



U.S. General Services Administration

Federal Acquisition Service

**Responding to Executive
Order 13514**

GSA Carbon Footprint Tool

October 7th, 2010

Jennifer Hazelman, GSA FAS



Federal Acquisition Service

“GSA has to embrace a zero environmental footprint goal. We should set our sites on eliminating the impact of the federal government on our natural environment. The words were “eliminate” not “limit.” I’m not kidding. Zero Footprint. This is our moon shot. Yes, it is an unbelievable, wild, magnificent, over the top goal. It has to be.”

Remarks by:

GSA Administrator Johnson
at the Coalition for Government Procurement
Partnership Dinner in Orlando, FL
May 5, 2010

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GHG Inventory Approaches

Top-Down (Centralized) Approach

Existing Data Systems, Data Sets



GHG Reports

GHG Reports



Site Specific Data (Utility Bills, Meter Readings, Sources)

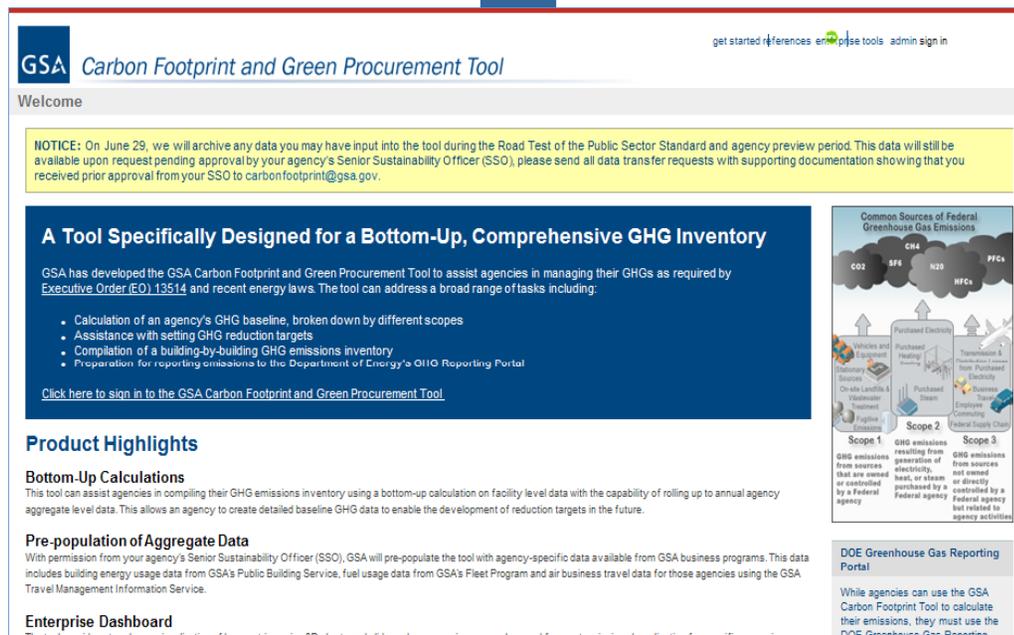


Bottom Up (Decentralized) Approach

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GSA Collaboration with DOE FEMP

DOE FEMP GHG Reporting Portal



get started | references | help | tools | admin | sign in

GSA Carbon Footprint and Green Procurement Tool

Welcome

NOTICE: On June 29, we will archive any data you may have input into the tool during the Road Test of the Public Sector Standard and agency preview period. This data will still be available upon requesting approval by your agency's Senior Sustainability Officer (SSO), please send all data transfer requests with supporting documentation showing that you received prior approval from your SSO to carbonfootprint@gsa.gov.

A Tool Specifically Designed for a Bottom-Up, Comprehensive GHG Inventory

GSA has developed the GSA Carbon Footprint and Green Procurement Tool to assist agencies in managing their GHGs as required by Executive Order (EO) 13514 and recent energy laws. The tool can address a broad range of tasks including:

- Calculation of an agency's GHG baseline, broken down by different scopes
- Assistance with setting GHG reduction targets
- Compilation of a building-by-building GHG emissions inventory
- Preparation for reporting emissions to the Department of Energy's OIG Reporting Portal

[Click here to sign in to the GSA Carbon Footprint and Green Procurement Tool.](#)

Product Highlights

Bottom-Up Calculations
This tool can assist agencies in compiling their GHG emissions inventory using a bottom-up calculation on facility level data with the capability of rolling up to annual agency aggregate level data. This allows an agency to create detailed baseline GHG data to enable the development of reduction targets in the future.

Pre-population of Aggregate Data
With permission from your agency's Senior Sustainability Officer (SSO), GSA will pre-populate the tool with agency-specific data available from GSA business programs. This data includes building energy usage data from GSA's Public Building Service, fuel usage data from GSA's Fleet Program and air business travel data for those agencies using the GSA Travel Management Information Service.

Enterprise Dashboard
The tool provides at-a-glance visualization of key metrics using 3D charts and sliders where agencies can analyze and forecast emissions by adjusting for specific scenarios.

Common Sources of Federal Greenhouse Gas Emissions

Scope 1 GHG emissions resulting from generation of electricity from sources that are owned or controlled by a Federal agency

Scope 2 GHG emissions from sources that are owned, heat, or steam purchased by a Federal agency

Scope 3 GHG emissions from sources not owned or directly controlled by a Federal agency but related to agency activities

DOE Greenhouse Gas Reporting Portal

While agencies can use the GSA Carbon Footprint Tool to calculate their emissions, they must use the DOE Greenhouse Gas Reporting

- Aggregated outputs from the bottom up GSA Carbon Footprint Tool can be imported into the **mandatory** DOE FEMP GHG Reporting Portal
- Direct alignment to EO 13514 GHG Reporting and Accounting Guidance calculation methodologies
- Bottom up methodology **benefits:**
 - **level of granularity necessary to implement targeted reduction strategies**
 - **encourages site/department/region participation**
 - **helps agencies move beyond compliance**

<https://www.carbonfootprint.gsa.gov>

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Key Benefits of the Tool

- **Free**, offered at no cost to Federal agencies
- Tool has both **manual** and **batch** data input capability
- Flexible input methods to assist with uncommon sources
- Pre-population of GSA data (Fleet, Travel, Building Energy)
- Intuitive user interface and **embedded guidance**
- **Dashboard views** for metrics, benchmarks, and forecasting
- GIS Map allows visualization of enterprise
- GHG emissions data will **import into mandatory DOE GHG Reporting Portal**
- In-person, web-based, and self-guided **training available**

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Batch Upload/Download Capability

- Capability to bulk upload and download inventory data
- Each excel-based template provides an overview, detailed instructions, populated examples, and reference values

GSA Carbon Footprint and Green Procurement Tool - Bulk Upload Utility (v1.1)

Welcome to the GSA Carbon Footprint and Green Procurement Tool Bulk Upload Utility. The Bulk Upload Utility allows agencies to complete one-time uploads of large quantities of greenhouse gas emissions data into the Carbon Footprint Analyzer, a GSA tool developed to assist agencies in obtaining compliance with Executive Order (EO) 13514 and recent energy laws. To read more, go to (link: <http://edocket.access.gpo.gov/2009/pdf/E9-24518.pdf>).

To learn more about the GSA Carbon Footprint and Green Procurement Tool, request a demo or register for an account, please visit <http://www.carbonfootprint.gsa.gov>.

The Bulk Upload Utility v1.1 consists of 8 Microsoft Excel Workbooks:

File Number	Name	Current Workbook
1	GSACarbonToolUploader_File1_SitesandSiteGroups.xls	
2	GSACarbonToolUploader_File2_StationaryCombustion.xls	Yes
3	GSACarbonToolUploader_File3_MobileCombustion.xls	
4	GSACarbonToolUploader_File4_PurchasedElectricity.xls	
5	GSACarbonToolUploader_File5_PurchasedSteamHotChilledWater.xls	
6	GSACarbonToolUploader_File6_PurchasedCombinedHeatandPower.xls	
7	GSACarbonToolUploader_File7_ContractedWasteDisposal.xls	
8	GSACarbonToolUploader_File8_FugitiveEmissions-Common.xls	

In order to maximize the capability of the Bulk Upload Utility, please follow the instructions located in each of the files listed above, in order. The file order corresponds to the instructions found on the GSA Carbon Footprint and Green Procurement Tool website.

Each Excel **Workbook** consists of several **Worksheets**. Worksheets are located at the bottom of the screen. The common worksheets found in all workbooks are labeled "Introduction," "Workbook Instructions," "Data Dictionary," "Reference," "Example," and "Export and Upload Instructions."

Workbook-specific worksheets will appear between the "Example" and "Export and Upload Instructions" worksheets. Please see "Workbook Instructions" for more details.

To switch between worksheets, simply click on the desired tab at the bottom of the screen. If a worksheet tab is not currently visible, please use the left and right arrows on the bottom-left area of the screen to scroll worksheet tabs. The worksheets are intended to be traversed from left-to-right, and will walk users through the bulk upload process.

The ultimate goal of the GSACarbonTool Bulk Upload Workbooks is to guide users in generating comma-separated-value (.CSV) files for upload into the GSA Carbon Footprint and Procurement Tool. Microsoft Excel has the ability to generate these .CSV files from worksheets containing tabular data. The worksheets contained in each workbook are meant to walk users through this process, providing guidelines, constraints and tips along the way.

Data Pre-population

- GSA will pre-populate agency data upon approval for business travel data in the Travel MIS system, GSA-owned/leased vehicles data, and GSA building energy data

traveltrax



FAST Vehicle Fleet

STAR, EUAS Building Energy

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DOE Greenhouse Gas Reporting Portal

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Current Agency Adoption

Official Commitments:

- General Services Administration
- Department of Homeland Security
- Department of Treasury
- Health and Human Services
- Department of Commerce
- Department of Transportation
- National Capital Planning Commission
- Department of Education





Training Resources and GHG Inventory Services

Offered by GSA with official registration:

- (1) In-person or web-based “Welcome Aboard” and basic training session
- (1) In-person or web-based “Train the Trainer” session
- Self-guided video tours available through the tool

Additional Services:

- **Professional Energy Services**

For further information go to www.gsa.gov/energyservices

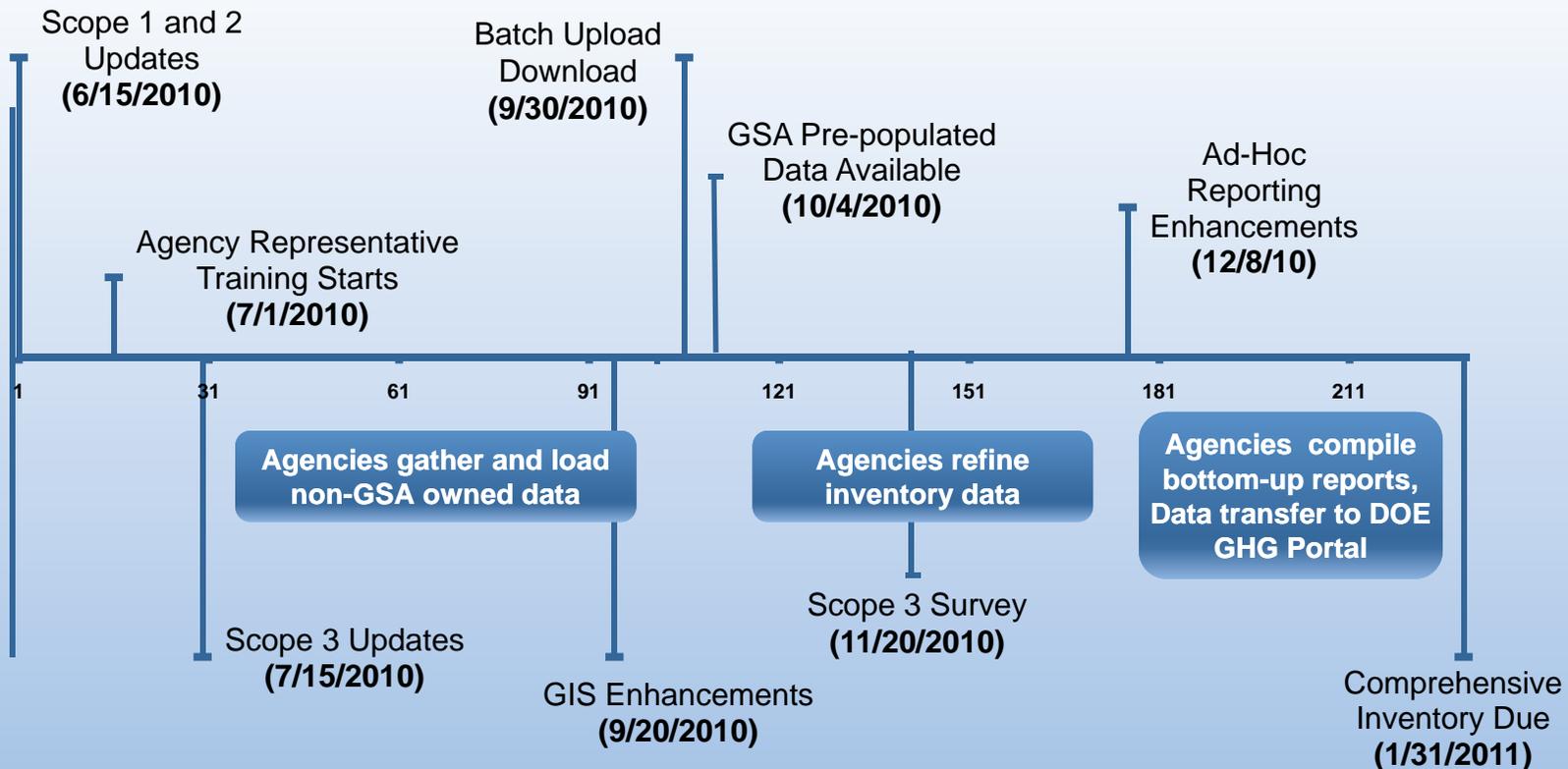
- **Travel Management Information Services**

For further information go to www.gsa.gov/travelprograms

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Target System Roadmap – 230 day timeline

GSA Carbon Footprint Tool - Target Roadmap



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Tool GHG Inventory Process



GHG Emissions Measurement, Management, and Reduction

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Design Inventory: Create Agency & Site Profiles

Enterprise Profile

Enterprise Profile

Analyzer

Dashboard

Reports

Carbon

User Profile

- [Update Password](#)
- [Update Information](#)

Agency

- [Agency Profile](#)
- [Agency Sites](#)
- [Agency Site Groups](#)
- [Agency Users](#)

Locations

GSA ITS Emissions

Category	2008 CO ₂ e Emission	2009 CO ₂ e Emission	2010 CO ₂ e Emission
Enterprise			982
Scope 1: Direct Emissions			53
Scope 2: Indirect			
Scope 3: Other			

All values are in metric tons

GSA ITS Benchmarking

Enterprise Profile

Analyzer

Dashboard

Reports

You are here: Enterprise Profile >> Manage Agency Sites

Sites (Add)

Action	Site Name	Address 1	Address 2	City	State	Zip	eGRID Subregion	Area		Building Ownership	Lease Type	LEED Cert	Staff Size	Fiscal Year	Point of Contact	
								Building	Occupied						Name	Phone
	Crystal City	2200 Crystal Drive		Arlington	VA	22202	SERC Virginia/Carolina	250000	24388			None	114	2008	Tisa Richardson	(202) 219-1905
	Test - Mobility Paper	1800 F St NW		Washington	DC	20405	RFC East	764125	522368	Unknown		None	1000	2010		
	Willow Wood	10304 Eaton PI		Fairfax	VA	22030	SERC Virginia/Carolina	134915	69744			None	165	2008	Lisa Hurst	(202) 501-3859

Profile page provides benchmarking and key metrics

Automated eGrid lookup by zip code and geocoding of locations for display on GIS Map



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Collect Data & Calculate Emissions: Enter Site Activity Data

Enterprise Profile > Scenarios List

EO 13514 Section 9 Recommendations
Analyzer Calculations and Assumptions

Total Emissions FY 2008
70 metric tons CO₂e

Scope 1 | Scope 2 | Scope 3

Scope 1 Navi > Scope 1 Navi

Scope 1: Direct

Combustion

Stationary Combustion

- Natural gas
- Petroleum
- Coal
- Biofuel/Biomass

Mobile Combustion

- Fossil Fuels
- BioFuels

Fugitive Emissions

Common Fugitive Emissions

- Hydrofluorocarbons
- Hydrochlorofluorocarbons
- Chlorofluorocarbons
- Perfluorocarbons
- Sulfur Hexafluoride
- Methane

Hydrofluorocarbons

Enter your total HFC emissions in lbs

HFC-23	10	lbs
HFC-32	0	lbs
HFC-125	0	lbs
HFC-134a	0	lbs
HFC-143a	0	lbs
HFC-152a	0	lbs
HFC-227ea	0	lbs
HFC-236fa	0	lbs
HFC-245fa	0	lbs
HFC-43-10mee	0	lbs
HFC-365mfc	0	lbs

Describe the emissions source for HFCs (i.e., refrigeration, air conditioning):

refrigerant lost during maintenance

Total Emissions FY 2008
70 metric tons CO₂e

Scope 1

- Combustion
 - Stationary Combustion 0.20
 - Mobile Combustion 17.10
- Fugitive Emissions
 - Common Fugitive Emissions 53.07**
 - Hydrofluorocarbons
 - Hydrochlorofluorocarbons
 - Chlorofluorocarbons
 - Perfluorocarbons
 - Sulfur Hexafluoride
 - Methane
 - Nitrous Oxide
 - Uncommon Fugitive Emissions
 - Industrial Process Emissions
 - Wastewater Treatment
 - Landfills and Solid Waste Facilities

Scope 2

- Purchased Electricity
 - Building Energy
 - Data Center
 - IT Equipment

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Collect Data & Calculate Emissions: Use Embedded Guidance

The screenshot shows the 'Enterprise Profile > Scenarios List' interface. The main content area is titled 'Fugitive Emissions > Common Fugitive Emissions' and 'Chlorofluorocarbons'. It includes a table for entering CFC emissions in lbs, with 'CFC-11' set to 33. A tooltip for CFC-11 provides an alias and formula. A 'Technical Support Document' link is visible. A sidebar on the right shows a progress indicator and a list of emissions categories under 'Scope 1' and 'Scope 2'. Callouts point to these elements:

- Links to Reference Documentation:** Points to the 'EO 13514 Section 9 Recommendations' and 'Analyzer Calculations and Assumptions' links.
- Embedded guidance on emissions categories and general instructions:** Points to the sidebar navigation menu.
- Embedded Tooltip definitions to guide the user:** Points to the tooltip for CFC-11.

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Collect Data & Calculate Emissions: Scope 3 Commuting Survey

- Surveys are launched and managed through the tool
- Can be deployed at the site/facility, site group, or agency level
- Produces downloadable excel file of commuting data and associated emissions per employee

GSA Carbon Footprint and Green Procurement Tool

get started | enterprise tools | 2_green, sign out

New Employee Survey

Enterprise Profile | Analyzer | Dashboard | Re

Create Survey

Survey Title: GHG Emission
 Survey Scope: Enterprise
 Upload List of Invited Survey Participants (.txt file format - one email per line): All_GSA_Em
 Survey Start Date and End Date: 04/26/2010
 Reporting Fiscal Year: 2010

All Sites

Survey Span: 2009-04-14 to 2009-05-01

Survey Metrics

Survey Summary:	Total Survey Users	Surveys Completed	Percent Completion
	306	154	50.33

Commute Metrics

Telecommuters: 48.05%
 Contractors: 5.84%
 Alternate Work Schedule: 52.00%
 Peak Travelers: 87.66%

To Work Commute Type:

Car	Bike/Walk	Metro	Train	Bus
114	4	32	7	16

From Work Commute Type:

Car	Bike/Walk	Metro	Train	Bus
112	5	33	7	17

To Work Commute

From Work Commute

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Report Emissions: Run GHG Reports

Carbon Footprint and GHG Report

Annual GSA ITS Emissions Report

Site: Willow Wood

Generated on: July 13, 2010, 10:25 am

Agency

Reporting Agency: GSA ITS

Agency Description: GSA leverages the buying power of federal taxpayers and our federal employees to deliver superior solutions. We develop innovative solutions for our customers.

Agency Website: <http://www.gsa.gov>

Report Preparer: Mile Corrigan

Reporting Period: The base year for this report is 2008.

Organizational Boundaries: The operational boundaries consist of purchased electricity, direct fuel consumption, and employee commuting. The facility boundaries consist of purchased electricity, direct fuel consumption, and employee commuting at the Willow Wood facility.

Formulas Calculated in the GHG Inventory

Scope 1: Direct Emissions

(Required; direct GHG emissions) – Emissions from sources that the company has direct control over. Includes direct emissions such as direct fuel consumption.

Vehicles

Vehicles

= (((total monthly miles for large car in city) + (total monthly miles for small car in city)) * (total monthly gallons of fuel used) / avg n

= (((0 miles per month + 0 miles per month + 0 miles per month) * 2062.88 lbs CO₂ / U.S. gallons of fuel used) / 18 n

= 0.000 Lbs CO₂

Total CO₂e emissions

= 0.000 lbs CO₂

= 26,905.458 Lbs CO₂e

= 12.204 MT CO₂e

Scope 2: Indirect Emissions

Total Carbon Emissions

Scope 1	12.204
Scope 2	1,144.295
Scope 3	1,173.521
Other	0.000
Total	2,330.020 metric tons CO ₂ e

Additional Information

Quantification Methodologies: Refer to "Formulas Calculated in the GHG Inventory" to view scenario-specific quantification methodologies.

GHG Emission or Offset Factors: Refer to "Formulas Calculated in the GHG Inventory" to view scenario-specific emission factors.

These emission factors are the accepted values from the World Resources Institute (WRI, 2006) (www.ghgprotocol.org)

GHG Offsets Quantified in CO₂e: The following removals have been quantified in CO₂e: (Your "answer" about emission offsets will automatically be placed here.)

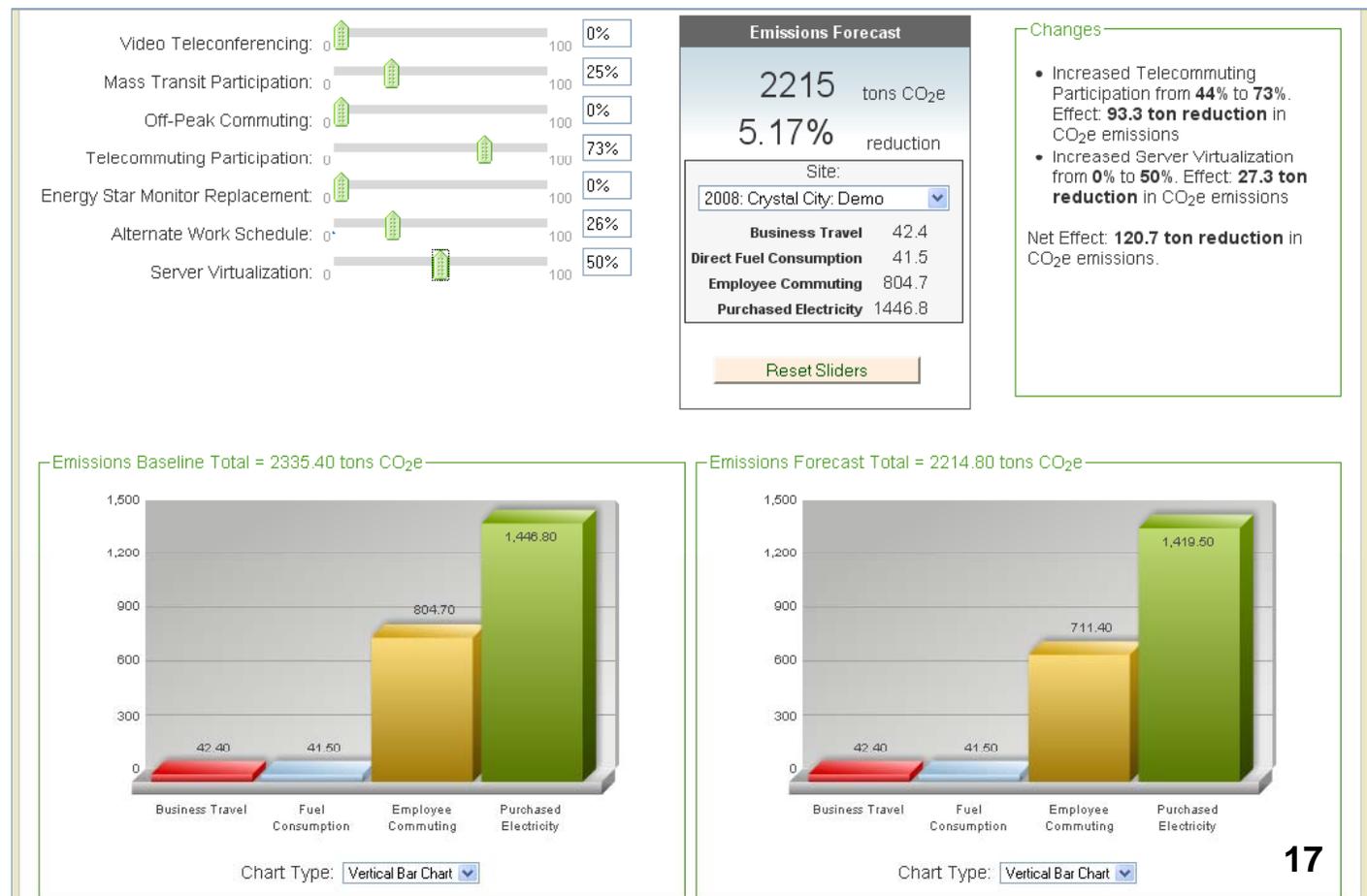
Impact of Uncertainties: There are specific inherent uncertainties recognized and accepted by most GHG registry programs. These inherent uncertainties are associated with the inexact nature of collecting data and calculating GHG emissions (i.e. metering equipment calibration, emission factors, significant digits, rounding errors, etc.). Inherent uncertainties also derive from the inexact nature of using registry-permitted simplified estimation methods. Specific GHG programs require that no more than 5 percent of the total emissions can be based on non-registry-approved simplified estimation methods. Given that inherent uncertainties are generally accepted, the impact on the accuracy

Transparency of calculations and estimation methods

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Set Targets: Senior Management Dashboard

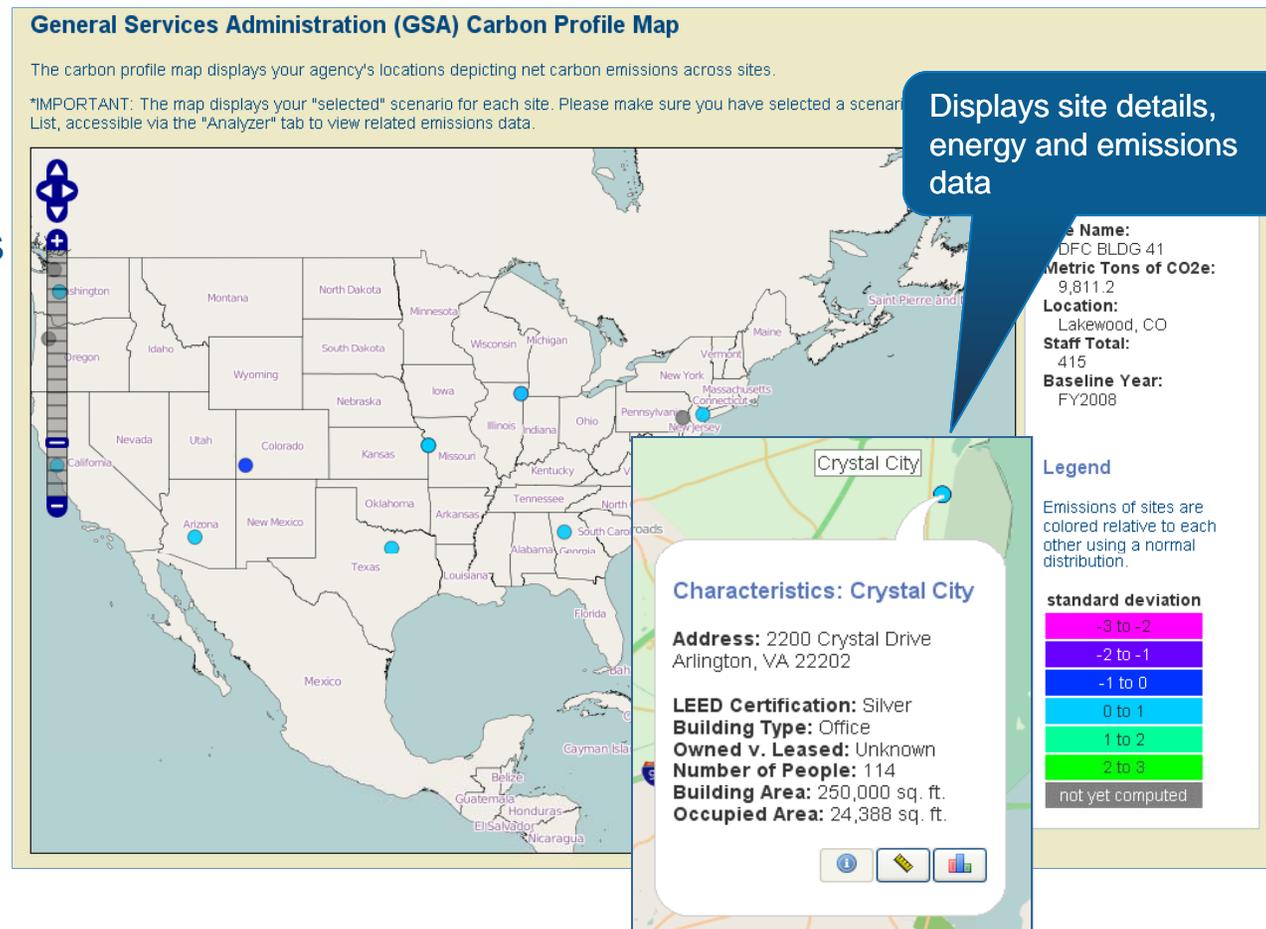
- Easy way for senior managers to visualize Agency GHG emissions
- “Sliders” let you see impact of using different technologies (*server virtualization*) or business processes (*telework*) to reduce footprint



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Set Targets: Agency Facilities GIS Map

- Facilities that you input show up on the map
- Rollover facilities to view site information such as emissions data, metrics, and energy intensity
- Color coding compares emissions across sites





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Set Targets: Return on Investment Calculator

- Built-In ROI Calculator
- Annual Savings, Ten Year Savings, ROI, and Payback are calculated for common green investment types

ROI Calculator

Interior Lighting Investments								
Investment Name	Quantity	Initial Cost (dollars)	Annual Savings		Ten-Year Savings		ROI and Payback	
			Cost Savings (dollars/year)	CO2 Reduction (MT/year)	Cost Savings (dollars)	CO2 Reduction (MT)	Ten Year ROI (percent)	Payback (years)
Compact Fluorescent (25W)	<input type="text" value="1000"/>	\$3,500.00	\$5,616.78	29.65	\$56,167.80	296.51	1,504.79%	0.62
Compact Fluorescent (32W)	<input type="text" value="0"/>	\$0.00	\$0.00	0.00	\$0.00	0.00	0.00%	0.00
LED Exit Sign	<input type="text" value="0"/>	\$0.00	\$0.00	0.00	\$0.00	0.00	0.00%	0.00
Totals:		\$3,500.00	\$5,616.78	29.65	\$52,667.80	296.51	1,504.79%	0.62

Exterior Lighting Investments								
Investment Name	Quantity	Initial Cost (dollars)	Annual Savings		Ten-Year Savings		ROI and Payback	
			Cost Savings (dollars/year)	CO2 Reduction (MT/year)	Cost Savings (dollars)	CO2 Reduction (MT)	Ten Year ROI (percent)	Payback (years)
Metal Halide High Eff. pulse-start	<input type="text" value="0"/>	\$0.00	\$0.00	0.00	\$0.00	0.00	0.00%	0.00
Six 40W twin-tube, electronic ballast, 1.04 BF	<input type="text" value="0"/>	\$0.00	\$0.00	0.00	\$0.00	0.00	0.00%	0.00
Four 55W twintube, electronic ballast, 1.00 BF	<input type="text" value="0"/>	\$0.00	\$0.00	0.00	\$0.00	0.00	0.00%	0.00
Four 54W highoutput, electronic ballast, 1.00 BF	<input type="text" value="0"/>	\$0.00	\$0.00	0.00	\$0.00	0.00	0.00%	0.00
Totals:		\$0.00	\$0.00	0.00	\$0.00	0.00	0.00%	0.00

Solar Power Investments								
Investment Name	Quantity	Initial Cost (dollars)	Annual Savings		Ten-Year Savings		ROI and Payback	
			Cost Savings (dollars/year)	CO2 Reduction (MT/year)	Cost Savings (dollars)	CO2 Reduction (MT)	Ten Year ROI (percent)	Payback (years)
PhotoVoltaic Solar Panel (75W)	<input type="text" value="0"/>	\$0.00	\$0.00	0.00	\$0.00	0.00	0.00%	0.00
PhotoVoltaic Solar Panel (2000W)	<input type="text" value="0"/>	\$0.00	\$0.00	0.00	\$0.00	0.00	0.00%	0.00



How Can an Agency Use the Tool?

- Register by sending an email to:
carbonfootprint@gsa.gov

Approval will be required by the agency Senior Sustainability Officer (SSO)

- To gain access to the tool for previewing, go to **[https://www.carbonfootprint.gsa.gov!](https://www.carbonfootprint.gsa.gov)**