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GHG Reporting: Getting Started

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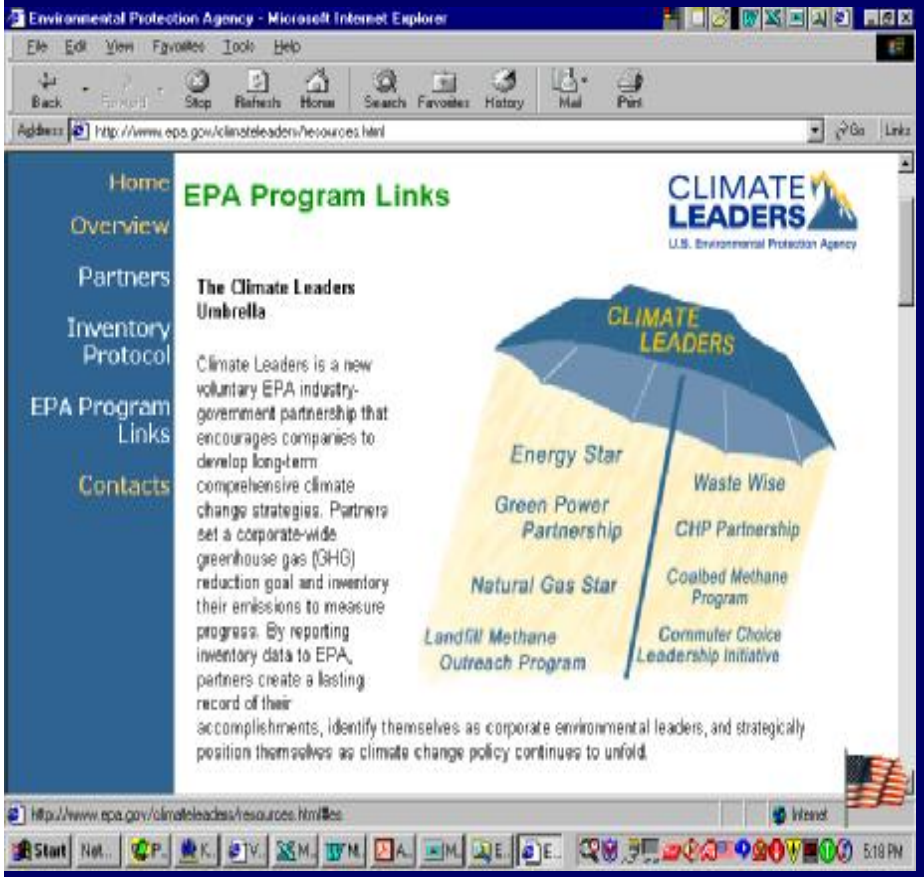
Outline

- ✓ Approach to Voluntary GHG Reductions
  - ✓ Member Examples
- ✓ Approach to Voluntary GHG Reporting

Approach to Voluntary GHG Reductions

Federal Voluntary Program Examples

EPA



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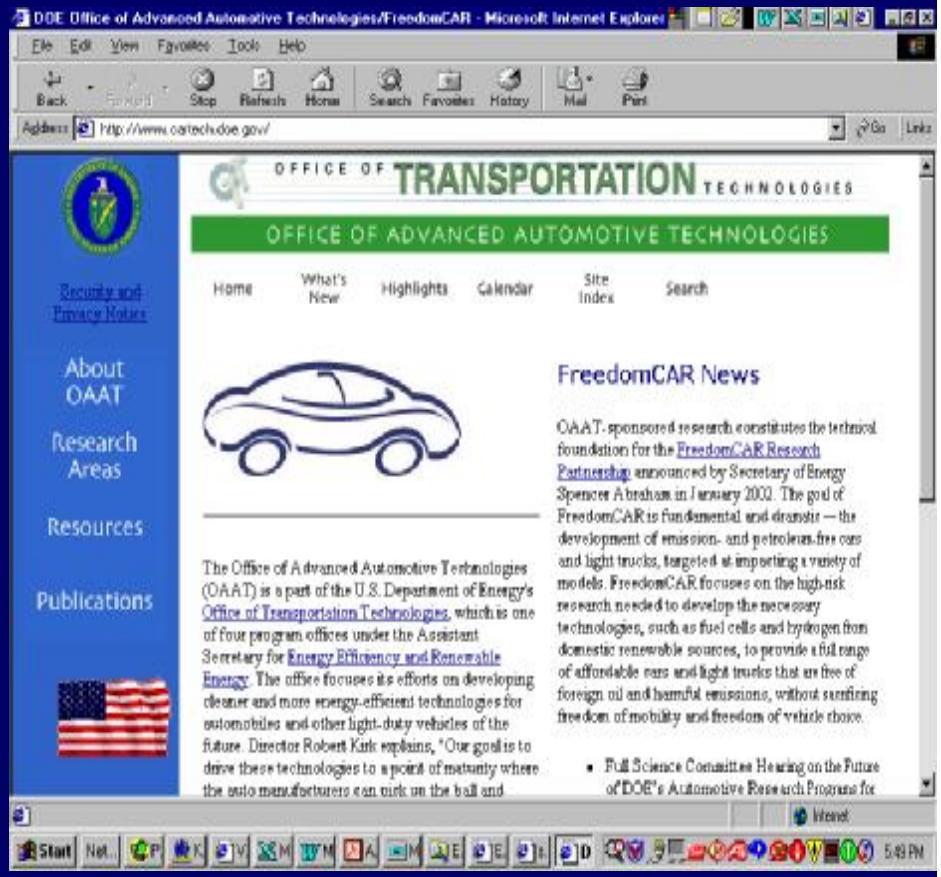

Examples of Voluntary GHG Reduction Programs that "Work"

Example: (EPA LMOP)

GM is using methane gas at its Fort Wayne Assembly Plant collected from decaying garbage at Serv-All's landfill. Toro Energy installed the collection system and over eight miles of piping required to transport the gas to the plant's boilers.

The savings amounted to $140 million in 2001 compared to1995 levels and contributed directly to GM's bottom line.

Car Assembly Orion

- Orion Landfill Gas Project reduces coal use by 65% and produces 553,000 mmBtu's (27% of it's energy needs at the facility)
- Orion recycles approximately 50 percent of all the waste it generates.

Examples: (EPA Energy Star)

New Computerized Energy Management Systems Installed in eleven GM Facilities have achieved more than $3.6 million in annual savings.

GM has also implemented a program called the Energy Efficiency Initiative taking responsibility directly to the plant floor which, in its first three years, has saved a total of 1.9 TWh of electricity and 2.8 TBTU of fuel.

GM's Powertrain Metal Castings Operation has reduced Energy Usage by over 21 million kWh/year by reducing compressed air leakages.

Examples: (EPA GreenLights)

Conversion from T-12 to T-8 Fluorescent lighting in GM North American Facilities typically saves 10 million kWh/year (5% of a plants energy usage.)
Up-front costs are returned in energy savings within 2 years.

Performance Contracting through a 3rd party can return a portion of the savings back to project immediately

Example: (EPA Waste Wise)

GM has reduced non-recycled non-product Output (waste) by 54% across North America over the past five years (1997-2001)

CO2e reduced in 2001 due to GM's Waste Reduction/ Recycling and reuse program Totaled approximately 5.5 million Metric tons CO2e Reduced

Approach to Voluntary GHG Reporting

- ✓ Key Aspects of Getting Started
- ✓ GHG Reporting Protocol
  - ✓ What data should you track?
  - ✓ How should you track your data?
  - ✓ Where to report?
- ✓ Specific Reporting Issues

Key Aspects of Getting Started:

- ✓ Why are we doing this? (Policy Toward Practice)

  Energy Reduction = CO2 Reduction = Cost Reduction

- ✓ TEAMWORK: Policy, Facilities Management, Employees
  - ➢ Site Utility Managers and Engineers (meter readings)
  - ➢ Employee Awareness and Action (energy and waste)

- ✓ How to Reduce Energy Consumption?
  - ➢ First determine how much energy is being consumed monthly/annually.
  - ➢ Manufacturing Facilities and Office Buildings should collect energy bills, water usage bills, and purchased electricity bills

What to Track

Total Energy Usage For U.S. Operations

(in trillions of BTUs - 10^{12})

Fuel	2000	2001
NATURAL GAS	44.34	40.37
LANDFILL GAS	0.64	0.64
LPG	0.06	0.02
COAL	6.36	4.36
PURCH STEAM	0.42	1.27
COKE	3.33	2.79
DISTILLATE OIL	1.01	1.12
SOLID WASTE	0.09	0.07
LIQUID WASTE	0.04	0.03
ELECTRICITY	30.03	28.47
Total 10^{12} BTU	**86.38**	**79.18**
Emissions - CO2 million metric tons		
Indirect (from electricity)	6.731	6.395
Direct	3.404	3.126
Total	10.135	9.521
% Indirect	66.4%	67.2%
	62.2%	63.0%
Emissions per vehicle		
Vehicles produced	4,260,181	3722906
CO2 metric tons/veh	2.379	2.557
CO2 m-tons per	0.1173	0.1203
MMBTU	0.1171	0.1173
Updated: 05/30/2002		

From BTU to CO2

Emission Factors

Fuel	# CO2/UNIT	Metric	Metric-Ton CO2 per unit	Metric
NATURAL GAS	120,593	million cubic feet	0.0547	MCF
LANDFILL GAS	115.258	million BTU	0.05228	million BTU
PROPANE	12,669	thousand gallons	0.00575	gallon
COAL	4,931.3	short-ton	2.237	short-ton
PURCH STEAM	205.3	million BTU	0.09312	million BTU
COKE	4,931.3	short-ton	2.237	short-ton
DISTILLATE OIL	22,384	thousand gallons	0.01015	gallon
SOLID WASTE	221.943	million BTU	0.1007	million BTU
LIQUID WASTE	221.943	million BTU	0.1007	million BTU
ELECTRICITY*	0.731	metric-ton /megawatt-hour	0.731	metric-ton /megawatt-hour
2000 Updated	**0.765**	metric-ton /megawatt-hour	0.765	metric-ton /megawatt-hour
2000 CANADA	**0.19**	metric-ton /megawatt-hour	0.19	metric-ton /megawatt-hour
2000 MEXICO	**0.765**	metric-ton /megawatt-hour	0.765	metric-ton /megawatt-hour

The above emission factors, except electricity, are from Appendix B, Form EIA-1605 Instructions - 2000.

* The electricity emission factor of 0.765 metric tons of CO2 per megawatt-hour is based on a weighted average of GM's 2000 electricity usage for individual states and the state's electricity emission factor listed in Appendix C, Form EIA-1605 Instructions - 2000.

INDUSTRIAL METHANE IS NEGLIGIBLE COMPARED TO RESIDENTIAL WOOD BURNING

INDUSTRIAL N2O IS NEGLIGIBLE

Note: GM's Calculation of Landfill Gas CO2 does not include any potential offsets at the landfill.

Note: Factors for Purchased Steam, Solid Waste, Liquid Waste must be multiplied by the TBTU column to calculate CO2. The other fuels multiple the units column to calculate CO2

Web-Based Data Collection: GM Example

Data Input and GHG Calculation Spreadsheets

Backup Slides

Specific Reporting Issues:

National Reporting System

1. A coordinated voluntary National Reporting System avoids the following:

   - ✓ multiple state-level reports (e.g. GM would be required to file 30 reports annually vs. one report)
   - ✓ potential proliferation of non-uniform reporting approaches
   - ✓ revealing competitive information, especially in those states with only one facility

Specific Reporting Issues: *(continued)*

State-Level Initiatives

2. Industry should participate in voluntary programs sponsored by the DOE, EPA and others, which share 'best practices' that translate into energy and CO2 reductions backed by a strong business case. States should also support joint research programs between Industry and the federal government on technologies to reduce ghg emissions.

CO_2 Regulation in the States

There are several major trends among states to encourage carbon dioxide emission reduction. These trends include:

- ✓ **Action Plans: 19 states (AL, CA, CO, DE, HI, IL, IA, KY, ME, MT, NH, NJ, NC, OR, PA, RI, TN, UT, VT, WA, WI)**
- ✓**Emissions Inventories: 37 states**
- ✓**Emissions Registries: 8 states (CA, IL, ME, NH, NJ, TX, WI, VT)**
- ✓**International Agreements: 7 states (CT, ME, MA, NH, RI, VT, and NJ)**
- ✓**Mobile Emissions: 1 state (CA)…NY??**
- ✓**RPS: 11 states (AL, AZ, CA, CT, ME, MA, MN, NV, NJ, TX, VT)**
- ✓**Emissions Portfolios: 2 states (AZ, MA)**
- ✓**Source Labeling and Disclosure: 8 states (CA, IL, ME, MA, NV, NH, NJ, PA)**
- ✓ **Direct Limits on CO2 Emissions: 4 states (CA-mobile,OR-new plants, MA-old plants, NH-old plants), 1 county (Suffolk County NY-old plants)**

Specific Reporting Issues: (*continued)*

Verification and Certification

3. Internal verification and certification of data by a registered Professional Engineer (P.E.), a Ph.D. or an officer of the company should be permitted.

   - ✓ 3rd Party Certification should not be required at the time of reporting

Specific Reporting Issues: (*continued*)

Management Control

4. 100% of GHG emissions should be reported for those facilities under management control rather than reporting a portion of emissions based on equity share. *Management Control means at least 50% equity position, at least 50% representation on the Board and/or management of the operation*:
   - ✓ Full Ownership Implies Management Control: Report all Emissions
   - ✓ Joint Ownership: Report if under Management Control. Partners should determine, up-front, who will be reporting to avoid double counting.
   - ✓ Leased: Report if greater than 0.1% of annual facility total CO2 emissions (or more than 30,000 metric tons CO2 per year)

Specific Reporting Issues: (*continued*)

Mobile Source GHG Emissions

5. Mobile Source GHG Emissions for Company Operations (e.g. Categories I-IV shown in the following example) should be reported only if the Operation is under management control and, Accurate, Verifiable Data are both available and proven to be above 5% of the baseline.

   A GHG registry must maintain high data integrity standards and minimum thresholds. GM has conducted an analysis on categories I-IV and has determined all but category II data are too inaccurate to report. Category II data are de minimus (less than 1% of baseline).

Analysis of GHG Emissions Reporting: *GM - U.S. Example*

A GHG Analysis was Conducted to Evaluate the Contribution of CO2 Emissions from the Following Categories of Mobile Source Emissions for U.S. Operations:

I. **Employee Business Travel: (No accurate data available)**

Rental Vehicle Mileage, Airline Travel Mileage

II. **Company Owned Vehicles:**

(Calculations based on annual fuel usage. Annual totals are de minimis)

III. **Freight Transport: Delivery of Parts to Assembly Facilities**
(No accurate data available)

Rail Mileage, Transport Mileage

IV. **Freight Transport: Delivery of Vehicles to Dealerships**
(No accurate data available)

Rail Mileage, Vehicle Carrier Mileage

Limitations of Reporting the Information Above:

- Limited Availability of U.S. Data [global data will be even more difficult to acquire]
- Low level of Accuracy of U.S. Data [global data will be even less accurate]
- Time and Costs Associated with Collection and Reporting of this Type of Data
- Lack of Ownership of Transportation Modes for Items I, III, IV

Specific Reporting Issues: (*continued)*

Indirect Electricity Emissions

6. Report Indirect Electricity Emissions based on a weighted average of state electricity usage and state electricity emission factors for a designated year. The weighted average emissions factor for electricity should be held constant over all reporting years to eliminate a variable outside of the control of the reporting entity unless a 'recordable' shift in electricity mix has occurred by the reporting entity.

Specific Reporting Issues: (*continued*)

EIA emission factors

7. Use EIA emission factors for all fuels used in the U.S. except landfill gas and renewable electricity.
   - ✓ Use an emissions factor of zero for landfill gas and other renewable energy sources to reflect the effect of offsetting emissions from conventional energy sources.

Refrigerant Usage

8. Report all annual purchases of refrigerants for facility and factory fill applications (i.e. CFC's, HFC's, HCFCs).

Specific Reporting Issues: (*continued*)

Absolute vs. Normalized Data

9. The national registry should be flexible to allow a reporting company to submit either absolute or normalized data.

Reductions and Carbon Sequestration from Projects

10. The national registry should comprehend all national and international projects achieving emission reductions and carbon sequestration.

Specific Reporting Issues: (*continued*)

Goals for Reporting

11. Transparency, Accuracy, Verifiability, Baseline Protection, and the Ability to Audit and Track Energy Usage and Emissions Reductions.

GHG Reporting Policy Statement

MONITOR AND REPORT
GHG EMISSIONS
THAT CAN BE RELIABLY USED TO MANAGE
BUSINESS OPERATIONS

How to Help Local Companies Achieve Meaningful Reductions in GHG Emissions and Prepare for the Future

- ✓ Support Existing Voluntary Initiatives at the Local or Industry Level
- ✓ Support Trade Organizations that are taking the Charge to help Industry "Get Started" (i.e. BRT, USCPA)
- ✓ Support Voluntary Reporting of GHG Emissions Programs sponsored by the DOE, EPA and others, which share 'best practices' that translate into energy and CO2 reductions backed by a strong business case. States should also support joint research programs between Industry and the federal government on technologies to reduce ghg emissions.