting the program for four years.

Well, given it's a voluntary program, it's difficult. I mean, but maybe. That's an alternative that someone threw out, but again, there is nothing unique about any number. But there was -- it was important to recognize this time element in terms of the permanent -- the sequestration element.

When it came to crediting, again, here is where markets can fill in some of the void. The one project that's going on right now, there is a ten-year lease with an option to renew. So you've gone from this purchase to a rental. And I'm sure private people would -- private industry knows this concept very well, that you don't need to buy things. You kind of rent the carbon over time.

And the market price should reflect that term of that lease. That if it's a shorter lease, lower price. If it's a longer lease, it's a higher price. And if it's a permanent easement, then of course, that's akin to basically a full purchase price.

The issue of leakage -- we felt that it was not unique to agriculture and forestry, or projects in general. That -- and it's just something very difficult to deal with. No one has a solution to it, whether to account for it, how not to account for it.

Under current -- it seems like the current approach to our dealing with a lot of these softer issues, a lot of the permanence and leakage, is it's just a negotiated solution. And people have raised the idea of having ten to 20 percent buffers just in case something happens.

Again, there is no hard and fast rule for any of these things, which makes it somewhat difficult. It's just a negotiated number. That -- they wanted -- there is a recognition that you do have to address some of these issues when it comes to carbon sequestration. But, you know, the rules are basically one on one right now. And there is nothing, you know, sacrosanct about any of these numbers.

And again, difficult to give advice as far as how DOE should go in the process. I think we'll have

to see more as the program evolves. And if anyone else wants to throw in now, I think that sums it up pretty well.

I think there was a view that, you know, again, a real view that there is a role for projects in here, and it's just working out the details right now as how to -- as far as how to get them in.

MR. BROOKMAN: Thank you. Any other questions? Did you address the question of --

MR. HRUBOVCAK: No, I didn't. On fluxes?

MR. BROOKMAN: Yes.

MR. HRUBOVCAK: Right now, I don't -- I'm not sure how the existing 1605(b) program works. I'm guessing it's not a flux-base. It's based on default growth rates, or things like that.

In January of this year, and there are some announcements out there, USDA has been given the responsibility to come up with methodologies for doing sequestration for agriculture and forestry projects. And we'll be having our outreach program to over our plan of work, and how -- as far as how we're going to develop these -- this process.

So I'm sure we'll deal with that in that issue. But I'm guessing more it's the default growth rate type approach, rather than direct measurement from fluxes.

MR. BROOKMAN: Okay. Okay. Yes?

MR. PIKE: Paul Pike from Ameren. A quick question. Did anything come up about fires, and what kind of impact, if you got a ten-year option, and in the sixth year you have a forest fire?

MR. HRUBOVCAK: That -- yes, it did come up. We talked about that. And that's where it came in as kind of this ten to 20 percent buffer.

MR. PIKE: Okay.

MR. HRUBOVCAK: Again, nothing hard and fast, but firms kind of realize when they go into these contracts one on one, that yes, there is the potential for something to go wrong. And they were willing -- again, it's a small sample of things actually going on right now. But the agree-upon was that -- to take some land and set it aside, just in case something happened. And --

MR. BROOKMAN: And so in the aggregate it works out.

MR. HRUBOVCAK: In the aggregate, it would work out.

MR. BROOKMAN: Uh-huh.

MR. HRUBOVCAK: And in Chicago, actually, this came up. We talked about this more in detail. And that's where, at least from the farm side, it was felt that for projects to work, you're going to have to have someone who aggregates these so the risk can be pooled, basically.

MR. BROOKMAN: Uh-huh. Okay.

MR. HRUBOVCAK: And --

MR. BROOKMAN: Pooled risk. Paul McArdle has a comment as well.

MR. MCARDLE: Paul McArdle from EIA. Getting back to the fluxes issue, I think generally, a lot of the folks reporting sequestration projects to 1605(b) use our forestry worksheets. We have one for an urban forestry worksheet. And that's largely for tree planting.

And another worksheet that's used for larger tracts of land, that's usually done by acre. And there are defaults in there for the fluxes and the types of trees you use. And it's -- you're not measuring the flux. It's just a worksheet with defaults built in.

Although there are some people, I believe, reporting sequestration that have actually done some measurements as well, so -- taken some -- I don't know the right word -- readings. They've gone on the ground and measured progress in terms of carbon storage.

MR. BROOKMAN: Additional questions and comments? Yes, please. Greg Spencer.

MR. SPENCER: Just a brief comment for Paul to follow up on Terri's earlier comment. The --

MR. BROOKMAN: Thanks, Jim.

MR. SPENCER: -- geologic sequestration is often lumped with the agricultural sequestration. But it -- the issues about measurement, there are very precise flow meters attached to the pipes which are injecting the CO2 into the ground. Permanence is not an issue. Monitoring is a very -- we're talking geologic stability. So it's stored for eons, in effect. It's -- it really belongs in a different category, I think.

It should be considered and evaluated differently.

MR. HRUBOVCAK: Yes, but USDA is not going to do the geologic or the marine sequestration. We're just going to -- we're focusing on a terrestrial. I think that -- still, that the geologic and the marine is within the purview of DOE.

MR. BROOKMAN: Okay. That was Jim again. Okay. Additional comments on this? Yes, please.

MR. GILMER: Yes. Lee Gilmer, Shell Global Solutions. I had one more question. And I guess I'm wondering when DOE gets to this and voluntary reporting, how things such as planting trees in -- outside the United States are viewed as far as credits, and accounting, and things like that?

MR. BROOKMAN: What is -- yes, Margot Anderson.

MS. ANDERSON: We talked a bit about this yesterday. It was one of the issues that was raised on the overheads to get some input on whether folks thought we should continue to have the same recommendations for -- the same guidelines now on reporting are that you bifurcate. You let us know which emissions are domestic and which are international in your emissions report.

The issue that's new to this whole exercise is whether indeed you will be eligible for a transferable credit for actions taken overseas. I don't believe there was consensus in the room, or actually much discussion about that particular point. But it is something we're going to have to confront.

It's been raised at other workshops, and some were concerned that if you're taking a lot of actions overseas and getting credits for those, that doesn't help the president meet his goal of 18 percent, and that what we're really trying to do is encourage domestic actions.

Others said, Indeed, these are the often low-cost opportunities for companies, and should be creditable under the revised 1605(b) program. So it is an issue that by no means is solved yet. And we would be very interested in your feedback either here or in written comments to us on that issue.

MR. BROOKMAN: Okay. Reid Smith.

MR. SMITH: Yes. Addressing that, certainly we're strong proponents of being able to transfer emission credits across to international boundaries. For multi-nationals that's a critical point. And we understand the DOE's dilemma with meeting the president's charge.

But participation in a voluntary program is going to be based on what the participants see as the value of them participating in a program. So it needs to be fairly open.

MR. BROOKMAN: Thank you. Additional comments on this topic, Ag and Forestry? Okay. Then thanks for that report back, Jim. Let's go to the last breakout group, Small Distributed Sources, Residential, Commercial, and End-Use Renewables. Mark Friedrichs.

MR. FRIEDRICHS: Hi. Small Distributed Sources had a small group, as usual. Around one table. And we started out, I think, on the list with two, but we got three.

Dick Richards with SAIC, which supports EIA in the implementation of the 1605(b) program, Juene Franklin at EMCON/OWT. It works in the design and -- development design of methane recovery from landfills.

And Fabien Nillson, who works with EnLink Geoenergy, which is a ground-source heat pump -- a geothermal heat pump design and service company.

Just to remind you of the problem, the 1605(b) program is -- involves a 45-page form, or whatever, at least for the long form. And it's very unlikely that many small sources are going to participate directly. Arthur Rypinski is the only household that reports directly to the 1605(b) program.

But household and small businesses and small transportation companies account for possibly 50 percent or more of direct and indirect greenhouse gas emissions in the United States. And there are certainly many opportunities for reductions.

The things that we talked about as a group fell into sort of two categories, I think. How we can enable aggregators -- those are organizations that might work with small sources, small emitters, to either help them report, or to collect reports and report in an aggregated form to the program.

And the second, how we might better market the 1605(b) program. And it was recognized that DOE needs to spend a little bit more time identifying, informing, and training potential aggregators. That

state and local government officials in particular might play a much more significant role. But they need to know about the program. They need to be trained in the program.

Product suppliers also could be effective sellers, essentially, of the program, in part because it's a marketing tool for their products, or it can be.

And trade associations can also -- and are, but could be more so of sort of marketers for the program or aggregators, to work with small businesses or individuals.

Next? All right. Just to go again over the roles of aggregators, marketing the program, encouraging participation, assisting direct participants, small and medium-size businesses in particular to report directly, if they choose to. And they can also work to ensure that double counting and other problems with data reporting are minimized.

Aggregators need some kind of incentive to participate. At least usually, although there -- some have a natural motivation. One idea was enabling aggregators to keep a portion of the credits that they report, which might provide an incentive.

And there might be some need for some federal dollars to support state and local government officials who serve as aggregators.

We talked a fair amount about the fact that there is not really any marketing element to the program right now. The program is, of course, implemented by the department's Energy Information Administration.

But because of the nature of EIA, which is an independent agency within the department that steers clear of policy and program responsibilities, it's difficult for EIA to actively market the program. And there might need to be a new entity, perhaps outside of EIA, that had that responsibility.

There was a -- talk about, perhaps, the program needs some kind of symbol, like Energy Star. That perhaps it could even use Energy Star to enable participants to get more recognition, essentially, for their participation, to bolster the kind of marketing benefits that companies might get.

The program could also do a better job of working through a wide range of existing energy or environmental programs, to encourage participation by small businesses and individuals.

And there is an EZ form, which is only a couple of pages, or something like that. I gather that it's not used a great deal. But --

MR. MCARDLE: Paul McArdle, EIA. I believe it's on the order of maybe of 20 -- maybe 25 percent, tops. But it's relatively small.

MR. FRIEDRICHS: We thought that there might be some opportunity to encourage broader use of that, to simplify participation for small users. And that's it. Group, do you have any additions or modifications? Did I -- I hope I covered it? Any questions? Great. Oh, sorry.

MR. BROOKMAN: Greg Spencer.

MR. SPENCER: Just a comment, that I think if the -- if a program is set up which creates a clearly marketable, tradeable credit within the U.S., if the DOE provides some guidance on the title issue, then I don't think there is a need for extensive government involvement in aggregating those things. You will create a natural incentive.

The market will develop -- people will come forward to aggregate those credits because they have value. And if the ownership is clear, they'll figure out mechanisms to do that. It's happening even in the absence of a lot of that clarity.

If those two things are resolved, I think you'll see the market develop rather quickly.

MR. FRIEDRICHS: Yes, I should have mentioned that. The -- that was discussed during the group. If these did really have a monetary value, the program was -- would likely naturally expand.

The reason why we felt marketing might be needed was because there are many who participate now, and many others who don't see that there is going to be a significant monetary value. So there are many different reasons for participation, and a relatively small group are focused on the monetary -- potential monetary value of credits, at least right now. Okay.

MR. BROOKMAN: Thank you, Mark. Let me -- let's have a round of applause for all of our presenters. (Applause.)

MR. BROOKMAN: Testifying takes both cleverness and courage, both. Paul McArdle.

MR. MCARDLE: Yes, just a -- Paul McArdle, EIA. I just checked my summary statistics. The EZ form is used by 16 percent of reporters. In the last summary data for 220 reports, we had 36 EZ reports.

MR. BROOKMAN: Thirty-six?

MR. MCARDLE: Out of 222.

MR. BROOKMAN: And would you characterize them? Are they really small reporters?

MR. MCARDLE: Not always.

MR. BROOKMAN: Uh-huh.

MR. MCARDLE: There have been some larger entities that have used the EZ form.

MR. BROOKMAN: Okay. Great. Thank you. We're going to proceed with the next item on the agenda, which is Verifying Emissions and Reductions. And you can see the slide here. Who is going to --

MR. STAUB: John Staub, DOE.

MR. BROOKMAN: Okay.

MR. STAUB: Currently, 1605(b) uses self -- relies on self certification. And in the Four-Agency letter to the president back in July, it was suggested that the revised guidelines use independent verification. And that rate -- or it moves us towards thinking about what's the purpose behind verification, and what types of verification options are out there, and how often should verification be done?

And in terms of thinking about the types of verification available, one of the simplest things is just verifying the number of tons emitted or reduced, measuring actual quantities. So that's quantity verification.

Another option is verifying how companies or reporters draw the boundaries in what they report and what they don't report. And so it's conceivable that you -- a verification process would examine their corporate structure or their operational structure, and verify that they had divvied up the emissions according to the established guidelines.

A third option, which is more -- one of the more common verification practices, currently is to verify the procedures and the methods on deciding, you know, are they using the right equipment to make the estimates? Are they using the formulas that have been agreed upon for, like, global warming potentials? It kind of falls in the similar vein of the ISO standardizations.

And so those are some of the types of verification. And we'd like -- you can put on what things we want, or what types of things we -- you think need to be verified so that we can have a credible system.

And then beyond that, we have to think about how often do we do verification? Do we do it each year? Do we do it every five years? Do you do it a full review of the books and the equipment at the facility every five years? And then the other years you just do a -- kind of a desk review?

Or do you just do it randomly? Australia currently uses a random process of verification. When you sign up for the program, you agree to allow them to come in and verify randomly, but otherwise, you don't have to do anything.

Do you have it on a challenge basis, where someone says, Well, I want to know if you're really being honest with how you're reporting. And they can challenge your report, or if they don't think it makes sense.

So those are kind of some of the options for frequency. And then there is the issue of -- I kind of mentioned already is, do you just do a simple arithmetic check, kind of like EIA currently does a desk review? Or do you go to the site and check the equipment that's measuring the kilowatts of electricity flowing out or in? And I think maybe we'll start with those issues, and --

MR. BROOKMAN: Great.

MR. STAUB: -- talk about the other stuff.

MR. BROOKMAN: Then we'll finish with maintenance records and the like. Paul McArdle has

a brief report on current practice. That's not plugged in. This is now on. You can start.

(Pause.)

MR. MCARDLE: Paul McArdle, EIA. As you've already heard, the current program requires self-certification by a company official or a third party authorized by the company official to act on the company's behalf.

And again, we don't accept any report into the 1605(b) system unless we have a signed certification letter. Now, just real briefly, touching on some of the issues that John brought up in terms of type and frequency of verification.

Every report we get must have a certification letter signed. And again, in terms of process and methods, we do the desk review at EIA. I've already gone through what we do with that yesterday. And if you have questions on it, just come see me.

We do not do any on-site or physical inspections. In terms of maintenance of records, EIA maintains electronic records as well as paper records of the reports submitted to us. However, the program -- within the guidelines, I do not believe, has any requirements on how long reporters should maintain their records related to their 1605(b) filing.

And again, who should verify? And I'll just say, in terms of 1605(b), we say who should certify? And again, that's a company official, or a third party authorized by the company to act on its behalf.

MR. BROOKMAN: Thank you. So the department is asking what and how here for both emissions, with -- and reductions. That's the spectrum. Types and frequency, periodic, all reports, process and methods. Everything from checking data to physical inspections, on-site, off-site. Let's deal with that cluster first.

Comments on how to approach verification. Self-certifying, as you referred to, Paul -- since we're waiting for everybody to kind of get their -- as you referenced, it is self-certification, but it is nevertheless, certification. I mean, that is, it's an affirmative act to certify one's submission.

MR. MCARDLE: Well, yes. And I mean, EIA doesn't have any enforcement penalties --

MR. BROOKMAN: Uh-huh.

MR. MCARDLE: -- on that issue. Although, under, you know, general Federal law, there are, I think, strictures against --

MR. BROOKMAN: Great.

MR. MCARDLE: -- submitting false --

MR. BROOKMAN: False.

MR. MCARDLE: -- and erroneous information to the Government.

MR. BROOKMAN: Yes. And the verification that you do on-site, or the certification that you do on site is -- it's desk audit -- it's desk check.

MR. MCARDLE: Yes. It's desk check, both the numbers, consistency with the guidelines, checking the methodology utilized. Also our edit subsystem within the reporting software to check for inconsistencies in the numbers submitted. And lastly, we go back and forth sometimes with reporters where we find flags, so that we can resolve them.

Once they're resolved, then we have a cert letter. They're accepted into the database.

MR. BROOKMAN: Thank you. Thoughts on what and how? Yes, please.

MS. PEDDIE: Catherine Peddie, Ernst and Young. Although it's against my own interests and my firm's, I would suggest that in a voluntary program, requiring any sort of independent third-party verification of the submission would be foolhardy.

MR. BROOKMAN: Uh-huh.

MS. PEDDIE: You would be very unlikely to get companies willingly hiring an independent third party to verify data for a voluntary reporting.

MR. BROOKMAN: Uh-huh.

MS. PEDDIE: On the other hand, I think it would be worthwhile for the program to offer some guidance on what types of records should be maintained for auditing purposes --

MR. BROOKMAN: Uh-huh.

MS. PEDDIE: -- if that is desired in the future.
MR. BROOKMAN: Uh-huh. If that is desired in the future. That is, are you going in that future towards a non-voluntary program? Or are you staying with a voluntary program?
MS. PEDDIE: Either non-voluntary program, or those more-enlightened companies that realize there are benefits to external verification other than just mandated by a non-mandatory -- a mandatory reporting.
MR. BROOKMAN: That actually accrue to the bottom line and all that stuff.
MS. PEDDIE: Exactly.
MR. BROOKMAN: Yes. Okay. Arthur Rypinski?
MR. RYPINSKI: Arthur Rypinski, DOE. The -- I believe that the framers of the original 1605(b) statute agreed with you in specifying self-certification for the -- for reporters under the original 1605(b) program. However, the view has been expressed, both in the workshops and in the context of the secretary's letter, that if one is moving towards a program of transferable credits, that participation in a -- in the program will continue to be voluntary, that one might want somewhat higher standards for a program which had transferable credits as its purpose.
MR. BROOKMAN: Uh-huh.
MR. RYPINSKI: And that therefore, possibly one of the things that would be necessary in order to -- or desirable in order to have a report that met the transferable credit standard would be independent verification.
MR. BROOKMAN: Uh-huh.
MR. RYPINSKI: And that -- so it's not clear, at least to me, that we can -- that requiring some form of independent verification is a program killer, as you suggest. And -- but one does need to be careful about what one does and how one does it. And that's really what we're seeking guidance here.
MR. BROOKMAN: Paul Pike, and then Reid Smith, and then Jeff.
MR. PIKE: Paul Pike. With our SO2 and NOX programs and credits we don't currently have third-party verification of those. We're self-certifying on that as well. So it's worked well in that program.
And I think NOX credits are around $1,000 a credit, so -- I think, in terms of price. And where that trading program is going is that we've been able to manage it with this individual self-certification without having to go to third party.
MR. BROOKMAN: Is there anything distinctive about carbon in this case that would make it different from SOX and NOX?
MR. PIKE: I don't think we would argue that. I think it's just -- again, it's going to be something else, that we look to a credit program or a trading program.
MR. BROOKMAN: Reid Spencer. Pardon me. Reid --
MR. SMITH: Reid Smith.
MR. BROOKMAN: -- Smith.
MR. SMITH: To address Paul's observation first. There is a whole body of regulation around SOX and NOX, and around the criteria for making them creditable for trading and not. Correct me if I'm wrong, Paul. But I believe the SO2 trading requires CEMs.
MR. BROOKMAN: Let's let him answer that.
MR. SMITH: I would ask you --
MR. BROOKMAN: Go ahead. Let's let him answer that, Reid.
MR. SMITH: Okay. Follow.
MR. PIKE: Yes, we do. We have CEMs. And again, I would suspect that, yes, at some point, to get a true program, there would have to be some regulatory scheme established.
MR. BROOKMAN: Yes. And just to be -- for everybody to know, CEMs are?
MR. PIKE: Continuous Emission Monitors.
MR. BROOKMAN: Thank you. They're actually measuring at the stack, or --
MR. PIKE: That is correct.

MR. BROOKMAN: Yes. Back to you, Reid.

MR. SMITH: Okay. And on the issue of third-party verification, much like taking into account the two kind of separate needs here, you've heard expressed here, a simple reporting program versus a program to establish a registry for verifiable credits --

MR. BROOKMAN: Right.

MR. SMITH: -- you need to take into account the credibility that needs to stand behind those two different -- very different things that people want this program to do. And we are -- we're strong proponents of third-party verification.

MR. BROOKMAN: Thank you. Sir? Jeff Williams.

MR. WILLIAMS: A couple of comments. I wanted to support what Art -- DOE -- I'm sorry -- said. As someone who is going to buy a credit, there is two things that are really important to me. One is, is it real? Am I getting something that actually existed? And the second is, is it going to have value in the future?

MR. BROOKMAN: Uh-huh.

MR. WILLIAMS: And so any credibility that we can bring to the reductions that are there has tremendous value in the market. And we shouldn't overlook that. The other point I wanted to make with CEMs is that there is a CEM certification testing that goes on that EPA is involved with.

So that in essence, there is third-party verification of the equipment that is actually measuring it. And that was a very important aspect of setting up the SO2, the NOX programs, is that the verification that the monitors are using are accurate.

MR. BROOKMAN: Ah. Okay. Okay. So that's your test right there. I mean, if you -- it's the equivalent to, like, a test standard or a verification. That's sort of front-loaded accuracy assurance?

MR. WILLIAMS: Right.

MR. BROOKMAN: Yes.

MR. WILLIAMS: And the other thing I wanted to mention -- I agree with Reid Smith, that Entergy is a strong proponent of third-party verification.

MR. BROOKMAN: Uh-huh.

MR. WILLIAMS: And in our greenhouse gas commitment, we actually do have third-party verification of our emissions.

MR. BROOKMAN: And Reid differentiated. He said between -- on the registry side and the verification -- not, I believe -- I don't want to put words in your mouth. Not needed for the registry side, but for anything -- well, maybe that's -- you said for those things that you wished to seek transferable credits for, essentially, that's where verification -- Reid?

MR. SMITH: We're proponents of third-party verification, period.

MR. BROOKMAN: Period.

MR. SMITH: For all purposes.

MR. BROOKMAN: Okay.

MR. SMITH: However, there is a different standard, I think, needed. And I think it's very clear there is a different standard needed for simple reporting versus trying to establish transferability, and perhaps value.

MR. BROOKMAN: Uh-huh. And this -- these elements here, for example, speak to -- apply to kind of hierarchy of effort, detail, intensity, right? In terms of that kind of verification?

Let me go to Mark Friedrichs. And then I'm going to return to Paul.

MR. FRIEDRICHS: Okay. Just a question for the proponents of third-party verification. Could you talk a little bit more about what you envision as the type of third-party verification that's needed? Is it on-site desk audits? Is it -- what might it entail?

MR. BROOKMAN: Yes. So I'll go to Reid first. And then to Jeff. And then I'm -- back to Jerry.

MR. SMITH: Yes, we currently have a third-party verification process for our own greenhouse gas reporting, which we report externally. That's a totally external verification company. Every year

they pick the sites. We have a goal to do about 50 percent of our emissions annually.

Every year they pick the sites, and it's a mixture of a lot of site -- actual site visits, delving down into not only the calculations, but where the base data comes from, and what stands behind the base data. Checking through the calculations, checking the boundary issues, checking the equity issues. Pretty complete verification.

MR. BROOKMAN: Uh-huh.

MR. SMITH: And for a unit that's been audited that way a couple of times, similar to an ISO system, if you've shown that you have all the things in place, then it becomes a simpler audit going forward.

MR. BROOKMAN: And did you learn things in that audit process?

MR. SMITH: Absolutely.

MR. BROOKMAN: Yes.

MR. SMITH: We're still learning things.

MR. BROOKMAN: Okay. Thanks. I'm going to go back for a brief comment from Jeff, since you commented on -- also supportive of verification.

MR. WILLIAMS: Yes, we have a similar process. An external company comes in, takes a look at our emission data, how we've set up the boundaries. Is the data credible? And is it consistent with the way that the program was defined? And that's an annual process.

MR. BROOKMAN: Annual. And is as complete as what Reid described? Kind of multi-tiered, and everything from checking the data to checking the processes, to checking the methodologies, to looking on site?

MR. WILLIAMS: Right. On the emissions side, I believe it is, although I'm not familiar with their process.

MR. BROOKMAN: Okay.

MR. WILLIAMS: This was -- the commitment was in May 2001. We had our first review at the end of 2001. And so we haven't got into a cycle of review of the reduction credits that we're working in the program.

MR. BROOKMAN: Jerry Ivie, then I'm returning to Paul.

MR. IVIE: Okay. Well, what I have to say didn't add a whole lot after having heard back from Reid. But I -- Shell Oil has an internal third-party auditor. They -- I'm sorry, not an internal, external.

MR. BROOKMAN: Uh-huh.

MR. IVIE: They come in. Things are based on materiality. They do site visits. It's much like Reid described. If a facility has a good track record and good management systems in place, and the auditors are assured of that, then there is a higher level, but there is, nonetheless, an audit of that facility as well.

MR. BROOKMAN: Uh-huh.

MR. IVIE: But the hands-on auditing is done where you have a new entity coming in, or it didn't do too well in the last audit, where they have to reach a certain score level before they can be excused from the in-depth process.

MR. BROOKMAN: So there is a performance measure aspect to this?

MR. IVIE: There is a performance measure, and it's kind of a two-tiered thing.

MR. BROOKMAN: Uh-huh.

MR. IVIE: One like a table-top kind of thing, and the other, the --

MR. BROOKMAN: Okay.

MR. IVIE: -- on --

MR. BROOKMAN: And your experience is similar to Reid's, that if you have a certain level of performance, or attain a certain level of management competency oversight, then in subsequent years, you're not as rigorous?

MR. IVIE: Right.

MR. BROOKMAN: Right. Okay.

MR. IVIE: I just want -- one thing. I'd like to remind the group that, at the risk of being misunderstood, Saddam Hussein prefers self-certification. (Laughter.)

MR. BROOKMAN: Paul Pike. Yes. I see that.

MR. PIKE: Does that mean we have to buy a new plant now? The only question I had now was, the three that did talk about having third-party certification, I was just curious what their annual costs were for that?

MR. BROOKMAN: I was looking -- Reid or Jeff, do you wish to comment on what your costs are for annual third-party certification? Greg Spencer is ready. Go ahead.

MR. SPENCER: In the -- in all of the transactions that we've done, they have all -- they're all project-based. They've all been third-party certified. They all involve on-site physical inspections. And there are really two components to the report.

The first one is a protocol, where there is an extensive description and evaluation of the process involved, and all of the -- everything causally related to that, so that any leakage associated with the project in imported energy, actual emissions, all of that, are calculated in extreme detail.

And then there is a separate audit of the volumes -- of verification of the volumes involved. And that second component is what's repeated annually. So there is annual verification that doesn't necessarily require an on-site visit, where the specific volumes are quantified, the process is verified.

And the cost is -- again, we hire a third party. It's tens of thousands on the front end, and then a small component of that annually, because it doesn't involve the same level of rigor. It's a verification.

MR. BROOKMAN: Can you characterize it in percentage terms? Would you wish to?

MR. SPENCER: I -- it would just be very difficult to do because of the different -- all the different aspects which --

MR. BROOKMAN: Project by project. Yes. Okay. Reid, do you want to follow on?

MR. SMITH: Reid Smith, BP. I don't know what our annual third-party certification costs are on the greenhouse gas emissions data. That's handled by a different set of folks.

I know it's not cheap. But it isn't hugely expensive, either.

MR. BROOKMAN: Okay.

MR. SMITH: We certainly view it as value-added.

MR. BROOKMAN: John, do you want to follow on? John Orynawka.

MR. ORYNAWKA: John Orynawka, Temple Inland. With regard to forest sequestration and verification, we obviously can easily keep track of our harvesting. And we know, because we measure every truckload of timber that comes out, from a standpoint of weight.

But for growth, we're using computer models to determine what our growth is over a period of time.

MR. BROOKMAN: Uh-huh.

MR. ORYNAWKA: And we will, periodically, have to do field verification by putting in test plots to determine whether or not we truly got the growth that the computer models indicated we would get over that period of time. That process is about $275,000 to do that. So we would not want to have to do that very often.

MR. BROOKMAN: Yes.

MR. ORYNAWKA: So I guess it would -- I'm not exactly sure how we would determine how frequently something like that would have to be done.

MR. BROOKMAN: Uh-huh.

MR. ORYNAWKA: But that is a big expense on the forest side --

MR. BROOKMAN: Uh-huh.

MR. ORYNAWKA: -- verifying --

MR. BROOKMAN: Ben Carmine, and then to Mike.

MR. CARMINE: Ben Carmine, Reliant Energy. We do not support third-party certification. I also believe it's the position of the Edison Electric Institute, which does not support third-party certification. It would simply add to the cost of the process. We've got to remember this is a voluntary

process.

And furthermore, there may be a path where utilities and power generators, which already submit CO2 emissions date under Title IV of the Clean Air Act, which is self-certified -- perhaps that will suffice, and maybe other industries can -- or may need third-party certification.

MR. BROOKMAN: Uh-huh. Do you think that your industry -- your company can move towards the president's goal of allowing transferable credits without third-party verification?

MR. CARMINE: Certainly. The Acid Rain Program and other regional emissions trading programs, such as the Reclaim Program in Los Angeles, Houston, Galveston, the NOX Program, which is starting up, where credits can sell for much more than CO2 tons. That data is self-certified. There is not third-party verification.

MR. BROOKMAN: Okay. Mike Moore.

MR. MOORE: Mike Moore at Falcon. From a completely different angle on this, there is the economic side of how much confidence you want built into your reporting processes. With the Europeans -- or the EU's recent ratification of their program, part of the -- part of their package is that there is a $40-per-ton fine if you're not in -- if you don't make your baseline.

So from a market perspective, you've already got an indicative value of what a ton of CO2 not in compliance is going to cost someone. If I have to buy those tons there in open market, I want a high degree of confidence that they are transferable, that I can take the ownership to them, and I can apply them to what I need them for.

MR. BROOKMAN: Uh-huh.

MR. MOORE: If I have them in -- and I if had them in excess, and I can get dollars for those as part of the market condition for me, I want to make sure that what I have gotten out there is truly transferable, and it can truly attain the value if somebody wanted to pay me for that.

MR. BROOKMAN: Okay.

MR. MOORE: So I guess my point is, whatever the EU is using to verify that somebody is going to have to pay $40 per ton by not being in compliance is going to be pretty rigorous.

And I would imagine that we would want to be fairly close to that in the spirit, in that if the advent happens that our market evolves to a point that we can transfer credits across border, we would want to be able to either buy into the UK -- EU markets, in case ours are too expensive, or be able to sell value into the EU markets in case there is far more value there than here.

MR. BROOKMAN: And so let me go back to Ben. Ben, in those trading systems that you referenced, is there any kind of penalty phase, or assurance phase that a company is -- that voluntary certification, that self-certification?

MR. CARMINE: I believe companies do not -- there is a reconciliation period. And if they don't have any credits, then there is a -- there is certainly an excessive penalty in that situation.

MR. BROOKMAN: So it's -- okay. Jerry Ferrara.

MR. FERRARA: In spite of the earlier characterization, we would also be in the self-certification camp. I guess I would temper that from the perspective that when people look at these projects, they look at it from their own perspective.

And maybe what we need is a list of types of projects that can be self-certified, because they have been standardized to some degree.

MR. BROOKMAN: Uh-huh.

MR. FERRARA: And then I would go to the comment I heard yesterday from Paul, that there is a -- essentially a method review, maybe for projects that fall outside of your typical fuel combustion, or --

MR. BROOKMAN: Uh-huh.

MR. FERRARA: -- things that can be estimated very accurately. You would go through that method review to do that. And I guess a couple of comments came up during this workshop about people having inputs. That they didn't understand, basically, the carbon effect of the inputs that they were using, and they didn't want to measure those.

Looking at the transcript from the Washington one, there is an example of, in the food industry,

of going from dry ice to liquid nitrogen. Well, there is a mixture, just like in electricity, of how you make dry ice. But often, dry ice is made based on the output of CO2 that's already coming from a fuel that was used for another purpose.

MR. BROOKMAN: Uh-huh.

MR. FERRARA: In which case, you've just delayed the emission of that product into the environment. MR. BROOKMAN: Uh-huh.

MR. FERRARA: So to say that as a purchaser of dry ice, you have prevented CO2 emissions, from your view that may be perfectly accurate. But from a larger view, you know, those -- that may not be part of the true balance that you should be looking at there.

MR. BROOKMAN: Uh-huh. So that's a caution. And your previous or larger comment is that some party, whether it be the Department of Energy, or a trade association, or somebody, could effectively describe methods -- certain methods, uses, processes, that kind of maybe fall in the middle -- that are understood enough, calculatable, predictable-enough, that --

MR. FERRARA: I would imagine the API compendium -- their work that they've done for something like that, will show certain processes that you'd be able to follow up on. And if you're doing, you know, something that's on these lists, fine. You can self-certify. Otherwise, you need to just have a sanity check at some level --

MR. BROOKMAN: Uh-huh.

MR. FERRARA: -- that you're not missing the larger picture.

MR. BROOKMAN: Arthur Rypinski.

MR. RYPINSKI: Jerry raises, I think, a important point that actually rises almost to the level of a general principal. And that is that there is a trade-off between flexibility on the front end and verifiability in the back end.

The more flexibility the department offers on the design and on how people can report, the more complex verification becomes on the back end.

So that if the department offers, for example, or requires more standardization on questions like corporate boundaries and baselines, and how to report, that in turn greatly simplifies the verification task on the back end, because the verification task on the back end becomes increasingly an objective -- a test of objective facts, and less a verification of the application of judgment.

So I would commend that thought to you, and if you -- and of course, the more verifiable a report becomes, the less-costly it would be to verify, and the less salience the method of verification has.

MR. BROOKMAN: Uh-huh.

MR. RYPINSKI: So if you don't like independent verification, I would commend to you the thought that flexibility may be part of the price one pays.

MR. BROOKMAN: Reid Smith?

MR. SMITH: Yes. I'd like to speak to the comparison of the NOX and SOX trading to what we're talking about here, and invite either Mr. Carmine or Mr. Pike to respond here.

I believe that there is a very, very detailed, complete, and fairly draconian set of requirements for measurement, monitoring, record-keeping, reporting, records retention around either one of -- either non-attainment area, trading, reporting, and/or the acid rain-type trading and reporting.

It's not a very open process. So characterizing that is a self-certification -- and there is also fairly draconian penalties for certifying erroneous data. So characterizing that in the same sense of self-certification that we're talking about here in the absence of those very detailed requirements, I don't think is apples to apples.

MR. BROOKMAN: Ben Carmine?

MR. CARMINE: I basically agree with that principle. The Acid Rain Program is very rigorous. There are accuracy requirements. There is record-keeping requirements. So -- but it is self-certified.

MR. BROOKMAN: Uh-huh.

MR. CARMINE: Some of the regional requirements have a little bit, maybe perhaps lesser requirements. However, maybe that suggests that there is a different path for power generators.

MR. BROOKMAN: Uh-huh.
MR. CARMINE: They're current reporting is exactly --
MR. BROOKMAN: I think I'm hearing that at some place in this scheme of events, there -- in order for it to be tradable and credible, there needs to be some level of rigor in that spectrum. But it is a front-end regulatory regime that's well established and measured at the stack, or wherever. Or whether it's more at the tail end with -- through third-party verification. That's what it sounds like to me from the comments.
Yes, please. Lee Gilmer?
MR. GILMER: Lee Gilmer. Shell Global Solutions. And let the record reflect that I have a different hat on. That I am speaking on behalf of the American Petroleum Institute --
MR. BROOKMAN: Uh-huh.
MR. GILMER: -- and not necessarily for Shell Oil. And I would like to thank Jerry for mentioning the API compendium, which Terri Shires, who is here with URS, was very instrumental in developing for us.
But what I would like to say is that I think that from the standpoint of the administration reporting that we're doing something to reduce greenhouse gas emissions, and -- on an intensity basis or whatever, that there needs to be some consistency on the front end in what -- even in a voluntary program --
MR. BROOKMAN: Uh-huh.
MR. GILMER: -- there needs to be some consistency which can be addressed somewhat on the front end, or on the back end by -- a lot more work on the back end if you don't anything on the front end, which I see is very problematic for the DOE, as far as trying to roll these up and come up with a national number.
MR. BROOKMAN: Right.
MR. GILMER: But I do see that things such as the API compendium, which says it's for the petroleum industry, but several sections of it, particularly the combustion section --
MR. BROOKMAN: Uh-huh.
MR. GILMER: -- are universal. You'd use exactly the same calculation methods for any combustion process, whether it's in a utility, a petroleum refinery, a chemical plant.
MR. BROOKMAN: So that compendium may be your model, and that's how you achieve consistency. And does that make -- I guess what I ask you, if the Department of Energy comes to its -- the guidelines, hopefully that would create that level of consistency that you seek?
MR. GILMER: Yes, that is correct.
MR. BROOKMAN: Yes.
MR. GILMER: If they adopted something along those lines, or similar to those lines, I think that would help a lot with voluntary reporting and people that they know are resistant or reluctant to go to third-party auditing -- it would put enough consistency up front, at least for the voluntary reporting. And in my opinion, and for our industry, for credit changing, too.
MR. BROOKMAN: Yes. Let me go to Paul first. And then I'll go to Juene. Paul Pike?
MR. PIKE: Yes, Paul Pike again. Just maybe an option or alternative could be is, is that if trade groups want to establish the more-rigorous initial up-front establishment of the procedures and methodologies to go by, then they could submit that into EIA or DOE as a, you know, kind of like a, here's the program that our industry will follow.
MR. BROOKMAN: Uh-huh.
MR. PIKE: We could use that as an -- a potential alternative if we did want to avoid the third-party testing.
MR. BROOKMAN: Uh-huh.
MR. PIKE: Companies would therefore have the opportunity to go with third party, or some other rigorous method, if they'd like --
MR. BROOKMAN: Uh-huh.

MR. PIKE: -- as an alternative.

MR. BROOKMAN: And that -- again, that seemed to be one model that's afoot in this room. Yes. Certainly. Okay. Juene Franklin.

MR. FRANKLIN: Juene Franklin, EMCON/OWT. I think that it's pretty much a consensus that everyone would encourage third-party verification at the point of a sale, or something like that, because you want to be sure of what you're spending your money on.

MR. BROOKMAN: So -- of a credit?

MR. FRANKLIN: Of a credit.

MR. BROOKMAN: Yes.

MR. FRANKLIN: But the appropriateness of using that on a voluntary program, I would question.

MR. BROOKMAN: Uh-huh.

MR. FRANKLIN: I would imagine that what would -- what one might do is, if you were looking for someone to purchase credits from, you could go to the registration -- the GSU registry.

You could look there and say, Hey, here is someone who has some. And then you -- at that point, if you're interested in going to get a sale, then you would go in, basically, and perform your third-party verification at that point.

But I'm just -- I'm not convinced that trying to make anything too rigorous on a voluntary program would encourage the participation that you're looking for.

MR. BROOKMAN: Thank you. Mary Quillian.

MS. QUILLIAN: I actually think that the market will decide whether third-party verification is necessary or not. And so I completely agree that it is not necessary for the DOE and the 1605 -- the reporting program, to require third-party verification.

And I would go one step further and say that people that buy these credits may not require that either. and I come back to the utility -- the electric power sector, where they buy and sell SO2 and NOX credits all the time, and without third-party verification.

So I would suggest that we let the market decide whether that third-party verification is necessary or not.

MR. BROOKMAN: Uh-huh. And the market, I guess, would also make the determination about what level of rigor is implicit in that credit to be traded or sold.

MS. QUILLIAN: Sure.

MR. BROOKMAN: Yes. Jeff Williams.

MR. WILLIAMS: Perhaps one solution might be -- what I've heard people say is the gold standard. That you wouldn't necessarily require the rigor of certification if your intent wasn't to actually sell the credit. But that there is a standard that's articulated and out there that you that you could follow if you wanted that added certainty.

There is value in having an organization set a standard that you could point to and say that I followed this, and so therefore, this credit has a higher quality to it.

MR. BROOKMAN: Yes. And we've heard that in other workshops as well. Reid Smith?

MR. SMITH: Yes, back on the comparison of NOX and SOX trading with what we're talking about here today. Every ton of NOX and SOX has a serial number. That's the level of rigor in that program.

MR. BROOKMAN: Uh-huh.

MR. SMITH: Now, if you bill that in on the front end here, it could be problematic, especially for a voluntary basis, and especially where there is not a body of detail sitting behind it yet.

MR. BROOKMAN: Uh-huh. Joseph Kruger.

MR. KRUGER: Joe Kruger from the EPA. Just to elaborate on that point. And not coming down on either side of the debate, but in the SO2 program there is really a whole system of things that are done.

Someone mentioned certifying the monitors. There is also pretty onerous penalties under the

Clean Air Act for false statements. There is an audit program the EPA does, but on-site, an electronic audits. That the allowances are serialized, as we've mentioned. So --

MR. BROOKMAN: And EPA does the auditing in that case?

MR. KRUGER: That's right. Or the states do the auditing in some cases.

MR. BROOKMAN: Uh-huh.

MR. KRUGER: But -- so, you know -- and you know, again, that's a mandatory program, and I think the question here is what aspects do you need for a voluntary --

MR. BROOKMAN: That's a mandatory program under a cap in trade.

MR. KRUGER: Under a cap in trade.

MR. BROOKMAN: Yes. Yes, Mary Quillian.

MS. QUILLIAN: Mary Quillian, NEI. Let me offer another thought on this. And that is, as James pointed out here, specifically talking about geologic -- or I'm sorry, forestry and agriculture sequestration, there is a lot of uncertainty right now around these credits.

And I think that there are a lot of people in this room that have been purchasers of credits that have required that third-party certification, for the reason that they want to make sure what they're buying is, in fact, what they're buying.

MR. BROOKMAN: Uh-huh.

MS. QUILLIAN: However, I think that we can all imagine some point in the future where CO2 credits or greenhouse gas credits are quite a commodity. And having any sort of required certification at that point actually causes an added expense that is not necessary.

So it may be that this is sort of a transitional issue, until we all become comfortable with how credits are generated. And I come back to Jerry Ferrara's suggestion, that it may be if you have a sort of standardized process for generating credits, that the rigor of which potential purchasers would look at those credits, they would not require certification in the market.

And yet, if somebody comes up with a very innovative new way of developing credits, that a purchaser in the market may require for the first few times they purchase those credits, to have some certification.

In the end, however, I would come back to, I think the market needs to decide that, and not the DOE.

MR. BROOKMAN: Thank you. Additional comments on this subject? We've covered this pretty thoroughly. This has been a good discussion, and quite a full discussion, I think. Lee Gilmer?

MR. GILMER: Yes, one other one. And let me put on a different hat this time, just a technical person, chemical engineer who has a lot of experience in the area of measuring and monitoring emissions.

And to rephrase what Reid Smith said a while ago, without coming down on either side, as far as whether you see that third-party verification, there is a systematic problem, that SOX and NOX are much easier to measure with CEMs --

MR. BROOKMAN: Right.

MR. GILMER: -- than CO2 is.

MR. BROOKMAN: Uh-huh. Okay. Thank you. I think that was stated before. Henry Eby?

MR. EBY: I'll just make one comment. I'm not sure of the cost of the verification process and what it adds to the cost of a ton. But one would think, as the methodology of the processes, that the [indiscernible] ton would be better established and standardized if that verification process also would become less expensive.

MR. BROOKMAN: Yes. Yes, both more-widely adopted and better understood, expense comes down. Yes. Okay. Well, we've heard a lot in this segment.

Let me ask about maintenance of records, and who should verify. We've touched somewhat on who should verify. But John, do you want que this up very briefly?

MR. STAUB: Right. In terms of who should verify, there is a variety of options from independent consulting companies --

MR. BROOKMAN: And John, for those that are getting restless, we'll take a break in 15 minutes. Keep going.

MR. STAUB: -- to some part of the Government, or a professional engineer might verify, maybe a financial auditor or an environmental auditor. There is kind of a wide range of who could do the verifying, and it's a question kind of who do people trust, and who do people want to pay? Or who should be paying for doing the verification? So --

MR. BROOKMAN: Uh-huh. Thank you. And I think that Reid or somebody, or maybe it was Ben, was referencing the -- under the SOX and NOX program, requirements for maintenance of records -- does that serve as a model?

Is that too rigorous? Is that necessary? What should be -- how should that be handled? And then who, in that case of verification, should do the certification? Reid Smith, if you could start. I thought you wanted to start.

MR. SMITH: No.

MR. BROOKMAN: Someone else can start. Who wants to kick this off? How much maintenance of record is required? EIA, when they receive these records company by company, what do they do with them, Paul McArdle?

MR. MCARDLE: Paul McArdle, EIA. We both retain the paper copy, and then an electronic copy is embedded into our database.

MR. BROOKMAN: And then you aggregate them up, of course?

MR. MCARDLE: Yes, correct.

MR. BROOKMAN: Uh-huh. So you -- okay, so you -- and that -- you intend to keep them on into the future? What is the plan for the --

MR. MCARDLE: At this point, yes. I mean, my -- we haven't had any change of plan.

MR. BROOKMAN: It's only 220-some-odd hours at this point, anyway?

MR. MCARDLE: Right. And we've -- only have at this point seven years of data.

MR. BROOKMAN: Yes. Okay. I'm wondering if there is an analogy in financial reporting, or some other thing like that, that could guide the department on this matter, since -- yes, please. Thomas Mason.

MR. MASON: I would ask Paul on the reports that the EIA keeps, are those summary reports? The -- I doubt that they're detailed reports of emissions from each source that might exist at a facility. And from a certifier's standpoint, historically, the owner keeps the records.

MR. BROOKMAN: Uh-huh.

MR. MASON: Any records that are acquired by the certifier are returned to the owner at the end of the audits?

MR. BROOKMAN: Uh-huh.

MR. MASON: I mean, they may keep the certification letter, or -- but typically, the certifier does not keep those from a confidentiality standpoint. That's generally desired by the owner?

MR. BROOKMAN: Uh-huh. Thank you. Catherine, did you wish to comment?

MS. PEDDIE: Catherine Peddie, Ernst and Young. The accounting profession is already governed by very restrictive rules on how we conduct audits, and what kind of work papers we have to maintain.

And contrary to what Tom was just saying, we do retain sufficient work papers for every audit, that an independent reviewer could come in and review those work papers and reach the same conclusions.

MR. BROOKMAN: Ah.

MS. PEDDIE: So we do have to retain those records under our -- the AICPA rules.

MR. BROOKMAN: Tom, Mason?

MR. MASON: But are we going to adopt the AICA rules?

MR. BROOKMAN: Yes.

MS. PEDDIE: Well, if a financial -- if an accounting firm is doing the audit, then we are

governed by the AICPA rules regardless of what anybody else chooses to use.

MR. BROOKMAN: Uh-huh. So maybe it's an analogy, maybe it is not. However, I'm going to the point where the president asked the Department of Energy plus the other Federal partners, to make it possible for transferable credits.

Presumably, that means there is some level of rigor in that. Right? If we're going to affect the market in this? Paul McArdle?

MR. MCARDLE: Paul McArdle, EIA. Just to amplify on what we retain. We retain the forms that are submitted to us by the reporting companies. We do not retain any backup or activity data that the companies may have used to derive their estimates.

MR. BROOKMAN: Right.

MR. MCARDLE: That is strictly on the company's side to maintain. And we generally do not receive any of that data --

MR. BROOKMAN: Yes.

MR. MCARDLE: -- from the reporting companies either.

MR. BROOKMAN: So maybe there is no easy answer here. But I think the department would like any ideas you have about how they might tell you what kind of records-retention requirements should be in place.

Nothing additional on this subject? We've touched on who should verify. Additional comments on who should verify? Yes, please. Lee Gilmer.

MR. GILMER: Yes, Lee Gilmer, Shell Global Solutions. One of the issues, I think, regarding verification, is that there are other entities, such as the State of California --

MR. BROOKMAN: Uh-huh.

MR. GILMER: -- who are adopting voluntary or semi-voluntary, whatever you want to call them, reporting programs. And they have a very specific program within that for certifying auditors.

MR. BROOKMAN: Uh-huh.

MR. GILMER: And I would hate to see different states, different departments of the Government certifying different auditors, where I had to have five or six different people come in and audit one of my facilities.

MR. BROOKMAN: Right.

MR. GILMER: It would be very problematic for me.

MR. BROOKMAN: Yes. Yes.

MR. GILMER: So I would like to see some, you know, oversight of that, and consistency in those efforts.

MR. BROOKMAN: Right. Another issue of consistency. And in what they're doing in California, where they -- the state has both training -- requiring a training. We just returned from California, you will note. So they described this at length there.

Were they're both -- got a program for training certifiers, and then they actually certify the certifiers. Is that something you think the Federal Government should do? I see different heads, yes and no around the room. Who wants to comment on that? Please, Catherine.

MS. PEDDIE: Catherine Peddie. The U.N. also has registration for emissions credit verifiers. And it would be possible to simply adopt those rules, or use those certified verifiers.

MR. BROOKMAN: Okay. Arthur Rypinksi?

MR. RYPINSKI: I want to just point out that the -- I believe that the Californians lifted their regulations bodily from the Australian Greenhouse Office. MR. BROOKMAN: Ah, interesting. It wasn't even electronically, it was bodily. My. We needed that image. That will help us a lot. Additional comments on who should verify, qualifications of verifiers, not just processes. Other -- you know, should these be professional engineers? Should -- I mean, should anybody who can meet the test? Lee Gilmer.

MR. GILMER: Lee Gilmer. Shell Global Solutions. And as an engineer, I'm very concerned about accountants and bean counters coming in and trying to verify my emission estimates.

MR. BROOKMAN: In --

MR. GILMER: So I would like to see that if the -- an engineer, you know, someone who understood the science. And you know, it might not be that important whether they registered or not for these purposes --

MR. BROOKMAN: In California, some of the commentors were -- documented that very concern. They referenced that. Catherine?

MS. PEDDIE: Quick response. We also employ engineers. I am one.

MR. BROOKMAN: I knew that. Not all bean counters are engineers --

MS. PEDDIE: And I would not trust a bunch of accountants to verify my emissions, either.

MR. BROOKMAN: Okay. Yes? Greg Spencer?

MR. SPENCER: Just another encouragement, that if we're going to develop a gold standard, that as much as possible, we adopt what's being developed in the international community.

It would also greatly assist all these companies who are trying to avoid -- if the DOE adopts a rigorous standard, it will support the market, that is already developing the criteria that already exists. And it will deal with a lot of the preemption problems from states who have jumped out ahead of the Federal Government. So --

MR. BROOKMAN: Uh-huh.

MR. SPENCER: -- I would just urge the DOE to resist any temptation to lower the standard in order to attract more reductions, and you know, hence the -- again, suggestion that a dual-tier approach might be the best to accomplish both.

MR. BROOKMAN: You didn't use the word consistency in that last statement. Do you wish for that to be in there as well, or did you omit that purposely?

MR. SPENCER: Consistency on the -- as to the higher standard, absolutely.

MR. BROOKMAN: Yes. And consistency among form, as well as standard -- the kind of level of standard?

MR. SPENCER: Whatever -- I think consistency of form and criteria will facilitate the U.S. moving away from it's currently fairly-isolated position into more of the international approach that's trying to be developed to deal with an international problem.

MR. BROOKMAN: Uh-huh. Okay. Final comments on who, and -- should verify, and maintenance of records? I see none. Let's go to the last slide. What's the last section? Yes?

MS. ANDERSON: Want to take a break first?

MR. BROOKMAN: Let's take a break. Yes. I think we've -- let's do that.

VOICE: Thank you, Margot.

MR. BROOKMAN: It's 10:25. It's still 10:25. And let's return at -- in 15 minutes, which would be 10:40.

(Whereupon, a short recess was taken.)

MR. BROOKMAN: Ms. Anderson.

MS. ANDERSON: This is the penultimate slide of the session. Here we need to discuss some of the issues that were really kind of floating around from the last session on verification, and feed on some of the comments that Mary was making, I think, about the role and the purpose of the Federal Government in managing the reports on emissions and emissions reduction.

And so to tee up, what we're talking about -- these were the more specific questions. But we need to discuss how revised guidelines and data can provide information necessary to meet the multiple needs, such as transferable credits, and protection against future climate policy.

So this is a discussion about how the guidelines can meet these multiple needs, and how the data that are provided by you within the revised guidelines are capable of protecting against future climate policy and issuing transferable credits.

We need to discuss the DOE role in managing the reported data. Mary was talking about the issue of when data or reductions are reported to DOE, it might be that the market takes over the issuance and the marketing of transferable credits.

Another view is that the Department of Energy, through either DOE or EIA, actually issues some kind of certificate or acknowledgement that a reduction has occurred, based on the revised guidelines. And that reduction is then taken to a marketplace where there is interactions and trades, and comparisons within the marketplace.

So we need to have the discussion of what is the role of the Federal Government in managing the emissions data and the emissions reductions data?

And finally, we need to discuss the process for reviewing reductions already recorded. One of the recommendations in the Four-Agency letter -- it said that we would -- we recommended to the president that, "We develop a process for reviewing the reductions and the emissions reports that are already in the database. We need your input on what might that process look like, who should conduct that process, when should we conduct that process?"

And so we need to have a discussion about that as well. That came up quite a bit in Washington, D.C. because we have a lot of current reporters who are concerned about the emissions and the reductions reports that they've already reported to the bank.

So we do want to go through these questions about the Government process. And it's more than just a review process. What is the Government role for addressing -- for dealing with the data once we receive it. What is our role in documentation? What is our role in transferability of credits?

And as well as moving more to the issues of again, these confidentiality issues that are one of the cross-cutting themes that came up at each one of these sessions about the role of confidentiality and the data, and again, the treatment of the prior year reports, and whether we are creating a system that is robust enough to not only issue transferable credits, but to protect reporters against future climate policy?

And that seems to be an important goal of the president's, and certainly an important goal of our reporters, that we are creating a database strong enough to withstand different future directions for climate policy.

MR. BROOKMAN: Thank you. So as we look to the questions on the right-hand screen, the one I would emphasize, or that is the words that I would emphasize for this slide are DOE's role, what should DOE's role be?

How should you manage it to effect -- the first bullet, revised guidelines and data can provide information necessary to meet multiple needs, such as credits, protection, multiple needs?

What's DOE's role in certifying reports of reductions? Is it a Government review process? Or what should be the Government review process? How far should it go? What about the documentation of reductions or transfers? What's the Government's role -- the DOE's role in that? DOE database and certified reductions -- how should that be managed and effected?

And then the issue of public versus confidential data. Let's start with this first cluster first. Comments on DOE's role in managing the Registry? Should DOE do it all? Should they have a more limited role? Margot Anderson.

MS. ANDERSON: What do we do when you send the data to us? We have an emissions -- a report of your emissions, and/or we have a report of your reductions. Do we issue you a transferable credit? What do we do with that data? Do we put a serial number on it and issue you that credit?

Do we just say you met the guidelines, and then you -- that then a -- you hope that a market develops, and then the market determines the value of that, and determines whether that has met the guidelines? What is our role when you send your data to us?

MR. BROOKMAN: Paul Ferrara. Pardon me. Jerry Ferrara.

MR. FERRARA: I'm -- yes, I'm not in the camp that's looking for transferable credits out of this whole effort. So -- but I would -- I do see the value in people having a level of confidence in what's reported.

And I think it goes back to we were talking earlier about having standardized methods for if you're working with certain processes. So I guess I would look to the agency to serve that role of saying, Yes, the people that turned in these pieces of information did it properly, sent -- you know, have looked at their process properly, and whether it's a project, or whether its' done on some other basis, that it's

done with a level of rigor that when we see what we're operating in, if we're operating in something five or ten years down the road, you know, that there wouldn't be a question that that data could be comfortably used.

MR. BROOKMAN: Mary --

MR. FERRARA: And I guess I'd also, I guess, comment about based -- you know, about protection from the future system, in that a lot of this is because when we put these systems in, we want them to be simple.

And we just say, Okay, well, we're -- regardless of where you are, you need to make an X-percent cut. And you know, maybe we can look towards, you know, being a little more sophisticated, and asking people that are further down the curve in terms of what theoretically they can do with their CO2 emissions wouldn't be expected to do the same thing that someone that's working with a 30 percent efficiency might be expected to do.

So there is -- it doesn't all have to be solved with something that leads to a credit at this stage of the game.

MR. BROOKMAN: But the Government, in receipt of the data, in whatever form in that registry, should have enough sense of confidence in the data that in some future regime that was -- in some future regime, that early actors would somehow get credit for early action. I thought that's --

MR. FERRARA: They could go back to that data --

MR. BROOKMAN: Yes.

MR. FERRARA: -- and put it in whatever system pops up at that point --

MR. BROOKMAN: Uh-huh.

MR. FERRARA: -- and people wouldn't be able to come back and second-guess that the data they originally put in was valid for use --

MR. BROOKMAN: Uh-huh.

MR. FERRARA: -- in this system.

MR. BROOKMAN: And of course, in the previous workshops, there has been a lot of second-guessing of the existing data.

MR. FERRARA: Uh-huh.

MR. BROOKMAN: Yes.

MR. FERRARA: Yes.

MR. BROOKMAN: Mary Quillian.

MS. QUILLIAN: I wold say that one of the key roles that the Department of Energy plays in all of this is being the keeper of the data, and being the one that sort of puts the stamp of approval in terms of, This Happened.

And part of that is publishing what each company did in an aggregated way. Particularly as this is a voluntary program, I think one of the reasons companies are going to be reporting in to 1605(b) is going to be to get the PR credit for reductions that they've made.

And so I think that it's very important that the DOE -- it's sort of a stamp of approval, that these reductions happened, and a publication of those reductions.

MR. BROOKMAN: Mike Moore?

MR. MOORE: One question I have is would the DOE -- would the DOE's function be to determine the volumes of different sequestration amounts? For example, I have a keen interest in geologic sequestration.

And at some point, there was estimates that figured we could sequest about everything we ever produced in the United States in EOR projects or brine aquifers and things of that nature.

We don't need any other sequestration forms. Yet in the United Nations, under Kyoto, they might not be an allowable form of sequestration. Well, would the DOE begin to be a gatekeeper on how much volume can be sequestrated in these different type environments? Or is just going to be whatever you can get in that can verify the event's been done in the data.

MR. BROOKMAN: I'm looking at DOE. It does seem as though that's a rather huge policy call,

to me. That one, that last -- that specifically. And not typically under the purview of folks that are dealing with issues of creating a -- the technical aspects of a registry. Arthur Rypinski, however, is undeterred.

MR. RYPINSKI: Well, let me put it this way. If you guys can sequester as much as five or 10 percent of U.S. emissions in a year, I'm sure that's a policy question that this administration -- the administration of the day would be delighted with this.

MR. BROOKMAN: Thank you, Arthur.

MS. FORBES: This is --

MR. BROOKMAN: Yes, please?

MS. FORBES: Hi. I'm Sarah -- is this on? Okay. I'm Sarah Forbes. And I'm representing DOE's carbon sequestration program. And I would answer that at this point, DOE is looking at research and development for geologic sequestration. And that the registry is -- that I would say the questions you're answering are more of a research and policy question than a registry issue.

MR. BROOKMAN: Thank you. Yes, Mary Quillian? And then I'm casting my eyes back on this side of the room. Go ahead.

MS. QUILLIAN: One of the other things I'll add is that I think -- I agree, that there needs to be some confidence inspiring on the part of DOE. And part of that could come from DOE being the group that puts together the basic calculation methods for a lot of the typical reduction mechanisms, or setting common factors to use when you do certain kinds of calculations.

And so that everyone that goes out there and plants trees can use -- pine trees, can use a common factor. Or everyone that is doing lightbulb conversion, DMV-type projects, has some sort of factor they can do -- they can use in their calculations. And that commonality of methodology may, in and of itself, inspire confidence.

MR. BROOKMAN: So here's what I've heard so far. I've heard that DOE should be the receiver or the recipient of this data. They should, at some level, certify -- put a stamp of approval on the data.

They certainly, in the role they play presently and perhaps in the future, might be an aggregator at some level of data, you know, in terms of the reporting process.

And also, they might be specifying the methodologies that would be used to create kind of shared factors, the kind of multipliers and methodologies and things such as that. That's what I think I've heard so far. Greg Spencer?

MR. SPENCER: Without wishing to seem to disparaging in any respect, I think that the DOE's best role would be to function as the platform for a registry, in its truest sense, for these reductions. And allow other market entities to develop the accreditation and the qualification and the differentiation between different types of products.

That if the goal is to maximize and make as robust as possible a market which will create as much incentive as possible for people at great reductions, the best thing the DOE can do is not attempt to put itself in the position of the Chicago Climate Exchange, or the New York Stock Exchange, and allow all of the natural evolution of financial products and transactions which will create the most robust market possible.

MR. BROOKMAN: Not replace them in that role. I'm going to see Margot Anderson, follow on.

MS. ANDERSON: I have a question. So let's maybe go a little bit deeper and think specifically about how this might work. You're a reporter, and you're reporting, for the sake of argument, any wide-intensity reductions with EIA, and you file your report in June 2004. And you are essentially claiming X number of tons of reductions.

Does the EIA write you a letter saying you have these reductions? Does it issue you a serial number? Does it just put a stamp that you filed, and you've met the guidelines because you've done -- maybe perhaps done an independent certification process or verification process?

What does it do in order to inform the marketplace that you've met the standard of the revised guidelines? What is its role in communicating that, either back to the company or back to the

marketplace, that your tons have met this goal?

Now, that might be the role of the independent verifier, that I'm hearing yes and no on. What specifically happens?

MR. SPENCER: In other registries that we've participated in, you file a combination of reports. There is the protocol document, which describes the process. There is a separate third-party verification that verifies the amounts and that the process was followed in order to create those reductions.

They take that report. And if it meets the criteria for -- that they have established for filing a protocol, and that it contains all of the requisite categories of information, and the third-party certification, then they would -- I'm not sure of the exact process. They reposted -- they introduce it into the registry where it is then available for public review. If you wish to make transfers from those registered reductions, then there is a separate document that you can do online to -- you highlight that. You create a transfer document from it. You indicate the transferee's name, and you formally post for public notice of transfer of those tons from entity A to entity B.

That the qualification of the reduction itself is not done by the Registry. It is done by the third-party.

MS. ANDERSON: Does EIA manage the transfers?

VOICE: Should it?

MS. ANDERSON: Should EIA manage the transfers? In your world, does EIA manage the transfers?

MR. SPENCER: I don't have a strong opinion on that.

MR. BROOKMAN: Let's let Jerry follow on, then Henry's, briefly.

MR. FERRARA: Yes. I guess I could comment. Again, I think the acceptance of the data into a registry I would view as the role of DOE. I think when we get into questions of the transfers and whatnot, I think you're making the policy. We haven't had the policy discussion of what our climate control, if there is going to be a climate control policy, is going to be.

You know, so I don't want the mechanism that we put in place to determine, you know, well, we've got this all set up. This is the only direction we can go on it. So I would say, Let's not go too far forward.

MR. BROOKMAN: Yes. And yet to meet this standard that you said before, that you said before, which was to --

MR. FERRARA: The data is --

MR. BROOKMAN: -- historically have the data be capable enough to do certain things, there has got to be a level of reporting and rigor in there. Correct?

MR. FERRARA: And that would be shown when you'd accept that data in to the Registry. If you don't think that rigor is there, you should go back to the letter and say, Oh, wait a second. We need more information, and we need you to do it this way, you know, whatever, to bring it up to the level that we can say, We believe that what you're reporting is accurate.

MR. BROOKMAN: Henry Eby?

MR. EBY: Yes. Henry Eby, LCRA. Along those lines, I mean, I'm confident in the marketplace. However, there are credits that my never make it into the marketplace. And those would be credits that are banked and used against some possible or potential mandated program down the road.

So I think in two -- these utilities or companies entering into the voluntary program want to be assured that as those credits go into the registry, that they are blessed at some point in time. And it may not be by the marketplace. It would be they never enter into the marketplace.

MR. BROOKMAN: Uh-huh. In order for the department to receive them and at some point bless them, does it need to be -- if it's in the case of -- oh, I'll just leave it open. Does it need to be accompanied by third-party verification? Is self-certification sufficient?

MR. EBY: I think self-certification is sufficient in those situations where there is a great risk of regulatory program. Like for instance, we've been talking about emissions reported under Title IV of the Clean Air Act. On a project-specific basis, a sequestration project, I would say that some verification

process is necessary.

But it's important for those projects that we do have some formalized guidelines and methodologies such that the verification process is simplified, and is not as burdensome.

MR. BROOKMAN: Margot Anderson?

MS. ANDERSON: I just want to go a little deeper on some of these issues. I think that there is some policy guidance on where we're going on climate policy. Clearly the rejection of the kinds of instruments -- or the Kyoto protocol and the kinds of instruments that are in the Kyoto protocol is a pretty clear policy decision, as is the initiatives on the science and technology pieces of climate, as is the desire to enhance voluntary actions.

And I think the president's directive of June 2002 indicated that one way to demonstrate voluntary actions is through registering in a voluntary greenhouse gas registry, and receiving transferable credits.

And while certainly I've heard what you're saying in this room, and there is a lot of skepticism about the concept of transferable credits, the directive did ask us to explore in great detail, and provide recommendations back to the president on how we would establish a system that would provide transferable credits.

And I think the thinking there is that that is one way that you can get recognized for good actions that are being taken by companies to reduce greenhouse gases. And that the transferable credit is the reward for positive action. And I understand that, again, the skepticism and the concern that it might be premature to go down that road.

But we're trying to figure out how this might work for those kinds of firms that are interested in receiving that kind of credit. So I do think that there has been some policy direction.

It may be a policy direction that you're not as comfortable with as you'd like to be. But we're kind of stuck in this dilemma of figuring out what might this new world look like with transferable credits in it?

And how do we create a system that is consistent with that, yet make most of the folks feel that they're getting the kind of feedback that they need in order to stay members of a voluntary registry. So it's a kind of a conflict that we're -- I'm sensing in the room.

MR. FERRARA: I think the dilemma between the policy portion or segments that you mention and the transferable credit, you know, comes down to, you know, is there a system where a transferable credit that's useful that's not a capped trade system, you know, where, you know, I don't think that policy that's around that, which is why you're in the position you're in, that it's been discussed and settled on enough.

And there may be different answers for different industries, certain industries that like the credit, you know, and are pushing for the availability of that. I guess my concern with those systems -- we tend to use the SO2 model as the successful version of that.

But we have really done very little experimentation of these cap in trade sections across industries that have different margins, that have different amounts or different access to importing of products, versus being a regional product.

You know, when we opened this up to the degree that a CO2 cap in trade system could open this up, it's a much wider experiment than the models we're using to say, Hey, this is a great way to approach this problem.

And I think there is going to be, and will have to be a fair amount of discussion about whether those kinds of methods are appropriate to you, or whether it should be something that's restricted, let's say, to the ability of industry, the sections I've seen to be more interested. I don't even think the industry has a uniform position.

MR. BROOKMAN: That last commentor was Jerry Ferrara. Reid Smith? No? Additional comments on this? I mean, and specifically, should the Department of Energy put some sort of a serial number on these tons? How should it handle transfers? Reid?

MR. SMITH: I think it's probably important to note that there are other industries out there.

There's states establishing registries. There's international registries. There's the Chicago Climate Exchange. At the end of the day, somebody has to keep track of credit transfers to ensure that you don't sell the same credit two or three times, or whatever.

I'm not sure how that function gets done inside DOE.

MR. BROOKMAN: I was wondering if there was a market mechanism that does that presently.

MR. SMITH: I don't know that there is a market mechanism that does that. At the end of the day I think some entity has to keep track of that. Maybe DOE is the right one.

MR. BROOKMAN: I'm looking for Greg Spencer to comment.

MR. SPENCER: The -- in the securities industry, there is a clearinghouse for every certificate. I -- my earlier position was just reflective of the fact that someone clearly needs to do that.

If the DOE elects not to do that, a private industry will step forward and develop a transfer mechanism so that there is clearly a process -- a procedure to ensure that there is no double counting, there is no multiple sale of the same asset.

Once you've identified the criteria for the asset, whether you recognize or whether you manage the transfer process or you turn that over to third-party, you know, it will, of necessity, develop, because buyers will insist on a process by which they can be assured that if they've purchased a reduction, that they own that ton.

So I would simply encourage you to do that in the way that utilizes the DOE's best expertise, and allow those things that are outside your current capability or expertise to be developed by someone else.

MR. BROOKMAN: Other comments on these specific matters? Should the Department of Energy put a serial number on these tons, for example? No comments on that? Yes, please.

MR. LYONS: If the Department of Energy is -- Hi, I'm George Lyons. If the Department of Energy is creating the credits, why would they not want to identify the credits, and -- for tracking purposes?

MR. BROOKMAN: And what constitutes creating a credit to you? Is it --

MR. LYON: Well, we're not -- and that's something I was a little bit confused with last night. But I mean, who is going to issue the credit? You're going to show an industry, or a utility is going to show a reduction of intensity or a reduction in some measure of CO2 emissions, or greenhouse gas emissions.

Who is going to reward -- who is going to issue that credit for that reduction? It's not going to be his neighbor or his competitor. It's going to have to be the Department of Energy, or the EPA, or some body that's going to recognize this reduction.

So this reduction should be identifiable, and that identity should go with the certificate.

MR. BROOKMAN: In some of the other workshops, we've heard from kind of a significant kind of array of ways the department could handle such a thing.

Everything from saying, Yes, I've received your report, to saying, Yes, I certify that the data meets a certain standard. To then following on from that to more, you know, more management, more active involvement. And that's the range of comment I think we've heard. Maybe there's others. Yes, Greg Spencer?

MR. SPENCER: I just want to say again, I don't think we need to look at this while it's new in the emission -- we have examples in emission trading.

And while this is -- has some of the similar aspects to it, I think if people believe it is ultimately going to involve more of a commodity trading, currently the Federal Government, to my knowledge, doesn't' do anything to certify the commodities that are traded on the Chicago Merc, or it doesn't certify that a particular security --

I mean, there is the SEC as an oversight body, but I don't know that a particular common stock issuance is ever certified by a Government authority. That's the function of the third-parties who verify that these assets really exist, and the market, who determines what the criteria are, and what the appropriate value should be.

MR. BROOKMAN: Okay.

MR. LYONS: Who determines the -- yes, and I agree with that. I think that's a great point. But what criteria does a -- in a voluntary program, what criteria is a ton of emission credits judged.

MR. BROOKMAN: Greg Lyon, right?

MR. LYON: Huh?

MR. BROOKMAN: Greg Lyon?

MR. LYON: George.

MR. BROOKMAN: George Lyon. Thank you. What criteria --

MR. LYON: The -- you could have numerous different, you know -- Ernst and Young can go out there and say, Okay, here is a great program, and this is identifiable, this is a certifiable sink, and okay, we've got reductions.

But at what level -- who, in a voluntary program, who is going to be the person in a market program that everybody has a clear destination in mind? Yes, I think there is a lot of market capacity that can handle this.

MR. BROOKMAN: Margot Anderson?

MS. ANDERSON: Well, in essence, that's what we're trying to do with the workshops in order to determine collectively what might be the standard for a credible, a real, a certifiable, whatever you want to call it, ton, so that there is an agreed-upon standard or set of standards for different grades of tons? And that the registry establishes the guidelines that support those commonly-accepted definitions?

Whether the actions on the part of companies mean that -- whether companies have to verify that they have met those measures or not -- I think we just touched on that in the last session.

But in essence, I think we're trying to come to a shared understanding that the next question is, if we have that shared understanding, and let's say we can come up with revised guidelines that meet our new view of what a credible, creditable real reduction is, then the next step is, if we're going to be issuing transferable credits, and I understand the controversy on that, but if we are going to be issuing transferable credits, how do we do that, and how do we manage that?

So I would hope that by the time we issue a transferable credit, we had a common understanding of what we were issuing it based on, and that we had established what the data requirements are and the reporting requirements.

I agree that that's a really tough issue, and that's why we grapple so much with this baseline issue and the organizational boundaries in the starting year, because all of that is part of the definition of what a creditable or a real or a credible reduction is, if that helps.

MR. BROOKMAN: Yes, Jeff Williams?

MR. WILLIAMS: I'm not a trading expert. My only frame of reference is the SO2 program that EPA has set up. And they've provided a function, that when you send in your CEMs report -- I'm sorry. Let me back up.

They set up an account where your SO2 allowances reside. And there is an account representative, and there is the ability to move those tons from in and out of those accounts.

And it seems to me that if our 1605(b) reports went in -- in our case it would be megawatt hours of production with CO2 emissions. You do that -- whatever the calculation is based upon the index that goes in, you calculate the number of tons that goes into our account. And the account then can be accessed by outside parties, brokers, whoever, to transfer to other people.

I mean, that -- I'm sure it's oversimplified, because I'm not in the trading business. But that seems like it might be a workable thing for DOE to do.

MR. BROOKMAN: The department sets up the registry at some level, that accepts the registry trading transfers, and trading gets initiated by an outside party, and then effects the transfer. That's what I heard you say? Something like that.

And then Greg, you referenced a bunch of intermediary steps. You were more specific about pieces of it.

MR. SPENCER: Are you asking me to comment?

MR. BROOKMAN: No. If you wish, you -- okay, okay.

What about confidentiality? What about public versus confidential data? Should data be -- should the data submitted to DOE be made publicly available? And can we really effectively protect data? Can they make it confidential to suit your expectations? Paul McArdle?

MR. MCARDLE: Paul McArdle, EIA. I just want to say a few words on the current practice within 1605(b). We get -- occasionally get a request for confidentiality on reports. It's very few. For the latest -- for the 2001 data, we had 229 reports. We had one request for confidentiality. And that kind of mirrors what's gone on in past years. We may get one or two, sometimes none. So they're very rare.

However in the cases when we get one, we normally generally grant the reporter confidentiality. So we list them in our annual report as a reporter, but we do not incorporate any of their data into the summary tables that -- Well, I gave you some of the summary table -- some of the summary data yesterday.

We do not incorporate any of their tons in there, because a very industrious person, or a clever person could, if we incorporated the confidential reporter into the summary statistics, could back out the -- their numbers and could identify their confidential data.

So all that being said, in the event that EIA got a request for that report, we generally ask the reporter to write us a letter, to explain why the data is confidential. And there is a couple of areas we asked them to give us information on.

And that is, to identify areas that may contain trade secrets, or commercial or financial information whose release would be likely to cause substantial harm to the reporter's competitive position.

So basically, what I'm saying is, the data we get is -- it can be requested, a confidential report can be requested under the Freedom of Information Act. And using the criteria -- and what I just read is from the Freedom of Information Act.

We would make a determination, if it fits those criteria, and we would work with our Office of General Counsel and make a ruling, and if it fit the FOIA requirements, we would not be able to release it to the requestor of the information. However, if it didn't meet those requirements, we would be forced to release the data.

MR. BROOKMAN: That's the present standard?

MR. MCARDLE: Yes.

MR. BROOKMAN: Okay. Other comments on confidentiality. If you're a reporter under this program, should this data be accessible to the public? Should it be -- should there be a different level of confidentiality? Yes, Mike Moore.

MR. MOORE: A quick point with that. What would be the timing of the --

MR. BROOKMAN: I don't think you're on.

MR. MOORE: A quick thought is, is the confidentiality piece would be the foremost piece. But the other question would be what would be the timeliness of the access?

I mean, if there is real-time data coming in that you would ultimately request in a live, active environment, very few people would want to release that information to you knowing that it could be easily dispersed right back out the door.

MR. BROOKMAN: Yes.

MR. MOORE: Would there be one month? Two months? Six months? Twelve-month lag time on access to that data that a reporter would turn in?

MR. BROOKMAN: Paul McArdle.

MR. MCARDLE: Paul McArdle, EIA. In terms of data access under 1605(b), we get reports annually from the reporting companies. And those reports roll in the first part of the year following the reporting year.

So for example, right now, we have 2001 reports that we're processing. The deadline on submission for the reports was June 2002. Once the reports come in, we go through that review process, which I mentioned earlier, in terms of determining if the emissions data and reductions are accepted into

the database.

And that normally takes a few more months. And then the last three months of the year, which we're doing right now, we're actually compiling the summary data and writing the annual report. So it's actual -- the data is really available in discreet one-year increments.

Right now, you can go to our website, or you can get from our CD the database. But the database only runs through 2000, because right now we're processing 2001 data. And once we issue this annual report coming up now, which will -- I think our issuance date right now should be January 31, that data, the 2001 data would become available. And all the prior years as well. So come January, you'll have '94 through 2001.

MR. BROOKMAN: Mike Moore.

MR. MCARDLE: But could I say one more thing? In times -- in terms of real time, we do not do that at this point, because we have to accept the emissions and emissions reductions in. And we do it on a discreet annual basis. So you couldn't go in and say, Oh, So and So reported for 2002 or 2001, until all the reports were processed. At this time, that's how we do it.

MR. BROOKMAN: Mike Moore?

MR. MOORE: Going back on that, it's probably why you don't have issues with confidentiality, the data is now two-year's stale. So that's probably -- it would be from a market perspective, it doesn't do me a lot of good to backtrack somebody else's processes that are 24 months old, not in this day and age.

But at a future point, especially when you were talking about the widget companies that were cycling with seasonals, or cycling with economic events, the data that would be pertinent to create a credit or create a liability for a credit would have to be a lot more real time. And that becomes a lot more sensitive, and I think that's when you start punching into that.

Coming in from the commodities side of the environment, real-time data, near-in data is where a lot of the decision-making processes take place. So --

MR. BROOKMAN: Thank you. Thank you. Additional comments on Confidentiality? Yes, Mary Quillian?

MS. QUILLIAN: Mary Quillian, NEI. I think there are -- although I agree with you that for some industries data that's effectively over 12 months old is not pertinent, I think that there are some industries where you actually write contracts for five or ten years. And it is conceivable that competitors can look at that data if it is disaggregated, if a lot of specific data is shared publicly, competitors can go in and look at -- and figure out what your process is, and use that information to try to undercut your bids on stuff.

So I think that there is a worry in some industries that have longer lead times for things, that too much specific data could be a problem, and that it's maybe appropriate for DOE to aggregate a company's reported emissions and reported reductions. And those aggregated numbers are what you would put forward as public, and not necessarily a lot of the data behind it.

MR. BROOKMAN: Aggregated to an industry sector level?

MS. QUILLIAN: No. I think you could probably aggregate to the individual company. Right.

MR. BROOKMAN: Right. If it's a big company.

MS. QUILLIAN: If it's a big company. Yes. But -- or industry.

MR. BROOKMAN: Okay. And one other model we've heard so far already is the potential for different industry trade associations maybe somehow serving in a role like that.

Other comments on confidentiality? What about treatment of prior year reports? Certainly some industrial groups -- some reporting entities seem to have a significant interest in what is being done with their prior year reports. How should the Department of Energy handle prior year reports? Mary Quillian?

MS. QUILLIAN: In the electric industry we have discussed that. Yes. If someone wants to go back and received credit for reductions they have made prior to the issuance of the new 1605(b) registry guidelines, that it is reasonable for them to have to go back and resubmit data that follows the new guidelines in order to get credit for that action.

MR. BROOKMAN: To me, whatever new standard is set in order to get credit?
MS. QUILLIAN: Right. For actions that have already been taken and already been reported on.
MR. BROOKMAN: Okay. Other thoughts on that other standards -- other approaches to the question of prior year data and reports?
This final bullet is, "Not penalizing under future climate policy and transferable credits." That's been kind of a thread throughout some of this discussion. Do you want to que that up, that last point? Margot Anderson?
MS. ANDERSON: Margot Anderson. It is kind of related to the first bullet on the right-hand side. Given that our directive is to come up with recommendations to protect reporters against future climate policy, we need to make sure that the registry and the data that you submit to the registry is capable of doing so. And so your thoughts on how we might accomplish that.
Clearly, one protection against future climate policy might be the receipt of transferable credits. But are we creating a registry that you feel confident can protect you against a future climate policy?
MR. BROOKMAN: Greg Spencer. Thank you.
MR. SPENCER: Just a point, that to the extent the U.S. does ultimately become involved in -- a participant in international agreements, it might well be required for existing reductions to meet that criteria in order to be recognized by a foreign government.
MR. BROOKMAN: Okay. Comments on not penalizing under future climate policy, and the capacity -- the capability to do transferable credits? No additional comments on that? Okay.
I'm going to at this point say thank you to all of you. This has been a really -- a really good and focused day and a half of work. And I especially appreciate your collaborative spirit. There has been a lot of good exchange. And your discipline, hanging in there.
So my personal thanks to you. And I'm going to turn it back to Margot Anderson.
MS. ANDERSON: Thank you, Doug. Join in a round of applause.
(Applause.)
MS. ANDERSON: We do have a evaluation form in your booklet. If you could fill that out, that really helps us determine whether we've done an appropriate job or not, and make sure that we're hitting all the marks that we need to hit when we talk to stakeholders.
I don't tend to wrap up in these sessions. They are not consensus-building sessions. They are just an opportunity for us to listen to folks. We've probably now heard from about 350 -- 400 people over the course of the last couple of weeks in our four workshops. Each one has had a unique flavor.
And we originally thought that we might hear the same thing over and over again as we went across the country. But the fact is, that we've heard quite different things. And so it's been very rewarding for us to move around and to talk to folks from different regions, because we are truly having a different conversation every time we do this.
So I want to thank each of you for your very active participation, and for coming out over the last few days. I know it can be kind of cumbersome and complicated, and often confusing. But your input is truly quite valuable to us.
As I said in the beginning, there is ample opportunity to continue to stay involved in this. And you can write to us. And I gave you the website. Michael is also handing out, or will hand out a list of participants that's out on the table. And there are the websites -- the appropriate websites there for you.
So I say, do contact us if you have additional comments, or you just want to get information. The main website for our 1605(b) revised program will also contain the transcript to this meeting.
Several of you have mentioned you've already taken a look at the transcripts, or listened to the transcript from D.C. or the other meetings. Please do listen to them or take a look. I think you will find a wide range of views represented from colleagues around the country.
So again, I want to thank you very much. I think that's all I have. Thank you again, and have a safe trip back. And Happy Holidays to all of you.
(Whereupon, at 11:35 a.m., the meeting was concluded.)

10. BREAKOUT SESSION REPORT-BACK SLIDES

Voluntary Greenhouse Gas Reporting Workshops

Electricity Generation including Grid-Connected Renewable Generation

- Options for intensity baselines?
  - Applying intensity baselines for utilities and utility systems
  - Estimating displaced emissions
- Treatment of acquisitions / divestitures?
- Should causes of reductions, other than output, be considered, such as weather, technology, voluntary programs, regulations, new investment, improved management?
- Minimizing double-counting:
  - Green power sales / purchases?
  - DSM incentives / programs?

Options for intensity baselines?

- Tons/KWh or Tons/MBTU
  - (note: If long term goal is tons/GDP then maybe intensity should be dollar based.)
- Use an intensity factor could be used to derive tons reduced by multiplying the incremental change in intensity by total output.
  - Advantage of ending with a cross industry unit. (e.g. tons)
  - Intensity doesn't capture everything.
  - For gases like SF6, use beginning and ending inventory data.
- Intensity is more flexible b/c don't have to adjust baseline. And allows emissions to increase.
- Total reductions could be intensity derived in addition to individual sequestration and avoidance type projects.
- If we use tons/MBTU to take steam into account, there may be a problem with using input BTUs. Output BTUs might be better.

Displaced emissions:

- A company with a zero emissions baseline might be able to sell the label to utilities with higher emissions.
- In theory the price of (wind) energy should reflect
  - Intermittence
  - Tax credits
  - Other environmental benefits
- Dispatch order might be one way to show how a co-gen. plant reduces emissions from a coal plant.

Who owns the credits to begin with?

- Contractual assignment is best.
- Whoever makes the financial investment should get the credit.
- Should always get credit for intensity improvements.
- If consumer wants to purchase the credit, it might provide a financial incentive for the utility to sell the credit, or vise versa.
- If a utility wants to aggregate credits they should be able to approach credit holders (I.e. if Marriott buys 3,000 efficient refrigerators).

Acquisitions and Divestitures:

- Transfer the footprint at the time of sale.
- Financial annual reports show last 3 years with adjustments made for acquisitions and divestitures. Might work here.
  - However, weather might be a problem.
- This suggests a benefit of staying with initial sub-entities.
- In this situation intensity is more flexible b/c don't have to adjust baseline.

Should credits be given for other causes of reductions not due to output changes?

- Yes, they should get the credits regardless of cause.

Industry Break-out Group

Plenary Session Report Back

Lee Gilmer
Shell Global Solutions

Houston Workshop
December 13, 2002

Intensity Based Metrics - Physical

- Group identified a number of problems with intensity based metrics
  - Multiple products within the same entity
  - Entities have diverse portfolio of sub-entities
  - Changes in product over time (e.g., Model T vs. Thunderbird)
  - New products introduced; old products retired

Industry Break-out Group

Intensity Based Metrics - Financial

- Group identified a number of problems with financial metrics (e.g., emissions / sales; emissions / value-add; emissions / profit)
  - Influenced by price which is beyond manufacturer's control (market)
  - Volatile measure over time
  - Multi-product allocation
  - Confidentiality issues

Industry Break-out Group

Exploring Intensity Metrics

- Counter-points in group:
  - A single metric is problematic
  - Pick one and go with it, although imperfect
- Industry specific
  - Selected by reporter / industry associations
    - Petroleum Industry indicated it might specify as many as six intensity metrics
  - Group identified difficulties for widget manufacturers
    - Problems with GHG intensity of feed stock, and/or energy inputs (indirect sources)

Industry Break-out Group

Exploring Intensity Metrics… continued

- Financial Community
  - Will evolve its own metrics because of interest in corporate sustainability
  - Company's level of environmental consciousness

Industry Break-out Group

Why participate in 1605(b)?

- Concern: the program is leading to a cap and trade
- Favorable publicity
  - Shows corporate responsibility / environmental stewardship
- Allocation of emission rights
- Hedging against a future cap and trade - Options
- Assumption that future may have a carbon tax

Industry Break-out Group

Non-carbon emissions?

- Continue to report by gas, as currently doing in 1605(b)
- Units of report should be consistent with carbon report
- Materiality test – if its 1% or less of CO_2 equivalent emissions, does not have to be reported

Industry Break-out Group

Confidentiality Issues?

- Reporting absolute emissions is not a problem, already doing it
- Intensity reporting could be problematic (e.g., financials)
  - Let industry choose intensity metric
  - Industry roll-ups are an option to protect confidentiality
- Corporate vs. facility reporting; corporate preferred
- Sales vs. emissions reporting; emissions preferred

Small Distributed Sources, Houston

Residential, Commercial, Transportation, End-Use Renewables

Dick Richards, SAIC
Juene Franklin, EMCON/OWT
Fabien Nilsson, EnLink Geoenergy Services
Mark Friedrichs, DOE

Small Distributed Sources

Residential, Commercial, Transportation, End-Use Renewables

Problem

- Small emitters unlikely to participate
- Sectors have large direct and indirect emissions (~50% of U.S.)
- Many opportunities for reductions exist

Small Distributed Sources
Residential, Commercial, Transportation, End-Use Renewables

- Enabling aggregators
- Marketing the program

Small Distributed Sources
Residential, Commercial, Transportation, End-Use Renewables

Identifying / informing / training potential aggregators

- State and local government officials
- Product suppliers
- Trade Associations

Small Distributed Sources
Residential, Commercial, Transportation, End-Use Renewables

Roles of Aggregators

- Marketing program / encouraging participation
- Assisting direct participants (small to medium-sized businesses)
- Minimizing double-counting and other problems

Small Distributed Sources
Residential, Commercial, Transportation, End-Use Renewables

Incentives for Aggregators?

- Aggregators keep portion of “credits”?
- Federal $$ for state / local government aggregators?

Small Distributed Sources
Residential, Commercial, Transportation, End-Use Renewables

Marketing Program

- Active marketing needed (not by EIA)
- Needs recognized symbol of participation, e.g., Energy Star
- Marketing could be through existing energy / environmental programs
- Expand use of existing EZ or other simplified form

Agriculture and Forestry

Break-out Group

Plenary Session Report Back

Houston Workshop
December 13, 2002

Entity vs. Project – Level Reporting

- Stringency tied to Purpose
  - Reporting (low cost, high degree of confidentiality)
  - Crediting (must be more transparent)
    - increase value – increase responsibility
- Entity vs. Project Reporting
  - Reporting
    - Can deal with high degree of aggregation (e.g. Trade Associations – uniformity)
  - Crediting
    - Entity level

Calculating Effects (What is Happening)

- Baselines
  - Need for averaging (e.g., 4 years)
  - Various methods in use (e.g., model then verify)
- Permanence
  - Lease vs. Purchase
  - 10 year lease with option to renew
    - Shorter lease lower price, longer lease higher price
- Leakage
  - Not unique to agriculture and forestry or projects
- Current – Negotiated (10 to 20 percent buffer)

11. SUBMISSION TO THE RECORD:

”SUMMARY REPORT OF ECOCARBON INDUSTRY ROUNDTABLES [IN AUSTRALIA] ON INDUSTRY CAPACITY BUILDING NEEDS WITH RESPECT TO MARKET-BASED APPROACHES TO GREENHOUSE GAS REDUCTION.”

CARRIE SONNEBORN, PHD; NATIONAL RENEWABLE ENERGY LABORATORY

Voluntary Greenhouse Gas Reporting Workshops

SUMMARY REPORT of

EcoCarbon

economic growth with emissions trading

INDUSTRY ROUNDTABLES

on

Industry capacity building needs with respect to market-based approaches to greenhouse gas reduction

August 2001

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- **Perth - *Dadco Australia*** **(10 April 2001)**

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AUSTRALIAN CRC FOR RENEWABLE ENERGY

Commonwealth Bank

bhpbilliton

Australian Greenhouse Office

Dadco Australia Ltd.

ACTEW CORPORATION *the essentials of life*

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About EcoCarbon

EcoCarbon is a Perth-based non-profit organization formed in 1999 by Australian companies that have an ongoing interest in exploring the market-based approaches to greenhouse gas reduction and establishing themselves as leaders in this area. EcoCarbon has established itself nationally as a reputable provider of industry education and training with respect to market-based approaches to greenhouse gas reduction. EcoCarbon's activities include organizing seminars and boardroom briefings, regular email *EcoCarbon News and Information Review* and development of a computer-based emissions trading simulation.

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EcoCarbon has given permission for the information collected during the Roundtables to be used by Ms. Sonneborn as part of the data for her PhD thesis.

Disclaimer: All inaccuracies or errors remain those of the author. Views expressed are those of the Roundtable participants or the author.

SUMMARY REPORT of EcoCarbon INDUSTRY ROUNDTABLES

August 2001

"Industry capacity building needs with respect to market-based approaches to greenhouse gas reduction"

1.0 INTRODUCTION

"The steps we take to reduce greenhouse gas emissions -- especially those promoting the development and use of energy efficient technologies -- will help U.S. industry compete in the international marketplace…Markets, of course, will be instrumental in mobilizing the necessary resources and know-how; market-based strategies such as emissions trading will also help deliver emissions reductions at the lowest possible cost." [1]

Eileen Claussen, President of the Pew Center for Climate Change - Testimony to the Commerce, Science and Transportation Committee of the US Senate, 10 July 2001

The stalling of negotiations at the 6th Conference of the Parties (COP6) of the United Nations Framework Convention on Climate Change (UNFCCC) at The Hague (November 2000) came as a surprise to many. Perhaps the success of the resumed COP6*bis* meeting in Bonn (July 2001), despite the backing away of support for the Kyoto Protocol by US President George Bush, has come as an even greater surprise to observers. The European Union success in pushing ahead with the Kyoto Protocol has delivered 'the first major policy defeat for President Bush'[2] and has shown that the global impetus to address climate change is here to stay. Climate change is a serious environmental and economic issue, which industries that have substantial greenhouse gas emissions can not afford to ignore.

Although many details are yet to be finalised the political breakthrough at Bonn seems likely to pave the way for ratification and implementation of the Kyoto Protocol albeit without the immediate inclusion of the USA.[3] Nonetheless, the 'Bonn Agreement' has increased the international and domestic pressure for the US to start managing its greenhouse gas emissions and the US is likely to do so. President Bush has been unanimously urged by the US Senate Foreign Relations Committee to negotiate a global warming treaty. This marks a 'dramatic shift in policy in a body that has been hostile to efforts to negotiate an international treaty' and illustrates 'growing support in Congress for mandated limits on carbon dioxide and other greenhouse gases…' It is also mooted that legislation will be introduced to the US Congress later this year which would set an economy-wide cap on US emissions of carbon dioxide and other gases. [4]

Concerted international action is needed to tackle climate change but in the absence of world government, unilateral action of some kind must be the beginning of collective action. So far, most countries have been unwilling to move beyond tokenism in the face of a competitive market. There are several reasons for this. Firstly, it is assumed that unilateral action would create economic penalties for any country choosing that course of action. However, this discounts the value of being an 'early mover'. Countries and companies are already positioning themselves to provide low-CO2 solutions to fill a growing demand for clean energy sources.

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[1] Pew Center website, http://www.pewclimate.org

[2] *Greenhouse Accounting News Update*, 30 July 2001, 'A brief Analysis of COP-6 Part II', Rowena.Mueller@greenhouse.crc.org.au

[3] 'Outcomes from COP6 (Resumed Bonn July 2001) - Prospects and implications', August 2001, Tony Beck Consulting Services P/L, www.beckconsulting.com.au

[4] evolution markets Executive Brief, (10 August 2001) *'Kyoto-Bonn Agreement - a few facts to consider about the future role of greenhouse gas reduction',* John Palmisano, Executive Director, www.evomarkets.com

It is also often pointed out that unilateral action on its own can make little progress in reducing global emissions. Even large countries are only responsible for a small subset of emissions and 'carbon leakage' - the assumed movement of high CO2-producing activities to countries that lack CO2 constraints - may occur.

Consumers seem to support environmental issues notionally but often object to price increases, despite the environmental benefits that could result. For example, the Australian public did not rush to embrace recent petrol price rises despite the effect these might have on reducing greenhouse emissions. This is something that politicians are very aware of.

Finally greenhouse is often treated as a purely environmental issue, rather than the serious economic issue that it is. Until greenhouse comes out of the specialist environmental ghetto and is integrated into mainstream economic and industry development policy it will always be shoved aside in the political arena.[5]

The outcome of COP6*bis*, suggests that this may have finally happened and that an end to tokenism is in sight.

1.1 The way ahead

"The transformation for the greenhouse policy from an issue of intense debate into a trading and commercial activity will be rapid and value added products and services will soon replace academic speculation. Early movers will make and lose great sums of money, but that is the nature of all emerging markets" [6]

Since COP6 - and now COP6*bis* - governments, both internationally and within Australia[7], industry and the wider community have continued to explore ways to progress domestic greenhouse response through market-based approaches like emissions trading.

Several governments and companies have begun informal experiments with market-based mechanisms. For example, a number of companies have registered 'carbon credits' with independent registries; commodity exchanges have begun to develop mechanisms for active trading of such credits and industry groupings have begun to draft protocols for the measurement, certification, and verification of carbon accounting procedures.

At COP6*bis* nearly 140 companies issued a statement supporting the entry into force of the Kyoto Protocol by 2002. These included Deutsche Telekom, the largest telecommunications company in Europe, the Gerling Group, Ricoh (a major Japanese office equipment firm), the large UK insurer CGNU, Deutsche Bahn, Calor Gas, Credit Suisse. Munich Re, one of the world's largest reinsurance companies pointed to a 'drastic increase' of economic losses in both size and frequency due to natural disasters in the last decade. Meanwhile, there was a positive story from the world's risk assessors and financial experts: the rapidly growing investor interest in

[5] ABARE/ UCX One Day Conference 'Kyoto Protocol COP6 Outcomes. Sydney, Friday, 1 Dec 2000. Speech by Mike Waller, Chief Economist, BHP Ltd.

[6] evolution markets Executive Brief, (10 August 2001) *'Kyoto-Bonn Agreement - a few facts to consider about the future role of greenhouse gas reduction',* John Palmisano, Executive Director, www.evomarkets.com

[7] see 'Emissions Trading Since COP6 - an Australian perspective', C. Sonneborn, paper presented at the Emissions Marketing Association 5th Annual Spring Meeting (6-8 May 2001), Phoenix Arizona, www.ecocarbon.org.au

renewable energy technologies is spurring capital markets to view renewable energy technologies as the "new internet boom". [8]

Since COP6*bis* the European Union is already planning discussions on it proposed Greenhouse Gas Emissions Trading Directive, which would create a European market in greenhouse gas allowances (quotas). Commercialisation of climate change thus looks likely to happen sooner rather than later with risk managers rapidly replacing policy makers as the players in greenhouse gas policy.

Traders, brokers, risk managers and commercial commodity modelers will play an increasingly important role as the details of the market are developed and the unresolved issues become more commercial in nature. More information about costs to meet greenhouse gas obligations will emerge and the hard numbers will need to replace the speculation of modelers.[9]

The desire of many companies to be prepared to take advantage of market-based approaches to greenhouse was the key impetus for the EcoCarbon Roundtable reported on in this document.

2.0 BACKGROUND

"Nobody owns the atmosphere, so nobody takes account. Respectfully treating it as a limited resource means limiting its consumption, and instituting a process for treating it responsibly. The zero price being charged for its use means there is no direct reward to those who might supply carbon abatement and sequestration services. Private capital is not being mobilised. The market is missing. It must be introduced." [10]

2.1 Market-based Approaches to Greenhouse Gas Reduction

Market-based mechanisms contemplated by the Kyoto Protocol in assisting participating countries to reduce their emissions are:

- Greenhouse Gas Emission Trading;
- Joint Implementation; and
- Clean Development Mechanism.

The three Flexibility Mechanisms are new approaches, which have not been widely applied. It is likely that industry will need to build its capacity to utilize these mechanisms effectively, should they come into wide use.

The Flexibility Mechanisms will only be operative once the Kyoto Protocol comes into force. This requires ratification of the Protocol by 55 countries representing 55% of the emissions of industrial countries. The Bonn Agreement should pave the way to ratification of the Protocol with impetus building for ratification in time for Rio + 10 conference in Johannesburg in 2002. Ratification of the Kyoto

[8] 'Business Goes Pro-Kyoto', ECO - CAN NGO newsletter, CoP-6bis, Bonn, July 20, 2001, Issue #5, ECO website: http://www.climatenetwork.org/eco

[9] evolution markets Executive Brief, (10 August 2001) *'Kyoto-Bonn Agreement - a few facts to consider about the future role of greenhouse gas reduction',* John Palmisano, Executive Director, www.evomarkets.com

[10] R. Sandor, "Trading Cases", Our Planet, 6 November 1998 (www.ourplanet).

Before then a range of details still need to be resolved to put the elements of the Bonn Agreement into effect and facilitate the implementation of the Protocol. This process is now scheduled for completion at COP7 in Morocco (29 October - 9 November 2001)[11]

Emissions trading

The Australian Government has yet to make a decision on implementing national emissions trading system. However, it has announced that such a system will proceed only if the Kyoto Protocol is ratified by Australia and has entered into force (i.e. Kyoto commitments become legally binding); and there is an established international emissions trading regime in place. Indeed, the Protocol itself embraces the notion of coordinated international abatement efforts as the most viable means of addressing the environmental and economic risks of climate change. These factors do not preclude Australia from implementing its own internal trading scheme or trial in order to prepare itself for the possibility of international trading in future.

The primary objective of a national emissions trading system would be to assist Australia in achieving compliance with the Kyoto Protocol at the least possible economic cost.[12] The effectiveness of emissions trading in controlling costs would be determined by the practical implementation of the system.

The Australian Greenhouse Office first discussion paper proposed that any national emissions trading system should be[13]:

- Developed and operated in the context of an overall policy strategy aimed at enabling Australia to achieve compliance with any international greenhouse undertaking, including the Kyoto Protocol, ratified by Australia;
- Implemented in the least cost way to the national economy and with the aim of maintaining international competitiveness;
- Implemented in a way that distributed the cost burden of the Kyoto Protocol, and any future greenhouse commitments, equitably and in the national interest across the community;
- Compatible with an international emissions trading system so that trade can occur across and within national boundaries;
- Implemented at the most opportune time and assist in managing the risks and uncertainties facing Australia associated with the need to achieve compliance with its international commitments as they continue to evolve;
- Introduced in a way that facilitates adjustment within the economy necessarily to achieve compliance with the Kyoto Protocol, and that recognises the dynamic nature of economic change and investment opportunities;
- As comprehensive as possible, aiming to cover all greenhouse gases from all sources in all sectors and to incorporate carbon sinks, but adaptable in order to accommodate new technologies and investments, and changes in international agreements;

[11] 'Outcomes from COP6 (Resumed Bonn July 2001) - Prospects and implications', August 2001, Tony Beck Consulting Services P/L, www.beckconsulting.com.au

[12] Articles 6 and 17 of the Kyoto Protocol provides that emission reduction credits may be traded between parties to the Protocol. Trading emission credits allow countries with lower marginal abatement costs to reduce their emissions below their commitment level and then sell the credits to countries with higher marginal abatement costs. The net result is that emissions targets can be achieved at a lower economic cost than if there were no emissions trading.

[13] Australian greenhouse Office, National emissions trading – establishing the boundaries, Discussion paper 1, March 1999, page 12.

Some Definitions:

Clean Development Mechanism allows a developed country to invest in emissions reduction projects in developing countries to acquire credits to assist in meeting their own national target. As such it is important because it is the only provision in the Kyoto Protocol that provides access to the potentially low-cost emission credits in developing countries, and unlike the other flexibility mechanisms, can begin to generate credits from 2000. Participation is voluntary and open to private and public entities alike if approved by the Party to the Protocol (i.e. the signatory country).

Joint Implementation allows developed countries to invest in projects in other developed countries to acquire credits towards meeting their own national target. Credits cannot be generated until the target period 2008-2012 but interest is growing. Participation is voluntary and open to private and public entities alike.

Emissions Trading enables two countries to trade 'permits' for the purpose of meeting their national targets. 'Carbon credits', generated by carbon sink activities, could also be traded to cover emissions. The details of how international trading will operate are being negotiated. Such trading must be supplemental to domestic actions. Two main classifications of emissions trading schemes:

- 'baseline and credit' - This system specifies an emission profile for each participant, i.e. an emissions baseline. Baselines can be projected on the basis of expected technological change, emissions growth and/or other abatement opportunities. Emissions reduction projects are developed and emissions outcomes at the end of an agreed period that are below the baseline earn emission credits. These can then be traded to other participants who wish to exceed their baseline. In the absence of a binding cap on emissions, baseline and credit schemes need to provide some incentive to trade. For a pilot scheme this could take the form of government recognition of early action.
- 'cap and trade' schemes - This system involves trading of emission permits, where the total supply of permits is strictly limited or 'capped'. Each participant is free to buy or sell additional permits, but must acquit sufficient permits to cover their own emissions output as determined at the end of the agreed period. Permit allocation methods can vary encompassing auctioning, 'grandparenting' and other options. For a pilot scheme a partial 'cap and trade' system could address a sector or category of emitters.

Carbon sequestration ('sinks') refers to the capture of carbon once it has been emitted, as through the growth of tress / vegetation or encapsulation of the carbon , e.g. in underground chambers. This can represent verifiable changes to atmospheric carbon and result in a 'credit' being available to emitters, though the acceptability of 'sinks' are still being debated under the Kyoto Protocol

A variety of studies have estimated the likely cost of permits facing Australia under different trading scenarios linked to the Kyoto Protocol. In general permit prices can

- Designed to minimise costs through minimising prescriptive regulation, maximising flexibility for participants and maximising private sector involvement in the operation
- Open to all legal entities.

be expected to decline (and subsequently economy-wide abatement costs) as the range of abatement opportunities expands.

The survey of Kyoto-consistent modeling results presented in the following table[14], generally based on combustion-related carbon dioxide abatements models, shows the significant reduction in permit prices facing Australian emitters if international trading in emissions is established. Intuitively, international trading allows Australian emitters to access lower cost abatement opportunities in other countries. Nevertheless, the range of permit price estimates highlights the high degree of uncertainty inherent in modeling the schedule of abatement costs facing Australia and other countries.[15]

table 1.1 **Predicted carbon dioxide equivalent permit prices facing Australia in 2010 under various Kyoto-consistent scenarios**

model	independent abatement	developed country trading	global trading
	A$ per tonne of CO_2		
G-Cubed (a)	$44	$38	na
G-Cubed (b)	na	$16	$5
GTEM (a)	$191	$48	na
GTEM (b)	$87	$37	na
SGM	$55	$32-44	$9-11
MERGE	na	$48	$34
POLES	na	$47	$14
World Scan	na	$8	na
GREEN	na	$28	$10
AIM	$40	$27	$18

na: not applicable

Note: GTEM (b) results relate to CO_2, N_2O and CH_4 emissions and abatement opportunities relating to energy and agricultural activities. Other modelling results reported refer to combustion-related CO_2 emissions.

To convert from $/tonne of CO_2 to an equivalent cost per tonne of carbon, multiply estimates by 44/12. Most studies refer to 1995 US dollars. GTEM results are reported in 1992 US dollars. To convert to $A an exchange rate of A$1.54 per US$ was used.

Sources: McKibbin et al (1998), Tulpule et al (1998), OECD (1998), Kainuma et al (1999), IAT (1997), Brown et al (1999).

Joint Implementation

Participation in JI projects is voluntary and open to private and public entities, if the Federal Government (as the Party to the Protocol or signatory country) approves it.[16]

There are the following possible roles for JI[17]:

[14] Source: Australian Greenhouse Office, National Emissions Trading: issuing the permits, (Discussion Paper Number 2), Commonwealth of Australia, Canberra, 30 June 1999, p.14 , www.greenhouse.gov.au
[15] Australian Greenhouse Office, National Emissions Trading: issuing the permits, (Discussion Paper Number 2), Commonwealth of Australia, Canberra, 30 June 1999, www.greenhouse.gov.au
[16] Australian Greenhouse Office, National Emissions Trading: establishing the boundaries, (Discussion Paper Number.1), Commonwealth of Australia, Canberra, March 1999, page 7.

- a cost effective option for developed countries to fund greenhouse gas emission reduction projects in other countries, while meeting local development needs;
- as the first step toward establishing an international tradeable quota system for greenhouse gases among parties that have made a firm commitment to limit their emissions; and
- as a means for exploring when it is cost effective to bring new emission sources or sinks into an existing international greenhouse management system.

However, there are following potential problems[18]:

- monitoring and high transactions costs could become problems in using JI as a means of achieving significant cost effective reductions of greenhouse gas emissions; and
- investors in JI projects cannot credit the emission reductions from these projects against national commitments.

These issues are the subject of on-going negotiations under the UNFCCC.

Clean Development Mechanism

Benefits of Clean Development Mechanism (CDM) projects are:

- the achievement of the objectives of the Kyoto Protocol including greenhouse gas reduction while promoting sustainable development in developing countries.
- developed nations can obtain recognition of their contribution towards achieving the objectives of the Kyoto Protocol, which assists in their management of their emissions, obligations in a cost effective manner.

As with Joint Implementation projects, participation is voluntary and open to private and public entities, if the Federal Government approves the project.[19]

Proposed limits to the use of CDM project credits and debate over the sustainability and type of projects (e.g. sinks, nuclear power) which should be eligible for CDM credits has been a key sticking point in the Kyoto Protocol negotiations. AT COP6*bis* it was agreed that it is the host Party's (the developing country) prerogative to confirm whether CDM project activities assist in achieving sustainable development, and that the Annex I Parties (developed countries) "refrain" from using emissions credits generated from nuclear facilities to meet commitments.[20]

With Australia's strengths in technology, equipment and services relevant to greenhouse gas mitigation, Australia is well placed to take advantage of greenhouse gas mitigation opportunities in overseas countries. The opportunities include[21]:

- improvements to primary energy production, transmission and distribution, including through capture of fugitive emissions;

[17] Intergovernmental Panel on Climate Change, Technologies, Policies and Measures for Mitigating Climate Change (Eds: R.T. Watson, M.C. Zinyowera and R.H. Moss), November 1996, page 72.
[18] Intergovernmental Panel on Climate Change, Technologies, Policies and Measures for Mitigating Climate Change (Eds: R.T. Watson, M.C. Zinyowera and R.H. Moss), November 1996, pages 71-72.
[19] Australian greenhouse Office, National Emissions Trading: establishing the boundaries, (Discussion Paper Number.1), Commonwealth of Australia, Canberra, March 1999, page 7.
[20] 'Outcomes from COP6 (Resumed Bonn July 2001) - Prospects and implications', August 2001, Tony Beck Consulting Services P/L, www.beckconsulting.com.au
[21] N. Bharucha (International greenhouse Partnerships Office), The Project-Based Kyoto Mechanisms, Paper presented to the 2nd Annual Emissions Trading Forum, Sydney, 30-31 August 1999, page 4.

- improvements to primary energy transformation to heat and electricity, including through industrial boiler upgrading, improved efficiency of heat and power generation, fuel switching and co-generation;
- enhanced use of renewable energy, especially in rural and remote areas, and including the harnessing of landfill gas;
- improvements of efficiency of energy end use in industrial, commercial, residential and transport sectors; and sink enhancement, including forestry.

Carbon sinks

There is considerable scientific research into - and controversy over - the real contribution to carbon sequestration of a diverse range of carbon sinks. The potential areas of carbon sequestration are:

- sequestration in terrestrial ecosystems, which are made up of vegetation and soils;
- separation and capture of CO_2 when it is emitted;
- chemical processes where carbon is absorbed and stored;
- tapping into the capacity of oceans to absorb CO_2;
- geological disposal; and
- advanced biological processes[22, 23]

2.2 Industry Capacity Building Needs

'Capacity building' is a term that has become widely used within the UNFCCC / Kyoto Protocol negotiations to refer to establishing the skills and knowledge, and to a certain degree the infrastructure, needed by developing countries to respond to the demands and opportunities of greenhouse gas reduction. The term has been less commonly applied to corporations.

In an industry context, capacity building can be understood as the provision of information, education and training to staff who will be responsible for greenhouse gas reduction activities. At a broader corporate level it also links in strongly to the idea of organizational learning and corporate change. In this study I use the term 'capacity building' to refer to industry needs in this vein.

3.0 ECOCARBON INDUSTRY ROUNDTABLE PROJECT

During 2000 EcoCarbon carried out a nation-wide postal survey of industry capacity building needs with respect to the Kyoto Flexibility Mechanisms. This postal survey represented a small sample of Australian company's views on the issue of market-based approaches to greenhouse response and provided a starting point for further investigation via the subsequent Industry Roundtables. [24]

[22] Bacteria and other organisms could be used to remove carbon from fuels and recycle carbon from man made waste streams. Advanced crop species and cultivation practices could be designed to increase the uptake of atmospheric CO2 by terrestrial and aquatic biomass and decrease CO2 emissions to the atmosphere from soils and terrestrial and aquatic biomass. Source: U.S. Department of Energy, Office of Science and Office of Fossil Energy, Working paper on carbon sequestration science and technology, February 1999, pages xxi-xxii.

[23] Much of Section 2, including references cited, is drawn from a paper by Kuan Chia, 'Implications of greenhouse and emissions trading on the electricity sector', Stanwell Corporation Limited issues paper, December 2000.

[24] See Appendix 3 for Executive Summary of the survey.

EcoCarbon then carried out a series of Industry Roundtables designed to both validate the results of the survey and provide a much richer source of additional information. The in-kind support of companies, primarily EcoCarbon members, was sought to host the Roundtables and provide administrative support in each city (Brisbane, Sydney, Canberra, Melbourne and Perth). The Australian Greenhouse Office also provided financial support to offset travel costs.

The Roundtables are part of academic research being supported by the Australian Cooperative Research Centre for Renewable Energy (ACRE) and EcoCarbon into the capacity building needs of industry with respect market-based approaches to greenhouse gas reduction.

The data collection Stages of this research include:

- STAGE 1 - National postal Survey (completed Dec 2000)
- STAGE 2 - Industry Roundtable / focus groups within Australia (Feb - April 2001)
- STAGE 3 - Key informant interviews with companies in Europe and the USA (in progress)
- STAGE 4 - Literature review (in progress)
- STAGE 5 - Thesis write up (in progress)

The overall Aim of the research is to develop a model for assessing, designing and delivering education and training - 'capacity building' - activities to companies in the most effective manner. (See schematic of the elements of this process on Page 15).

On a more immediate level the Roundtables were intended to assist EcoCarbon in designing its ongoing activities.

4.0 GOALS OF THE INDUSTRY ROUNDTABLE

The goals of the national Roundtable were to:

- Build a dialogue and consensus on the type of capacity building activities (and the manner of delivery) that will assist Australian industry in the development of the knowledge and experience needed to move ahead with market -based approaches to greenhouse gas reduction.
- Identify the gaps in industry education and training with respect to the Kyoto Flexibility Mechanisms.
- Assist participants in assessing their own capacity building needs.
- Assist EcoCarbon in tailoring its capacity-building activities to the needs of Australian industry.
- Provide data, which will form the basis of a major report on Australian industry capacity building needs with respect to the Kyoto Flexibility Mechanisms.
- Make the data and analysis available to sponsors.
- Feed into further academic research and analysis.

5.0 METHODOLOGY

5.1 Focus Groups as Qualitative Research in the Social Sciences

The Industry Roundtable project was an applied study carried out on a limited budget and tight time frame. It was based on an established data collection approach in the social sciences, that of 'focus groups' or 'group interviews'. There is a long tradition of using focus groups as a preliminary or exploratory method. Focus groups are often used to identify new areas of investigation and action, as much as providing solutions in themselves. It is a technique that has been used in applied social research and marketing as early as the 1920s.

Focus groups are often used in conjunction with other methods (e.g. survey, individual interviews, participant observation) but they are also recognized as the principal source of data in self-contained studies. In this instance the Focus Groups / Roundtables built on the earlier survey and will inform the next stage of the project in which additional information will be sought via a limited number of in-depth company interviews. These interviews will form case studies describing and evaluating the companies' response to internal capacity building needs with respect to market-based approaches to greenhouse gas reduction. [25]

5.2 Strengths and weaknesses of the Focus Group Approach

Strengths - 'quick and easy'

Concentrated amounts of data - Focus groups have the ability to produce large amounts of data on precisely the topic of interest.

Less time - Focus groups usually take less time to carry out than doing one-on-one interviews with the same number of individuals.

Group interaction - The comparisons that participants make among each other's experiences and opinions are a valuable source of insights into complex behaviours and motivations.

Unexpected insights - The group interaction and participant-defined nature of focus groups can lead to the recognition of new dimensions to the topic being investigated. Taking advantage of this requires flexibility and the ability to respond to the group dynamics on the part of the facilitator.

Weaknesses - 'organizational effort and undue influence'

Logistics - Participants may not be able to travel to focus groups or it may be difficult to assemble enough of the right people for a group at the same time, making individual interviews more practical

Influencing the group - The fact that the facilitator / researcher attempts to drive the group may lead to influencing what participants say.

Group interaction - While the group interaction may, for some participants, draw out many experiences and opinions, for others it may produce a tendency towards conformity.

Ability of the group to discuss the particular topic - If participants level of involvement in a topic is either too low or too high, the researcher may collect only scattered

[25] Morgan, DL (1997) *Focus Groups as Qualitative Research*, 2nd edition, Sage Publications, Inc. Thousand Oaks, California USA.

instances of the desired material or have to work hard to control the discussion, respectively. [26]

In the Industry Roundtable process these strengths and weaknesses were evident at different times and to different degrees.

5.3 Brainstorming / Backcasting

In order to facilitate a process in which the present situation does not constrain how long-term innovation is envisioned, a 'backcasting' approach was used at the five Roundtables.

Backcasting begins with an attempt to envision an acceptable future scenario, which takes into account the status of many important defining constraints and criteria for tracing pathways back to the present, placing milestones along those pathways and identifying short-term challenges and obstacles that will have to be overcome en route. Progress will depend not only on meeting the technological challenges, but also on parallel developments in policies, markets, attitudes and behaviours.

Backcasting can thus provide a way of connecting the future and the present. It provides a means of translating a long-term vision of a sustainable future into near-term actions consistent both with achieving that future and dealing with the realities of the present situation. [27]

The prompts for the backcasting / brainstorming discussion were[28]:

- *'Imagine the world and your company in 2050.*
- *What are the biggest issues the world, Australia, your state, your company face?*
- *What are the four most significant issues? With respect to these four issues, what will be the biggest threats and the biggest opportunities for your operations?*
- *Do these relate to greenhouse response?*
- *If so, what aspects of greenhouse response does your company need to know about?*
- *How can Australia / your state / your company prepare?"*
- *Be creative, think laterally, think outside the box…."*

5.4 Practical steps - what was done

1. One Roundtable in each of the following cities: Perth, Brisbane, Melbourne, Sydney, Canberra. held during Feb - April 2001.
2. 12 -30 participants at each Roundtable.
3. Participants were identified and personally invited as a key spokesperson for that company or industry sector. Participants represented a mix of expertise drawn primarily from Industry sectors such as:
    - oil & gas
    - electric utilities
    - automobile manufacturing
    - chemical manufacturing

[26] Morgan, DL (1997), ibid.
[27] Dutch National Inter-Ministerial Programme for Sustainable Technology Development, Netherlands, 2001.
[28] See Appendix 6 for complete 'Guidelines for Chairperson'.

- steel and / or cement manufacturing
- forest products

FRAMEWORK FOR INDUSTRY CAPACITY BUILDING WITH RESPECT TO MARKET –BASED APPROACHES TO GREENHOUSE RESPONSE

INPUTS

- VALUES -

SOCIETY: Quality of Life: social, economic, environment

INTERNATIONAL, NATIONAL & CORPORATE: 'TRIPLE BOTTOM LINE' VALUES PHILOSOPHY: PRECAUTIONARY PRINCIPLE

--CONSUMER TRENDS - TECHNOLOGICAL CHANGE - - RESOURCE CONSTRAINTS - NATIONAL/ INTERNATIONAL LEGISLATION --MULTILATERAL AGREEMENTS -

TYPE OF INFORMATION/CAPACITY BUILDING CALLED FOR:

POLICY Including Climate Change Science	ECONOMICS / RISK MANAGEMENT	MANAGING CORPORATE CHANGE	NEW TECHNOLOGY / DIVERSIFICAITON OPTIONS	OPERATION OF EMISSIONS TRADING MARKET

Information needed in different forms and to different degrees of detail by various parts of the organization

*** CEO - Environment - CFO - Business Development - Engineering - Board Public Relations Operations**

FORM? *EXPERIENTIAL --- ---------- - DIALOG ------- - - - INFORMATION EXCHANGE*

PURPOSE: * Ensure compliance
* Identify opportunities/ risks

* Public image
* Environmental site repair

* Risk management
* Compliance

CORPORATE GREENHOUSE CAPACITY BUILDING STRATEGY

….incorporating : Learning by Doing? Wait to Learn? Risk Mgmt? Diversification Strategy? Certification, Verification, Monitoring?

Note: As the invitation list was influenced by the host company there was some limited participation by Accounting / Financial / Legal / Auditing and Broker Firms, though these were not the primary target for feedback from the process.

4. Roundtables were designed and facilitated by Carrie Sonneborn, EcoCarbon Executive Officer using backcasting, brainstorming and focus group techniques.
5. Roundtables were sponsored by EcoCarbon Members and Associates and held in their boardroom or other appropriate venue. The federal Greenhouse Challenge program of the Australian Greenhouse Office also provided some funding.
6. A scribe and audio recording captured the detail of responses from most Roundtables.

6.0 SUMMARY OF EACH ROUNDTABLE

6.1 Brisbane, 26 February 2001

> ***"Consumers need simple concrete examples of how their daily choices impact on greenhouse . This isn't going to be done just by corporates or just by government or just by schools. The message has to be reinforced by lots of other organisations that people come in contact with….***
>
> ***"A great example is the anti-smoking campaign, which incorporates information as well as legislative changes. Imagine the impact if when the consumer goes to the petrol pump they saw information about greenhouse gases associated with using that fuel. "***
>
> *Brisbane Roundtable*

Host: Stanwell Corporation

Venue: Stanwell Corporation, Level 13, 199 Charlotte Street, Brisbane

Chair: Dave Crevola, Compant Secretary, Stanwell Corporation

Dave Crevola welcomed the group to Stanwell and outlined Stanwell's interest in the hosting the Industry Roundtable. Carrie Sonneborn gave a brief scene-setting presentation about market-based approaches to greenhouse gas emissions [29] and outlined the brainstorming / backcasting scenario which the group would use as a starting point. (See Section 5.3)

The group identified the key greenhouse issues in Australia *in 2050 to be:*

- Adapting to global warming was a key greenhouse concern of this group. The failure of society to adopt early greenhouse gas abatement measures was likely to result in:
    - higher costs of late mitigation attempts.

[29] See Appendix 2 for Power Point of Carrie Sonneborn's presentation.

    - insurance claims associated with damage from extreme weather conditions.
- The key issue facing companies was the viability of certain products and services in an economic environment where greenhouse gas emissions are a cost that must be figured into operating expenses.
- Educating consumers was a key concern to participants. It was perceived that consumer's do not understand the potential lifestyle and pricing tradeoffs of addressing greenhouse. That is, that exemplary greenhouse performance could result in higher prices for goods and services. The view was expressed that consumers need to understand that there is 'no such thing as a free greenhouse lunch'.

The opportunities *identified were:*

- While there is a role for governments, there is an opportunity for industry to take the lead in providing innovative and efficient solutions such as renewable energy, improved transport and energy conversion technologies.
- A more environmentally aware community will be less resistant to change – the challenge is to develop innovative solutions.
- Green Consumerism - As consumers become more aware of greenhouse issues and community expectation/demand for environmentally responsible products and services grows, this may create opportunities for differentiating products and services along ' greenhouse -friendly' lines.
- Nuclear power was mentioned as an opportunity as it does not produce greenhouse gas emissions.
- There may be a growing demand for energy efficient appliances, transport and buildings to promote the demand-side management of energy use.

The threats *identified were:*

- Carbon leakage - Concern was expressed that companies may be motivated to move operations to countries that do not have greenhouse gas reduction commitments. Known as 'leakage', this would result in no net decrease in CO2 emissions while having a negative impact on the Australian economy.
- The absence of a total life cycle energy analysis of commodities was seen as a possible threat by some sectors as this could foster an inappropriate emissions trading regime. For example, Colmalco argued that aluminium ranks better than steel from a greenhouse perspective as it is a lighter metal and makes a positive net contribution when it is substituted for steel.
- Governments may introduce prescriptive measures which may not offer the more efficient outcomes – for example, prescriptive car exhaust requirements were introduced in California.
- The long term viability of certain products and services, particularly high greenhouse gas embodied products;
- It is predicted that by 2050 extreme weather conditions will account for the bulk of insurance claims, which will have a significant impact on the world economy
- Lifestyles could be impacted upon – such as transportation, housing and food (for example, farming cattle is an energy intensive agricultural activity). This may lead

to a resistance to change, as responding to greenhouse is perceived as a threat to our standard of living.

The solutions were:

- Industry to provide effective market-based solutions to avoid the risk that government will introduce command and control measures which may not offer the least cost solutions;
- Structural change with a change in the energy source fuel mix;
- Government to provide a policy framework to encourage innovation;
- Commercialising intellectual property and technological advances in a timely fashion.
- Educating the average person in the street and corporate entities about the risks, what can and is being done, social consequences of changing energy use and viable alternatives; and
- Advances in technology could provide cost effective innovative solutions.

What sort of capacity building is required for consumers?

- While people expect government to set social / environmental policy on issues affecting the community, it is equally important for consumers to understand the interconnected nature of economic activity, lifestyles and environmental impact.
- Consumers need realistic, viable options and information so they can be more environmentally responsible.
- However, consumers are often faced with information overload, so the form of information to consumers needs to take into account:
    - the appropriate medium must be identified to disseminate the information to the target audience.
    - the ability of the average person to absorb any technical data provided. It was seen as essential that information be provided in plain English.
    - that the average person lacks an understanding of the source of the electrical / fossil fuel energy which maintains their lifestyle and consumer culture. Information in this regard was particularly needed.
    - the need for simple concrete examples to get the message through effectively – such as the anti-smoking campaigns which involved training, education and legislative changes.
- It is in the long-term interest of industry to educate consumers about environmental issues so that the community can make informed decisions about products and services. This can help to grow new markets and enable industry to offer more environmentally positive products. This is illustrated by the growing demand for renewable energy and ethical investments.
- There is also a role for community groups and Non Government Organisations (NGOs) in consumer education.
- Information can be communicated to consumers through:
    - billboards
    - television advertisements

- star ratings for environmental performance
- industry performance indicators and progress reports to consumers
- purchase options which allow consumers to be more environmentally friendly

What sort of capacity building is required for industry?

- The 'big picture' conceptual types of information required by industry are:
  - corporate policies, underpinned by climate science, to guide decision making
  - technology choices – long term vision and technology road map
  - an assessment of economic and market issues
- The functional types of information required are:
  - internal awareness of greenhouse gas emissions
  - baselines
  - forecasts
  - internal opportunities
  - monitoring
  - reporting
  - compliance
- As a general rule, all levels of an organisation require the above information – it is just a matter of level of detail and format in which the information is required. Some information would be of more interest to some sections of a company – for example:
  - policy – board, executive management and shareholders;
  - science – executive management; although greenhouse was viewed as a commercial issue, not one about whether one agrees with the science behind climate change. This is because the Kyoto Protocol has created a momentum for greenhouse management irrespective of whether the Kyoto Protocol will be ratified in its current form;
  - technological – business development; and
  - economic/market issues – board, executive management, engineering and sales.

The forms in which the information could be presented are:

- policy statements;
- board papers;
- external forums;
- Professional associations such as the Institute of Engineers and Institute of Company Directors; and
- Simulations to create awareness and assisting in strategic planning and developing solutions.

The above could be resourced by Commonwealth, State and Territory Governments, industry and professional organisations.

Summary of Brisbane Roundtable

An unexpected outcome from the Roundtable was that capacity building was seen to be needed by consumers as well as industry. It was felt that consumers did not understand the impact greenhouse response would have on companies, the economy and the price of goods and services. Companies felt 'squeezed' by what they saw as conflicting demands of consumers for both competitive cost and environmental responsibility.

Companies saw it as in their interest to have environmentally aware and educated consumers, as this would allow them to develop such products and services without a cost conflict.

So while the Roundtable had the agenda of focusing on industry capacity building needs, the participants immediately broadened the focus. Was this 'passing the buck' or a realistic assessment that industry could not do it all on their own? It is interesting to note that in the subsequent Roundtables, this was a recurring theme. This is a good illustration of how Focus Groups can identify new aspects of an issue that the researcher had not considered.

The identification of a tripartite approach to greenhouse involving Industry, Government and Community was also brought out. Capacity building was seen in the following perspectives:

- education;
- training;
- preparation; and
- risk management.

Participants identified 4 types of information (policy, climate change science, technology trends/ business development and economic / market issues) needed to resource companies internal response to greenhouse issues. Companies needed to be resourced both in terms of the broad conceptual issues and detailed operational information, e.g. baseline estimation.

Adaptation to climate change was a long term concern but one that all of society, including government, business and individuals would have to deal with.

6.2 Sydney, 27 February 2001

"What we'll know in 2050 is how people actually view the higher cost for greenhouse friendly products. What we know now is that 80% of people say greenhouse is an issue but only 5% will actually do anything about it."

"Community education needs to be a collaboration of business and government…..awareness is more than an education issue". It is about designing a policy framework that makes people aware about how this process is going to be addressed."

"A mix of policy approaches will be needed to help lock business in to greenhouse response…. that has to linked in with the green consumer drive - you need both. Certainly in Australia at the moment business is not locked in to doing anything."

Sydney Roundtable

Sponsor: Commonwealth Bank of Australia

Venue: Commonwealth Bank of Australia, Room 1, Level 6, 120 Pitt Street, Sydney

Chair: Simon Mathis, Head of New Products Group; Institutional Banking, Financial Markets, Commonwealth Bank of Australia

Simon Mathis opened the meeting, welcomed the group to the Commonwealth Bank of Australia (CBA) and outlined CBA's interest in the hosting the Industry Roundtable. Carrie Sonneborn gave a brief scene-setting presentation about market-based approaches to greenhouse gas emissions[30] and outlined the brainstorming / backcasting scenario which the group would use as a starting point. (See Section 5.3)

The key issues / main impacts greenhouse issues in Australia in 2050 were considered to be:

- Internalising of Environmental Externalities - Some participants felt that most companies were not yet seriously engaged in the greenhouse issue and that there was a need to move the greenhouse issue from a PR issue to a real issue. Internalising the cost of greenhouse externalities to companies was a key way to do this.
    - Engaging companies would require a mix of government policies including a focus on demand side of fossil fuel use (as well as the supply side), regulation and taxation signals, e.g. UK carbon tax
    - Need to engage the majority of emitters in greenhouse gas reduction by addressing the concerns of fossil fuel companies

[30] See Appendix 2 for Power Point of Carrie Sonneborn's presentation.

- Most companies don't yet see how they can profitably take part in emissions trading, suggesting that both a need for internal capacity building exists as well as a more stable policy environment
- Need to encourage greenhouse costs in forward budget estimates of companies

- Technological change as well as technology transfer to developing countries was seen to be a key feature of addressing climate change.
  - It was pointed out that in order to sustain technological change companies need 'durability of policy setting' from government. It was felt that at present companies were receiving conflicting signals from government on both the need for greenhouse action and the use of market-based approaches.
  - Government can assist innovation by providing leadership and certainty and a policy framework, e.g. NSW Carbon Rights legislation, 2% RE Target

- Internationally - Developing country engagement in greenhouse gas reduction was seen as essential for an effective environmental outcome as well as not unduly disadvantaging Australian industry.
  - Commercializing technologies specifically for the circumstances of developing countries was recognized as a major business opportunity as many of these economies will be the big growth areas for the future, both in terms of energy demand and GDP.

- Domestically - Community engagement was seen as a crucial part of helping companies to act on greenhouse . Some participants felt that there was currently a 'big disconnect' between Business, Government and Community on the greenhouse issue and that the average household was right out of the debate.
  - Significant changes in how we produce and use energy would be needed.
  - Community engagement would include consumers having an awareness of the trade-off between having GHG-friendly products / services, their cost to the consumer and the possible impacts on lifestyle.
  - Green Consumerism was seen as a positive driver engaging both the community and companies in greenhouse action. Programs such as the federal Climate Friendly Product Certification could assist this.
  - Government needs to understand 'Market pull' as well as 'technology push'

The opportunities identified were:

- Australian industry and government are already working on practical and policy issues. It was felt by some that Australia was ahead of competitors such as the USA in this regard and this presented a real opportunity.
- 'First mover advantage' was seen as an opportunity that Australia needed to grasp more proactively in order to position its economy for the future.
- Tech transfer - Technologies for developing countries circumstances are the big growth areas

The threats *identified were:*

- Australia's fossil fuel / resource-based economy may work to discourage a proactive response to greenhouse in terms of new business directions, products and partners. The 'first mover' advantage could be lost.
    - 'Bridging problem' - Companies have invested $billions in current infrastructure and operations.
    - How can companies bridge to new technologies while protecting shareholder value?
    - The current perceived lack of wide engagement in the greenhouse issue by industry and the community was also a threat to grasping early opportunities.
- Sequestration's value in terms of long-term greenhouse response
    - The concern that CO2 can only be sequestered once on any block of land - and then must be maintained in perpetuity was raised.
    - Does CO2 have a lasting value in terms of forest sector? How to address this issue is important as Australia is investing a significant amount of its policy and intentional negotiating position into sequestration options.

The solutions were:

- Durability / mix / and quality of policy and market forces will be needed to sustain technological change and emitters commitment to addressing greenhouse gas reduction.
- The precursors to conservative corporate action would be a regulatory framework to provide consistency in
    - tradable permits
    - carbon tax
    - energy efficiency regulations
    - national registrar and standards for measurement and verification regimes
    - consistency with internal corporate systems
- Changing society with respect to greenhouse gas emissions was seen as something that required involvement of Business, Government and Community.
    - Government to take lead by rolling back contradictory signals.
    - Industry can lead by developing policies and standards and taking part in COP6 - using 'knowledge as a hedge'.
    - Community can take the lead through green consumerism.
- Key is technology uptake in developing countries - we need to encourage investment in rapidly growing economies like India

What sort of capacity building is required for consumers?

- Business and government need to work together to educate community about interconnectedness of lifestyle / greenhouse choices

- Government and industry need to 'sell the message' to the public, e.g. through information and awareness at schools / education level

What sort of capacity building is required for industry?

- Developing policies and standards to feed into the national / international debate
    - Taking part in COP6 so that it can use 'knowledge as a hedge' in protecting bottom line.
- Development of standard procedures for internal measurement and verification of greenhouse gases
    - Seek government assurance that internal measurement / verification regimes are consistent with national / international procedures
- Accounting practices that enabled greenhouse costs estimates to be routinely included in forward budget of companies
- Understanding of tradable permits and domestic / international carbon trading
- Information on energy efficiency regulations and related greenhouse benefits

Summary of Sydney Roundtable

'Durability' of Government and Consumer commitment to greenhouse -friendly products and services were sited as key issues which would allow companies to move ahead in their greenhouse response. The durability, mix and quality of government policy and market forces seen as essential in driving a sustained shift in greenhouse -related technology and in securing emitters commitment to addressing greenhouse gas reduction. The politics of CO2 was predicted to drive technological change as increased recognition of environmental values would promote the increased regulation of environmental impact of products and services. It was predicted that by 2050, the 'natural infrastructure sector' (e.g. water, atmosphere, CO2, biodiversity, salinity) will have an accepted economic value and the norm will be to internalise environmental externalities in all products and services.

Participants' felt that there were currently conflicting signals from government on the need for industry greenhouse action and use of market-based approaches. Government needs to move the greenhouse issue from a PR issue to a real issue by providing a mix of policy including taxation signals, e.g. UK carbon tax and legislation, e.g. NSW Carbon Rights legislation, 2% RE Target

Depletion of oil will raise concerns about energy security and could be a driver for energy management, renewable energy and a 'hydrogen economy'. While such a transition could initially drive up the costs of some products and services it was equally proposed that greenhouse response could lower costs for environmental products and services as these simply become the norm, not a 'boutique' item.

As well as introducing environmental regulation, government needs to understand 'market pull' as well as 'technology push' and encourage Green Consumerism via community education about greenhouse issues. Some participants perceived that the average householder was 'right out of the debate' and that the community sector is lagging behind government and industry with respect to greenhouse response. While increased community awareness could help drive greenhouse gas response and technological change, Green Consumerism was still seen to sit within 'matrix of government and business action'.

The ability / willingness of developing countries to respond to greenhouse gas reduction - as well as the willingness of developed countries to assist developing

countries in greenhouse gas reduction via technology transfer - will drive the international economics and politics of greenhouse gas reduction. This will present both opportunities and threats to the Australian economy.

6.3 Canberra, 19 March 2001

> ***"Until we have some quantifiable estimates of the dollar cost and the environmental cost of human impacts on the climate, we will not be able to develop a framework for action. These dollar costs must be distilled down to a regional, local and sectoral level in order to be translated into actions and responses. This framework must be developed jointly by industry and government."***
>
> *Canberra Roundtable*

Sponsor: ACTEW / AGL

Venue: Main Board Room, ACTEW / AGL Building, Alinga Street, Canberra

Chair: Dr.Tony Beck, Tony Beck Consulting Services Pty Ltd

Tony Beck of Tony Beck Consulting welcomed the group to ACTEW / AGL and outlined ACTEW / AGL's interest in the hosting the Industry Roundtable. Carrie Sonneborn gave a brief scene-setting presentation about market-based approaches to greenhouse gas emissions [31] and outlined the brainstorming / backcasting scenario which the group would use as a starting point.

The key issues / main impacts on Australia of greenhouse in 2050 were considered to be:

- Greenhouse was seen as one of a suite of environmental problems. Therefore, multiple environmental outcomes from actions was desired. This requires a comprehensive policy approach by government.
- Leadership is needed not only from government but from:
  - Popular cultural icons
  - Institutions – e.g. Academy of Science, Institute of Engineers, Royal institute of Architects.
  - Small business and Community - Need to engage small business & community in understanding of lifestyle changes needed
- The involvement of developing countries in greenhouse gas abatement was seen as essential for an effective global response to slowing climate change. Otherwise, measures taken by developed nations like Australia would be ineffective in terms of the environmental benefits and detrimental to their domestic economy.

[31] See Appendix 2 for Power Point of Carrie Sonneborn's presentation.

- The importance of shifting the 'corporate culture' and having 'champions' within the organisation to promote industry greenhouse response was recognised.
- Essential to be able to quantify dollar cost to society of greenhouse response and greenhouse science into impacts at the local economy/environment level. This sort of information is vital for action.
    - A methodology / framework to evaluate the dollar costs to society of externalities created by human impacts must be developed.
- Adaptation focus - Given that some climate change is inevitable there needs to be a shift in government spending to include adaptation measures not just mitigation of greenhouse gases.
    - Focus on business opportunities for abatement/adaptation

The opportunities identified were:

- It was observed that large emitters often view responding to climate change as a threat. However, if competitors have to reduce emissions as well, there can be 'opportunity in crisis' for the company that can respond quickly with smarter, cutting edge technology.
- 'No-regrets' measures such as energy efficiency could lead to cost reductions.
    - No-regrets opportunities exist but are not being using - why? This needs to be investigated and remedied.
    - Start with less risky actions cost savings actions first. Once these are succesful companies may be more open to more major changes with regards to greenhouse gas reduction.
- There is 'huge opportunity' for collaboration in market creation between government and Australian industry with respect to clean energy technologies such as renewable energy, hydrogen, and fuel cells.
    - Australia has cutting edge technology, a good R&D base and climatic zones favourable to the deployment of renewable energy solutions such as solar.
    - This opportunity could be supported by more positive government programs such as the Greenhouse Challenge and would lead to opening up new markets for Australian business.

The threats identified were:

- 'Leakage' - A global issue such as greenhouse needs a global approach. Any action taken in Australia may not mitigate global emissions if industry/emissions move offshore to countries that do not have greenhouse gas reduction commitments.
- Lack of certainty about what is going to happen at the international level continues to hold up business investment in new greenhouse technology. This could affect Australia's international competitiveness.
- Lack of stable domestic government policy and investment strategy in greenhouse solutions is a disincentive to attracting private R&D funding and investment in environmental technologies.

- Effect on small business - With the focus usually falling on large companies and big industrial emitters, the impact of greenhouse response measures on small business is often forgotten.
    - More information is needed on how smaller firms will be affected.
    - More resources needed to assist smaller companies to respond.

The solutions were:

- There is a need to engage not only industry but government, small business, and consumers to act with regards to greenhouse gas reduction
    - Engagement should focus on activities that have multiple environmental benefits, including climate change benefits. For example, there could be synergies between public health benefits, salinity, biodiversity, land rehabilitation and climate change response.
    - Need to identify the dollar benefit of greenhouse response to other areas affected by greenhouse
- There is a need to provide local information about greenhouse impacts as many problems will be addressed at the local level, at least in part
- Australian businesses need and want stable domestic policy framework (including the application of the Kyoto Mechanisms) to work within. Foremost, they need to know that action will indeed be required and that markets for sustainable technology will expand.
- Tax breaks and reinvestment of tax breaks in building greenhouse gas technology industry (like Silicon Valley) fast track industry development
- Integrating greenhouse solutions with mainstream technology.
- Energy efficiency is a no-regrets solution that is often overlooked, particularly by smaller firms. Energy is often a very small part of companies expenses so energy efficiency gets overlooked. Smaller firms in particular do not have the time / resources to address energy efficiency and may lack cash flow to cover up-front costs of energy efficiency investments, even if quite small. This needs to be remedied.
    - Assistance in the form of low-cost loans and assistance for smaller firms to invest in energy efficiency

What sort of capacity building is required for consumers?

- Climate change information needs to be translated into regional and local level impacts, risks and costs. Localised information is the most meaningful for people and local government and will allow them to make decisions and take action.
    - Providing this sort of information was seen to be a role of government, not industry.
- Information about the environmental impact of consumption decisions in an easily understood and accessible way.
- Information about consumer's role in helping to reduce greenhouse emissions.

- Information about the costs/impacts of climate change response, especially on consumer items and at the regional and local level.
- Engage small businesses and consumers/citizens to act on climate change through focus on the multiple environmental outcomes of climate change action, e.g. illustrate synergies between public health and climate change response.

What sort of capacity building is required for industry?

- It was acknowledged that companies need to "walk the talk" in order to earn public credibility with regards to greenhouse. Investor ethics could increasingly be a big driver for improved environmental performance.
    - One way to do this is to institute triple bottom line reporting - social, environmental, economic annual reports which include greenhouse gas accounts.
    - Therefore, companies need to be able to quantify the impacts of greenhouse response. This will require the development of procedures for
        - Cost/benefit analysis of greenhouse response translated into regional/company level
        - Determining company abatement cost curve
- Internally, there is a need to create environmental awareness across the spectrum from the CEO / Board level on down and not limit this awareness to within the environment department. CEOs could focus on:
    - Developing a company vision/strategy of reducing greenhouse gas emissions and capturing opportunities. For example, shift from 'petroleum provider' to 'energy provider'.
    - Developing a company Communication Strategy on greenhouse that takes into account the community, investors, employees, users/customers
    - Developing a framework to cost greenhouse externalities for their operations.
    - Ways to benefit from climate response, e.g. improving profitability via energy efficiency and long-term opportunities of new products and services based on greenhouse -friendly technology

- Other staff could be engaged at a more fundamental level. For example,
    - Incorporate a duty of care statement about greenhouse into employment contracts.
    - Differentiate between environmentally sound goods and services in the purchasing policy of the company by including environmental/ greenhouse criteria.
    - Develop guidelines for social/environmental reporting.
    - Identify and foster greenhouse champions within the organisation and give them a reporting and suggestions role with regard to internal greenhouse performance.
    - Identify emissions sources in the organisation and put in place standard procedures to track these.

- Gain experience with simple, 'no regrets', low risk projects

What sort of capacity building is required for / by government?

- Government needs to develop a comprehensive domestic policy approach to greenhouse issues that addresses:
  - Multiple environmental impacts of human actions, of which greenhouse is one.
  - A framework for evaluating the cost of human impacts on the environment.
  - Positive/practical programs with multiple environmental benefits.
- Involve developing countries via increased Government support for CDM and other greenhouse opportunities
  - Policy framework needed for CDM
  - Understanding CDM/UNFCCC opportunity/status of policy
  - More govt. support/capacity building for CDM activities
- Government could provide staff resources to assist small businesses in developing a response, and fast track new industries, for example as was done in Silicon Valley.

The forms in which the information could be presented are:

- Financial investors/analysts can play a pivotal role in engaging & educating about sunset/sunrise investment opportunities.
- The insurance industry has an important role as it could disseminate information about the costs of not taking action and put this information into a local context for industry and consumers.
- Standards Australia could update various product protocols to include greenhouse gas factors

Summary of Canberra Roundtable

A clear message from the Canberra Round Table was that greenhouse is one of a suite of environmental problems Australia faces and that a comprehensive policy approach that addresses the multiple environmental impacts of human actions is desirable and would be most effective. Within this context, government needs to develop a framework for evaluating the cost of human impacts.

Forum participants were definite that climate change information needs to be translated into regional and local level impacts, risks and costs; something people can relate to and respond to. Localised information is the most meaningful for people. This needs to be led by government; it is not a role of industry.

However, the insurance industry could help aid the dissemination of information about the costs of not taking action. The next vital step is to engage not only industry, but small businesses and consumers/citizens. Engagement should focus on the multiple environmental outcomes of climate change action and the synergies between public health and climate change response.

Participants discussed actions that needed to be taken to move Australia forward in terms of response, identifying three key sectors of government, business and consumers.

Government needs to provide a stable policy framework and positive/practical programs. Australian businesses need and want:

- policy certainty; i.e. to know that action will be required.
- a framework to work within, including the application of the market -based approaches such as the Kyoto Mechanisms.
- to know that markets for sustainable technology will expand.
- a level playing field

In terms of programs/action government could:

- provide greater support and capacity building for CDM and other greenhouse opportunities.
- provide staff resources to assist small businesses in developing a response
- fast track new industries (as done in Silicon Valley).

Within companies, there is he need to first create environmental awareness across the spectrum from the CEO down and not limit to within the environment department. CEOs need to be engaged in order to broaden the view of what a company's role is, e.g. from petroleum provider to energy provider, and to engage staff at a fundamental level, e.g. purchasing policy to include environmental/ greenhouse criteria. Companies need to put in place procedures to quantify internal emissions sources so they have the baseline information needed to track emission reductions. Only then can they begin to implement simple, 'no regrets' and less risky projects.

Consumers need to understand the environmental impact of their consumption decisions and to identify their role in helping to reduce greenhouse emissions. This combined with an understanding of the costs/impacts of climate change, especially at the regional and local level, should provide the necessary incentive for consumers to begin to incorporate environmental concern in their consumer choices.

6.4 Melbourne, 2 April 2001

"Climate change science is irrelevant – it's a trade war."

"It was encouraging to see that there are people from a wide range of areas starting to think about how greenhouse issues can and should be addressed. But sad to realise that the ideas put forward on greenhouse management were essentially all recycled ideas - or possibly generated independently in parallel - but not breaking new ground."

Melbourne Roundtable

SPONSOR: BHP

VENUE: BHP Building, 50th Floor, 600 Bourke Street, Melbourne

CHAIR: Mike Waller, Chief Economist, BHP

Mike Waller opened the meeting and welcomed the group to BHP. He outlined BHP's interest in hosting the Industry Roundtable. Carrie Sonneborn gave a brief scene-setting presentation about market-based approaches to greenhouse gas emissions [32] and outlined the brainstorming / backcasting scenario which the group would use as a starting point. She introduced the focus of discussion as exploring the capacity building ('information, education & training) needs of industry with respect to market-based approaches to greenhouse. In particular what would be needed for industry to proactively utilise these approaches.

On this particular day, the Melbourne newspaper, *The Age*, had the following headline, making the focus of the Roundtable particularly topical. It was the view of the group that despite US President George W Bush's and John Howard's comments regarding the Kyoto Protocol, that this was not the end of the Protocol but the opening of a further chapter.

[32] See Appendix 2 for Power Point of Carrie Sonneborn's presentation.

The key issues / main impacts on Australia *of greenhouse in 2050 were considered to be:*

- Market - based Approach to CO2 / greenhouse gas management - It was envisioned that by 2050 there will be the need to purchase and hold CO2 emission permits. Thus, greenhouse gas emissions will have been fully commoditised and an efficient market will have developed, though over a longer timeframe than is currently being proposed.
- The internalisation of environmental costs related to CO2 will be a routine part of business.
- Accounting standard for carbon is a precursor to the commoditisation of carbon, internalisation of carbon costs by industry and the development of an efficient market. Industry, banks and insurers all require this so sorting this out is a key priority.
- Insurance Industry will play a bigger role in driving cleaner industries.
- Rather than a multilateral Protocol, there may be a series of bipartisan agreements between nations committed to cutting greenhouse gases.
- Climate change science will have been accepted. The science behind the carbon cycle will be understood.
- Adaptation to the inevitable effects of climate change will require additional strategies and investment. May result in:
    - a worldwide decline in the standard of living
    - greater polarisation between the rich and poor countries.

Members of the Round table then broke up into small groups to discuss the issues raised in the brainstorming session. The responses from those issues were as follows:

The opportunities *identified were:*

- CDM opportunities, including technology transfer, will be an inherent part of doing business in the future.
- Push to clean energy / non-fossil energy technologies will continue. There will be parrallel opportunities in distributed generation and self-generated power. As demand for these technologies increases there will be a drop in prices and opening up new markets .
- Investment in fuel cell technology was also seen as a growth area that Australian companies could become market leaders in.
- There is an opportunity insurance and technology agencies to invest in development of clean energy products.

The threats *identified were:*

- There is a danger of trying to address greenhouse in isolation from other environmental and social problems. An integrated approach that provides benefits on multiple issues should be given consideration.

- Decisions with regards to greenhouse response should not be made on the basis of politics but on the established science.
- There are only so much additional costs of meeting greenhouse requirements that can be passed on to the customer. How will emitters respond? Will work go off shore?
- A worldwide decline in living standards as a result of a variety of environmental pressures was predicted. In response to this, armed conflict could increase.

The solutions were:

- Insurance/Finance industry will be a driving force. However, an international standard for carbon accounting is crucial as industry, banks and insurers need this to value a commodity.
    - Industry / government need to promote one Australian greenhouse accounting system. How to limit it to one? e.g. via Standards Australia; working with Australian greenhouse Office.
- Clean air requirements are needed as a driver for industry investment and development of clean energy technologies.
- Industry needs to drive investment in clean technology and "Walk the Talk" on greenhouse best practice. Companies can redefine themselves while diversifying into greenhouse -friendly products and services. For example, electricity generators could:
    - redefine themselves as having a commitment to renewable energy;
    - limit direct investment in coal;
    - replace traditional energy sources with renewable energy;
    - purchase renewable energy credits / services; and
    - do their own research and development into greenhouse friendly generation opportunities.
- Efficient energy markets are needed that account for environmental impacts of energy and the locational benefits of distributed supply.
- A popular international youth movement is needed to raise awareness of greenhouse issues amongst consumers.

What sort of capacity building is required for consumers?

- Climate Change Science must be put into the public domain in an immediate, accessible way,
    - e.g. an inexpensive measure would be to install meters inside customers' homes which give information about greenhouse gas emissions associated with their energy consumption.

What sort of capacity building is required for industry?

- Assistance with accounting of greenhouse gas emissions, particularly access and instruction in the approaches most likely to become the international accounting standard is needed.
- Developing a methodology for predicting how climate change will impact upon a company in terms of direct cost and changes needed to operations. Being able to estimate the cost of internalisation of greenhouse gas reduction is crucial.
- Assessment of dollar benefits of greenhouse response as well as the potential risks to business.
- Gain experience in CDM type transfers by doing pilot projects. Companies need greater assistance and encouragement in this regard, e.g. expansion of the federal International greenhouse Partnerships Program.
- Start to develop experience in the commoditised greenhouse gas Market:
    - Develop experience in internal carbon accounting and cost estimation.
    - Develop local carbon trading markets and pilot schemes.

The forms in which the information could be presented are:

- Workshops on calculating emissions.
- Networking between companies on a regular basis so that experience and information can be shared and to prevent recreating the wheel and promote standardisation.
- A workshop to develop a dialogue on:
    - promoting a single greenhouse accounting system for Australian industry.
    - usefulness of existing systems.
    - consensus on what needs to be done
- Provide regular 'watching brief' newsletter on what is happening within industry, both in Australia and overseas.
- Sectoral workshops on calculating the greenhouse costs to its particular industry, e.g. power industry

The above points were suggestions for future activities by EcoCarbon and industry partners.

Summary of Melbourne Roundtable

Interest was added to the Melbourne Roundtable as on the day it was held US President George Bush made front-page headlines around the world as he withdrew that county's support for the Kyoto Protocol. It was the view of the group that despite Bush's stance and John Howard's support for it, that this was not the end of greenhouse response but the opening of a further chapter. Perhaps as a result of this, Melbourne participants gave comparatively limited attention to the need for consumer education and focused primarily on industry actions with respect to capacity building and greenhouse gas reduction.

Participants saw a market - based approach to CO2 / greenhouse gas management being established in the future but over a longer timeframe than is currently being proposed. Accounting standards for carbon were seen as a crucial precursor to the commoditisation of carbon, internalisation of carbon costs by industry and the development of an efficient market. Industry / government need to promote one Australian greenhouse accounting system, perhaps via collaboraiton between Standards Australia and the Australian greenhouse Office.

Opportunity existed for Australian companies to become market leaders in clean energy, non-fossil energy technologies, distributed generation, self-generated power and fuel cell technology. As demand for these technologies increases there will be a drop in prices and opening up new markets.

Participants sited that priority should be given to an integrated approach to greenhouse that provides benefits on multiple issues affecting the environment and society, e.g. salinity and job creation.

While clean air regulations can be a driver for industry investment and development of clean energy technologies industry also needs to "Walk the Talk" on greenhouse best practice. Companies can redefine themselves while diversifying into greenhouse -friendly products and services. Efficient energy markets that account for environmental impacts of energy and the locational benefits of distributed supply are also needed.

The capacity building activities required by industry included:

- Developing a methodology for predicting how climate change will impact upon a company in terms of direct cost and changes needed to operations
- Assessment of dollar benefits of greenhouse response (as well as the potential risks) to business.
- Experience in CDM type transfers via pilot projects.
- Experience in the commoditised greenhouse gas Market through local carbon trading markets and pilot schemes.
- Provide regular 'watching brief' newsletter on what is happening within industry, both in Australia and overseas.
- Sectoral workshops on calculating greenhouse gas emissions and costs for companies in a particular industry, e.g. power industry

The above points were suggestions for future activities by EcoCarbon and industry partners.

6.5 Perth, 10 April 2001

"One of the most useful aspects of the Roundtable was the opportunity to meet like-minded business people who are 'at the coal face' and who recognise the issues and opportunities inherent in addressing greenhouse."

"It was refreshing to hear the wide range of ideas put forward and understanding that we are all 'in the same boat' with respect to the uncertainty surrounding greenhouse gas initiatives internationally."

Perth Roundtable

Sponsor: Dadco Australia Ltd.

Venue: 'Altitude 9', 18 The Esplanade, Perth, Western Australia

Chair: David Dabney, CEO, Dadco Australia / President, EcoCarbon Inc.

David Dabney opened the meeting, welcomed the group and outlined Dadco's interest in the hosting the Industry Roundtable. Carrie Sonneborn gave a brief scene-setting presentation about market-based approaches to greenhouse gas emissions [33] and outlined the brainstorming / backcasting scenario which the group would use as a starting point.

The key issues / main impacts on Australia of greenhouse in 2050 were considered to be:

- Community involvement in greenhouse issues is limited to a small minority. There is a need to engage the wider community via awareness and education. This could be aimed at encouraging the consumer to share the costs of greenhouse response via Green Consumerism and to influence government.
- Need for development of greenhouse -friendly technologies
- Need to be able to quantify the problem and to measure the effectiveness of actions taken.
- Greenhouse is a global problem. There is a problem with leaving developing countries out of the process. If some companies in some countries only take action, it will be ineffective in reducing greenhouse and detrimental to Australian economy.
- Greenhouse is only one environmental Issue. Greenhouse gas reduction needs to be put into perspective with other environmental / social issues and multiple benefits from greenhouse gas response sought.
    - At a company level: need to identify greenhouse investments with multiple environmental benefits; e.g. investigate all levels of land management in any new initiatives; renewable energy sources such as large-scale plantations.

[33] See Appendix 2 for Power Point of Carrie Sonneborn's presentation.

- Greenhouse can only be solved by collaboration between community, government and industry. All must take responsibility and action.
- Adaptation Process. As some climate change seems inevitable, strategies need to be developed/implemented to cope with increased greenhouse gases in atmosphere.

The opportunities identified were:

- greenhouse is an opportunity to create a 'green' corporate image via:
  - Setting corporate greenhouse gas reduction targets and demonstrating meeting these targets to the public.
  - Propaganda/exaggeration. (Not a long term solution!)
  - Establishing a culture of ongoing improvement in corporate greenhouse performance:
    - This will encourage ongoing identification and analysis of technological options and opportunities, e.g. funding incentives
    - Responding openly to identified drivers, e.g. regulation; consumer demand for disclosure of corporate greenhouse performance; developing greenhouse -friendly products and services; consumer education and community engagement.
- Identifying and taking up in-house opportunities to save greenhouse gases, e.g.
  - Co-generation opportunities
  - Waste heat utilization.
  - Energy efficiency

In this context, there exists the opportunity to explore how internal energy savings may create tradable greenhouse credits and how the issues of additionality and demonstration of savings could be handled.

- The growing need for companies to monitor greenhouse gases will create new opportunities in the verification/measurement industry.

The threats identified were:

- Uncertainty regarding government policy direction on expectations of industry with respect to greenhouse gas reduction.
  - Difficult to even develop basic definitions for the fundamental products i.e. what is a carbon credit?
  - The ability of industry to influence government is limited, more effective ways must be found.
  - Need to answer the question “what’s in it for me?” The answer is not necessarily financial, but there must be some identifiable value.
  - Fundamental requirement of government policy is that it provides incentives for continued technological development.
  - Currently gap between strategic solutions and political solutions.
- Deal with community outrage as a result of climatic change: media and positioning.

The solutions were:

- Technological Innovation. Addressing greenhouse will require substantial technological innovation, which could drive corporate direction.
    - Diversifying business while the changes required by greenhouse gas reduction are just beginning to happen is the key to corporate survival.
    - Invest in continuous improvement in greenhouse performance of existing operations as well as exploring ways to diversify into greenhouse-friendly products and services.
- Assist industry in demonstrating its ability to meet response targets by developing quantifiable standard methods of measuring greenhouse gas emissions and assessing the effectiveness of their performance in terms of reducing emissions.
    - This calls for increased investment in measurement technology and procedures.
- Certainty of Government Policy. Industry needs firm government policy/signals to let them know that investment in greenhouse gas reduction is worthwhile. Industry can become more proactive in development of government greenhouse policies.
    - Pay lobbyist to obtain government funds/support for policies such as 'Credit for Early Action'. Industry needs assurance from government that 'early movers' will not be disadvantaged in terms of recognition of greenhouse gas reductions.
- Self-regulation as a Goal for Industry. Under a market-based system, a free market could provide controls such that minimal regulation would be required. While self-regulation was seen as the ultimate goal, participants recognised that a legal / policy framework was required to drive the process. Therefore, Companies need to contribute to the regulation process.
- Educate consumers so they are willing to pay the extra cost of greenhouse friendly products and services, e.g. Green Consumerism
    - Encourage regulatory response to ensure consumer pays i.e. emission control in cars.
- Management Vision - Board, CEO and upper management-level vision and leadership were seen as vital for effective corporate response to greenhouse. Only these parts of an organisation can give recognition of global warming as a corporate issue approving the associated budget costs and by instituting such measures as:
    - A corporate greenhouse gas strategy.
    - Greenhouse training throughout organisation.
    - Accountability of each division for their own greenhouse gases
- Investing in non-complying countries was suggested as an option that some companies might be forced to consider for survival, though not seriously proposed as a 'solution'.

What sort of capacity building is required for consumers?

- Community education needs to be over the long-term and aim to:

- Increase ability of community to influence government policy.
- Raise the level of knowledge to the point that the community can recognise changes in industry direction/response.
- Increase community understanding of the issues, for example choice between glass and aluminum covers a range of environmental issues of which most consumers are unaware.
- Develop ownership of the climate change issue by the wider community.

What sort of capacity building is required for industry?

- Auditing protocols must be developed and clearly understood by everyone in the organisation. Companies need the ability to:
  - Do baseline measurement and ongoing monitoring of the quantity of all greenhouse gases produced not just carbon dioxide.
  - Quantify and assess (in terms of both dollars and CO2) the effectiveness of corporate emission reduction activities.
- Companies need to understand the use of market-based mechanisms such as emissions trading. Due to the uncertain state of international negotiations basic questions remain unanswered for many companies, such as:
  - What is the product that is being sold when doing emissions trading?
  - What constitutes a carbon credit and what measurement is used?
- To manage the risks associated with climate change, companies need to have broad understanding of the entire greenhouse issue including policy developments, environmental impacts and climate change science.

The forms in which the information could be presented included:

- Reports providing information and analysis of trends in greenhouse policy, both nationally and internationally.
- Providing networking opportunities for companies to explore joint ventures using market-based approaches, e.g. Joint Implementation, Clean Development Mechanism projects
- School Education - Provide fact sheets for use in primary schools with the aim of encouraging education authorities to incorporate greenhouse / climate change modules into school curriculums.
- Workshops on corporate carbon accounting basics including design of internal carbon accounting system.
- Provide learning experiences in carbon markets, e.g. domestic carbon trading simulation.

The above points were suggestions for future activities by EcoCarbon and industry partners.

Summary of Perth Roundtable

A number of key issues kept reoccurring at the Perth Roundtable. The first was the need to engage the community, as well as government and industry, as a precursor to effective greenhouse response. Educating the community was seen as a way to share responsibility, to encourage the consumer to share the costs and to influence government.

Greenhouse was seen as only one environmental Issue which needs to be addressed alongside other environmental / social issues. At a company level there is the need to identify greenhouse investments with multiple environmental benefits; e.g. investigate all levels of land management in any new initiatives; renewable energy sources such as large-scale plantations.

The need for development and commercialisation of greenhouse-gas reduction technologies as well as technologies for adaptation to climate change was given importance. Incentives for technological development were seen as a fundamental requirement of industry capacity building.

Being able to quantify the problem and to measure the effectiveness of actions taken was another main theme. Participants wanted standard methods for measuring the problem and of assessing the effectiveness of their performance in terms of reducing emissions. This would assist industry to demonstrate its ability to meet response targets.

Greenhouse response held opportunity for companies, including the chance to create a 'green' corporate image via establishing a culture of ongoing improvement in in-house greenhouse performance. These efforts could lead to diversifying into greenhouse-friendly products and services. The growing need for companies to monitor greenhouse gases will also create new opportunities in the verification/measurement industry.

Board, CEO and upper management-level vision and leadership were seen as vital for effective corporate response to greenhouse. Only these parts of an organisation could institute and drive the adoption of a corporate greenhouse gas strategy, greenhouse training at all levels of the organisation, company accountability via holding divisions accountable for their own greenhouse gases and finally, taking on the costs associated.

Specific capacity building needs of companies cited included the ability to:

- do baseline measurement
- carry out ongoing monitoring of greenhouse gases
- assess the effectiveness of emission reduction activities
- understand the entire greenhouse issue including policy developments, market-based mechanisms, environmental impacts, and climate change science.

Finally participants saw a need for industry to become more proactive in assisting government to develop greenhouse policies. Government policy was seen to be dictated by politics rather than long term strategies. Industry should be influencing government and developing models to assist government policy development. While self-regulation was seen as the ultimate goal, participants recognised that a legal framework, with certain rules was required to drive the process.

7.0 SUMMARY OF ALL FIVE ROUNDTABLES

The brainstorming / backcasting / focus group approach used in the five EcoCarbon Industry Roundtables captured a plethora of industry views about what is needed to assist industry to move forward on greenhouse, that is, on what the capacity building needs of industry are with respect to greenhouse gas abatement.

Participants recognised the complexity of the greenhouse issue and how a 'whole of society' approach was needed. This led to discussion of topics that had not been considered in the original brief, such as the need to engage and resource consumers and the wider community in greenhouse gas reduction efforts. This ability of focus group methodology to uncover unanticipated areas of investigation is one of the strengths of this approach.

Amidst the wealth of ideas, however, several common threads were evident:

7.1 Role of government

The role of government in setting a stable policy framework for industry was an oft-mentioned theme. The durability, mix and quality of government policy and market forces was seen as essential in driving a sustained shift in greenhouse -related technology and in securing emitters commitment to addressing greenhouse gas reduction.

Participants felt that there were currently conflicting signals from government on the need for industry greenhouse action and use of market-based approaches. Government needs to move the greenhouse issue from a PR issue to a real issue by providing a mix of policy including

- taxation, e.g. UK carbon tax
- legislation, e.g. NSW Carbon Rights legislation, 2% RE Target.
- programs, e.g. greater support and capacity building for CDM and other greenhouse opportunities; staff resources to assist small businesses in developing their greenhouse response; incentives to fast track new industries (such as in Silicon Valley)

It was also seen as a government role to provide information to the community about greenhouse. This included information about the possible impacts on lifestyle and the price of certain goods that addressing greenhouse could precipitate.

7.2 Role of Community

As well as introducing environmental regulation, government needs to understand 'market pull' as well as 'technology push' and encourage Green Consumerism via community education about greenhouse issues. Wide community engagement and education about greenhouse was seen as being in the interest of companies. This would enable companies to develop greenhouse-friendly products and services with some assurance that these would be taken up by the community despite some possible increase in price. It was perceived that consumers didn't understand the possible lifestyle trade-offs and price increase implications of greenhouse response by companies and government.

The role of the community was to pressure both government and industry about the sort of environmental measures that it expects government to institute and the sort of environmental products, services and performance that it is willing to accept from industry.

7.3 Role of Industry

Opportunities

Opportunity exists for Australian companies to become market leaders in clean energy, non-fossil fuel energy technologies, distributed generation, self-generated power and fuel cell technology. As demand for these technologies increases there could be a drop in prices and opening up of new markets.

Greenhouse response also provides the chance to create a 'green' corporate image via establishing a culture of ongoing improvement in in-house greenhouse performance. The growing need for companies to monitor greenhouse gases will also create new opportunities in the verification/measurement industry.

Finally participants saw a need for industry to become more proactive in assisting government to develop greenhouse policies. While self-regulation was seen as the ultimate goal, participants recognised that a legal framework with certain rules was required to drive the process. Industry should be influencing government and developing models to assist government policy development.

Multiple benefits from greenhouse response

A clear message from the Roundtables was that greenhouse is one of a suite of environmental problems that Australia faces and that a comprehensive policy approach that addresses multiple environmental impacts of human actions is desirable and would be most effective.

Greenhouse was seen as only one environmental issue which needs to be addressed in parallel with other environmental / social issues. At a company level there is the need to identify greenhouse investments with multiple environmental benefits; e.g. investigate all levels of land management in any new initiatives; renewable energy sources such as large-scale plantations.

Need for local data

Forum participants were definite that climate change information needs to be translated into regional and local level impacts, risks and costs. Localised information is the most meaningful and is something that community and corporate decision-makers can relate and respond to. However, this needs to be led by government rather than industry.

Need for quantification to implement market-based approaches

Being able to quantify the problem and to measure the effectiveness of actions taken was another main theme. Participants wanted standard methods for measuring and assessing the effectiveness of their performance in terms of reducing emissions. This would assist industry to demonstrate its ability to meet response targets.

Participants saw a market - based approach to CO2 / greenhouse gas management being established in the future but over a longer timeframe than is currently being proposed in some countries, such as the European Union which is moving rapidly to

institute domestic emissions trading in the next couple of years. Accounting standards for carbon were seen as a crucial precursor to the commoditisation of carbon, internalisation of carbon costs by industry and the development of an efficient market. Industry / government need to promote one Australian greenhouse accounting system, perhaps via collaboration between Standards Australia and the Australian Greenhouse Office.

Internal capacity building

Participants identified 4 types of information (policy, climate change science, technology trends/ business development and economic / market issues) needed to resource companies internal response to greenhouse issues. Companies needed to be resourced both in terms of the broad conceptual issues and detailed operational information, e.g. baseline estimation.

The capacity building activities required by industry included:

- Reports providing information and analysis of trends in greenhouse policy, both nationally and internationally.
- Provision of networking opportunities for companies to explore joint ventures using market-based approaches, e.g. Joint Implementation, Clean Development Mechanism projects
- Workshops on corporate carbon accounting basics including design of internal carbon accounting system.
- Provide learning experiences in carbon markets, e.g. domestic carbon trading simulation.
- Developing a methodology for predicting how climate change will impact upon a company in terms of direct cost and changes needed to operations
- Assessment of dollar benefits of greenhouse response (as well as the potential risks) to business.
- Experience in CDM type transfers via pilot projects.
- Experience in the commoditised greenhouse gas market through local carbon trading markets and pilot schemes.
- Provide regular 'watching brief' newsletter on what is happening within industry, both in Australia and overseas.
- Sectoral workshops on calculating greenhouse gas emissions and costs for companies in a particular industry, e.g. power industry
- School Education - Companies could provide fact sheets for use in primary schools with the aim of encouraging education authorities to incorporate greenhouse / climate change modules into school curriculums. As well as assisting local education, this would help build a company's community profile

Management Vision

Board, CEO and upper management-level vision and leadership were seen as vital for effective corporate response to greenhouse. Only these parts of an organisation could drive the adoption of a corporate greenhouse gas strategy, institute greenhouse training at all levels of the organisation, hold divisions accountable for their own greenhouse gases and ultimately approve the associated budget costs.

CEOs could be engaged through a focus on the:

- benefits of climate response
- ways to improve profitability
- opportunities including energy efficiency, 'no-regrets' measures and export of clean technology.

Staff can be engaged in greenhouse response via

- putting a duty of care statement into employment contracts
- instituting a purchasing policy to include greenhouse criteria
- involving them in identifying emissions sources and solutions and developing the procedures to track these.

Specific capacity building needs of companies included the ability to:

- do baseline measurement
- carry out ongoing monitoring of greenhouse gases
- assess the effectiveness of emission reduction activities
- understand the entire greenhouse issue including policy developments, market-based mechanisms, environmental impacts, and climate change science.

Insights from each Roundtable

Although there were similarities and common themes between the outcomes of the five Roundtables, particular insights from each can be identified.

An unexpected outcome from the Brisbane Roundtable was that the need for capacity building by consumers and government as well as industry was cited. So while the Roundtable had the agenda of focusing on industry capacity building needs, the participants immediately broadened the focus. It is interesting to note that in the subsequent Roundtables, this theme recurred. Thus, this early identification of a 'whole of society' approach involving Industry, Government and Community in greenhouse response became a key outcome of the Roundtable process.

Perhaps because of those cities proximity to the federal government and the mix of attendees, the Sydney and Canberra Roundtables had a greater focus on the durability, mix and quality of government policy and market forces. These were seen as essential in driving a sustained shift in greenhouse -related technology and in securing emitters commitment to addressing greenhouse gas reduction. Participants' felt that there were currently conflicting signals from government on the need for industry greenhouse action and use of market-based approaches. While increased community awareness could help drive greenhouse gas response and technological change, Green Consumerism was still seen to sit within 'matrix of government and business action'.

Canberra participants were definite that climate change information needs to be translated into regional and local level impacts, risks and costs; something local people and decision-makers can relate and respond to. Localised information is the most meaningful for people. This needs to be led by government; it is not a role of industry.

A clear message from both the Canberra and Melbourne Round Tables was that greenhouse is one of a suite of environmental problems Australia faces and that a

comprehensive approach that addresses the multiple environmental impacts of human actions is desirable and would be most effective.

Interest was added to the Melbourne Roundtable as on the day it was held US President George Bush made front-page headlines around the world as he withdrew that county's support for the Kyoto Protocol. It was the view of the group that despite Bush's stance and John Howard's support for it, that this was not the end of greenhouse response but the opening of a further chapter. Perhaps as a result of this, Melbourne participants gave comparatively limited attention to the need for consumer education and focused primarily on industry actions with respect to capacity building and greenhouse gas reduction.

The Melbourne Roundtable identified the need within companies to create environmental awareness across the spectrum from the CEO down and not limit to within the environment department. Participants cited the need for Board, CEO and upper management-level vision and leadership as vital for effective corporate response to greenhouse. Only these parts of an organisation could institute and drive the adoption of a corporate greenhouse gas strategy, greenhouse training at all levels of the organisation, company accountability via holding divisions accountable for their own greenhouse gases and finally, taking on the costs associated.

As a city with a large concentration of resource-based companies Perth, identified accounting standards for carbon as a crucial precursor to the commoditisation of carbon, internalisation of carbon costs by industry and the development of an efficient market. Industry / government need to promote one Australian greenhouse accounting system, perhaps via collaboration between Standards Australia and the Australian Greenhouse Office.

A number of key issues kept reoccurring at the Perth Roundtable, including the vision of greenhouse response as an opportunity for companies, including the chance to create a 'green' corporate image via establishing a culture of ongoing improvement in in-house greenhouse performance. These efforts could lead to diversifying into greenhouse-friendly products and services.

Perth participants also saw a need for industry to become more proactive in assisting government to develop greenhouse policies. While self-regulation was seen as the ultimate goal, participants recognised that a legal framework, with certain rules was required to drive the process.

7.4 Roundtable Data Summary Table – In order of issues most consistently raised. [34]

	Industry Building Capacity Issue/Activity	Bris	Syd	Canb	Melb	Perth
	1. Need for a comprehensive and consistent policy framework from Government – regulation & market signals	✓	✓	✓	✓	✓
	2. Education/Clear info campaign to foster green consumerism & appreciation of greenhouse trade-offs	✓	✓	✓	✓	✓
	3. Capacity to commoditise carbon emissions to internalise externality	✓	✓	✓	✓	✓
	4. Need for more focus on greenhouse adaptation	✓		✓	✓	✓
	5. Importance of involving developing countries - Carbon Leakage	✓	✓	✓		✓
	6. Internal assessment, monitoring and compliance in business	✓		✓	✓	✓
	7. Potential for more industry/govt greenhouse collaboration	✓		✓	✓	✓
	8. Capitalise on Australian greenhouse tech transfer opportunities here & abroad	✓	✓		✓	
	9. Incorporate Greenhouse into ESD and triple bottom line			✓	✓	✓
	10. Broaden companies' perceptions of themselves – eg. Energy, not oil companies			✓	✓	✓
	11. Corporate greenhouse policies and strategies	✓		✓		✓
	12. Need for Common carbon accounting standards		✓		✓	✓
	13. Importance of Insurance sector in policy and clean technology development	✓		✓	✓	
	14. More industry greenhouse networking (newsletters, workshops etc)	✓			✓	✓
	15. Stop no regrets greenhouse opportunities being missed	✓		✓		✓
	16. More Government action - foster innovation, new industries	✓		✓		✓
	17. Synergies between public health/environmental and greenhouse responses			✓	✓	✓
	18. Need for greater CEO and Board Level engagement	✓		✓		✓
	19. Need for Localised Climate Impacts info for consumers & business	✓		✓		
	20. Greater Industry effort to influence government policy		✓			✓
	21. Need to change corporate culture on greenhouse			✓		✓
	22. Scope for Industry & Peak bodies to educate consumers on greenhouse	✓		✓		
	23. Need for greater govt support for Clean Development Mechanism opportunities			✓	✓	
	24. Build better Industry understanding of Kyoto 'flex mechs'		✓			✓
	25. Use greenhouse opportunities as corporate first-mover advantage	✓	✓			
	26. More Industry engagement on greenhouse issues in general		✓	✓		
	27. Less political decision making on greenhouse by government				✓	✓
	28. Need for a change in energy sources/fuel mix	✓	✓			
	29. Industry needs to better identify internal opportunities	✓				✓
	30. Duty of care statement in employment contracts			✓		
	31. Pilot local trading schemes				✓	
	32. Incorporate greenhouse into purchasing policies			✓		
	33. Use Greenhouse as an opportunity to improve corporate image					✓
	34. Scope for carbon sink enhancement		✓			
	35. Implement low risk no regrets projects to gain experience			✓		
	36. Need to engage small business on greenhouse			✓		
	37. Scope for peak bodies to assist industry capacity building	✓				
	38. Scope for Govt to fund some industry capacity building	✓				
	39. Don't let Carbon-intensive economy could stifle abatement opportunities		✓			
	40. Scope for consumers to push more pro-active government policy					✓
	41. Ultimate industry goal of self regulation					✓
	42. Consideration of Nuclear as a greenhouse option	✓				
	43. Greenhouse unfriendly products will need replacing	✓				
	44. Industry Action required on market mechs to head off govt regulation	✓				
	45. Bridge to new technologies whilst protecting shareholder value		✓			

Type of Capacity Building Issue Raised:

	Things which industry can do irrespective of policy uncertainty		Issues requiring government policy decisions to build industry capacity		Issues requiring collaboration between government, industry and the wider community.

[34] Table from Lateral Economics, May 2002, *Analysis of EcoCarbon's 2001 Emissions Trading Roundtable*. Lateral Economics Australia.

8.0 CONCLUSIONS

> ***"Although we don't know when, where or how, it is becoming increasingly clear that something will be done and probably sooner than anyone might have thought a few weeks ago."***[35]
>
> John Palmisano, Executive Director, evolution markets

The five EcoCarbon Industry Roundtable have been highly successful in identifying the key concerns and capacity building needs of industry with respect to greenhouse response and the application of market-based approaches. Companies are wondering how they might be affected by a domestic or international greenhouse gas control regime.

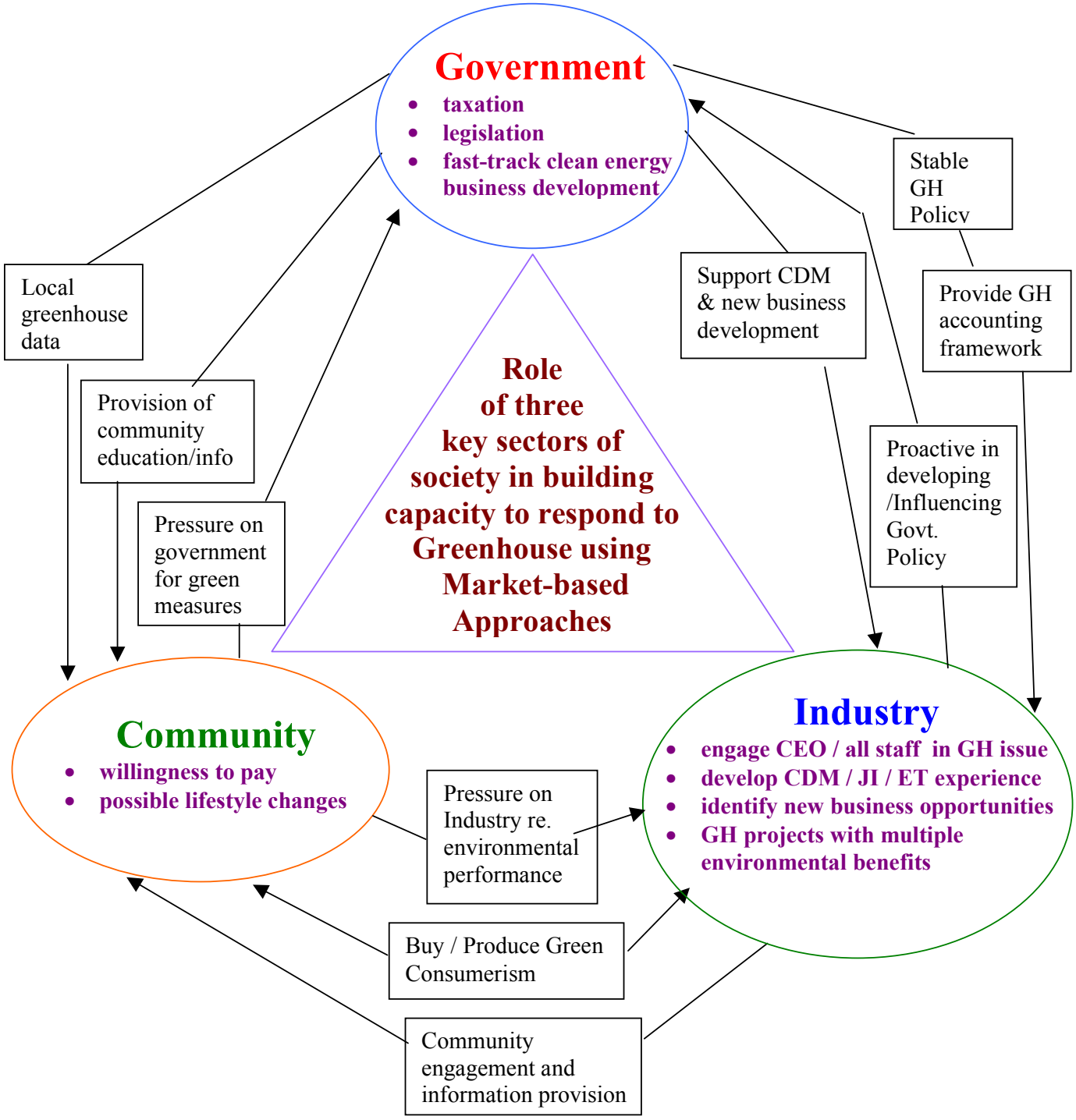
In many cases the programs and actions needed have been plainly spelled out, indicating that many companies are now seriously assessing which risk management strategies they should employ. The answer to this question is not always simple. While a variety of risk management strategies and tactics can be employed, it is unlikely that there is a 'one-size fits all solution'. It is more likely that risk management strategies will need to be tailored to fit the risks, culture and attributes of individual companies.

The next step is therefore, the development and provision of such services to industry by government, organizations such as EcoCarbon, and other agencies. Equally many of the actions required can only be undertaken by industry for itself.

[35] evolution markets Executive Brief, (10 August 2001) *'Kyoto-Bonn Agreement - a few facts to consider about the future role of greenhouse gas reduction',* John Palmisano, Executive Director, www.evomarkets.com

PROMOTING MARKET- BASED APPROACHES TO GREENHOUSE RESPONSE BY INDUSTRY

- A 'Whole of Society' Approach -



APPENDIX 1 - Recent examples of trading initiatives based on renewable energy certificates and greenhouse gas permits / credits

1. Two trading programs have been announced in Europe to accelerate the growth of the renewable power generation. By 2002 the Danish Energy Agency will have a fully operating marketplace for the purchase and sale of green power certificates. Another scheme - the Renewable Energy Certification System (RECS) - will be open for business on the Internet in 2001. The system, set up voluntarily by 50 companies, also issues certificates based on qualified green power production.

2. The Chicago Climate ExchangeSM - The Chicago Climate ExchangeSM is "the first U.S. voluntary pilot program for trading of greenhouse gases." The program has been established through a grant from Chicago-based Joyce Foundation to the Kellogg Graduate School of Management at Northwestern University and is being administered by Environmental Financial Products, LLC

3. Paris stock market operator ParisBourse said in September 2000 that it hoped to launch an energy exchange in the second quarter of 2001, with plans to trade electricity, gas and greenhouse gas emissions permits. There were also plans for trade in credits awarded to firms for curbing emissions of carbon dioxide and the other greenhouse gases

4. BP, in conjunction with PriceWaterhouseCoopers, has recently completed a study on credit based emissions reduction projects. The study was initiated to explore important issues surrounding the 'additionality requirement' (including the establishment of baselines) and to examine how emissions reduction credits could drive the economics of introducing cleaner technologies. BP also has information posted on its website about the BP Amoco's group wide emissions trading system.

5. At COP 6 the World Resources Institute and World Business Council for Sustainable Development co-organized (in conjunction with BP, KPMG and Shell) a session focused on their greenhouse Gas Protocol Initiative in which business, government and non-government organizations are working together to design an international corporate protocol for measuring and reporting business greenhouse gas reduction. Other participating organizations include Arthur D.Little, Norsk Hydro, the Pew Center, Shell, Tata Energy Research Institute, Tokyo Electric Power Company, World Business Council for Sustainable Development, World Resources Institute and the World Wildlife Fund.

6. At COP6 The Meridian Institute, a non-profit organization based in the US, introduced a proposal to convene a Global Dialogue on an Independent Carbon Accounting Standard Setting and Certification System. The goal of the Dialogue, which is funded by the Rockefeller Brothers Fund, is to build consensus on a global carbon accounting standard and on the certification of auditors, verifiers and certifiers of such standards.

APPENDIX 2 - Introduction to Roundtable - Power Point

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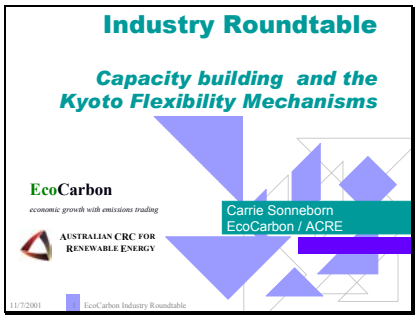

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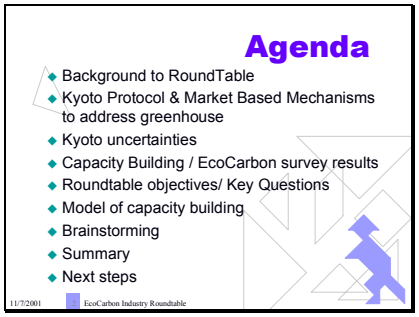

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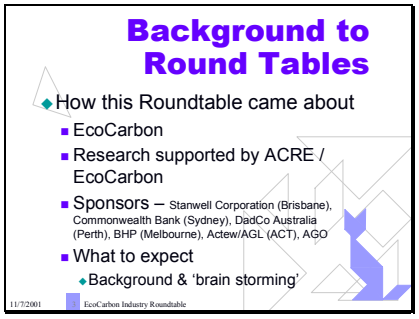

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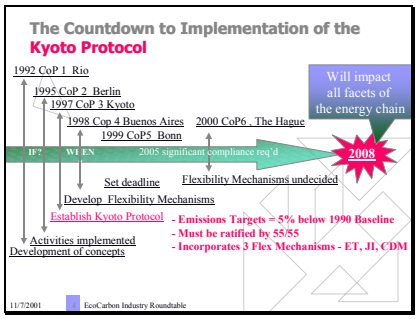

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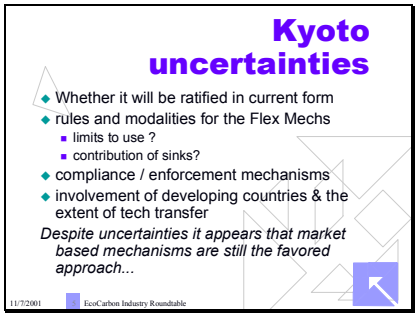

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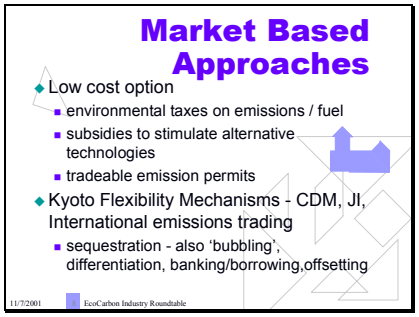

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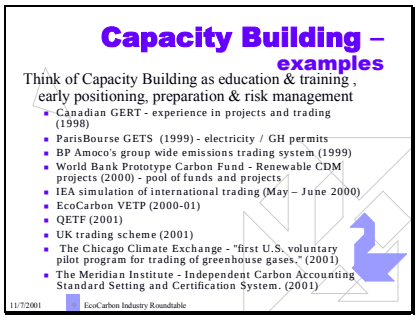

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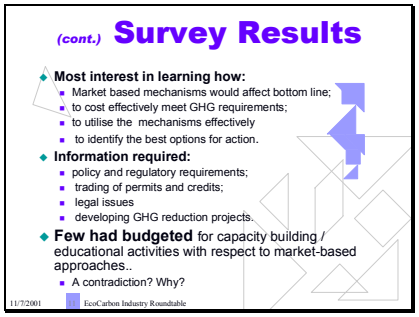

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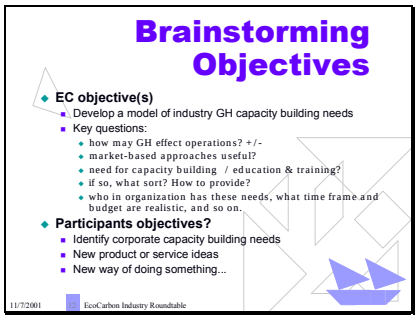

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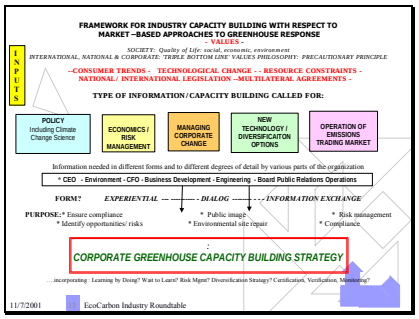

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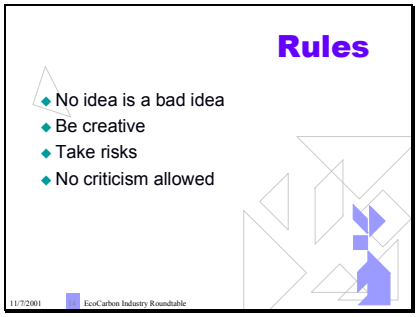

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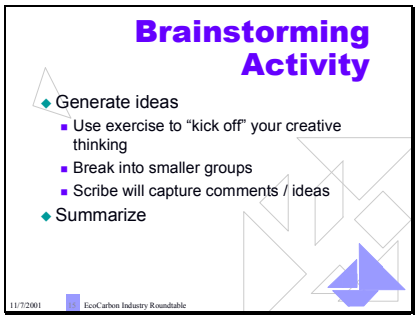

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Next Steps
What happens next:
Summary Report from all 5 Roundtables
Further academic and applied research
EcoCarbon and others
Follow up future Roundtables?
Start turning ideas into reality
EcoCarbon develop learning experiences re. market –based approaches to greenhouse
Ideas generated of interest to governm
11/7/2001
16
EcoCarbon Industry Roundtable

APPENDIX 3 - Executive Summary of EcoCarbon Survey

EcoCarbon

economic growth with emissions trading

Executive Summary

Survey of capacity building needs of industry with respect to the Kyoto Flexibility Mechanisms

by

Carrie Sonneborn, Executive Officer, EcoCarbon

December 2000

My thanks to the following people for their hands-on contribution and advice:

***Martin Parsons**, Environmental Science degree candidate, Murdoch University, Perth Western Australia*
***Dr. Dora Marinova,** Institute for Sustainability and Technology Policy , Murdoch University, Perth Western Australia*
***Dr. Pauline Arnold,** Department of Psychology, Murdoch University, Perth Western Australia*

and most of all….thanks to those company representatives that took the time to participate.

Carrie Sonneborn
Executive Officer, EcoCarbon
20 December 2000

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EcoCarbon

economic growth with emissions trading

Executive Summary

Introduction

On a national and international level, there is growing concern about global warming as a result of the burning of fossil fuels. It is increasingly likely that industry will have to limit their greenhouse gas (GHG) emissions.

Under the Kyoto Protocol of the UN Framework Convention on Climate Change, the so-called 'Kyoto Flexibility Mechanisms' have been proposed as market-based approaches to provide cost effective reduction of greenhouse gas emissions by industry. These Flexibility Mechanisms are: greenhouse gas Emissions Trading, Joint Implementation and the Clean Development Mechanism.

Some Definitions:

Clean Development Mechanism allows a developed country to invest in emissions reduction projects in developing countries to acquire credits to assist in meeting their own national target. As such it is important because it is the only provision in the Kyoto Protocol that provides access to the potentially low-cost emission credits in developing countries, and unlike the other flexibility mechanisms, can begin to generate credits from 2000. Participation is voluntary and open to private and public entities alike if approved by the Party to the Protocol (i.e. the signatory country).

Joint Implementation allows developed countries to invest in projects in other developed countries to acquire credits towards meeting their own national target. Credits cannot be generated until the target period 2008-2012 but interest is growing. Participation is voluntary and open to private and public entities alike.

Emissions Trading enables two countries to trade 'permits' for the purpose of meeting their national targets. 'Carbon credits', generated by carbon sink activities, could also be traded to cover emissions. The details of how international trading will operate are being negotiated. Such trading must be supplemental to domestic actions. Two main classifications of emissions trading schemes:

- 'baseline and credit' - This system specifies an emission profile for each participant, i.e. an emissions baseline. Baselines can be projected on the basis of expected technological change, emissions growth and/or other abatement opportunities. Emissions reduction projects are developed and emissions outcomes at the end of an agreed period that are below the baseline earn emission credits. These can then be traded to other participants who wish to exceed their baseline. In the absence of a binding cap on emissions, baseline and credit schemes need to provide some incentive to trade. For a pilot scheme this could take the form of government recognition of early action.
- 'cap and trade' schemes - This system involves trading of emission permits, where the total supply of permits is strictly limited or 'capped'. Each participant is free to buy or sell additional permits, but must acquit sufficient permits to cover their own emissions output as determined at the end of the agreed period. Permit allocation methods can vary encompassing auctioning, 'grandparenting' and other options. For a pilot scheme a partial 'cap and trade' system could address a sector or category of emitters.

The three Flexibility Mechanisms are new approaches, which have not been widely applied. It is likely that industry will need to build its capacity to utilize these Mechanisms effectively, should they come into wide use.

Background to the Study

Earlier this year a survey was circulated to document the key concerns and 'capacity building' needs of industry with respect to the Kyoto Flexibility Mechanisms and to aid the development of relevant, timely and targeted education & training activities for Australian industry. 'Capacity building' is the process of establishing skills and knowledge to respond to the demands and opportunities of greenhouse response. In an industry context this is the provision of information, education and training of staff who will be responsible for greenhouse gas reduction activities related to the United Nations Framework Convention on Climate Change.

The survey was conducted by EcoCarbon, a national non-profit organization founded in May 1999 by companies interested to develop their skills and knowledge in emissions trading and related issues. Based in Perth, EcoCarbon's objective is to provide opportunities for Australian industry to develop experience in trading of greenhouse gas emissions. Past and planned future activities include:

- development of an emissions trading simulation (called Virtual Emissions Trading Program - VETP) and of a 2-day course incorporating the VETP
- an ongoing seminar program
- email newsletters
- website with all seminar proceedings available
- case studies

This national survey of industry capacity building needs with respect to the Kyoto Flexibility Mechanisms is all part of providing the kind of capacity building activities desired by Australian industry .

Purpose

The purpose of the survey was to:

1. Identify the type of education and training desired by industry with respect to the Kyoto Flexibility Mechanisms
2. Use this information to design educational activities, eg. a seminar series, short course, trading simulation software and web-based information
3. Provide this information to EcoCarbon, so it may better target it activities to industry needs.

Additional aims of the study included:

- Determining respondents (self-assessed) level of knowledge with respect to the Flexibility Mechanisms.
- Obtaining business input on the design of industry training tools and overall training needs and interests.
- Determining how training needs differ between various sectors of business and industry.

The survey contained questions about company's:

- main goal(s) with respect to greenhouse gas reduction
- view of greenhouse gas reduction requirements and the Flexibility Mechanisms as either a threat or an opportunity
- past and current greenhouse gas abatement activities
- level of awareness of the Flexibility Mechanisms relative to other similar companies
- internal responsibility for greenhouse gas reduction, e.g. CEO
- training needs with respect to the Flexibility Mechanisms

Participants

The nationwide survey was conducted over a period of four months from mid February to mid June 2000. Over 328 companies were contacted and requested to participate in the survey. Of the companies contacted 98 agreed to complete the survey. Of these 98 surveys, 35 were returned completed, a return rate of approximately 10.78%. This was in line with expectations as the standard return rate for paper surveys distributed by post is approximately 10%.

Nearly all of the respondents could be classified into one of three groups, each with their own definitive trends.

The three groupings were:

- **Manufacturers of greenhouse gas Abatement Technology**, usually small to medium sized companies. Typical products included renewable energy and energy efficiency systems and related equipment.
- **Service Providers & Consultants**, for example, environmental consulting firms, solicitors and barristers, financial institutions, investment companies and stockbrokers.
- **Major Emitters of GHGs**, which tended to be larger and more established companies engaged in fossil fuel extraction, processing and electricity generation.

Major Findings

- **Manufacturers of greenhouse gas Abatement Technology**

The Manufacturers of greenhouse gas Abatement Technology were neutral with regards to the implementation of the Mechanisms. Respondents typically commented that they thought the Mechanisms, if ratified, would have a negligible impact on them, either positive or negative.

The Manufacturers did not consider the Mechanisms a threat or an opportunity. The main interest in the Mechanisms was whether they would negatively affect a company's bottom line. The only greenhouse gas abatement activity undertaken internally by these companies was to increase their energy efficiency in order to reduce costs.

The Manufacturers admitted that their knowledge of the Mechanisms and the Kyoto Protocol was limited but most respondents considered themselves on par or ahead of other similar companies.

Type of Training Desired

No formal training had been considered or included in any future budgeting for these companies. Most of the companies thought that an e-mail every few months updating them on changing events would suffice in providing them with necessary information .

The biggest issue for the Manufacturers in respect to training options was the location and time needed. These companies were not prepared to travel any great distance or spend more time than was necessary on the issue. Only one of the respondents was interested in being part of both a case study and a focus group.

Implications for capacity building

The relative lack of interest in education and training activities on the part of the Manufacturers of greenhouse gas Abatement Technology is somewhat contradictory given that these companies also saw greenhouse issues as an opportunity. The limited resources of these manufacturing companies, mostly small and medium size enterprises (SMEs) was probably the main reason for the apparent lack of priority given to education and training on the Flexibility Mechanisms. At present this group desired information updates in the form of newsletter or email every few months.

As the least informed sector, EcoCarbon should target these companies and raise awareness of the opportunities inherent in the Flexibility Mechanisms for them. This should focus on low-cost methods, both in terms of time and dollars.

- **Service Providers & Consultants**

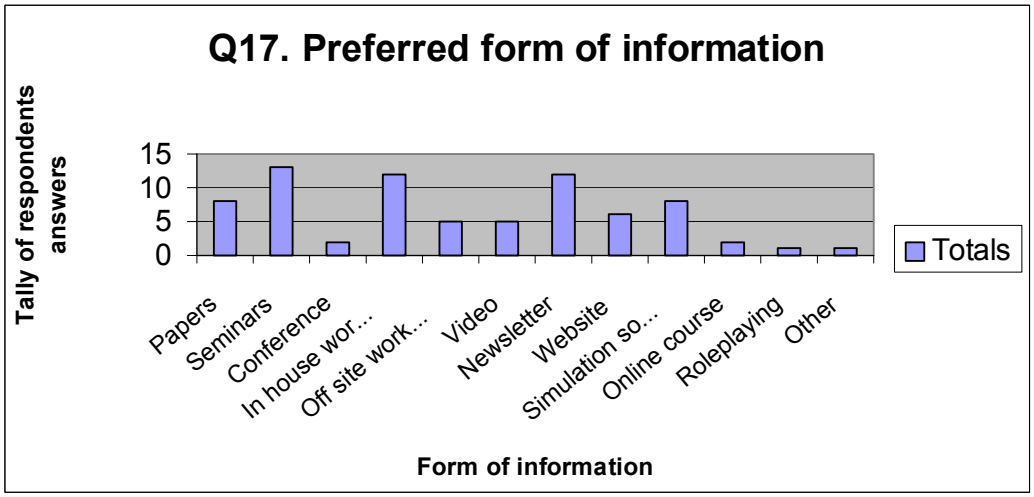
The Service Providers & Consultants surveyed all saw the Flexibility Mechanisms as a business opportunity. Their main objective is to identify opportunities that could lead to an increase in their core business and therefore an increase in profits.

The l consultants were specifically interested in developing services and utilizing the Mechanisms to their client's best advantage.

The Service Providers & Consultants were the most informed about the issues and they had a higher level of expertise on the issues compared to other companies surveyed. Most considered themselves on par or ahead of the game compared to similar companies.

Type of Training Desired

The information and training desired by this group was up-to-date information on national & international policy and regulatory developments, greenhouse gas Abatement Technologies, how to trade CO2 permits and credits and how to develop CDM & JI projects.



The CEO and environment departments were seen as the areas within these companies that most required this information to deal effectively with the Kyoto Flexibility Mechanisms.

Training was considered to be of importance to the Service Providers & Consultants. Seminars and newsletters were the most popular request for the form in which the information should be provided. Some respondents also noted that an online carbon-trading programme would be of interest to them.

The Service Providers & Consultants were the group prepared to spend the most time on these issues and the expertise of presenters was the most important criteria when determining the training criteria.

Implications for capacity building

Despite the fact that the Service Providers & Consultants group was already the most informed, education and training with respect to the Kyoto Flexibility Mechanisms was highly desired. This is not surprising given that they also saw greenhouse gas reduction issues, and by implication the Flexibility Mechanisms, as a key opportunity for their business operations.

This group was interested in any form of training, from newsletters to in-house workshops, that will help them fully understand the implications of the mechanisms and detailed application of the Mechanisms.

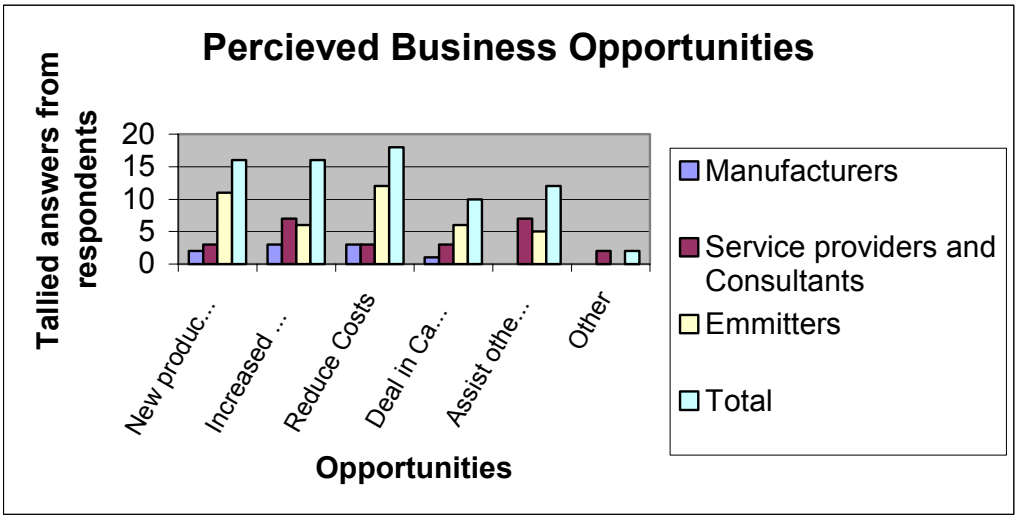
These companies are most likely be interested to take advantage of EcoCarbon short courses, seminars and simulations, as well as the more low cost forms of information such as newsletters. They are also keen to collaborate with the delivery of such capacity building activities.

- **Major Emitters of GHGs**

As a group, the Major Emitters of GHGs were most concerned and aware of the possible ramifications of the Mechanisms on their core business. The main objectives of the Emitters was both identifying of opportunities associated with greenhouse response as well as ensuring that their company would remain in compliance with any future greenhouse gas reduction requirements.

Several companies considered that the Mechanisms were a threat to their core business and most respondents were interested in how it would affect their bottom line. A number of respondents who were also interested in the opportunities presented by emissions trading.

A majority of Emitters were reducing greenhouse gas emissions through increasing their energy efficiency and are seeking to further reduce emissions.



Overall, the Emitters considered themselves on par or ahead of the game when compared with other similar companies. Some emitters believed that they would benefit from even greater efforts because they would be ahead of the game and perceived as a leader in greenhouse gas reduction activity.

The CEO and the environment section have the responsibility for greenhouse issues in these companies and it is these functional areas which are seeking information on how to best utilise the Kyoto Flexibility Mechanisms.

In general, the core objectives of emitters with respect to the Flexibility Mechanisms are to reduce costs of compliance with greenhouse gas reduction requirements and develop new services.

Type of Training Desired

Emitters are interested in receiving information about national and international policy and regulatory developments, greenhouse gas baseline estimation, how to trade permits and credits and the legal issues involved with the Mechanisms. Several respondents mentioned

that they wanted to keep in compliance with legal obligations but did not intend to go beyond that level of activity at this stage.

Fewer Emitters than anticipated were considering formal training / workshops as part of their preparation for coping with the Kyoto Flexibility Mechanisms.

Emitters considered seminars and workshops as having the most relevance to them with reference to training methods and in this setting the utilisation of carbon trading software was of interest. The cost, time required and the location of the training were the key criteria influencing the preference of training options.

Implications for capacity building

The level of knowledge of Emitters regarding the Flexibility mechanisms was quite high. Some emitters considered the mechanisms a threat to their core business objectives. Most emitters seek to comply with regulations, so they are likely to seek training aimed at achieving compliance levels of action and minimising the negative impact that the Mechanisms may have on their company. These companies would respond well to seminars and regular updates with particular reference to the regulatory requirements in regard to the Mechanisms.

General Conclusions

Interest in the Flexibility Mechanisms was considerable amongst respondents. However, it would seem that this interest is not an integral part of most company's business development or strategic planning at present. Few companies had plans to develop in-house expertise in market-based approaches to greenhouse gas reduction via education and training activities nor were they budgeting to do so. This was a contradiction to the general interest in the Mechanisms.

Overall, companies saw the Flexibility Mechanisms as a way to turn a threat into an opportunity, with the majority of respondents seeing the Flexibility Mechanisms as a pure opportunity for their business. Emitters, while having some concerns with the impacts on profits of greenhouse gas reduction, nonetheless were willing to meet the challenge positively.

Companies were most interested in learning about how the Mechanisms would affect their bottom line; how they could cost effectively meet greenhouse gas reduction requirements; how to utilise the mechanisms effectively and how to identify the best options for action. Many companies had already begun greenhouse gas reduction activities, either in their own operations or those of clients, or were seeking to increase these activities.

Perceived opportunities from the Mechanisms was in the area of reducing costs through energy efficiency and identifying new products and services as a result of the business needs that the Mechanisms will create.

Responsibility for greenhouse gas issues resided at a high level within companies, primarily with the CEO and Business Development functions. Staff responsible for environmental compliance were also frequently sited.

The type of information required by companies related to policy and regulatory requirements; trading of permits and credits; legal issues and the ways and means of developing greenhouse gas reduction projects. The form that this information was required in was seminars, newsletters, in -house workshops and simulation software. The staff time required and the location of the seminars, workshops and simulations were important to most respondents. However few companies had budgeted for capacity building / educational activities with respect to the Mechanisms.

Next Steps for EcoCarbon

As emissions trading is generally seen as a 'thing of the future' by business, the immediate needs perceived by industry is information and training that will prepare them for that future.

Based on the findings of this survey EcoCarbon should tailor its activities to industry needs and continue to focus on providing a quality newsletter and information service; low cost seminar series, develop in house training based on its Virtual Emissions Trading Program (VETP).

EcoCarbon should also seek more information about industry capacity building needs via:

- carrying out focus groups and key informant interviews with selected industry representatives
- compiling a review of capacity building activities by companies with respect to the Kyoto Flexibility Mechanisms, both within Australian and internationally
- carrying out a select number of in -depth case studies of these companies
- evaluating these approaches and adopting those that are seen as useful to Australian companies in general
- exploring the role of sequestration companies in future EcoCarbon activities and research.

APPENDIX 4 - Key Questions

INDUSTRY CAPACITY BUILDING NEEDS WITH RESPECT TO THE KYOTO FLEXIBILITY MECHANISMS

1) What are the main objectives(s) of your company with respect to greenhouse gas abatement? For example:
   - To be in compliance with requirements
   - To minimize negative impacts
   - To identify opportunities
   - Address customer / shareholder concerns
   - All of the above

2) Is greenhouse seen as a *threat* or *opportunity* within your company? Why?

3) What aspects of the issue are of most interest?
For example:
   - How will it affect our / our clients bottom line
   - How to select the best options
   - How to establish our/ our clients CO2 emissions baseline
   - How to best address the issues cost effectively
   - Identifying our / our clients best options
   - How to utilize emissions trading, CDM / JI to our / our clients advantage
   - International policy & regulatory developments
   - greenhouse science

6A) **(For Emitters)** Has your company already embarked on any activities aimed at reducing your own greenhouse gas emissions?
For example,
   - Reducing emissions from own operations and processes thru energy efficiency
   - Reducing emissions from own operations and processes thru change to processes
   - Developing new products / activities which are low CO2 products
   - Investing in new low CO2 technologies
   - Purchase emissions reduction credits
   - Investing directly in emissions abatement projects either in Australia or overseas
   - Member of greenhouse Challenge
   - Seeking out information on emissions trading, CDM , JI
   - Investing in Green Power, either as a producer of buyer of 'green' electricity
   - Associating our product with lower greenhouse emissions than our competitors
   - Forming alliances with other relevant industry sectors

6B) **(For Sequesters / Service Providers / Renewable Energy / Energy Efficiency companies)** Has your company already embarked on any activities aimed at identifying opportunities with respect to greenhouse gas abatement?
For example:

   - Associating our product with carbon credit creation
   - Associating our product with lower emissions / energy efficiency
   - Seeking out information on emissions trading, CDM , JI
   - Developing new products / activities which are low CO2 products
   - Developing services to assist clients / customers with their greenhouse gas abatement/ carbon trading needs
   - Providing information on the Kyoto Flexibility Mechanisms to clients
   - Forming alliances with other relevant industry sectors

7) Do you think your company ahead of the game, about on par or behind compared to other similar companies?

8) Do you think this is about the right level of response for now?

1) What area(s) of your company have taken interest / responsibility for greenhouse response activities? For example

- Board members
- CEO
- Business Development
- Environment
- Health & Safety
- Financial
- Engineering

10) What business opportunities for your company could you imagine as a result of greenhouse response? For example,

- Develop new low emissions products / services
- Increased opportunity for our core business
- Reduce costs through cutting our own emissions
- Producing / Selling / Brokering carbon credits or permits
- Assisting other companies with their greenhouse response

11) How familiar is your organization with the Kyoto Flexibility Mechanisms (JI, CDM and emissions trading)?

12) What type of information is required to assist your company with responding to greenhouse ? For example<

- National & international policy and regulatory developments
- greenhouse Gas Abatement Technologies
- greenhouse Accounting / Baseline estimation
- How to trade CO2 permits and credits
- How to develop CDM & JI projects
- Assessing suitability of greenhouse gas Abatement projects
- Legal issues with respect to greenhouse gas abatement

13) Who in your organization needs this information at the moment?

14) Has the cost of capacity building / education & training been considered as part of future budgetting?

15) Has your organization considered the need for organized education & training with respect to Flexibility Mechanisms as part of its greenhouse response?

16) If so, has your company considered any specific types of training?

17) In what form(s) is this information best provided?
For example,

- Papers
- Seminars
- Conference
- In - house Workshop
- Off site Workshop
- Video
- Newsletter / regular updates

- Web site
- Carbon trading simulation software
- On-line course
- Role Playing

18) How much time would individual(s) have to participate in greenhouse response capacity building activities? For example

- one hour per week
- 1/2 day workshop
- one day workshop
- two days workshop
-

19) What criteria would your organization apply to determine which training options were preferable? For example:

- time needed
- location, eg. local vs. interstate
- in house vs. off site
- covers full background of greenhouse issue
- covers relevant, specific issues
- expertise / knowledge of presenters
- applied vs. theoretical
- cost

20) Would you like to take part in a **case study,** which will help you to evaluate these activities and provide feedback to your organization?

APPENDIX 5 - Roundtable Participants

EcoCarbon Roundtable – BRISBANE - Stanwell Corporation Ltd (SCL)
26 February 2001
Acceptance List

Organiser: Susan Hildebrand, SCL

Number	Name	Company
1	Mr Mark Grenning	Comalco Aluminium Limited
2	Ms Maria Robertson	Comalco Aluminium Limited
3	Mr Peter Klose	Queensland Cement Limited
4	Ms Pam Usher	Greening Australia
5	James Shelvin	Australian greenhouse Office
6	Ron Eames	Gadens Lawyers
7	Joseph Lattan	Dept of Mines and Energy
8	Malcolm Whalley	Enetrade
9	Ms Vani Rao	Ergon Energy
10	Mr James Shevlin	Australia greenhouse Office
11	Carleton Nothling	Tarong Energy
12	(+ one guest)	Tarong Energy
13	Chris McMahon	Southern Pacific Petroleum / Central Pacific Minerals NL
14	Carrie Sonneborn	EcoCarbon
15	Kuan Chia	SCL
16	David Crevola	SCL

EcoCarbon Roundtable – Sydney - Commonwealth Bank of Australia (CBA)
27 February 2001
Acceptance List

Organiser: Nicole Hind, CBA

Number	Name	Company
1	Simon Mathis	Commonwealth Bank of Australia
2	David Toyne	GHG Management
3	Craig McBurnie	PWC
4	Hal Turton	SEDA
5	Frank Muller	NSW Cabinet Office
6	Julian Turecek	Origin Energy Limited
7	Steve Schuck	BioEnergy Australia
8	Jonathan Jutsen	Energetics
9	Mina Guili	Baker & Mckenzie
10	David Toyne	GHG Management
11	David Tow	SMEC
12	David Brand	Hancock Natural Resources Group
13	Peter Lawley	Pacfiic Solar
14	Carrie Sonneborn	EcoCarbon

EcoCarbon Roundtable – CANBERRA, ActewAGL
19 March 2001
Acceptance List

Organiser: Tony Beck Consulting

Number	Name	Company
1	Ms Vivienne Filling	Australian Business Group
2	Ms Karen Curtis	Aust. Chamber of Commerce & Industry
3	Ms Fiona Waine	Environment Business Australia
4	Mr Chris Borough	Jaakko Poyry Consulting
5	Mr Hamish Crawford	Jaakko Poyry Consulting
6	Mr Scott Keyworth	Murray-Darling Basin Commission
7	Frances Vennier	Dept. of Defence
8	Mr Matt Spannagle	AGO / Greenhouse Challenge
9	Bill Leane	ActewAGL
10	Dr Jack Pezzey	CRES Australian National University
11	Patricia Harrup	Energy Strategies
12	Tony Beck	Tony Beck Consulting Services
13	Carrie Sonneborn	EcoCarbon / ACRE

EcoCarbon Roundtable – Melbourne, BHP
2 April 2001
Invitation and RSVP List

Organiser: Catherine Lander, BHP

Number	Name	Company
1	John McKindley	Mitsui & Co (Australia) P/L
2	Louise Drolz	Natsource Tullet & Tokyo Liberty Pty Ltd
3	Arnon Musiker	Deutsche Bank AG
4	Ken Edwards	Next Generation Energy Solutions
5	John Eyles	AIGN
6	Bev Smith	Energy Victoria
7	David Buckingham	BCA
8	Lance Hoch	SRC INternational
9	Andrew Fegan	Eastern Energy
10	Alistair McClure	Rio Tinto
11	Brett Mattes	BHP
12	Mike Waller	BHP
13	Fred Gower	Alcoa of Australia
14	Ross Woodman	Energy Brix Australia Corporation Pty Ltd
15	Richard Elkington	Loy Yang Power P/L
16	Paul Austin	Texas Utilities Australia Pty Ltd
17	Barry Cusack	Rio Tinto - Australia
18	John Hall	Rio Tinto
19	Keith Orchison	Electricity Supply Assoc of Aust
20	Richard Udovenya	Pritchard Udovenya Solicitors
21	Stewart Jackson	Pritchard Udovenya Solicitors
22	Robert Pritchard	Pritchard Udovenya Solicitors
23	Mike Oppenheimer	BHP Coal
24	Bridson Cribb	Minerals Council of Australia
25	Mike Harding	BP Oil Australia
26	Darren Marx	Baker & McKenzie
27	Carrie Sonneborn	EcoCarbon / ACRE
28	Simon Dawkins	EcoCarbon / ACRE

EcoCarbon Roundtable – Perth, Dadco Australia
10 April 2001
Invitation and RSVP List

Organiser: Sandra Ainsworth, DadCo

Number	Name	Company
1	Jim Altham	Curtin University of Technology
2	Paul Biggs	Forest Products Commission WA
3	Ian Briggs	Department of Resource Development
4	Richard Burden	Commercial Manager
5	Tim Clarey	Epic Energy
6	Ken Craig	Urban Energy Pty Ltd
7	Bernard Eastman	Motorcharge Limited
8	Stephen Fry	Landcare Services Pty Ltd
9	Gilbert George	Gilbert George & Associates Pty Ltd
10	Norm Hodgkinson	Sinclair Knight Merz
11	Gary Jeffery	Normandy Mining Ltd
12	Ken Johnsen	Orbital Engines Ltd
13	Barry Johnston	Freehills
14	Dirk Keizer	Kalima Bluegum Plantation
15	Gretta Lee	Minter Ellison
16	Bruce Pollock	Wesfarmers Kleenheat Gas Pty Ltd
17	Frank Reid	Australian CRC for Renewable Energy Ltd
18	Severome Roussett	French University Student with WesfarmersCSBP
19	Cameron Schuster	Wesfarmers CSBP
20	Sam Sproule	CarbonBank Manager Australasia
21	Robert Swan	Wesfarmers Coal Limited
22	Martin Taylor	Chamber of Commerce & Industry
23	Pel Weir	Western Power Corporation
24	Dennis Waddell	Carbon Credits International Limited
25	Brian Wills-Johnson	Alcoa World Alumina
26	Brad Wylynko	Mallesons Stephen Jacques
27	David Dabney	Dadco (Australia) Pty Ltd
28	Simon Dawkins	EcoCarbon / ACRE
29	Carrie Sonneborn	EcoCarbon / ACRE

APPENDIX 6 - Guidelines for Chairperson

The Focus
It is intended that the event be an informal 'brainstorming' session. First and foremost, participants will have the opportunity to air their vision of how industry can understand and work with market-based mechanisms for greenhouse response. The event should be fun and a way to gain objective advice about the flexibility mechanisms.

The chairperson should reinforce that participants have access to the results of all five Roundtables being held nationally. The generic knowledge that results from the Roundtables will also be available to government and will help shape official capacity building efforts.

The chair should be prepared for robust debate and the possibility that greenhouse response may not be enthusiastically embraced by all participants. The chairperson's role is to encourage such debate and creativity, no matter what direction it takes and to ensure that conversation flows freely with no stifling of views. The facilitator will work closely with the chairperson to ensure this happens.

Key questions have been circulated. These are meant primarily as preparatory 'thought provokers' for participants. They will not be followed slavishly though they should help guide the discussion.

The objective

Is to elicit the views and ideas of industry representatives with regards to:

- will possible future greenhouse constraints effect their operations, positively or negatively?
- will market-based approaches such as emissions trading & Clean Development Mechanism be useful in addressing greenhouse issues?
- is there a need for capacity building / education & training activities?
- what sort of capacity building activity's may be desired by industry?
- how may any capacity building needs best be met, who has these needs within an organization, what time frame and budget are realistic, and so on.

The Procedure

The facilitator will give a short presentation covering capacity building and flexibility mechanisms as background. This will be followed by a common brainstorming approach along the following lines:

'Imagine the world and your company in 2050.

What are the biggest issues the world, Australia, your state, your company face?

What are the four most significant issues? With respect to these four issues, what will be the biggest threats and the biggest opportunities for your operations?

Do these relate to greenhouse response?

If so, what aspects of greenhouse response does your company need to know about?

How can Australia / your state / your company prepare?"

Be creative, think laterally, think outside the box…."

Discussion to follow…..

In the context of this simple brainstorming / backcasting scenario we hope to answer many or all of the Key Questions. It would be useful for the Chairperson to be familiar with these Questions - and to be prepared for the group to challenge the Key Questions and perhaps diverge from them.