

# Controlling Fugitive Emissions to Achieve GHG Reduction Goals

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# Tracking Fugitives



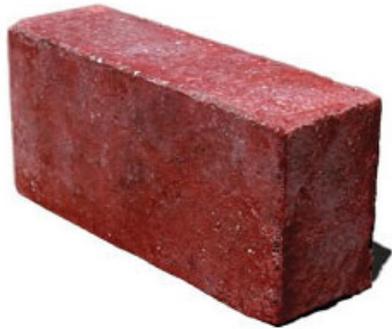
# What are Fugitive GHG Emissions?

- GHG emissions resulting from production, processing, storage, transmission, and use of fluorinated gases
  - **Sulfur hexafluoride (SF<sub>6</sub>)**
  - Hydrofluorocarbons (HFCs)
  - Perfluorocarbons (PFCs)
  - Nitrogen Trifluoride (NF<sub>3</sub>)
- Releases may be intentional or unintentional
- Considered Scope 1 GHG (direct emissions), along with on-site fuel combustion

Greenhouse Gas	Global Warming Potential (100 year time span)
SF <sub>6</sub>	23,900
HFC	12 – 11,700
PFC	0 – 17,340
NF <sub>3</sub>	17,200

*Global Warming Potential: the ability of a greenhouse gas to trap heat in the atmosphere, relative to the same unit of carbon dioxide (CO<sub>2</sub>).*

# How Big is 23,900?

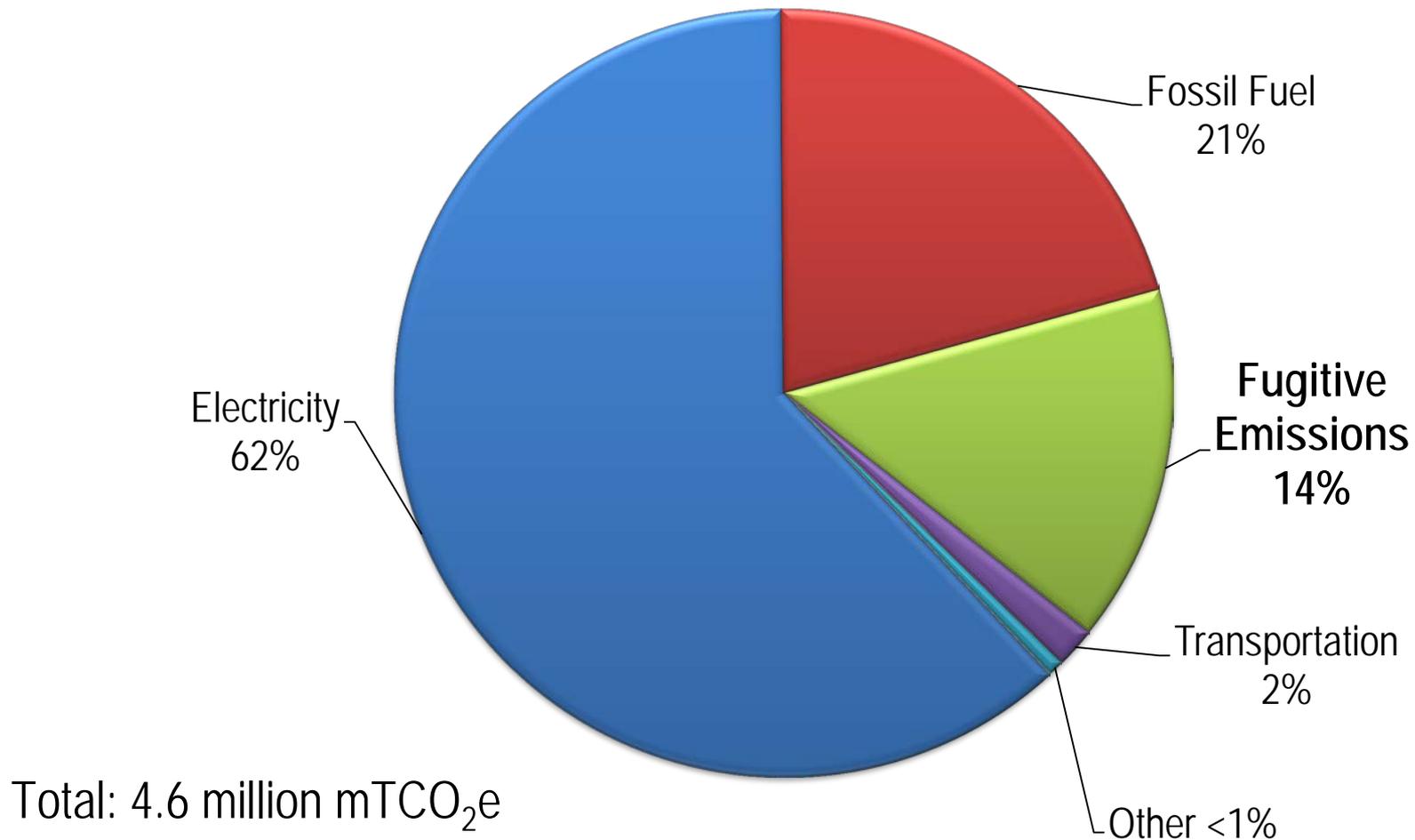


*If this represents  
the global  
warming potential  
a unit of CO<sub>2</sub> ...*

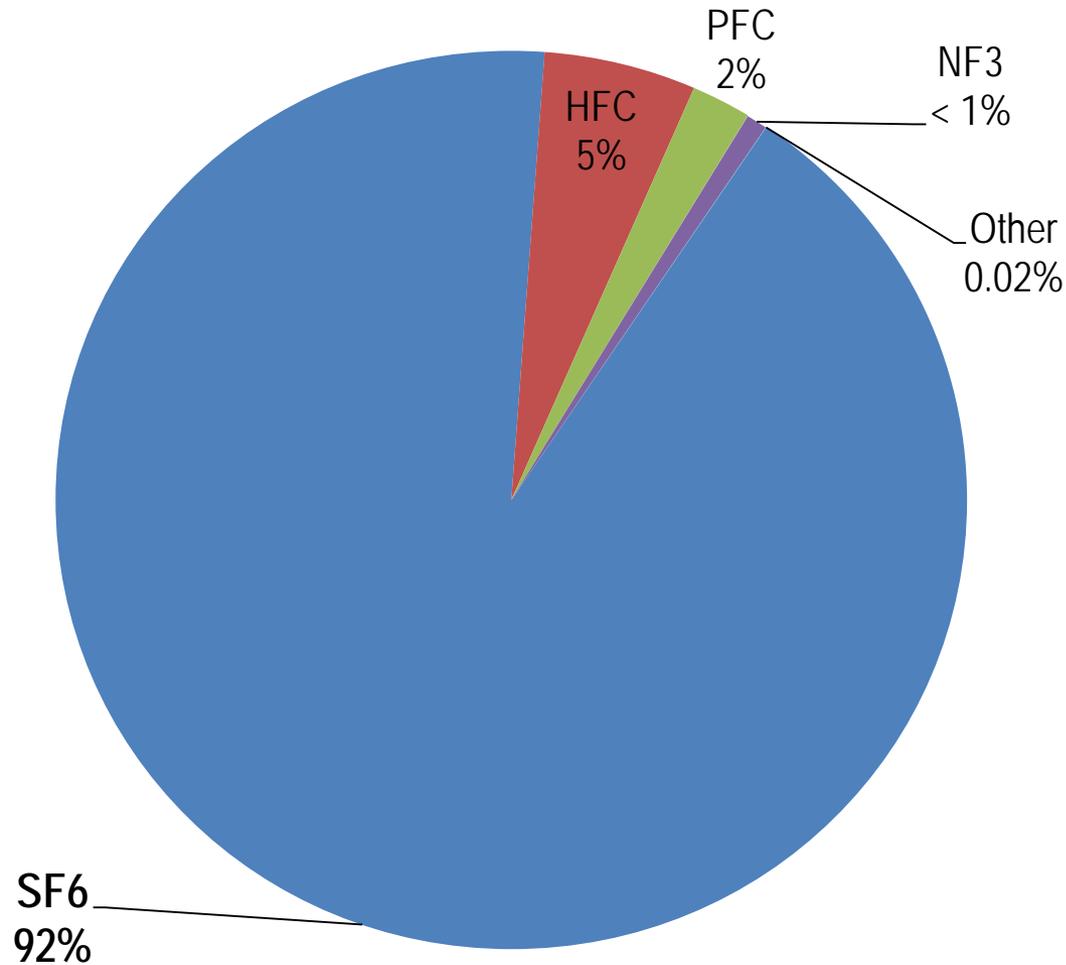


*This represents the global warming  
potential of the same unit of SF<sub>6</sub>*

# DOE 2008 Scope 1 and 2 GHG Emissions Baseline (by Source)



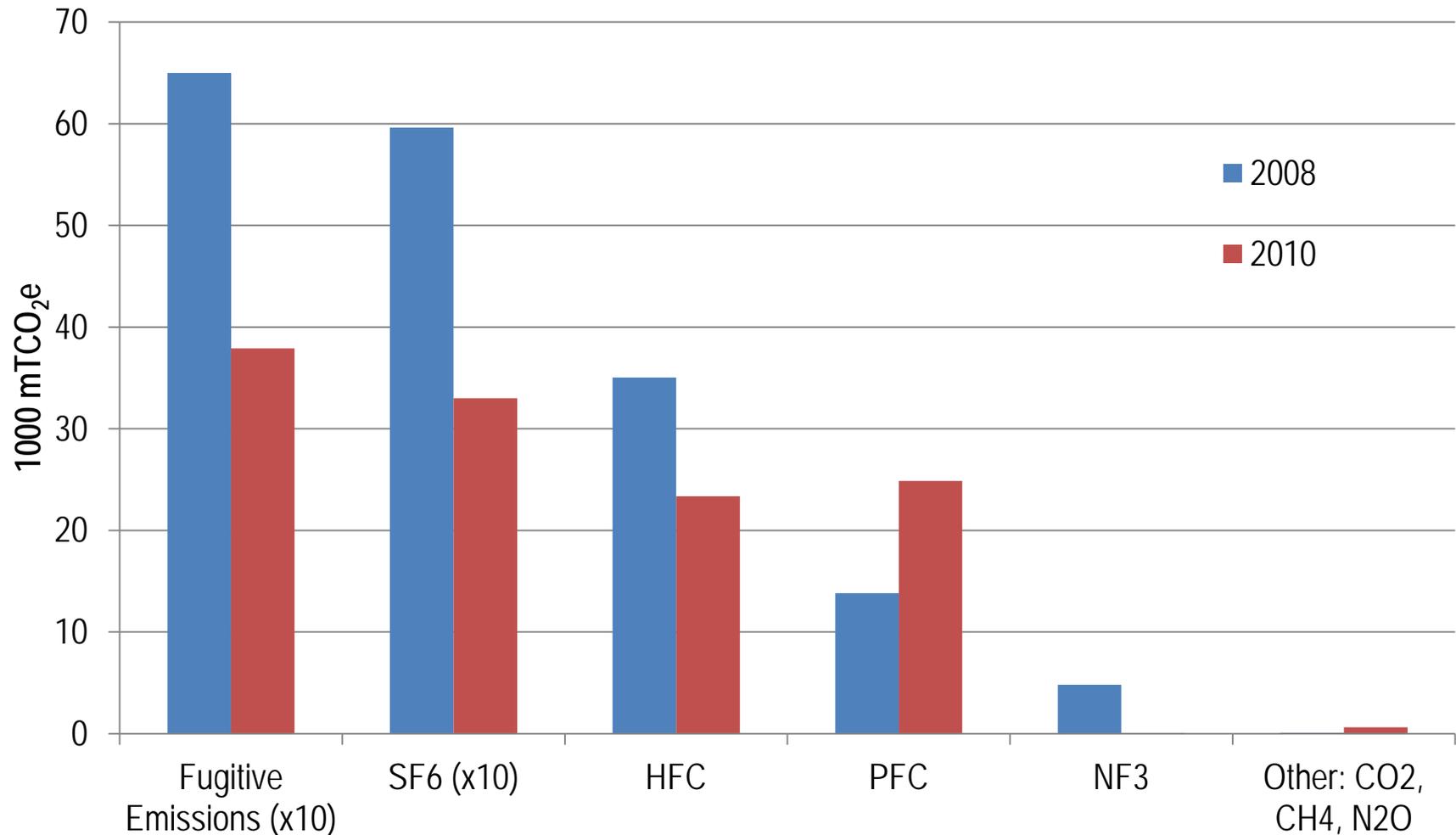
# DOE 2008 Fugitive Emissions Baseline (by Type)



# Implementation Plan to Reduce Fugitive Emissions

- Establish Fugitive Emissions Working Group to guide Departmental approach and share information
- Reduce SF<sub>6</sub> releases from maintenance actions
  - Install and use capture and storage equipment
- Strengthen leak detection and repair programs
  - Focus on SF<sub>6</sub> systems
- Conduct opportunity assessments to identify reduction opportunities for use/release of high-GWP GHGs
  - Focus on facilities using large quantities of SF<sub>6</sub>

# Fugitive Emissions Reductions: 42% drop from FY08 to FY10





# Challenges—and Opportunities

- SF<sub>6</sub> is mission-critical at several sites
  - No substitutes for DOE's highest-volume applications
  - Price volatility and increased regulatory pressure likely
- Business case for reducing fugitive emissions
  - Regulatory and price volatility require greater attention to SF<sub>6</sub> management
  - DOE has found low-cost emissions abatement opportunities at most sites
  - Fugitive reductions will contribute substantially to the Department's overall reduction goal for Scope 1 and 2 GHGs

# What We've Learned

- Precision and certainty are not required to take action
  - Taking steps to reduce emissions was more important than resolving data discrepancies
- Line responsibility is essential to successful implementation
- It's a team sport—success is defined by the strength of our relationships
  - Problem was quickly defined because HQ and field had longstanding, effective working relationships
  - Site success stories typically cross organizational boundaries
  - Fugitive Emissions Working Group was recognized last week with a Secretarial Achievement Award

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