

VOLUNTARY GREENHOUSE GAS REPORTING

WORKSHOP MATERIALS AND TRANSCRIPT FOR MEETING IN

Chicago
December 5-6
Donald E. Stephens Convention Center

December 2002

**VOLUNTARY GREENHOUSE GAS REPORTING WORKSHOPS
CHICAGO WORKSHOP MATERIALS AND TRANSCRIPT**

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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. CHICAGO WORKSHOP PARTICIPANTS LIST

Voluntary Greenhouse Gas Reporting Workshops

**Voluntary Greenhouse Gas Reporting Workshops
Chicago Workshop Participants
December 5-6, 2002**

FirstName	LastName	Title	Organization
Kevin	Aldrich	Assistant Manager	TMMNA
Orestes	Anastasia	Environmental Attorney	SAIC
Margot	Anderson	Deputy Assistant Secretary	Department of Energy
Carla	Bachunas	Environmental & Safety Compliance Coordinator	Rock-Tenn Company
Thomas	Bailey	Sr. Environmental Scientist	Cinergy Corp.
David	Baker	Manager, Planning & Analysis	IL Department of Natural Resources
Jeffrey	Ball	Staff Reporter	The Wall Street Journal
Stephan	Becerra	Project Manager	John Deere
Doug	Brookman	Facilitator	Public Solutions
Vincent	Camobreco	Environmental Protection Specialist	U.S. EPA
Peter	Chaplinsky	Director	Environmental Software Providers (ESP)
Jeffrey	Chou	Chemical Engineer	ENSR International
Stephen	Cloud	Legislative Manager	American Petroleum Institute
Al	Cobb	Sr. Advisor	Department of Energy
Mindi	Farber-DeAnda	Senior Analyst	SAIC
Terry	Francl	Senior Economist	American Farm Bureau Federation
Joe	Friedlander	Environmental Manager	The Coteau Properties Company
Mark	Friedrichs	Policy Analyst	Department of Energy
Greg	Gesell	Principal Environmental Engineer	American Ref-Fuel Company
Fiona	Gilbert	Market Development Team	Australian Greenhouse Office
Adrienne	Gvozdoch	Consultant	Navigant Consulting
Marty	Hancock	Environmental Engineer	Miller Brewing Company
Eric	Hennen	Dir, Environmental Affairs	Dairyland Power Cooperative
Paul	Hopper	Superintendent, EH&S	Alcan Aluminum
Joanne	Howard	Staff Engineer	John Deere
James	Hrubovcak	Economist	USDA
Mike	Jirousek	Environmental Consultant	FirstEnergy
Jim	Johnston	Policy Advisor	Heartland Institute
James	Keating	Air Programs Coordinator	BP America
Karen	Kistler	Staff Environmental/Energy Engineer	Maytag
Gary	Kizior	Senior Air Quality Specialist	BP America
Thomas	Klotz	Consultant	Vision Environmental, Inc.
Glenn	Kramer	Manager, Regulatory Affairs	Amerada Hess Corporation
Erin	Laude	P.E.	CH2M HILL
Maurice	LeFranc	Senior Policy Analyst	EPA
Richard	Lowery	Senior Environmental Coordinator	BP
Paul	Lynch	Senior Environmental Engineer	KeySpan Energy
Brian	Mader	Sr. Environmental Chemist	3M Company
Chuck	May	Environmental Consultant	Conectiv Energy
Paul	McArdle	Program Manager	Energy Information Administration
Karen	Meadows	Certification Director	Climate Neutral Network
Lawrence	Merritt	Environmental Manager	Ford Environmental Quality Office
Reid	Miner	Vice President	NCASI
James	Moore	Fuel and Emissions Trader	Ameren Energy Fuels and Services Co.
Al	Musur	Energy Director	Abbott Laboratories
Josu	Omaechevarria	Sr. Business Process Analyst	New York Power Authority
Gary	Oshnock	Environmental and Energy Planning	DaimlerChrysler Corporation
Leon	Outlaw	Principal Engineer	Santee Cooper
Craig	Pearson	Associate Engineer	SCAN A Services
Patricia	Peterson	Program Leader EH&S	NiSource
Ray	Ratheal	Director, Energy Policy & Planning	Eastman Chemical Company
William	Reagen	Technical Manager	3M Company
Brad	Reed	Engineering Specialist	Toyota Motor Mfg. North America
Karen	Risse	Project Manager	International Paper
Michael	Rivest	Managing Director	Navigant Consulting
Arthur	Rypinski	Economist	Department of Energy
Violet	Sawukaytis	Project Engineer	Gas Recovery Systems, Inc
Michael	Scholand	Senior Consultant	Navigant Consulting
Steven	Schultz	Energy Program Manager	3M
Jack	Shih	Manager, Environmental Affairs	International Truck and Engine Corporation
John	Sottong	Climate Change Analyst	SAIC
Greg	Spencer	President	Blue Source LLC

**Voluntary Greenhouse Gas Reporting Workshops
Chicago Workshop Participants
December 5-6, 2002**

John	Staub	Economist	Dept. of Energy
Michael	Stavy	Principal	Energy Economist
Rick	Sterner	Environmental Coordinator	Lehigh Cement Company
Fran	Streitman	Vice President Environmental Affairs	Ash Grove Cement Company
Mark	Strohfus	Environmental Policy Analyst	Great River Energy
Fraser	Thomson	Program Officer	Alcan Inc.
Don	Verdiani	Performance Analyst	Sunoco, Inc.
Melissa	Vernon	Environmental Research Analyst	Interface, Inc.
Barbara	Walz	Env Services Manager	Tri-State G&T
Nianzhi	Wang	Sr. Process Engineer	Holcim (US) Inc.
Thomas	Werkema	VP, Regulatory Activities	ATOFINA Chemicals, Inc.
Kevin	Werner	VP	Resource Technology Corporation
Steven	Willis	Director, Global EHS	Whirlpool Corporation
Kristin	Zimmerman	Manager - Energy & Global Climate	General Motors
Kim	Zulliger	Environmental Engineer	Alliant Energy

EIA 1605b 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	January 14-15
	Forestry Workshop	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.

3



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

5



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

6



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.

8



Web Addresses & Points of Contact

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

ghgregistry.comments@hq.doe.gov

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



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Office of Integrated Analysis & Forecasting
Energy Information Administration

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



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



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



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**



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



Reporting Forms



Form EIA-1605 (long form)

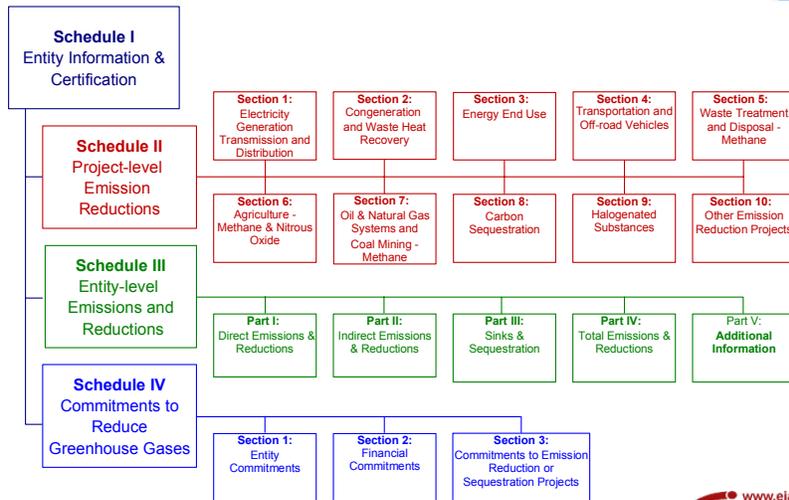
- Two categories of report: entity and project;
- Two categories of baselines: basic and modified reference cases;
- Two categories of emissions/reductions: direct and indirect;
- Ten categories of emission reduction projects;
- All greenhouse gases covered, annual emissions from 1987, annual reductions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



Organization of Form EIA-1605



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.





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



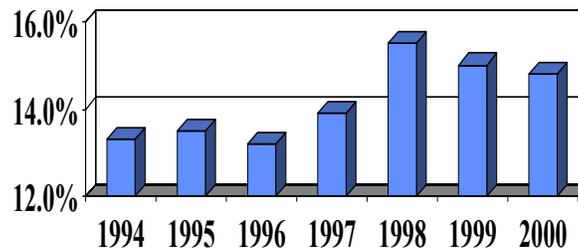
Voluntary Reporting Program Indicators, 1994-2000

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

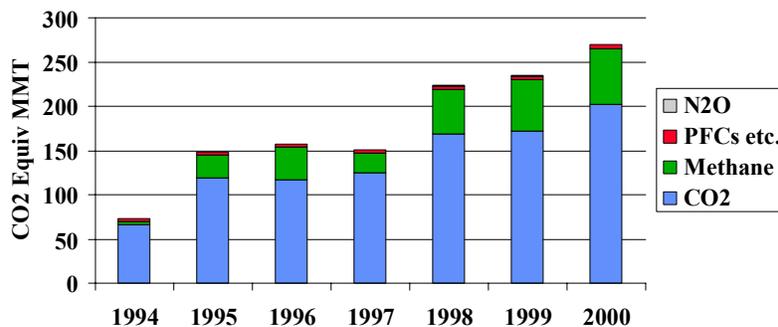


Reported Entity-level Emissions As a Percent of Total U.S. GHG Emissions



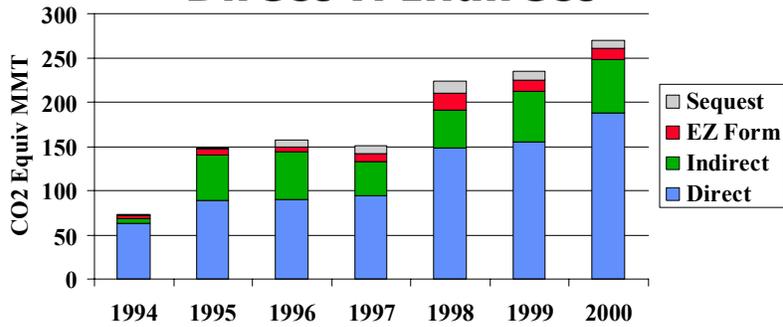
- Reported entity-level emissions have increased from 13.3% of total U.S. GHG emissions in 1994 to 14.8% in 2000, with a peak of 15.5% achieved in 1998.
- Reported project-level reductions have grown from 1.1% of total U.S. GHG emissions in 1994 to 3.9% in 2000.

Project-level Reported Reductions



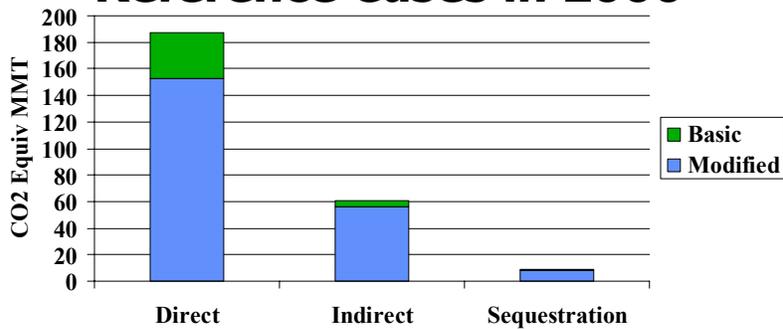
- Project-level reported reductions have more than tripled from 73 million metric tons (MMT) in 1994 to 270 MMT in 2000. Total reporters have increased from 108 in 1994 to 222 in 2000.

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**

Session I. Emissions Reporting

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?

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

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

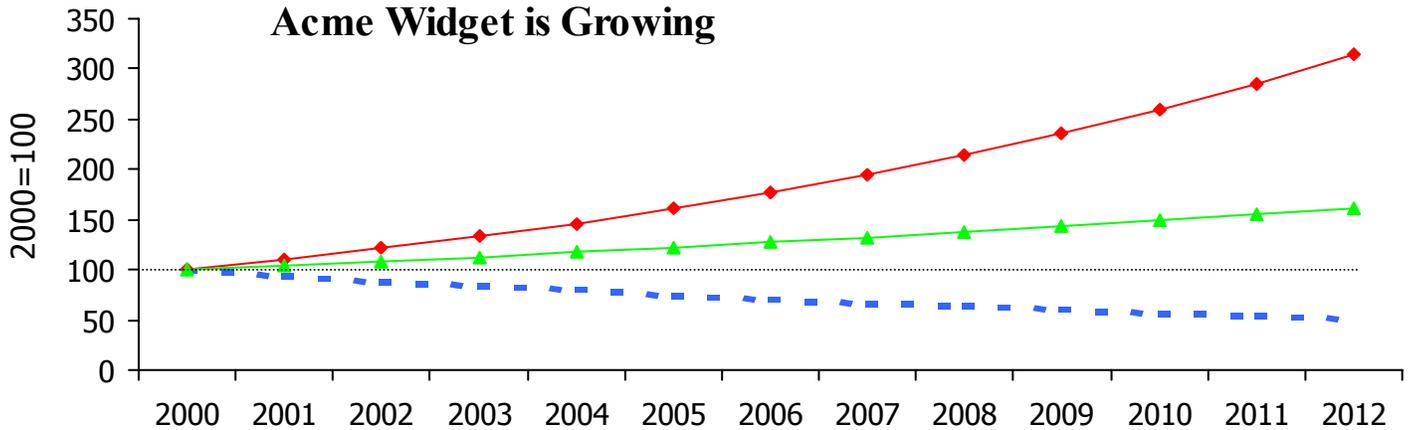
- Certifying Reports and Reductions:
 - Government review process?
 - Documentation of reductions? Of transfers?
 - DOE database of certified reductions?
- Public versus confidential data:
 - Should data submitted to DOE be made publicly available?
 - Can DOE effectively protect confidential data?
-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

6. WIDGET SALES SHOWING EMISSIONS INTENSITY

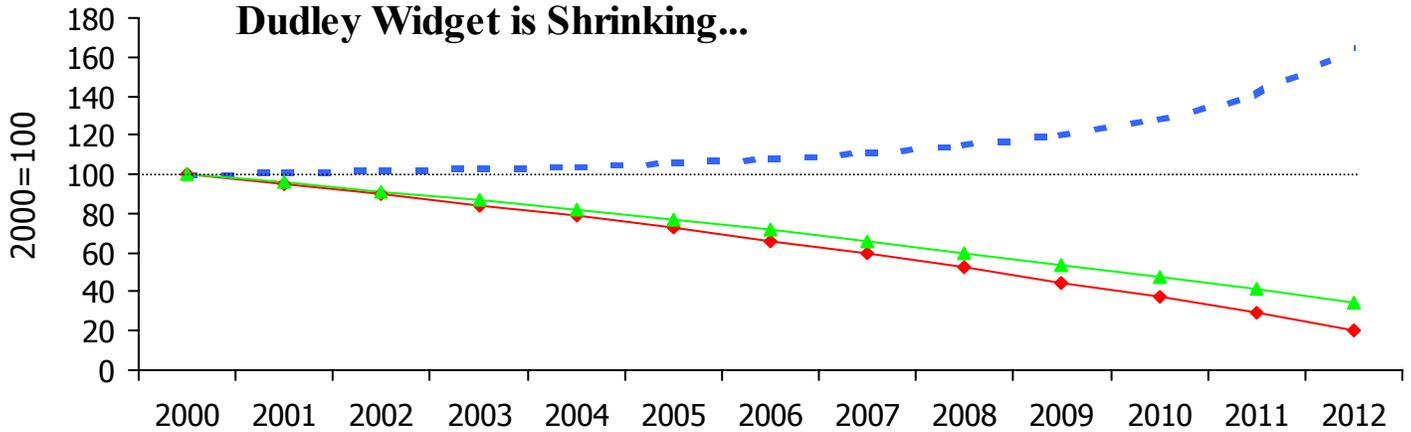
Voluntary Greenhouse Gas Reporting Workshops

America's Widget Industry

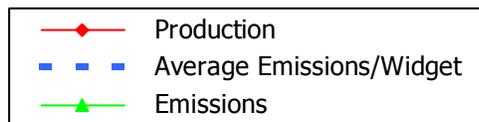
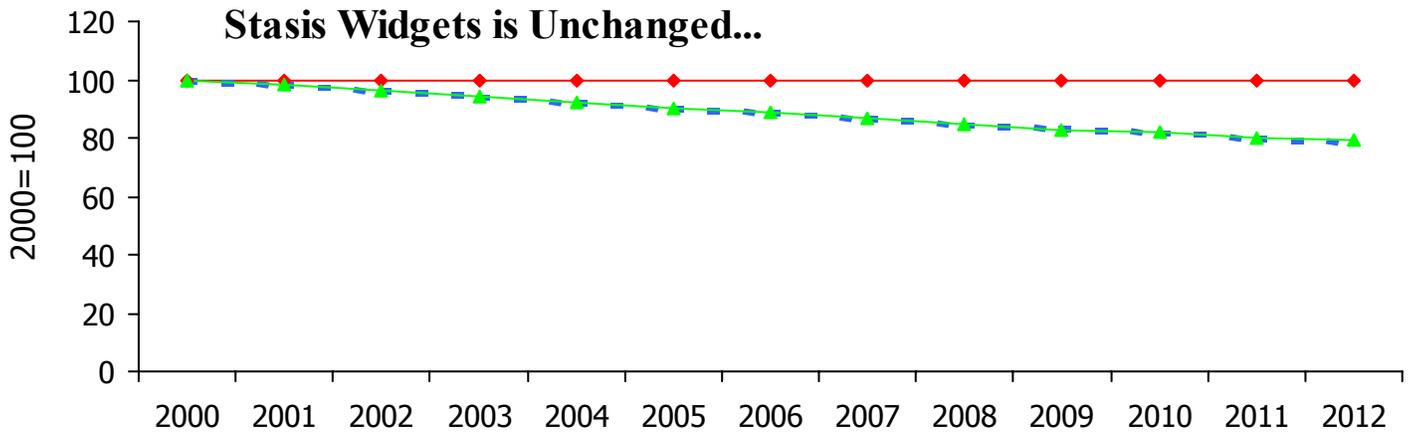
Acme Widget is Growing



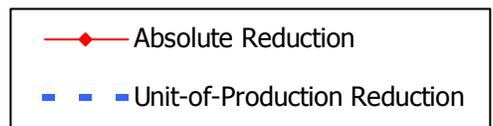
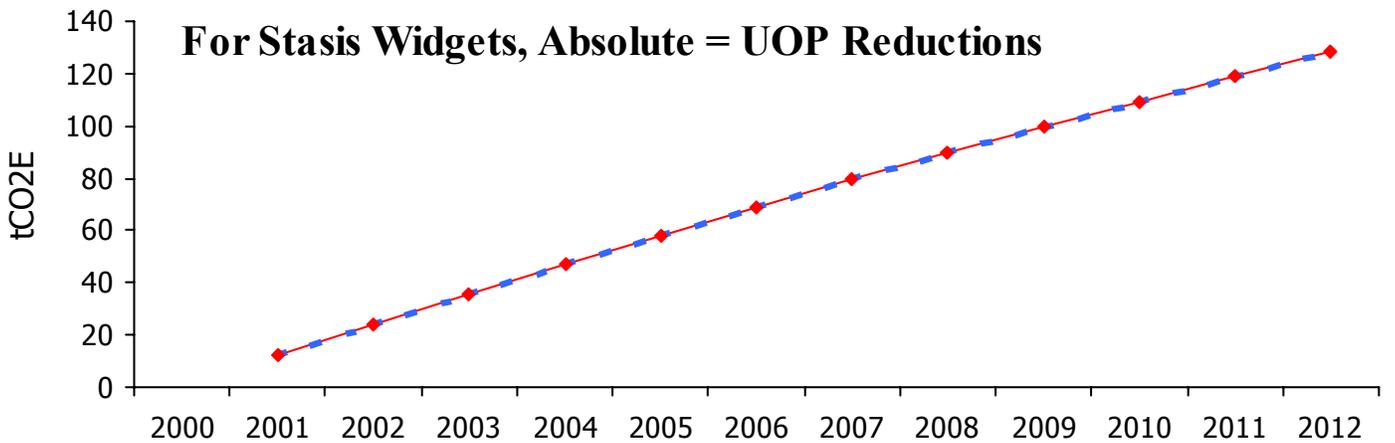
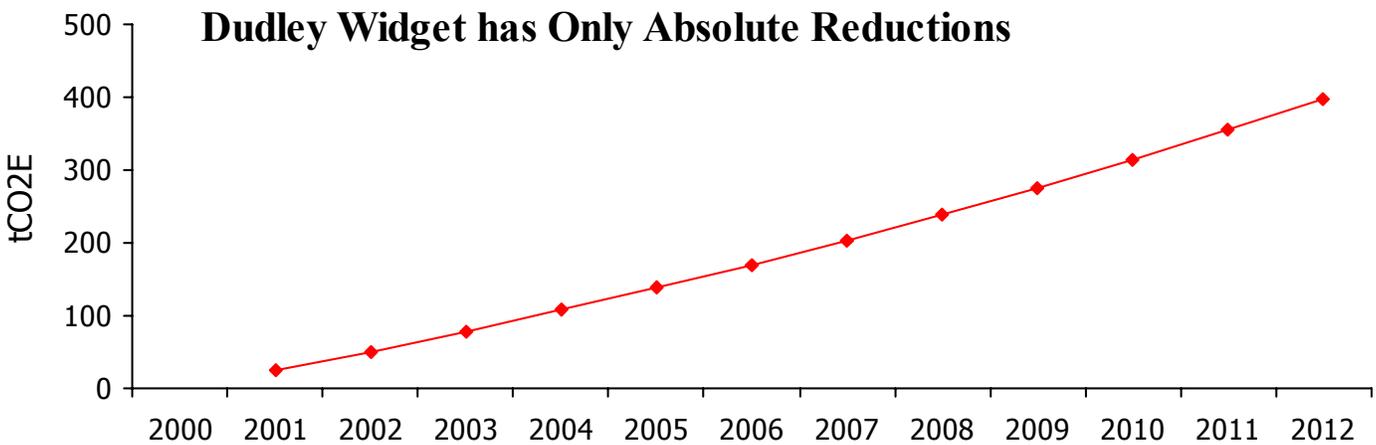
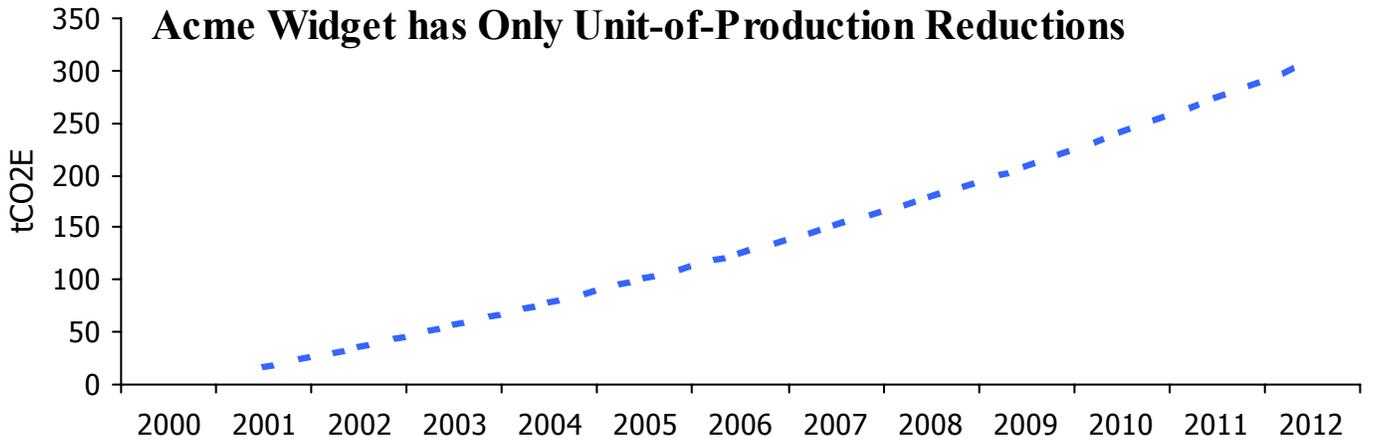
Dudley Widget is Shrinking...



Stasis Widgets is Unchanged...



Reductions Depend on the Baseline Chosen



7. SUPPLEMENTARY 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



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**





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.



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, NO_x, NMVOC)
- Sources Covered
 - Wide variety of activities reportable
 - Ten Project Types
 - Each Project Type has a number of project codes



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



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



Current 1605b Accounting Methods - Verification



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



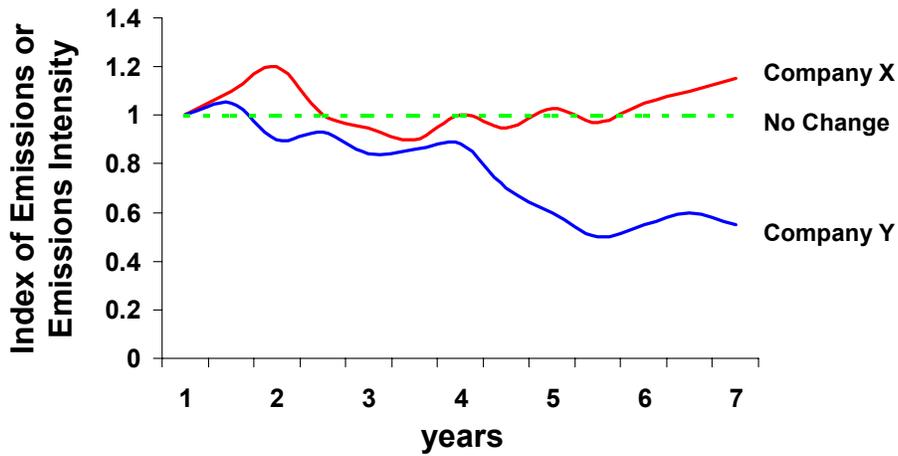
Emission Reductions

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)

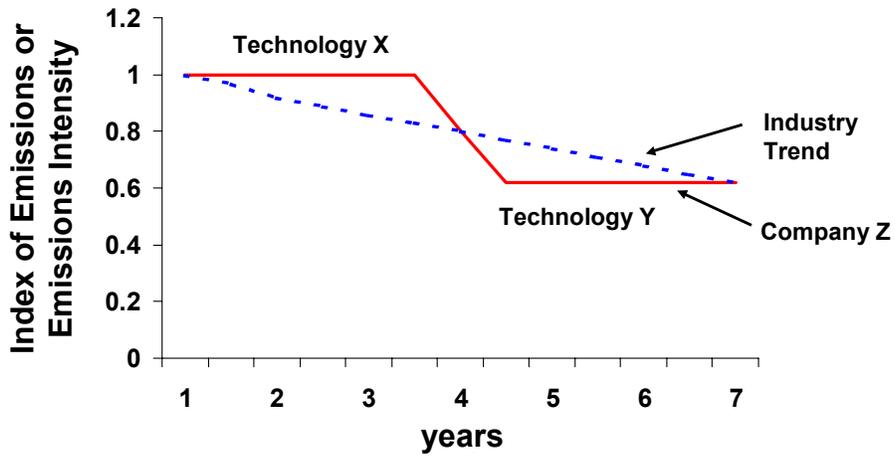
Emission Reductions

Annual Variability of Emissions or Emissions Intensity



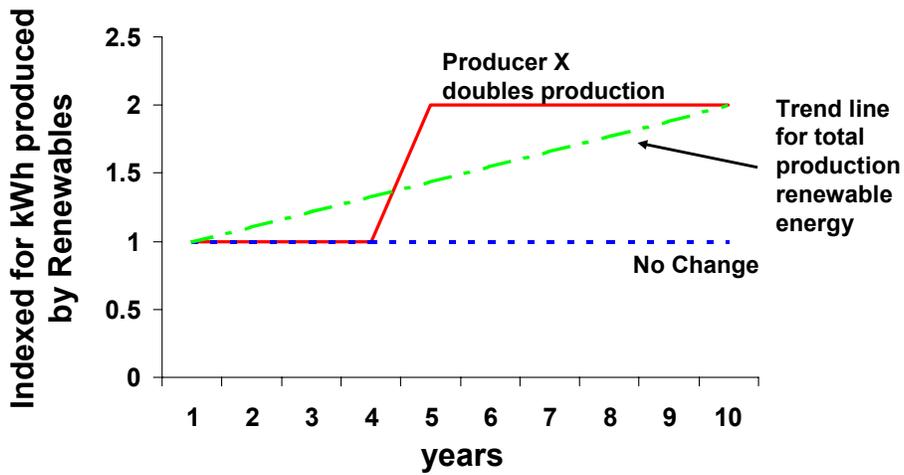
Emission Reductions

**Technology Y reduces intensity
Industry trend toward technology Y**



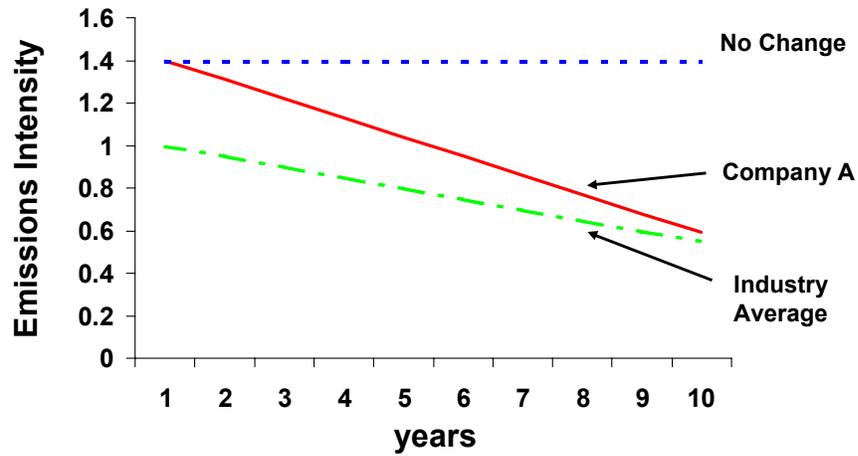
Emission Reductions

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



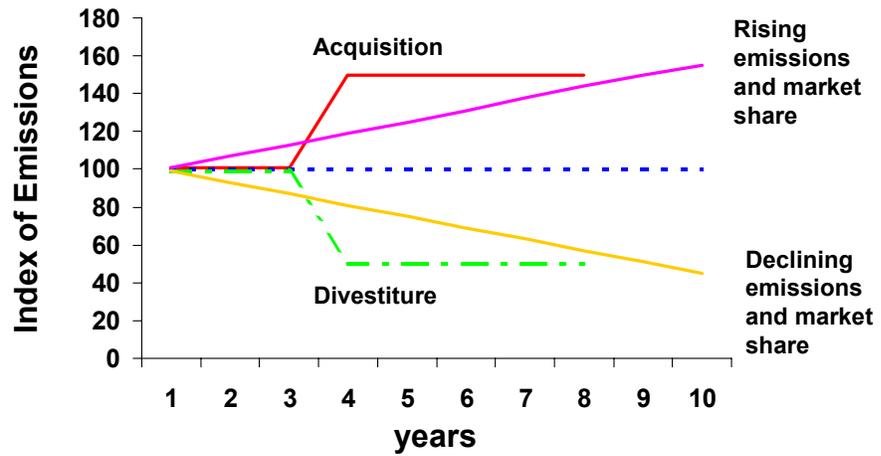
Emission Reductions

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

VOLUNTARY GREENHOUSE GAS REPORTING WORKSHOP

STENOGRAPHIC REPORT OF THE PROCEEDINGS from the
Workshop Session of VOLUNTARY GREENHOUSE GAS REPORTING
Donald E. Stephens Convention Center, Chicago, Illinois
December 5, 2002

DOUGLAS BROOKMAN, Facilitator

MS. ANDERSON: We had a workshop in Washington DC just a couple of weeks ago and we had a very good conversation on a lot of the issues we're going to discuss today. My office is responsible for providing the general policy guidance for the revisions in 1605(b), which we'll speak about in just a minute. And I'm here with other people from the Department of Energy and from USDA and from EPA we will introduce ourselves in just a moment to all of you so you will know who we are and so you can get in touch with us when you need to.

I want to briefly put into some context what we're doing here today and how we got here and what we hope our goals are for the next year as we move forward in revising the 1605(b) program. I'm going to move this over here so I can look at the overhead myself. Mike, the next overhead, please.

How did we get here? What is the overall policy context for revising the 1605(b) program? As some of you, I think, are aware the President has made a number of initiatives since he came to office about climate change. The first big announcement came in July of 2001 where the President kicked off a science initiative, a technology initiative, both of which to strengthen the core science on climate change and to redirect and look at the kinds of technologies that we're doing in order to reduce Greenhouse Gas emissions and sequester carbon, and those initiatives are well under way.

Just this week in Washington DC, there was a rather large Department of Commerce led science workshop. It drew 1500 people and a lot of press. There was published in the New York Times about the science initiative and the goals of the Departments of Commerce and Energy and USDA and EPA science program in order to benefit climate change. So that's a big part of what the President is trying to do in terms of better understanding climate.

In addition, on February 14th, 2002, the President announced a series of initiatives that are more related to the kind of work that we're going to talk about today and tomorrow, and those initiatives are centered around the establishment of a Greenhouse Gas intensity reduction goal for United States, and the goal is to reduce Greenhouse Gas intensity, that's Greenhouse Gas emissions over gross domestic product by 18 percent in the year 2012. We think if we do nothing, we'll get to about 14 percent, so we need to find the ways to get that extra 4 percent out in order to meet this goal of the President. He chose the Greenhouse Gas intensity goal because it allows the economy to grow while we're reducing Greenhouse Gas emissions, so we're not being penalized for Greenhouse Gas emissions that might be consistent with growth in the economy.

In order to meet this goal, the President introduced a series of initiatives. The one that I have bolded there is the direction -- the directive, the improvement in the Greenhouse Gas Registry, which is what we're going to be talking about here. But there are other initiatives that go along with that and that is the supported transferrable credit which we'll be talking about as well. He's supporting any number of financial incentives: Tax incentive for wind and removable energy, tax incentives on some R and D on technology are in that announcement. He also challenges physicists to take action to reduce Greenhouse Gas emissions. Now, all of these initiatives are further delineated in the Presidential announcements that are on our web page, and we'll give you a citation for that, as well as on the White House web page if you want to go in and read the details of these two directives related to climate. Next slide, please.

Now, this is a lot of words, but I think what's important here is what's in red because this gives us our working cards for what we're going to be doing here over the next few of days and what we're going to be doing with the Department of Energy and with our sister agencies over the next year or so. And the President directed us to propose improvements to the current voluntary emissions reduction registration program, 1605(b), to enhance measurement, accuracy, reliability and verifiability. He also told us to assure the businesses and individuals that register reductions are not penalized under a future climate policy and to give transferrable credits for real reductions. That's new. We don't do that now currently the under 1605(b) program. So that's an addition that we need your input on.

And finally, he directed the Secretary of Agriculture to take the lead with its sister agencies in developing accounting rules and guidelines for crediting sequestration projects. Currently in 1605(b) there are guidelines on reporting on reporting carbon sequestration and terrestrial systems, but the President wanted the secretary to develop this further and to make sure that those projects were component of receiving credit.

So for those of you that don't know about the voluntary Greenhouse gas registry, I'm going to mention a few words and then we're going to have Paul McArdle from our Energy Information Administration talk to you a bit about what's in the current voluntary program. But it was created by the Energy Policy Act in '92, it's managed by EIA, the Energy Information Administration. It records the results and voluntary measures to reduce a void or sequester Greenhouse Gas emissions. During 2000, our most recent database, we show over 222 entity companies and other organizations that filed Greenhouse Gas reduction reports and emission report.

You'll note and many of you know because many of you are currently are reporting or are familiar with 1605(b), the rules are very flexible because initially the reason to have 1605(b) was designed as a way to encourage participation in recording emissions and emissions reductions projects, so it was designed to be flexible in order to enhance participation. With the charge we have now to improve the accuracy, reliability and verifiability, it means that we might have to look at those guidelines to make sure that the current guideline meet this new directive.

So what did we do when the President told us to do this in February of 2002? The first thing we did is set a goal for ourselves and our goal is to have the revised guidelines in place by January 2004, which means you will be reporting during 2004 on 2003 data. There's always a lag. We designed an interagency coordination process to make sure that we weren't going at this alone. We recognize that this is part of the portfolio of many federal agencies who work with stakeholders in their efforts to reduce Greenhouse Gas emissions, so we have a group of people that includes folks from the Department of Energy, EPA, Commerce, USDA, the Council on Environmental Quality, State Department. I'm leaving somebody out, but it's quite a large group of people who are involved in helping us think about revising the rules.

We did issue a federal register notice of inquiry in May of 2000 and we got about 70 sets comments from stakeholders about what we ought to do to revise 1605(b). All of those comments are available on our web page. You can take a look at them and you can provide us with comments as well. I'll have to tell you a bit about that when we go through our process for the way forward.

In July 2002 Secretaries Abraham Veneman, Evans, and Administrator Whitman sent a letter to the President outlining 10 different recommendations for moving forward with 1605(b). And these recommendations were based on the information we got through the federal register as well as our many meetings that we've with stakeholders since February, and we have a flight of those recommendations if you need to see them, they too are on the website, but they provide a basic architecture for the way forward and we will be harking back to those recommendations throughout the next day and a half because they are proponent of some of the thinking we've done so are on what we ought to be looking at as we revise 1605(b).

In addition, we've met with stakeholders since February. We've done formal sessions, we've done very informal sessions and part of the more formal sessions, are these four public workshops. Again, we had a good workshop a couple of weeks ago, we're here in Chicago today, we're going to San Francisco and then to Houston to wind it up by Christmas. Next slide, please.

What is the process forward? In 2003 in order to get our work done to have the guidelines issued so that you can report it in 2004, we've got a lot of work to do. The first thing we want to tell you, we will be accepting post workshop comments really throughout the winter of -- this winter and January February next year. We initially in the federal register notice announcing these workshops indicated we had a date of December 20th to give us written comment. That's much extended. We don't want to cut you off to that date. We will take written comments. Thoughts that you maybe didn't have time to say at the workshop, thoughts that you had after you went back home and talk to your colleague that you want to submit for the record, we encourage you to do so, we'll give you the website at the end here, but we will be accepting post workshop comments.

In addition, during the winter, we will be drafting the revised guideline based on all the input we get from the workshop and from the written comments and from individual meetings that we have with folks, we're going to be revising the guidelines over the winter months. We will have to go into a public comment period probably in late spring. It may be a 45 day or 60 day comment period where you will have the opportunity to react formally to the proposed guideline and there will be a federal register notice on the schedule for providing those written comments. We'll then need to take your comments, revise the guidelines and at the same time, the EIA needs to be coming up with new recording forms, electronic recording forms and the actual instructions that go with reporting. So they will be doing it simultaneously as we are revising the guidelines. And then finally by the end of the calendar year of '03 we will have the new guidelines in place after getting a lot of input from our stakeholders.

Now, what we're going to talk about the next day and a half are the four fairly general topics and the topics are built on the president's instructions to us, the NLI, the four agency letter, and stakeholder interaction. And what we're really trying to do here is focus on the how to substantially improve the registry and how to protect and provide transferrable credits for remission reductions. That's a direct quote from the President's charge test in February. So we kind of get down on the weeds sometimes on some of the technical issues, that what do we need to do to revise these current guidelines in order to make sure that we can make them more accurate, reliable, verifiable, and lead to transferrable credit. That's what he told us to do.

So we've divided up the workshop into four areas: Emissions reporting where we need to talking about improving accuracy, reliability, and verifiability just for emissions report. We're then going to have a session on emissions reduction: How do you characterize what a reduction is, how do you measure what a reduction is. In this session we're going to have a breakout session for different industry groups to talk about issues that pertain more to their business practices and how they would define emissions reductions associated with the kind of work that they do. We'll then get back together and plenary to talk about verification issues: How do you verify, how often do you verify, who verifies, what's the cost of verification.

And finally we'll be talking about managing the registry. What does the Department of Energy or EIA need to do to manage the reports that are provided by stakeholders. What more do we need to be doing than we're doing right now in order to meet the President's directive.

You will hear throughout the next day and a half and you will hear, you will read if you read the background papers that we put on our website so called background issue papers, I believe there are ten of them that are available on our website. Several of you probably brought packets with you. We can get you a copy of them. It describes the number of issues you'll be working with, but you'll discern several different cross cutting themes that get repeated over and over and over again, and that's balancing rigor with practicality, stringency with flexibility. We recognize that if we really track down the program too far, we're not going to make it very

inviting for stakeholders to report. So we constantly need to balance the practical problems associated with reporting with the rigor that we're looking for in a more accurate program, again balancing the stringency with flexibility.

We need to balance the voluntary approach within a goal focused program. This is a voluntary program, it is not a regulatory program. Nevertheless, it has an over-arching goal and that is in helping the President meet his goal of 18 percent in helping reduce Greenhouse gases and do our bid in order to reduce the threat of climate change. So there is an over-arching goal, but it's a voluntary program. How do we balance those two?

How do we balance confidentiality with verifiability in order to promote credibility? And confidentiality is a huge issue for a lot of companies. We may be asking for different kinds of data within the revised program and we need to make sure that we protect the confidentiality of the information you're providing. How do we do that yet still have verifiable that provide credibility to a federal program? And so those are tricky issues to balance.

We need to build where appropriate on the current 1605(b) and other recording programs. There are any number of other efforts that are going on here in this country as well as internationally that we need to make sure we are aware of. We're not saying we have to be fully consistent with them, but we have to be aware that we are not setting up all kinds of reporting hurdles or contradictory reporting hurdles for companies and businesses who would be interested in reporting. So we need to take advantage of the good work that's been done by nonprofit organizations, the good work that's been done in the private sector on coming up with new ways to report Greenhouse Gas emissions and reductions.

Finally, another cost cutting theme is the comparability within the cross sectors. How comparable do we have to be? How comparable does reporting from agriculture and forestry need to be from reporting from manufacturing industry? Is this something that we need to worry about while we are revising the Greenhouse Gas reporting guidelines.

So in closure, these are the two web addresses and I believe there are any number in your packet referring -- there's reference to these in your packet. The first one is our main website where you can go and get information on the background papers on the workshop, you can get a copy of the transcript from the workshop in DC. It is there to be listened to and it's there, you can print it out. You can get a copy of the people who registered in the DC workshop. The second website is where you can send comments into as the process goes forward.

So I'm looking forward to a really great workshop, but before I close, I want to introduce the federal people who are here to assist you and assist our facilitator. And let me start off by introducing Paul McArdle from the Energy Information Administration, from the Department of Energy we have Mark Friedrichs, Arthur Rypinski, John Staub. From USDA we have Jim Hrubovcak. Where are you, Jim? You're over there. From EPA we have Maurice Franc and Vincent -- I'm sorry. Vincent, where are you, Vince?

MR. CAMOBRECO: Camobreco.

MS. ANDERSON: Thank you. Thank you. And we have our facilitator. Doug Recusa will be facilitating this session, Mike Rivest who will be the assistant Michael Scholand, and Adrienne Gvozdoch who is helping with the registration. So we are all here to provide some assistance to you and if you want to talk to any of us, please grab us and we will try and help you out. Before we move to Doug Recusa who will be facilitating this, I want to turn it over to Paul McArdle from our Energy Information Administration who is going to do a primer on current 1605(b) so everyone is on the same page as to what is 1605(b) and how might it need to be changed in order to meet the President's directive.

So, again, I hope we have a great workshop. Thank you so much for taking time out of your busy schedules to be here. I know for some of you it was a difficult travel, trip, but we're thankful you're here and we're glad we're not back in the snow back in DC. Thank you.

MR. McARDLE: Thank you, Margot. It's a pleasure to be here today and it's great to see all you folks here interested in the program. I don't want to take up too much of your time, but I want to give an overview of the existing program, how it exists now.

First of all, I want to cover the objective of my presentation. I want to provide you a program overview, give you some of the reasons people voluntarily report to the existing program now, discuss the organization of the reporting forms and the form review process, as well as give you some of the summary statistics of how many folks have reported, how many tons of reductions have been reported over the time of from 1994 to 2000. That's the latest year we have data for. The last bullet, current 1605 accounting method we're going to discuss through each session, subsection I guess you want to call it, as we go through the agenda.

First of all, the program was required by 1605(b) of the Energy Policy Act of 1992, hence the attractive name 1605(b) program that stuck. Not the catchiest, but people actually know. There's actually brain recognition there. It gives you a chance to establish public record of your Greenhouse gas emission reduction and commitment to reduce emissions in the future. It allows a broad range of action to be recorded. It's obviously a flexible program. And it was designed to encourage patience, the reports are self-certified, and the first data was submitted in 1994.

Now, in our first interaction with reporters and also how we kind of gleaned from the data. We basically made a list of why we think people report. Number one, public recognition for environmental stewardship. It's obviously a big issue with a lot of corporations and they value that.

It establishes a record of achievement so that down the road these folks are on the record of taking action to reduce Greenhouse Gases. It also, I think, has brought up to speed a lot of people on Greenhouse Gas estimation techniques because I think going back five or ten years, people weren't as knowledgeable about emission factors and how you would calculate Greenhouse Gas emission. I think the level of knowledge is much higher now. It certainly has diffused information on Greenhouse Gas reduction technologies, and one of the reasons we're here, it certainly has highlighted a number of Greenhouse Gas accounting issues because when Congress phrased this program, I think a lot of people didn't really appreciate some of the accounting issues and they really weren't spelled out when we went forward, hence we have a very flexible program with accounting rules that are flexible.

Here's an overview, very high level summary statistics. As you can see from 1994 to 2000, a number of reporters as increased from 108 to 222, more than a doubling. This year's number from 2001 will be 229. I think that's preliminary, but it looks like the number.

Projects reported have more than doubled, they've tripled and that's because you get a reporter on line and they add projects. So the number of projects increase faster than the rate of reporters.

And lastly, the reductions also -- they kind of -- The level of reductions mirror what's happening in the level of projects. So you also get kind of a tripling there where we had 73 million metric tons of carbon dioxide reductions reported in 1994. That number is now 269 million metric tons of carbon dioxide.

Now, this chart is very busy but I wanted to highlight -- I use it to highlight the flexibility of the program at this stage. There's two categories under the 1605 form which is our long form which is the predominant form you could use. You could report both at the entity level where you're reporting all of your emissions for your entity, or you can report specific project level reduction so you have that flexibility of going entity level reporting versus project level reporting.

It has two categories of what we call reference cases or baseline. It has your basic reference case, which is a historical baseline where you're comparing your emissions versus a point in past, calculating your delta. Or we also have a modified reference case which is kind of a

counterfactual reference case where you're comparing an action you took versus what would have happened in the absence of the action and then calculating that delta to get your reduction.

It has two categories of emissions reduction: Direct emissions reduction, which are basically reductions that happen inside the fence, so to speak of your facility; or indirect emissions where you take a particular action and it causes emission -- someone else's direct emissions to fall. So that's an indirect emissions reduction.

There's ten categories of emissions reduction projects and all the Greenhouse Gas, six Kyoto gases are covered. You can report your emission levels starting at the entity level starting in 1987 onward and you can report reductions from 1991 onward.

Schedule four of the form also allows people to record future commitment to reduce emissions in the future. We also have what we call the 1605EZ short form, hence it's kind of like, I guess, the 1040A the one page, two page form, and it's largely based for just folks that want to report just at the project level, very simple project, can only report for a single year, can't give any history, you can't report any international activities, and you cannot record your future commitment, and it was basically created for smaller entities.

Here's a schematic of the form just to give you a -- and this is the 1605 the long form made up of four schedules. Schedule one where you give your entity level information, who you are, et cetera, your coordinates, your contacts. Schedule two is what you use if you want to report at the project level. It has ten project types. I won't go over them all now, but I'm here and we'll probably discuss them as we go through the meeting. Schedule three is used if you want to report at the entity level, your entity level emission and reductions and you can also report both entity level and at the project level so that they're not mutually exclusive. Schedule four is designed to record your commitment.

And people always ask me, 'Well, when the data comes in, what do you do with it?' And so I also try to bring this slide along with me to explain what exactly we do when this data comes in to us. It's self-certified so the reporter is certifying its accuracy, but we don't just put it right in the database, it has to go through a review process with an EIA and it's basically a four step procedure.

First, an analyst looks at it and looks at it for internal consistency, plausibility, consistency with the existing guideline. That's the initial review, just the kind of the ocular, eyeball type review. Now, for those folks that report to us electronically and actually after we get paper forms in, which is the minority, but we also enter those into the software, there is built in edit checks in the software itself to find out where there may be inconsistencies in numbers. In other words, a number here doesn't match another number in another -- under another project type and when they're added together, they don't add up. So it's basically used for creating electronic checks to flag things.

Lastly, at least in the third step is a methodological edit check where basically we're looking at what type of methods reporters have used. Now, in the guidelines and in the reporting form, we have default emission factors, fossil fuel combustions, different applications for electricity, for example, but there are times, often times reporters will not use the default but use their own methodology and they'll write it up in the supplemental text and we have to go through that supplemental text to make sure the methodology makes sense.

So after we go through those three initial steps, we do what's called reporter follow-up. Now, some cases reporter follow-up is not needed, everything checks out in the first three steps. But where we have a flag in one of these first three steps, we start going back to the reporter and we start going back and forth to see if we can resolve where our differences are. And once after that process is complete and we're happy with the report, it's accepted into the database.

We also, I think, offer assistance to the reporters, excellent assistance, I believe. We offer communication center with an 800 number, staff 8:30 to 5:00 Monday through Friday, you can Email your questions to us at our info GHG address, we have a web address that has all

our forms, has a database, has all our accompanying documents at this web address here. Every year we create a new version of reporting software. It's networkable. What people do, we load it on -- we put it on our website, or if you don't want to download it over the website, we send you a CD, people download it on their machine, they do their forms, after all their forms are done, they actually Email it to us. It's what we call a GHG file. We put it into the database, we run it through the edit check.

We also mention that -- last step I mentioned where we have reporter follow-up, we sometimes provide assistance to reporters in terms of methodology on how to calculate emissions and reductions. And lastly, we provide a number of worksheets, spreadsheets and reporting aids.

Now, this is the slide I showed earlier, and I'm not going to spend a lot of time on it, but I showed you the first three rows earlier. Below that I have project levels broken out by direct, indirect and further broken out by reference tape. I'm not going to go over those numbers. If we need to draw on them during the workshop, we can do that. But I think the method here is most of the emissions are on direct emission reduction and also the reference case or baseline of choice is modified reference case.

Now, people ask me about entity level reporting because that's an important issue, obviously, with some folks. At this point our entity level reporting, I don't know if I gave the statistic up here, but I think in '94 we had about 44 entity level reporters, now it's about up to 100. And I've made this graphic up just to illustrate what percentage of entity level emissions -- what the level of entity level emissions are expressed as a fraction as a total of U.S. Greenhouse Gas emissions.

As you can see even since the program started, we've been up about 13 percent, it's ranged from about 13.3 percent to 15.5 percent in 1998, down to 14.8 percent in 2000. The reason that's a high number, I consider a high number, is we have very strong participation from the electric power sector, so that brings up the percentage there. Project level reductions meanwhile have grown from 1.1 percent of U.S. Greenhouse Gas emissions to 3.9 percent in 2000.

Here's a graphic on our project level reported reduction and I wanted to use this slide to illustrate how people report by gas, what is the predominant gas that is reported. And it's fairly obvious that CO₂, which is also the predominantly reported gas followed by methane. You know, the CO₂ can be explained by participation by the electric utility industry and industrial firms, whereas the methane actually started at a very small number but has since grown because a lot of landfill operators have come into the system because they've put systems in place to recapture the methane that leaks from landfills.

This slide is meant to illustrate the issue of direct and indirect emissions reductions. As you can see here, as I was mentioning earlier -- and this comes up a lot because people ask me about double counting, direct and indirect, and people may -- you know, some of those emissions could be double reported. Well, as you can see here, direct emissions reduction is varied from about 57 percent to 86 percent of total reported reductions. Conversely the range for indirect is 7 to 34 percent. But I think this is a good illustration of the fact that double reporting to the extent it exists is not as great, I think, as some people have thought. They thought it was much larger than this, but under boundary condition, it's at most probably 25 percent, even that and that's if all the indirect emissions were also reported at the direct emission, which is unlikely.

This slide is just also again to highlight what type of reference cases people use. And, again, under project level authority, it's varied from 81 percent -- you got 81 percent for direct emissions, 92 percent for indirect emissions and 93 percent of sequestration. So I think this illustrates the fact that up to this point people have chosen the modified reference cases. Again, to repeat, that's the counterfactual reference case or baseline where you're comparing against a hypothetical, which might have occurred had you not taken the action.

And when you do project level reporting, that's normally the case. And I have so more slides, but I want to save those for the individual sessions.

Thank you.

MR. BROOKMAN: Good morning, my name is Doug Brookman, I'll be helping along with to facilitate the meeting for the next day and recorders to disseminate, I think. Margot kept referring to a day and a half. We're not sure whether it will go a day and a half or whether it will go two days, but we do think we'll end a little bit early tomorrow.

I'd like to give everybody a chance to introduce himself or herself and I would like to do this by asking each of you at the table to pick up the microphone and I'm going to start with this table over here and I'd like you to just pass it around the table. We're going to distribute a registration list for everybody here so this is not necessarily for the record but as a matter of courtesy. So if you could say at your table your name and your organizational affiliation, and we're just going to go around the room and do this very quickly.

MR. WERKEMA: Tom Werkema of ATOFINA Chemicals out of Philadelphia.

MR. BROOKMAN: Thank you.

MS. HOWARD: Joanne Howard, John Deere, Moline, Illinois.

MR. BROOKMAN: You can take it off the stand, it will make it easier.

MS. HOWARD: It wasn't coming out.

MR. PEARSON: Craig Pearson, South Carolina Electric and Gas.

MR. BROOKMAN: Thank you.

MR. OUTLAW: Leon Outlaw with Santee Cooper, South Carolina.

MR. KIZIOR: Gary Kizior with BP here in Lisle, Illinois.

MR. KEATING: Jim Keating with BP.

MR. LOWERY: Dick Lowery with BP.

MR. BROOKMAN: Can I go here to you?

MR. MADER: Brian Mader from 3M.

MR. REAGAN: Bill Reagan, 3M.

{inaudible.}

MR. CHAPINSKY: Pete Chapinsky with ESP, Mountain Dew, California.

MR. SPENCER: Gregg Spencer with Blue Source in Salt Lake City.

MR. MERRITT: Larry Merritt, Ford Motor Company, Dearborn, Michigan.

MR. BROOKMAN: Thank you. Kristin, can I go to you next? Let's everybody all together, take the thing out of the stand. One person at the table grab it and hold it.

MS. ZIMMERMAN: Kristin Zimmerman, General Motors.

MR. BROOKMAN: Yes.

MR. RYPINSKI: Arthur Rypinski, Department of Energy.

MS. MEADOWS: Karen Meadows, Climate Control Network.

MR. JOHNSTON: Jim Johnston from the Heartland Institute to Publishers Environment and Climate News and I'm a retired economist from Amoco.

MR. STREITMAN: Fran Streitman, Ash Grove Cement Company.

MR. BROOKMAN: Kevin.

MR. ALDRICH: Kevin Aldrich with Toyota.

MR. REED: Brad Reed with Toyota.

MR. SCHULTZ: Steve Schultz with 3M.

MR. BALL: Jeff Ball with the Wall Street Journal.

MS. FARBER-DeANDA: Mindi Farber-DeAnda, SAIC.

MR. McARDLE: Paul McArdle, EIA.

MR. CAMOBRECO: Vincent Camobreco with the U.S. EPA.

MR. STROHFUS: Mark Strohfus with Great River Energy.

MR. FRIEDLANDER: Joe Friedlander, North American Coal Corporation.

MR. WILLIS: Steve Willis, Whirlpool Corporation.

MR. STAVY: Michael Stavy, independent energy economist. I'm from Chicago.

MR. FRANCL: Terry Francl with the American Farm Bureau Federation.

MS. ANDERSON: Margot Anderson, Department of Energy.

MR. FRIEDRICH: Mark Friedrichs, Department of Energy.
MS. KISTLER: Karen Kistler, Maytag Refrigeration Products.
MR. KRAMER: Glenn Kramer, Amerada Hess Corporation in New Jersey.
MR. FRANK: Alexsa Frank, U.S. EPA.
MR. HRUBOVCAK: Jim Hrubovcak, U.S. Department of Agriculture.
MS. VERNON: Melissa Vernon, Interface, Incorporated, from Atlanta, Georgia.
MR. OSHNOCK: Gary Oshnock Daimler Chrysler.
MS. SAWUKAYTIS: Violet Sawukaytis with Gas Recovery Systems in Ann Arbor, Michigan.
MS. PETERSON: Patty Peterson NiSource.
MR. WERNER: Kevin Werner, Resource Technology Corporation.
MR. BACERRA: Stephan Bacerra, John Deere.
MR. BROOKMAN: Yes, please.
MR. JIROUSEK: Mike Jirousek, First Energy.
MR. MAY: Chuck May, Conectiv Energy.
MS. BACHUNAS: Carla Bachunas, Rock-Tenn Company.
MR. BAKER: David Baker, Illinois Department of Natural Resources.
MR. MOORE: Jim Moore with Ameren Corp. in St. Louis.
MS. RISSE: Karen Risse with International Paper in Memphis.
MR. CLOUD: Stephen Cloud with the American Petroleum Institute.
MR. STAUB: John Staub, Department of Energy.
MR. GESELL: Greg Gesell, American Ref-Fuel Company.
MS. WALZ: Barbara Walz, Tri-State Generation and Transmission Association.
MR. HENNEN: Eric Hennen, Dairyland Power.
MR. STERNER: Rick Sterner from Lehigh Cement Company.
MR. MARTCHEK: Ken Martchek, Alcoa.
MR. SHIH: Jack Shih, International Truck and Engine Corporation, Chicago.
MR. WANG: Nianzhi Wang, Holcim, U.S.
MR. CLARKS: Tom Clarks, {inaudible} Detroit.
MR. LYNCH: Paul Lynch, KeySpan Energy, New York and New England.
MR. BAILEY: Tom Bailey, Cinergy Corp.
MR. HOPPER: Paul Hopper, Alcan Aluminum, U.S.
MR. THOMSON: Fraser Thomson, Alcan Aluminum.
MR. VERDIANI: Don Verdiani, Sunoco, Philadelphia.
MR. ANASTASIA: Orestes Anastasia, SAIC.
MR. BROOKMAN: Thank you. Did everybody get a chance to introduce him or herself?
You didn't?
MR. OMAECHEVARRIA: Josu Omaechevarria, New York Power Authority.
MR. MUSUR: Al Musur, I'm with Abbott Laboratories.
MR. RATHEAL: Ray Ratheal, Eastman Chemical Company.
MR. BROOKMAN: You can see already the challenge we're going to have as the day goes on.
MR. RIVEST: Mike Rivest, Navigant Consulting.
MR. MONROE: Vic Monroe.
MR. BROOKMAN: Thank you. Thanks to all of you. Nice to have you here. Thanks for being on time. We have a full day ahead of you today and a full list of engagement over the span of the next two days.

I hope all of you have your packet and have looked at the agenda. I'm going to go through this very, very briefly. You can see I'm beginning the 9:30-10:00 agenda and workshop program review right now, so we're ahead of schedule. That's good news. We will go from there to describing in session one emission reporting, improving accuracy, reliability and verifiability.

In your packet also I think you'll find, all of you, a Xerox copy of the power point slides that will be used to cue the discussion over the span of the next two days. The format for this workshop will be to be flashing these slides up here onto the screen and so that people who wish to comment can refer to issues that seem to be logically grouped and clustered. A significant amount of effort went into creating the slides and also the background papers.

How many of you got to look at the background papers in advance?

{Show of hands.}

Well, that's a very good sign. So that's good.

Let me, one, through the business of polling, how many of you have a significant amount of experience or familiarity with the registry and reporting program? Let me get a show of hands.

{Show of hands.}

Wow, that's better than I expected. That's great. And how many of you are fairly new to the business of registry and 1605(b) and all of that?

{Show of hands.}

That's most of the rest of you. Do any of you cost by yourself to be in the middle?

{Show of hands.}

One. Good that they're still listening.

Okay. As I looked at the participant list last night, I was pleased to see we have so many representatives here from different industrial groups and utilities and other groups. In Washington, the last workshop we did, we had kind of a major skew towards Washington based consultants and the like. So I'm hoping as we go on here today that we'll get some real world experience in the record today.

So in going back to the agenda which might -- you don't need to find it if you don't need to. You will see as you look at the agenda in the 10:00 o'clock to 12:00 o'clock block on page one that there are three different groupings, content groupings that we hope to cover this morning. We will take a break mid morning around about 10:30 or so. We'll have lunch from 12:00 to 1:00. We'll be describing places where you can eat for those who are not familiar with this location at that time.

We'll return at 1:00 o'clock and go back to, once again, issues -- well, take up the issues of emissions reduction and sequestration, characterizing and measuring. You can see the content blocks there. Around about 3:00 o'clock in the afternoon, we're going to have different breakout sessions and you can see them listed there:

Electricity generation, industrial and other large sources, small distributed sources, agriculture and forestry sequestration.

We intend to adjourn today at about 5:00 o'clock.

We'll start again tomorrow morning at 8:30 and we'll have a report back from those breakout groups that are going to happen this afternoon and maybe see if we can capture some cross cutting themes that emerge. We'll go from there about 10:30 or so to verify emissions and reductions. Once again we'll have lunch at midday. And then we'll go from there to describing how one would manage the 1605(b) registry and the specifics you can see listed there.

In the Washington workshop there were more people than here. There were about at least 110, 15, 20 participating most of the time and we finished at noon the second day. We are scheduled to adjourn tomorrow at 3:30. We want to make certain we preserve enough time to get kind of detailed discussion in so it's conceivable that we'll end tomorrow earlier than is reflected in the agenda. Okay. Questions on that?

These are my objectives for this workshop that we provide an opportunity for a detailed exchange of views on key issues. That is, a detailed exchange of views on key issues. Exchange being one of the key words there. And that we get through all the major content areas. We're doing four workshops around the country as a way of providing an opportunity for

everybody that does wish to comment to comment. Some people have a kind of a narrow focus and -- you know, issues they wish to take up in this so we have an obligation to get to all the content areas.

I'm going to suggest and ask for your cooperation in working with some norms that have proven very effective in previous workshops.

I'm going to ask simply that everybody speak one at a time. Please say your name for the record. This entire meeting is being recorded and both a transcript and an audio record will be provided for anybody that wishes to listen to them or look at them. I'm also going to ask that you be concise. Please share the air time. It's really time to focus your comments down. There's a lot that needs to get said and a lot of people are going to want to say a lot. So if you could keep it very brief and very focused, that will be very helpful.

I'm also going to ask that you keep the focus here. Please turn off your cell phones, turn off your pagers, put them on buzz. And if you need to have a side bar conversation that's going to be more than about 30 seconds, please take it out of the room, we'll understand. Some of you might need to consult with your colleagues. That's completely understandable.

I'm going to be cuing people to speak. I'm literally going to be recognizing you and you and you and I'm going to be trying to call you by name if at all possible. I also wish to try and entertain follow on comments so we have that exchange going on. Please make it possible for me to do this. And if I drop you out of the cue, don't let me do it. Start waving your hand or something, okay? I'm going to try to keep this going that way, but inevitably I'll mess up.

See if you can keep your follow on comment especially brief, then it will keep the flow of things moving ahead. And while we're at it, a lot of you have table tenants, if you can turn them toward me so it's easy for me to read them. And we've already seen the business with passing the microphones around. That's going to be something a challenge. You may wish to get them off the stands now. And, yes, maybe pull the water forward on the table so the coffee cups are not tipped.

And then finally I'm going to ask for your consideration in trying to listen as an ally. I find that the quality of the discourse and the discussion hinges entirely on the quality of the listening. And the good news is I find that the further I move from Washington DC, the better the listening particularly gets. That seems to be the epicenter of non-listening or poor listening or something. So I ask for your help in trying to listen hard with me so that your follow on comments are in the same vein.

Questions, comments before we begin?

Okay. Well, let's start. Let's have that first slide. As you can see, Margot has already referred to many of the cost cutting issues as did Paul McArdle. You can see them there: Rigor versus specticality {sic}, confidentiality, verifiability, relationship to other reporting programs and protocols, and comparability within and across sectors.

So these are the issues that we ask you to think about and kind of keep in the back of your brain as the kind of balancing that needs to go on that the Department along with the other federal partners will need to be considering as they go forward with this program. So the first major topical area is organizational and geographical boundaries.

For those of you who haven't had a chance, the annotated agenda, which is also in your packet, goes into more depth on these subjects and it tracks -- it's structured the same way as the power point slides are so you can open up your annotated agenda and on page five you will see organizational and geographic boundaries. And I think you'll find in most cases that these bullet points here kind of correspond to a paragraph of text to kind of keep cuing you into wider frame that way. Okay? So what I'd like to do now is just encourage people to comment on the issues of entity wide reporting.

We have a graphic on this, don't we, on entity? Do we have a graphic on --
{inaudible}

We changed the formats since the last one and I didn't adjust. So we're going to cue on Paul.

MR. McARDLE: Okay. I'm just cuing on this session which is dealing with -- what is the session, title of it now? Emissions. Okay. Emissions reporting and there's -- the sub session is, I guess, 1:1 and that's organizational/geographic boundaries and what I'm trying to highlight here is two separate issues; and that is, who can report and what initiatives can they report geographically. Now, right now under the current program we have a definition for entity and it includes corporation, association, smaller organization, and also in some cases we've had what we call sub entities report, where a subsidiary of a corporation has reported.

Now, the reporter must be a legal U.S. person and an example of that is a company that is recognized by U.S. law. Federal, state and local government agencies may also report, individuals may report. And right now I'm going to divert from the slide and just give you the definition of an entity under 1605(b). These are the folks that can report. It's an individual or organization that is a legal U.S. person, e.g., a U.S. citizen, resident alien, company, organization, or group incorporated under or recognized by U.S. law or a federal, state or local government agency. So basically we're looking at U.S. operations, a company that's recognized by U.S. law, U.S. citizens, U.S. organizations.

Now, the other issue highlighted in this slide is geographic boundaries. What emissions can report. Under the current program, both U.S. emissions and reductions can be reported as well as non-U.S. activities. We do, however, ask the reporter to report those separately under a separate part of the form so we can distinguish between domestic actions and international action, by far the predominant, at please geographic activity that is reported as domestic, most of the international activities, and I'm going to say it's probably less than 10 percent of total reductions reported. They're mainly carbon sequestration projects around the world, tropical areas where they're preserving rain forests or planting trees, et cetera.

MR. BROOKMAN: Do we have a entity slide you want to put up there? No? Not at this point? Okay. So then go to the --

UNIDENTIFIED PARTICIPANT: No, it's not necessary. It doesn't matter, you can put it up if it's fast.

The question that comes up is why are we doing this, why is this important? And I would suggest that the President's initiatives requires that the voluntary reporting program be made suitable for transferable credits, that that gives us our design objective, and it suggests that we need to take measures to enhance the comparability and credibility and verifiability of reports, and that in turn may imply more standardized organizational boundaries.

The most fundamental organizational boundary is what does a reporter actually report on? And within the existing program, as you've heard from Paul, there is sort of two concepts:

There's the concept of what they're reporting on is the emissions of a corporation or a public body or an organization, and they are therefore reporting on their emissions over time.

A second sort of conceptualization of what the reporter reports on is the consequences of an action, that is on what is called in 1605(b), speaker project.

So there are these two notions. If we follow the notion that the reporter is an entity and he's reporting on the emissions of a corporation or public body, then we need to define the limits of that corporation or that public body or that entity. What's in the entity and what's out of the entity. If it's a subsidiary, does the parent company have to report; if it's a parent company, does the subsidiary have to report. What is the subsidiary, if the subsidiary is fully owned, perhaps yes. If the subsidiary is only a minority share, how do we handle minority owned subsidiaries. Suppliers, contractors, domestic and foreign operations. Emissions imbedded in the products produced or sold by the corporation. All of these are boundary questions and that's what we'd like to address this morning.

MR. BROOKMAN: Thank you. We're hoping to address these questions here and why don't you just have your comments. Encouraging entity-wide reporting, who would like to define an entity, let's start with those two. Who would like to get it started? Al?

MR. MUSUR: Al Musur. That sort of depends on what the underlying purpose of doing the underlying reporting in the first place. I have a problem with a program that only reports project related reductions because you don't indicate anything. If the true objective of this is to effect some global change, only reporting good news isn't going to get us there. Anytime you report a project that shows a reduction, there still no requirement that shows the projects that didn't provide reductions or growth to anything.

MR. BROOKMAN: It would be too narrow a report, too limited a subset, perhaps. All right.

MR. MUSUR: If you do entity wide reporting, then the bottom line condition becomes a U.S. versus a multinational thing. We're a multinational company. I could effect a reduction in the U.S. by moving an operation to some other country, and so I get credit here, but there still would be to net reductions. So the question becomes, what are we trying to accomplish here?

Talking about, you know, the protocol issues, okay. Are we going to -- if we set a boundary for whether this is entity wide or project, we also have a problem with what is it we're going to actually report, and there are no less than three, possibly four protocols floating around for how you do that. WRI has got one, GLI has got one, Acuson {phonetic spelling} has got one, and climate leaders adopted one, I think it's the WRI one with some modifications. There's a lot of people doing a lot of work on that. It is the intent of this to come up with a fifth one, are we talking about adopting one that's already sitting out there?

MR. BROOKMAN: That's a good question. Let me direct that to somebody in the Department of Energy. Your name, please?

MS. ANDERSON: Margot Anderson, Department of Energy. The intent is not to create a fifth one. The intent is to revise the current one that's been in existence since 1992, been reports in it since 1994 to meet the President's directive of making it more accurate, reliable and verifiable.

Clearly it will be building on the different protocols that you've mentioned. WRI has done a tremendous amount of work as has some companies on how better to measure and accurately record emissions and emissions reduction. We think that there is a one federal reporting program, and that is 1605(b) and our charge is to make it better as well as improve it such that we can protect against future climate policy and offer transferable credit. We agree that the difficulty may be that there are any number of international protocols going on, the signatories of the Kyoto protocol have their own set of problems that they're going to have to deal with. Right now we're trying to revise the federal reporting program building on the good work that has been done in the nonprofit world and in the federal and private sector as well as build on a very strong 1605(b) program. So I hope that helps.

MR. MUSUR: is the EPA involved in this process here today to talk about what they're doing with climate leaders? Because I think there could be conflicts between what they're trying to get people to do and what 1605 is trying to get people to do or record.

MS. ANDERSON: We have two representatives from EPA who can talk about climate leaders. So they're there free the way if they'd like to.

MR. MUSUR: My problem is multinational company, regardless of what the intent is of this particular group in looking at 1605(b) is leaves me with the problem that I've got multiple forces working on me to report different things to different people for different purposes, and certainly not 1605(b) may satisfy your needs, but it certainly doesn't go very far to satisfy my problems.

MR. BROOKMAN: Right. Got you. Thank you for that comment. And that last comment was from Al Musur.

MR. MUSUR: Yes.

MR. STAVY: Michael Stavy, independent energy economist. I specialize in removable energy, but the question I have is why is this done by entities rather than by industries? It's industries that pollute or don't pollute, and it doesn't matter what the -- I mean, is this on a voluntary basis -- for a volunteer, they could do it either way, it should be by the industry.

MR. BROOKMAN: And see what the advantages of reporting by the industry are.

MR. STAVY: Well, it's better for macro control of the pollution from the economy. Say what the auto industry, what the electric industry, what the entertainment industry.

MR. BROOKMAN: And just to be clear, how are you suggesting that all of the individual entities or corporate persons that are out there that that then results in an industry-wide report?

MR. STAVY: Well, if it's a utility industry, the entities don't matter. I mean, if they're functioning within that industry and they're volunteering to report, then that industry, those -- it's by industry.

MR. BROOKMAN: What, there is some aggregation going on somewhere.

MR. STAVY: Oh, yes, that's the only way to do it in my opinion

MR. BROOKMAN: Brad Reed. I saw you.

MR. REED: Yes, Brad Reed. Part of the problem with that is that there are proprietary interest that we don't want released to our competitors in the industry. And what you're proposing is an industry wide report would open up our proprietary interests and we don't want do that.

MR. BROOKMAN: That's helpful. Would you address, and I'll take a look once again at the slide. The four agencies that Margot referred to is trying to encourage entity-wide reporting. The question remained is define an entity and how to direct these other questions as well about boundaries, how much flexibility in defining boundaries, and you already raised the issue of U.S. and non-U.S. reporting. Other comments about that?

MR. REED: Brad Reed again. Entity-wide reporting. I agree with Al, just reporting projects doesn't do it, but you have to include the projects within the entity wide reporting in order to show the difference between business as usual case and what you're new industry or new technology developments do. So the question then is, how far do you go with the entity and I'm sure Toyota is going to have the same issue of trying to report under 15 different protocols around the world.

MR. BROOKMAN: How far would you suggest you go with the entity reporting?

MR. REED: I would think -- we have got kind of an umbrella organization from North America and I think Toyota can easily report under that. But we're not going to try to report what TMC does, or what TMC Australia does, or TMC Thailand, or TMC Europe; that doesn't make any sense at all.

MR. BROOKMAN: So you would use the umbrella for North America -- did you say North America? To take the U.S. emissions, you would also be missing or capturing the project related stuff. Would you have the capacity to list, even though you might not choose to international, non-U.S.?

MR. REED: No, we wouldn't have the capacity to list non-U.S. because we don't have control of that.

MR. BROOKMAN: Thank you. Your name please.

MR. THOMSON: Fraser Thomson with Alcan Aluminum. Just to address the question that he just raised about whether or not you have a capacity to list international operations and the emissions from those. We operate in a about 40 different countries around the world and some of those already have reporting requirements which differ from those here in the U.S. that differ from those in Canada, et cetera.

I think that if we were to report, it would be, as others have said, predominantly on a U.S. basis exclusively for the reason that if the calculation methodologies differ, or if the definition of an entity differs between regions, you get into a position where you're reporting one number for a facility to a specific government and another number for that same facility. And so

until we have an international set of rules or some agreement internationally that clarifies beyond what the WRI and WBCSD have put forward or the GRI for that matter as to how you do the calculation. Multiple reporting on a single installation seems -- puts us in a position that we would prefer not to be in.

MR. BROOKMAN: Not only is it an additional burden, but it really makes it possible for there to be discrepancies based on the means of calculation and all that stuff.

MR. THOMSON: I would just like to address one more issue regarding the project. And I think there are some instances -- while I agree on the basis of an entity that we should have some guidelines as to what represents an entity, there are some times of emissions that are not easily quantified. And some of those require that you take a project approach and I don't think that we should abandon that out of hand within the context of the program.

MR. BROOKMAN: Would you agree with Brad's comment the projects could be listed as an aspect or a subset of the entity report?

MR. THOMSON: They may in some cases, but I believe there are others, be it -- some of the consumer use malls. There are a lot of other elements of society that contribute to Greenhouse Gas Emissions that don't fall under the strict definition of entity that may require an approach that isn't a strict subset of your own operations.

MR. BROOKMAN: Thank you. Thomas Werkema.

MR. WERKEMA: Yes, Tom Werkema, ATOFINA Chemicals, I want to echo at least a little bit of that last comment but also give a little push back on the concept of strictly entity reporting. ATOFINA's parent oil company, we operate world wide under 8,000 different subsidiary names and legal entities. Within the United States, well in excess of 30. For us to say within the United States, even, that we're going to have to take a position where we have to report the entire corporation, it just functionally doesn't work. Furthermore, a lot of our business decisions are made offshore in France which is where our parent is headquartered. Within a given plant, we may actually have several business units that are independently making decisions that effect investment within the plant.

What that means is that to only restrict ourselves to entity-wide reporting, we would have to get all of those different businesses to say, Okay. We'll all report. Whereas, we may have some of them who say, Yes, we want to do that. Other business managers may, for whatever reason, take a different position. With that in my mind says is that we need to have the flexibility to continue within this program, that allows project, allows definition within the individual reporting, whatever that definition may be for that given corporate situation.

MR. BROOKMAN: When you said definition there, I thought you meant definition about the structure of the kind of breakout of those bodies inside the entity.

MR. WERKEMA: That's correct.

MR. BROOKMAN: Not necessarily definition about what should be included, what should not be included.

MR. WERKEMA: No, I think we're in the boundaries, but boundaries being defined by whoever the entity is within their given circumstance which vary I think for every business that is represented in this room.

MR. BROOKMAN: This is a time where we might be able to evoke some empathy from the Department of Energy and the other federal partners about the flexibility and still also do-ability and consistency in that mix.

Other comments on this subject of entity, entity-wide reporting, what defines an entity and how to define corporate and institutional boundaries. We haven't addressed specifically equity share, operational control and government issues yet. You first and then to the back. Your name, please.

MR. FRIEDLANDER: I'm Joe Friedlander with North American Coal. I think in the future there's going to be transferable credits with monetary value attached to them. There's going to be ownership associated with them, and the ownership of those credits should reflect the

reporting so that there's -- whoever does the reporting, whether it's by a subsidiary or a larger company, should be reflective of who can lay the legal claim to those credits, much like you do for tax credits or something like that. So it's got to be individual for an individual company.

That company over there has 200 subsidiaries, maybe most of the subsidiaries report their tax separately. And some companies might have several subsidiaries and they all report together for tax purposes, laying claims to tax credits and that might be the same thing here. So you don't get into legal squabbles as ineffably it will be if there's monetary value attached to these who can lay claim to the credit. I think a company should take a look at the ownership, the actual financial or monetary ownership of those credits of the future. And that's the way I would look at reporting.

MR. BROOKMAN: And each individual entity or company would structure it the way they wish to structure it?

MR. FRIEDLANDER: I think each company would structure it the way they structure it along the same lines as they structure their tax reporting, or their financial reporting.

MR. BROOKMAN: Is that the metaphor or the guidance?

MR. FRIEDLANDER: Well, metaphor, guidance, model, whatever word it is, but I guess it's sort of a model. You know, I like to claim everything, you know, for tax purposes. You know, I'd claim my brother-in-law's dog, you know, but you can't do that. So the same thing here. You've got to look at what you can legally justifiably claim and that's what's going to happen in the future when there's monetary value attached.

MR. BROOKMAN: Thank you. Who is next? Yes, your name please.

MR. HOPPER: Paul Hopper, Alcan.

Earlier in the session there was a question put on the table that I haven't heard an answer to yet and it was with regard to the interface or integration, if you will, of current reporting that goes on between voluntary programs and EPA and DOE. I heard DOE indicate that the 1605(b) will be the reporting platform, fine; but I'd like to hear something from EPA relative to climate leaders, the AAIP2, and a variety of other volunteer programs that are going on today, and how might we integrate this, and what is the assurance that the agencies within the government got something going to hold us together.

MR. BROOKMAN: Thank you. Vincent.

MR. CAMOBRECO: Yes, well, I can speak to the climate leaders program.

MR. BROOKMAN: Say your name for the record.

MR. CAMOBRECO: Vincent Camobreco with the U.S. EPA. In our program is not a registry, we're not sort of task to provide any credits. So what our program is is basically working with companies to set a corporate wide Greenhouse Gas reduction. So We're looking at specifically entity level reporting and how we define our reduction is based on a historic record. So a company is reporting from one year to the next.

Paul mentioned that would fall under the sort of basic reference takes to the 1605(b). So we're only looking at sort of a specific part of what 1605(b) is. We don't look at project reductions. Solely focused on small portion. So I guess that's one of the major differences. And in terms of coordination, I think we're working with DOE and providing what we're coming up with. So eventually, hopefully, at least with the sections that we overlap will be consistent between the two programs, I hope.

MR. BROOKMAN: Margot Anderson.

MS. ANDERSON: Margot Anderson, DOE.

There are other voluntary programs that work with stakeholders in the Department of Energy. They're like other federal offices as well in addition to what EPA does, which is essentially it's been said, work with companies that want a commitment. The major reporting vehicle is 1605(b). Currently many of the 1605(b) -- or, there's a climate leader partners report under 1605(b). Ideally there is convergence on reporting protocols. WRI is not a registry, it is a set of guidelines about how to report. And ideally at the end of the day when different federal agencies

are working on guidelines for reporting or the nonprofits are the private sectors, there is convergence on all of us have a shared understanding on how you measure remissions and emission reduction. There should be one federal reporting program, but we're likely, as I said before, to draw on the different rules that are out there, the different developments about how to do these things. So that there is convergence and I think that that is pretty likely.

If you look at the different ways that people are measuring and characterizing emissions and reductions, there already is a more common understanding about what those mean. There may be different focus on whether you should report under only using entity or whether project should be allowable, that's the kind of discussion we're having here today. But coming up with the types of rules on how to do that, I think there can be a great deal of convergence over the next couple of years.

MR. BROOKMAN: Mark Friedrichs.

MR. FRIEDRICHS: Mark Friedrichs. Just to add to that, what we'd like to hear today just in particular, of the protocols that are out there, the models that are out there, there are some that you feel we should give special consideration to that are better than others, and what should we use as a model for our own guidelines here?

MR. BROOKMAN: Paul.

UNIDENTIFIED PARTICIPANT: I'm not so sure that it makes a whole lot of difference whose protocol we decide on as long as it's the same protocol for all of the reporting. And it comes down to issues being raised how you define the entities and how you do the reporting. We have partnerships with people and we have subsidiary companies and, you know, who gets to report those emissions for those individual pieces is all covered differently by the different protocols. Let's pick one and everyone do it the same way.

MR. BROOKMAN: Paul McArdle.

MR. McARDLE: Paul McArdle from EIA. Just a bit of history, and I have a slide on this and I include it in my presentation. Over the years 1605(b) has served as a reporting mechanism for a number of other federal programs, DOE, climate challenge, EPA landfill methane outreach program, coal bid outreach program, climate wise which has now become, I guess, became part of Energy Star. But those folks have gone out and run their own program and recruited their members, but what they've done is, they report using 1605(b) as a reporting mechanism. So I just want to throw that in because that's what we've done historically up to this point.

MR. BROOKMAN: Steven Schultz.

MR. SCHULTZ: Steve Schultz from 3M Company. I would like to echo Al Musur's comments about one program. 3M is a multinational company, operations in 60 countries and some of these countries we have operations in will be abiding by the Kyoto protocol, and I can foresee the problems we would have reporting under various different mechanisms. I would like us to converge on one. It wouldn't matter what we call it, and maybe we can call it 1605(b), but use the guidelines that the Greenhouse Gas protocol has developed to make it consistent to make it easier for all of us.

MR. BROOKMAN: Thank you so much. Yes, please.

MR. MARTCHEK: Ken Martchek with Alcoa, we're also multinational. We would echo those comments that we have places all around the world. We're using the Technoli {phonetic spelling} protocol as one example. We want one common set of guidelines. We think it's very reasonable in terms of a balance between rigor and practicality. We have a lot of decisions up there that are going to have to be made around what gases are covered or how to handle acquisitions and divestitures. It would be great if we could to set along one set of rules so that a ton would be a ton in the U.S. and a ton in Canada or Australia. We're fearful that if everybody comes up with their own accounting system, then it will be tougher transparency, tougher international trading and tougher communications if that happens otherwise.

MR. BROOKMAN: And would you comment further on the WRI guidance and definitions. Are they working for you in their present form and is that one you recommend or others you recommend using?

MR. MARTCHEK: We would recommend them. We use them for general guidelines for things like how to treat acquisitions and divestitures. We've actually had to create an aluminum specific part for -- they are very general guidelines, but we'd like to be able to use those guidelines for EPA, for DOE. I mean, for -- in other done countries as well so that we know what the difference, so again, a ton is a ton throughout the U.S. as well as throughout the world.

MR. BROOKMAN: Let's stay on this subject a little while longer. I saw Michael first and then we'll go to the back of the room. Other comments on other guidelines for reporting other perspective registry programs and how they might fit with the 1605(b) and your preferences and even the limitations that are there. Michael.

UNIDENTIFIED PARTICIPANT: I just had a question about the entity reporting. Why is that to keep the confidentiality better than the industry reporting, I didn't understand that, the gentleman asked the question, comment after that. No one else here has discussed industry or reporting.

MR. BROOKMAN: We're going to deal with confidentiality in greater detail later in the agenda. We'll return to that.

We're going with the issue of other guidance and converging 1605(b) and how they can be similar or aligned. Yes.

MR. THOMSON: Fraser Thomson with Alcan. I agree with the comments that Ken has made. We also have been using WRI, world business council model generally in the facility, as an industry, of course, I just wanted to add to that to say that it doesn't resolve some of the issues that are up on the board, particularly the one that fall under your third bullet point. It leaves equity share to be decided by the entity. It also leaves the definition of what belongs in your inventory up to the entity to determine as well. And that's not necessarily the kind of resolution that you need to manage a program that spans across a country.

It works for an individual reporter, and in particular for a multinational that crosses across national boundaries. But within a country, it still leaves us with questions on the table about whether there should be a decision about how equity shares is accounted under 1605(b) or what do you do with operational control. And I think that there are -- it provides guidance, but it leaves probably more flexibility than is useful for a voluntary program. So we have -- it leaves us with some decisions to take.

MR. BROOKMAN: I saw this gentleman in the back then to you. Your name for the record.

MR. LYNCH: Paul Lynch, KeySpan Energy. My concern with multiple reporting methodologies is practicality. As a person who has been dealing with 1605(b) since its inception and who has gone through a lot of problems with daily utilization, I have found that the more entities you report with -- not necessarily on this issue, but on other issues. The more people you give data to, the more rapidly the data deteriorates. You give a piece of information to DOE, you give something to EPA, you give something to WRI, the next thing you know, all three groups have done stuff with that data, that if you go back and bring it back in to some point, you suddenly find no comparability at all. And if you think about it from the financial mess in Wall Street in general where it's real money in the billions of dollars and how difficult it is to account for that, think what's going to happen when you're talking CO2 where in people's mind in general it has no value.

MR. BROOKMAN: So you would be an advocate of having some well-defined rules about these corporate and institutional boundaries.

MR. LYNCH: I think if you don't, you will not be able to compare one entity to another. You won't be able to even look at a company and make sense of what it means in the long run. You're going to have one person who does the work in 2002. In 2005, somebody is going to

come in there and take a look and have no idea where that data came from or how to duplicate it or even what it means. And --

MR. BROOKMAN: How can we reconcile these differing viewpoints. We heard that some companies are so many complicated and so -- such a huge variation in how companies do reporting. How can it be worked so that we can maintain both accuracy and workability and not create too much of a burden on the companies that are doing the reporting? Kristin, please.

MS. ZIMMERMAN: Kristin with General Motors. I can give you an example for ourselves, GM, when we signed up for the EPA climate leaders programs, and we have been reporting to the 1605(b) since its inception. Since I did not want to duplicate efforts and have this proliferation of different guidelines and/or different registries that would come in, I suggested that what we would submit to the EPA program would be those same numbers, the same tools and templates that I used for 1605(b). Question was, were they verifiable, credible, accurate; this type of thing. Certainly it has more to do with the integrity of the company reporting than such guidelines that you're using.

So, indeed, through this EPA program, this voluntary program, the numbers that we submitted to DOE 1605 were verified. So I think we can coordinate things and be involved with many, many voluntary programs. But report up through one coordinated federal mechanism that's already in place, it's been in place. We get to work on maybe bringing some of those other attributes or these other guidelines and making sure they are flexible enough to address the needs that have been outlined by the administration.

MR. BROOKMAN: Working through one coordinated federal mechanism or nexus, if you will and also having also the kind of flexibility you described, Kristin, that solves your problem about verifiability and accuracy.

UNIDENTIFIED PARTICIPANT: That's just the exact issue. There should be one database and everybody should work off the same one, even if it's submitted to --

MR. BROOKMAN: Even if it's submitted to different places.

UNIDENTIFIED PARTICIPANT: It shouldn't be submitted to different places. Different organizations should be able to go into the same database to take a look at.

MR. BROOKMAN: That first point of collection. You were going to follow on. Go ahead. Your name, please.

MR. MOORE: Jim Moore, I trade SO₂, NO_x, and if you keep it simple, it trades. If you mess it up, make it real complicated like Knox, it doesn't trade at all. If you make this real complicated, it isn't going to trade and we like to trade. It makes cost compliance comes down.

MR. BROOKMAN: I just want to follow on that. So what you're suggesting, you think that's a sensible way to go?

MR. MOORE: Yes, I think it has to be entity wide and I sympathize, if you have 3,000 subsidiaries, that's tough, but our company thinks international California, we're just Missouri and Illinois, but if we keep it entity wide, then otherwise, I could turn down one of my co-units in Missouri, fire another one up in Illinois, I haven't done anything to reduce Greenhouse Gas, but yet I'm going to get credits so that I can go sell to somebody. And then on an international basis if I shut down a refinery in Houston and turn one up in France, I haven't done anything. Again, it's complicated to do it on an internationally, but if you want something that's tradable down the road, I think there's no other way to do it.

MR. BROOKMAN: Yes, please, Jim Johnston and then I'll go to Gary.

MR. JOHNSTON: Jim Johnston from Heartland. I think there's another aspect and that is claiming the rules of collection afterwards and what we've seen in the impairment of trading elsewhere, sulfur dioxide with the changing of the rules in the Philadelphia exchange, the reclaim system changing the rules during the electricity energy crisis that they had, and the subsequent changing of the rules by FERC of the trading of the electricity, all dried up those markets. So the message is that regulation and changing the rules and free markets and tapping in the innovation

there just do not mix. So what assurances are going to be in place that changes in the rules that might adversely effect people in serious ways will not happen unless compensation is offered, say, like under the Fifth Amendment of the Constitution, the government shall not take without compensation.

MR. BROOKMAN: Thank you. Gary, is it Gary Kiziol?

MR. KIZIOL: Yes, Gary Kiziol, BP. Just a follow-up comment about trading and the issue of project reporting versus entity reporting. Well, BP reports entity wide. We certainly support that concept. I think there is a place for project specific reporting. It will probably be a necessity as you get, perhaps, down the road with trades in monetizing some of those credits.

It's my understanding -- this is the point I wanted to make to that. WRI is currently drafting a project specific or project based protocol. While it seems like a very challenging and in my mind an almost impossible undertaking, they are aware of the issues of credit leakage and some of the things we've talked about here of credibility and verifiability. And I wouldn't want to dismiss the impossibility of that tasks just out of hand. I think people are thinking about those issues in that there may be a place for project specific reporting. I think perhaps that some of the detail, it gets captured there. It may be necessary even as you get into verifying and monetizing credits for trade down the road.

MR. BROOKMAN: That's in the larger context of entity wide though?

MR. KIZIOL: Yes. I think it's not one or the other, it may be a combination of the two. It maybe that using a project specific protocol to demonstrate specific reductions may be have to be made within the context of a larger entity wide to ensure credibility verifiability. I don't know the answer. I wouldn't say it's a one or the other issue, maybe the option for the necessity for both types of reporting should be kept on the table.

MR. BROOKMAN: Other comments? Yes, please. To you and then back to Brad.

MR. BAKER: David Baker. Entity versus project. I could envision one approach would be for carbon dioxide related to fossil fuels, but that would be entity level reporting, but for offset kinds of things like sequestration, or methane, I don't know if all methane, but methane projects that are more difficult methodologies and are more project kinds of things. But that would be project reporting, but that for carbon dioxide that's fuel related, that that makes more sense to the entity because your important thing is producing that.

MR. BROOKMAN: Why don't you follow on and whoever I left out of the cue.

MR. MARTCHEK: Ken Martchek again from Alcoa. Back to that point about, ideally we would have one place to put in our data, to one agency and if that could be used for multiple purposes, because the other issue that's coming up, we have all these state registries to develop. And so when we get back to this point about keeping it simple and reducing cost, it would be nice to keep the same data for the same purposes for one point.

MR. BROOKMAN: Thank you. Yes.

MS. RISSE: Karen Risse with International Paper. I just want to support the idea of reporting to one location, although I think we need to recognize that other agencies, such as EPA to the climate leaders program, have gone, you know, quite a ways in developing some of these protocols and have worked through some of these issues and they chose to base their protocols on the WRI, WBC steam protocol. And I think if we're going to get the convergence, that can't be overlooked. Got to be recognize there's a lot of work that's already done and work that's being recognized and promoted by other agencies.

MR. BROOKMAN: That's a helpful comment. I think it speaks to the level of challenge with the department, with its other federal partners it has here. I want to ask a specific question about large corporations that have, what, entities that have 200 subsidiaries, 2000 subsidiaries. I hear a plea for there to be flexibility in defining boundaries, I also hear a plea for this to be defined enough so that if there's a kind of a -- which I think shows a consistency or at least a shown consistency. Would that be a way of putting it? I'm looking to you first. Thomas Werkema.

MR. WERKEMA: Yes, Tom Werkema with ATOFINA. Couple of three comments. I think the focus here and for a lot of us in the business world is on the residual value that reductions may have. But if you take a step back a little bit farther, what we're really talking about is influencing behavioral change. Behavioral change in both the industrial level is also behavioral change in individual lives and all the things that go along with that.

Now, one of the ways where we can start with that is within the corporate structure. If in fact that is the ultimate driver, major changes in the way we do things, then what you want to do is not exclude any concept for reduction or control, which means you've got to have the maximum amount of flexibility. If you define that you can only accept entity reporting, you're going to have a population of people, and the problem in my company would be involved in that would not be able to report. Which means you're not encouraging the very philosophical basis that you ultimately want to get to.

One other point while I could, while I have the mike. A little bit different issue but I know that this is of interest to Alcan as well as my company. We have voluntary programs with the EPA. These are validated, verified and audited programs. They have not in the past, and they're at the industry level, back your your industry level question. They have they have not in the past then submitted to the 1605(b) program per se, but they have been independently audited and they are verifiable, they have baselines established and they more in this area referred to what are called the industrial gases as opposed to CO2 methane or nitrous oxide.

In my mind, at least, those programs have their own validation and should be acceptable. I don't have any problem with saying they should also be filed with the 1605(b) program, but they have an independent source, perhaps, of verification.

MR. BROOKMAN: Yes, to me we're kind of pushing together two concepts and maybe you cannot separate them. They're the issue of kind of definition, kind of definitional character of things to be included. And there's also the issue of kind of application that flows out of that and the Department of Energy with the other federal partners has this challenging task of saying, This is the definitional character of all of this. And then beyond that, there is the aspect of how long it might take to go from project level building up to entity level reporting and a lot of issues like that. And I'd like to get additional comments like that on the directional issues of definition.

Any additional comments on those? Yes, Brad, you're the one –

MR. REED: Yes, Brad Reed. Yes, I've got a question. And basically is, what are we trying to do, are we trying to get accuracy? Are we trying to get completion of reporting? And if that's the case, then the definition of entity and what consists of an entity has to be revisited and I'll go if you've got 200 subsidiaries.

MR. BROOKMAN: Revisited in the current 1605(b) program.

MR. REED: Yes.

MR. BROOKMAN: Okay. Got you.

MR. REED: Okay. If you got 200 subsidiaries, to me if you're looking at completeness, it doesn't matter whether report them at the top level, you know, the umbrella organization, or if each subsidiary reports independently. The intent is to get everybody to report. Okay. So if the Toyota feels that we've got enough control that we can report North America wide or U.S. wide and somebody else says no, we can't do that, but we can encourage our subsidiaries to report, I think we need to look at that.

MR. BROOKMAN: Okay. Thank you. Yes, please, Kristin, and then back to you. Did I leave somebody out of the cue over here? I don't think so. Kristin.

MS. ZIMMERMAN: Kristin, GM. I would support as a multinational company, support reporting those entities that are under management control, you know, as a starting point. And then from that point forward of the equity position that are joint ventures, then you establish within the guidelines how you are defining what you will report on based on what is this management control, what about a leased facility. You go on and define that and the guidelines would be flexible enough to allow the reporting entity to define how they are reporting.

MR. BROOKMAN: Provided you specify how you're racking them and stacking them. How you do -- how you do that eternal relationship.

MS. ZIMMERMAN: Yes, we have to keep that paper trail because that reflects -- if we, again, are this multinational company essentially what our footprint is and that footprint has a remission side, he it has a reduction side, it has its offsets and avoidances, you know that part of reporting was really going on and it's important and that of that, you've got these elements that tradable and verifiable that really want to enter into is the tradable market. But not necessarily everything in that report. You follow me on that? You know, all of your action might not be something that you would want to trade, but there are certain elements of these guidelines, and I don't know if it's in a multi-tiered registry type setup or what, but there are certain elements of that which you are reporting that you would want to enter into the trading scheme.

MR. BROOKMAN: Because all of you have an interest in this verifiability ultimately if you wish to go further with this. I was wondering if what she's suggesting if that works, I'm looking at Paul McArdle from EIA. If that kind of registry where the company decides what the flow of operational control and management control. How that works for the present 1605(b). Paul McArdle.

MR. McARDLE: Well, under the current system in terms of operational boundaries, which I mentioned before, you report at the entity level and we've, let's say, implemented flexibility within entity level definition. And that, like I mentioned earlier, we had folks report at the entity level. But we also had companies come in and report at the subsidiary level. So I think right now we could classify the present system allows entity level reporting and what I guess what we call sub entity level reporting.

So, again, it gets back to the flexibility of the program when it was started to encourage participation.

MR. BROOKMAN: That was a major thing you were trying to do to encourage participation, have that flexibility.

MR. McARDLE: Yes. Because obviously the more flexibility, the more participation you're going to get, and that seemed to be the impetus when the Congress puts the law in effect.

MR. SPENCER: Gregg Spencer with Blue Source. We're suppliers of credits, primarily internationally, but to some extent domestically as well. I want to echo Tom's comment, if the initial goal is to achieve the 18 percent intensity reduction, but that's just the initial. the long term goal, I think, is to achieve the maximum number of reductions at the minimum cost to society. I also want to echo Jim's comment that if you want to have something that's tradable, it has to be a simple, uniform system.

This is probably a very heretical comment in this group. I wonder if we're not trying to accomplish too much through 1605(b). If the purpose is a registry and if in order to achieve the maximum effect you need to include both projects in entity wide reporting, I think if you resolve the ownership issue and register on 1605(b) those reductions that can be traded, and then perhaps use climate leaders or something else for the entity wide issues, you've really got competing purposes that you continue to talk about flexibility, but there are so many inconsistencies. You can deal with all of the cherry picking and the double counting issues, you can deal with all of those, I think fairly simply in 1605(b) if you resolve the ownership issue, and then you address the entity wide issue with all the flexibility, the voluntary climate leaders kind of program can offer.

MR. BROOKMAN: How would you suggest that you resolve the ownership issue, that the DOE resolve the ownership issue?

MR. McARDLE: The entity that takes the risk, expends the money, exerts the action that results in the reduction should own it. Lots of obvious examples: The retailer who has a conservation program would own the right to the reduction, not the utility whether it was just a change in business activity. That entity that takes the risk, spends the money, accomplishes the reduction should have legal title to it.

MR. BROOKMAN: That's operational control, management as a principle. Al Musur and then I'll go to Margot.

MR. MUSUR: I want to agree with that last comment that whoever does the project, whoever spends the money, whoever makes the investment to make the change should be getting credit for the reductions that flow out of that.

MR. BROOKMAN: And we're going to have a significant discussion on direct and indirect on the issues as we go on in the day, but keep going.

MR. MUSUR: Okay. But before we get too much further into this only because it happens to be up in the foreground, I have a tremendous problem with the schizophrenic energy policy we have in front of us and I want to agree that I think maybe we're biting off more than we can chew because if we have an energy policy that said that it is the policy of this country to reduce our energy intensity by 18 percent by 2012, then why aren't we talking about programs that don't measure that? They only measure absolute reductions in gas emissions and not transferable credits. The problem is that if we implement some kind of a system that creates transferable credits, it is a defining climate, energy and economic policy issue that's had absolutely zero public debate.

Is it predetermined that the U.S. is going to use some sort of cap and trade system to effect some kind of a change which isn't necessarily consistent with the policy of having a 18 percent reduction in energy intensity, and so I have real concern that we're trying -- in Washington, you can say something is Black and White at the same time if that's a political thing to say, but when you get down to where the rubber meets the road, physically you can't do that and we're dealing with that kind of an issue here and then maybe we ought to be talking about some of that stuff and what it is that we should actually be reporting.

MR. BROOKMAN: And, of course, these are huge policy issues.

MR. MUSUR: Sure, they are.

MR. BROOKMAN: And that exceeds the scope of this workshop.

MR. MUSUR: But what we're doing is we're taking 1605 in a vacuum and we're going to fix it to create an even bigger problem down the road.

MR. BROOKMAN: Okay. Thanks for those comments. Margot Anderson.

MS. ANDERSON: Following up on that and then I want to go to the follow-up to hitting on the ownership issue. We will, in fact, be talking about reporting via intensity, because that is one of the ten recommendations that were made to the President about encouraging intensity reporting so that it is consistent with the over arching goal. So we'll be able having that conversation because that's crucial.

Getting back to the ownership problem and that solves our problem, I agree with you that you can nail down ownership rules or guidelines, so you're sure that the folks that are investing in the reduction get the credit or the value associated with that reduction, but I'd like your views on how that might solve what some people refer to as the cherry picking problem. Certainly a company could invest in many good actions that they would report under 1605(b), but what if some of those actions are also causing increases in emissions while they're reporting on the decreases? How do you incorporate that if you're not encouraging entity wide reporting. So your views on how to fix that problem would be really helpful.

MR. SPENCER: I guess that's directed to me, Gregg Spencer, Blue Source. The way to address the cherry picking problem is -- lost my train of thought. If the issue is entities are only going to report those actions, they're causing reductions and ignore the rest of the activity, there are two thoughts. The first one is, our experience is just is the opposite of what the perception is here. Organizations are not like a balloon where you squeeze one end and cause a reduction here and it causes a corresponding increase on the other side. These are all different business units and when you achieve efficiency at one point, it doesn't translate necessarily to something else. In fact, our experience is that when we go in and help companies identify opportunities to create reductions, it causes cultural behavioral change that someone mentioned earlier where now in

their project finance decision, there's an additional line item to generate revenue. That opportunity then spreads itself in investment decisions throughout the company. So I don't think the presumption that project based reporting is ineffectual or necessarily evidences a lack of aggregate emission progress is necessarily true.

And in terms of the correlation between project reporting and entity reporting, we work with several Fortune 500 companies, in every case in our supply contract -- I actually brought up the language because I thought it would be relevant. In our contract with them, they agree, they said it represents and warrants that any and all credits sold shall be permanently reflected on the books and records of seller as having been sold and shall not thereafter be sold, transferred, or available for use by seller for any other purpose. Therefore, if -- and then it volunteers for a 10 percent corporate wide goal and achieves 12 percent reduction, should have the opportunity to receive the value of the incremental 2 percent. You can report projects on 1605(b) in a form that would make them tradable assets consistent with the rest of the international community as much as possible and at the same time have a voluntary program to -- on an entity wide reporting. And if you report on 1605(b), if you sell the rights to those credits, they are gone. They are no longer something that you have no right or benefit to, which is as it should be because you received the full value for that in the market.

So in terms of the entity wide reporting, anything that you filed with the intention of selling would not thereafter count toward your emission reduction goal.

MR. BROOKMAN: Al Musur, to you.

MR. MUSUR: I disagree that just reporting those projects in the treating this culture is going to solve all the problems. It probably does in a zero growth scenario. But if you're a growing business and you're growing at 10 percent a year, you may have great improvements in energy intensity while at the same time having increases in absolute emissions because you're not going to be able to avoid that. If I have a lightning loaded coal boiler and I convert it to natural gas, I may get some environmental improvement, but if I double the through put through the boiler, because my process has increased doing the project didn't yield any savings.

MR. BROOKMAN: Lawrence Merritt.

MR. MERRITT: Larry Merritt from Ford. I would like to offer the suggestion that maybe we're focusing too much on definitions that aren't as important as maybe just consistency as reporting from year to year is. In other words, one alternative is to let entities decide the second and third bullet point, which also incorporates the fourth, and as long as they're clear about the way they're reporting and report the same way each year, that achieves the goal of a voluntary program to report emissions into the registry.

MR. BROOKMAN: And do you think large corporations could do that fairly consistently, as a general, I mean through the acquisitions and divestitures if a large corporation, so long as the kind of architecture that they have in place remains similar, they can report that stuff as well.

MR. MERRITT: Right. I think that comes back to Kristin's comment about corporate integrity and it will be the company who has to answer to the public or whomever that they're the one seen as cherry picking. So the only reason you would ever want a clear, exactly defined definition of entity just do prevent cherry picking, but the way the public looks at these reports, that will never -- that will be found out if a company is trying to hide emissions increases by only reporting a subset.

MR. BROOKMAN: Thank you. Paul Lynch.

MR. LYNCH: Yes, Paul Lynch, KeySpan.

I'd like to step back to the ownership issue just very quickly because someone made a comment which I don't disagree with that the person who spends the money for an energy conservation on an emission reduction program should own the rights of those credits. The problem is, that that's not really quite as simple as what it might seem. Many utilities provide incentives for energy

conservation programs. So if a utility paid for -- or paid for a portion of an energy conservation program, do they get it or does the person who owns the equipment?

In our case, we do a lot of natural gas conversions where we give incentives to home owners for switching their home boilers to gas. Do we get the credit because we paid for the boiler? Or does the homeowner? And by the same token when we start talking about organizations, a company defining their own definition of entities. It's a critical issue. The problem is, if you allow companies to make a decision on their own, even if they're consistent year to year, how do you know what you've actually captured? The same has to do with a utility. It says, okay, my boilers, my electric generation --

MR. BROOKMAN: We're going to get into more of a discussion on direct and indirect. We're going to go on, okay? Final comments on this subject. Al Musur.

MR. MUSUR: Al Musur, going back to the issue of -- I just lost my train of thought. I take it back. I just forgot what I was going to talk about.

MR. BROOKMAN: All right. I'll return to you. I do want to, before we go to break, which will be shortly, one, additional comment on reporting non-U.S. emissions, whether and how. We've already heard some comments on this. Anything additional comments on this. Anything additional that people want to say?

MR. REED: Yes. Brad Reed. Just before we leave, once again I'd like to revisit the issue. What are we trying to do, are we trying to get accuracy in reporting of U.S. emissions.

MR. BROOKMAN: That's what the President said.

MR. REED: Then we need to have very high flexibility in entity reporting.

MR. BROOKMAN: About the construction, how the entity itself composes the stuff that then gets --

MR. REED: Correct. I mean, does GM report Delco? Okay. But GM still owns a major portion of Delco. If we go back up, they do. Toyota owns lots of people too, you know, and it owns lots of portions of different people.

MR. BROOKMAN: Got you.

MR. REED: But it's not important whether we report them under Toyota, what's important is that they report. Someone else can break out who's got the big footprint later on by what they use.

MR. THOMSON: I'd like to follow on that --

MR. BROOKMAN: Okay. Your name.

MR. THOMSON: Fraser Thomson, again with Alcan -- and say that if what we envision is a migration. I think part of the issues that were caught in between a rigorous system of some type and a much more open system. If we're going to go to that model where you have questions about what entities are reporting and we want to have public credibility, I think there's some pressure on the DOE to define what is an entity and to provide some more guidance rather than to leave it entirely open.

All right. Just to quote one example, I mean, if you avoid equity control and you own 10 percent of a company that emits, for example, 10 million tons of CO2 per year, is a million tons material to your overall inventory or not? And how are you basing that judgment?

MR. BROOKMAN: We're going to deal with issues of materiality as well in greater detail as well here. We're going to move along here. Yes, and then to Al.

UNIDENTIFIED PARTICIPANT: I'm sorry, just one quick comment. I don't want to pass by too quickly what Kristin said before. I think we're trying to create a one size fits all and it doesn't necessarily have to be that way. As I understand it, an important part of this registry is to create a system where you can go and report something that is extremely tight for the purposes of trading on a market, but there's also the objective of having broader reporting to encourage participation and reduction is a cross, an entity.

MR. BROOKMAN: Right.

UNIDENTIFIED PARTICIPANT: So it does not have to be a accomplished simultaneously, it can be broken up. As Kristin, said, you know, This is the key for trading and this is the rest of it, which can incorporate a lot more flexibility than what that piece were, financial exchange of credits.

MR. BROOKMAN: So any system or any registry that deal with its federal partners puts together needs to kind of encompass those different things that you put there. Al Musur.

MR. MUSUR: This is Al Musur, I apologize for my senior moment, I have recovered. The topic was, if the entities get to define for themselves and you just look year to year at incremental. It's a great idea until you get to a point where you have acquisitions and divestitures is a way of life.

MR. BROOKMAN: Yes. Okay, thank you. Final comment on non-U.S. emissions before we go to break? Did you wish to comment?

MR. AMERADA: No. Yes, please. Glenn Kramer from Amerada Hess and I'm relatively new at this, but a follow-up on something that Al said. How can you possibly trade intensity reductions with absolute reductions? You've got apples and oranges and it's something like climate leaders is based on intensity reductions, and 1605(b) is based on absolute emissions. It seems impossible to reconcile the two.

MR. BROOKMAN: I think we're going to go into greater depth on that during the remainder of the day. Okay. Let me suggest we take a break. It's now almost 10:35. Let's start back up at 10:50. Thanks for a good start in the morning. We'll be proceeding along the same pace as we go on.

{Whereupon, a short recess was taken.}

MR. BROOKMAN: Let me just cue up the slide and I'm sure Paul will be with us shortly. You could see on page two of your handouts which slide, which again is focusing on emissions reporting. Operational boundaries and related issues direct and indirect emissions, should end users report electricity and see purchases. How to convert to emissions once again, who takes responsibility and who captures it between direct and indirect. How does it revert to emissions, reporting them to direct emissions such as those associated with materials used, business travel, employee commuting and use of manufactured products, how to estimate. And, of course, some of these are really rather large and hard, hard to capture, at least, it seems obvious to me, at least it seems that way.

Paul, you want to cue this up? Paul McArdle, EIA.

MR. McARDLE: I apologize for being late, I was chatting with people who had a lot of questions.

Under the operational boundaries, and not to beat a dead horse, so to speak, we have direct and indirect emissions reductions may be reported earlier as I mentioned earlier. We have specific definition in the reporting instruction, where direct emission, the definition of emissions from sources owned wholly or in part released by an entity. 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 activity.

So the key there is direct emission. The analogy I use is inside the fence. Indirect being outside the fence, to your causation, you effect those direct emissions. {inaudible}

The gas is covered under the present program. We have the stick, what we call the Kyoto gases, CO₂, methane, N₂O, HFC, PFCs and SF₆. But when the program was created, it also allowed for the reporting of a number of other gases and people do report these other gases in some instances. The halogenated substances, we have some folks that report HCFCs, CFCs, methyl bromide, et cetera, a number of other industrial gases and you can also report, and we do have some people that report these gases, carbon monoxide, NOX and non-methane volatile,

organic compounds, the so-called criteria pollutants and the idea is that they have indirect climate impact.

And the sources covered, as I mentioned earlier, there's a wide variety of activities reported. There's ten project types and if you go into our instructions in reporting form, you see that under each one of those project types, we have a wide array of sub projects or each with its own individual project code. So we tried to cover everything, actually, for the most part. So with that, I hope it helps it.

MR. BROOKMAN: Thank you. And these slides, we'll make them available in the record, right? They'll all be included, for those of you who are taking notes, you can take them here as you wish. John, you want to cue up? Sure, John Staub.

MR. STAUB: Thanks, Mike. The horse probably is dead now, but looking at the diagram up here on the chart on the overhead, we can see that operational boundaries -- and we're talking about operational boundaries they're distinct from organizational boundaries because we're trying to think about how the company or power plant, how its operational processes effect or where within its operations are these emissions are occurring. Are they occurring at the entity or are they occurring somewhere outside of the entity, and the inputs that are used by the reporter.

And if you think about, for example, an office building who buys electricity or steam, they don't actually produce the Greenhouse Gas emissions right there at their office, but they are responsible in demanding that some sort of emissions are being created and producing electricity to light their offices or for the steam to heat their offices. And so some people say that, you know, if they make their office more efficient, should those improvements be recorded in their statements or their reports of how much Greenhouse Gas emissions they're either emitting or responsible for in terms of that.

I was just talking with Karen Meadows during the break about looking at how companies can influence the operations of the inputs that they purchased. For example, the company uses over and above recycle versus what was created from the raw resources. There's differences in emissions and so the companies' operational choices effect the total net national emissions.

And then the second issue which we're looking at here as Paul just mentioned is the different gases, which gases do we want to look at.

And the third issue is, are there sources or emissions that are too small or too difficult to measure to actually justify taking the time and making investment to report on and those are often referred to as de minimus issue. And so those are kind of the three things we're going to be looking at here.

MR. BROOKMAN: Thank you. Well, here's the first set of questions, you can see them up here. Should end user report electricity and steam purchases, how to convert to emissions. Comments on those questions. Yes.

MR. STAVY: Michael Stavy. I just have a comment. In doing indirect there's the danger of double counting by the factory that's using it and also by the utility that's generating it. I have to solution for that right now, but I just wanted to point that out.

MR. BROOKMAN: We welcome the solution. Brad Reed.

MR. REED: I have a comment. I don't think there's a danger of double counting because we run a manufacturing plant. We bought kilowatt hours. If I reduce my kilowatt hours, it's an absolute reduction, okay, and I can take credit for that. Utilities should only be reporting based on their intensity reduction. Okay. If they reduce their intensity, that's where they get their reporting credibility and where they get their credits from. I'm going to get mine from an absolute energy reduction.

MR. BROOKMAN: Thank you. Al Musur.

MR. MUSUR: Not that I support utilities much, but utilities can and should be making investment to reduce their emissions per production also, and if they make an investment, change

outer burner, do something that gets an environmental benefit, then they too should get a credit for that.

MR. BROOKMAN: Thank you. On an intensity basis?

MR. MUSUR: Intensity basis CO2 per megawatt hour. So if they reduce -- my utility provider is about 2150 of CO2 per megawatt hour. Two years ago they were 2217 pounds of CO2 per megawatt hour. They reduced their absolute CO2 intensity. So can I say they --

MR. BROOKMAN: Richard Lowery for the record.

MR. LOWERY: Dick Lowery. Are you using then the old factor, you're not using the new grid factor?

MR. MUSUR: We use the utilities information.

MR. BROOKMAN: Because the utility makes an improvement, they take credit for it, are you not doing possibly the same thing?

MR. MUSUR: I think we're missing something here. I'm taking credit for an absolute energy reduction.

MR. LOWERY: On site?

MR. MUSUR: On site.

MR. LOWERY: You use a single line of electricity and on an indirect basis, you're going to do back in to CO2 and you're going to use a lower factor.

MR. MUSUR: No. Anything a utility company does to reduce the CO2 per megawatt hour, I'm not going to take credit for. What I'm going to today credit for is if I implement something that reduces my kilowatt hour usage. We implemented a project at one of our plants, we reduced the kilowatt hour usage reduction is just over 8200, 8200 megawatt hours a year. So we'll take credit for that within the company.

MR. LOWERY: As CO2 or as --

MR. MUSUR: As energy and credit for CO2.

MR. LOWERY: And the factor, how are you going to convert from energy reduction to CO2?

MR. MUSUR: It will be based on utilities CO2 per megawatt hours numbers.

MR. LOWERY: Which will be lower than it was year the before?

MR. MUSUR: That's correct, decreases each and every year.

MR. BROOKMAN: So as long as they're both tracking simultaneously, right, no double counting?

UNIDENTIFIED PARTICIPANT: Yes, there is double counting.

MR. MUSUR: No, there's not double counting. The utility is taking -- you're looking at two different forms of reporting. Yes, if the utility thinks they can produce electricity and have a CO2 reduction, go for it. But what I'm doing, I reduced energy consumption. Okay. Whether the utility sells that energy to somebody else or not is immaterial. I reduced energy reduction in my CO2 footprint.

MR. LOWERY: And irrespective of whether the utility incurred their energy intensity, that factor or not, you nevertheless had a real reduction in energy use. But if they did take that factor, we're more efficient than had their factor declined, then you could --

MR. MUSUR: Then my CO2 reduction decreases each and every year as their efficiency improves.

MR. LOWERY: Yes.

MR. BROOKMAN: That follows Dick's counting.

MR. LOWERY: That's the double counting I'm talking about.

MR. BROOKMAN: Josu Omaechevarria first.

MR. OMAECHEVARRIA: Yes, Omaechevarria. I'm going with these names.

MR. BROOKMAN: Brad.

MR. OMAECHEVARRIA: Yes, Brad. You say utility, try to, we're on reducing our emissions, the power that we introduce, but we also invest in energy conservation projects and

part of the investment rebate out. The customer is paying for a portion by rebating the cost from our product. So we do take credit for the investment in energy conservation. Looking for deduct emissions, but there is not deduct reductions. Then we also invest in energies. We invest in fuel cells, we invest in soy products. The question there is, we are taking credit for the reductions comparable to how much remission we produced in one of the fuel cell plants. So there's a mixed mind.

MR. BROOKMAN: And in the first case where you -- what was the first set? You invest in energy efficiency projects, or something, how do you calculate your portion of that investment?

MR. OMAECHEVARRIA: Based on KWA reductions.

MR. BROOKMAN: Your base KWA reductions.

Okay. I saw somebody, yes.

MR. WERKEMA: A follow-up question for Brad. Tom Werkema from AUTOFINA. The question I have, Brad, is within your concept -- whether this could happen at your facility or not, how would you deal with the co-generation?

MR. MURSUR: Since I don't have any, I don't have to worry about it. Although we investigated each and every time we started a new plant and to date we haven't found that we can make it cost effective. Okay. There's not enough there to make it cost effective for us. We have a purchasing a department that's have aggressive in negotiating contracts and we can't make anybody build a co-generator plant that will pay. If I was to do it, it's the same thing. It's a absolute reduction is what we look at.

We also use energy intensity as a vehicle across the country as a whole. Once a manufacturing plant matures, you can only put so many cars through it. I don't care how talented you are, it's only got X amount of room, you know to put so many cars through it, then you're into absolute activities to bring the numbers down for that plant.

UNIDENTIFIED PARTICIPANT: I would like to comment, Tom, further on how you would handle could co-generation.

MR. WERKEMA: I think the concern is -- first of all, if you're using co-generation in extracting energy out of, presumably wood a hydrocarbon source of some kind or another, whether it's wood or whatever, you have a net reduction in the emissions presumably from whatever that source is that is no longer being generated, but it's now making energy instead. There is an energy balance or carbon balance, if you want to call it that, that goes along with that co-generation facility. Your consumption though at your plant hasn't fundamentally changed, so you have a different -- you, in essence, are becoming a mini utility. And if you follow your thought process.

UNIDENTIFIED PARTICIPANT: With a different carbon footprint perhaps.

MR. WERKEMA: With a different carbon footprint. If you follow your thought process, you as the facility would have to acknowledge whatever that emission efficiency is in terms of its carbon footprint is in addition to whatever you're doing for your carbon intensity.

Does that make sense? I mean, I'm trying to be consistent with what you said before.

UNIDENTIFIED PARTICIPANT: Yes, I guess the difference is, we were looking at a cogent facility if we had such entities. Then what we would be looking at is the direct fuel going into of it. We wouldn't even consider the electricity coming out of it.

MR. WERKEMA: But you would use it to offset, you have to see from the grid.

MR. REED: The only reason we would do it is if it was cost effective. Some folks here like manufacturing. The only reason we do anything is because it makes money for us. You don't do things that don't make money. So the only way we can go co-generation is if we could do that more cost effectively than we could buy it from the grid.

MR. BROOKMAN: Al Musur. For the record, that last comment was from Brad Reed. Al Musur.

MR. MUSUR: Al Musur. The boundary is whether we're going to look at direct and indirects. And the question of whose emission it comes to a focal point when you talk about putting in combined heat and power projects. So if I have a facility that's a process facility, that's purchasing its electricity from a local utility and manufacturing it from steam. And I want to do both with some combustion driven generator and waste heat recovery. I need to be able to account for the reduction and emission at the utility stat to a carbon footprint for the site make any of this make any sense. Because if I can't capture that, apply it to the project, then my carbon footprint goes up and that would discourage the development of CHP, which is probably the most efficiently I can consume energy.

MR. MOORE: Jim Moore with Ameren. We do projects with people like Anheiser-Busch in St. Louis, we're very specific in the contract about who gets credit for those, Greenhouse Gas credits. Now, maybe a historical project becomes a problem, but anything going forward –

UNIDENTIFIED PARTICIPANT: And it's analogous to how you do reporting. The credit and reporting time, those run in tandem or in parallel?

MR. MOORE: We say, here's what we're going to take -- we're going to take credit for this, and it's our credit, we're paying for it. And maybe for Paul, for KeySpan, talked about their investments, and demand side, management things and I would hope in their contracts they are specific about whether the customer gets the bid. They're probably going to keep the credit for themselves, but it's specific in the contract at that point.

UNIDENTIFIED PARTICIPANT: Okay.

MR. BROOKMAN: Yes, please, your name?

MR. VERDIANI: Don Verdiani, Sunoco. One comment back. We came exactly the same conclusion. Without the inclusion of indirects, our energy accounting made no sense at all. You actually sent wrong signals to do wrong things.

MR. BROOKMAN: So I'm trying to imagine how that would work manufacturally speaking, you know. Is that what you're suggesting? Is it doable? Al Musur.

MR. MUSUR: Al Musur. Everyone of us knows to the kilowatt hour exactly how much we energy we consume from our electric utility. The question isn't how much do we consume, the question is how are we going to convert that to emissions. And 1605 provides state by state at state, at least for CO2 methane and nitrous oxide conversions. And I think you can even go to the utility itself and find out for that specific utility what its profile was in any given year. They track all that stuff. So I don't see where it's a huge problem. It's just a matter of having a system that actually recognizes the fact that I could take the credit for the things which I do.

One more point to mention about, reporting electricity and steam. I'm in the process business, and we manufacture among other things pharmaceuticals, but it's a chemical process type business. So 75 percent of the energy that I consume comes from my own combustion of fossil fuel that generates steam. 25 percent an equivalent BTU basis comes from a utility. But 75 percent of my cost is electricity. So all of the focus for doing projects that make sense financially is basically on the electric side because that's where you get the biggest bang for the buck. You have to report them both because -- the bulk of the improvement will come on the electric side because the economics will drive it that way.

MR. BROOKMAN: Paul Lynch.

MR. LYNCH: I'd like to correct a misunderstanding on electricity. In today's real world, electric generators, and Keith's been the largest investor in generator in New York State. Electric generators sell their power to your local system operator. In our case it's in New York state, independent system operator. Independent system operator then distributes the electricity to the distribution companies as they need, and the distribution company sends it to a customer.

The distribution company has no idea where that electricity comes from. They don't have a meter, they don't send a check to them. They than send a check to the ISO, the ISO sends a check to the generator, and you have no idea what the generation source is, what the emission characteristics are. New York state is in the process of trying to do that. And as a person

involved in that process, I assure you that it's dramatically more complicated than anybody understands and it is incredibly inaccurate.

MR. BROOKMAN: So that if you wanted to start an appliance as Al suggested, you have to go with the state average or something like that. Are you suggesting that?

MR. LYNCH: Even that's not possible because some of the power is bought on what they call buy out agreement. Where you agree you will buy the power from a specific plant. Even then you have to account for line losses, congestion charges. I guess this is getting to be a very difficult issue. If you have industry accounting for electric use and a reduction in electric use as a true CO2 reduction, then you should not be counting or asking utilities to account or report the CO2 emissions associated with their electric generation because you are in effect double counting.

If you say I reduced my electric demands by one gigawatt per year, fine, you have CO2 reductions for that. What about that utility? It generated -- somebody out there generated one gigawatt less power, and how do you account for that? Unless one group -- only one group can report that, it can't be both.

MR. BROOKMAN: Josu Omaechevarria.

MR. OMAECHEVARRIA: What he's saying because when we report to the EIA, we make a number of assumptions, the assumption is that for the city of New York, our customers, most of the power is coming from the power plants which has the schedule emissions, there is coming from the ISO and part is coming from the nuclear plants which will have the nuclear bites from them. But the rest we're taking the mixed bag and we use whatever they have. The foundation factor and say well, have it here. This is how much we billed from them, is that correct here?

MR. BROOKMAN: Brad Reed.

MR. REED: Yes, Brad Reed. Again, I think what we're missing here, I hear what you're saying, but I'm talking reductions and you're talking emissions. Okay. If I reduce my electric use, I reduced my CO2.

UNIDENTIFIED PARTICIPANT: I 100 percent agree with you, that's absolutely true. The problem is, if you show a reduction of 100,000 tons, somewhere out there is a utility that generated the electricity equivalent to that 100,000 ton. They're putting again on their books as a 100,000 ton reduction.

MR. MUSUR: How?

UNIDENTIFIED PARTICIPANT: Because you asked how much did they emit in 1990, how much did they emit in 2002. The difference is what they reduced by.

MR. MUSUR: I think we get back to what I was saying earlier, is you need to look at the differences. Utility is to be reporting on intensity based emissions.

MR. BROOKMAN: To go one notch up, one layer up, you're saying that different kinds of entities have to find a way to meaningfully report.

MR. MUSUR: Absolutely.

MR. BROOKMAN: And the case of utilities, you think that intensity is a meaningful way of reporting.

MR. MUSUR: Absolutely. For a utility they're in the business of selling power. If I reduce my usage one gigawatt hour a year, I fully expect them to find a customer for that. They ought to be looking at is reducing their intensity for CO2, CO2 per kilowatt hour.

MR. BROOKMAN: So your point is this so complicated, even using the factors put out by EIA and calculating all this stuff up, it question is, is it meaningful --

UNIDENTIFIED PARTICIPANT: Impossible to reconcile it.

The number that EIA comes up with, is not the same number that New York ISO comes up with. And if you talk about intensity, intensity is great except that it's a rate without a quantity. I mean, 18,000 pounds per megawatt hour, that would be a typical gas fired steam electric plant. Okay. That's fine. But what does that tell you in terms of CO2 emissions? It doesn't tell you what that

comes out to in tons unless you include in with that your generation. And I'm not saying I have an answer to this, I'm saying this is a problem I see that has to be resolved in some manner or has some accounting.

MR. BROOKMAN: Let me reacquaint everybody in the room with the fact these are the answers we're searching for here today. Al Musur.

MR. MUSUR: I think what we have here today is fuzzy thinking. We should not ask the electric utilities to report carbon emissions anymore than we ask the oil companies to account for every molecule of carbon they take out of the ground. Utilities aren't consumers, they are converters and they take energy in one form and turn it into another form for somebody else's consumption, and it's consumed by somebody down the road and turned into something useful like heat or an energy containing product.

What we need to know from the utility is how efficient are the in converting this. How many tons of carbon emission am I getting with every kilowatt hour or megawatt hour of power I consume, and they should be reporting that. And we can compare it from utility to utility which one is efficient which one was not, you know. They can complain all they want about the guys that own the nukes or the gas plants, you know, but for the rest of us who are now the consumer, at least we know how to value in terms of emissions, that kilowatt hour that we consumed, because they didn't consume it, all they did was convert it from one form to another.

MR. BROOKMAN: Yes, Steven.

UNIDENTIFIED PARTICIPANT: Another point to keep in mind is the end user has the ability to reduce the amount of electricity that they use and one of the drivers to do that might be able to be taking credit for those reductions.

MR. BROOKMAN: Another comment from Paul McArdle and back to you.

MR. McARDLE: Paul McArdle, EIA. The first thing is the EIA state emission factors for carbon dioxide, methane, N₂O, and we basically take all the fuel data that is submitted to EIA, we create a three year average for all the generation that takes part in that state. So we don't account for ISOs and RSOs, et cetera, it's just an average -- and these emission factors are generally used for what we call end use projects. They're for people that are reducing electricity and they want some factor to calculate what they're reductions are. Generally the electric utilities that report to us don't use those because they have their own fuel data. So they give us their emissions, what they think they actually are.

Now, the other thing I want to follow on is the issue of intensity reporting and reducing the energy use that is kept at the plant site versus the intensity reporting at the generation site. And I just create a little identity on my pad here and if you have all the data, you actually can disentangle those two things and you will not double count.

MR. BROOKMAN: If you have all the data?

MR. McARDLE: If you have the data, you create an identity and you just do a little calculus and you can segregate.

MR. BROOKMAN: What about the first issue? What about the fact that your aggregated, your derived emissions based on fuel use at the end use, right, at the generation site, that that is so blended, it's not accurate. How do you respond to that?

MR. McARDLE: Well, people have come to us with that comment and basically we have tried to supply a default value for reporters out there mainly, again, reducing energy use or electricity use at their plant or at the end use level because in many cases, they just don't know. So default emissions, emissions factors. Now, we encourage people if they have a better emission factor than the defaults, then it's certainly allowable to use it, although they usually -- we require them to supply some justification for it. There's one other issue on that I wanted to mention and I think I just had the senior moment.

MR. BROOKMAN: We can return to it. Did you have a follow on, Brad?

MR. REED: Yes. Yes, just to follow up with what Paul just said. I don't understand the deal with the utility company. I mean, if they're reporting emissions intensity, they also report

how many kilowatt hours they sold. It seems to me like a fairly simple algebraic equation to me to go from emissions intensity to tons of CO2 emitted but the big, important thing for them is to reduce intensity.

MR. BROOKMAN: That was Brad Reed for the record. Okay. Yes, I haven't heard from you yet and then I'll return to you, James. Your name, please.

MS. PETERSON: Patricia Peterson with NiSource. It's true as far as utilities go it's CO2 emissions per kilowatt hours. But, however, many utilities are going to combine heat and power plants, and now you're mixing kilowatt hours and BTUs and it's very difficult to come up with an intensity when you're making both steam and electricity out of the same BTUs.

MR. BROOKMAN: And in that workshop, that is something that several people reported that intensity measures may be very hard to do to some cases, or perhaps even in many cases. Yes, please. James Moore.

MR. MOORE: Jim Moore. I apologize, but what I was going to say, maybe there's an analogy. It's like Europe uses a valued tax and United States uses an income tax. You've got to pick, you don't do both. You do one or the other. And maybe we grade big entities on their reductions and utilities on our intensity, but I haven't thought about the problems it brings up with the combined heat and power.

MR. BROOKMAN: So let me ask you, does anybody see a major problem of creating a system that is kind of hybridized that way, provided there's adequate documentation?

MR. McARDLE: Paul McArdle, EIA, the only other issue I, again, had my senior moment on and I forgot, we also been approached by some of our reporters and some of our sister federal agencies to supply emission factors by what's called NAERCR region which is the North American Electricity Reliability Council Region because those are basically power pools and a lot of the power flows within that pool and that crosses state boundaries, and so that may be an -- actually a better metric to use for emission purchased electricity.

MR. BROOKMAN: It more accurately reflects the true mix in that region, and most regions have distinctive mixes.

MR. McARDLE: Exactly, and I'm cautiously optimistic that we can have that for the next reporting season.

MR. BROOKMAN: I thought I left somebody out. Al Musur.

MR. MUSUR: I have a real difficult time with this. I think there's some fuzzy thinking going on. As long as you know how much energy you burned, as long as you know how many kilowatt hours you produced and how many pounds of steam you produced, you can always allocate the energy in to the energy out.

Now, I'll tell you again, you get the electricity, you get the steam and you have losses. And the only problem is, how am I going to allocate the losses between the electric production and the steam production, and it's not that hard to do. So CHP shouldn't be an issue. It's only an issue because utilities tend to value it differently. Electric utilities tend to value the steam and the electricity differently when you do the deals with them.

MR. BROOKMAN: So when you do the deal, you specify that in the contract?

MR. REED: Absolutely. Just like the clause you read a moment ago.

MR. BROOKMAN: Okay. Jim Johnston.

MR. JOHNSTON: Before Al Musur gets too engrossed with solving every problem, let me tell you about -- MR. BROOKMAN: We are problem solving here. We are.

MR. JOHNSTON: Yes. Well, one of the problems that hasn't been solved, that's a new one, is that during peak generation times, there is also peak emissions times. One of the strategies that was available was instead of engaging in the trading of emissions credits, say, in California, you could essentially shut the plant down and buy electricity from someone else. Now, you can all work out the details of who gets credit for what there. But then the government comes along and essentially destroys the electricity trading system that existed and goes to the press and says

that a lot of generators are withholding generation precisely at the time that everybody needs it. So –

MR. BROOKMAN: Wait, is this changing the rules that we –

MR. JOHNSTON: Yes. Except in the sense that the one rule that prevails is that no environmental good deed goes unpunished.

MR. BROOKMAN: Okay. I thought I saw somebody else in the cue. Then I would like to refocus on the second bullet here about the specifics of handling materials, business traffic, and employee commuting, and manufactured products, we touched on that somewhat. Kristin, you're first.

MS. ZIMMERMAN: Oh, good, I'll bridge and jump to the next segment there. What about -- going back to the idea of the Greenhouse Gas footprint per entity, especially multinational. Where is there in the direct indirect scheme of things where we can allow an entity to report on and take credit for their waste management, for example? So an entity is no longer sending tonnage to a landfill and so there's a CO2 component for that. So it's kind of like a direct and an indirect avoidance that are offset in the scheme of things.

However, if I continue that theme and suggest that this entity might also own the landfill that they do send their stuff to and then buys off the methane to power the boiler and replace the coal or something like that. It's kind of a closed loop system. I think the guidelines should suggest, they're flexible enough to allow in something like a waste -- a closed loop waste management process which has direct and indirect emissions and it's kind got of direct and indirect offset, but it's on the Greenhouse Gas footprint idea.

MR. BROOKMAN: And I wish to confirm that you and others have implied, I think, that in this case where there is enough flexibility to accomplish the main players and places in that closed loop that there's also enough documentation to show who's role is what and how it's defined in that closed loop.

MS. PETERSON: Absolutely. You have to have that supporting documentation.

MR. BROOKMAN: Okay. Yes. Paul McArdle.

MR. McARDLE: Paul McArdle, EIA, I don't mean to keep interjecting. We do have under the current system what's called the recycling worksheet which allows folks to use their recycling paper or whatever, and will self calculate for the reporter the upstream emissions from the reduction of CO2 because virgin materials require more energy. Therefore, you've got a CO2 reduction upstream. And it also will self calculate downstream for you. The CH4 methane emissions that would have occurred had that paper been put in a landfill. And we also covered that last issue where people are recapturing CH4 at a landfill and combusting it per power, and we can get a reduction there versus central station power.

MR. BROOKMAN: What about these other issues, materials used, business travel, employees commuting and use of manufactured products? Additional comments on those? We touched on a few of them. Brad Reed.

MR. REED: Brad Reed. I get guess the business travel and the employee commuting and the manufactured process -- products, I don't see how you can assign those to a manufacturer. The consumer decides how they use our products and whose products they buy.

The employee commuting. My employees decide where they live, how far they're going to drive to work. Business travel, I'm assuming that the airline industry is going to report business travel for me. I can see company owned vehicles reporting fuel consumption for those, but all those others things should be reported by the people who use or provide the service. So the manufactured product, the consumer buys it. It walks out the door, the consumer decides how it's used.

MR. BROOKMAN: What about a leased vehicle fleet?

MR. REED: If I'm leasing a vehicle fleet for my employees, I guess we should report that, I don't have a problem with that. But if my employees are leasing a vehicles from a dealership, I don't see either the dealership or the manufacturer reporting that.

MR. BROOKMAN: Neither, is that what you said?

MR. REED: Neither. I don't see neither the manufacturer or the employer reporting that because it's not their consumption.

MR. BROOKMAN: Yes. Of course, there's some huge transportation fleets and a lot of emissions from transportation uses, right, just to single those out. Please, your name.

MS. RISSE: Karen Risse with International Paper. I guess in terms of employee commuting, a lot of that has to do with personal habit and infrastructure issues and this group is pretty heavy on industry and utilities. I don't know what the representation was and workshop, but in terms of Greenhouse Gas impact, it seems like public entities, cities, states and policy makers at those levels that impact how their communities commute, and that sort of thing has a big part to play in this and I haven't heard any voice from them.

MR. BROOKMAN: Something that exceeds the range of comment on 1605(b). Yes. Al Musur. Any final comments on business travel, employee commuting, especially any comments that are different from what we've heard so far? Al.

MR. MUSUR: This is Al Musur for the record. I think that employee commuting is a legitimate problem for industry. Most people aren't going to work at home. If they're working for a manufacturer, we need to account for the emissions for all that commuting. It may also allow us then some opportunity to -- like for us, we have our manufacturing plants in a lot of places that don't have transportation infrastructure, and it may give us good reason to do van pooling or create bus lines or something for our employees to reduce the carbon profile for particular plants. I have no problem with the employee commute piece other than the fact for some standardized rules for doing the estimations for what those emissions look like.

MR. BROOKMAN: You could see in your mind's eye constructing a system that would work okay for your employees, documenting their commuting miles and note the kinds of vehicles they're driving and that kind of stuff?

MR. MUSUR: Well, I've got 17,000 people reporting to work everyday here in Lake County, Illinois. If the average commute is 20 miles and the average cafe standard is 18.5 miles per gallon and there is a pound of carbon dioxide per gallon of gas consumed, it's not so hard to come up with a carbon estimate. As long as we have reasonable estimation tools for what that commute looks like so we can come up with some reasonable estimation of what the carbon profile looks like.

MR. BROOKMAN: Okay.

MR. MUSUR: As far as the manufactured products are concerned, inbound and outbound freight, those are boundary issues. If I'm accounting for them, and I manufacture them, my emission profile, then the person I'm buying from should be doing the same thing. If I account for all of my outbound freight emissions, then so should that manufacturer who is shipping to me. So I think that's more a boundary issue than anything else.

MR. BROOKMAN: Okay. Comment. And then I'm going to go to you, sir. Your name, please, for the record.

MR. OSHNOCK: Gary Oshnock, Daimier Chrysler. I just want to agree. I think the gentleman from Toyota said it accurately. There's a lot of individual choice that comes into this as far as employee commuting. Where you choose to live relative to work, the type of vehicle you drive. Talked about using a corporate average fuel economy number. Those values are good for new vehicle fleets for one manufacturer. That doesn't really translate to individual models, and I take a five year old vehicle or something like that, how can a manufacturer dictate -- well, or a company in this case, a company dictate what their employees drive? That's a key part in that equation.

MR. BROOKMAN: I didn't hear that being suggested, but I did hear that different corporations or entity might have an interest in having this data as an incentive for them to help create reductions, you know, and also to create awareness, I guess, on the part of the employee.

MR. OSHNOCK: That assumes that you have some influence on their decision, doesn't it, at the end of the day? I'm not sure most companies are willing to make that assumption.

MR. BROOKMAN: I see several follow ons. Let's go to you first, and then to this gentleman and then I'm returning to you.

MS. MEADOWS: Just a quick response and then I –

MR. BROOKMAN: This is Karen Meadows.

MS. MEADOWS: I'm sorry, Karen Meadows. It seems to me that what we're talking about is what the corporations -- the emissions they're responsible for. Some of those they may not be able to do anything about, but I think the issue is more what are they responsible for, and what -- and their employees commuting wouldn't be commuting if they weren't there. So in my mind, that is part of the emissions corporations is responsible for. And, again, what they can do about it is almost a separate issue in my mind.

But the second thing I want to bring up is, as we talk about what corporations can influence, when we add them up as an indirect issue or boundary issue, if you look at a product and its entire life cycle, there are a lot of things that a corporation can influence in terms of what the raw materials, the products manufactured from, all up and down on supply chain, I'm guessing, as well as how much energy that product consumes, and that's emissions over its lifetime, and a lot of those issues are things the corporation itself does have an influence in.

So as we think about a registry, it seems to me when we're starting to look at how projects, we haven't talked at all about products. And how -- should a registry also allow for some kind of accounting for a product emissions because we want to provide some incentive for corporations to influence the emissions of a product throughout its lifetime and, in fact, a lot of the corporations here have that ability. You know, if it's a phone company, who can say that we'll only buy recycled paper in a phone books or we only want recycled aluminum in our products.

MR. BROOKMAN: Great. We have several people that wish to follow on, I'm going to go to Gregg first, and then this gentleman here and then Kristin and then I'll reform the cue. Yes, I will after that. Go.

MR. SPENCER: Gregg Spencer. I think this discussion is highlighting the benefits of a project based reporting process. You take business travel, commuting, use of products. Setting aside the cherry picking issue again for a second, everyone acknowledges that the transportation industry is a huge source of CO2 emissions and there are things that can be done and there are projects being developed today specifically to deal with employee commuting, the goal of which is just to coin the credits generated by that. There's a point at which all these indirects become an impossible calculation and an impossible process for the corporate reporting entity.

MR. BROOKMAN: We're assuming in a potential world, I want you to know, that last comment. You talked about, subarticulate, ta, ta, ta, ta, right on down.

MR. SPENCER: Right. There's a point at which indirects don't make sense as part of the reporting or in which they disqualify, I think, certain entities from being logical, voluntary reporting entities, but they represent huge opportunities for reductions.

MR. BROOKMAN: And incentives as well.

MR. SPENCER: And incentives.

MR. BROOKMAN: Steve Willis.

MR. WILLIS: Yes, from Whirlpool Corporation. First I want to volunteer to document all the solutions that are being identified today.

MR. BROOKMAN: You think that will be an easy task?

MR. WILLIS: There's two us here who are in the appliance business and I'm thinking that to some extent, the automotive company and the appliance companies are in the same boat in that we produce products that if used are going to be generating Greenhouse Gas emissions and unlike maybe the automotive companies, I think the appliance industry believes that through our

initiative to make more energy efficient products, we can have a very positive impact on the environment in general.

Looking at the life cycle assessment of appliances. Over 90 percent of the environment impact, no matter how you measure it, is in the use phase, and so how our industry needs to step up and recognize that responsibility to make more energy efficient products.

MR. BROOKMAN: So should that be included in this registry, that is the life span use of energy and if you go to a product that is 20 to 30 percent better than whatever you salvage as the third point? Should Whirlpool get credit for that?

MR. WILLIS: I think we need to track that and we need to make decisions that positively impact that. Frankly, I think from a stakeholder's standpoint.

MR. BROOKMAN: Should you report that, is a more relevant question.

MR. WILLIS: If no one else is. I think we need to track it and we need to report it to our stakeholders and to our website, but right now, we're not as concerned about who reports through this kind of a mechanism or who takes credit. We're still waiting to see if there's any value to those credits. But at least from a standpoint of acting responsibly, we need to track that kind of information.

MR. BROOKMAN: Yes. Arthur, do you want to follow on, and then I'm going to Kristin next. Arthur Rypinski.

MR. RYPINSKI: A brief and quite frivolous follow on. I am the sole household that reports to the 1605(b) program and one of my projects involves my Whirlpool refrigerator that was a winner of the super efficient refrigerator program purchased in 1994. So if you want to claim those credits, you better have my attorney see my –

MR. BROOKMAN: And reporting them as well. Kristin.

MS. ZIMMERMAN: Kristin, GM. One note I wanted make on the idea of capturing the real emissions from what might be a products use phase or employee business traveler such. I think we have to go back to the total amount of fuel used and use that as the metric to be an accurate accounting of the CO2 emissions rather than the engine size or the fuel economy or the cafe. We have the numbers on the total amount of fuel burned and types of fuel burned. Take the CO2 component.

MR. BROOKMAN: And those are fairly reliable or more reliable than CAFE –

MS. ZIMMERMAN: Then vehicle miles traveled. No one has any control over congestion out on a highway.

MR. BROOKMAN: Okay. Yes, please, your name.

UNIDENTIFIED PARTICIPANT: I've got to get back to a point that was made about industries maybe taking a look at employee commutes and so on. I have to concur with Brad. Industry doesn't look at anything that doesn't make money for you. It's pretty easy for a facility to identify how much fuel it bought in a year and provide that data. But to come up with a value for employees and what they do relative to a commute, I think is taking us away from trying to keep this simple. Keep it simple, a suggestion a minute ago, we know as a nation how much fuel we use, we buy. Now, that's keeping it simple. And maybe that's a little too simplified but we're getting into the macro here when you look at plant facilities being asked to come up with some of this data down to an employee and how he manages to get to and from work.

With respect to plant vehicles, yes. If there's something in it for the plant such that deficiencies and their vehicle fleets, reduce their fuel consumption, et cetera, that can be done within the fence, so to speak. But getting outside the fence, I think we're asking too much of industry.

MR. BROOKMAN: Okay. Thank you. Yes. Final comment and I think we'll move on to the next set of slides.

UNIDENTIFIED PARTICIPANT: I don't know how many people were involved with the Clean Air Act Amendment of 1990, but they had employee commute programs that required employers with more than a certain number of people, I think it was actually 100 employees at

any given location to determine how they commuted, how far they commuted for each day of the week and then try and develop a program to reduce the average employee commute distance traveled.

I got the thrill of trying to do that for a company at the time which only had 3,000 employees. We now have about 15,000. I guarantee you that if you try and do that for companies, you're not going to have anybody participate in a voluntary program because that is an incredible waste of time and money. And it is true. I mean, it's not just business, business is -- you have to be very broadly. Any organization has to make sure that the money coming in equals or better the money going out or you don't remain in business. And it's impossible to deal with.

MR. BROOKMAN: Any final comments on this subject, please. Your name and then to you.

MR. STROHFUS: Mark Strohfus. I think it would be helpful to include employee vehicles or allow it as an option.

MR. BROOKMAN: Or provide the opportunities.

MR. STROHFUS: Because there are companies that incentivize car pooling, van pooling and in that case you're making a big difference and it's the company that's making the investment in an expectation for some return on that investment, i.e., a carbon credit.

MR. BROOKMAN: To me it's flexible. One of the many meanings attached to it would be that it would enable reporters to report a certain amount of stuff that was specified as kind of meeting the threshold level of being a reporter. But then there might also be optional reporting that would be the sort of thing you suggested. One can conceive of it as being that way.

You're next please, your name.

MR. BAILEY: Tom Bailey with Synergy. I guess in my mind this is making a mountain out of a mole hill. If you're predominantly a coal fired utility and you're producing over 60 million tons of CO2 a year, trying to add up the amount of tons that your employees produce when they commute is going to round off, you know.

And then the other issue, I see people dancing around as the life cycle cost issue. And one of our big competitors of the nuclear industry, use our power, it's a lot less CO2 intensive, but if you go up the life cycle food change, all the fuel that they use is produced with the energy from coal fired power plants. So you throw that in their face and they're not going to be real happy about that. Where do you draw the line up and down the food chain?

MR. BROOKMAN: Are you suggesting that where the Department of Energy should draw the line with respect to life cycle?

MR. BAILEY: That would be helpful.

MR. BROOKMAN: Do you have an answer for that question?

MR. BAILEY: No, I don't.

MR. BROOKMAN: Are we building up empathy for the Department of Energy here?

MR. GREEN: Fred green, one final comment on this. The use of manufactured products, no manufacturer has control of it. Whirlpool makes efficiency appliances, okay. And you know, somebody else makes energy efficient air-conditioners, and we make energy efficient cars. But the consumer determines what they're going to buy.

Now, if the government wants to go out there and say, Cafe is going to go to 38 miles a gallon, let the government do that, because then all of us in the auto industry will have to make cars to do that and the prices that go on that, the consumers will have to pay. But then the government takes the heat for it, not us. I can guarantee. If GM goes out and makes 38 mile a gallon cars right now, they'll be out of business in a year and a half because nobody is going to buy it. They'll be too expensive. They'll be too unsafe.

MR. BROOKMAN: Okay. Thank you. I'd like to move to the next slide. Operational boundaries and related issues, gases and sources covered, current reports on all six U.N. framework conference gases and potentially others and how to treat or exempt very small sources, difficult sources to measure. We already talked about routing error. I mean, the

rounding, gave off the routing. These things of which in the last workshop was maybe referred to in the concept of materiality or a kind of de minimus phase kind of reporting. I saw you first.

UNIDENTIFIED PARTICIPANT: I think both are questions in materiality. You need to do an assessment as a reporter as to what's material to your corporate or your entity emissions profile and then determine whether those very small sources are or are not within your boundary. Now, determining what that is, you know, I think becomes a bit of a challenge because what's material for one company may not be to another and having some guidance there might be useful in terms of setting up a registry that's consistent. I know that other regions of the world have adopted approaches -- the Australians have given a number.

MR. BROOKMAN: Would you endorse that? Do you like the number they gave? What is the number? Is it 5?

UNIDENTIFIED PARTICIPANT: Yes, it's in the order of 5 percent and I'm not sure exactly how it's calculated. Yes, it's similar to the accounting system. I'm not sure that the number is right and it's going to vary between different companies and different businesses as we've seen with a lot of the issues that have been raised today. It's different strokes for different folks. But this -- just one other point on. I see this somehow related to the question of ownership and of management control versus equity.

What's material to your overall emissions may or may not fall under the definition of management control, or it may fall under equity. If you only own 10 percent, but it's a very large amount of what your overall profile is, that may count as material as well. So you need to take a look at -- you need to take reason decisions as an entity when you're reporting to decide what falls or does not fall within your boundary.

MR. BROOKMAN: And does that get specified presently in kind of business contact relationships?

UNIDENTIFIED PARTICIPANT: I think earlier there were some relationships cited where that was, for instance in Cogen. But I'm thinking in vast majority, when you buy a gallon of gas or you buy a cubic meter of natural gas, there's no specified relationship there, right? Those are understood at the moment and contract law may change to make that clear over time, but at the moment, unless it's explicit, there's no specified relationship.

Just one more before I do shut up. On that point, where you have a contract, I believe that that is the defining element. There should be a caveat within the rules that says where there is a relationship that states, specifically in a contract law, who is responsible for the emissions. That should be the overriding criteria in terms of assigning responsibility for emissions where you get into a much greater area where their isn't obviously a defined relationship.

MR. BROOKMAN: Thank you. Your next, sir. Your name.

MR. VERDIANI: Don Verdiani, Sunoco, I'm going to hate myself for saying this, I think, but on the issue of materiality, depending on the size of the emitter, some things that I would call immaterial are probably bigger than some of the companies that supply us. I'm concerned about something like a 5 percent materiality rule as excluding, for a big emitter some fairly significant sources. I think I'd be more comfortable with a tonnage amount and some of the verticals are being developed are speaking to that.

MR. BROOKMAN: Thank you. Thank you very much. Other comments on materiality? At what point does it become de minimus, that kind of thing. Please. Yes.

MR. STROHFUS: Mark Strohfus, Great River Energy. If you're going to go with the tonnage limit, then I think you need some sort of aggregation allowance in there. We operate a huge vehicle fleet and we say the emission point is the vehicle, then it's going to be immaterial. But when you look at in aggregate, it is going to be material. We can bring that up to plant size too. An individual plant may be immaterial, but if we own thousands of the particular plant around there, it is not immaterial.

MR. BROOKMAN: Thanks a lot. And what should the 1605(b) program encourage all six UN Greenhouse Gases to be reported and essentially others? Please.

MR. RICHARDS: Yes, Ken Richards from Alcoa. We get back to materiality, we would encourage everyone to report the six UN FCC gases, if it's material to their emissions or their projects, and if it's not, obviously not. It is a big part of the aluminum industry, and I think it also relates to the President's goal of 18 percent reduction in intensity and it's also consistent with, again, some of these 100 protocols like WRI, perhaps even through international trading context.

MR. BROOKMAN: Thank you. Thank you. Additional comment on this slide? Yes, please.

MR. LOWERY: Dick Lowery, BP. Getting back to materiality, I kind of like the percentage better than the absolute because how are you arriving at these numbers are through some analysis, through some meters, through something and if I have a large amount of gas coming through, because we got large meters and large operation and we aggregate all that gas, I can only measure it to some degree of accuracy. So if you say so many pounds or tons, that doesn't really apply there. So I think, you know, at least for large people, you're going to need something more, 100 percent rather than a quantity because the quantity of some -- it's something that Sunoco, but quantity may, that we don't have assurance of the quality of it, is greater than what some small operation we have per total.

MR. BROOKMAN: Thank you. Additional comments on materiality? Final comments on this slide before I move on. Okay.

The final slide that we hope to address before we go to lunch, measurement and accounting issue, measurement and accounting method in the context of reporting. Step five, initial reporting year. We already heard that 1605(b) program initially started reporting fall. Paul McArdle.

MR. McARDLE: Yes. Paul McArdle from EIA. Folks who report at the entity level can report emissions all the way back to 1987 and forward. Also at the entity level reporting, they can report reduction from 1990 onward and same for project level reductions. Those emissions and reductions can be reported from 1990 onward.

MR. BROOKMAN: Thank you. Mark Friedrichs.

MR. FRIEDRICHS: Just on that issue, one of the things we wanted to hear from you present is should that rule stay in place under the new guideline? Should all participants be able to report emissions back to 1987 or should these new guidelines be applied to some later year and starting year. As indicated right at the start, we hope to have these new guidelines in place by January 2004 which might enable them to be used in 2003, unless you went back to your records for previous years.

Are they any views on how the new guideline should address the reporting years.

MR. BROOKMAN: Thank you. Yes.

MR. SPENCER: Gregg Spencer. I think consistent with the goal of not penalizing early action, I don't care as much about the date as I do about the quality of the reporting. I would allow early reporting as long as it can be verified by a third party.

MR. BROOKMAN: Mike.

MR. STAVY: Michael Stavy. The more years of accurate data, the better it is having data to work with.

MR. BROOKMAN: And accuracy in this case, does that rely on verifiability or is it --

MR. STAVY: Yes, verifiability. So if you can go back years of verifiable data, that's better than -- the more use of data, the better use we can use with the data.

MR. BROOKMAN: Paul Lynch. Go ahead, Paul.

MR. LYNCH: Right now we're using 1990 as our baseline for reporting 1605(b), and for us that worked out very well because coincidentally just after that, we put in an interconnection cable that reduced our electric demand. We did gas conversions on several boilers, and that reduced both the intensity and quantity of CO2 emitted.

I don't have a real good answer, but I just wanted to make this observation that electric generators, not necessarily utilities which are the people that distribute electricity to the end user,

but the electric generators don't necessarily have a lot of control over how much they operate each year. Consequently, if you pick one year for one company, that might be fantastic, for one year, that might be absolutely terrible. You could have had a generator fail and you were down for nine months, and when you go to use that as a baseline period, all of a sudden, your output has gone up by 85 percent.

I don't have a real good answer, I just wanted to make that observation that no matter what period you pick, you're going to have a significant number of individual cases where that final determination is going to be absolutely terrible for them.

MR. BROOKMAN: Okay. Ken. We'll hear from Ken and then I'm going to hear Thomas.

MR. MARTCHEK: Ken Martchek. We would support going back to 1990. Again, that's consistent with UN FCC which U.S. is a signatory to with the FCC as well as we think with the President's stated goal of 18 percent as well as the goal of credit for early action. So all these things would be covered by allowing us to go back to 1990. And I also would just add the point about consistent, saying with international roles, the Global Warming Potential conversion factors which are recognized.

MR. BROOKMAN: Thank you. Thomas Werkema.

MR. WERKEMA: Yes. Beyond that -- and I was going to make that same point, that's a good point. If the U.S. is ever does participate in international regime, I think we have to recognize the rest of the world is using 1990 baseline data. From multi national corporations, it doesn't make sense to be scrambling around with a multitude of different baseline dates. Now for some companies they may not have data that goes back, and I think the 1605(b) program ought to welcome whatever their starting point is, because at least you're encouraging the right behavior in the right direction then.

MR. BROOKMAN: Okay. Thank you. I thought I saw somebody else in the rear. Please.

MR. VERDIANI: Tom Verdiani {phonetic spelling}, Sunoco. Our answer, I think, depends how complex the end of the day when the new 1605(b) is all done. It may be so complex that we can't go back and recreate the old data anyway. So there has to be a way to restart. If the registry is different enough, we'll have to restart anyway.

MR. BROOKMAN: Or if you can't meet the '90 baseline, but your data allows you to enter at '95, or whatever, do it that way. Is that what you're suggesting?

MR. VERDIANI: Well, I have 1990 data, I'd love to be able to preserve it, but if at the end of the day, it would be so complex to go back and recast it and verify stuff that I might not be able to do it. That's another issue I hadn't even thought of. I mean, the actual preservation issue and the data format -- oh, my Goodness, I just opened another -- yes, you got that for me here.

The other one is the same issue. We're reporting what we call entity reporting. When we started five, six years ago, we did a prado {sic} chart decided certain parts for our operation were significant and a few were insignificant, so we left them out. And for climate-wise/1605(b), that worked just fine up to now. It may be that given new criteria what I reported was useless anyway, we're not valid.

MR. BROOKMAN: Okay. Do we have any additional perspectives on initial reporting year? The first person there.

MR. LOWERY: I'm just going to comment on --

MR. BROOKMAN: Dick Lowery.

MR. LOWERY: Dick Lowery, BP. We're going to come out with something that's much simpler than the 1605(b) when we're done.

MR. BROOKMAN: What are you suggesting that we do to accomplish that?

MR. LOWERY: I find it quite burdensome as it is, and everything we're talking about is putting more bells and whistles on it to make it even more complicated. My company will be participating. They're going to pay me to do it, but, yes, you want to keep something relatively

simply that has the quality of data that you need to get the behavior you need and to show the world what you're doing.

MR. BROOKMAN: Thank you. Thank you. Kristin.

MS. ZIMMERMAN: Kristin, GM. I'll go back to what was said by a few others. If you had been reporting since 1990 verifiable data, something that can be third party verified if you want, it should be allowed at any year that you got that data back to. And I would be fearful if a new set of guidelines is radically different and does not allow for what used to be verifiable, to be verifiable today, I don't think we want to go there. But I don't suggest or I don't think that what we are discussing here, trying to form a simplified flexible set of guidelines for greenhouse gas reporting will be any more burdensome, you know, than it has been in the past and will allow for those who have been reporting before to continue on their path, if it was verifiable. I don't think much will change other than maybe additional flexibility.

MR. BROOKMAN: Other comments on this subject? Which emission measurements or estimation of methods should be used, fossil fuel, or actual emissions. We've addressed some of these already. Fuel and -- help me, GWP -- Yes, thank you. Global warming special conversion factors and methods for nonpropyl gases. Which emissions or methods should be used?

MR. McARDLE: Paul McArdle with EIA, we already covered that first bullet, the reporting years. Now, in terms of emission calculation, we supply the default emission factors for fossil fuel combustion and electricity generation, also for some renewable application. As I mentioned before, we have a recycling worksheet. We also have a forestry worksheet both for large forestry project as well as what we call urban forestry where people can -- they actually plug in their numbers and the spreadsheet will calculate their carbon sequestration, and that's the case with the recycling worksheet, you just plug in your recycled commodity and it will actually calculate your CH₄ and CO₂ as well as PFC emissions reductions if you're recycling metals, particularly aluminum.

Now, when we get away from fossil fuel use, which is pretty clear-cut, electricity generation, less clear-cut, but if you know what technology is being used, it's pretty clear-cut, and some of the worksheets I mentioned, it gets a little fuzzier and what we generally fall back on, is what -- consistency with the guidelines. If the reporters give us a, say, methane project at a landfill or an agricultural project, they're going to give us a methodology on how they calculated their emissions reduction and when we get that report, we're going to first look at the guidelines to see if it's consistent with the guideline. And in terms of estimating the emissions ourselves or seeing if they're in the ballpark, we're going to fall back on the work we do. And the other part of my job in EIA, and that's calculating national inventory emission estimates, and we have a slew of methodologies we use there to calculate emissions on an aggregate level. We kind of fall back on that expertise to see again, does this make sense, and that's about it.

MR. BROOKMAN: Thank you. Mark Friedrichs.

MR. FRIEDRICHS: I think Paul set it up. One of the things we're trying to find out is do you have views on what EIA is doing now under the 1605(b) program that we should know about should some of these factors and methods be changed? Paul alluded to the fact that the guidelines don't address in detail a number of, particularly non-fossil specialized sources, specialized industry emissions. A number of specialized protocols and modules are being developed to try to address some of these industry specific concerns. API has one. Cement industry and a number of other modules. These aren't incorporated right now into the DOE guideline. We're wondering whether DOE should try to incorporate them. And if so, how.

MR. BROOKMAN: Thank you. Repeat the last question again, what additional should be incorporated?

MR. FRIEDRICHS: Should the EIA guideline be expanded to include many of these much more sophisticated industry specific, source specific reporting guidelines, protocols that are under development or by WRI or by industry groups, but have yet not been included in the 1605(b) program.

MR. BROOKMAN: Thank you. Al Musur.

MR. MUSUR: When it comes to category pollutants, we have to go back to AP42 to do calculations anyhow and they can provide factors for CO2 and 2O and methane. So we created, at least internally, greenhouse gas recording system that's based primarily on AP42 calculations which will yield the results that are tremendously different from what we got here in 1605 because they're much more specific to fuel combustion methods. So I'm not so sure that this discussion is limited just to things that industry is developing. I mean, the government has been developing these things for years also. Maybe there should be some consistency in all of this.

MR. BROOKMAN: How do you address this specific question about what should be included and what should be enhanced and what should not?

MR. MUSUR: Since I've already gone through all the trouble of creating a registry for myself internally that uses AP42 data, I just assume use AP42 than the factors that they have in 1605.

MR. BROOKMAN: Okay. Any other perspectives on this? Yes, please, Mike Stroben.

MR. STROBEN: Yes, I used some of DOE's tools in the past. I think it would be nice to have a range of options. Maybe first going back to the gentleman from BP's comments about keeping it simple. I think it's a mistake for people to expect the 1605(b) program to be a mechanism for making creating credits here. That's a more complicated system than this needs to be and should be. If you want to go through that process through a third party and get validation of those credits, that's great. And if you want to use those calculations in a 1605(b), that's great. But there's a lot of people out there that aren't going to be able to recognize any value from what they do. They do it out of stewardship.

So it would be nice to give a range of tools available, a nice emission factor, real simple. You can do some screening, check off materiality for a particular project. If it looks like there's something valuable there either from a monetary standpoint or a PR standpoint, then give some more detailed tools. There's a couple of models, your landfill model; but some of these tools, I think are too much black boxes to me. I tried to deal with landfill calculations in the last three years and I just gave up till last year. I found the warm model which I think is an EPA product which has some very good documentation, background documentation, and it's something that you can follow and believe in.

MR. BROOKMAN: Thank you. Additional comments? I saw someone else. Yes, please.

MR. BAILEY: Tom Bailey with Cinergy. My question goes to the first of the second bullet item there, fossil fuel versus actual emissions. If you're a large stationary source, you have actual emission data from your continuous emission monitors that we supply to EPA on a yearly basis. There's a big database out there and you look at those data versus the data from fuel emission factors and they don't correlate, or they correlate but they're not the same. Are we developing two data bases that could be used by two entities that are represented here which don't necessarily coincide, and should a determination be made as to which one has prima cerea and which is better data.

MR. BROOKMAN: Is the that a question or do you have a solution?

MR. BAILEY: Well, for instance we are member of a Climate Leaders and we report to data to EPA. We're supposed to develop inventory data for Climate Leaders. We use the same data we are already supplying to EPA from our continuous emission monitors. For 1605(b) we're using all fuel data. Which data is better and which do we supply to which entity.

MR. BROOKMAN: Do you have a bias?

MR. BAILEY: No. Actually it's easier to use the continuous monitor data because it's already there. We have statisticians to tally that data and it's already submitted quarterly in reports. For me it would be easier than to try to go back and talk to our fuels people to determine how many tons of coal we unloaded, things like that.

MR. BROOKMAN: Two major themes, consistent themes.

UNIDENTIFIED PARTICIPANT: Can I talk?

MR. BROOKMAN: Yes, Ken.

UNIDENTIFIED PARTICIPANT: Ken Urchek. We would encourage the 1605(b) to recognize industry specific estimation and measurement measurements. We have one for our industry and to recognize the IPCC as well as the EPA so we would know how else to give you the data other than using those methods.

MR. BROOKMAN: So you'd expect a certain amount of variability in between different the sectors, different industrial sectors, and you'd expect –

UNIDENTIFIED PARTICIPANT: Various sectors specifics.

MR. BROOKMAN: Okay. Other comments, please? Yes. Paul Lynch.

MR. LYNCH: It's interesting that CEM's should be mentioned. We also have quite a few units with CEM and I started thinking, How good is that data? And the first thing to remember is that with a CEM system, it was intended to monitor NOx and SOx and everything involved with it paid very, very close attention to how it calculated those emissions, how it reported them. Nobody really cared about CO2. And so I said, Well, how does it compare? So I went in and I put in a fake number and see what it would come up with as the equivalent emission factor for a million BTUs of emission input. And lo and behold I found that the CEM system has different emissions imbedded into the EPA calculation methodologies than what is commonly used as the default factors for carbon and fuel.

I'm not sure that that means that the CEM system should be changed; I'm not sure if that means you shouldn't use the data, but I think you have to recognize that there's a lot of variability out there. Nobody has really addressed it. It's not just a simple matter of saying, use fuel data, use CEM data. You have to look at how both of those are calculated to determine the relative accuracy of each.

MR. BROOKMAN: Thank you. Yes. Your name, please?

MR. KIZIOR: Gary Kizior, BP. I think we shouldn't lose sight of the fact that with this program we're primarily trying to track emission reductions and perhaps consistency in what you use from would be year to the next or from one reporting period to the next. As long as those are reasonable methods, that, you know, the importance here is to be consistent regardless of what method you choose, as long as you choose one that I guess you have some faith in and is a reasonable way to calculate it. I'd rather not be very prescriptive as to what method everyone must use if, in fact, there is some uncertainty around all methods as we're I guess suggesting.

MR. BROOKMAN: Let me ask Paul McArdle. Paul, where is this capacity for an improved 1605(b) program registry to tolerate huge hedogeneity {sic}.

MR. McARDLE: Paul McArdle, EIA. Anytime you introduce more variability, more hedogeneity, obviously the cost of processing the reports increases because it's -- that's one of the things with 1605(b). We get these reports then because it's so flexible, it's a very labor intensive review and obviously as you create more options, it places more stress on the system. Whereas -- it's funny. The converse is if you have more transparent, more prescriptive guideline, it is much easier to process reports. So you got that trade off at least from a human resource cost at EIA versus more option, you have to put more resources into the program. Less option if you can make it more streamlined.

MR. BROOKMAN: This fallacy point is hard for me to envision at this point, between a lot of flexibility and a lot of ability to -- right, to report a lot of different sorts of ways and still kind of making it kind of doable, usable, workable, practical, simple enough, the dichotomy is worth exploring as we go along here. Tom Werkema.

MR. WERKEMA: Tom Werkema. Just add to that complexity, let me just mention one other thing. Some of the long term gases which have long emission profiles, most of us in the room I think are thinking in terms of burning a fossil fuel and you end up with CO2 essentially instantaneously. Many of the industrial gases in particular, and one family that we produce, which is the HFCs, which are used in automotive air-conditioning, they're used in home air-

conditioning, they're used to make foam insulation. They have an emission profile that runs over years, and our understanding of that emission profile changes as time goes on as we learn more.

Now, coming back to Gary's comment, I think it is very important that we have a system where you are consistent so that year to year emissions can be compared with each other, but we also need to be able to accommodate the fact that the models have gotten better, the accuracy has gotten better, and there probably needs some ability then to go back and restate prior years based on new model information.

MR. BROOKMAN: So we're going to get into those issues as well this afternoon, I think as well tomorrow someplace other than -- So do you think it's possible then to construct a reporting scheme where you would have a limited number of ways to report for a given industry, say, or did it -- I'm just thinking how you can work a thing like this practically speaking among all the many, many industries that might be interested in reporting.

MR. BROOKMAN: Michael Stavy.

MR. STAVY: Yes, I was just thinking, the public looks at this as being scientifically valid and I think that's their criteria that we should go forward in a voluntary program. A nonvoluntary program, a cap and trade program or something like that would be descriptive by definition.

MR. BROOKMAN: Okay. Thank you. Any additional comment on this slide? I don't think we covered it all, but I do feel the need for us to go to lunch. Yes. Your name, please.

MS. PETERSON: Patty Peterson with NiSource. The question I have here as we're talking about emission reduction, I reported --

MR. BROOKMAN: We're actually talking with emissions reporting which is a precursor to emissions reduction.

MS. PETERSON: And that's exactly the point I'm making. Under 1605(b) I feel confident the numbers and reductions I report, I feel much less competent in my total emission inventory.

MR. BROOKMAN: I got you.

MS. PETERSON: That's a significant question because as we go forward, if we're using this as an inventory, the voluntary program you've only got a handful of people that are doing the voluntary reporting and are accounting for their emission inventory if that's the intent of the program. However, you have many people out here who are able to validate what they're doing has a positive influence as a reduction and, you know, some of the questions as far as methodology and emission reporting becomes very vague.

MR. BROOKMAN: Yes.

MS. PETERSON: And it's just a general point as far as which way the program is going to go. If it's going to be a very stringent -- I recognize the ability to be able to validate your emissions. However, if you're reducing -- and for me for a utility sink, okay, all you have to do is measure the emissions of the stack. However, if you look at the other projects I'm able to accomplish, and especially when you get to waste heap recovery projects, when you get to alternative fuels. Now, those are significant questions as far as emission accounting versus reduction.

MR. BROOKMAN: Thank you. Thank you for that comment. Other comments a long this line? I'm going to suggest we go to lunch. If there are additional comments to be raised on this slide when we return from lunch, we'll take them up at that time.

AFTERNOON SESSION

MR. BROOKMAN: Please take your seats, folks. Okay. I want to make certain that everyone had a chance before we move on to the stuff in the agenda which is scheduled for the afternoon which is emission reductions and sequestration both characterizing and measuring.

That's where we're going immediately following this slide here. I wasn't sure that everybody had a chance to say everything they had to say and I want to be as complete as possible.

Any additional comments? We're dwelling here on this last set of bullets here.

Which emissions measurement or estimation methods should be used. And I want to see if there are any additional comments before we move on. Yes, please, Brad Reed.

MR. REED: Brad Reed, one additional comment.

MR. BROOKMAN: Before you do that. Before you do that –

MR. REED: What?

MR. BROOKMAN: I want to make sure that machine is working. Okay. Go ahead.
Brad Reed.

MR. REED: Just a couple of little comments. It seemed like there was some issues just before lunch on conversion factors and it appears to be that it's more of a governmental issue than it is an issue within the industry that different branches of the government have different conversion factors for the same fuel cells source in the CO₂, okay. At least what I was hearing. And the other thing was whether you use your CEMs or whether you use the fuel number, and I fail to see the problem. Use whatever is most accurate. If you've got meters and you're metering the CO₂ that you're putting up the stack, or FCP or whatever you're putting up the stack then meter it, but if you don't, use standard conversion factors.

MR. BROOKMAN: Okay. Whatever is most accurate. I guess accuracy is in the eye of the beholder in some respects, right?

MR. REED: Yes. If you've got meters that's accurate, but if you don't have meters, you fall back.

MR. BROOKMAN: That was Brad Reed with that additional comment. Thomas Werkema.

MR. WERKEMA: Yes, Tom Werkema. Just one quick comment on the GWP conversion factors which perhaps someone in the room knows this, but in the latest IPCC assessment there were new GWPs that were published. I think one of the things we run into is as science evolves and understanding atmospheric chemistry evolves, things change. It's very important, though, for consistency of reporting, that we not. So even if we're freezing those numbers at somewhat arbitrary levels, which in this case I would presume the 1996 numbers, I think that that's important is we move ahead in the 1605(b) program. My guess is that every six, seven years or however often we do IBCC summaries on the science, we're going to see additional changes as we understand in particular, the life cycle of carbon dioxide and how that varies and what the equilibriums are and some of the other dynamics are.

MR. BROOKMAN: And so once those IPCC recalibrations are done, what do you do at that point?

MR. WERKEMA: They are informational I guess as much as anything. I flash back to the Clean Air Act under the ozone depletion issue. There the United States froze the numbers even though the international arena and science understanding continued to shift. And we stayed with the same ones because it was a compliance related issue there. We don't have compliance here, but I think we do have consistency here.

MR. BROOKMAN: Okay. Final comments on this slide? Paul McArdle.

MR. McARDLE: Paul McArdle, EIA. Just to get at the GWP. We in 1605(b) are presently using the GWPs from the IPCC service assessment report which are the most current 2001. Once those came out, we went to that system to reflect the most current science.

MR. FRIEDRICH: And, Paul, correct me if I'm wrong, but the 1605(b) recalculates its database of reports once it adopts a new GWP exertion request factor, is that correct?

MR. McARDLE: Mark, I believe that is correct. I'd have to go back and check, but I'm pretty sure we recalculated, because what happens is people don't report to us in CO₂ equivalents. We ask people to report to us in the native gas, and we make that calculation from the native gas

into CO2 equivalent. We base that on the most current science and we're using the third assessment reports, and I believe we recalculated the database based on the new GWPs.

MR. BROOKMAN: For the record, that exchange was between Mark Friedrichs and Paul McArdle. Final comment. Yes, Tom Werkema.

MR. WERKEMA: Tom Werkema. I'd like to just come back on that. The 1996, which is the second assessment report is, but other members are being used for compliance purposes for all countries that have adopted commitments under the Kyoto protocol, and as such that puts 1605(b) out of sink in particular multinational companies, that's a little bit of a concern. Now, you're saying that since you're just reporting gases, it really doesn't matter and that could be the case, but things are going to change again in the future. I can guarantee it. It seems to me that some kind of level of consistency here would make some sense. One man's opinion though.

MR. BROOKMAN: And how would you achieve the consistency?

MR. WERKEMA: I think you need to change the numbers at a level that perhaps even has some international correlation, because otherwise one of the things we're going to be doing as a United States is reporting numbers that have no meaning in the rest of the world because they're going to be comparing to a compliance baseline based on the frozen 1996 numbers.

MR. BROOKMAN: Okay. Let's go to the next slide. This is emissions, reductions and sequestration, and Margot Anderson.

MS. ANDERSON: Margot Anderson, DOE. I just wanted to set up the central theme we're going to discuss in this session. This truly moves us into the heart of the matter when we now have to look at the issues associated with emissions reduction and sequestration. We spent the morning talking about emission reporting. But now we need to move into what might be a little more difficult terrain of really identifying what are the characteristics of credible emissions reduction. Particularly if we are doing what it is the President told us to do, which is to provide recommendations for transferable credit and for protection against future climate policy. So now we have to worry about defining what a reduction is, how we measure reduction and what kind of methods should we use to calculate those reductions.

I think as we go around the room we'll realize different people in different industries want to define reductions as something different and we need a good discussion on what those characteristics might be and what the different measurement issues that are likely to come up. So that's the general context. Paul is going to talk a little bit about how 1605(b) currently deals with it and, then Arthur is going to raise more of the detail issues we're going to come up with in this session.

MR. BROOKMAN: Paul McArdle.

MR. McARDLE: Paul McArdle from EIA. I don't have a particular slide to match that slide, but I'll just go verbally.

MR. BROOKMAN: We're done with this one, correct?

MR. McARDLE: Yes, that's correct. At this point we ask people who report to -- and again, we ask them to calculate their emission under two scenarios. In one case it's an absolute baseline. We're taking a historical point in time, and then they're comparing them it against their actual emissions in the future, or under the modified reference case, we're asking folks to construct a stream of emissions that would occur had they not taken the project, that's their baseline, and that's the modified reference case. And they compare that versus the actual emission. From there they calculates the differential or dealt between those two streams of emissions and those are their reductions. And, again, the last step -- again, after people fill out their form, again we go through that review process which I outlined earlier and once we are happy with the report and accept the report, it's logged into the database.

MR. RYPINSKI: Arthur Rypinski. When we talk about emission reductions -- And could you put up the widget slide?

MR. BROOKMAN: I was on line. This is Arthur Rypinski. You're on.

MR. RYPINSKI: Thank you. When we talk about reductions, there's sort of three approaches to calculating emission reductions that we've seen and the most straight forward one are absolute reductions, and 1605(b) speaks, that's described as -- and sometimes it's a basic reference case. It usually applies to entities or corporations, and the notion is, the emissions of one's corporation decline over time.

At the left we have an example of a company, the Acme Widget Company. We'll be dealing a little bit with the widget industry this afternoon. And in this case we have the lines are indexed numbers and you see that production is rising. Emissions are rising. Average emissions per widget are -- oh, thank you.

Okay. Could you do the second widget Acme sign. Okay. This is an example of an absolute reduction. In this case Dudley Widget, their input is shrinking, their output is shrinking and their emissions is declining. Dudley Widget has an absolute reduction.

A second concept that's seen in the voluntary reporting database and elsewhere is a reduction through causation or avoidance and here the notion is emissions are lower than they would have been in the absence of some action or set of actions. In 1605(b) speak, it's called a modified reference case. Emissions reduction through causation are the most common form emission reductions per projects, but they also appear in entities and some corporations can report that their emissions are reduced as a function of a set of actions they've taken, so the emissions of the corporation are lower than they would otherwise have been.

A third category of reduction is an intensity reduction, also known sometimes as a unit of reduction baseline. An intensity reduction occurs when your emissions per unit of output decline, and this can be used for entity or for corporate emissions or for projects.

You can always convert an intensity reduction to tons units by multiplying the intensity reduction, the reduction per unit of output by actual output so you can get back to tons. As we see in our example of Dudley Widget, they don't have an intensity reduction even though they have an absolute reduction.

If you can go back to the first slide. Acme Widget, the growing company actually does not have an absolute reduction, but because its emissions are rising more slowly than output, it does have a reduction in average emissions per widget produced, and that would be an intensity production.

If you could move to the third widget slide. And then we have stasis widget in which case because output is constant, they have an absolute reduction and the intensity reduction that are actually exactly the same. Intensity reductions are thus a sort of a hybrid in which a single form of causation, that is in this case, fluctuations and output is introduced into the format of an absolute reduction. And one might pursue alternate or additional forms of causation beyond intensity. But, of course, every time you introduce another form of causation, like weather adjustment or something of that nature, if you add increasing complexity and also increasing, I think, ambiguity.

If you could move to the question slide, and then I'll sit down and shut up. So after that brief excursion into reduction accounting, the one question that might occur is, Well, why bother with all this? And why you would do it will greatly influence what you do. And so some of the kinds of motivation for dealing with emission reductions that we might contemplate include credits and trading pursuant to the President's guidance, public recognition under voluntary programs, possible other future uses.

I heard the term baseline protection used from time to time, other possible uses, and we're interested in soliciting your views on what might be the purpose of calculating emissions reductions. And then the issue which we also dealt with briefly -- or indirectly in the morning is a question of who should be the recipient or the owner of an emission reduction and what principles should be used to decide who is the owner. And there were a number of these kinds of questions that emerge on the case of electricity, should it be electricity generators or end users. In the case of energy consuming product, should it be the manufacturer of the product or the user of the

product. There are a number of outside corporate boundary issues that apply to reductions outside the U.S. and we've heard in the case of a project, should it be the operator of the project or a financial investor, and there are many more such questions, but I think I'll stop here and solicit your views.

MR. BROOKMAN: We do want to stop here don't we with a broader question? Let's go to the next slide. We'll address those as we deal with these more specific questions. For the record, why identify emission reductions, credits in trading, recognition under voluntary programs, future use, others. As you can see, the second set of questions, who receives recognition or credit, {inaudible} generators or users, stock manufacturers or end users, outside corporate boundaries, outside U.S. project owners or investors. So there's an array of kind of link questions that we seek your comment on. Who wants to get us started? Yes. Michael Stavy.

MR. STAVY: On the last line. Now there it says project owners or investors. Those two would be the same party unless a third party would get the credit even though they're not an owner for a lender. Because, at least to me, an owner and investor is the same person, same party.

MR. BROOKMAN: Why is it described that way? Mark Friedrichs.

MR. FRIEDRICHS: One example that came up this morning was a DSM activity and the utility demands side management activity where utility provides an incentive to a user to take a certain action, but the utility doesn't own the equipment that the consumer ultimately purchases. You can think of any number of other examples, and perhaps a purchaser of Green Power does not own a wind machine but perhaps instigated the building of the wind machine because they contracted for Green Power.

MR. BROOKMAN: Okay.

UNIDENTIFIED PARTICIPANT: I agree with you on your examples, but we're not talking about owners investors. There's a difference there.

MR. BROOKMAN: The larger frame here is who receives recognition or credit under credible reduction. Let's go to the top of the page. Yes, Brad Reed.

MR. REED: If I can, give a example there. We get approached regularly by energy companies that want to institute projects in our plants and Toyota as a rule, we do our own funding, but if somebody else funds it and somebody else engineers it and somebody else puts it in. I can see someplace down the road where maybe CO2 would be enough to make that worthwhile too.

Right now what they'll do is they'll contract with you, they'll guarantee results on energy reduction, but I could see they could make part of that energy reduction that they own the CO2 credit as a reason for -- or the Green House Gas Reduction credit as a way for them to help fund the project.

MR. BROOKMAN: Right. Okay. Yes.

MR. MUSUR: This is Al Musur. If somebody else wants to talk about this, you're stuck listening to me.

I think there should be voluntary perhaps that recognize voluntary actions on the part of people and entities to do environmental good and if there are places where people can go to describe what they have done so that other people can get information and say, Oh, gee, I could do that too. Where it's a pool of information for everybody's use. Those are wonderful things.

When we start talking about trading perhaps or tradable credits in a vacuum. What we don't know what the trading mechanisms are going to look like and who's going to be trading with whom for what. It's a very, very dangerous thing. If you watch what the market did in natural gas, you know, I would go to the Bi-Nex {phonetic spelling} so I could buy a contract for natural gas. I know exactly what it means. I have a contract for a certain volume of gas, a certain quality to live with over a certain period of time at a price and I have an enforceable contract for that. It's something I can trade, it's something I can rely on.

Okay. But the market put that together because it met the needs of the market. Start out at the beginning, you know what we really need, we need a contract for CO2 credits. Or we need a certify that says that so much CO2 has been saved is putting the cart before the horse. I don't have a problem with trading perhaps either for environmental benefit, but I think if we're going to do something, let's hope the markets are going deal in those, put those together as opposed to the government doing it, because once the government starts doing it, what you're creating is currency, and that could be problematic.

MR. BROOKMAN: So what are the boundaries. What should the private sector do and what should the government do?

MR. MUSUR: I think the government should create these voluntary reporting programs so we have places where information can be posited for everybody's benefit.

MR. BROOKMAN: Presumably an enhanced 1605(b)?

MR. MUSUR: Right. If we put out a total responsibility report, I want to say I have had so much of a reduction. And as evidence of this I have a 1605(b) report. You can go there, find out what I did and draw your conclusions from that. I mean, it's a wonderful and remarkable thing. It would take us a long way to sharing information so that a lot more people can do the same thing. But to them say, Well, we have to design this thing so that it also has as a component of that, some kind of a critical credit I think is a real danger because we don't know what those markets are going to look like, how they're going to function, who is going to participate, what the block sizes should be, what trading terms should be. We know none of that put in the vacuum and if we set it and create a currency for it before it even exists, I think we're buying a lot of trouble.

MR. BROOKMAN: But if a registry is created and a lot of people participate and it's kind of adequately defined, composed and structured, then the market will then figure out a way to do the trading aspect.

MR. MUSUR: Well, the market is going to say, this is what I need in terms of verification to stand behind these trades and say these things have value, as opposed to the government coming along and putting currency saying that's the value. So forfeit and credit the U.S. government says that there was a CO2 reduction. Let the market do that. But the people who are going to trade these things and the banks are going to be doing the guaranteeing behind them, figure out the mechanisms for demonstrating that those things actually occurred.

MR. BROOKMAN: Yes. Jim Johnston, use the microphone.

MR. JOHNSTON: I'm used to being the loudest person in the room. So to carry on with that, there are a lot of after the fact in front of the fact estimates about savings from efficiency, but no one ever takes into account the transactions costs involved in setting up a new market and if the government does it, I think the transactions costs are very high. I would hope as a part of keeping track of numbers, that we start keeping track of how many people of corporations are involved in having to do this in compliance. We already do a little bit of this in tracking the cost of income tax preparation, for example. So I have would think that somewhere along the line we should do that as a part of making the case for having more market involvement and structuring than the contracts.

MR. BROOKMAN: Are there comments on --yes, please. Then your next, Michael.

MR. STROHFUS: Mark Strohfus, Great River Energy. I like the idea of letting the market decide how the trading is going to happen. I think that it's just too big and the government is going to get things confusing. Nothing personal.

MR. BROOKMAN: Do agree with Al's comments about having the boundaries on the government, DOE, DOE's involvement and creating this registry, a robust, competent, you know, adequate registry?

MR. STROHFUS: I don't know that I fully understood what his comment was there. But, yes, I think we need a registry. We need a registry I think the technology transfer aspects that he talked about are a good idea. I also think though that baseline protection is important

especially for those of us here who have been doing things to reduce emissions. Now, that's a very fine line difference between what is a tradable credit and if we ever get to a cap and trade system where we're in to establishing a baseline, that baseline then becomes tradable but, you know, in the meantime we let the market decide what the value is and what the creditability is of the exchange.

MR. BROOKMAN: Margot Anderson, follow on.

MS. ANDERSON: I think any kind of a discussion about who might be responsible for establishing a market. I think regardless of what the answer to that question is, we still have to come up with what is the nature of the good that a market will value or will trade if that's what the market is going to do. And so I think we can get a lot of agreement that this is a -- let the market decide the value, let the market decide the thinness and the thickness of the trading, but the problem that we're struggling with, is what is that thing that may be getting traded or may have some value or may be protected or may be exchanged. What is that, what is that thing? And we all say, Well, it's a reduction. What kind of a reduction?

MR. BROOKMAN: In what way.

MS. ANDERSON: When does it start, when does it end. What unit is it measured in. Is that something that the government should do or is that something that the market decides what the good is and may have some value. And I hark back to the reason we keep pushing this issue is because the President told us to come up with recommendations for issuing transferable credit for real reductions in greenhouse gas emissions.

So what we're trying to think about is what is that thing called -- what is that reduction? What does it look like? Who decides what it is? Is it the same thing for everybody regardless of what industry it comes from. And then the next question or a related question is, what is the market if there is going to be one for those moving around and is that solely a function of the marketplace or is there any role for the federal government in that at all.

MR. JOHNSTON: Can I make a quick answer to that?

MR. BROOKMAN: Jim Johnston.

MR. JOHNSTON: You look at the successful contracts in trading, and you see who created the design for the contract. And then you look at the unsuccessful contracts in trading, like electricity in California, like the reclaimed system, like sulfur dioxide system and you see what was wrong there. And essentially you draw your conclusions from the experience.

MR. BROOKMAN: I'm hoping somebody can give a more detailed kind of accounting of how you denominate such things. Please.

MR. SPENCER: I think the question about --

MR. BROOKMAN: Gregg Spencer.

MR. SPENCER: Sorry. Gregg Spencer.

The question of whether or not the market will develop is moot. The market has already developed. It is clearly just latent in this country, but outside this country it is active. There are multiple pods or not quite interactive trading systems in place. There are criteria that the market is already looking for. They're broader than the criteria of what DOE is listed and if the perspective is how do we create trading just within the boundaries of the U.S., then we can develop a system that is unique to ourselves. If we view this as a market that's beyond the U.S., to put a system in place today that is knowingly not interactive with the UK system or the EU system that will be developed is to deliberately push ourselves further and further out of the global community and the global effort addressing climate change.

MR. BROOKMAN: Okay. Thank you. Michael Stavy.

MR. STAVY: As far as defining the unit which I agree with Ms. Anderson, it's not going to be voluntarily. In an organized market, like the commodity market, like New York Mercantile Exchange, they have their definitions and people can't have their own definitions and sell. So whether the -- that may be the best way to do it in an organized market, but it won't be voluntary so you'll have an inconsistency between voluntary programs and defining the credit to be traded

which on any stock exchange or commodity exchange, CO2 is going to be a commodity, it will be defined and people will be accused of fraud if they don't produce the agreed upon product.

MR. BROOKMAN: One could imagine a voluntary program that could evolve over time, some future administration, whatever span of time, right?

MR. STAVY: Right.

MR. BROOKMAN: Okay.

MR. JOHNSTON: Well, you know, I beg to disagree.

MR. BROOKMAN: Jim Johnston.

MR. JOHNSTON: There's a, standard contract for natural gas which is deliverable at the Henry Hub among other things, but individual traders and market makers offer alternatives for other delivery points, for example, and for other sulfur contents, for example, and of crude oil, in that market. So there are, in fact -- once a benchmark has been established, there are a lot of variations on a theme that are very actively traded.

MR. BROOKMAN: And then you have a different market clearing price, right?

MR. JOHNSTON: Correct. I mean, you see a variation, a validation within this definitional range.

MR. STAVY: You're talking about bilateral trade?

MR. JOHNSTON: I believe.

MR. BROOKMAN: And where do you talking about Michael Stavy, who is the last commenter?

MR. STAVY: Oh, I'm sorry. On the market itself, on an open market system like in Chicago, the Board of Trade, that bilateral is something else.

MR. BROOKMAN: Okay.

MR. STAVY: Those are not transparent.

MR. BROOKMAN: Al Musur.

MR. MUSUR: Al Musur. But, again, the contract, it's got a contract itself, bilateral markets, the markets that trade, basis, the swaps markets that you can get into which are referenced to things other than the commodity that you're buying, were all put together by the market makers and the traders because there was some value to them in doing so. It wasn't determined by the government to be what we're going to do and how we're going to do it and what quantity we're going to do it.

MR. BROOKMAN: But the government in this case, through a voluntary program, hopes to establish something that's credible that markets can be built off of, or that the government, should it choose to do so, be more proactive in creating market. Mark Friedrichs, I'll let you follow on.

MR. MUSUR: Did I misstate that?

MR. BROOKMAN: No, I think that was fine. I'm just going to say it in a slightly different way. And that is, we're trying to identify emission reductions which most people would view as real environmental benefits -- as providing real environmental benefits, and we're trying to find out whether there's any general agreement about what kind of emission reductions really do represent a real environmental benefit.

Yes, Brad Reed.

MR. REED: Yes, Brad Reed again. Yes, the issue I have here is, why can't there be two separate levels of reporting. There is a de minimis reporting level that you report when you want to register your gas, but if you want to trade it, you're going to have to hit a more stringent level, and I don't see why both couldn't be on one form where you fill out Part A just to register, and if you want to trade it, you fill out Part B or C or whatever might be necessary.

MR. BROOKMAN: Mark Friedrichs again.

MR. FRIEDRICHS: And just a follow on, we're trying to find out what people think that most stringent level should be. What is the -- or the emission reduction which some people in the Washington D.C. workshop called it the gold standard.

MR. REED: Okay. This is Brad Reed again and I would say that what we should be determining is what the minimum standard should be and then let the market guys tell you what they want to be the most stringent standard.

MR. FRIEDRICH: And we'd also like to know what people think the minimum standard should be.

MR. BROOKMAN: So comment on that specifically if we could on the minimum standard. Gregg.

MR. SPENCER: Gregg Spencer. The minimum standard should include the same criteria, again, that other markets are using if we ever hope that these will be fungible.

MR. BROOKMAN: In the international market.

MR. SPENCER: In the international market. This should be the ultimate commodity because it has exactly the same environmental effect everywhere around the world, the release of one ton of carbon dioxide, ultimately this should become a commodity that's tradable and the trading market obviously is pretty has incentive for maximizing the reductions.

In answer to your question, including the criteria of real, that it is an actual reduction or an avoidance of an emission that otherwise would have occurred and that it is unique, so that it can only be counted once, it can only be used, retired once so that it becomes an asset that eliminates some of the double counting issues. Those are both criteria that I would suggest.

MR. BROOKMAN: Margot Anderson.

MS. ANDERSON: But imbedded in that are all kinds of technical issues that we need to have a discussion on. What would have occurred otherwise, different than what would have occurred otherwise. How do I have know what would have occurred otherwise? What are my criteria for what would have occurred otherwise if I could now measure what would have occurred in its absence. And so it's some of those kinds of issues that it would be helpful to get some guidance on about how do we, how do we set the beginning and the end, the starting point and the ending point for this reduction and what might be some of the technical components for that.

And the follow-up to the point you were raisings earlier about the international -- other wastes that are being done in international protocols, are you referring to what might be done under a cap-and-trade Kyoto-like mechanism or CDM-like mechanism, and then if so, maybe you could illustrate with a couple of examples of the specifics of those.

MR. BROOKMAN: Gregg Spencer.

MR. SPENCER: Gregg Spencer. There are about five questions there, I'm sure I don't remember all of them. The issue of the technical questions that relate back to what constitutes a real reduction or something that otherwise would have happened is an effort to define what is voluntary, I think, and if the reporter has the right to a particular conduct and they choose not to undertake that conduct and they invest money, they take action which avoids an emission which otherwise would have occurred or they take action to sequester carbon dioxide, as long as it's a voluntary action, it ought to receive recognition. If you get into is the question of -- the question of environmental additionality and financial additionality which continues to rise, is it a tunnel to which you never come out the other end.

MR. BROOKMAN: Additional comments on this? Mike, I want you go to the next slide. We're starting to deal with some of these larger issues here, so I'll just cue this up.

Following Gregg Spencer's comments. Additional comments on that same subject?

MR. MUSUR: Yes.

MR. BROOKMAN: Al Musur.

MR. MUSUR: I was going to talk about the new things you just put up there, but --

MR. BROOKMAN: Well, go ahead.

MR. MUSUR: My difficulty with a registry now, there are a lot of companies, mine being one of them --

MR. BROOKMAN: With the existing registry.

MR. MUSUR: With the existing registry, or even if we improve it today, and we start looking at reductions in CO2 and giving credit for that somehow. We have been in the business of reducing our reduction site in '73 with the first era oil embargo and we pulled about 70 percent of our energy per unit produced out of our products since that point in time. My cost for incremental improvement in energy efficiency which translates directly to CO2 emissions is very costly relative to somebody who has done nothing up to now.

So, for a gas company to install a flare to burn off natural gas that they were just venting before, it cost them nothing to put it up and they get a 20 times improvement because methane is a 21, CO2 is a one. You still going to get the CO2, but you got rid of 20 units there. They can generate those things very inexpensively. I can't do those kinds of things. You get that kind of improvement, I'm spending billions of dollars. I'm rebuilding whole facilities to do the same thing.

There is an equity issue for people who have been in this for a long time and wanted to continue to do these things and how those credits reflect for them as opposed to somebody who's starting from scratch doing nothing and we're all being compared together there's huge equity issues being created here so we wind up not being able to complete.

I wind up -- if I decide that I'm going to take a goal and reduce my emissions by 10 percent over the next 10 years or 5 years, I can do that two ways: What I can either do projects or I can go out and buy credits. If I go out and buy credits, then what I've done is I've paid to improve myself to a point where I'm having a tough time financially justifying improvement and then I pay somebody else to do that for me. Where they've have no expenses, I'm paying for them to put in controls, and I have a problem with that. So, as we're looking at how we report these things and how we're going to create credits that have some meaning for somebody, we also have to look at the equities of how efficient are the businesses coming into these things. Because the guy who's does nothing, stands to reap the biggest rewards for from all of this, where the guy who has been a good corporate citizen all along is going to pick up the tab.

MR. BROOKMAN: Other comments following that? I'm going to ask you to focus on this first question. We touched on this some, I want to see if there's any additional comment on this. Should reductions be absolute changes -- the first part. Should reductions be absolute changes in emissions or adjusted for changes in output? Additional comments on this? Should reductions be absolute changes in emission or adjusted?

MR. FRIEDRICH: We heard this morning that -- I'm sorry, Mark Friedrichs.

MR. BROOKMAN: Well, good.

MR. FRIEDRICH: We heard this morning that absolute reductions and emission intensity reductions which are adjusted for output are apples and oranges and you can't really compare them. Is that true or do people think they are somehow equivalent to where -- and do both represent real environmental benefits.

MR. REED: Brad Reed. We started a new plant. And when you start up that new plant, in the first year you don't produce anything. And then in the second year, you ramp up production, at the end of the second year, in the third year you're up to full shift production on shift one and you got one energy level per vehicle. Then you start up shift two and you ramp up production on shift two and then about five year mark, you're at full production.

During that whole period of time, the energy you used per vehicle dropped like a rock. Okay. And during that period of time, we have issues within the company with that because during that period of time, somebody looks like they're doing a great job and they're not doing except coming on line. But once you get a mature facility, at least in the auto industry; now, other industries are going to be a little bit different, then you start looking at absolute reductions. So the Georgetown, Kentucky, plant, they make 450 to 5,000 cars a year. Okay. So now they're at the point, they've been making that level of cars now for five or six years. So now they're at the point, if they want to reduce it's an absolute level of reduction as well as an intensity level.

MR. FRIEDRICHS: Is there a way -- I'm sorry, Mark Friedrichs again -- for you to know that a bunch of plants, those that are up at full capacity and those that are new and so that you level out some of this emissions per output?

MR. REED: Brad Reed again. Yes, there is, we do that, but that only works for somebody who's growing. Okay. Somebody who's -- let's take a little bit of recession here, and let's take a silicon valley firm out there that's got a couple of gigawatts of coolers running for their service and their production went down, I don't know how they're going to measure that per unit. Okay. Their production went down and right now their energy per unit is way up. Okay. For somebody like us who are growing, yes, we can absorb that in and still make it part of it because every time we build a new plant, all the stuff we did at the old plants we put into the new plants so they're going to start out at a higher level of reduction. But like Al said, pretty soon you're running to the point of diminishing returns, but it's coming up closer all the time.

MR. BROOKMAN: Any other comments?

MR. LYNCH: Paul Lynch. Being a utility, I know everybody looks at it and says it's simple mathematics to tell you what our energy per unit put is, our CO2 per unit output is, and in many ways that is true, but I would like to comment on a general stance is that considering the number of new products -- I mean, what was the 1990 energy output of a plasma TV manufacturer? Yes, they didn't make them then. So a lot of products made today, they were not made 10 years ago, 20 years ago, 6 months ago and I think that if you want to try and do something on either an output basis, it's not really going to be possible.

I mean, the example on automotive manufacturing industry is true, I think any other the production mind is going to be true. And even on electric generation, it depends on the system demands. On a very, very hot summer, plants are running on, you would not want to run, have extremely poor heat rate, extremely high CO2 per unit output rate, but it's not something we really have a choice on. It's like you tell New York City, You either to black out or we don't meet our CO2 goals. That sounds very nice until you find out that the governor is going to come in there and chop somebody's head off if he has to go in and tax you at 90 percent income tax rate if you cut off a city.

MR. BROOKMAN: Are you addressing the other issues related to weather and the like as well, the second volley?

MR. LYNCH: That also falls into it, they're all very related issues.

MR. BROOKMAN: Werkema.

MR. WERKEMA: Yes, I'm sitting here listening to this discussion and I think it's a very germane discussion, but I'm wondering how President Bush's 18 percent emission intensity target fits into this discussion. I mean, if you're really talking about that, don't you have to adjust for changes in output and doesn't that then become the basis?

MR. BROOKMAN: Margot Anderson.

MS. ANDERSON: Margot Anderson, DOE. The President's 18 percent goal is a national goal, and the best metric for measuring that is both the EPA and the EIA national inventory. The EPA inventory, which is required of the 1990 U.S. framework convention on climate change will probably be the best metric to determine how well we're doing as a nation in reaching that goal. So that's a macro goal.

But I think you're right in saying that it would be helpful and I think often useful for a company to think of the macro goal at a more micro level. So that if there are ways in which companies can grow but still get some sort of positive feedback credit for reducing intensity that is consistent with the president's goal, that might be one way of looking at the issue.

But I don't believe that the President intended, nor is there anything in the documents of June 14th -- February 14th, excuse me, that indicate that that 18 percent goal is translatable to a sectoral goal or an industry goal or a company goal; that's an overall national goal, but we can think about ways to make our individual goals, our voluntary reporting goals, perhaps we can

think about ways to make them consistent with that overall approach. Allowing companies to grow and not being penalized for that growth. So I think that's the way to look at it.

MR. BROOKMAN: Al Musur.

MR. MUSUR: This is Al Musur. If that's the case, can the EIA explain to us where they get their numbers for what the CO2 emissions are that they're comparing against the GEP.

MR. BROOKMAN: Paul McArdle.

MR. McARDLE: Paul McArdle, EIA. Are you talking electric side or total carbon?

MR. MUSUR: Whatever you talked about.

MR. McARDLE: Okay. On carbon, and that's about 98 percent of carbon dioxide are from different fuel combustion. We use the emission factors that you see in the 1605(b) guidance. We use the same emission factors in our calculations for a national number, because, again, we use, it's largely a mass balance approach based on the carbon in the fuel and certain other -- I'm sorry? {inaudible.} Oh, from EIA. Another part of EIA. EIA data collections.

MR. FRIEDRICHS: Mark Friedrichs again. Maybe it's not clear. EIA under various statutes has considerable responsibility to gather data on energy supply and use, and so it does that systematically and it has done that for many years.

MR. BROOKMAN: Where did you get the information for EIA?

MR. FRIEDRICHS: EIA under different statutory authority under 1605(b) going back to the late '70s has authority to collect fuel consumption data from refiners, from electric utilities, et cetera. And in some cases imputes energy consumption in certain sectors. So we get all our energy data from all the other part of EIA calculate carbon dioxide emissions on a national level. Using emission factors that were developed in our part of EIA, we marry the two together and come up with a number.

MR. BROOKMAN: Arthur Rypinski.

MR. RYPINSKI: As a former employee of the EIA, I might be able to shed a little light. In fact, you probably do supply information to the EIA through the so-called manufacturing energy consumption survey which is an add on to the national survey of manufacturers. The national statistics, basically the EIA, tracks fuel production, fuel imports, stock changes, it tracks refinery production, it tracks through put for national gas pipelines, it tracks the consumption of electrical utilities and it tracks some end use consumption through end use surveys.

So all of this provides sort of multiple levels for coverage of the amount of fossil fuel flowing through the economy, and for coming to a national total, it's probably pretty good. In the case of gasoline, for example, the EIA has essentially the output of refineries, sales by wholesalers and tax revenue statistics. As you would expect, there's three numbers for gasoline and they're not quite the same, they're never the same, but they're always pretty close. And after we found out about slash blending of ethanol, the tax revenues were just a hair under the other two which is just about what you would expect.

MR. BROOKMAN: Steve Willis.

MR. WILLIS: Steve Willis, Whirlpool.

It seems like we have conflicting goals here. We want a simplified process but every one of these questions has been raised. There's numerous ways to answer it and in the case of this particular question about whether or not we should work with absolute changes or changes based on output, it seems to me in order to make this simpler, we're going to have to look at this on the 30,000 foot level and what we're really trying to do here, we're trying to protect the global environment. Doesn't that mean that we've got to work with absolute changes? Isn't that the simple approach? It's going to create problems for each of us in different ways, but I think you need some sort of a model to make decisions to sort through all these complex questions and potential answers that come up. Okay.

MR. BROOKMAN: Yes.

MR. RATHEAL: Ray Ratheal with Eastman Chemical. I guess in the net effect maybe so, but when you talk about an entity reporting, you know, if they're producing products like

Whirlpool, they're improving energy efficiency so there's a net reduction somewhere out there. If their output is going up, then their net emissions as an entity may go up and that's a good thing.

MR. BROOKMAN: Go ahead, Steven, follow on.

MR. WILLIS: I keep trying to think about this from the standpoint of our stakeholders. If we're talking about our employees and neighbors in South America who live underneath that hole in the ozone layer, they're not really going to be persuaded from that argument. I think from that perspective of the stakeholders, then we're going to have to work that much harder if we're going to enjoy the growth that might come. So it's going to have to suck it up and do what it takes. And that's easier to say than do when resources are limited, but I think in essence, that's what we're going to have to do.

MR. BROOKMAN: Let me ask you to jump to this third bullet. Recognizing a net entity-wide reduction or sub entity or project specific reductions again for emissions reduction or credible reduction. We touched on that this morning. What should it be? How should it be approached? Yes, please, Karen. Karen Meadows.

MS. MEADOWS: Karen Meadows. I just want to follow on to your remark and that is that kind of like on the first and third bullet, but ultimately you do want absolute reduction, and I think if you look at the energy industry and energy efficiency work that has been going on for a lot of years trying to calculate energy efficiency in terms of energy intensity, it's been pretty difficult to do because you've got to account for structural shift in the business that might have happened anyway, or the business contracts out energy in terms of portion of their work, there is no structural change in view of the reduction. There is no structural change. I guess when I look at intensity reduction, it makes me a little nervous about how you can -- are you really going to see, are you really going to attain actual reduction if you only look at it from an intensity perspective. This being an energy efficiency industry, we haven't been able to do that.

MR. BROOKMAN: Okay. Thank you. Gregg?

MR. SPENCER: Gregg Spencer. I'm being redundant with this morning, but if you're creating a registry, then I think you -- instead of some policy vehicle, what you're going to register are absolute changes and you should be able to trade only tons. If it's a tradable mechanism, it has to be measured in an absolute, it ought to be consistent with other trading regimes, it ought to include sub entity, energy wide, and project specific. And as to the third, the second bullet, costs of reductions, weather, absolutely none. It's not a -- I mean, that's not an item within control, but technology perhaps, improved management, new investments, all of the following should be -- regulations that go with weather, that is not an elective on behalf of the company. It shouldn't count as a reduction activity.

MR. BROOKMAN: Okay. Yes, Mark Friedrichs.

MR. FRIEDRICHS: Mark Friedrichs again. Going back to one of the President's fundamental objectives, and that was to not penalize the U.S. economy, not penalize the individual companies for growing. And we can go back just quickly to the widget slide and think about Acme Widget which was gaining market share, was growing rapidly. It was also investing in reducing its emission intensity. Its emission intensity was going down, but its emissions was still going up because it was a rapidly growing company. Dudley Widget was losing market share, wasn't doing anything to reduce its emissions, but its emissions were going down because it was losing market share. Should we reward Dudley and not reward Acme?

MR. BROOKMAN: Gregg, Spencer.

MR. SPENCER: Gregg Spencer. No. You can -- in Acme's case if they're installing new technology, they have an investment that they've made into business practice which has a definable reduction associated with that that ought to be a creditable reduction.

The subject company, you should not reward reductions for changes in business volume. It's the same discussion we had about the utility. If I'm investigating in an energy conservation program and I'm purchasing less kilowatts, then I own the right to those reductions

if the utility invest in technology, it reduces their efficiency they own. Brad and I are on the same page on that one.

In instance where the utility partners with the consumer, then they both have input into the investment decision or the risk, there has to be some kind of an agreement to share. It's a hybrid where they've all taken action to achieve a reduction. And, you know, it either has to be resolved by agreement or by regulation if it doesn't make sense for the consumer to trade a tenth of a ton acquired over a five year period.

UNIDENTIFIED PARTICIPANT: This is an area when you starts looking at introducing new technology that gets to be real challenging and what we seen in agriculture is one, but let me put it in this context. For example, you've got two plants, one is using a newer technology, the other is using an older technology, it's not as energy efficient. The one with the older technology builds a new plant that is, you know, gets to the best efficiency level, I think most people would say that particular group should get a credit for that.

But now, what happens to the group that builds -- that has the current best technology builds another plant that's got that technology. Should they not get a credit for that? See, that's one of the real challenging issues. And, again, I stress, we deal with this all the time within our various conservation perhaps because the person that has -- is using the best conservation, or in the context of this illustration, the best technology feels that he should be credited for something in that.

MR. BROOKMAN: Brad Reed.

MR. REED: Yes, Brad Reed. I hear what you're saying, but you know, when we build a new plant, we don't even take into consideration that it should get some kind of credit for the new technology we're putting in. Yes, we'll take credit for anything we do after we build it, after we bring it on line, but for building new technology, what's available, because that's usually more cost effective than going to the old technology.

Now, if we have an old plant, we've got plants that are 20 years old and plants that are 5 years old. When that 20 year old plant when we change things in it, it becomes more energy efficient and that's less CO2. It may never get as efficient as the new plant.

But I don't know of anybody, at least I don't know of anybody in the industry, maybe somebody here does, who when they build a new plant and they use new technology, they think they ought to get some kind of credit for CO2. If they replaced an existing plant, yes; but when you're expanding reduction, no.

MR. BROOKMAN: Yes. Michael Stavy.

MR. STAVY: Michael Stavy. Energy Economist. Under the general protocol, it's an absolute standard and right now the former Soviet Union is getting a lot of credits because their GDP has gone down so much. They can sell in those markets and if that's what the President's goal is, then it's a absolute standard.

MR. BROOKMAN: Terry, you want to following on there?

MR. FRANCL: Well, yes. That's another issue. I don't know where you have the situation Mike refers to basically shutting down in getting credits for that. I mean, at some point you go back to this intensity versus the absolute. I mean, if you go back to the example we were just talking about, in fact, you could get credits for the intensity part of it because you are becoming more efficient there, but you always have -- you always have these underlying issues. And the truth of the matter, there is no good answer to this. I mean, you simply have to set the rules and regulations you go by. Like anything else you do, at any given point in time, there are some people, groups that are going to backup more than others, but if you are going to let that stop you, you're never going to have a program, you're just going to have to go ahead and set the rules and go by them.

MR. BROOKMAN: Al Musur.

MR. MUSUR: This is Al Musur. The simple fact of the matter is if we create some kind of a creditable system, the only way a credit has value to trade is a scheme where there is a cap, and for growth industries that's a threat to our license to operate, at least in this country. And that's our problem with this whole idea of coming up with some kind of tradable credit system is it pre-defines the fact that this country is going to go to a cap and trade system on CO2. There is no other purpose for doing it.

MR. BROOKMAN: Yes, please. Your name.

MR. JIROUSEK: Mike Jirousek, FirstEnergy. It just occurred to me -- a couple of thoughts. It just occurred to me that we're struggling, we're boxing with shadows here because we don't know what the market is. A market is defined by a scarce good. And until somebody imposes a cap, you don't have a scarce good with CO2. It was defined overnight in the acid rain program and the market evolved.

I think to date a lot of people have done things that are -- CO2 reduction perhaps that are coincidental, they were risen up brainers, i.e. put the flare on the gas well, whatever. It's easier to see there's going to be some value in the future and easy to achieve, but until we have a clear picture of what that reduction program is going to be, we're going to have a hard time answering a lot of these questions. And I guess I'd like to echo the gentleman from Blue Sky it sounds like, I'm sorry.

MR. BROOKMAN: Gregg Spencer.

MR. JIROUSEK: If we do something that departs dramatically from the national stage, a WRI protocol or whatever that's defining a tradable commodity, it's a nonstarter and we'll be back here again in a year or two doing it again.

MR. BROOKMAN: Okay. Thank you. Yes, please.

MR. MERRITT: Larry Merritt from Ford.

I would just like to follow-up on that last comment that you had. I agree with that within the U.S., CO2 is not really a scarce commodity, but I think in several other countries and being a global player. We have operations in the UK for instance, and they have a UK Emissions Trading Scheme that we're part of. We would like to see this program at least establish something so that we could use some sort of credits generated here in the U.S. towards obligations in other countries who do have regulatory requirements. So that is, I understand, exactly your point about within the U.S., it's not as scarce, you need a scarce good to develop a commodity, but in other countries they're already making it a scarce good.

MR. BROOKMAN: Okay. Thank you. Final comments on this slide before I move us on? And we're going to take a break here shortly. So hang in there, folks. Yes, please.

MR. FRIEDLANDER: Joe Friedlander. You say there's markets for CO2 in other countries, scarce good. In UK and other countries, is there a cap then on CO2? MR.

BROOKMAN: Yes. Follow on, Larry.

MR. MERRITT: Larry Merritt. Yes, in the UK it's a voluntary cap and trade scheme, so companies elected to accept and absolute cap on emissions from their facilities, and we're one of the companies that elected to do that.

MR. BROOKMAN: Is that a fairly new program, Larry?

MR. MERRITT: Yes, last, this April is when it was --

MR. BROOKMAN: So what you've got is limited participation in that program?

MR. MERRITT: Right, I think there are 30 or so companies initially and then others are expected to join in the future.

MR. FRIEDLANDER: This is Joe Friedlander again.

MR. MERRITT: It's a voluntary cap and people say they get into it. You're like voluntarily paying for a ton of CO2 or what? I mean, you got it free, here.

MR. FRIEDLANDER: Right. This is Larry again. The UK, it's a bit more complicated than that. They have an energy tax of sorts, a climate change levy that basically penalizes all industry that uses energy, so it's more than just the absolute cap participant that use this scheme.

There's companies who want to reduce their obligation of paying this tax by accepting separate agreements with the government and buying credits from the UK trade scheme to offset that. So there's multiple forces at work, it's not just the one scheme with the voluntary participants.

MR. BROOKMAN: Thanks for the explanation. Yes, please.

MR. THOMSON: Fraser Thomson with Alcan. I agree, we're also under the climate change levy and it was an 80 percent exemption from a tax that you received from signing on to the voluntary agreement. So based on your energy use and in some cases other emissions, they calculated that and either you ended up as a climate change member, or you ended up as a voluntary member. And those agreements were negotiated one an industry by industry basis I believe.

MR. BROOKMAN: Al Musur, then to Brad Reed.

MR. MUSUR: This is Al Musur. Also in that UK program, it's not exactly a market based program because non-governmental organizations and Chiosk can go in and purchase credits and repay them, which tends to drive the price up for the remaining people who need the credits to continue to operate.

MR. BROOKMAN: One would take that as a new program, it's a voluntary program, a certain spectrum of our industries and individuals would want to participate and others would not. Brad Reed.

MR. REED: Yes, there's just one other thing. The other thing is that the British government threw a ton of money in here to make it worthwhile for people to volunteer up front and I don't see the federal government coming forward and throwing anywhere near that equivalent amount of money to start a market like that.

UNIDENTIFIED PARTICIPANT: Yes, I just wanted to mention that you don't have to look as far as the UK to find a proposed program anyhow. Because in Canada as part of their proposed climate action plan, on some basis, which is somewhat nebulous, companies will be given 85 percent of whatever that basis is, and you've got to find the other 15 percent based on emissions trading, emissions reductions, international emissions reduction. This is all part of their draft program, but we are at least moving in the direction of ratification before the end of the year. So it's interesting to think of all the perhaps under 1605(b) and how they might interface under a NAFTA.

MS. MEADOWS: Before we leave that.

MR. BROOKMAN: Karen –

MS. MEADOWS: Karen Meadows, sorry. One last point that I wanted to put out there on bullet number two there, and to me all of that goes back to the whole issue that in your system you have to have an additionality screen of some sort for projects. For that everyone to be have an absolute reduction, it means that the project has to be additional. It has to be something beyond what you would have done anyway.

MR. BROOKMAN: As normal business practice.

MS. MEADOWS: As normal business practice. You know, there's technology changes occurring all the time. A simple cause, if you put in a more efficient washing machine, if five years down the road everybody has more efficient washing machines, you can't really take credit for those savings for 20 years because it would have happened anyway in five years. So your additionality screen maybe have some kind of discounts in it, for example, for technology changes, or, you know, if there are regulations coming down that regulated something, that's not really additional if you do it because you had to do it anyway, so that's my comment.

MR. BROOKMAN: And Gregg earlier said no for weather and no for regulations, but the others, yes, you should get credit for because it involved -- paraphrasing vitally here. Investigative capital, corrective action, things likes that. And so he had, I guess -- the additionality screen.

Gregg, how does that apply from your perspective?

MR. SPENCER: I think the rational, the emotional component behind an additionality test is obvious because the goal is to improve the environment. The implications of creating that additionality test in practice make it so that -- I don't know how you'd determine whether a given project would or would not --

MR. BROOKMAN: In fact, how you reference.

MR. SPENCER: Once you start down that conceptual road, I don't know how you'd ever find --

MR. BROOKMAN: I was searching for an image, I just found it. Paul Lynch.

MR. LYNCH: On the issue of externalities. I've been involved in externalities quit a bit myself. I've got to tell you, if you start using externalities, you're going to have one huge mess.

First off, if someone comes to me and says, Well, because they're now making a more energy efficient washing machine that I shouldn't be allowed to use it because in a certain period of time, they're all going to be that way, so you shouldn't have it.

Well, yes, excuse me, I'm going to fix my own machine. You can just forget about that new one, I'm going to use that old one until it rusts away. Then even then I'll use duct tape, hold it together. If you go to that extreme, if you use externalities, no business decision that says I can make money or even just spend it for a year, would pass an externalities its test. The only way you'll pass an externalities test is if you lose money. And if that's the case, than to heck with it, put a tax on fossil fuels and be done with it because that's really what you're saying.

MR. BROOKMAN: Okay. Yes. Gregg.

MR. SPENCER: One final brief comment, Gregg Spencer here. When you create a new market, it is inevitable that there are going to be some people who are unfairly advantaged and some who are very disadvantaged. It's a little bit like allocating a bunch land and not knowing where the oil is underneath at the time. I mean, with respect to this gentleman, I appreciate it that there are certain inequities the day that you start that program. But if you're going to start a market, I don't see how that's avoidable.

MR. BROOKMAN: Okay. Thank you. I'd like to shift to the next slide. How are you all doing? We're going to do a few more minutes on this and then we're going to take a coffee break and we're going to break out groups.

Calculation methods. Do you want to cue this up, Paul McArdle? MR. McARDLE: This deals with the baseline issue and these are under the current 1605(b) accounting mechanisms. We have the basic or historical baseline and largely that's the difference between emissions and 2000 X, whatever that year is, and then earlier baseline year or in that key phrase afterwards, average of years, because under the current system, you can pick a baseline year to compare against, but you also can pick an average of years, two or three years, to smooth out your baseline.

In terms of historical baseline, much easier to measure and verify. You're not particularly meaningful for projects for a single facility because when you're looking at a historical baseline, you often don't know -- you often don't have the causation, you can't often visualize the causation of the action. And again, it measures the outcome, not the cause.

Now, under the modified or business as usual baseline, it's the difference between actual emissions and what emissions would have been in the absence of action. And, again, that is difficult to verify the reference case because it's actually a hypothetical so you can't measure it, you can't go look at it, you have to construct it yourself. So in some cases it's difficult to verify. However, it does have the advantage under this framework of you're actually measuring a particular causation for a particular action. So you can isolate the cause much better than under a historical baseline.

And lastly, unknown to most under 1605(b), which is a intensity baseline and greatly discussed although not many people have taken us up on that offer, I think in terms of reporting an intensity or unit of production baseline, I think we've gotten a few reports from some cement

manufacturers who have shown that their CO₂ per unit of cement has fallen. That's the only example I can think of. Again, we have it in place now, it just has not been greatly utilized.

MR. BROOKMAN: We've already touched on the number of issues on this slide, the computation methods. We've already talked about the absolute emissions reduction.

One question that came up earlier was whether or not if we gave credit for absolute reductions based on total emissions, should the program take account of divestitures and acquisitions. I think there is some provision under 1605(b) for divestitures and acquisitions to be taken into account through adjusting baselines, et cetera, which brings up the sort of parallel question of how are acquisitions and divestitures different from changes and output over time? That's one of the issues that we wanted to talk about.

Here's another back to the intensity question. I think there is fairly broad recognition for the electric utility sector, they have at least one and perhaps several different possible measures of output that could be used to track the emissions intensity of power generators. The situation in the manufacturing sector, however, as has been pointed out by several is much more complex. There are some manufacturers out there, cement and others, that have identified output measures which they use in calculating emissions intensity. There are only a few companies or industries that have a single physical measure of output for all of their productions. Most manufacturers have multiple types of business activities, multiple types of products. The difficulty of identifying output measures for many manufacturers is evident by some of the discussion already. If we use emissions intensity as an approach, is there any way of getting around some of those difficulties? Those are two of the questions which we wanted to try to address right now.

MR. BROOKMAN: Larry.

MR. MERRITT: Larry Merritt from Ford again. On the topic of adjustments, I think it's pretty obvious that we should have to make adjustments for large acquisitions or divestitures just to maintain credibility with whoever we're reporting these numbers to. We would do the same thing with earnings reports, everything else. There should be no difference between that and for CO₂ reports. And someone earlier alluded to GM and Delco and Ford and Vistiyon {phonetic spelling}, it's the same thing. We no longer report Vistiyon, which is a parts supplier to us now. We don't include their energy figures with any of the filings we make the DOE or in our corporate citizenship reports on environmental metrics.

MR. BROOKMAN: Thank you. Additional comments or a different perspective on this? Paul Lynch.

MR. LYNCH: Divestitures, acquisitions in the electric industry, that's been a big issue the last few years. There's been a lot of both. I'm really not sure how -- you have to do something to address the issue. The question I really have is if you're using 1990 baseline level which is something we've always done and feel strongly about because it matches with Kyoto and the rest of the world, but if you bought a facility in 1999, 2000, whatever year you happen to be, what do you use as your baseline? Do you use that facility, 1990 operating level?

MR. BROOKMAN: What is your advice?

MR. LYNCH: On the acquisitions we made, I would rather use 1990 because that presents me in a better light. Is that the best way to do it? I don't know. I mean, like every other company --

MR. BROOKMAN: Is there a rule of thumb you can employ or definitely leave it up to the whim of the reporter?

MR. LYNCH: I have a personal preference, a corporate preference, because like every other business, you want to be seen in the best possible light, the best economic light. I can see justification for going both ways. But it does seem to me if you're talking an existing plant in 1990, that that is the cleanest way of doing it, but I certainly would be willing to discuss any other options.

MR. BROOKMAN: Any different viewpoint on this? Yes, please.

MR. MOORE: Jim Moore, Ameren. I think no matter what you do, you've got to do something. Pick something, and there's going to be winners and losers, like NOx, there's a lot of steel companies gone out of business, and they're making a lot of money off of NOx tons that they no longer produce and I'm losing because I got to pay for those, but they're winning because they have a commodity now that's worth something that they didn't have before. So you've got to pick a way and go with it. I think Brad talked about it earlier that maybe you have a two tier system. You got a system for people that want to trade these things and it's much more stringent and it's an absolute reduction base thing, but you also want to encourage people to plant trees in a fallow format, what-not, and maybe they don't get an absolute credit they can trade, but yet they can report that and their citizenship reports get credit for that.

MR. BROOKMAN: Okay.

MR. STROHFUS: Mark Strohfus with Great River Energy. It just seems to me that our accounting system is getting more and for complicated here. This seems like an easy one for me, 1990 baseline.

MR. BROOKMAN: How many of you agree with that?

MR. STREITMAN: I don't think we have much choice. Fran Streitman. I don't think we have much choice. I mean, you either use '90, that's what Kyoto is based on, or if your company decided that the baseline is '95 and you buy something, then you use '95. You use the same methodology that you use for the rest of the company. If the plant was running in 1990 and it was emitting, somebody's got to take credit for those emissions or be required to reduce from that level.

MR. BROOKMAN: Tom Werkema.

MR. WERKEMA: Tom Werkema. To a certain extent there is an international precedent for using 1990 baseline. If you look at what's happened in Germany, for instance. The reunification came after 1990, they basically shutdown East Germany. That's why the Germans are going to be in compliance looking ahead. Okay. That's at a much broader level, though, than an industrial level, and I guess it raises the question what does happen if you shut facilities down, because technology becomes obsolete whether it's in the steel industry or chemical industry, or any industry.

Russia to a large extent was a functioning economy in 1990 and the reason they have hot air, as is referred to is because they basically shut down a good section of their economy. It seems like what we're talking about in the 1990 baseline becomes very consistent with the whole premise of the Kyoto protocol in a different context.

MR. BROOKMAN: Margot Anderson.

MS. ANDERSON: The suggestion around the table seems to be that it's not a baseline, but a base year of 1990 and you want to measure real reductions or absolute reductions from 1990 levels is that what I'm hearing? Is that what I've heard people say? I'm just trying to clarify my mind.

MR. REED: Brad Reed here. Except I'd clarify for the one statement that was made over here by Fran, I guess, is yes, use 1990 unless your company baseline is later.

MS. ANDERSON: I just want to clarify between a base here or a baseline. We're all going to look at our 1990 emissions and we're going to want to reduce -- we're going to measure reductions as reductions from what we had in 1990, is that why they -- that's the question I'm asking. Is that what I'm hearing?

MR. BROOKMAN: Several people wish to comment. Al.

MR. MUSUR: If you're a growth industry the answer is absolutely not. If you're a shrinking industry, the answer is absolutely yes.

MR. BROOKMAN: So how do we reconcile that? We're back to whatever you lose is whatever you choose, is that it?

MR. MUSUR: And that if there's going to be winners and losers, then both penalize the good performers all along and pick them as the losers, that's the trick.

MR. BROOKMAN: Yes, that sounds like a trick. Yes, please.

UNIDENTIFIED PARTICIPANT: Since we didn't have anything established in 1990, those of us that have been fortunate or at least took a stab at 1990 early on have some data, I'm going to repeat what was said this morning which is, That's great, we were going calculations based on 1990 and 1990 data and adjusted everything for acquisitions and divestitures, they don't match the existing protocols. We're now doing inventory up to new standards with new protocol, and we're challenged on data availability to come up with 1990, they don't meet the same standards, they don't have the same level of detail in the data.

So yes, we're calculating 1990 because our European plants want to know what we're doing. So we're calculating that, but it's certainly not an easy task and not something you can easily say, Yes, you've just got to report everything from 1990.

MR. BROOKMAN: Can you think of anyway to address this in your program?

UNIDENTIFIED PARTICIPANT: We're taking a best guess and we're not going to be reporting it. I mean, we have what we did previously for 1990, which as I said before, isn't up to the standards that we can provide for 1997 and so forth. So anything we report for 1990 is going to be an estimate.

MR. BROOKMAN: Thank you. Michael Stavy.

MR. STAVY: Yes. Again, 1990 will put us conformity with Kyoto, that's the reason, it seems to me anyway, to do it.

MR. BROOKMAN: Okay. Mark, is there any issues you would like raised in that first block as to emissions reduction?

MR. FRIEDRICHS: Well, actually it goes to the first and seconds block. One issue we talked about some in the morning is to what extent should participating companies be required to calculate their net emission reduction for their entire entity rather than sub parts projects? To what extent under the program should we focus on trying to get participants to calculate net changes in emissions or emission intensity?

MR. BROOKMAN: From the basis of entire entity. Yes. Larry.

MR. MERRITT: Larry from Ford, I thought we already do that if we report entity wide annually, you know, from '98 to '99. You just subtract the number and you come up with, I think what you're asking or am I interpreting that wrong? So if Ford Motor Company in the U.S. emitted 5 million tons of CO₂ in '98 and 4 million in '99, we would consider that the net not counting the projects.

Are you saying you would then want us to take that 1 million and add on top of it the projects for that year?

MR. BROOKMAN: So you're saying that we should require and encourage all participating companies to base their emission reduction only on their entity wide totals?

MR. MERRITT: Oh, okay. No, I was just saying, you can get that information from our entity reports if that's how you would interpret it in the future. It's already there, I'm saying.

MR. BROOKMAN: All right. We want to know whether or not that changed, if it occurs, positive or negative, should be a basis for deciding whether a company should be recognized for emission reduction. If Ford had that change, they should be recognized for a million ton reduction, and if it went the other way, they should not.

MR. BROOKMAN: Al Musur.

MR. MUSUR: This is Al Musur, and I'm doing reporting, entity wide reporting of all of my emissions and there's a year to year change because I shut something down. That's one thing. If there's a year to year change domestically because I moved something somewhere else, that's an entirely another issue.

MR. BROOKMAN: Like offshore?

MR. MUSUR: Like offshore.

MR. BROOKMAN: So how do you check output should be taken into account?

MR. MUSUR: Right.

MR. REED: Yes, Brad Reed from Toyota. Yes, we absolutely have output taken into account. We had one plant in 1990 and we have eight plants now. You have to take output into consideration.

MR. BROOKMAN: We got all these mixed signals between absolute and intensity which is output basically, and sometimes I hear that absolute emissions should be the only basis for identifying emissions reduction and sometimes I hear you got to take into account output. Are we that split?

MR. SPENCER: Gregg Spencer. It seems to me the criteria is whether or not you want your primary goal is to equally reward action or whether or not your goal is to achieve the greatest possible reduction, emission. Well, it's great to have both as goals, I agree that would be nice. If you're going to require entity wide reporting, you're going to exclude a significant segment of the emission reduction opportunities that are out there that don't represent entities, entities that can't report, entities that choose not to report. You know, a thousand different scenarios.

If your goal is to make sure that everyone is rewarded equally, then you can require entity wide reporting and only allow reductions within an entity wide context to be reported, but I don't think that's the ultimate goal. There are hybrid approaches too, some of which are suggested in the background papers of ways that don't necessarily require one extreme or the other and those include warranties or statements or representations by whoever is doing the registration that they're not, in capturing that reduction amount, they're not shipping the emissions offshore.

It seems to me it's done in accounting gap statements all the time. You make a representation that what you've reported is accurate for the following reasons. You can do that with extra offsets, internal offsets.

MR. BROOKMAN: Tom Werkema.

MR. WERKEMA: Yes, I guess the simple answer to your question is yes, we are divided. The reality is, if you're in a growth business, that's where the technology is evolving that's ultimately going to solve this broader environmental issue. The last thing you want to do is hang some kind of penalty on those businesses. By the same token, though, if you start looking at entity wide reporting, as I said this morning, I have a real problem with that.

And if you look at the number of companies in the United States, major corporations that are multinationals, they're headquartered offshore. They're all going to have the same kind of problems: Where do you draw the line for entity wide reporting?

So just a couple of thoughts. But I think the technology driver, we're constantly in the chemical business replacing one product with another new one. You know you can get at some of that with potentially entity wide recording. The last thing you want to do is stop that innovation because ultimately that gets us out of this issue.

MR. BROOKMAN: Mark, do you want to clue up this final block? Let's go to the next slide. Yes.

MS. PETERSON: I'd just like to point out. It seems like, if you go back to a previous slide, we're talking about intensity. Coming from the electric power sector, it almost seems like we had two different issues. It's one thing from a manufacturing sector to measure intensity per unit output. It's also true when you talk about absolute reductions, but when you talk about intensities from a public utility, as we're required to meet the demands for customers, we may not be able to influence our intensity, especially as we're imposed with new environmental regulations. And it's a significant change when you talk about baselines of 1990, my service charge for my electric generation truly is not grown. It's in northwest Indiana, it's not in the sun belt, but just to keep up the demands, it's an 18 percent increase in power generation in megawatt hours just to meet the demands in my area.

That's equivalent -- you know, unfortunately 18 percent increase equals to about a 22 percent increase in CO2 emissions. You know, that's a significant thing. If we're talking about 1990, the efficiency on a coal fire power plant is only 30 percent. If you're talking about increasing efficiencies, you're beyond the laws of thermodynamics at this point. I'm just proposing that we may need two sets of standards, one for the electric power sector and another one for the manufacturing and it may have to do with intensity or baseline, but when people talk about trying to cap baseline emissions, you know, and you're also talking about creating a market. You're talking about capping baseline emissions, I don't think there will be hardly any utility sector in that game. We have rate payers that we're accountable to. We all have stockholders, but we also have our rate payers. We have dictated rates and to go back and say we need to raise our rates for these reasons for a voluntary program, it's not going to happen.

MR. BROOKMAN: So you believe you should not be penalized for the growth and demand for electricity in your region that's occurred over the last ten years?

MS. PETERSON: Right.

MR. REED: Brad Reed. I agree, she shouldn't be penalized for the growth and demand, but she also said she had a 22 percent increase in emissions and only an 18 percent increase in demands. I would contend that you should be penalized for that. Go to public utilities commission and tell them, We're emitting too much CO2, we need more money.

MS. PETERSON: And that's exactly what we've done because we've had to put environmental clauses to pay for scrubbers. I'm not saying it's a bad thing, I live right there, I breathe that same air. I'm just saying that this is reality that if you're imposed to suddenly put on controls that you were not -- you know, when you're talking about baselines, you didn't have those controls in 1990.

MR. BROOKMAN: Would you please say your name for the record?

MS. PETERSON: Patty Peterson.

MR. BROOKMAN: Last three comments from Patty. Yes, Paul Lynch.

MR. LYNCH: Paul Lynch. I would like to just put a little bit of perspective on the penalty you pay for environmental controls. Generally speaking an electrostatic precipitator costs you one megawatt hour per hour of operation, which is significant. On a 100 megawatt energy unit, that's one percent energy loss. An SO2 scrubber, a 5 to 7 percent loss in efficiency. Switching from oil to gas, which is the great things for CO2, 26 percent reduction CO2 2 percent loss in efficiency on the unit. So it's very possible if you went in there for mouse control for a coal fired unit to lose 7 to 10 percent in a unit's output and that was mandated by the federal government and we're basically being told, Now you're going to have to accept that as a penalty.

MR. BROOKMAN: Al Musur.

MR. MUSUR: This is Al Musur. The issue isn't NOx for SOx or other category pollutants where you can put in the pipe control. The issue is CO2 and there is to such animal.

MR. LYNCH: I understand that, but the thing you have to remember, is that we had to install those controls by state and federal regulation and that cost us that loss in efficiency with directly increased our CO2. So they said, We would rather see you increase CO2 and decrease NOx and SOx. That's what we did. So now we're being told, Because you did what we said, we're going to penalize you.

MR. BROOKMAN: Okay. Patty.

MS. PETERSON: I just have one last set of comments.

MR. BROOKMAN: Please say your name again.

MS. PETERSON: Patty Peterson.

MR. BROOKMAN: Thank you.

MS. PETERSON: The alternative of that is, Okay. Switch all your coal fired generating stations to natural gas. First off, is there enough natural gas, the second cost is who is willing to pay three times the price of electricity for a natural gas generated power versus coal generated

power when you're talking about on a large scale basis, and those from the manufacturing sector, you know, they're not going to do it.

MR. BROOKMAN: Okay. Thank you. Other comments on this subject? Let's go to the next slide. Do you want to do clue this up, Mark Friedrichs? Paul.

MR. McARDLE: Paul McArdle, EIA. Actually I'd better go up there, I can't read that from here. And, again, to just reemphasize what I said this morning, we cover a broad range of project types. There's ten listed in Schedule 2, electricity generation under Section 1, we've got co-generation and waste heat recovery under Section 2. Energy and use projects are in Section 3. Transportation and off road vehicles in Section 4. Waste treatment and the disposal of methane under Section 5. Section 6 are agricultural projects dealing with methane and nitrous oxide emissions reduction. Section 7 oil natural gas systems in coal mining methane reduction. Carbon sequestration in Section 8. Section 9 is a reduction of halogenated substances such as PFC, CFC, SF 6, and when you cannot find a project type you can always go to Section 10, other. We always have an other. And even if it's not listed under the first nine sections which actually have a number of project codes within each section, you can also go to Section 10 and list your project there. Even in supplement, just using text in your numbers, you can list it in Section 10, and that's also where we put most of the recycling projects, by the way.

MR. BROOKMAN: Okay. Let's leave it there. Are you going to say some more about this? Mike Friedrichs.

MR. FRIEDRICHS: Many suggested that projects are a way of addressing some of the issues that have already been raised in companies that don't have a good output measure, perhaps in utilities that can't demonstrate an overall reduction in emissions or emission intensity because of environmental regulation, perhaps they might be able to qualify for some recognition by supporting a project that does, in fact, reduce net emissions, at least in one part of the entity.

Earlier this morning people talked about projects being cherry picking, self selection, that it didn't necessarily represent what was happening in the entity as a whole. If we proceed with some kind of recognition for projects, what are the kinds of requirements that the guidelines should impose for those who want to be recognized for emission reduction using this approach?

MR. BROOKMAN: As can you see on the side it lists types of qualifying projects, sequestration and emission, sufficiency of others, and it goes from there to baselines, we described some already, minimizing leakage and calculating avoided emissions.

Jim Johnston. I promise if you hang in there for five or ten more minutes, I'll give you a break.

MR. JOHNSTON: The one subtle aspect of the subject that we're discussing now is the experience from the sulfur dioxide trading.

Most of the trading that takes place is within the corporate structure within the entity, and I can go into why this is probably the case in a word, allowances are denied property rights status I think is the major reason. If you were to adjust that to take away the float that's required for all markets, then the percentage of internal trading is even greater, which raises the question of why do you have to have an elaborate trading system down the road when you're getting most of the gain out of the present systems out of just averaging within the entity. And it would seem to me that the additional advantage for that is that you can better ensure compliance to a contractual obligation on the parties reducing emissions within the corporate structure than you can in dealing with people that are outside the corporate structure where you have to hire a lot of lawyers. Not that I'm against hiring a lot lawyers, but it would seem to me that the credit risk problem, which is the generic term we use in financial market, seems to come down on the side -- if not determining the entity-wide arrangement, at least emphasizing that we should explicitly allow averaging as a way of circumventing some of the credit risk problem.

MR. BROOKMAN: Okay. Thank you. Are their comments on this? We also heard about -- people saying about the need for a project, that being good reductions that can be captured there.

It provides an incentive for things to be recorded that otherwise might not be recorded. These are some other comments that you heard this morning. Yes?

MR. STROHFUS: Mark Strohfus. I think projects need to be included if they're within an entity, especially in a utility situation where you can't reduce your emissions intensity or you're have increasing load demand, sequestration project is a great thing, and any type of projects outside of the NCC, I think should be something that's dealt with through the financial market and it's going to take attorneys and contractual obligations from the parties to avoid these projects shifting outside of the boundaries of the providing source. You know, if you're going to do an agricultural tree planting project or by a forest, what keeps that company you're buying from moving that acre of land over and chopping that one down instead.

MR. BROOKMAN: Well, if your project reporting inside a entity wide reporting basis, then you have an easier time of that. If you're a project standing alone, you have -- you're looking at records of accountability.

MR. STROHFUS: Correct.

MR. BROOKMAN: One question that has come up is should the emission reductions achieved under projects be treated in the same way as emission reductions that are demonstrated at an entity wide level? Because projects are self-selected, should there be sort of a higher threshold to recognize the emission reductions under projects?

MR. STROHFUS: This is Mark Strohfus again. I think if you're going to do entity-wide reporting, you've got your materiality threshold or something in there and your kind of stuck, it has to be incorporated there. If you're going to volunteer to report and you're going to go with an entity-wide protocol, then you include everything.

MR. BROOKMAN: And exclude projects in that case. If you're reporting on entity-wide bases and you're calculating emission reductions and that way, you would not have any projects.

MR. STROHFUS: That's part of your entity, one of the -- one of the activities of the entity is to create some sort of sequestration.

MR. BROOKMAN: Margot Anderson.

MS. ANDERSON: But still more of a follow-up on that, but if I'm reporting entity-wide and I'm filling in that entity report all the projects that I've undertaken as my entity report, but you, my competitor, are only reporting on a few projects that you have measurable reductions from, should my reductions be treated the same as your reduction, I'm revealing everything and maybe have fewer reductions to report because I'm revealing everything, your only revealing in the voluntary program the good stuff you did, are our reductions comparable or should they be treated the same or is there some inherent difference because I'm showing all and you're only showing a part?

MR. SPENCER: I think there should be a difference, yes. As somebody who's reporting everything they should have more value and more credit because it avoids the cherry-picking issue.

MR. BROOKMAN: Gregg Spencer.

MR. KEATING: Jim Keating, BP. I think if you're talking about credits, credits of value, project credits have to be held to a much higher standard because you have the issue of leakage. I could create a reduction project at one facility and ratch it up at another project and my entity wide emissions would go up. I would have done no good for the net gain.

MR. BROOKMAN: You would hold it to a higher standard?

MR. KEATING: Entity wide reporting?

MR. BROOKMAN: Yes. What about a project basis, though. We heard a lot of comments today about the benefits about allowing projects reporting.

MR. KEATING: Well, I get confused what assumptions we're making here. We're talking with about a cap and trade program, I don't think there's really any place for project base. If we're just talking about --

MR. KEATING: If we're talking about simply reporting. No matter how you structure, I don't think they're going to have the same -- it's not going to pack the same punch.

MR. BROOKMAN: Gregg Spencer.

MR. SPENCER: I don't think the government should be defining market. I think if you end up with different classes of products, one is a project based reduction, one is an entity-wide based production, you end up with different categories. You're clearly impeding the ability to trade not just internationally, but then you're going to create a system for exchanges between those two types of credits, you're better off to determine what the criteria are for a reduction, allow it to become a commodity, and decide if the issue is leakage, which means increased emissions somewhere else, then address the issue. Don't, you know, succumb to the temptation to create different products or different outcomes that don't really address the issue.

MS. RISSE: I'm sorry, I'm a little unclear as to what --

MR. BROOKMAN: Karen?

MS. RISSE: Karen, Karen Risse, sorry about that -- in terms of project offset what we're discussing in terms of are these projects in terms of -- Entity-wide reporting versus projects, I think in terms of project entity-wide reporting versus projects, I think in terms of project offsets which would for my company and what I assumed up to this point would be a standard practice, would be external to my company. We would be reporting entity wide and all of our internal initiatives are reflected in our entity-wide reporting.

Project type things would be things that we would undertake outside of our normal boundary in partnership with others to generate credits or reductions for the sole purpose of generating those reductions and taking credit for them. I don't understand, maybe somebody can clarify for me, where the real issue is between projects and --

MR. BROOKMAN: I'm not sure we've been especially clear as we've been going along. Mark, do you want to get a microphone. Because we have been I think mixing and matching projects in the entity wide context and projects that stand alone in the explanation here.

MS. ANDERSON: Margot Anderson, DOE. When we talk about projects, we do it in two different contexts. One to contrast project reporting with entity wide reporting so that an entity could have any number of projects within its purview, within its ownership. It would be subsumed into a entity wide report. At the same time, any number of those projects could be projects, as you said, could be taken outside of your corporate boundaries that are offset to your emissions report. The discussion that we're having here is really an either/or discussion. This morning we talked about, they're not prepared to report entity wide. For you that doesn't appear to be a problem. And they would prefer to continue reporting just as they are doing now under 1605(b), which is just reporting on projects whether they're within their borders or outside their borders as offsets, they just want to report on the good works that they've undertaken that lead to measurable reductions in GHG and contrasted with reporting entity wide.

So we're kind of getting back at well, if the revised 1605(b) were going to continue to allow reporters to report on projects, what would be the nature of that reporting. Are there any changes we need to make in order to make sure that those projects are more accurate, more verifiable and measurable, and are they going to meet this criteria of issuing transferable credits that the President told us no make recommendations on.

MR. BROOKMAN: Brad Reed.

MR. REED: Yes, I guess I've got a question here also. I've been talking about this earlier today on the issue of mature plants and start-up plants. If I've got a mature plant and I do something in that plant to reduce emissions, I consider that a project, okay. But the way this is being talked around here, that is not really a project. I was starting to get a little confused. I think I was right where you were, what is a project. But we consider projects things that cause absolute reductions at mature facilities. You know, anything else technologically -- as I said earlier technological improvement at a new facility is different, that's outside that. But once a new facility gets mature, if we do something that would reduce emissions, that would be a project.

But I need to ask Gregg, is that something you're talking about as tradable commodities?

MR. BROOKMAN: Gregg Spencer.

MR. SPENCER: Would you repeat the question for me?

MR. REED: If I do a project and I reduce my absolute emissions at one facility while maintaining the same production output, is that a tradable commodity?

MR. SPENCER: Absolutely. The question of whether or not an investment in new technology should constitute a project in a different context is less clear to me if you have a diesel engine on a truck and it has another five years of useful life and you elect to buy a more efficient diesel engine, should that not constitute a project investment for which there ought to be a tradable credit. I think the answer is yes. If the goal, again, is to motivate investments in new technology and more efficient operations, then you will reward that behavior by creating a tradable asset.

MR. BROOKMAN: Let me ask you while Mark is preparing to speak, we also want your thoughts on whether sequestration and emission of avoidance qualify, we already talked about efficiency of improvement in other categories, would be qualifying. Mark.

MR. FRIEDRICHS: I'd go back to Margot here. You were wondering, what's the difference between internal projects and external projects. I think the big difference is, if it's an internal project and entity wide, I think the record should be a little less. But once you get outside and back to bragging. Now whether your project is a creditable -- not a credible, but a creditable and valuable trade is on based on the validity of that change, and so once we cross outside our entity boundaries, we need some sort of mechanism to avoid those leakage issues and that becomes the private market, the attorneys, and the contracts.

MR. BROOKMAN: Let me know where this cuts into these verification issues tomorrow.

MR. FRIEDRICHS: Okay. But that's important to understand whether you allow a project depends on what kind of verification level you're requiring.

And to your next questions. Sequestration and emission of avoidance. Again, I think those are great things, they should be allowed and if they're within an entity and there is some validation of what's going on and they're not trading those for a dollar value on the market, why not include them.

MR. BROOKMAN: But do you intend to trade any of those, at some point for a dollar point in the market, then you would presume you're going to have to meet a higher standard, the gold standard or whatever.

MR. FRIEDRICHS: Yes.

MR. BROOKMAN: Irrespective of how it gets done.

MR. FRIEDRICHS: Correct.

MR. BROOKMAN: Okay.

MR. FRIEDRICHS: Efficiency improvements. We do a lot of efficiency improvements. And just whether or not kind of goes back to whether you do project reporting or entity wide reporting. The credibility of the program itself is really undermined by allowing just project reporting because project reporting is cherry picking and we're only allowed to -- you know, we're only allowed to report only the good things we do. That's the biggest criticism we hear at the past recorder, Well, you're only reporting the good things you do and when you look at four overall emissions intensity, it's relatively constant. No matter what we do for these projects and a lot of these are efficiency improvement projects, but the reality is, we have power plants that are highly dynamic systems. They're degrading portions of the plant are degrading at a rate. Other portions were improving, were removing that degradation by doing an efficiency improvement project. But at the same time somewhere else, the plant is degrading, so when you look at the overall big picture, our heat rate, our emissions intensity is the same at the end of the year. That's the problem with project reporting that I see. You're reporting a net difference, but you can't really demonstrate that in the end run.

MR. BROOKMAN: Okay. You have addressed sequestration and emission of voidance, efficiency improvements, we've addressed I think fairly consistently. Are there other types of qualify projects? And I'd like to move into this, this listing here as well. Yes.

MR. KEATING: Jim Keating with BP. Just to tag on to what was said. If you're talking about entity-wide reporting, the question being, should you be able to compare entity wide reporting and project based credits. I think you're really talking about apples and oranges for the reasons he talked about.

MR. BROOKMAN: On a credit to credit basis, apples and oranges.

MR. KEATING: Exactly.

MR. BROOKMAN: Okay. You want to cue up these last few? Let's go to the next slide. One final comment and then we'll go to the next slide.

MR. THOMSON: Yes. I'm not sure how much it matters whether we include projects in a registry or if we only include entity emissions in a registry in absence of a cap, because it appears -- this may be repetitious of what has already been said, but in absence of a cap, you can qualify anything as a registered reduction.

Now, they may or may not be tradable and there may be some issues of transferability, and you may end up with multiple markets. But in absence of a absolute cap that says your entity must reduce from a given baseline, you could probably make an argument that any given project has some recognizable reductions and they may not occur on the basis of your whole entity, but there's still a valid reduction per se. So the system to a certain degree, and this is where I -- I think I have a slight problem with the idea the market defines what is a credit. It's the construct of what is one ton of reduction in this case that really defines what may or may not have a value in the future. And when we come under the cap system, that becomes very critical. But prior to it, if you can prove that you have a valid reduction, why shouldn't that be counted.

MR. BROOKMAN: That was Fraser Thomson speaking. Let's go to the next slide. This is the final slide and we get to take a break. So I appreciate you all hanging in there. Paul, are you going to start this off?

MR. McARDLE: Paul McArdle, EIA. I don't have a slide, but I will say, I'll repeat myself for better or worse. On our base years, we allow a single base year or an average of several years to serve as your base year. And obviously we allow multi year reporting starting with emissions in '87 for entity level reporting and from 1990 onward with emissions and reductions for project level reporting.

MR. BROOKMAN: Thank you. Mark Friedrichs.

MR. FRIEDRICHS: This graph is just intended to illustrate some of the questions that come up in trying to define the rules for studying base years and in talking about multi year reporting. A number of times, I think, today, also in DC, people mention that variability and entity emissions and emission intensity from year to year, and some talk about the desirability of being able to pick a certain base year that was advantageous. In this particular case we have variable emissions or emission intensity. It could be either for two companies, Company X, Company Y.

If Company X wanted to demonstrate some emission reduction, they might pick their base year as year two and report through year four or three and a half or whatever. They would get a fairly significant reduction. But over the entire seven year period, Company X has no reduction and in fact it has some increase.

Company Y on the other hand has an increase initially and has lots of variability, but over the seven year period is declining quite rapidly. If they were forced to pick base year one and only one year report, they would be forced to report an emission increase, but over time, they could demonstrate a significant decline.

This raises several different issues. Should the guidelines try to address this problem of variability? Should the guidelines encourage or require multi year reporting to ensure that

emission reductions achieved in one or two years are actually sustained over a longer period of time. Should the guideline address any of these issues. That question.

MR. REED: I'm always willing to speak.

MR. BROOKMAN: Brad Reed.

MR. REED: And yes, they should. What you're saying, maintain sustainability of projects. We have that within our company. Your energy use goes up like this. Take it down, then it comes back up; you take it down and then it comes back up, and you take it down, it comes back up. But what we're interested in is the slope overall. Okay. What was it, two years ago December was the coldest December we ever had in Kentucky. Our natural gas use went right through the roof, okay. But overall for that year, we were still down the 2 percent on energy use. Okay. So there's going to be little things get in there. Yes, you should take –

You look at the long term, not the one term. I don't think you should take anybody's information that reports their information, Oh, we'll report it from 2002, 2003, 2006 to 2007. I don't think that's valid information.

MR. BROOKMAN: Are there other perspectives on this? Starting when, average? Brad suggests multi reporting fully reports, necessity perhaps? We touched on some of these issues already. I think we should take our break. I think I'm going to give you all a round of applause for hanging in there, you worked hard this afternoon. It's now 3:45. Let's break till 4:00.

9. TRANSCRIPT OF PROCEEDINGS FOR DAY 2

Voluntary Greenhouse Gas Reporting Workshops

VOLUNTARY GREENHOUSE GAS REPORTING WORKSHOP

STENOGRAPHIC REPORT OF THE PROCEEDINGS from the
Workshop Session of VOLUNTARY GREENHOUSE GAS REPORTING
Donald E. Stephens Convention Center, Chicago, Illinois
December 6, 2002

MR. BROOKMAN: Okay. Let's start. Good morning everybody. I would like to provide an opportunity -- anybody yesterday that didn't get a chance to introduce himself or herself or anybody that's new today. Would you care to introduce yourself would anybody like to state your name and organization, please, that didn't get a chance yesterday?

The agenda for today is to have a brief, very brief conversation this morning about additional quality on insights you might have during the evening hours and in the morning, and following that we're going to go straight to a report back from the four breakout sessions and following that we're going to be talking about verifying emissions and reductions. When in Washington DC, we concluded this amount of work around about 12:30 or 1:00 o'clock in the afternoon. So if it seems like we're on a pace that's going to cause us to end early, like around lunch or 1:00, we're going to just keep working through lunch and close up the meeting that way. If it's taking as much time as the agenda suggests, and it could very well, you were very productive and verbal group yesterday, then we're going to keep working on and keep going more like 3:00 or 3:30 in the afternoon. That's the general plan.

Questions or comments at the outset? I see none. Okay. I just wanted to start off this morning by giving people a chance to offer their reflections, additional thoughts, things that kind of -- additional insights or reflections that you had as the evening passed last night with your friends.

Michael Stavy, I'm going to ask you to once again repeat. You all did a wonderful job yesterday by staying focused and concise with your comments, which I would say that was a rather nice contrast with Washington DC. If we can keep on that same trend line today, we'll be in good shape.

Michael Stavy, please state your name for the record.

MR. STAVY: Michael Stavy. Yesterday in the utilities section we didn't get to discuss removable energy getting credits for the avoided emissions. I just thought I'd put that in the record.

MR. BROOKMAN: Thank you. You did somewhat. We'll try to make sure we fill that gap as we move along. Other comments and thoughts based on additional things, conversations you had with your colleague and friends overnight. Brad Reed.

MR. REED: Yes, Brad Reed. One of the things last night that we were discussing is the issue of how to roll up emissions underneath an individual company and how to tie them up all together. I also did some work for the FCC and the FCC uses this nice little thing called your federal tax I.D. number and everybody reports in. Whatever federal tax I.D. number that you report in is how all your licenses and rulings are rolled up into that. I wonder if something like that would be feasible in the Greenhouse Gas registry as just an easy way following another agency's output and look.

MR. BROOKMAN: I was there with you last night as we were discussing this. So you're saying all the subsidiaries, all the different parts, however they're defined legally, they still nevertheless have that one number or banner they report under?

MR. REED: Yes. Brad Reed again. That's true to state. There's operational control and there's financial control and different segments of the company may have different federal tax I.D. numbers, but there will be a subset that reports under one federal I.D. number.

MR. BROOKMAN: I was wondering -- well, thank you for that. Any additional comments or thought? You I talked with this morning as well. Do you want to share that with us?

MS. ZIMMERMAN: Kristin Zimmerman. One of the things that we chatted about in our breakout group yesterday and some of the feelings that I got from the meeting was that how do we wrap all this up into a focus of why we're here and what's the real goal? Is the goal to get all of us on goal to report to 1605(b)? And if so, what does it take to do that? Maybe some incentive from the Department of

Energy and that incentive might look like assigning a technical expert or something to a particular company to get them started. You know, something to get them over that intimidating first hurdle to get started and really is there any value to the company for reporting. Well, certainly it adds up and shows progress to what the administration is trying to do. And the only way we can show that progress is to get everybody on board with reporting. So what's it going to take? Maybe we should focus our time should be spent on that.

MR. BROOKMAN: What are things to make this more accessible over that hurdle, okay. Any additional comments, thoughts before we go to the report facts, the breakouts. Okay. Let's launch straight into that then.

The order that I have in my report is electricity generation first followed by industrial and otherwise sources, small distributive sources, and I just want to incorporate sequestration in that order. So unless there's another reason to do otherwise, I'm just going to go in that direction. So that, I think means Arthur, you're the first reporter. Arthur Rypinski.

MR. RYPINSKI: Right. Thank you. I'd like to suggest that other members of the group who were present should feel welcome to chime in with corrections, additions, alternative views. I've attempted to synthesize what I thought we heard, but I haven't yet achieved perfection and the odds are very slim that it happened this time. So please feel welcome to add to correct or amend the record otherwise.

We started with four questions which I've crunched down and summarized. One of them into options for intensity and baselines, treatment of acquisitions and divestitures, how do we treat causes of reduction other than output and minimizing double counting. If you could actually find the original question slide, that would be better. Bingo. Right. Options for intensity baseline. This is actually what we were presented.

See, minimizing double counting includes within it Green power sales in purchases DSM and estimating displaced emissions, which is actually Mr. Stavy's avoided renewable in somewhat circuitous language. Now, you can March back to my original slide, I'm worried that your fingers may be getting -- free to move to answers which is the following slide.

So the first thing that I heard, at least, is that you're asking the wrong questions. And nobody sort of stood up and said, "Well, you know, you guys are asking the wrong questions," but rather in listening to the answers, the answers suggested that for the members of the group, our conceptualization of reductions was not their conceptualization. So the firms in the breakout groups described -- some of firms in the breakout groups -- And I'm sort of crunching several of the reports of several companies together here but they experienced rising emissions, and/or rising emissions intensity, but that they were undertaking a range of emission reduction actions, including I heard fuel cell power generation, repairs on natural gas pipeline systems, transmission distribution. So in our group, the interest was in project reporting and modified reference cases which, in other words, put avoided emissions.

And so the questions about intensity baselines or absolute baseline for intensity reporting didn't really find resonance with the group. Next slide, please.

MR. BROOKMAN: So in saying our conceptualization --

MR. STAVY: That is the conceptualization is revealed in the question.

MR. BROOKMAN: The question, the structure of the question Department of Energy put together as a guide posts for the discussion?

MR. STAVY: Yes.

MR. BROOKMAN: Okay. Thank you.

MR. STAVY: Next line. Okay. So when we talked about intensity baseline, the discussion quickly moved to a discussion of the adequacies of standard electricity emission factors for measuring electricity baselines for such things as fuel cells or -- hypothetically, though, the subject wasn't raised of removable energy and there was fairly extended colloquy on electricity emission factors.

When we talked about the causes of reduction from other than output, the discussion moved in to a discussion of the relevance of additionality and leakage in project reporting and there were different views expressed on those issues. The view was expressed that additionality was necessary. The

view was expressed that the additionality couldn't be measured, but going down that path was the road to unworkability.

There was somewhat analogous discussion of leakage. We discussed Green Power and the predominant view I heard was when an end user buys Green Power, he's implicitly buying the rights to emission credits that might accrue and that one should, therefore, not endeavor to gain any other form of credit for a Green Power activity, that that would be a separation of the right that ought to accrue to the purchaser. And I think -- and I'm a little vague on this, but I think I heard the sentiment expressed.

The difficulty is, I'm not sure whether I heard it yesterday afternoon or some other occasion, but I have heard it somewhere that DSM and energy efficiency activities perhaps should belong to he who invests, I think was the principle I heard. So I encourage your corrections, additions or amendments.

MR. BROOKMAN: Additional questions, comments, particularly amplification of Arthur just reported. Wow. Maybe you nailed it. I'm serious, though. Arthur is a DOE employee. Anybody that wishes to say anything else would be helpful, I think. Yes. Your name for the record, please.

MR. STROHFUS: Mark Strohfus, Great River Energy. We did really get into the subject of projects, but I think we also discussed the fact that for all I tried to put forth the fact that I didn't think that projects by themselves without some rigorous validation procedures that go beyond probably what we want to do as part of 1605(b), are credible enough to provide comfort to people in the environmental groups.

MR. BROOKMAN: Thank you. Thank you. Additional comments following that report? Yes? Jim Johnston.

UNIDENTIFIED PARTICIPANT: Thank you. Pardon me if I introduce some University of Chicago economists into this discussion, but it seems relevant. Ronald Colston is 1965 landmark article on the problem of social cost that was a large part of his winning a Nobel Prize in economics, talked about the importance of defining property rights as being a substantial improvement in the allocation of resources. However, he went on to observe that it doesn't make a lot of difference in the assignment of the property rights. That you could assign it to almost any party of standing and that the market would -- through existing institutions, contracts and cases and the like, would lead to the same results, and that has remained a main stream part of the environmental discussion ever since. So I guess the importance of what we seen on the screen is that we have approaching clear assignment of property rights, but not a lot of effort in making sure that there is some just allocation of those assigned property right in the beginning, and I applaud the group for having reached that conclusion.

MR. BROOKMAN: Thank you. Additional comment? Okay. Let's go to the next report back which is industrial and notarized sources. Who is doing the reporting? Okay. Michael Scholand, Navigant Consulting.

MR. SCHOLAND: My first time doing it. Mike Scholand from Navigant Consulting and I'm going to try to handle the report back from our very participative and lively discussion we had yesterday on industrial enlarged emitters.

Basically we started out with a question are there existing entity wide Greenhouse Gas intensity measures of output already being used in sectors? And we identified a couple CO2 emissions per widget, to use Arthur's favorite term, specifically the automobile industry. However, it was pointed out to us that emissions are tracked separately in plants that produce parts and units that go into the final assembly as far as plants that actually assemble vehicles. So there is separate tracking for those different kinds of plants in that industry.

We also discussed the CO2 emissions per unit production. For example, tons of cement or tons of aluminum, and also in terms of pounds in the chemicals industry. So you're looking at CO2 per unit mass.

The group did highlight a problem with the term -- a factor called fugitive emissions. I would invite the person who made that comment in our group yesterday to expand on this a little bit more. What I captured from that was that the emissions that are difficult to measure or show proof of is the ones that have to be estimated. If I'm capturing that well enough, if not, speak up. And by the way, if I miss any points or say anything, just raise your hand and we'll interject as we go. Okay.

We then have the question, what would be your ideal Greenhouse Gas intensity measure. The group reported back somebody who has a minimal burden, something that we were doing anyway to manage our business that we could fit into our current cost structure. The components that were highlighted, something universal that would cut across cross sectors, something that would be recognized globally, contacts with Kyoto protocol came up. And something that we would be reporting quarterly like they do with, you know, financial statistics, Department of Commerce and otherwise.

It was also highlighted at the end the importance -- the value added metric. I guess the issue there was that you wanted to concentrate on value added at your factory when you look at the energy and the CO2 component of what you're doing. Such as like when you report a lot of financial additions to the Department of Commerce, and they deduct various aspects to make sure there's no double counting. You can take that approach and that will help to bring it into alignment with the President's goal. Okay.

In terms of a preference for intensity or absolute tons. Overall there was support for intensity goal, but a recognition that there are two situations with winners and losers and, you know, issues surrounding them practically. So, for example on the intensity side, it's very good for growth industries where your growth or production exceeds your growth and energy. Or for an industry where production is proportional to energy.

Absolute tons would be better for an industry than shrinking. For example, the steel industry was brought up yesterday and apparently they're making money now trading NOx credits. So if your production is failing off, absolute tons would be the preference. Issues were discussed.

In terms of who do you think should choose the output measures? Generally response was the industry should make that selection, and specifically specialized industry sectors. Someone discussed going down to the four digit SIC code level, but you may even find conflict going to that level of detail. The request from the group was that the DOE and the EIA would give guidance, but keep it flexible. So it's up to the reporting company to choose the metric. And ideally, the metric would be something that would be recognizable as coming from a particular industry. For example, tons of carbon per automobile.

Then a question, could there be one metric across industry? There was not strong support among the group for this. Somebody raised a question of what about having a trade association manage a portfolio on behalf of their members. There were concerns then expressed about the confidentiality and the trust issues. It was then highlighted to us the company managed -- checked multiple metrics and they wanted to report in multiple metrics. So that information runs counter to having one system one registry and there is their were concerns expressed around international transferability for those companies who have obligations in Kyoto protocol countries signed on.

Okay. So then the question came, the President's instructions to investigate emission intensity measures. So how do you suggest we proceed? A few problems, -- I mentioned the previous slide, there is difficulty using the single metric. We discussed a revenue metric for a little while, and issues there is that it would be subject to market fluctuations. For example the value of a ton of aluminum today is different from the value of a ton tomorrow and that will effect your intensity calculation, but it has nothing to do with the changes in the factory.

Some thought it would be a problem if we relied on intensity to translate tons or credits such as those used in the current program or for trading schemes. And on a national basis, this is sort of a solution that was discussed, how does the Department of Energy and the EIA determine the carbon intensity for the country. I understand we already report to the Department of Commerce on value of goods. We already report to the Department of Energy on consumption. Is there some way to look at those aggregate statistics.

Then the question came up which actually Kristin raised this morning, why not more companies who are going the right thing today not reporting on 1605(b)? The issues were that it only offers an image credit. It has limited value, no impact, no direct impact on the bottom line. However, it was pointed out that 1605(b) could be recognized as a depository of tradable credits to protect company against future client policy. Keep a track record of the good things you're doing.

In terms of the intensity measures for non-carbon Greenhouse Gas emissions, the five gases I've listed there. Generally these are rolled up into other metrics, they're done on a company level, it's not

constant from business to business. Some companies use their own internal conversion rates and prefer to report aggregate Greenhouse Gas equivalent.

And also it was pointed out to us, like the appliance question, and the efficient appliance operating at a household level, some gases like PFCs and SF6 are installed in the product at the time of assembly and then are leaked out or are emitted over the use of that product, and the question is accountability for those emissions.

And then my last slide here. Are there confidentiality issues? The answer is yes, there are concerns for the industries that were represented in our group. Aggregate entity wide emissions could offer some protection, and intensity metric, such as tons per automobile could also be acceptable assuming that there wasn't any reach through or disclosure on a specific plants basis.

Okay. I ask the members in my group to please put your hands up now and add this for the record.

MR. BROOKMAN: I don't see anybody else who wishes to add anything, so thank you. Any other additional comments? Thanks a lot. Okay. Let's go to the next one, which is small distributed sources. This is Mark Friedrichs.

MR. FRIEDRICHS: I was a facilitator for a small distributed sources, a participant from, the Illinois Natural Resources Department and I made up most of this group.

We chatted for about 10 or 15 minutes and there was simple agreement on one point, and that is to reach those parts of the mainly residential and commercial sector, transportation sector which are dominated by lot of small users, consumers, small businesses with homes or driving automobiles. You're going to have to look for large entities which can bundle actions to miss Greenhouse Gas emissions and try to figure out ways of providing recognition and credit for those larger entities. They might be community, they might be state, they might be utilities, they might be appliance manufacturers, they might be vehicle manufacturers, but we weren't able to go much beyond that.

MR. BROOKMAN: Would you like to add anything? Okay. Additional questions or comments following that report?

MR. REED: Yes, Brad Reed, I've got a comment. This is the one area where I think the government can have the most impact, by setting standards on equipment efficiencies, whether that be a safe standards of automobiles or standards for, you know --

MR. BROOKMAN: Appliances?

MR. REED: Appliances, take out Whirlpools a little bit, standards for appliances. That's the one place where the government can have the most effect, although it will take years for it to get into the economy.

MR. BROOKMAN: Steven, I offer you the opportunity to respond if you wish.

MR. WILLIS: Whirlpool does support product industry standards. We worked with the DOE in that regard.

MR. BROOKMAN: Thank you. Thank you. Steven Willis.

Okay. So the next report is on agriculture and forestry sequestration including ethanol production. Did you touch on ethanol? No, you didn't touch on it. Yes.

MR. FRIEDLANDER: I'm Joe Friedlander. We're about eight or ten in our group and we talked about carbon sequestration projects and things going on in that direction. And there was some schedule like there was in the general group by reporting by entities versus reporting by projects and the sketch was that we should still be able to do some reporting by projects, but that also report by entities and that the factor of control over the project is pretty important. For example, if you contract with a farmer for some conservation tillage or setting aside some land or planting trees, you don't have control over his entire farming operation, so you may only be able to report that particular project or maybe roll that project, even though it's a contracted project, in with your entity. So there's a question about that, especially with regard to control.

And then talking about baselines, if we change the rules, it would be very difficult to go back. And that was talked about in the general group as well. And so that we want to keep the rules and reporting guidelines pretty consistent so we can go back in time.

As far as calculation methods, I guess this was something I was especially concerned about was that sequestration projects. It would be good just to be able to open up a book, find out at a glance how many tons we're sequestering for this project. If we paid someone to plant two sections in western Minnesota in the switch grass, how many tons we sequester and not have to dig through a bunch of information over two or three days. U.S.D.A. is working on that.

I want to make sure that the methods are used for calculating these sequestration amounts, are low cost and obviously they're going to be flexible over time as more research proves, demonstrates what the actual amount of carbons sequestered is.

Transaction costs have to be kept low. That's with regard to, again, contracting out for projects or going outside of your immediate entity for sequestering carbon, whether you're setting aside some land or planting trees. Again, conservation tillage for planting grass or something, you don't want to be spending all your money on inspections and verification and doublechecking it. It just doesn't pay to do that. So you want to make sure you keep those costs as low as possible.

We also talked about calculations with regard to the amount sequestered. There's been some work done that provide models that provide these guidelines, like I say being able to look it up in a book. And there's also some people that say, Well, you should go out and measure the carbon. That's pretty costly. So most of the people said yes. If these models are pretty good, we just assume go with those, then go out and do a bunch of carbon measurement and do a bunch of research on then.

There were no university people in our group, though.

MR. BROOKMAN: Before we go onto the next slide, is there anybody else in your group that wants to say anything? Okay. Let's go. You're name, David.

MR. BAKER: On research --

MR. BROOKMAN: Your name for the record. MR. BAKER: David Baker. On the research issue, and I think we agreed that research should go on and we should get the benefit of that research. We didn't say research shouldn't be done, but we shouldn't just wait for the research, we needed to us the best information we have now and leave things open to change because we know, especially from soil sequester, that factors will improve.

MR. FRIEDLANDER: Yes. This is Joe again. And like we're saying, Jim was saying, our facilitator from USDA, we know a fair amount about above ground sequestration, but very little about the below ground, so there's a bunch more research that's necessary and there's going to be a lot of improvements and changes and the knowledge associated with the below ground sequestration and carbon.

MR. BROOKMAN: Okay. There was a question about permanence. If you contract with someone to plant trees, you want to make sure that they're taken care of and that his brother doesn't come out and cut them all down the next year, you know. Or what happens if you're paying for carbon sequestration in a grassland area, places are seeded into grass, it gets plowed up, you got to have some control over it. Who holds the liability associated with that? If you pay someone to get the credits, do you lose the credits? Does he get fined? Or how does that work?

With regard to natural disturbances, that was an issue again, whether it's grass or it might be a forest fire that sweeps through an area where you have a bunch of trees planted. Well, there goes all your carbon sequestration. You have no control over it, so maybe that could be covered by insurance.

There was also some discussion about corrective reporting, that might be a better way to handle things, especially where you have a lot of small farmers in one area, they can get together as a group and report collectively whether it's working on one contract with one company or as one group gets together so the farmers can get together or several landowners can get together, grow trees or do whatever, and make a report collectively, and that might be easier to handle the reporting.

Again, before we go on to the next one, does anybody in our group have -- Okay. Let's go to the next slide then. There was discussion about leakage, about what happens if you pay to have some sequestration done, but it actually results in another part of the farm or another part of that landowner's property being worked or managed in such a way that a lot of the gains that you've made through your sequestration end up being lost in another part of the operation.

So if you don't have much control in the operation. There's not much you can do about it. I myself was particularly concerned about the leakage. It's something that should be discussed, but I didn't think that we should agonize over it. But one thing that would effect that, though, would be the scale of the project and if it's, say, one farmer, you can take a closer look at that leakage, if it's an area wide sort of an operation. One example we talked about was setting aside a patch of rain forest in the Amazon and a local people then moved over the other side of the hill and cut down all the trees over there instead.

So scale of the project is pretty important with regard to how much leakage there might be. We also talked about additionality. Farm programs and other programs may require or induce people or companies or farmers to do conservation tillage or plant trees or set aside certain areas anyway. And they might get paid for it. And should they be able to also sell those carbon credits off because there will be additional benefits as a result of generating carbon credits through sequestration.

And we said yes, maybe they should be able to. It kind of depends on depends on the project. The second thing related to that is operations where companies might be required to set aside some land, say timber company or a development company, maybe developing an area, work for mining company, you know, big operations like this. If you're required to set aside hundreds of acres or preserve it, can you also get the carbon credits for that? And we said yes, we ought to be able to do that too and that might help defray some of the costs associated with setting aside that land, whether it's through purchase or locking it up for several years.

Is there anyone else in the group, again, that wants to throw their two cents in? And the last one was a geologic and ocean sequestration. We didn't talk very much about this, but something that has to be explored, I guess, and should be included and it's something that we need to look at rules regarding it and investigate it a little bit more. I guess that's all I have.

MR. BROOKMAN: Additional comments following this presentation? Yes? Gregg.

MR. SPENCER: Gregg Spencer. With respect to the geologic, it's interesting that the focus was on the first two kinds of sequestration because with geologic, it's one of the few areas where government industry and the environmental groups are all in agreement. In most cases, it also furthers national energy policy by increasing crete production.

There are no issues typically about leakage or monitoring, and it presents probably huge opportunity for many in the power industry for trying to assess how to create reductions. There's lots of discussion going on now about setting of plants next to existing oil production reserves.

MR. BROOKMAN: Okay. Thank you. In that case you're talking about sequestration putting CO2 back down into the well? Margo Anderson.

MS. ANDERSON: Margo Anderson, DOE. Did the group talk at all about emissions from this sector? You said in the first part about anyone reporting in projects, but it seems that most of the conversation was about project reporting for sequestration. Was there any discussion about how to roll in emissions from agriculture and forestry activity and balance that with the sequestration?

MR. FRIEDLANDER: This is Joe again. No, we didn't talk about emissions.

MR. BROOKMAN: Can you go back one slide. So your answer to the question of additionality is that you shouldn't worry about additionality, if I interpret this correctly. That is, you shouldn't try and interpreter and to it the intentions behind these reductions, is that correct?

MR. FRIEDLANDER: Yes, I think so. What we were basically saying was if somebody gets carbon benefits as a result of another program, would I be able to utilize those.

MR. BROOKMAN: Irrespective of whether those are standard business practice, standard business case, if they create the benefit, they should be able to derive the benefit.

MR. FRIEDLANDER: I think we kind of agreed on that.

MR. BROOKMAN: Okay.

MR. FRIEDRICH: Yes. With regard to the additionality question, although the group did not discuss that, just as information observation, in the Renewable Fuels Act, there was -- of course, this didn't make it through Congress, at least through the Senate the last time, but it will probably be discussed again this next year. There was a clause in there for voluntary reporting, and agriculture was included. I

think it was like 10,000 megatons, something like that. So there are other areas where this is being addressed.

MR. BROOKMAN: Okay. Thank you. Are there comments on the reports out generally before we move on in the agenda? Please.

MR. MOORE: Jim Moore. Could you tell us, these are basically the same things, themes that happened in DC, or is it totally different or about the same?

MR. BROOKMAN: I'm liking to the Department of Energy to see who's got the courage to try and -- at this early stage in the morning, to try and -- That's a big question you just asked.

MS. ANDERSON: I think I can answer a little bit from the electricity breakout group focused a lot on coming up with baseline associated with energy wide intensity reporting. The flavor of the discussion was a bit different than what Arthur was reporting out from the group. There was probably more of a recognition that intensity wide baselines might work still recognizing that there were four or five different ways in which to measure that so that the focus was less on the project based and more on the entity wide and more than the intensity. So that was one difference. Maybe Mark.

MR. BROOKMAN: Mark Friedrichs.

MR. FRIEDRICHS: Actually, a broader point. I think one thing that was a little different in Washington is we did have a number of environmental interest groups that were represented. I'm not sure that we have any in our workshop here. So in many of the sessions, there was a bit more sort of tension back and forth between those who were advocating recognition for a broad range of different kinds of projects and reductions and advocate questions, whether or not they were worthy of recognition.

MR. BROOKMAN: I would generally characterize that as being really divergent views that were fairly well defined and somewhat set, it seemed. I'm not sure about the setness of that statement, but a lot of different groups have a fairly developed and hued to the consistently views.

Steven Willis.

MR. WILLIS: I would just like to suggest that everyone in here is working for an environmental interest group. We're also administrator for other organizations, so I don't want to let a certain segment take the high ground there.

MR. BROOKMAN: Yes. Thank you. Do you want to comment on what happened from here, manufacturing industrial report facts? This is Michael Rivest, Navigant, to answer your question.

MR. RIVEST: Well, I generally agree with Mark's observation there was a more polarization of opinions, there was more questioning the general objectives of why we were here. So that brief discussion we had at the end of the meeting yesterday about what are the objectives was a thread that was across all two days at the last session. Frankly, I thought we did better work today in terms of -- yesterday in terms of trying to deal with the specifics with the issues. There was less posturing and more working.

MR. BROOKMAN: Other comments? Final comments or questions. David, your name please for the record.

MR. BAKER: David Baker. After listening to all of the groups and then, you know, out of agriculture group, the question of leakage and emissions in general, it gets back to the general issue of what is the purpose.

I mean, I think we can design things to prevent leakage related to specific projects, specific sequestration related to farmers or groups of farmers or forestry, landowners, but it's not going to guarantee that you've made a reduction overall. You can make sure you got real good sequestration projects, but it doesn't mean nationally we haven't been deforesting somewhere completely unrelated, and I'm not sure what you can do about that in any of the sectors. I mean, this is not a regulatory program, it's designed to encourage voluntary, positive, good projects and I don't envy you trying to -- have you just sorted out all of that?

MR. BROOKMAN: The last word you said was projects, and I think that based on what EIA has said already, it's all manner of entities and projects and to encourage reporting broadly and generally.

MR. BAKER: Well, but I also heard utility people saying they would support projects even if their intensity is going up. So obviously with 1605(b) you're not going to be able to guarantee reductions

overall, and you won't be able to guarantee outside the group. Inside individual projects, yes, you know, maybe you'll be able to keep that tied.

MR. BROOKMAN: Okay. Additional comments following the report?

MR. STAVY: Michael Stavy. Was there any discussion in Washington about doing it by industry as opposed to doing it by corporate entity? I asked that question yesterday and you said you'd defer to today.

MR. BROOKMAN: Margo Anderson, I'm looking to you.

MS. ANDERSON: I don't recall anybody advocating reporting by industry. There's certainly some desire to work with industry or industry groups on voluntary commitments to reduce Greenhouse Gas emissions, but reporting by industry, that is not something that came up in Washington, no.

MR. BROOKMAN: Okay. Other comments before we move on to verifying the emissions and reductions. Let's go on to that. Mark Friedrichs.

MR. FRIEDRICHS: Just a reminder for those who may not know –

MR. BROOKMAN: Your mike is not on still.

MR. FRIEDRICHS: Mark Friedrichs. Just a reminder, the transcript and the audio recording of the entire workshop in DC is accessible from our website, and so it is organized and searchable in a way that can make it useful and I encourage everyone who is interested to spend a little time looking at it.

MR. BROOKMAN: The audio tape, I have to say, it's better than white noise in the event you're getting a hard time listening. You have to take a long car drive, you have to take 10 or 12, whatever. Okay. Let's shift to verifying emissions and reductions.

And Paul McArdle, are you going to cue this up? Paul McArdle with the EIA.

MR. McARDLE: Paul McArdle from EIA. This won't take long. The current plan requires self-certification by the reporting entity, so they're attesting that everything they submit to us is accurate. We won't accept a report without a certification letter and that's normally signed by someone in the energy or environmental group of the corporation. They have to do this every year. It's not like they certify one year and then they just start submitting reports. It's certified every year.

And lastly, and that's pretty self-explanatory, we talked about that earlier, and I see this slide over here, that's cued up on the question. I'll try to address some of those in context of certification. Again, the certification is once every year every time they report. The process and methods, checking date, as I mentioned yesterday, I reviewed our review process in editing or reviewing the reports and getting back to the reporter where we think there are discrepancies. We do not do any physical inspections on site or off site.

Maintenance of records. We maintain all the reports that come to us both in paper and in electronic form. How far back the corporations maintain their records, I'm not sure. We don't have a hard and fast rule on that on how long they have to keep their records, and that's about all I have to say about it.

MR. BROOKMAN: Thank you. John, you want to add to that?

MR. STAUB: John Staub. In thinking about as we go forward with creating something or revising 1605(b), we look back to what the President or the inner agency recommendations for the President said, and that was that the agency recommended that there should be independent verification, which goes beyond self-certification. Currently EIA does some arithmetic and accuracy checking. But to go to an independent verification, that requires either having some third party or some other organization examine the data or compare it to another organization.

In thinking about different types of verification, that's really looking at whether or not we wanted to look at just factual numbers of tons that they report or we can also look at the process that's involved in what types of equipment to use to get their measurements and estimates or looking and having someone go out and make sure that the equipment is actually working correctly. Those are some of the kind of the types of issues of verification.

And then there's also a question of frequency. How often does the verification need to occur. Does it occur on an annual basis or does verification only occur when someone else says, "I don't quite believe what you're saying, can you verify that?" So it would be a challenge type situation or it could be

random, or a thorough review could be done every five years with some desk review each year, something like that.

And in terms of maintenance of records, it's really just an issue of how long should they be kept around. And then thinking about who should verify, that's a big question of does the government do it? Do a company -- or businesses setup and say, "Hey, we can verify your emissions or your reductions," and who should -- should the government provide some kind of review of who is actually doing the verifying. Who's certifying the verifiers. And those are kind of the main issues that we would like input back from you. Thanks.

MR. BROOKMAN: Thank you. Yes, Brad Reed.

MR. REED: Yes, Brad Reed. I already have a comment. Number one, if we set up the methodology of how we're going to track emissions. I've got engineers inside of every one of my plants and understand my processes and my equipment far better than any other outside source is ever going to, and they're going to know exactly how much they saved. And they'll be able to tell you if there's fugitive emissions or leakage, where that leakage went to inside that processor or inside that plant. And I really think the idea of third party verification is kind of a bugaboo that we're all looking at. But the third party wants to verify my project, that third party can bear the cost.

I just think that's kind of a thing that makes no sense to me. If you set up the methodology for doing something and the methodology is valid and I follow the methodology, that should be the same methodology that the third party verifier is going to follow. So let that third party verifier if he doesn't trust me, come in and check my numbers, but at his cost.

MR. BROOKMAN: Along the lines -- well, the metaphor, the model would be the IRS.

MR. WILLIS: Well, the IRS or I would think even the ISO 140001. Almost all of us in here probably belonged to ISO 140001. You pay an enrollment fee, you get things marked up, and they come in and validate you're doing your processes properly. I think you could do something similar to that with energy projects. But I think the idea that we're going to generate a entire new cadre of people in the United States that are going to be third party verifiers of CO2 reduction is ridiculous.

MR. BROOKMAN: Then, of course, for those of you who had an opportunity to read the case on verification which was in back of the pack. So many of you might not have gotten all the say back there. There were many different kinds of verification there. Process verification, you know, several different kinds of levels of intensity on verification. Yes, Gregg.

MR. SPENCER: Gregg Spencer. Brad, to the extent that -- if part of the goal ends up being a tradable credit, though, I think the better analogy is the security market where in financial reporting, internal financial teams will calculate all the results and know the company better than any other outsider, but an outsider comes in and evaluates that data in fairly presenting whatever it is that's recorded, I don't think -- there's engineers all over the country that who are capable of evaluating the accuracy, the calculations that your group has made without independently going through all of that, and it provides simply a level of credibility for someone on the outside to accept those results.

MR. BROOKMAN: Brad Reed.

MR. REED: Yes, Brad Reed again. Yes, if you want to trade them? Yes, go ahead and do that. What I'm saying for the program in general, most of us are not going to trade these credits, we're going to hold them inside our company to cover. Okay. We're not going to be out there trading these credits. There's going to be things we're going to using them. We're going to add new production, we're going to increase production, we're going to maybe move into new lines of work. So we're probably not going to be trading these credits.

MR. BROOKMAN: That's a theme we discussed yesterday as well. For those who aspire to trade and make money off this, there may be a different level of reporting, there may be a different level of verification, there may be a different kind of a thing.

MR. KEATING: Jim Keating, BP. BP has been using a very extensive third party audit program on it's a Greenhouse Gas program. And I understand what you're saying about your engineers know your process, but speaking from experience, an independent second set of eyes looking at the processes from not only an engineering aspect, but from more of a financial aspect and a process analysis aspect, is

invaluable. And again getting to this point of a two tier approach, if 1605(b) is going to be some type of registry that will be utilized for tradable credits, you have to treat this as -- on to the same financial standards. I understand there should be a second level.

What we're trying to do here is get as many people involved in this program as possible. Not everyone one jump right to the gold standard, but I think even if you're talking about holding these internally and -- eventually you're going to be comparing them to something. If you're going to talk about using them, you're going to be comparing them to something. And I think third party verification is really the only way to get acceptance of those. But I agree, I think we should be looking at a two tiered approach here.

MR. BROOKMAN: Yes, or layers, or whatever. I mean, one could imagine that there's a nucleus and the next layer out is more intense or more complete or whatever. I don't want to bind anybody by the metaphors, my point. Yes.

MR. MERRITT: Larry Merritt from Ford. I just wanted to mention some of the written comments we had already submitted because I think they're relevant today.

MR. BROOKMAN: Thank you for bringing it back.

MR. MERRITT: We believe that the verification requirements should be designed to maintain the flexibility of the scheme while ensuring accuracy and integrity of the registry and I think the two tier approach that everyone is talking about is probably the best route to achieve that. The self-certification should be adequate for reporting to the registry, both the emissions and the reductions projects. But if any of these wish to receive or secure transferable credits, then the self-certification can be expanded in one two ways:

You need to make sure that each company has flexibility to manage it's own risk associated with reporting in the first place. And one way to do that is if a company is comfortable with its emissions data. That company to secure a transferable credit, could continue to self-certify if there is this central audit function similar to, you mentioned, the IRS for instance, that would be able to spot check, if they wish. Or if a facility isn't as comfortable with their internal data management, they could choose to elect a third party verifier, whoever that may be, to come in and document and rubber stamp the same reductions, but it should be up to the company and the individual entity whether or not they decide to change the self-certification with the risk of an audit or third party verification without an audit. So I think that would maintain the flexibility that we've been talking about so far in the dialogue.

MR. BROOKMAN: And imbedded in that concept of flexibility, what you just said, would be an issue of company control.

MR. MERRITT: Right. I have personal experience in the UK trading scheme, we have undertaken third party verification of our treatment, because it was a requirement of participation. That third party verification revealed absolutely no issues with the calculations we had already done. So for us, you could look at it as, Well, we spent money to get no real result except for the stamp that was required to participate in the scheme.

MR. BROOKMAN: So that was, the reference there was the verification on your calculations. Did they also do verification on your process for --

MR. MERRITT: Time intensive verification where they visited a particular facility and went through how the meters operated.

MR. BROOKMAN: So it was the whole thing. More of a complete audit.

MR. MERRITT: Right. And if I had my choice, I feel comfortable enough in our figures, in our transparency with our figures, that I could sign as a professional engineer or whomever sign, and this is good enough for transferable credits.

MR. BROOKMAN: You said a lot in all of this and I'm going to read back in my brief notes here because it seems like these concepts have been mentioned before and anybody who thinks otherwise should say so now.

You basically endorse the concept of self-certification and that some have the ability to do spot checks, you endorsed the need or the potential benefit of having independent verification by a third party should you wish to be in the business of trading, but for the company to maintain control over who

initiates and how far to go with that verification scheme and I think you also mentioned that reporting self-certification on a yearly basis if that makes sense.

MR. MERRITT: Right, and that the third party verification should be optional if a company thinks that perhaps its internal transparency isn't enough to convince the public or other stakeholders that their data is accurate.

MR. BROOKMAN: Mark Friedrichs.

MR. FRIEDRICHS: Thanks. In the Washington workshop one participant recommended that the CEO sign, certify the accuracy of the report, perhaps reflecting business news stories. But does anyone have any feeling about whether or not it should be some official that is higher than the current certifying environmental group, than the company reporting?

MR. BROOKMAN: Yes. Jim Moore.

MR. MOORE: Jim Moore. Lot of people probably know this, but in the SO2 program, there is a person called the designated rep in every company. We call him the designated jailer because they can go to jail if they falsely report. And it's not the CEO, usually it's the senior vice president of environmental or the VP of environmental as an analogy.

MR. BROOKMAN: So you think that's the appropriate level, is that what your –

MR. MOORE: Yes. And they're responsible for the sins recording, all of the environmental components of their component.

MR. BROOKMAN: Jim.

MR. KEATING: Jim Keating, BP. Again, if we're talking about the gold standard here about tradable credits, they're going to be financial assets and I think the sign off needs to be equivalent to whatever would be required for the transfer of that value under any type of financial agreement.

MR. BROOKMAN: One could imagine, I think this came up in the Washington workshop that the market, if it was operating, would have different expectations or create different levels. Anyway, any gold standards, potentially any standards conceivably. Steven Willis.

MR. WILLIS: I think the majority of the people are going to participate will probably be doing so at the lower gear that you describe for the reporting, but not actively trading the credits, and I think it would be very helpful to us as an industry for your approach with this subject of being consistent with what the EPA uses. You think about all the self-reporting we do in our plants already. That is as important to the protection of the environment as these credits we're talking about, these emission reductions, so some consistency between agencies would be delightful.

MR. BROOKMAN: Yes. Thank you for that. What about, I guess I've heard in the earlier comments that physical -- most have commented so far have said they that don't think there's much benefit -- or have implied there's not much benefit in physical inspections. I would note that Paul McArdle said earlier, EIA, when data comes in, they do kind of visual or desk inspections and desk audits and then other audits essentially, but never on site. So what about physical inspections and what on site inspections? Yes.

MR. REED: Brad Reed, again. We do physical inspections of projects and items that we implemented on a routine basis to go back and make sure that the process folks haven't decided it causes a quality problem and ripped it out on us. The rest of you in the auto industry will know what I mean by that.

MR. BROOKMAN: Will you speak to the issues of control and being there on site on the plant floor and who's working that space that are really relevant.

MR. REED: That's correct. Mostly the way we do it is we implement just through a standard maintenance program where you go out and verify that the project is still in place; that the valves that were turned off were turned back are still in the correct position. The process controls have been modified to reflect the new condition.

As far as physical inspection, I brought up the analogy, I think ISO 14001 or something similar to ISO 14001. If you're wanting to get into the quasi trade zone, maybe the jump bond status of CO2 credits. You might do something on ISO 14001, where some organization comes in once a year and randomly spot checks the processes and the projects that you've turned in.

MR. BROOKMAN: I want to drag a lot of your comments so that the span of yesterday and today seem derive from your expectation and perhaps the expectations of other persons in industry that you have a complete incentive always to drive for efficiency and approved efficiency at your site, and those are going to create the bulk of the corresponding benefits and reductions. That's the implicit -- that's the underlying assumption.

MR. REED: The underlying assumption is energy is money, and the less money we use, the less money we use to build our product, and that's what we're always striving for.

MR. BROOKMAN: Yes. And I'm wondering if there's a counterpoint. You know, I'm wondering if there are occasions when industry is not incentive that way.

MR. REED: Brad, again, the only way I can think is if they're a monopoly and they -- possibly Microsoft, but the rest of us don't have that.

MR. BROOKMAN: Okay. Are there comments on verifying emissions reductions? What about on the issue of maintenance of records. How long should these records be maintained? Mark.

MR. STROHFUS: Actually back to the last question. Mark Strohfus, Great River Energy. There are times when efficiency improvements aren't cost effective and therefore they're not going to happen. You know, somebody made a comment yesterday that we're going to put in the best equipment available out there. That's not always true. You put in the best available equipment that's cost effective.

MR. BROOKMAN: Arthur Rypinski.

MR. RYPINSKI: The maintenance of records concept is intended as a conceptual form of verification. The idea is rather than actually being verified, conceptually affirm might maintain the records that would make verification possible at some later date.

MR. BROOKMAN: Thank you. Thanks for that clarification. What about that as a concept? Steven, did I -- no? Okay. Comments on maintenance of records, that is having a sufficient paper trail.

MR. REED: Brad once again. That's part of the process. Whatever process DOE puts in place for us to record this should be sufficient paper trail. We shouldn't have to maintain all kinds of background data to support what DOE or EIA or EPA wants us do. Whatever report should be sufficient.

MR. BROOKMAN: Again, I'm looking to Ford about the -- I'm hearing two things. I'm hearing the Department should specify what the level of detail and effort is in maintenance and creating a paper trail. And I'm also hearing we should have flexibility and control by the company. And those seem to be kind of on a track towards a collision to me. Go ahead.

MR. MERRITT: Larry Merritt from Ford.

MR. BROOKMAN: Help the Department with this.

MR. MERRITT: I think that from our company's perspective, we would feel comfortable in deciding ourselves what we need to keep the justified or whomever that we've actually reduced the emissions or have our entity level at X.

MR. BROOKMAN: Whether you wish to go to the gold standard or whether you wish to be just a more limited registrant?

MR. MERRITT: Right. That we would have the option of deciding ourselves, Yes, we will self-certify that this is the number for 2001. We feel comfortable. We have the backup data that if anyone ever came in and wants to know where X came from, we can justify that, and no one needs to specify to us what exactly that means. It's our responsibility to decide for ourselves.

MR. BROOKMAN: Thank you. Yes, please, Gregg:

MR. SPENCER: Gregg Spencer. There's an inference here that there's a correlation between third party verification and I think the period for maintenance of those records. Or maybe an inverse correlation. To the extent that there is a third party verification, you might wind up with a different standard.

MR. BROOKMAN: I want you to repeat the point again. You lost me.

MR. SPENCER: That means I failed. To the extent that you have third party verification, that could influence, that should influence probably the period for record retention or the sufficiency of the record retention. That's the only point.

MR. BROOKMAN: Okay. Yes, please, your name.

MS. LAUDE: Erin Laude with CH2M Hill. I would argue too that maintaining documentation is going to be dependent on what your protocol is for verifying and what your standards are for verifying. If there's a standard that you're trying to meet that requires certain documentation, you're going to need to keep that documentation.

MR. BROOKMAN: Okay. That seems like global guidance. I'm wondering, is there anything more specific you would say to the Department about this? I don't know what it is myself. I'm just asking is there anything more specific from the experience we have in the room.

Okay. So let's move on then to -- Let me see if there's anything else. Who should verify. We heard self-reporting, we've also heard the potential third party verification, although that raises a lot of issues. One would presume if you wish to be in the market for this, that you might yourself adhere to a different standard and have a different level of maintenance of records, right? What presumably? Jim?

MR. KEATING: I mean if anybody spends money on a credit, we would want verification of those credits of the real value.

MR. BROOKMAN: Okay. Al Musur.

MR. MUSUR: This is Al Musur. I believe it depends on who issues the credit. If it's the federal government issuing some credit for some verifiable emission reduction, it's a piece of currency. It's backed by the full faith credit of the United States Government. If it's actually a market based thing, then the market will determine what the level of verification is going to be required behind that, or what level of insurance or some other form of backup will be required to make those things tradable and have some value.

MR. BROOKMAN: And the market will assess perhaps different levels of value based on the different level of credibility based on verification or whatever means, Okay?

I see some heads nodding up and down.

MR. STAVY: Michael Stavy, M.G. Karnes. I think the use of the word credit should only be used for tradable credits or the gold standard and tons of emissions of avoidance should be used for the other.

MR. BROOKMAN: Thank you, that's a useful differentiation. I'm sure I confused them more than once. Joe.

MR. FRIEDLANDER: Joe Friedlander. If we get into tradable credits for CO2 and it's like tradable credits for sulfur, how are things set up -- I guess I asked the friends in the utility industry, how is that set up that you know you have tradable credits for sulfur? That's just issued as a number from the government? How does that work? It might end up being the same thing exactly.

MR. MOORE: Jim Moore. Basically the federal government set it up. It's a cap and trade. They setup a certain number of tons. They allocated it based on a baseline period and {inaudible}. There's serial numbers in DC that we own that we can trade back and forth. It's a gold standard. It's like the EPA is set up like SO2 ton is, or NOx ton. From what I'm hearing -- this is voluntary program, it's not a cap and trade program. It's not quite the same.

I believe, I don't know who does it, but the Department of agriculture whoever says what's Grade A beef, and that's traded all over the place. And depending on what kind of beef you have, there's a basis differential between that and pork bellies or whatever. There are things that the government sets a standard and people tradeoff of that.

MR. BROOKMAN: Okay. I'm hearing many different ways to do this, is what I'm hearing. Okay. I think we're ready to go to the next slide. Managing registry of emission reports and reductions. Paul, do you want to cue this up?

MR. McARDLE: Paul McArdle from EIA, and I'll just cover these point up here relative to what we do under the current program. I think I just covered the issue of certification, it's self-certification. And I like Doug's term, I'm going to adopt it, we do a desk audit of the data both ocular view of the data. We do a software check of the emissions numbers submitted, and we also do methodical checks, and we get back to the reporting entity if there's any discrepancy.

In terms of confidential data, people do have the right to request confidentiality for data submitted to EIA. We've only had a handful of those since 1994 we might get one or two a year. We

generally granted the confidential request, but understand this, under the FOIA Act, Freedom Of Information Act, we actually have the right to deny confidentiality if we feel that the data is not going to harm -- I'm stepping back a little. Under the FOIA Act, companies can request confidentiality if they think it's going to hurt them competitively, if it would have certain implications that would be negative towards them. In practicality from EIA's perspective, we've had so few requests for confidentiality, maybe one, two a year at the most, we've generally just granted the confidentiality. What we do is we count them as a reporter in the database, but we do not put them in any of the summary statistics, therefore the data cannot be derived by subtracting out the companies that are listed as reporting. You can actually backup the data, but we just strip them from the summary statistics.

And let's see, I think that covers it.

MR. BROOKMAN: Margo Anderson.

MS. ANDERSON: Margo Anderson, DOE. This is in essence a culmination of a lot of the things we've been talking about yesterday and this morning. Particularly this morning, what is the Department's obligation, once the reports are filed with the Department. So some of this sort of the general themes that we're going to discuss, and these are the specific questions that will support the general theme, are the need to discuss how the revised the guidelines and the data you submit will provide or can provide the information that's necessary to meet these multiple needs that The president set up. Transferable credits and protection against future client policy.

So this issue is about when you submit data, what is the role of the Department of Energy and of the Energy Information Administration to make sure that the data you submit meets the needs. So that's a issue in essence of are we certifying like USDA does that these are Grade A reductions that are worthy of transferable credits, whether the transferability computed by the government or by the market is a somewhat different issue. But what is the role of the Department of Energy once you submit those records.

And that works into the second issue of what is the DOE role in managing the reported data. Do we certify the report that that is a transferable credit? Or are we just certifying that you're meeting some standard of what the reduction is. We give you some sort of recognition, you take that to the marketplace should you want to move those credits around. What's our role in the process? Do we actually issue a credit or is that something that the market does?

The President told us to come up with recommendations that provide transferable credits for real reduction. How do you interpret that language? Is the DOE or EIA responsible of keeping track of transfers that the market may be making or is that something that the CO2 exchange market is going to develop?

Finally, many have raised the issue of what happened to all of the tons that they've already registered in the EIA database. One of the ten recommendations that were sent forward by the four agencies says that we will discuss a process for reviewing the reductions that have already been reported in the database. What does that process look like? Do we wait until we get the process in place before we review the old ton. Should we review the old tons at the same time that we're coming up with the revisions for the guideline? What is the process that we should use in order to review those tons, or do we just forget about those and start from scratch, start fresh?

So those are some of the issues. These are the specific questions that might help us get at these issues. But this is really at the heart of the matter. What do we do with the data ones it meets the specifics of the revised guidelines.

MR. BROOKMAN: So you see two to five. Managing the registry of emission reports and reduction. Let's start with certifying reports and reductions. Should this be a government review process. At what point should it become a government review process. To what extent should the government be involved in the process. What about the documentation of reductions and of transfers. How should that be handled? Who should hold it? How should that be accomplished? And what about the DOE database of certified reductions?

Margo, what does that one mean? The DOE database of certified reductions? What is the point in that one?

MS. ANDERSON: Well, that's kind of asking this question here, what is the role of the Department of Energy to maintain a database of the reductions that many of you were talking before meeting this gold standard.

MR. BROOKMAN: All right. So that's related to specifically what the Department should do? Comments, yes, please.

MR. MOORE: Jim Moore. I would like to suggest and I don't know if this is even possible, but EPA already has a system in place that works very well for SO₂ and NO_x, and if DOE came up with a certified credit with a serial number attached to it, they could easily use the same system to keep track of these things. It's searchable. We use it is everyday to move tons all over the country, and I would think that would be a very simple way of doing it.

MR. BROOKMAN: And I notice the next bullet is public versus confidential data. As I understand it, the EPA data is public data, is that correct? And confidentiality is another issue that we raised and raised several times already. It was raised in the Washington workshop. Some people stated lack of confidentiality might cause them discomfort.

Paul McArdle, you said that to date there have only been a few requests for confidentiality on data.

MR. McARDLE: Right. I believe we -- Paul McArdle, EIA. I think we have one in this current reporting year, and we have one the previous year, and maybe two or three over the previous five years.

MR. BROOKMAN: So I'm just raising one issue about the EPA registry that I know about. The EPA, which program is it again?

MR. McARDLE: It's EPA SO₂ NO_x. But I'd say that -- maybe you make a distinction here like we talked before, if it's a tradable credit, it will be kept track of and confidentiality isn't an issue. But if you're recording all your projects, confidentiality is an issue and maybe that's part of this two tier thing.

MR. BROOKMAN: So if we're going to go to the highest level, to the gold standard, whatever, then one would expect that level of disclosure, openness in your opinion. Kristin?

MS. ZIMMERMAN: Kristin, GM. Going back to some of my comments that I made in DC, it sounds like there's a lot of support here for this multi tier type registry. If I go back to Margo's bullets here, you got the guidelines, the DOE 1605(b) guidelines and you have them reading into a registry.

So those guidelines have to remain as they are today, verifiable. And you've got this registry they read into. And it's a multi tiered registry. That first tier is for all folks who want to report and have no intention to transfer a credit. So you do the self-certification and that data is public and it's probably a rolled up or aggregated intensity. I don't think anybody has a problem with have intensity made public, especially if it's aggregated for rolled up.

Then you go to your next --

MR. BROOKMAN: Or they wouldn't record, presumably, right?

MS. ZIMMERMAN: Right. Then you have your next tier of the registry where you go into whether or not of that first tier, that tonnage, you want to trade it. Then you let out to a third party for verification I think I've heard a lot of support for. Now, the question up there is, should DOE have any piece of that, that verification, or is it not providing the confidentiality that we need?

Why do I say that? Because when you go after verification, those verifiers are looking at your absolute data and I don't want to expose that necessarily to a government agency, but we could expose it to a third party under a confidentiality agreement. So that's the next tier and that could give you this silver and/or gold standard for the quality of that tonnage. A ton is a ton is a ton, it could be traded on the international market, but that's all market driven.

MR. BROOKMAN: If we say a ton is a ton is a ton, and that could mean a gold ton is a gold ton, a silver ton is a silver ton, a platinum ton is a platinum ton.

MS. ZIMMERMAN: Right, and it has to do with the cost that you're willing to provide for that verification at that standard of quality for that ton.

MR. BROOKMAN: Right. Your cost and the corresponding quality that shows itself in the audit trail, record keeping, all that stuff, right? Which is a correlation, obviously.

MS. ZIMMERMAN: Right. Now, I'll go back to the idea. These guidelines that you're reporting under have stayed constant. You don't add some other level of specificity to the guidelines because they're verifiable to being with. It's what you want to do with that tonnage that takes you to these next tiers and allows this third party to verify and certify your processes and such.

MR. BROOKMAN: And conceivably, just to follow on your analyses or your schema, conceivably, I think a company that really spends a lot of time and effort on this that wanted to self-certify, they could self-certify and see where that showed itself in your layered scheme. It may be in the market to determine that third party verification is an absolute necessity for the gold standard, but if a company spent a significant amount of time and energy and had credentialed people doing it, they could potentially self-certify as well.

MS. ZIMMERMAN: They could, but if you want to transfer any tonnage, it's go to out to a third party, I believe.

MR. BROOKMAN: I want to explore this.

MS. ZIMMERMAN: It's the insider kind of qualifying --

MR. BROOKMAN: Margo Anderson.

MS. ANDERSON: Margo Anderson. I want a clarification. When you say the guidelines don't change, it just depends on what you want to do with them, but in fact the guidelines might have different levels of stringency depending on what the reporter wants to receive from reporting? Is that correct? Is that what you're saying?

MS. ZIMMERMAN: Not quite. The guidelines as I see them today are verifiable. How I use them, the existing DOE, 1605(b) reporting guidelines are verifiable today. If you look --

MS. ANDERSON: The data are verifiable or the guideline is verifiable?

MS. ZIMMERMAN: Got it. The guidelines allow for a company to report verifiable data. Thank you for clarifying that. So I would suggest we continue to use that set of guidelines that allow me to report verifiable data and I report it into this multi tier registry and if I suggest that I want to take some of that tonnage, not necessarily all of it, but some of it and trade it on the market, then I open that piece to a third party confidentiality agreement, because I would have to expose absolute or facility level data at that point in time.

Now, who should? Should the DOE have any piece of that in this tracking or certifying reports or issuing the credits? Not necessarily. I think that's got to be left to the market. Could the DOE keep track of the transfers? Not quite possibly, while still protecting the confidentiality of the reporting company.

MR. BROOKMAN: You don't envision the Department of Energy being the one to put the serial on a ton?

MS. ZIMMERMAN: They could, but I don't think it's required.

MR. BROOKMAN: Margo Anderson.

MS. ANDERSON: Margo Anderson, DOE. Another clarification. The difference between being in the gold standard or being the regular reporter is the level of verification that the data undergo, not a different criteria or a different standard. So it's not the difference between Grade A beef -- and what's the next level?

MR. BROOKMAN: Prime.

MS. ANDERSON: Prime, Choice. It's all Grade A, but some has been better inspected than the other.

MS. ZIMMERMAN: Correct.

MR. BROOKMAN: Interesting.

MS. ANDERSON: Thank you.

MR. BROOKMAN: Yes, please. Karen.

MS. MEADOWS: Karen Meadows. I may be going back a little bit, but I'm thinking about the - if there are no changes in the way the 1605(b), the basic level, when we talk about this tiered system. If there are no changes taking place and right now we're seeing the California registry being developed and other states starting to look at that, and we talked earlier about that's not the way we want to go to have

multiple registries that companies have to report through. So I think it's important then, to think about why did California set up theirs. Is it because they didn't feel the 1605(b) had either the right reporting guidelines or that it was credible enough, and then they set up their own database, you're going to see more of that.

So maybe there is going back to the last session, but I think that's an important issue. And I don't know that we've really addressed that. I've heard, "Oh, I think 1605(b) is fine if I'm just going to report." I don't think it is because I think states are saying it's not, and then you're going to get something which you don't want --

MR. BROOKMAN: Anybody associated with California registry.

MR. STROHFUS: I'm not familiar with the California registry. Mark Strohfus, Great River Energy. The problem I see with the existing program is that it doesn't account for the leakage. When you do project reporting, there's that leakage there and it really undermines the credibility of the program and I think that that's what needs to be resolved.

I really like this idea, your idea of this gold standard or different standards for the credits. I do think you need a serial number to be issued by DOE for all credits in the event that at some later point in time, you want to move a credit up from a platinum standard to a gold standard and you're not going to use that credit internally, then you're going to sell that credit, you just need to go back.

MR. BROOKMAN: Well, so you said leakage is the thing that undermines the credibility of the program?

MR. STROHFUS: Yes.

MR. BROOKMAN: Are there other things that undermine the credibility of the existing 1605(B) registry that we haven't covered exhaustively already? Go ahead. Speak up. Margo Anderson.

MS. ANDERSON: Margo Anderson, DOE. Would it help to mention what the California registry is all about. Are people familiar with it?

MR. BROOKMAN: I see people shaking their head no, they're not familiar with it.

MS. ANDERSON: The California registry is a non-binding voluntary program that is based on the WRI protocol. It requires at this time entity wide reports and it is not providing reduction credits or transferable credits in any sense or any protection against future claim and policy, but it is an opportunity to register reductions that companies are making. They've got about 35 companies that signed up for it. It really just kicked off a few months ago. They do have a website, I don't have happen to have the name of it with me. But they are working on a project based module just as WRI is, but their entire intent is to have companies report entity wide, not project wide, because they are concerned about this problem of cherry picking and they want to see full entities doing the reporting.

There are several other states working with guidelines for registry, state level registries. And we talked to a lot of them. They too are concerned about that the plethora of many registries coming up, and will the DOE, federal registry be consistent with those. And I think you're right, and the reason they go to registries is they're not fully confident what might be happening at the federal level. States have different views on what it is that they would like to achieve within their state and they use this as a mechanism to get there.

I think clearly if states find that the federal registry is meeting their needs, the state registries will become less important over time, but right now we're seeing an increase in states that are interested in supporting registries, and we've been working with them to see where the differences are and where the similarities are.

MR. BROOKMAN: Thank you. That was a good explanation. Karen.

MS. MEADOWS: It's my understanding in California they do third party certification of the baseline of the footprint emissions that companies register.

MR. BROOKMAN: Yes. As I read the website, read through it, it also requires that those persons that are providing third party verification be certified or to have some level of certification. Karen.

MS. MEADOWS: And then one other comment. I think the leakage is one of the things and the other thing I heard is going back to this additionality issue, which if you're just doing projects can be an

issue. So I think both those things still need -- I don't think we've they really addressed those with the basic level as we talked about this tier system.

MR. BROOKMAN: What the level of intensity for the larger -- for the registry would be, the level detail, is that what you mean? Karen again.

MS. MEADOWS: I guess what I mean is I don't think we've addressed. What I heard people say, it's fine the way it is, but I think the environmental community, the states are saying, maybe it's not fine yet. So maybe we still need to think about how you address the leakage issue and the additionality issue at even the basic level. And that comes down to this project reporting issue, I think, if you can just report projects but --

MR. BROOKMAN: Right.

MS. MEADOWS: -- not entities, then we still have this issue that's not resolved, I think.

MR. BROOKMAN: Margo Anderson.

MS. ANDERSON: So let me clarify. It seems to me that your question is, is a project reduction, real reduction that is eligible to receive this transferable credit?

MR. BROOKMAN: Karen.

MS. MEADOWS: I'm assuming that the federal government is going to take the project reductions and report it and that's going to be reported out as the progress, the United States is not against the President's Greenhouse goals. I mean -- ultimately, are you using 1605(b), maybe this is my question. At some point you want to, every year assess how much progress we're making towards that goal.

MR. BROOKMAN: Margo Anderson again.

MS. ANDERSON: 1605(b) is really the mechanism by which we encourage companies to help the President meet his goal. The metric for meeting that goal will be the national inventory we spoke about yesterday. It is compiled by the EPA. That combined with GDP data will give us the metric of Greenhouse Gas intensity over time so we'll know whether we're hitting that 18 percent.

1605(b) is one of many mechanisms that are provided to industry to demonstrate actions towards meeting that goal. Other mechanisms might be efficiency standards. Other mechanisms might be supporting R and D, a tax credit. So there's a variety of policy drivers that the federal government can use in order to incent actions. It would ultimately wind their way up into the big aggregation which would be demonstrated by more macro level data being the GHG inventory and then GDP or economic data combined together.

MR. BROOKMAN: Yes, I saw several hands. So I'll start with Patty, then I'll go to David, and then to the back of the room.

MS. PETERSON: My question has to do with the total metric and it has to do if it's -- I think the industry group identified the need for, you know, we need more information as far as what goes into that metric because if, indeed, all these energy efficiency projects are kind of a moot point, they've already been captured in that, maybe project level report should only reflect what's not captured in the EIA data. For example, is carbon sequestration included in that?

MR. BROOKMAN: Margo Anderson.

MS. ANDERSON: I'm going to need some help from EPA and from Paul McArdle, but in the national level inventory, there are modules for reporting carbon sequestration, particularly from agriculture and forestry. So then the national level inventory that is done on an aggregate level is not based on adding up project activity, it's the report card of the nation on how well we're doing. If you would go deeper into that report card, you would find that the reason we might be doing better or worse in our intensity is because of all the things that companies are doing.

So there are two kinds of measures. The voluntary program may not add up to what's in the national inventory for a variety of reasons. The big criticism is it was being counted in the 1605(b) inventory, there may be some double counting. There may be some reductions that aren't "real reduction" and so they're not reflected in the national level numbers. But the national inventory of Greenhouse Gas emissions is available every year. It's on the EPA website and when the President came up with the 18 percent goal, he was relying on EPA and DOE and commerce data that is readily available and we're

happy to get you copies of all the different components that are a part of those reports at the national level.

MR. BROOKMAN: Arthur, you want to follow-up. Arthur Rypinski.

MR. RYPINSKI: The most fundamental reason why 1605(b) data passed the future or voluntary program data generally can't be used to calculate national totals is that it's a voluntary program, which means that it is a nonrandom varying sample of the total. And you can't infer the total from the sort of nonrandom varying sometimes quite small sample. So if we have a small sample of plots that are reporting under 1605(b), that small and nonrandom sample can't be used to derive a national total. To derive a national total, you have to use a different process.

MR. BROOKMAN: Paul McArdle.

MR. McARDLE: Paul McArdle, EIA. Getting back to the national inventory. EIA under 1605, Section 1605(a), believe it or not there is an A as well, we are told by Congress to annually compile Greenhouse Gas emissions and we do that every year and we do not include a number for carbon sequestration in our estimates, it's just the emissions.

Now, as part of the official U.S. inventory. After we compile our numbers, we give EPA our energy numbers. And EPA themselves takes our energy data and some of their own estimate and compiles what's called the official U.S. inventory that EPA shuffles off to the Department of State which is eventually sent to the framework convention on climate change. That number, I believe, does have a line item for sequestration which is a debit versus the emissions. Now, I believe in the President's ratio, the Greenhouse Gas divided by GDP in all the calculations that were done early on, I do not believe the carbon sequestration was debited from the denominator, and I'm not sure what the plan is on that, how it affects the ratio. All the work we did in that area was focused just on the emissions.

MR. BROOKMAN: Yes. Thank you. David was next to the cue. Are you following on to this comment? David and then you.

MR. BROOKMAN: David Baker.

MR. BAKER: David Baker. In Illinois, the General Assembly passed a law last year that requires the state to look into doing its own inventory and we've been in quite a few meetings with other states looking into this and there's a handful that are moving forward. Some more focused on projects, some more entity, and some trying to do everything.

We, in Illinois, and I can't say exactly what we're going to end up recommending, we'd much rather not having to do it at all, but it's due to the lack of confidence that the reductions are real, and that there will actually be -- that you could use did existing ones, give credits for early actions, so.

MR. BROOKMAN: Okay.

MR. BAKER: Luckily ours doesn't say we have to do it, it says we have to report back to our General Assembly, so we still have the flexibility.

MR. BROOKMAN: Thank you. Don Verdiani.

MR. VERDIANI: Don Verdiani, Sunoco. This response goes back a little, it's kind of the luck of the draw when you get picked.

MR. BROOKMAN: Yes, fine.

MR. VERDIANI: As to the verifiability or accuracy of 1605(b), I've already -- Paul already noticed this, I already 'fessed up. We decided to become reporters, because we had already joined series, we committed to report. I invented reporting mechanism. I looked at the guidelines, went back to EPA and Climate Wise and said, What should I do? Created something that worked for us, and that's what we report. It's not an entity wide report because one of our divisions decided not to play.

At this point, we've decided that what we're reporting is inadequate and, of course, we're here to find out what's going to happen with 1605(b) as well. But I think we pretty much concluded that our minimum standard would be the WRI protocol and the API compendium as a calculation method and that would constitute for us a realistic, valid, RCEO consignment piece of paper going off into the future that we're doing it right.

I would expect that kind of requirement as the minimum standard for what goes into the 1605(b) from here on out. Something like that. I mean, some set of rules generally accepted properly used to plus port.

MR. BROOKMAN: Thank you. Thank you very much. Jim.

MR. KEATING: Jim Keating, BP. There's been a lot of discussion since I originally raised my hand, but I want to agree with what Don said and what was said over here about the reasons that the states are driving these programs is because the 1605(b) program is inadequate to meet the requirements of full accounting of emissions.

Getting back to the issue of credits, I think it's important to keep in mind how this reporting is going to be used when determining what needs to be -- what needs to be registered and what needs to be done to certify a registration. If you're talking about a mandatory cap and trade program such as the NOx or SOx market, you're not really trading reduction credits, what you're trading there is allocations and you got full reporting underneath that. Anything left over is an allocation that you trade. It's not a reduction credit.

When we're talking about project credit or project reporting and credits resulting from project reporting, there you have to be talking about for it to be again certifiable, what we're calling the gold standard. They're you're talking more along the lines of joint affiliation or CEM projects and you've got -- and you've got there you've got the issues of additionality and leakage that you must consider when you're trying to certify those types of project credits to be transferable. So it's real important to keep on what scheme you're operating under when you're saying a credit has to -- this has to make up a credit for, or this is what has to go in to making up a credit for validation.

MR. BROOKMAN: Additional comments only. Yes, please your name.

MR. FRANCI: Terry Franci. I want to go back to the inventory issue, because I think it in one sense describing the inventory, national inventory, is what's determining progress the target is correct. I think Margo characterized it well, that within EPA voluntary programs, DOE voluntary programs, other programs, there is an accounting metric, I mean, 1605(b), to look at progress of certain actions and I think there's a value there in that they're tracking them in order to inform, what are possible future action, what works, what causes what reduction.

In one sense it was leaving sort of a flavor for me that was saying, Well, we're just looking at aggregates, statistics the way Art described them yesterday. It does sort of downplay the importance of individual actions, but I think the tracking of voluntary programs in others will be hopefully used to inform what does work well to achieve these targets. I'm thinking on sequestration, it's included. It may not have been factored in to the target number, but there's a lot of work going on other gas, how to measure other gases, how to look at sequestration to reduce uncertainties to get better numbers to decide what is the contribution.

MR. BROOKMAN: Okay. Thank you. Other comments on this issue? I think we turn once again on your comments on what DOE's role should be. So far what I heard is that these roles should be pretty limited, and that is beyond revising the 1605(b) registry and being a collection point for that data.

{Inaudible.} Yes, please. State your name for the record.

MS. PETERSON: Patty Peterson. When you identified DOE's role, I was hoping to get some clearer direction. For example, what's currently being submitted under 1605(b), I think most of us know that there is some question as far as validity or credibility of some of the data. I don't want to put anybody on the spot, but we've been encouraged to report on a number of projects. I guess what I would like to see out of DOE is for them to give some true guidance as far as to what they would anticipate accepting or we should as a group decide what is acceptable.

A clear example is here we talked credits and reductions. Are we willing to address the voided emissions. Voided emissions is a significant point. When you talk about energy efficiency or reduction, but a voided emissions is a significant point when you talk about CO2 credits, when you talk about tradeability. In my opinion coming from electric utility, a voided emission should carry the same weight as a credit.

MR. BROOKMAN: Okay. Thank you. Yes, please. Name for the record?

MR. HOPPER: Paul Hopper. Earlier it was mentioned that the CO2 is going to be a trading commodity or an allocation. As was mentioned earlier there's going to be a need for some standards, just as we have Grade A beef. Whether that be DOE or some other agency, it would appear that if we're going to move towards some level of trading allocation, or trading, that there needs to be some clearer standards on what that is.

MR. BROOKMAN: Do you think DOE should be get involved in documentation of reductions or transfers?

MR. HOPPER: Well, I'm referencing relevant certification. Who's going to establish that standard, be it an allocation or a commodity. You asked what a role is. To me there's a role left out there to be played by somebody.

MR. BROOKMAN: Okay. Additional comments on this point and also amplification on DOE's role. We've already discussed somewhat public versus confidential data. I wonder if there's any additional thoughts on this. I heard so far on this score from GM and others, that the presumption is if you're going for the gold standard, if it's a tradable credit, that you would expect that that would be open, disclosed as is the case with EPA registry. Other comments on that?

Yes, please.

MR. THOMSON: I'm not sure I understood exactly what you meant by the last comment. If there's a gold standard -- Sorry, Fraser Thomson, Alcan.

MR. BROOKMAN: Thank you.

MR. THOMSON: If it's going to be a tradable credit, it's going to meet the gold standard, you can meet the gold standard by having some form of third party verification. And obviously, the fear would likely be public because it's being assessed -- a credit is being assessed against it. I just want to clarify what you meant by that.

You wouldn't need to go back, in other words, and release all of the raw data underneath it to qualify for a gold standard, but you would have the third party -- presumably some form of third party verification.

MR. BROOKMAN: Or some form of rigorous verification, somehow. That's a more complete way of putting it, I think. I mean, the way you just described it.

MR. THOMSON: Okay.

MR. BROOKMAN: Thank you for that clarification. Yes, please, Gregg.

MR. SPENCER: Gregg Spencer. The third party verification, at least in other countries, Canada for example, typically does include the process by which the reduction was accomplished as well as the verification data to calculate the net number.

I agree with what's been suggested about the role of DOE which is to establish a standard. Again, my suggestion is that you make it a high enough level that it doesn't require states other interested bodies to set a level then again above that, and I would establish it as close as possible to the general criteria that are being developed in the international community, and then that's the end of the DOE's role. They should not be reviewing individual applications. They don't need to track transfers. The market is fully capable of developing mechanisms to do that. It would function much more effectively if DOE sets the standard, provides a registry for the reporting of those things and then steps back.

MR. BROOKMAN: Would you comment on WRI as well?

MR. SPENCER: I agree that's an appropriate standard.

MR. BROOKMAN: Other comments on DOE's role before I push on here? Do you envision occasions when the information reported to a revised 1605(b) registry would need to be confidential or that you and your companies would seek for it to be confidential? Because I think that's one thing that the Department didn't know how to handle. Brad Reed.

MR. REED: Brad Reed, Toyota. I suspect that if we report, we're going to report entity wide, and there's not going to be any confidentiality there because it would be on a unit basis. The other place I can see a confidentiality coming from is a particular project that is new technology that you developed that you really don't want that technology base out and if there can be a way for even a third party verification to go in and say we certify the technology, but we're not going to tell you what it is. I think

that's going to be necessary down the line because otherwise, let's say GM invents a new technology that saves a bunch of energy and a bunch of CO2 and Toyota says, Easy way to do that, is we'll just buy the credit and we'll get to research the technology along with the credit. So I think somehow you have to protect the confidentiality.

MR. BROOKMAN: So as a means of encouraging that type of innovation.

Okay. What about the treatment of prior year reports? How should that be handled? Someone make this -- make a more full statement out of that for everybody. Margo, yes. Margo Anderson.

MS. ANDERSON: I'm the Widget Company and I've been reporting 1605(b) every year. Every year I'm reporting I'm demonstrating that I actually have some reductions that I think are verifiable, that are accurate, that are real, and I've been doing good work and taking action to reduce Greenhouse Gases in my plant for a long, long time. Do I get transferable credits for those? Do I have to go through a different review process? Do I have to demonstrate that the old times meets the new requirements in order to go forward, or are we just starting in 2004 and whatever I've done in the past, thank you very much, but I'm done and I'm starting fresh. What do I do with the prior year report? What is DOE going to do with this prior year report?

MR. BROOKMAN: Brad Reed.

MR. REED: Brad Reed, Toyota. Our position is if you want to make them transferable, you're going to have to adhere to the new standard.

MR. BROOKMAN: Jim Keating.

MR. KEATING: Jim Keating, BP. I agree. 1605(b) wasn't setup for transferable credits and you can't go back and make it something that it was never signed to be. What you do from this point forward depends on what type of system you're operating under to employ transferrable credits. If it's cap and trade or if it's some type of international transaction. I mean, it really depends.

MR. BROOKMAN: If you have been reporting since 1994 and you just also, though, had a kind of extraordinary amount of detail and data and paper trail, what should the Department do about a situation like that?

MR. KEATING: Well, we have been reporting since '94 and we do have a very extensive data trail, but what is in the 1605(b) registry is not that information. I mean -- I guess I could conceive of going back and recreating the thoroughness that you would need to track it back. I think that would probably be difficult for a lot of people.

MR. BROOKMAN: I think we heard that theme yesterday. Kristin, GM.

MS. ZIMMERMAN: Kristin, GM. I would support if -- we've also been reporting since '94 -- that data is verifiable, we've got in paper trail, yes, we should not be kicked out of the system moving forward. We should be -- those tons that are real and those reductions that are real should be honored under the new system.

MR. BROOKMAN: Who should have the burden of doing that bit of investigation? How should it work in practice?

MS. ZIMMERMAN: Okay. You got the reporting company working with the Department of Energy probably to certify that those are verifiable to begin with, even though they were done way back when.

MR. BROOKMAN: To meet the new standard --

MS. ZIMMERMAN: Correct.

MR. BROOKMAN: -- however far back you were reporting. Margo Anderson.

MS. ANDERSON: I'll follow-up Kristin. So your task would be whether they were verifiable because in your revised system, we haven't really changed the standard, we are just requiring levels of verification. So if we go back and verify a lot of the tons that are in the bank, and many of which are imminently verifiable, but many would argue don't meet the real reduction test because the beginning year is picked arbitrarily, because the metrics that are being used are verifiable but they are not what would be constituted into real reductions, there were some people would criticize any way ton, or you would -- they're not additional, which some people have said it's a test of meeting a real reduction. So while they can't be verifiable, they haven't resulted in real reductions I have of Greenhouse Gas

emissions, and in part we raise this issue a lot because there are about a billion tons currently in the 1605(b) database, is that correct? About a billion tons that have been accumulated over the eight year period. Yet we still see that emissions are rising and how do we --

Well, we said, we don't use 1605(b) as the national level inventory for Greenhouse Gas emissions, we got a lot of tons in there, and if in fact those are imputed to have a monetized value, as they may under a transferable system, wow, that's a lot tons, and they're going to a lot of people who have been reporting for a lot of years, and are they having the problem that we talked about yesterday of the folks that maybe didn't take that action early, but can't take action now. Some folks have no cheaper action to take anymore, they're on the -- they're cost curb is such that they can't reduce anymore than they're already reducing without incurring huge costs. Do they get the benefit of the tons that they've already reduced, do they not get the benefit of the tons, are there equity issues that we need to raise here? I don't know that I've said that very articulately. Arthur, maybe he will want to add on anything I've said there about the criticisms we get for the tons that are in the bank.

MR. BROOKMAN: That complicate the issue of referring back. Yes, Arthur. Arthur Rypinski.

MR. RYPINSKI: I think you said it splendidly, Margo.

MR. BROOKMAN: Yes, in the back.

MR. HOPPER: Paul Hopper, Alcan. I would suggest caution here or you're going to put everybody's budget on hold. Many companies have all along been reporting and have strategic plans in an effort to make improvements and if we've got 4 million, \$5 million project, we may very well just decide, Well, we better sit on this, until such time as we know we could get some recognition. Can we use some caution here?

MR. BROOKMAN: Okay. Thank you. Additional comments here. Mark.

MR. STROHFUS: Mark Strohfus. Maybe what you could do -- I haven't thought this through totally yet, but apply, give past reports the tin standard. And a tin standard credit is worth a half a ton, or three-quarters of a ton and give the reporting company again the opportunity again to elevate the standard of that credit. They can go back. Assume that the credibility of past reporting is questionable and they can go back and go through some sort of additional process that elevate the standard of that credit to a full --

MR. BROOKMAN: And in doing that, different companies can elect whatever level of review effort they wish to put in to obtain more recognition for real reductions.

MR. STROHFUS: And it's purely economical decision. We look at what we reported in the past. We pick, first of all, our most robust projects or reductions in the past and we go for the gold standard on those, and as the value of possibly those CO2 credits increase, we may opt to go back and start valuating some of those tin standards.

MR. BROOKMAN: Okay. Ray Ratheal.

MR. RATHEAL: Ray Ratheal. Suppose I'm Acme Widget and I have had a rigorous program to reduce of CO2 emissions and I've got it documented and verifiable and all of that, but I haven't reported the 1605(b). Can I not go back now and report back to 1994 or whatever and get credit for all that? And if I can, why would that be any different from someone who just reported and just hasn't necessarily met the new standard?

MR. BROOKMAN: Someone who has reported and has met the new standard? One question I would have is this effort presumably would lead to a new set of guidelines, a new standard for the registry, and I didn't get how your point relates to this new thing that gets put in place at some point, 2004 somewhere in there?

MR. RATHEAL: If there's a new standard that you're required to meet and I could meet it with my data as Acme Widgets, even back to '94, then that should be no different than someone who has submitted records and also can verify with data.

MR. BROOKMAN: I got it you.

MR. RATHEAL: Yes.

MR. BROOKMAN: Okay. Thank you. Additional comments, yes.

MR. MEADOWS: One more comment.

MR. BROOKMAN: Karen Meadows.

MR. MEADOWS: Karen Meadows. What DOE can do. I heard a lot of people mention that WRI protocol is a good protocol to follow, but it's my understanding that that's only an entity level protocol. So I guess the question is, is there a need for DOE to help support the development, kind of a multi stakeholder process of a project level protocol similar to that.

MR. BROOKMAN: Yes, please.

UNIDENTIFIED PARTICIPANT: WRI is in the process of doing project level protocol. They've been at it for the last year. I think their original draft date was sometime in the spring, but I think it's back to the fall for delivering the prior equipment to the corporate standard.

MR. BROOKMAN: Yes, Brad Reed.

MR. REED: Brad Reed. As far as past actions that you've done, the 1605(b) registry up till this point has been a public relations registry. Okay. It's not been something that what was ever created to generate transferable credits. And I'll repeat, if you want to turn those into transferable credits, you're going to have to meet whatever the new standards are that DOE comes up with.

Now, if all you want to do is just transfer them in there and just maintain that same, you know, public relations credit that you had in the past, go for it. Okay. And we can maintain that registry on that basis. But rather than the being the tin standard, it's public relation standard. It's not data that you can -- because you're not looking at the entity wide data because you're not looking at a very thorough analysis of what went in. It's not transferrable credit type data. You're going to have to meet a new standard if you intend it to be transferable credits.

MR. BROOKMAN: If you do meet that standard however.

MR. REED: If you can make the standard, if you can regenerate the data or if you have the background data on hand, sure, then it's a transferable credit, sure, I agree with Ray up here on that.

MR. BROOKMAN: Patty, and then back to Don.

MS. PETERSON: I would just like to propose for those of us who have participated in 1605(b) and basically are giving you the data, the foundation to move forward, that those people who are currently in the program should be allowed to take the current submittals, verify them, assuming there's a new standard, whatever we submitted, some of our projects may not meet the muster.

But those projects are, we should be issued credits for and allowed to carry those forward. And I don't think it should be retroactive for those people who now can in the program and say, Oh, I forgot to report back to 1994, that they should be allowed to issue the credits for a same type of projects. Now, this has to do, you know, let no good deed go unpunished. For those people who are in the program, there should be some recognition that we've helped crack the new program.

MR. BROOKMAN: How do you reconcile the difference between project and entity wide that we've described multiple times here?

MS. PETERSON: That's a project -- obviously coming from electric utility sector and the gas sector, we're going -- we're very much interested in project standard as opposed to entity wide reporting, but that's something that's a bigger issue, you know, that's probably a topic for another workshop.

MR. BROOKMAN: Brad, follow-up with that.

MR. REED: Yes. I disagree with that and I'll go back, because what we envision at Toyota's is we're willing to go something based on WRI protocol. The WRI protocol is going to let anybody worldwide regenerate data back do 1990 if they can do so, as long as you can meet the standard. It shouldn't matter whether you registered in 1605(b) or not, it should be whether you can meet the standard.

MR. BROOKMAN: And in addition to entity wide, which is the basis for WRI, now they're up to developing projects.

MR. REED: Yes. Also it's two years not one year, I think.

MR. BROOKMAN: Okay. Don, please?

MR. VERDIANI: Actually, you about got it. I would agree. My data is questionable at the moment, but if there was value in my corporation to making it good, we would go make it good. We would write you a letter or our auditors would write a letter that says this is a now in conformance with WRI/API and call it good. We tried, now we have a chance to do it better, and I would say the day the federal register says that the cap program is about to begin, there's going to be a lot of people who care

what happened in 1990, whether they were in this program or not in this program. Everybody's is going to be jockeying for what 1990 was so they get their fair share of the cap. A lot people are going to care.

MR. BROOKMAN: Thank you very much. Yes, Mark.

MR. STROHFUS: I agree, let no good deed go unpunished.

MR. BROOKMAN: Mark Strohfus.

MR. STROHFUS: I think there should be some credit. And, again, it needs to maybe go back to this tin standard. Certainly there's not as much value, maybe as to what was recorded in the past. Because the people put the effort forward. This is a big policy issue. What happens in the next program when they come up with voluntary programs? It's absolutely kill a voluntary program.

and if you have been to keeping track of projects you've done in the past, you have that opportunity to go for the platinum standard or the gold standard and get credit for those. If you believe you have those records, they're there.

MR. BROOKMAN: Final comments on this. Yes, Jim, please.

MR. KEATING: Jim Keating, BP. I think really what you need to be talking about here, is what's the regulatory framework these credits are going to be viewed in? And that's really going to drive the credits. If in the 1990 or 1994 is outside the framework of the cap or of the target, those aren't going to be of any value anyway.

MR. BROOKMAN: What are the elements of the framework that you envision. As you think about this framework, describe them.

MR. KEATING: Well, on what boundaries. An example would be the boundaries of the cap and trade program for SO₂. You've got a start date, you've got an end date. You've got a total market that's identified and you've got a cap on top of that.

MR. BROOKMAN: Okay.

MR. KEATING: You want to be careful not to get in -- we're dabbling in issues of an undefinable market here, and what we should be focusing on is how to get reliability in the estimated numbers that you're talking about and not worrying about how they're going to be used or what the value of them are going to be used.

MR. BROOKMAN: Okay. Yes?

MR. THOMSON: Just to follow on to that.

MR. BROOKMAN: Please say your name.

MR. THOMSON: Fraser Thomson. As long as there's consistent reports in some format from reporters, whether it's consistent to your own base, your overtime, and you've got some kind of definition in there that brings rigor to it. I think it's a granted that if the regulation comes out and it's different, it's going to change the rules for everybody. But trying to play a mugs game of pre-guessing the regulation is pretty tough. Does it have to be consistent for everybody? Can we go ahead and let people set things up and try and make sure that it's rigorous inasmuch as it can be prior to a regulation?

MR. KEATING: Jim Keating, BP. Yes, I agree, I mean, if we're talking about insured approach here, the more thorough you can be, the better off you're going to end up being when some type of framework appears.

MR. BROOKMAN: Let me ask you to focus on the last bullet on the slide. Not penalizing under future climate policies/transferrable credits.

Do you want to say a little more about this, Margo?

MR. ANDERSON: Yes, because this speaks nicely off of this point made over here by BP. How can the guidelines and how can the data that are provided by companies be used to minimize the risk against any future climate policy? The President said that these actions should make sure that the companies are not penalized against future climate policies and to issue transferable credits.

And the thinking there is, well, this administration is not capping carbon and this administration going to do a cap and trade program or enter into the Kyoto protocol. What the President was saying that future climate policy, and he even said in the June 14th announcement, that if there isn't significant progress towards reduction, he'd have to rethink what future policy might be, he doesn't say what it would be, but I think many people are under the impression that sometime in the future we'll have

something different than what we have today. I don't know what it's going to be. But what kind of a system can we put in place in order to ensure that data you submit can be usable, whatever that policy might be. And so that gets back to a data quality issue making sure that we have a clear record and a clean record of the kinds of emissions and the kinds of emissions reductions that are put in the bank and for transferrable credit or for protection against a future climate policy. Are we establishing the right data record that provide you with the information you may need under future climate policy.

MR. BROOKMAN: All right. Thank you. Jim Keating.

MR. KEATING: Jim Keating, BP. If you're asking me what do I think the climate policy should be, that's a totally different question. If you're asking me how can you guarantee what I'm doing now will be valuable in the future, well, then, you have to have some allowance for the gold standard, what we're calling the gold standard.

Right. You have to have -- in my viewpoint you have to have something that's third party verifiable and it's got to be held to financial standards. That's the gold standard. Now, does everybody one have to meet that? No, I don't think that's what this is about here. What we're trying to do here, as Kristin has said, is get as many people involved in this program as possible. We're not talking about developing a cap and trade program.

MR. BROOKMAN: Jim Johnston.

MR. JOHNSTON: Jim Johnston from Heartland. I think we've got two things going here. We've got the integrity of the data collection process that we're working on now, and then we've got the subsequent policy which might include trading later on.

It would same to me that the government has a credibility problem now as far as changing its mind under major trading programs, both in SO₂, the reclaim system in California, Southern California, and also the energy trading in California and now everywhere. It would seem to me it would go a long way toward reassuring people if indeed you should put some iron clad guarantees as far as the data collection effort is concerned, and then to follow up subsequently. Maybe someone will get inspired by the good behavior in the data collection effort to --

MR. BROOKMAN: What would you like to see guaranteed?

MR. KEATING: As far as the signatures as far as CEOs are concerned, maybe all of the four secretaries could sign a guarantee.

MS. ANDERSON: Keep going. The guarantee, what would we be guaranteeing?

MR. BROOKMAN: Margo Anderson.

MS. ANDERSON: Margo Anderson. What would the secretary be guaranteeing?

MR. KEATING: Guarantee that once we had this version of the data collection settled, that it will remain in place for at least some period of time. Another possibility is having a dispute settlement mechanism for the data collection effort. And maybe an impartial panel would be selected to handle disputes.

It would seem to me that if you ignore the issue of the guarantee as far as the data collection, I think it erodes the credibility of the promise that you won't penalize people later on.

MR. BROOKMAN: Thank you. Fraser, I think you're next.

MR. THOMSON: The issue of the nature of guarantees, I think in the most basic level, in order to meet the goal of securing protection in a future system or under future climate policy, the DOE needs to be certain if they're going to setup a gold standard, that they're going to maintain -- that the government is going to maintain that there's room in that future climate policy to recognize those credits. If you go in and setup a cap system, in other words, you need to secure part of that cap that covers off the gold standard reductions.

That to me appears to be the only way to secure protection for those reductions in the future. Otherwise, you end up in a system where if the rules do change under some climate policy, you'll get, let's say, half a ton per ton for the gold standard. And that doesn't seem to entirely fulfill the criteria of protecting those reductions.

MR. BROOKMAN: Ray. Ray Ratheal.

MR. RATHEAL: I may not understand the legislative process, but it seems to me that the guarantee has less to do with the accuracy of the data than it has to do with legislation from Congress or the secretaries, whoever has that authority to guarantee.

MR. BROOKMAN: Mark Friedrichs.

MR. FRIEDRICHS: Perhaps it's an obvious point, but there's nothing this secretary of energy can do to guarantee that the next secretary of energy is going to be something else. There's nothing that this Congress can do that guarantees that would guarantee the next Congress wouldn't do something different. Nothing that this President could do that would ensure that the next President wouldn't do something different.

MR. BROOKMAN: Jim's point, just to reaffirm was that there is a credibility issue here. So any way to enhance credibility would be much welcome. I said that for you, Jim.

MR. KEATING: Thank you very much. Let me just add that what you just said scares the shit out of me.

MR. BROOKMAN: Just for the record that was.

MS. RISSE: Karen Risse, International Paper. I guess I just want to reiterate some of what has been said. I do think it's directly related to the quality of the data. Since we can't guarantee what's going to happen in the future, we are not under regulatory scheme. We're trying to make a voluntary program work. The only way that you can provide any sort of guarantee under future action is to ensure that the quality of the data is widely accepted and that would be in choosing or using protocols or standards that are widely accepted, and that everybody meets some level of rigor of verification for that data, and to me that's the best verification that you can have against future action. You will ensure greater participation, greater overall acceptance and therefore future policy should trigger off of what's generally accepted as a good standard.

MR. BROOKMAN: Thank you. For the record, I saw several heads nodding up and down as you were talking.

MR. REED: Brad Reed. I agree, we're back to the methodology used to collect the data. And as long as the methodology is the strong and as long as the methodology is repeatable, then we're going to have data that's valuable. There's no way -- you can't guarantee what any future administration or Congress is going to do to us.

MR. BROOKMAN: Right. David Baker.

MR. BAKER: David Baker. Just a follow-up. I mean, I agree with Margo. There's no way that you can guarantee anything and, you know, I mean, you could -- we don't know what the program is going to look like in the future or whether there will be one. I mean, if the regulatory program is set up as an upstream program regulated at the fuel level, you know, give out credits, or auction off credits related to the amount of carbon you're going to allow to be emitted. You may or may not be allowing lots of offsets within that which would allow existing things, the earlier actions to get credit. I mean, they would get credits implicitly because anything they've done, you know, they're ahead of the game if fuel prices go up, and whatever, but they won't get direct credit necessarily in terms of being able to take their earlier time and trade it in the future schemes. So there are no guarantee and we need to design the process now to try and cover most eventualities, but, you know, there are lots of ways you could design a program and you may not be able to anticipate all of them.

MR. BROOKMAN: Yes.

MR. STREITMAN: Fran Streitman. I think we got to make sure that we're not trying not to do too much here. Just to build on some of the things that Brad said here, and some other people. The day the allocations come, whenever they come, most of the credits or tons that registered in here will never be traded because most of us are going to be in the business that hopefully is growing and we're going to need everything there because we're going to try to meet our allocation. And the only tons we're going to have to trade as credits or whatever are going to be how good we are at getting below that allocation.

So the most important thing is to make sure that the tons are calculated correctly, they're accurate, reliable. You want to document these programs where you have actual reductions, that's great. But if we're trying to get to the point where, how are we going to do sell these credits, I think that's useless

because most of us aren't going to sell them. So the accuracy of the determination is really what's important here.

MR. BROOKMAN: Thank you. Final points, comments. Al Musur.

MR. MUSUR: I don't want to prolong this for anybody, but I think -- I'm Al Musur for the record. I think there are different kinds of penalties that some of us will see under future climate policies. For companies who have done a lot over the last bunch of years --

MR. BROOKMAN: These are the points you made yesterday.

MR. REED: Right. If somebody blows a whistle and says starting today, everybody needs to reduce their emissions by 10 percent. It disadvantages the people who have already done that and much more, relative to the who have done nothing yet. This isn't an emissions issue, this is an energy issue. A BTU of electricity represents so much CO₂. So if you want to talk about CO₂, you're really talking about the energy that went into whatever you're doing.

Whatever program we're looking at doesn't take into account the people that are going to have different starting points when it comes to city targets or spreading emission credits or whatever it is we're going to do, and there's going to be a huge penalty for good performers, and we need to keep that in mind, because this isn't about CO₂, this is about energy and a lot of us have been in that business a long long time.

MR. BROOKMAN: Thank you. Thank you very much. Any other final comments on this final bullet here not penalizing under future policy -- yes.

UNIDENTIFIED PARTICIPANT: Two more. In the last program what happened was we got reductions for things we did before the rule went into effect, but there was a limit to the number of tons that were available for that and basically there was a pro rata divvying up of those tons across everybody who applied for them. I don't remember the exact numbers, but if there's 5,000 tons in Illinois and people applied for 30,000, then you got your share of those 5,000 tons. You didn't get everything you asked for.

And in the SO₂ program, we had done some things prior to that that we got credit for that we allocated allowances for things we did before the program went into effect.

MR. BROOKMAN: Thank you. Additional comments? I think we pretty much covered it. Covered this slide and covered -- all the slides, some I met my personal objective which was to get through all of it fairly efficiently.

I would just like to say from my perspective, my thanks to all of you. This was a very constructive and very content intensive workshop. You also stayed very focused and really in it the whole way and I appreciate your hard work, your good listening and your attitude. So thanks very much to all of you.

10. BREAKOUT SESSION REPORT-BACK SLIDES

Voluntary Greenhouse Gas Reporting Workshops

**Electricity Generation
Breakout Session
Report Back Slides**

Chicago Workshop
December 5, 2002

Breakout Group:
Electricity Generation, incl. Grid Renewables
QUESTIONS

- Options for Intensity Baselines
- Treatment of Acquisitions Divestitures
- Causes of Reductions, other than output (weather, technology, regulations, etc.)
- Minimizing Double Counting

**Breakout Group:
Electricity Generation, incl. Grid Renewables
ANSWERS**

- You're asking the wrong questions.
- Firms in the breakout group reporting rising emissions, and/or rising intensity, but that they were undertaking a range of emission reduction actions, including
 - fuel cell power generation,
 - Natural gas pipeline leak repair;
- So, main interest in was in project reporting and modified reference cases, not intensity baselines or absolute baselines for entity reporting.

**Breakout Group:
Electricity Generation, incl. Grid Renewables
ANSWERS**

- Discussion of intensity baselines morphed into a discussion of adequacy of standard electricity emission factors for measuring electricity baselines.
- Discussion of causes of reductions "other than output" morphed into a discussion of the relevance of additionality and leakage in project reporting.
- Any 'Green power' credits should belong to green power purchaser
- DSM and energy efficiency perhaps should belong to he who invests.

Industry Breakout Session Report Back Slides

**Chicago Workshop
December 5, 2002**

Industry Breakout Group

Are there existing entity wide GHG intensity measures of output?

- CO2 emissions per widget (e.g., automobiles)
 - However, emissions are tracked separately at parts / unit plants and vehicle plants
- CO2 emissions per production mass (e.g., ton, pound)
- Group highlighted a problem with “fugitive emissions” – estimated but can’t be measured or show improvement

What would be your ideal GHG intensity measurement?

- Minimal burden - something we're doing anyway to manage our business
- It would have the following components:
 - Universal (across sectors)
 - Globally recognized
 - Reported quarterly
- Value Added Metric – understand what the Department of Commerce is doing to track GDP and try to get alignment with the President's 18% goal

Which do you prefer - Intensity or Absolute Tons reporting?

- Overall, support for an intensity goal but a recognition that there are two situations with winners and losers, and issues surrounding practicality:
 - Intensity is good for:
 - Growth industry: if growth of production exceeds growth of energy
 - Industry where production is proportional to energy
 - Absolute Tons is good for:
 - Shrinking industry: where production is falling (e.g., steel industry trading NOx credits)

Who do you think should Choose the Output Measures?

- Primarily Industry – and specifically, specialized industry sectors
 - You may go down to 4 digit NAICS (SIC) code and still have conflicts on reporting
- The DOE/EIA should give guidance, but keep it flexible so its up to the reporting company
- Ideally, the metric would be recognizable as coming from a particular industrial body (e.g., tons CO₂ / automobile)

Could there be One Metric for Industry?

- Not strong support for single metric per industry group
- What about the possibility of Trade Association portfolio?
 - Concerns of confidentiality / anti-trust
- Companies track multiple metrics and may want to report in multiple emission metrics.
 - Runs counter to the one system / registry and international transferability
 - May have a transparency problem

The President's instructions were to investigate emissions intensity measures. How do you suggest we proceed?

- Problem: Difficulty using single metric
 - Revenue metric would be subject to market fluctuation and may change intensity, but had nothing to do with the manufacturing process
- Some thought it would be a problem that we relied on intensity to translate into tons or credits such as used under the current 1605(b) or for trading.
- On a national basis, aggregate statistics are available to the Government, through information already provided to the Departments of Commerce and Energy

Why aren't companies who are doing the right thing reporting to 1605(b) today?

- 1605(b) offers an image credit only
- Limited value / no impact on the bottom-line
- However, 1605(b) could be recognized as a repository of tradable credits to protect companies against future climate policy

Should we have intensity measures for non-carbon GHG emissions? CH₄, N₂O, HFC, PFC, SF₆

- Generally, it is rolled up into the other metrics
 - Some companies already use their own internal conversion rates and prefer to report aggregate GHG equivalent
 - The consumption of these gases is company specific, not industry wide
- Some gases (e.g., PFCs, SF₆) are installed at the time of assembly, and are emitted by the consumer during product operation

Are there Confidentiality Issues?

- Yes, these are of concern to industries represented
- Aggregate (entity-wide) emissions can offer protection
- An intensity metric (e.g., tons / automobile) might also be acceptable, assuming there wasn't any reach-through or disclosure on a plant basis

Agriculture and Forestry Breakout Session Report Back Slides

**Chicago Workshop
December 5, 2002**

Agriculture and Forestry Breakout Group

- **Entity versus Project level accounting**
 - Need for both
 - Control determines accounting
 - Project within entity – entity reporting
 - Project outside entity – entity and contracted portion
- **Baselines**
 - Difficult to go back in time
 - Reporting rules determine starting point
- **Calculation Methods**
 - Need for agreed upon standardized methods
 - Low cost
 - Flexible
 - Open to Improvement
 - Must keep transaction costs (measurement and verification) low
 - Model based estimates are acceptable

Agriculture and Forestry Breakout Group

- **Permanence**
 - Mechanisms to deal with it
 - Multi-year contracts
 - Liability
 - Also an issue with other projects (fuel switching)
- **Natural Disturbance (e.g., fire)**
 - Mechanisms to deal with it
 - Insurance
- **Should try to Encourage Collective Reporting (large number of relatively small participants)**
 - Helps reduce transactions costs
 - Collective reporting also may help with permanence, natural disturbance

Agriculture and Forestry Breakout Group

- **Leakage**
 - Important to determine if it is significant and reasonably attributable
 - Important factors
 - Control (is leakage under control of enterprise or external)
 - Scale
 - Project type (will there be market impacts)
- **Additionality**
 - If subsidy (e.g., farm program) has indirect effect of increasing carbon sequestration or reducing emission can subsidy recipient earn credits?
 - In general, yes. Depends on program.
 - If regulation....
 - In general, yes
 - Carbon benefits can help defray costs of good public policy

Agriculture and Forestry Breakout Group

- **Geologic and Ocean Sequestration**
 - Need rules
 - Should be included
 - Who is developing accounting rules and guidelines