



## Meeting the Challenge of Executive Order 13514

June 16, 2010

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OECM  
Office of Management

# Agenda



1. Welcome to “Green Day”
2. EO 13514:
  - Targets and status
  - Agency (DOE) deliverables
  - The 28% Scope 1 and 2 goal
  - The 10% Scope 3 goal
  - The Strategic Sustainability Performance Plan (SSPP)
    - What it is
    - What it says
3. Next Steps
4. Questions



# Welcome to Green Day



- Facilities and Real Estate professionals play an integral role in sustainability and greenhouse gas management
- Expand the scope of the FIMS/RE workshop to inform and share best practices
  - Best practices include management practices and technological practices
- Thank you in advance to our speakers from across the complex and outside the DOE
  - Special thanks to Monja, Ivan and Nestor for getting them here!

# Recall:



On October 5, President Obama Signed Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*.





# EO 13514 Requirements & Status

	Requirement	DOE 09 Status
Scope 1&2 Greenhouse Gas (GHG) emission reduction from 2008 to 2020	Agency Establish (2020)	-----
• Energy intensity reduction (Btu/ft <sup>2</sup> )	30% (2003-2015)	17.2%
• Renewable electricity use	7.5% (2013)	4.2%**
• Fleet petroleum reduction	30% (2005-2020)	16.3%
<b>Other sustainability goals:</b>		
Scope 3 Greenhouse Gas (GHG) reduction target	Agency Establish (2020)	----
• Potable water intensity reduction (gal/ft <sup>2</sup> )	26% (2007-2020)	<3%
• Industrial/other water consumption reduction (gal)	20% (2010-2020)	new
• Recycling & waste diversion	50% (by 2015)	49%
• Procurements meet sustainability requirements	95% (each year)	new
• Buildings meet sustainability principles	15% (by 2015)	<3%
• Net-zero energy in new facilities	100% (by 2030)	new

# Agency Deliverables Under EO 13514



## Agency Responsibilities

Section	Description	Timeframe
7(a)	Designate Agency Senior Sustainability Officer (SSO)	COMPLETE
2(a)	Establish and report a target for agency-wide reductions of scope 1 and 2 GHG emissions	COMPLETE
2(b)	Establish and report a target for agency-wide reductions of scope 3 GHG emissions	COMPLETE
7(b)(ii)	Prepare and submit Agency Strategic Sustainability Performance Plan	COMPLETE
2(c)	Establish and report comprehensive agency GHG emissions inventory	Jan, 2011
7(b)(ii)	Prepare and submit annual update of Agency Strategic Sustainability Performance Plan	<b>Annually, starting 12 months after initial Plan submission</b>

# Agency Deliverables Under EO 13514



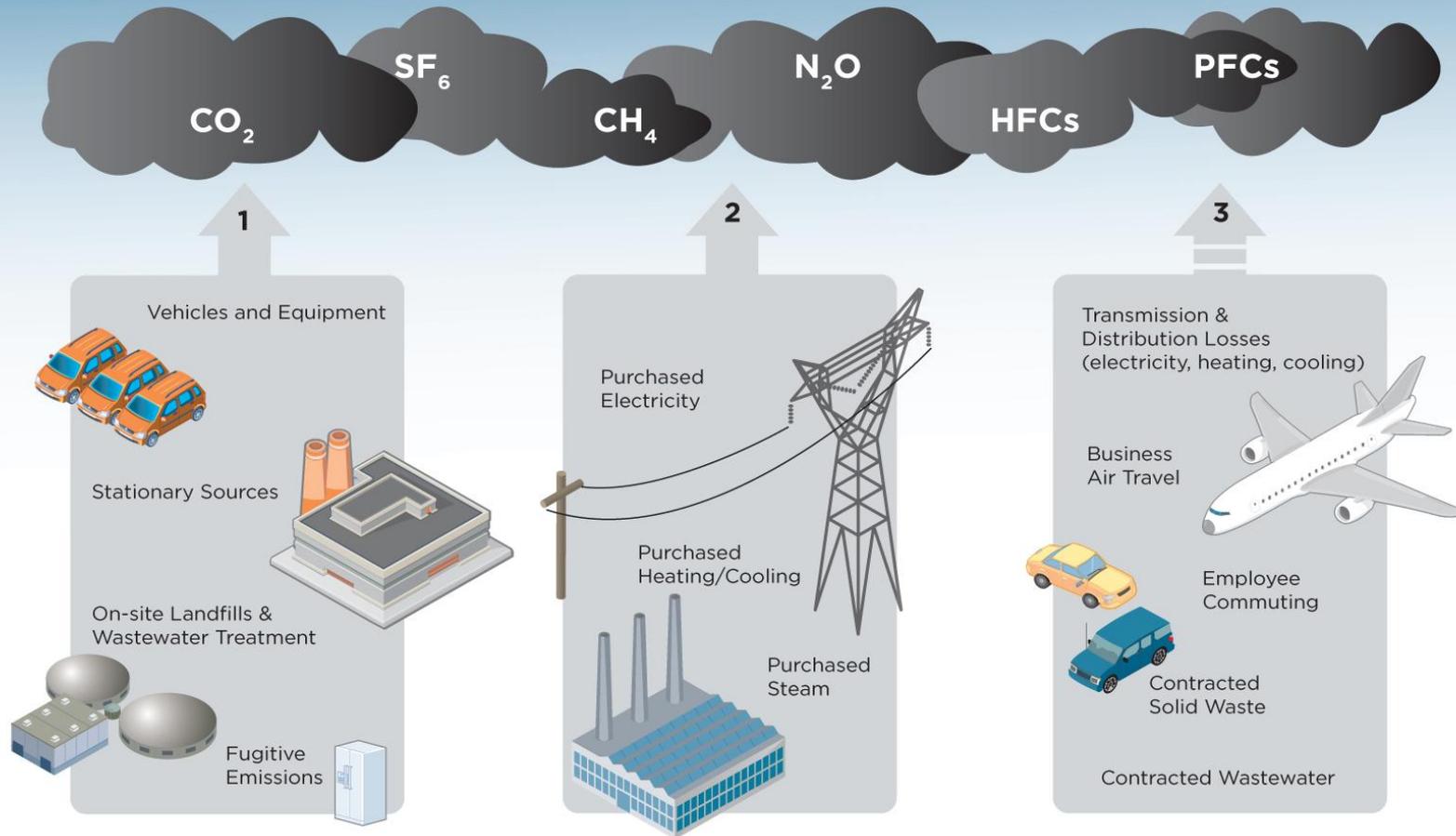
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# Three Scopes of GHG Emissions



## Common Sources of Federal Greenhouse Gas Emissions



### SCOPE 1:

Greenhouse gas emissions from sources that are owned or controlled by a Federal agency.

### SCOPE 2:

Greenhouse gas emissions resulting from the generation of electricity, heat, or steam purchased by a Federal agency.

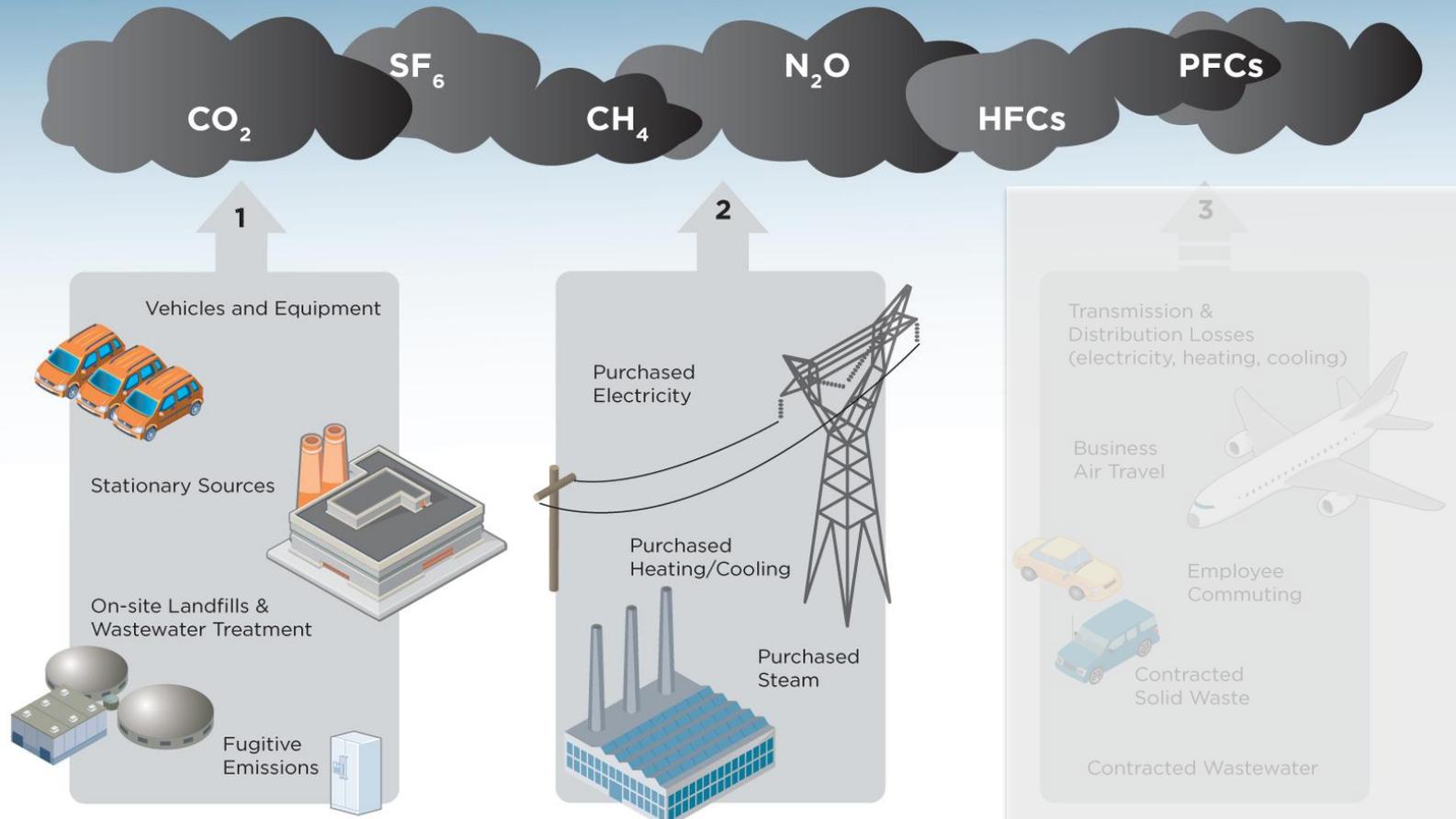
### SCOPE 3:

Greenhouse gas emissions from sources not owned or directly controlled by a Federal agency but related to agency activities.

# Scope 1 and 2: Direct + Purchased Electricity



## Common Sources of Federal Greenhouse Gas Emissions



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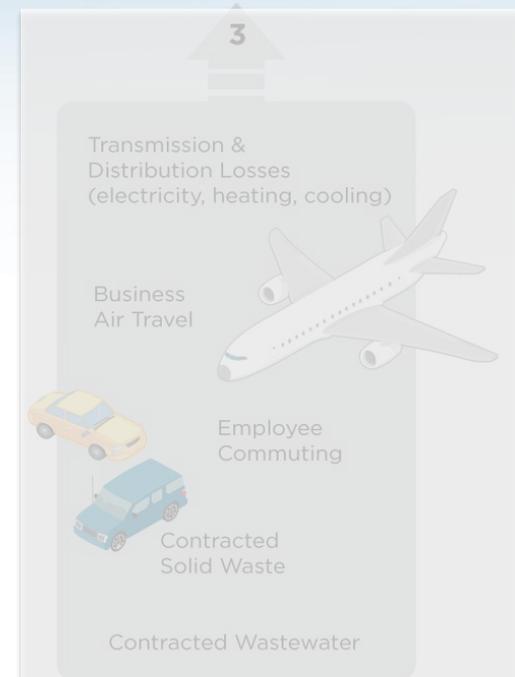
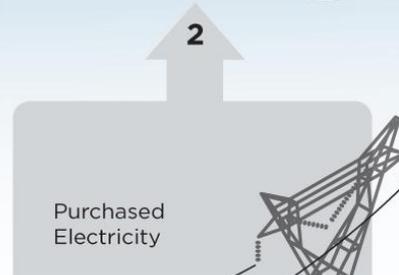
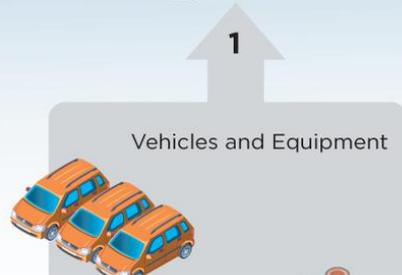
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# Scope 1 and 2: Direct + Purchased Electricity

## Common Sources of Federal Greenhouse Gas Emissions



# 28% Reduction



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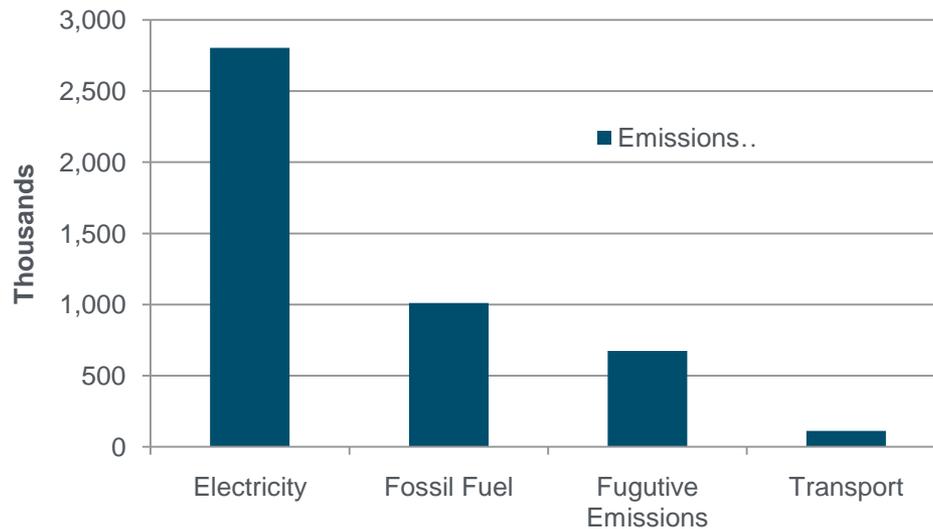
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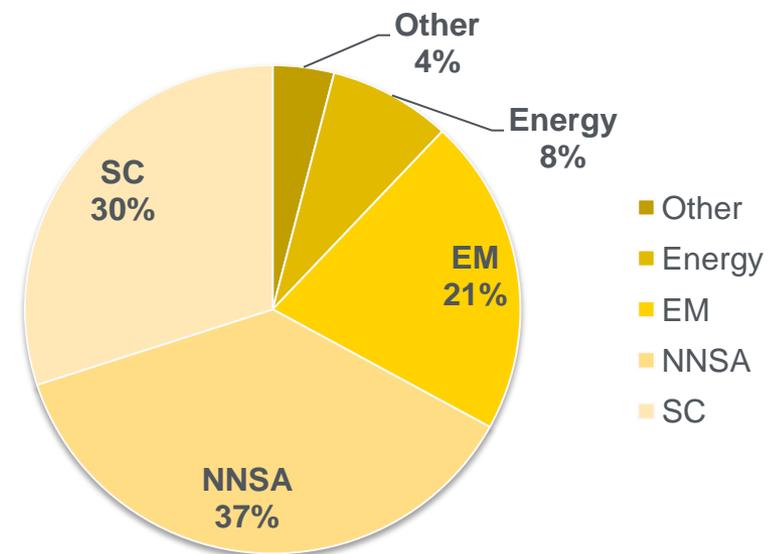
# Scope 1 and 2 Emission Profile

**Preliminary DOE 2008 Baseline for  
Scope 1 & 2 GHG Emissions = 4,600,000 mtCO<sub>2</sub>**

### DOE GHG by Source

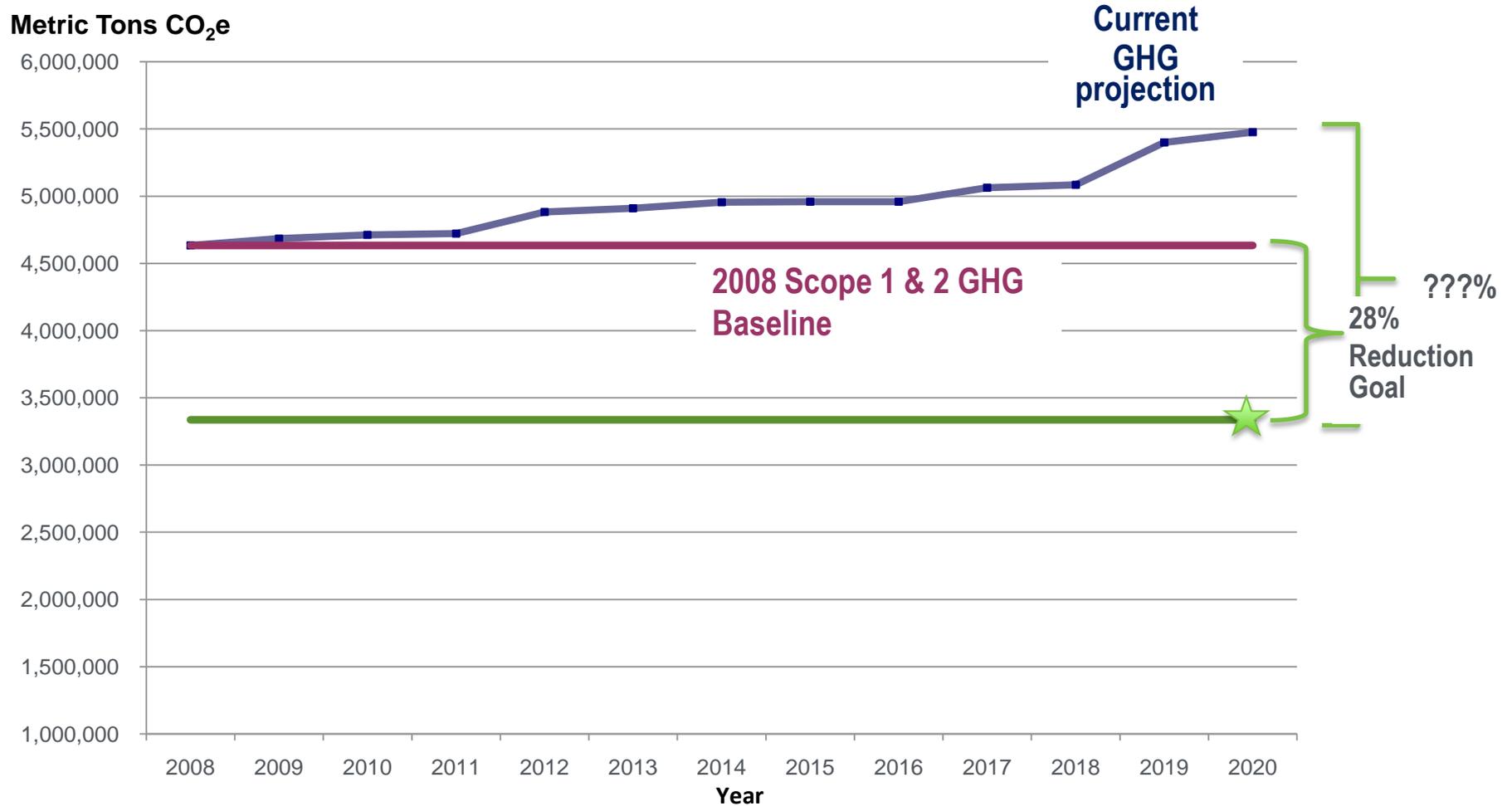


### GHG by Program



Purchased electricity is the biggest contributor of DOE GHG while fugitive emissions offers the best opportunities for immediate impact...

# Scope 1 and 2 GHG Emissions Projected 2008-2020



# Largest GHG Sites: Scope 1 and 2 Emissions Exceeding 25 mtCO<sub>2</sub>e (FY08 data)



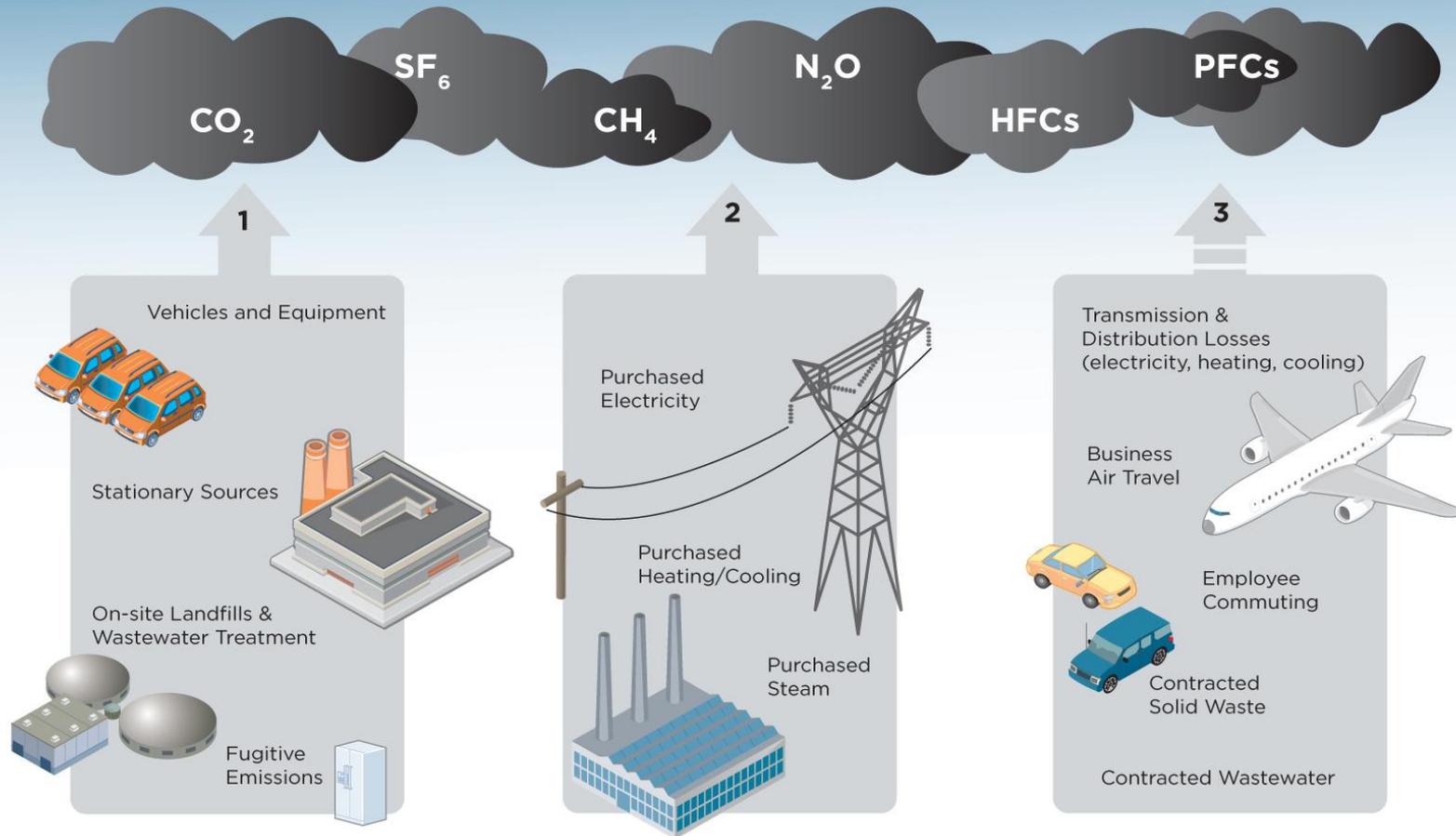
Program	Site	Total mtCO <sub>2</sub> e
NNSA	Sandia Lab	543,000
SC	Fermi Lab	437,000
SC	Oak Ridge Lab	383,000
NNSA	Los Alamos Lab	319,000
NNSA	Y-12 Site	313,000
SC	Argonne Lab	294,000
EM	Savannah River	294,000
SC	Brookhaven Lab	206,000
EM	SRS Steam Plant	192,000
NNSA	Livermore Lab	192,000
EM	Portsmouth Gas.	176,000
NNSA	Kansas City Plant	131,000
NE	Idaho Lab	108,000

Program	Site	Total mtCO <sub>2</sub> e
EM	Richland Site	92,000
SC	Stanford Lab	92,000
PMA	Bonneville PMA	79,000
NNSA	Pantex Plant	76,000
SC	Thomas Jefferson	67,000
SC	Princeton Plasma	64,000
EE	NREL	48,000
SC	Berkeley Lab	47,000
NR	Bettis Power Lab	44,000
NNSA	Nevada Test Site	39,000
PMA	Western PMA	34,000
SC	Pacific Northwest	34,000
NE	Idaho Falls Lab	25,000

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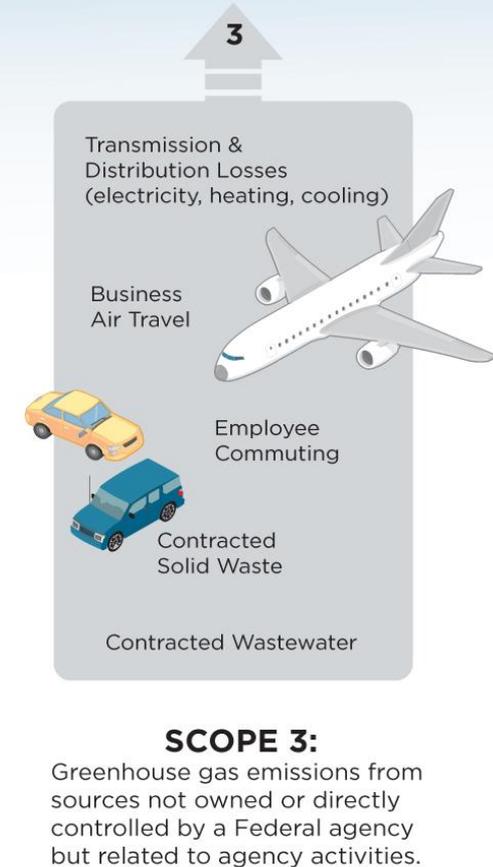
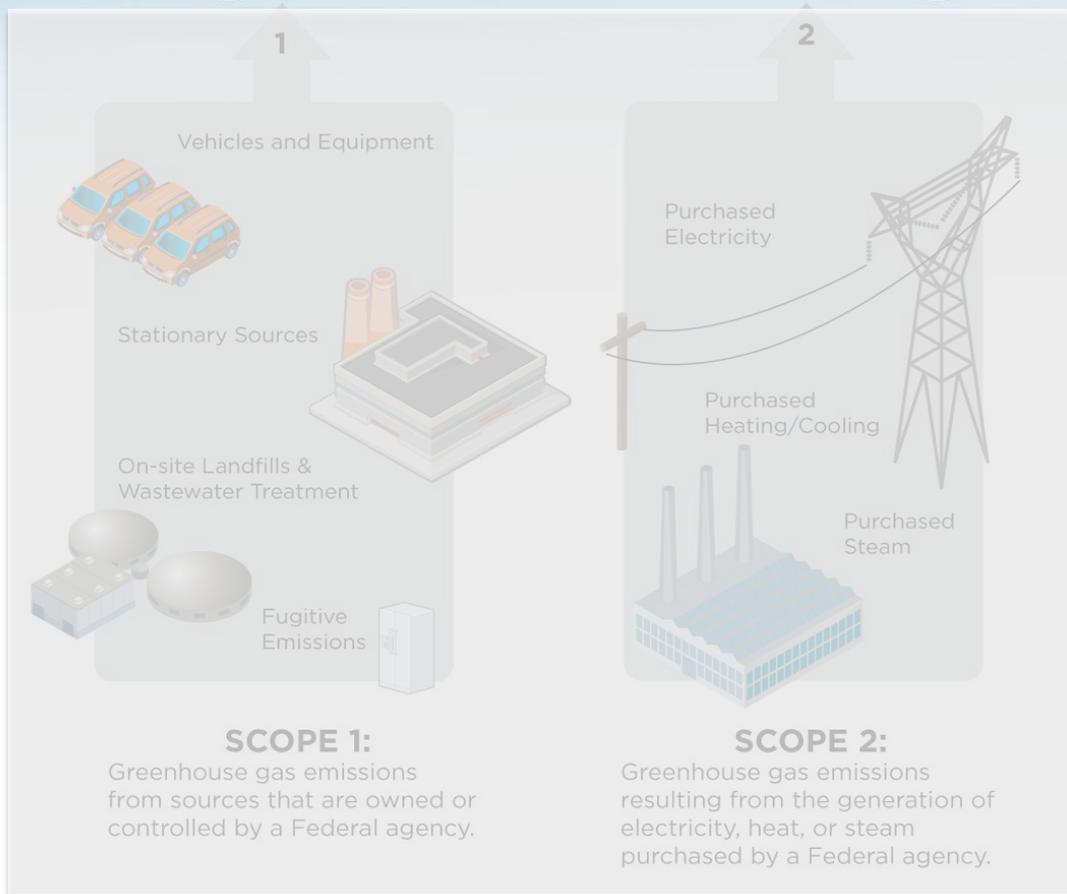
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# Scope 3 – Other Indirect



## Common Sources of Federal Greenhouse Gas Emissions





## Common Sources of Federal Greenhouse Gas Emissions

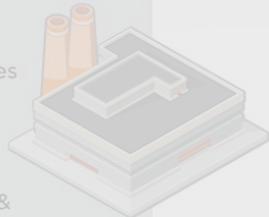


1

Vehicles and Equipment



Stationary Sources



On-site Landfills & Wastewater Treatment



Fugitive Emissions

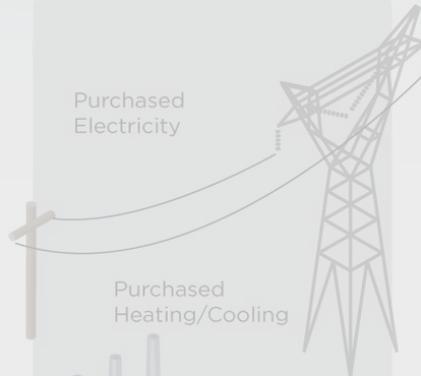


### SCOPE 1:

Greenhouse gas emissions from sources that are owned or controlled by a Federal agency.

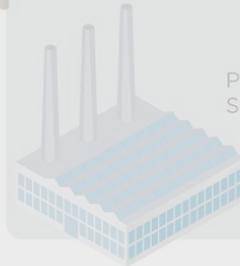
2

Purchased Electricity



Purchased Heating/Cooling

Purchased Steam



### SCOPE 2:

Greenhouse gas emissions resulting from the generation of electricity, heat, or steam purchased by a Federal agency.

3

Transmission & Distribution Losses  
(electricity, heating, cooling)



# 10%

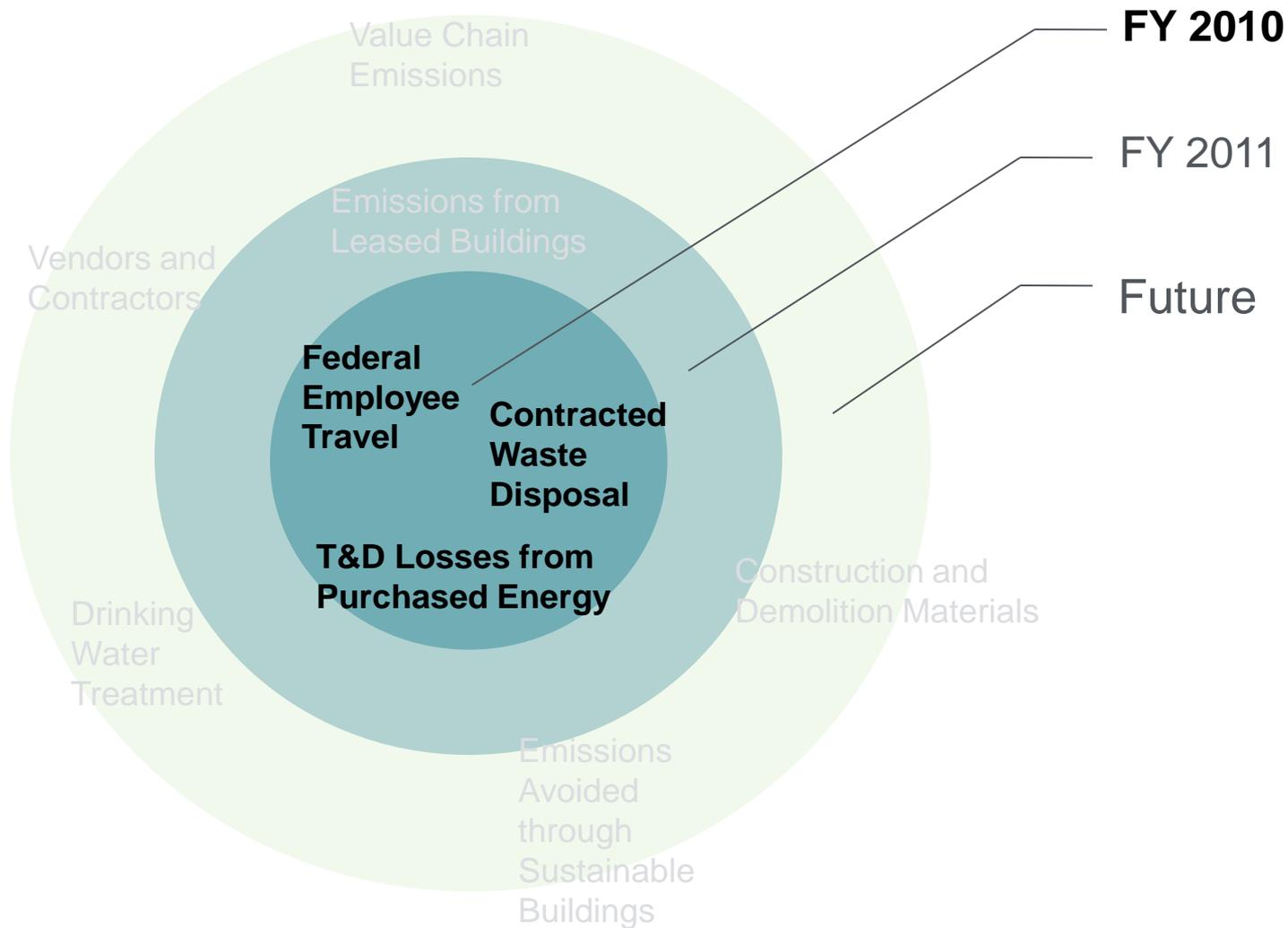
# Reduction

Contracted Wastewater

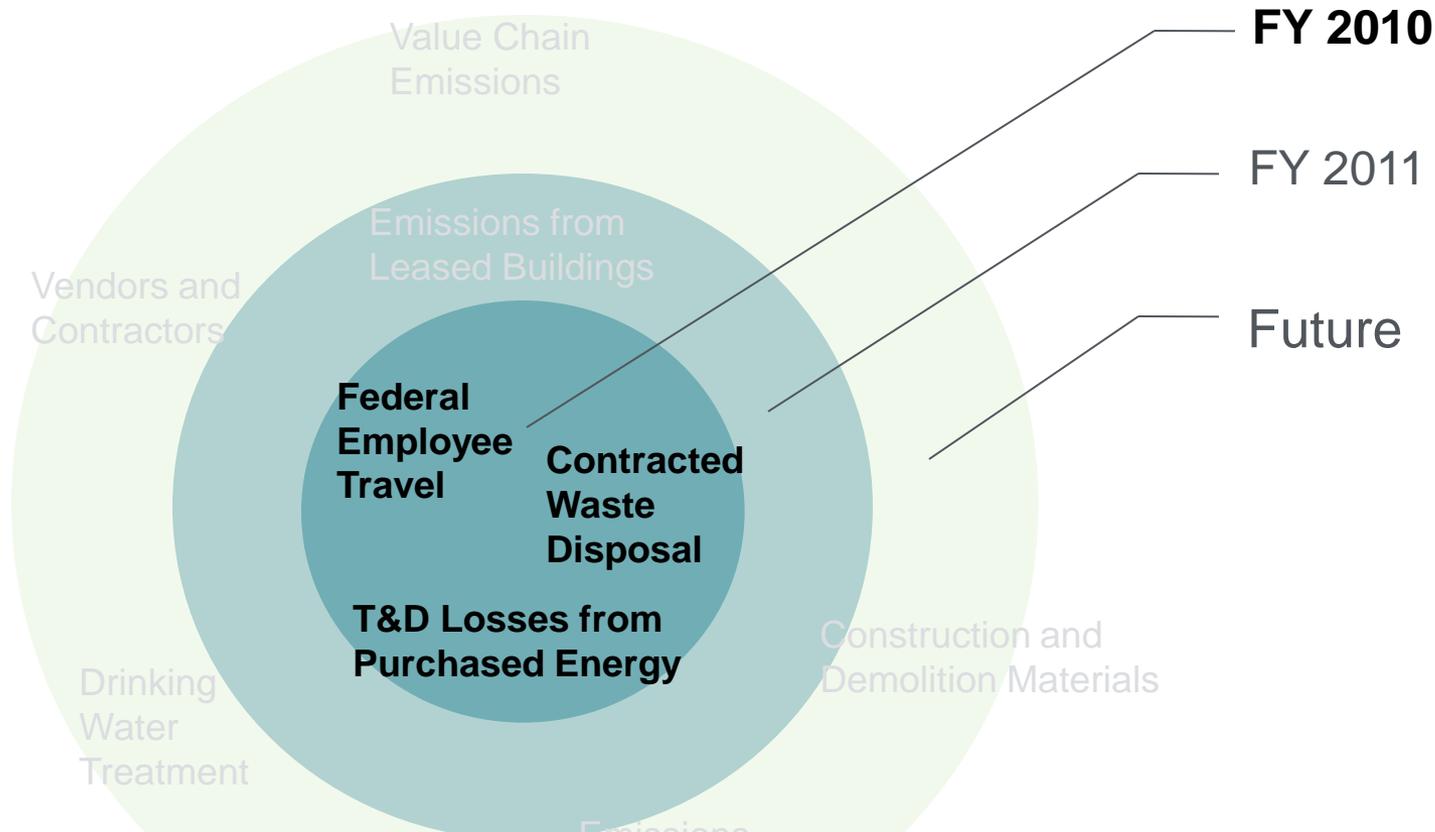
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# Scope 3 Greenhouse Gas Reporting



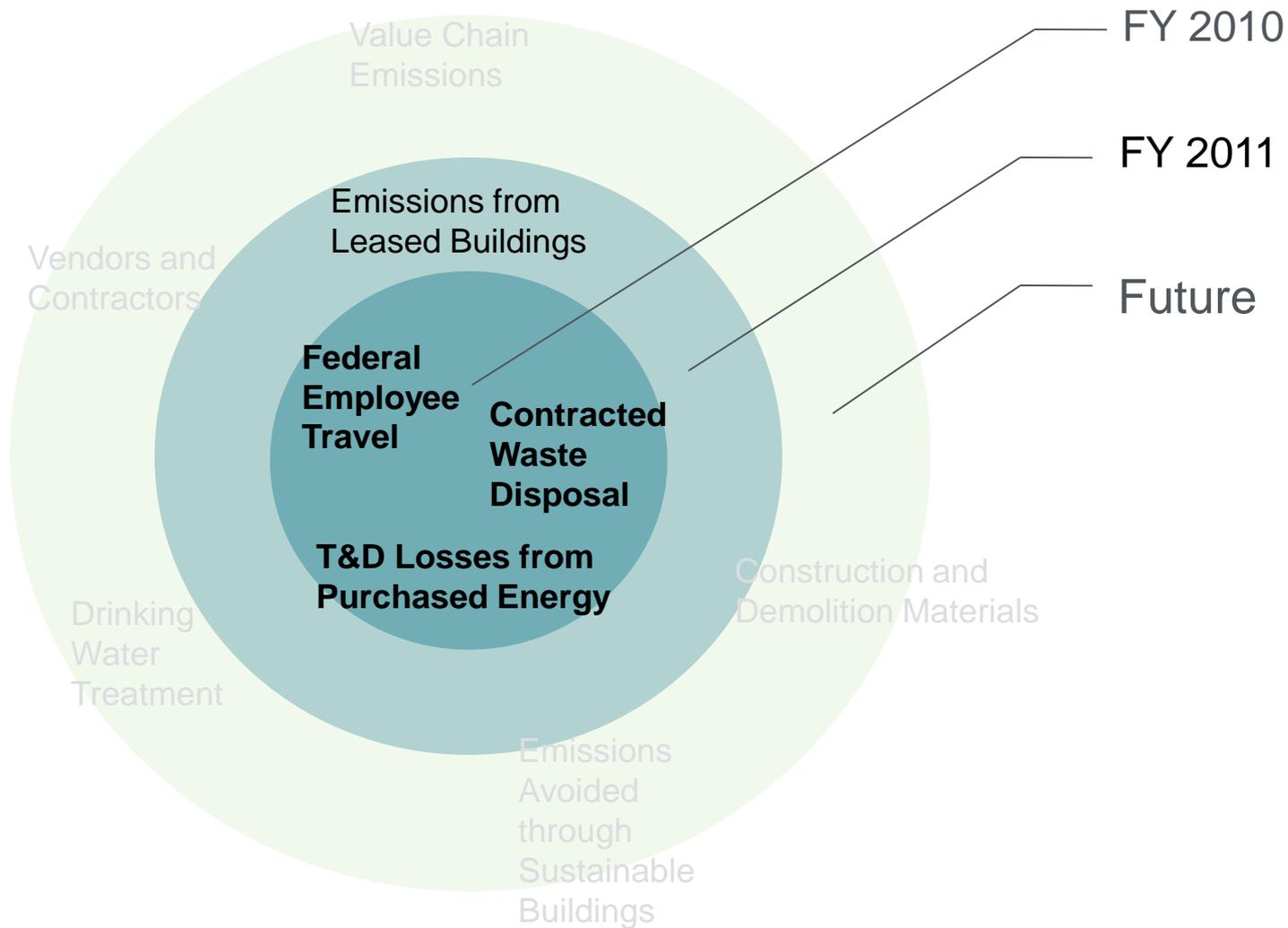
# Scope 3 Greenhouse Gas Reporting



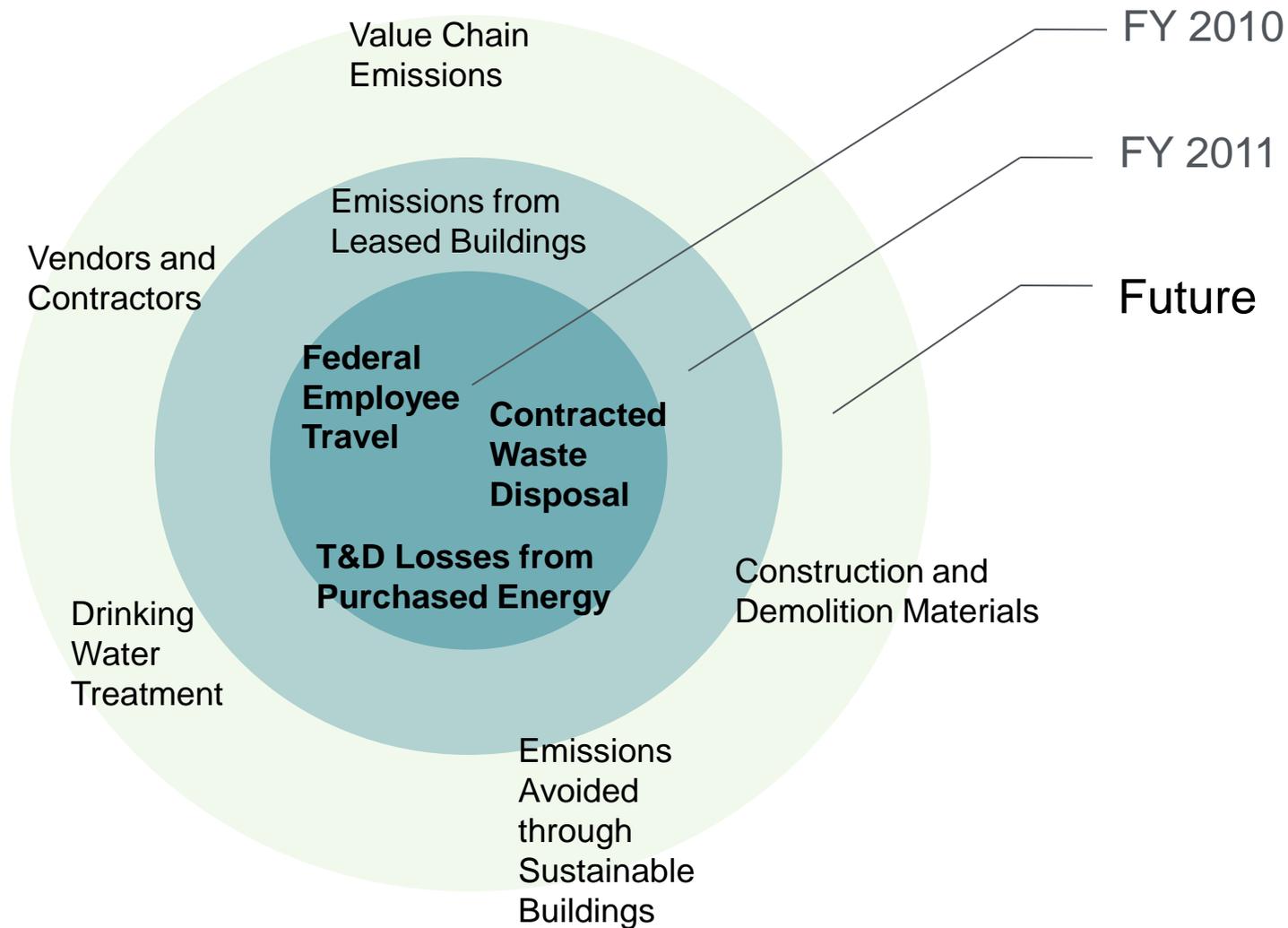
Scope 3 Category	Reduction Goal by 2020
Employee Travel	12%
Waste Disposal	12%
Electricity T&D Losses	6 %

} Weighted Average = 10%

# Scope 3 Greenhouse Gas Reporting



# Scope 3 Greenhouse Gas Reporting



# Strategic Sustainability Performance Plan (SSPP)



- SSPP has two main sections + a self evaluation:

Update as Required

## Section 1: Agency Policy and Strategy

- I. Agency Policy Statement
- II. Sustainability and the Agency Mission
- III. Greenhouse Gas Reduction Goals
- IV. Plan Implementation
- V. Evaluating Return on Investment
- VI. Transparency

Plan Foundation

Update Annually

## Section 2: Performance Review & Annual Update

- I. Summary of Accomplishments
- II. Goal Performance Review

## Section 3: Agency Self Evaluation

Body of Plan

# SSPP – Meeting the Goals

- Cross-cutting near term actions:
  - Improve data quality for management decision
  - Create a culture of sustainability
  - Develop high-leverage projects
  - Establish exemption process
  - Procure energy efficiently
  - Showcase successful projects and initiatives; examples:
    - Savannah River Site biomass plant
    - NREL and Oak Ridge low emitting buildings
    - NNSA Roof management program
    - Forrestal cool roofs and sub-metering
- Cross-cutting long term actions:
  - Encourage and enable innovative solutions from the National Labs
  - Initiate complex-wide training
  - Institutionalize sustainability into all operations and functions within the complex





# SSPP – Meeting the Goals (cont.)

Goal	Near Term (FY 2011/2012)	Long Term (FY 2013+)
Scope 1 & 2 GHG Reduction	<ul style="list-style-type: none"> <li>• Continue implementation of Executable Plans</li> <li>• Address data gaps</li> <li>• Develop investment proposals</li> <li>• Reduce SF<sub>6</sub> emissions</li> <li>• Reduce energy consumption by behavior change</li> </ul>	<ul style="list-style-type: none"> <li>• Design/construct low GHG buildings</li> <li>• Pursue Enhanced Use Lease Authority</li> <li>• Implement low carbon technologies</li> <li>• Pursue combined heat and power projects</li> </ul>
Scope 3 GHG Reduction	<ul style="list-style-type: none"> <li>• Reduce air travel</li> <li>• Increase use of video teleconference</li> <li>• Increase recycling</li> </ul>	<ul style="list-style-type: none"> <li>• Increase tele-working</li> <li>• Encourage shift to public transportation</li> </ul>
Energy Intensity Reduction	<ul style="list-style-type: none"> <li>• Install meters</li> <li>• Install cool roofs</li> <li>• Assess facilities &amp; processes</li> <li>• Conduct facility commissioning</li> <li>• Evaluate facilities and processes for exemption to Executive Order</li> <li>• Benchmark/track/disclose building performance</li> </ul>	<ul style="list-style-type: none"> <li>• Install cool roofs and high performance windows</li> <li>• Construct energy efficient facilities</li> <li>• Dispose of excess real property</li> <li>• Reduce energy related deferred maintenance</li> </ul>

# SSPP – Meeting the Goals (continued)



Goal	Near Term (FY 2011/2012)	Long Term (FY 2013+)
Renewable Energy Use	<ul style="list-style-type: none"> <li>• Buy “Green” power / certificates</li> <li>• Continue to develop biomass projects</li> <li>• Perform detailed assessments</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate renewable technologies</li> <li>• Develop on-site wind/solar energy generation</li> <li>• Convert coal plants to biomass</li> <li>• Propose extension of PPA authority</li> </ul>
Fleet Petroleum Reduction	<ul style="list-style-type: none"> <li>• Apply NREL’s Fleet Optimization Tool</li> <li>• Replace gas vehicles with hybrids</li> </ul>	<ul style="list-style-type: none"> <li>• Purchase hybrid medium &amp; heavy duty trucks</li> <li>• Install alternative fuel stations</li> <li>• Consider upgrading inventory of busses</li> </ul>
Sustainable Buildings	<ul style="list-style-type: none"> <li>• Survey buildings</li> <li>• Continue design to LEED Gold and verify performance</li> <li>• Incorporate sustainability into investment decision process</li> </ul>	<ul style="list-style-type: none"> <li>• Train federal facility managers on next generation of building technologies</li> <li>• Upgrade existing buildings</li> <li>• Verify LEED certified building performance</li> <li>• Construct ultra high efficiency concept buildings</li> </ul>
Potable & Industrial Water Reduction	<ul style="list-style-type: none"> <li>• Perform water surveys</li> <li>• Assess usage and install metering</li> <li>• Develop site water management plans</li> <li>• Evaluate facilities/processes for exemption</li> </ul>	<ul style="list-style-type: none"> <li>• Implement capital projects</li> <li>• Modify landscaping for low water use</li> </ul>
Pollution Prevention & Waste Elimination	<ul style="list-style-type: none"> <li>• Increase acquisition of environmentally preferable products</li> <li>• Implement equipment/electronic means to reduce paper use</li> <li>• Conduct toxic chemical &amp; fugitive gas use assessments</li> <li>• Implement fugitive gas reduction projects</li> </ul>	<ul style="list-style-type: none"> <li>• Implement compostable/organic material management program</li> <li>• Implement toxic chemical reduction strategies</li> </ul>



- Participate in CEQ/OMB-led roll-out of agency plans in late July
- Roll out the plan within the complex
- Finalize budget request by September
- Formally assign goals to program offices



"The uncertainty surrounding climate change argues for action, not inaction. America should lead the way... **Global warming is for real...**" - *The Economist* September 9th-15th 2006, p. 5.