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### Implementation of GHG Management Tools and Systems

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# Before Executive Order 13514 Spreadsheet-Based GHG Tracking Tools

- Most GHG tracking efforts by federal agencies relied on custom-built spreadsheet tools
  - NASA, DLA
  - Air National Guard

**Mobile Source Emissions Workbook**  
**Data Inputs for Method 3 - CO<sub>2</sub>**  
 Entity: Company xyz  
 Subentity: Subentity Name, City, ST

[Return to START](#)  
[Back to 3a Select Methods - CO<sub>2</sub>](#) [Next to 3b Select Methods - CH<sub>4</sub> and N<sub>2</sub>O](#)

**Instructions**  
 Carbon dioxide estimates using the mass balance method are rated "C," provided the mass balance calculations are based on one of the following sets of data, which must be available to the reporter:  
 • Hours, horsepower hours of operation, or ton-Distance shipped and specific information on fuel consumed per unit of activity data from vehicle suppliers, manufacturers, or in-company records.  
 For highway vehicles, data may be entered for individual engines or for groups of vehicles of the same type. For all other vehicle types, data must be entered on an **engine-specific** basis.  
 For each vehicle (or group of identical vehicles, in the case of Highway Vehicles), select the metric to be used: Distance travelled or activity data (Step 1). Select the type of fuel consumed by that vehicle (Step 2), and an appropriate Fuel Consumption Metric (Step 3). If entering data for Highway Vehicles, fuel economy metrics must be based on an average of "city" and "highway" economies, weighted by the share of the vehicle's mileage devoted to each.<sup>1</sup> For each vehicle type or engine, then input the corresponding activity data (Step 4). Total emissions will be displayed below.

**Estimation Methodology**  
[View Estimation Method](#)

**Vehicle Class Methodologies**

- Highway Vehicles
- Off-Road Vehicles
- Water Borne Vessels
- Aircraft

**Method 3. Mass balance based on distance traveled and fuel economy data, or hours, horsepower-hours, or ton-distance shipped and fuel consumption per unit activity data used with default emissions factors**  
**Highway Vehicles**

Step 1 Method (select one)	Step 2 Mobile Fuel Type (select one)	Step 3 Specific Fuel Economy Data (value) (select one)		Emission Factor (value) (unit)	Step 4 Measured Vehicle Distance/Activity Data, per Vehicle Type				
		(value)	(select one)		Base Period		Report Year	Distance/Activity (unit)	
Distance	Motor Gasoline	25	miles/gal	19.94	lbs CO <sub>2</sub> /gal	10000	15000	10000	miles
Distance	Diesel Fuel (No. 1,2)	20	miles/gal	19.94	lbs CO <sub>2</sub> /gal	10000	15000	10000	miles
Distance	E 85	18	miles/gal	12.78	lbs CO <sub>2</sub> /gal	10000	15000	10000	miles
Distance	E 100	160	miles/MMBtu	53.06	kg CO <sub>2</sub> /MMBtu	1000000	1000000	1000000	miles
Distance	E 85	160	miles/MMBtu	53.06	kg CO <sub>2</sub> /MMBtu	1000000	1000000	1000000	miles

Navigation: [3a Select](#) [3b Select Methods - CH<sub>4</sub> and N<sub>2</sub>O](#) [3c Select Methods - HFCs](#) [Method 1](#) [Method 2](#) [Method 3](#) [Method 4](#)

**Sample Emissions Inventory Data Management Tool**

**Instructions and Guidance for the Reports Worksheet**  
 This worksheet provides a graphical representation of the breakdown of the data by emission source, gas, and emission type, as well as percent change from year to year and emissions intensity over time. All values for the first three reports are in units of CO<sub>2</sub> equivalent for aggregation and comparison purposes.

The charts display the following data trends:

- Total Emissions:** Line graph showing Metric Tons CO<sub>2</sub>e from 2002 to 2007. Values range from approximately 8,500,000 to 11,500,000.
- Total Emissions By Source:** Stacked bar chart showing Metric Tons CO<sub>2</sub>e from 2002 to 2007. Sources include Purchased Electricity and Stationary Combustion.
- Total Emissions by Gas:** Stacked bar chart showing Metric Tons CO<sub>2</sub>e from 2002 to 2007. Sources include Other, Land Use, SF6 from Electrical Equipment, Mobile Sources, and Capacity Trades.
- Total Emissions by Gas Excluding CO<sub>2</sub>:** Stacked bar chart showing Metric Tons CO<sub>2</sub>e from 2002 to 2007. Sources include Other, Land Use, SF6 from Electrical Equipment, Mobile Sources, and Capacity Trades.

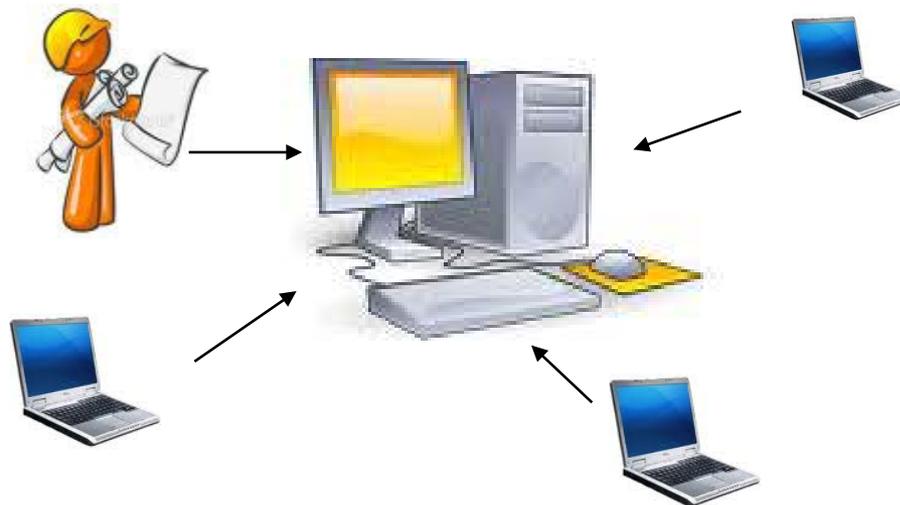
- Some incorporated GHGs into existing tracking system
  - Eglin Air Force Base

# First Year of Executive Order 13514

- Combination of tools are being used
  - FEMP
  - GSA
  - Internal spreadsheets
- Data collection initiated before guidance and tools were finalized
  - Tracked in internal spreadsheets documenting assumptions and methods
- Activity data collected through massive data calls, surveys, and/or sampling
- Some organizations have provided spreadsheets to facility managers to enable early and continued data tracking

# Next Generation GHG Tracking Systems/Tools

- EO requires data on a very broad range of activities
- Next generation tools
  - Direct linkage to existing data systems
  - Tracking of GHG reduction measures
  - Decentralized data entry



# Maryland State Government Environmental Footprint Example Next Generation Data Collection Tool

- Internet-based data collection system for all State agencies in Maryland
  - 101 state agencies and > 12,000 electricity, waste, water and gas accounts

Maryland State Government Environmental FootPrint  
Data Collection, Verification, and Calculation Tool

Exit Survey  
| User: aberantm | Role: Survey Manager |

Select a Survey | Select Entity / Reference Period | Survey Instructions | Print as PDF or View | Save | Check Data | Submit

Buildings | Mobile | Water Use | Waste Generation, Reuse and Recycling | Environmental Footprint Summary

Maryland Environmental Footprint Reference Period: 2008-00  
Entity: 113 - Department of General Services

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Mobile  
Highway Fleet

Does your agency operate highway vehicles (i.e., automobiles, vans, SUVs, pickup trucks, buses, or heavy trucks)?  
 Yes  No

If yes, please enter the amount(s) of fuel used. If your agency uses WebFleetMaster or a similar central fleet management database, these amounts may already be filled in for you. If the amounts are not accurate, please enter the correct amounts.

Note: For buses and heavy trucks, if you have multiple fuel tanks filled by different suppliers, those will be addressed in the next subsection. This section is for data from large, central systems.

Highway Fleet Fuel Use

Reference Period	Fuel Use from State Pumps (Gallons)	Fuel Use from Other Sources (Gallons)
Gasoline	74288.710	
Ethanol E85	1459.230	
Ethanol E100		
Diesel Fuel		

Save / Go Back | Clear changes | Save / Continue

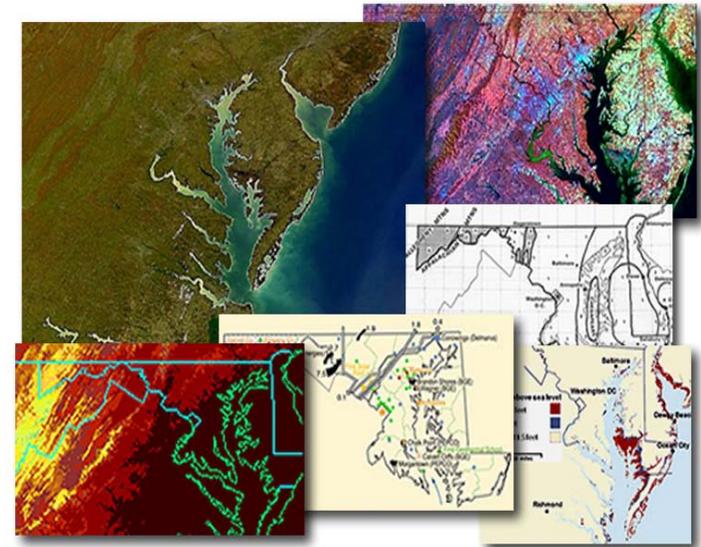
System build: 2485 / Build date: 2010-01-24 123206

# Maryland State Government Environmental Footprint

## No Direct Cost Business Model

- Technical support covered through energy procurement fees from World Energy auctions
  - Per kWh/Btu procurement fee from energy auctions
  - With consulting fee included, electricity contract rates for FY10 through FY11 dropped by 22% generating \$18 million in savings for Maryland
  - Over 1,000 consulting hours provided to date
  - 1,000 additional hours for
    - GHG Inventory and sustainability reporting
    - GHG reduction strategy

### Maryland Environmental Footprint



**Same services can be provided to Federal clients on no cost basis through GSA Energy Division Contract # GS-00P-10-BSC-0730**

# Next Generation Data Collection Tools

## Conclusions

- All agencies are different
- Evaluate systems on a case by case basis
- Some issues to consider
  - Scale or reporting
  - Complexity of sources
  - Centralization of data collection procedures
  - Are there existing data systems that can easily be modified?
  - Will HQ or individual facilities be responsible for data input?
  - Security/privacy concerns
  - Activity data needed for evaluating GHG reduction measures?
  - Include real time monitoring of energy use and other activity data?



# Contact Information



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