

Greenhouse Gas Emissions: Industry Impact of a Federal Cap and Trade Program

2009 Annual Spring Environment Conference
& Green Technology Expo

Presented by:

Josh Wilson

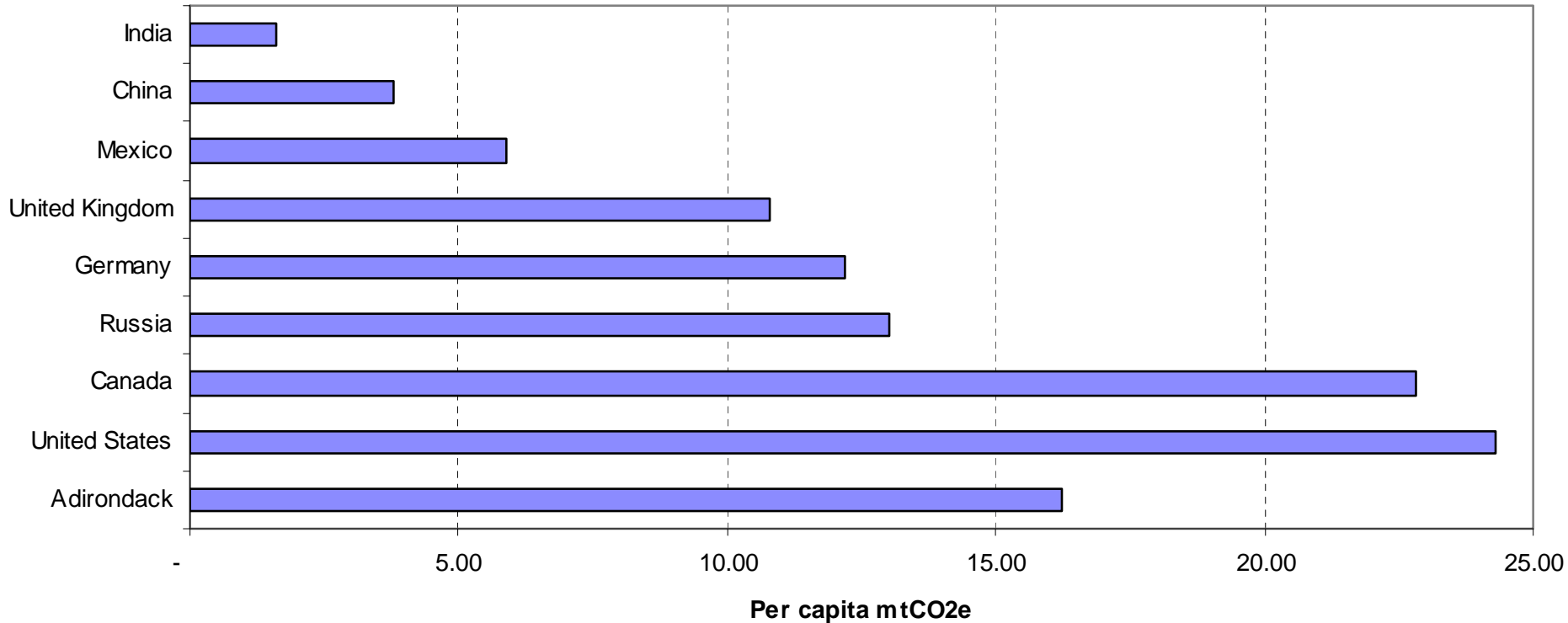


Agenda

- **US GHG emissions**
- **Current US carbon landscape**
- **EPA proposed GHG reporting rule**
- **Waxman Markey Bill and implications**

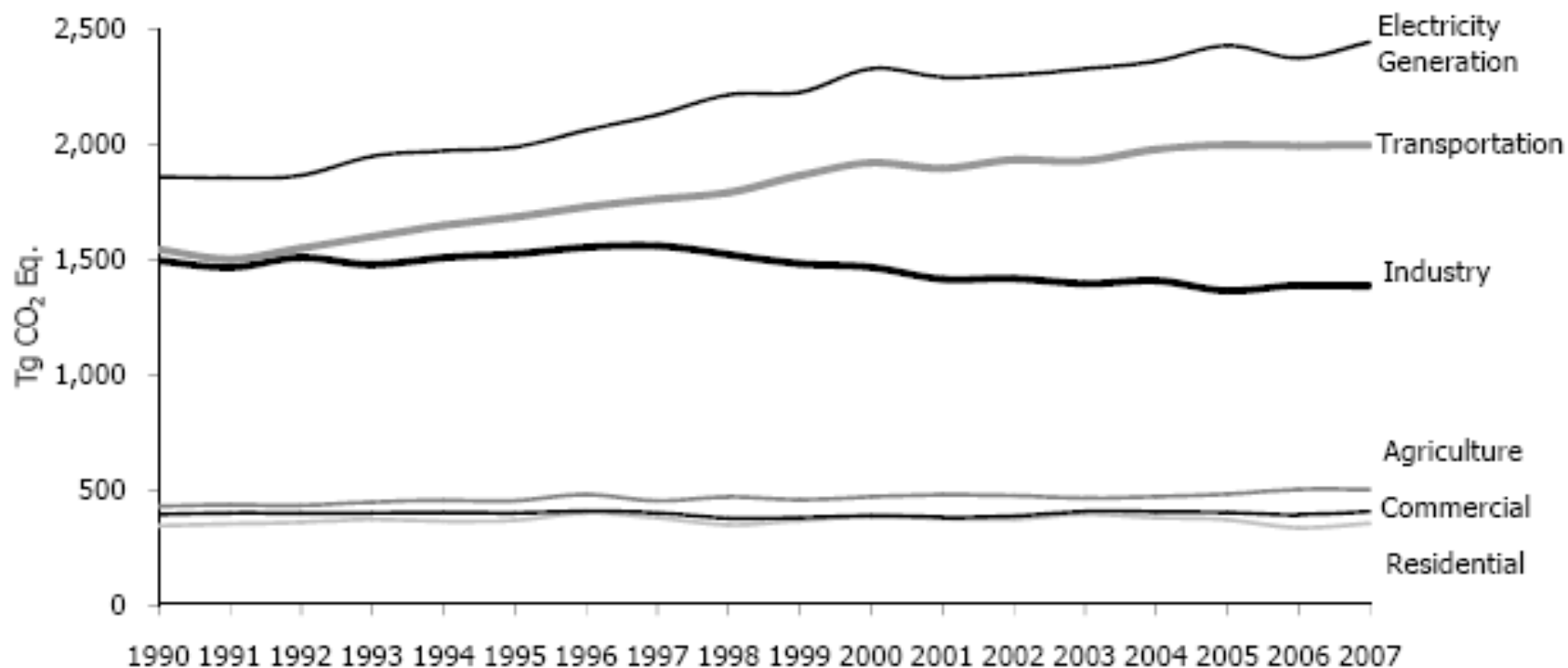


US Per Capita Emissions



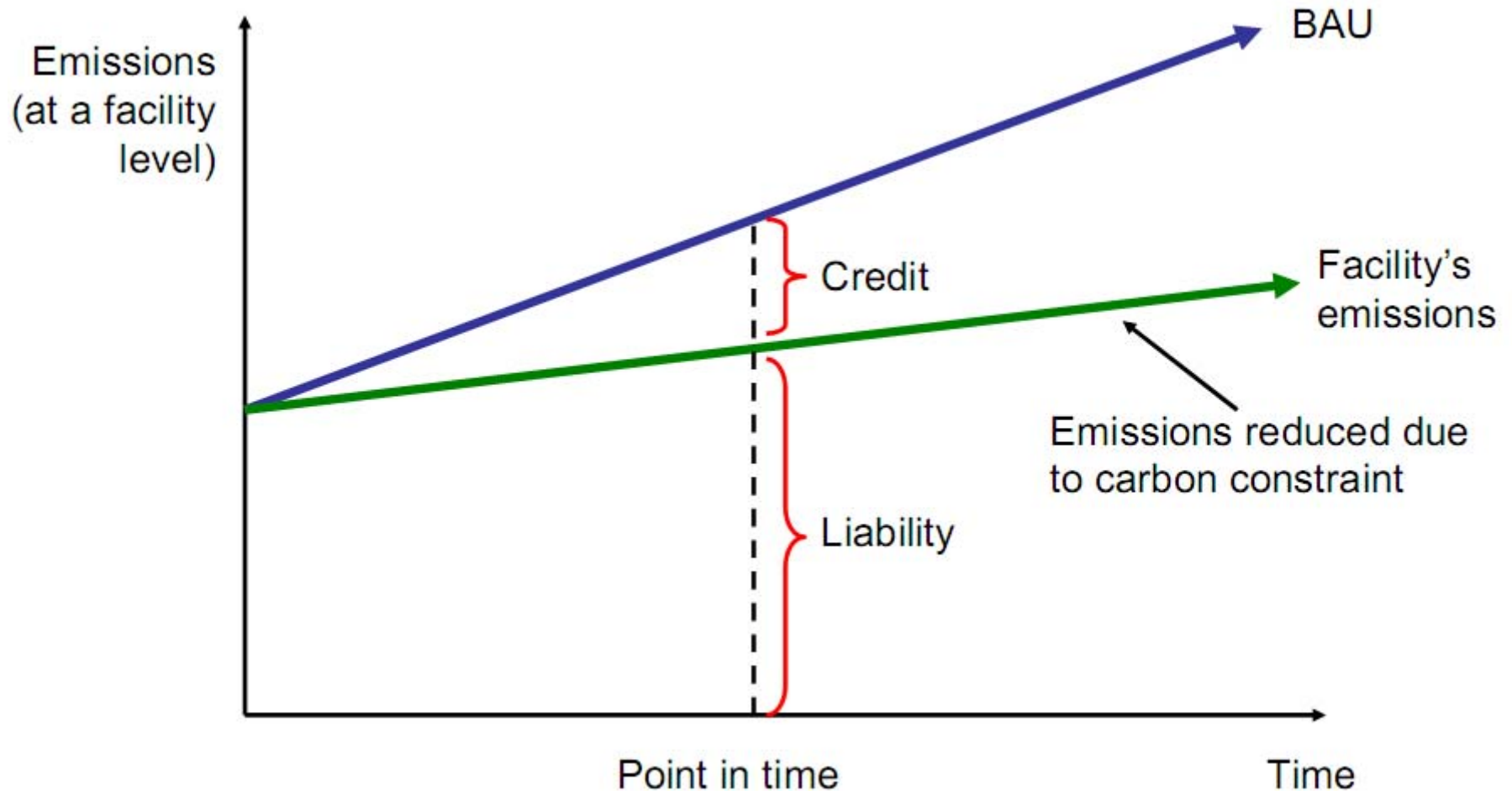
Note: Adirondack reflects 'Blue Line' area, and reflects that much industry and commerce is just outside the Blue Line.

GHG Emissions Trend by Economic Sector



Source: USEPA 2009 GHG Inventory Report

Baseline and Credit vs. Cap and Trade



Current US Carbon Landscape

Voluntary GHG Programs

Reduction Programs

- EPA Climate Leaders
- DOE 1605(b)

Investor Disclosure

- Global Reporting Initiative
- Carbon Disclosure Project

Registries

- California Climate Action Registry
- The Climate Registry
- Offset
- Chicago Climate Exchange
- Climate Action Reserve
- Voluntary Carbon Standard



DOE 1605b and USEPA Climate Leaders

- 1992 and 2002 respectively
- Together around 350 members
- Voluntary reduction programs, requiring target setting
- Do not require entity wide reporting – entity can choose facilities to report
- Developed sector specific methods
- Limited public disclosure requirements
- Not always compliant with international standards for entity reporting
- Limited verification



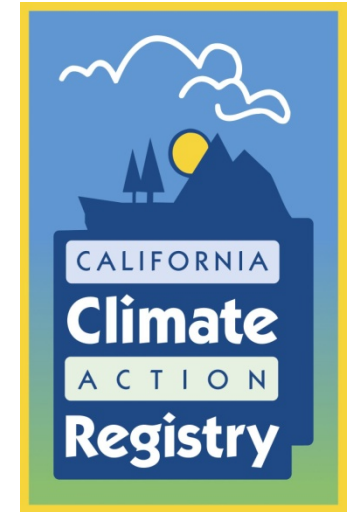
Voluntary Registries

- **Database for receiving and storing GHG data sets (e.g., organization GHG inventories, GHG reduction reports)**
 - **The California Climate Action Registry**
 - **The Climate Registry**



California Climate Action Registry

- **State chartered in 2001.**
- **Voluntary registry**
- **Includes detailed, stringent sector-based protocols:**
 - Cement
 - Power Utility
 - Forest
 - Landfill
 - Livestock
- **Requires third-party verification**
- **Foundation for California AB-32 – Global Warming Solutions Act**



The Climate Registry

- **Background**
 - Supports state GHG reporting programs
 - A non-profit organization governed by member states/provinces
- **The largest climate initiative in North America**
 - Covers 80% of population of North America
 - Policy neutral — leaves policy to the states
 - Aims to become the recognized platform and the supporting arm for states and provinces initiatives
- **Begins accepting reports for 2008 emissions in 2009**



The Climate Registry *(Cont.)*

- **Precise, accurate and representative**
 - Consistent with WRI/WBCSD GHG Protocol
 - Compatible with ISO 14064 / ISO 14065
- **Entity-wide & facility-level reporting**
- **All Six Kyoto GHGs**
- **North American Reporting, including Direct GHG emissions from stationary and mobile combustion, process vents and fugitive emissions, and**
- **Third-party verification required by ANSI accredited verification body**

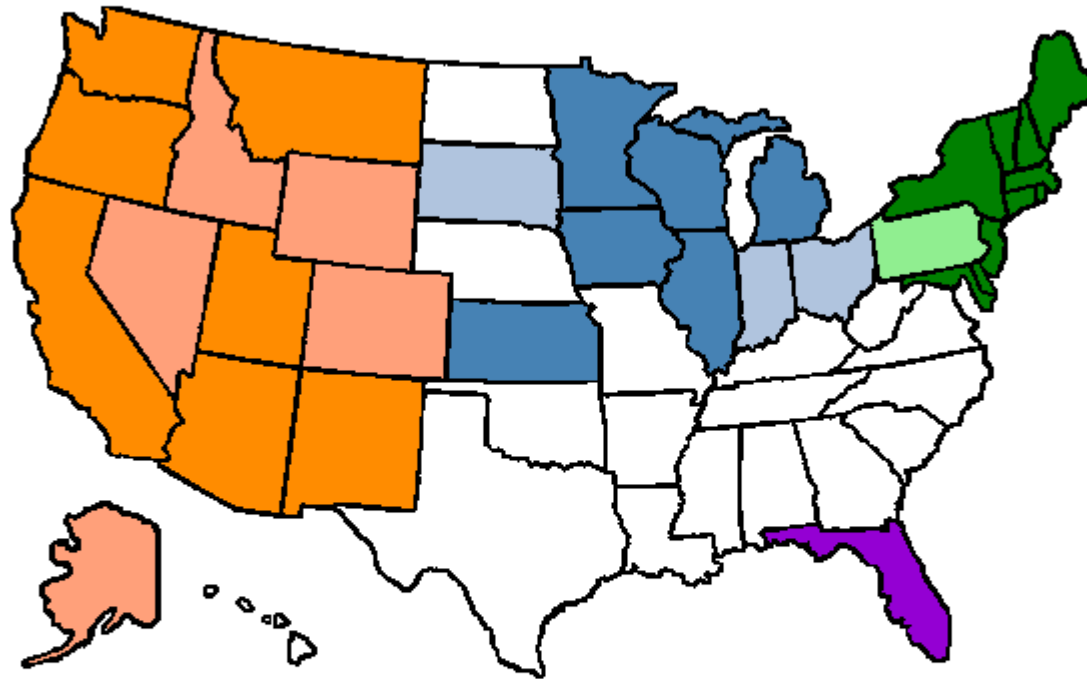
Mandatory Programs

- **Regional and state programs**
 - Regional Greenhouse Gas Initiative (RGGI)
 - California AB32
 - Western Climate Initiative (WCI)
- **EPA Mandatory GHG Reporting Program**

Regional Initiatives

By *houkj*

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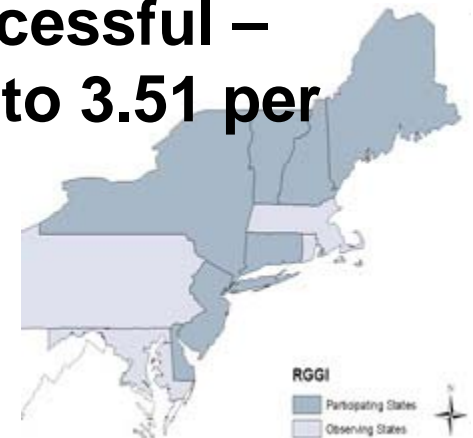


- Regional Greenhouse Gas Initiative RGGI
- RGGI Observer
- Midwest GHG Reduction Accord
- MGGRA Observer
- Western Climate Initiative
- Western Climate Initiative Observer
- Individual State Cap-and-Trade Program

Source: Pew Center on Global Climate Change

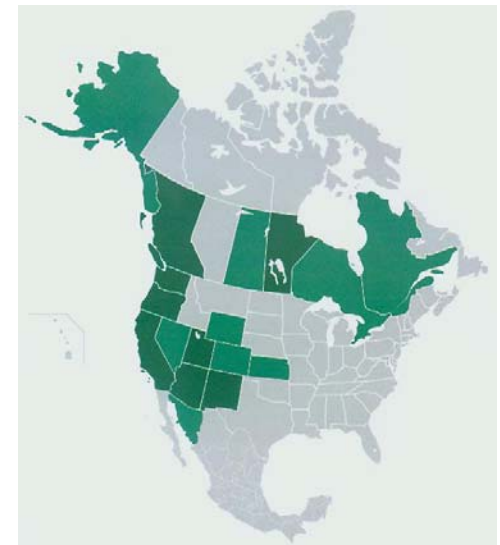
RGGI

- **10 member states in Northeast**
- **CO2 only**
- **Electricity generators 25 MW and larger (225 facilities)**
- **Target: reduce emissions 10% below 2009 levels by 2018**
- **100% auction**
- **Three auctions so far – technically successful – relatively stable price for around \$3.07 to 3.51 per ton.**

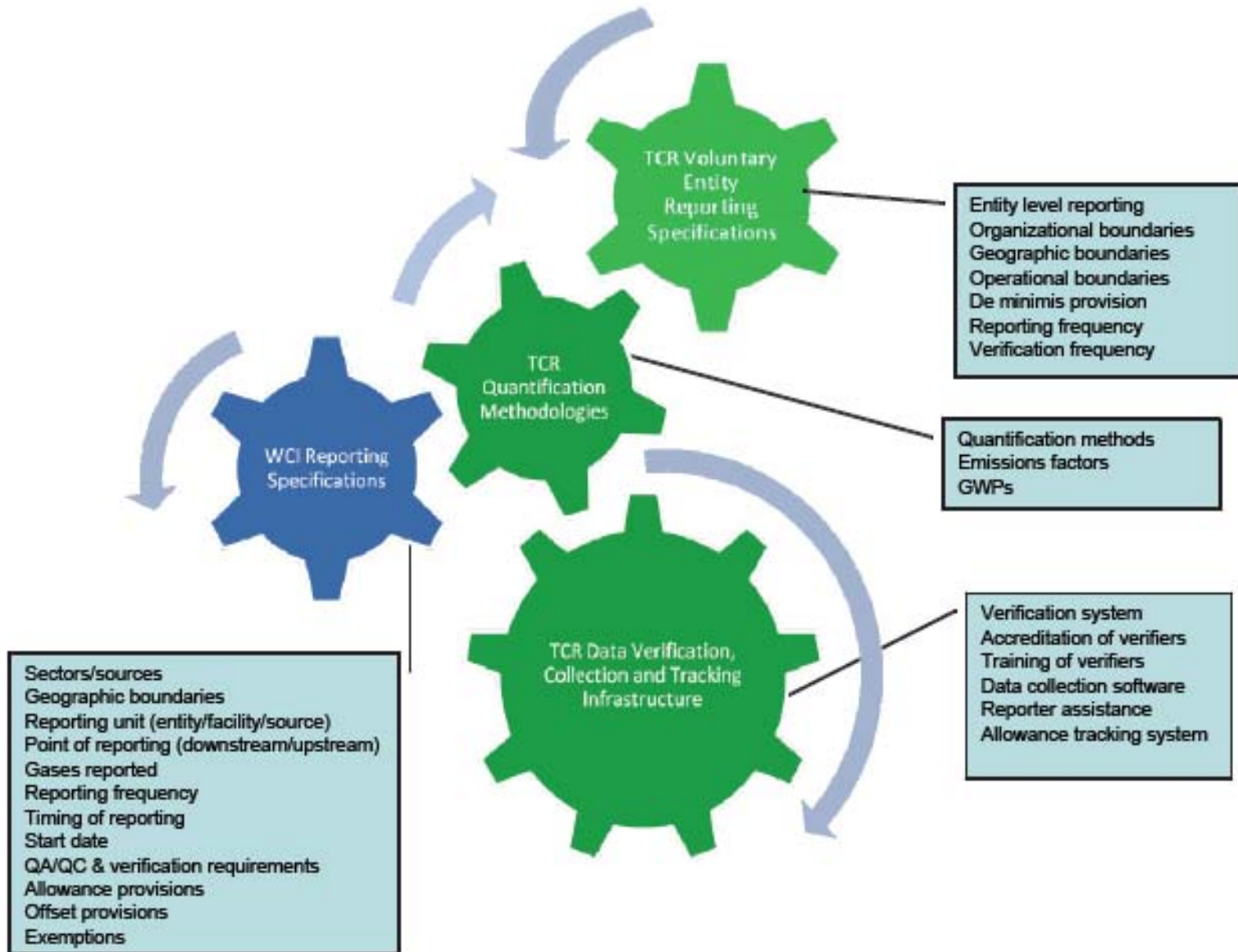


Western Climate Initiative

- **Seven US states and four Canadian Provinces**
- **Likely 25 mt CO₂e threshold**
- **Target: 15% below 2005 levels by 2020**
- **Definition for Point of Reporting (PoR): includes electricity importers, transportation and heating fuel suppliers.**



Interdependence of Programs



Proposed EPA Mandatory GHG Reporting Rule

Proposed EPA Mandatory GHG Reporting

- Required by law (Dec. 2007)
- Proposed rule March 10, 2009
- 25K mt CO₂e threshold
- Six GHGs (CO₂, N₂O, CH₄, HFC, PFC, SF₆)
- Must report 2010 emissions in 2011
- Facility based reporting – but includes special rules for upstream fuel suppliers and transportation sector
- Public comments until June 9, 2009

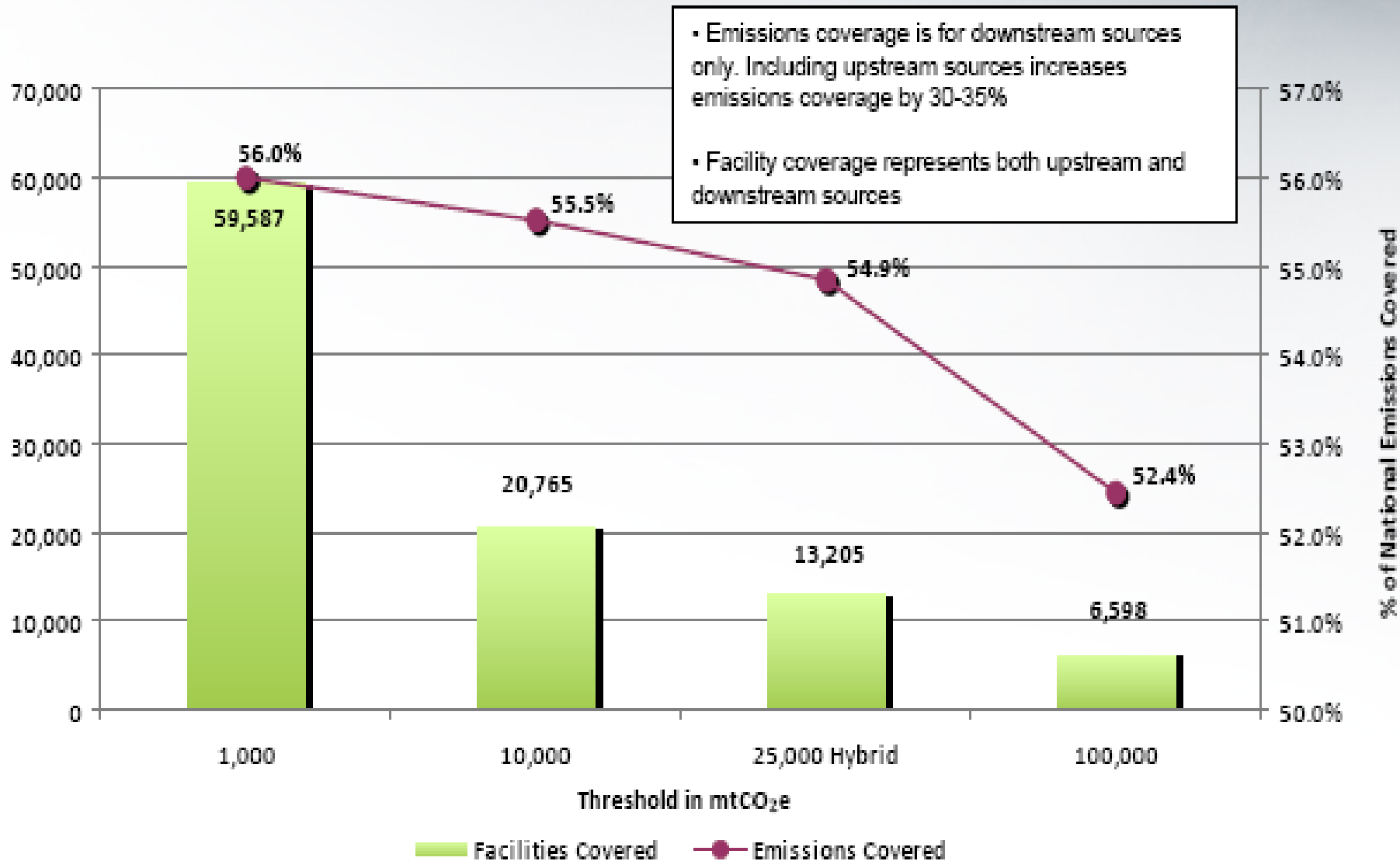


How much is 25,000 mt CO₂e?

- Annual energy use from 2,200 US homes
- 58,000 barrels of oil
- 131 rail cars of coal
- 10,000 head of cattle (annually)



Coverage by threshold



Reporting Methodologies

- **Hybrid of direct measurement, where available, and facility- specific calculation for other sources**
 - Use direct measurement of emissions where facilities already reporting and collecting (e.g., Acid Rain Program) and facility-specific calculations for other source categories
- **Generally, vehicle/engine manufacturers would use existing certification and test protocols**
- **Industrial gas suppliers use direct reporting of gas produced, imported and exported**
- **EPA direct reporting system for fuel quantity and quality information**

Proposed EPA Mandatory GHG Reporting (cont)

Reporting methodologies proposed by EPA:

Sector	Reporters
Electricity Generation	Power plants
Transportation	Vehicle and Engine Manufacturers
Industrial	All large industrial emitters, including those in the following industries:
<i>Metals</i>	Iron and Steel, Aluminum, Magnesium, Ferroalloy, Zinc, and Lead
<i>Minerals</i>	Cement, Lime, Glass, Silicon Carbide, Pulp and Paper
<i>Chemicals</i>	HCFC-22, Ammonia, Nitric Acid, Adipic Acid, SF6 from Electrical Equipment, Hydrogen, Petrochemicals, Titanium Dioxide, Soda Ash, Phosphoric Acid, Electronics, Titanium Dioxide
<i>Oil and Gas</i>	Components of oil and gas systems, Underground coal mining
Other	Landfills, Wastewater Treatment, Ethanol, Food Processing
Agriculture	Manure Management
Upstream Suppliers*	Petroleum Refineries, Gas Processors, Natural Gas Distribution Companies, Coal Mines, Importers, Industrial Gases (e.g., HFCs, N ₂ O, PFCs, CO ₂)

*Some upstream suppliers will also be reporting their direct emissions (e.g., refineries)

As aside: EPA Endangerment Finding

Following EPA vs. Massachusetts Supreme Court ruling...

April 16th, EPA Administrator Lisa Jackson issued an "*endangerment determination*" under the Clean Air Act -- a finding that carbon dioxide and other heat-trapping air pollutants "*may reasonably be anticipated to endanger public health or welfare*" and that motor vehicle emissions of those pollutants "*contribute*" to that dangerous air pollution.

- Requires EPA to regulate CO₂ under CAA
- Likely to be used to spur legislative action

Waxman-Markey Cap and Trade Bill

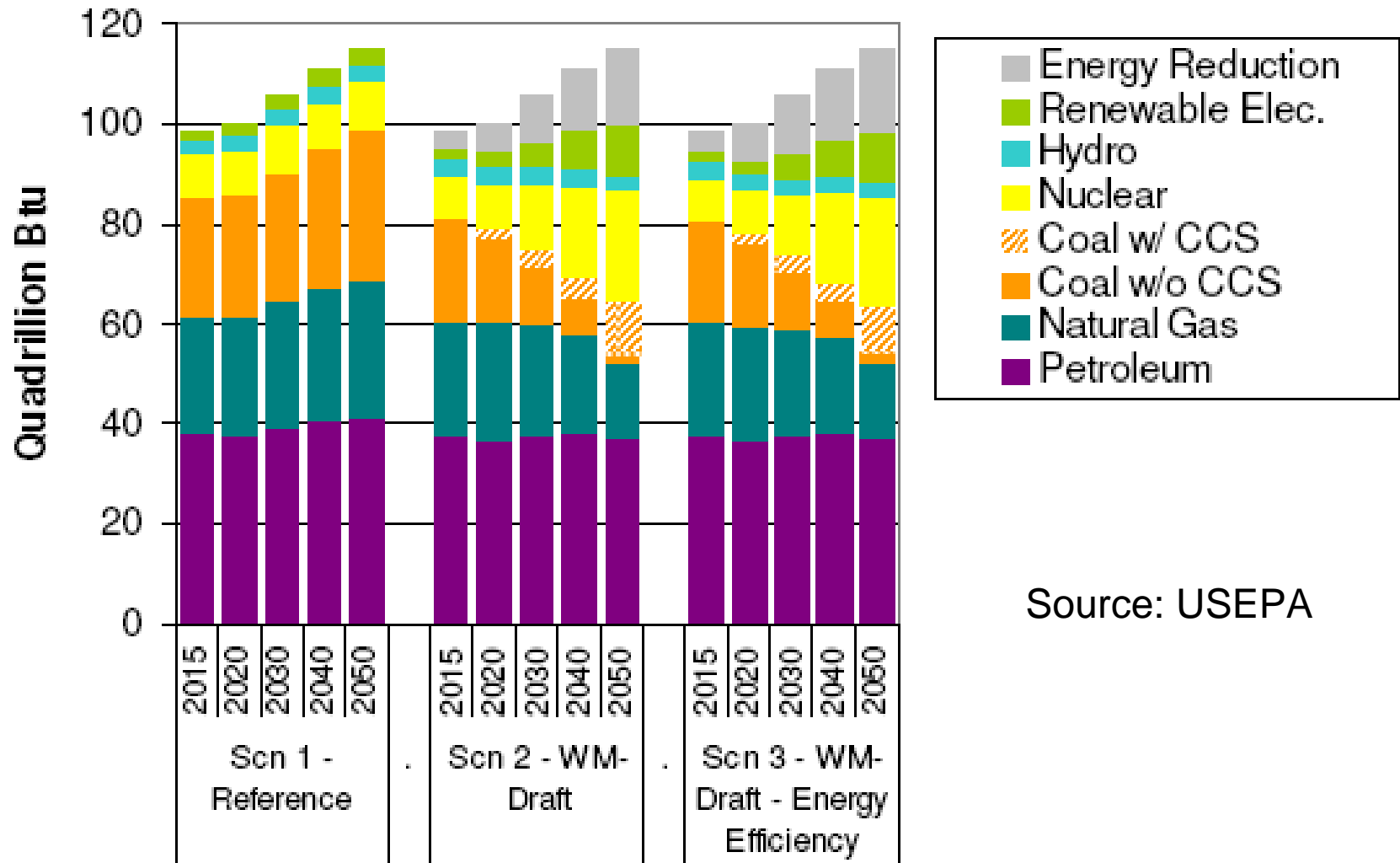
Waxman Markey Bill (ACESA)

- aka The American Clean Energy and Security Act of 2009 (ACESA)
- Complex bill, includes Cap and Trade
- 25K mt CO₂ threshold for seven GHGs
- Staged targets – 83% below 2005 levels by 2050
- Large domestic and international offsets provision for cost containment
- Cap and trade will supersede regional programs
- Program funds *mostly* returned to households as lump sum rebate – overall cost <\$174 per household

ACESA – ‘Hot’ issues

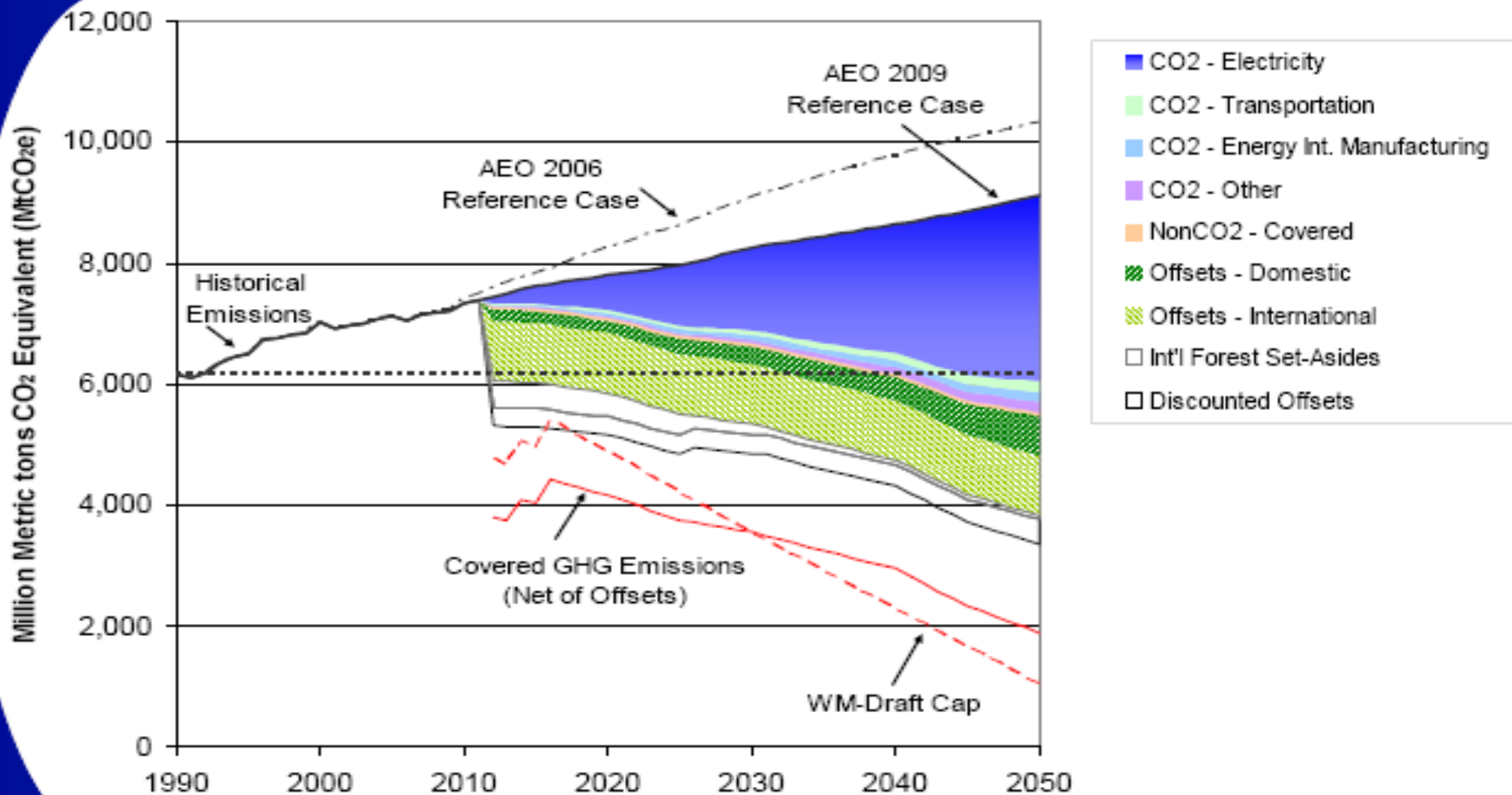
- **Silent on allowance distribution (auction vs. grandfathering)**
- **Very strong for ‘clean coal’ – includes direct funding**
- **Does not include provisions for nuclear**
- **EPA predicts 2020 carbon price of \$17-\$22 / mt – but analysis has been criticized, including**
 - Cost of offsets
 - CCS penetration
 - Economic modeling

ACESA - US Primary Energy

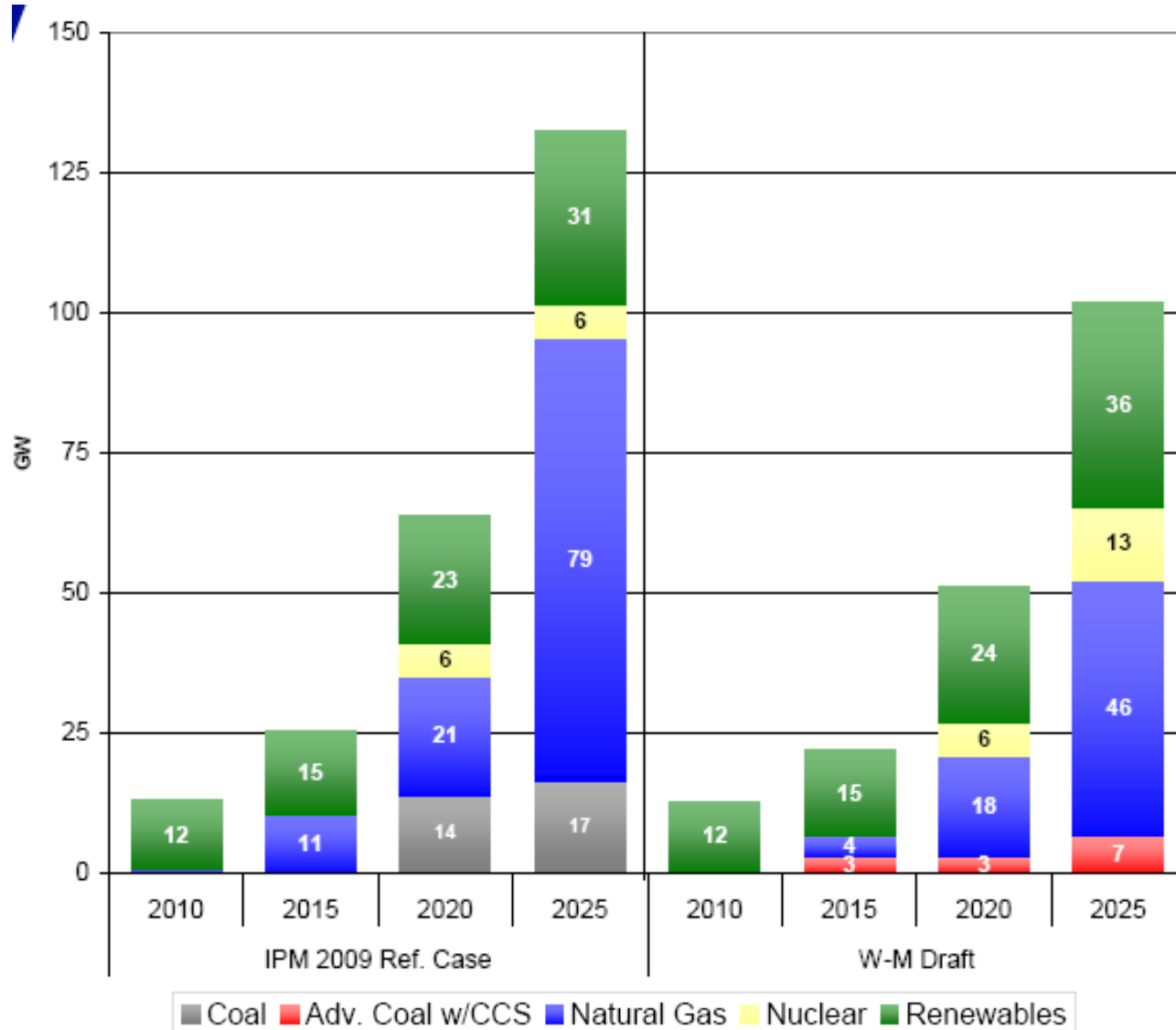


Source: USEPA

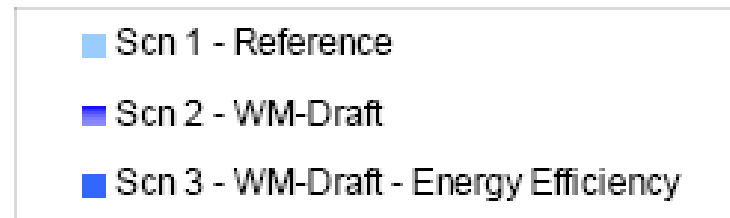
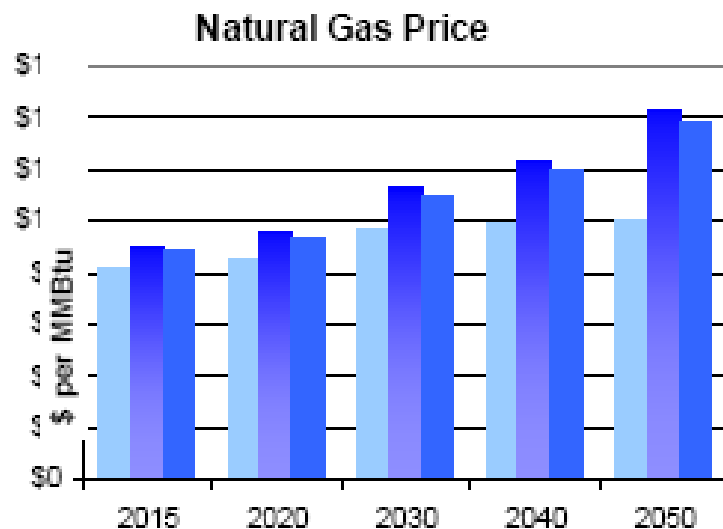
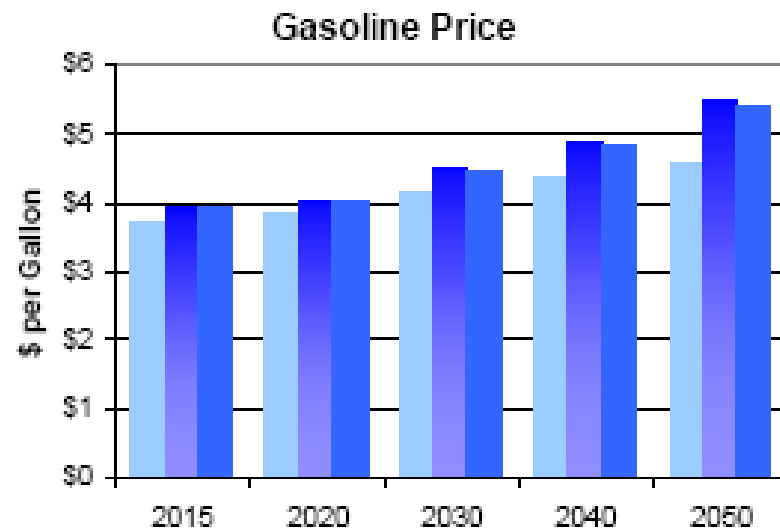
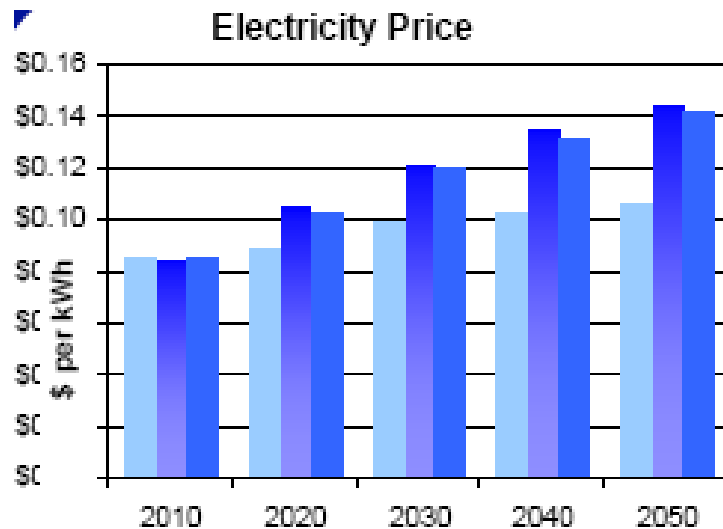
ASECA - Reductions



ACESA Predicted New Generation



ASECA - Energy costs



- See Appendix 3 for a discussion of the limitations and caveats associated with the methodology used in *Scenario 3 – WM-Draft Energy Efficiency*.

Conclusions

- **Voluntary and regional programs are influencing federal plan**
- **GHG reporting rule is happening; comments due 6/9, reporting begins 3/2011.**
- **ACESA battle has begun – very difficult to predict outcome, but these look clear:**
 - Heavy reliance on offsets, esp. international
 - Likely to favor clean coal
 - Scrum ongoing on nuclear, allowance allocation

Thank you!

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Q & A

