

Trinity Consultants

ENVIRONMENTAL SOLUTIONS SINCE 1974



breeze

ENVIRONMENTAL SOFTWARE & DATA SERVICES



On Demand
Environmental

STAFFING SERVICES FOR EH&S PROFESSIONALS



INFORMATION TECHNOLOGY FOR EH&S MANAGEMENT

TRINITYCONSULTANTS.COM

The Proposed ACES Act and Its Impact on Industry

Sept 16, 2009

Presenter

Eugene Taylor, PE
Managing Consultant

Trinity Consultants
Burlington, Iowa

etaylor@trinityconsultants.com


<http://www.trinityconsultants.com/ghg>

319.758.0758



Agenda

- ACES Act (HR 2454) Bill Overview
- Establishing a Response Strategy
- Common Questions and Answers



Summary of
American Clean Energy and
Security Act of 2009 – HR 2454
(Waxman/Markey)

Background

- Legislation is not just cap and trade – also Renewable Energy Standards and Energy Efficiency requirements
- Passed through the Energy and Commerce Committee on May 21, 2009 and passed through the House on June 26, 2009 by a vote of 219-212
- Cap and Trade Targets and Schedules:
 - ◆ By 2012, a 3% reduction from 2005 levels
 - ◆ By 2020, a 17% reduction from 2005 levels
 - ◆ By 2030, a 42% reduction from 2005 levels
 - ◆ By 2050, an 83% reduction from 2005 levels

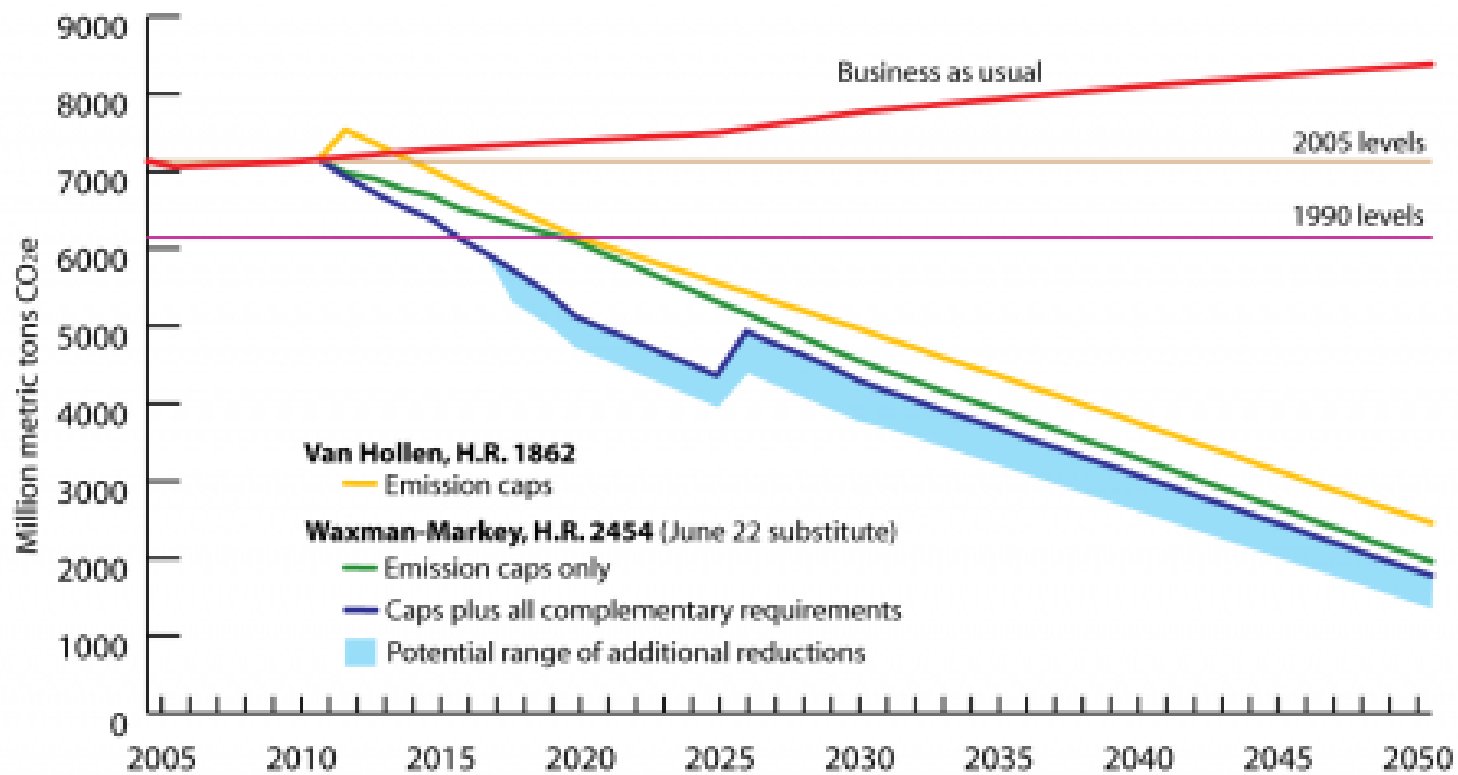
Potential Timeline

- Current: Senate hearings
- **October** 2009: Committee markups
- Mid - Late 2009: Senate Vote
- Late 2009 - Early 2010 (or later): House and Senate Bills through conference committee and vote
- Late 2009 – Early 2010 (or later): President signature



Emission Reductions Under Cap-and-Trade Proposals in the 111th Congress, 2005-2050

June 25, 2009

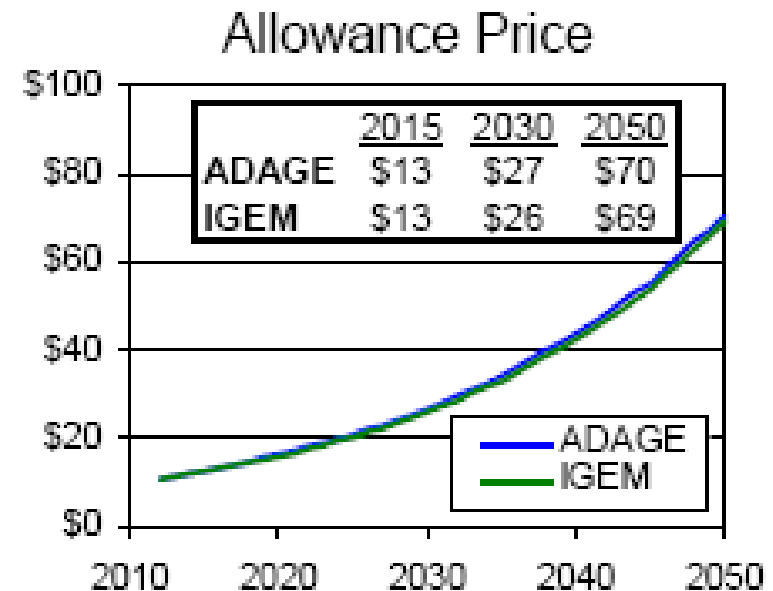


WORLD RESOURCES INSTITUTE

For a full discussion of underlying methodology, assumptions and references, please see <http://www.wri.org/usclimatestargets>.

EPA Cost Analysis – 2005 Dollars

- Allowance price ranges from \$13-\$24/tCO₂e in 2015 and from \$16-\$30/tCO₂e in 2020
- Total Abatement cost ranges from:
 - ◆ \$17-\$19/tCO₂e in 2015,
 - ◆ \$28-\$30/tCO₂e in 2020,
 - ◆ \$52-\$58/tCO₂e in 2030,
 - ◆ \$97-\$112/tCO₂e in 2040,
 - ◆ \$193-\$213/tCO₂e in 2050



Covered Entities

- Any electricity source
- Any stationary source that produces, and any entity that imports, for sale or distribution in interstate commerce petroleum-based or coal-based liquid fuel, petroleum coke, or natural gas liquid, the combustion of which would emit 25,000 or more metric tons
- Any stationary source that produces, and any entity that imports, for sale or distribution in interstate commerce, in bulk, or in products designated by the Administrator 25,000 or more tons of carbon dioxide equivalent of
 - ◆ fossil fuel-based carbon dioxide, nitrous oxide, perfluorocarbons, sulfur hexafluoride; any other fluorinated gas, except for nitrogen trifluoride, that is a greenhouse gas
- Any stationary source that has emitted 25,000 or more tons of carbon dioxide equivalent of nitrogen trifluoride
- Any geologic sequestration site

Covered Entities (Cont'd)

- Any source in these sectors:
 - ◆ Adipic acid production
 - ◆ Primary aluminum production
 - ◆ Ammonia manufacturing
 - ◆ Cement production, excl. grinding-only operations
 - ◆ HCFC production
 - ◆ Lime manufacturing
 - ◆ Nitric acid production
 - ◆ Petroleum refining
 - ◆ Phosphoric acid production
 - ◆ Silicon carbide production
 - ◆ Soda ash production
 - ◆ Titanium dioxide production
 - ◆ Coal-based liquid or gaseous fuel prod.
- Any stationary source in the chemical or petrochemical sector that
 - produces acrylonitrile, carbon black, ethylene, ethylene dichloride, ethylene oxide, or methanol; or
 - produces a chemical or petrochemical product if producing that product results in annual combustion plus process emissions of 25,000 or more tons of CO₂e

Covered Entities (Cont'd)

- A stationary source (emitting 25,000 tons or greater of CO₂e) in the following sectors:
 - Ethanol production
 - Ferroalloy production
 - Food processing
 - Glass production
 - Hydrogen production
 - Iron and steel production
 - Lead production
 - Pulp and paper manufacturing
 - Zinc production
- Any fossil fuel-fired combustion device (such as a boiler) or grouping of such devices that is all or part of an industrial source (not previously listed) that has emitted 25,000 tons CO₂e
- Any local distribution company that delivers 460,000,000 cubic feet or more of natural gas to customers that are not covered entities

Covered Entities (Cont'd.)

- Based on EPA's 2008 *Inventory of US Greenhouse Gas Emissions and Sinks*, the covered emissions represent the following percentage of US GHG emissions
 - ◆ 68% in Phase 1 (2012 – 2013)
 - ◆ 76% in Phase 2 (2014 – 2015)
 - ◆ 85% in Phase 3 (2016 – 2050)

Timeline and Emissions

- Base period (2007-2010) and 2007 emissions reported by March 31, 2011
- Allowances to be submitted for compliance by March 31st starting 2013
- Utilities (2013) - One allowance per ton of **direct** CO₂e emitted
 - ◆ Excludes emissions from the use of petroleum based or coal-based liquid or gaseous fuel, natural gas liquid, renewable biomass, petroleum coke, HFCs, PFCs, SF₆, and NF₃.
- Fuel Producers/Importers (2013) – Both direct and **indirect** CO₂e emitted
 - ◆ CO₂e emitted from any petroleum-based or coal-based liquid fuel, petroleum coke, or natural gas liquid produced or imported.
- Industrial Stationary Sources (2014) - **Direct** CO₂e emitted
 - ◆ Excludes GHGs resulting from the use of petroleum-based or coal-based liquid or gaseous fuel, natural gas liquid, renewable biomass, petroleum coke, HFCs, PFCs, SF₆, and NF₃.
- Distribution Companies (2016) - **Indirect** CO₂e emitted from the combustion of the natural gas delivered to customers that are not covered entities

Allowances – ‘Who Gets What’

- Per EPA’s Analysis (6/23/09), the bill’s allowance structure is as follows:
 - Electricity consumers: 43.75% in 2012, declining to 7% by 2029
 - Natural gas consumers: 9% beginning in 2016, declining to 1.8% in 2029
 - Heating oil and propane consumers: 1.875% in 2012, declining to 0.3% in 2029
 - CCS Bonus Allowances: 2% from 2014-2017; 5% from 2018-2050
 - International Forest Carbon: 5% through 2025, 3% through 2030, 2% through 2050
 - Energy Efficiency: 9.5% from 2012-2015, declining to 4.5% from 2026-2050
 - Clean vehicle technology: 3% from 2012-2017, 1% from 2018-2025
 - Domestic refiners: 2% from 2014-2026
 - International adaptation: 1% from 2012-2021, rising to 4% from 2027-2050
 - International clean technology deployment: 1% from 2012-2021, rising to 4% from 2027-2050
 - Output-Based Rebate: 15% through 2025, declines thereafter at 10% per year to phase out by 2035

Allowances – “Who Gets What”

- Low-income consumers: 15% from 2012-2050 (auctioned with revenue returned)
- **Trade-vulnerable industries: 2% in 2012, 2013, 15% in 2014, declining through 2050**
- Clean energy innovation centers: 1% from 2012-2050
- Investment in workers: 0.5% from 2012- 2021, 1% from 2022-2050
- Domestic adaptation: 0.9% from 2012-2021, rising to 3.9% through 2050
- Climate change health protection and promotion fund: 0.1% from 2012-2050
- Wildlife and natural resource adaptation: 1% from 2012-2021, rising to 4% from 2027-2050
- Allowances freely allocated to multiple sectors until **2025 when program compliance would kick in** as free allocation allowance pool substantially shrinking and more moving over to auction.

Trade Vulnerable
Industry
Determinations TBD

Allowances - Strategic Reserve for Cost Control

- Approximately 2.5 billion allowances are designated for a strategic reserve
 - ◆ 2012- 2019: 1% of allowances reserved
 - ◆ 2020 - 2029: 2% of allowances reserved
 - ◆ 2030 - 2050: 3% of allowances reserved
- Minimum reserve price will be twice the modeled allowance price in 2012 (increasing at 5% rate through 2014). Afterward, minimum price is 100% above rolling 36-mo. average allowance price for that years' vintage.
- Revenue raised from strategic reserve offsets are placed in a Strategic Reserve Fund and then used to purchase and retire international offsets for reduced deforestation

Offsets – General Requirements

- Offset project qualifications within one year of enactment, list of projects within two years – types of projects and baselines revisited every 5 yrs
- Cap of 2 billion metric tons of offsets allowed (50% domestic and 50% international, can be adjusted if domestic volume is not sufficient)
- Offset discounting (1.25 to 1) after 5 yrs for international offsets (2018 forward)
- Crediting period no less than five and no greater than 10 years
- Third party verification (accreditation per ISO 14065 and/or EPA approval process) – random project audits to be conducted
- Specific additionality requirements
- Early offsets (after Jan 1, 2001) will only be credited if program meets specific requirements :
 - ◆ Established under regulation or approved by EPA
 - ◆ Has developed and approved methodologies
 - ◆ Made available to public and all credits are registered in public registry
 - ◆ Emissions are verified by 3rd party

Allowance Market Provisions – Penalties, Trading & Banking / Borrowing

- Penalties
 - ◆ For exceeding allotment and not having allowances or offsets to cover the amount, the penalty is twice the market value of allowances
- Trading & Banking/Borrowing
 - ◆ There are no restrictions on transactions – allowances can be sold, exchanged, transferred, retired by the holder without exception
 - ◆ Purchasing, holding, exchanging, selling is not limited to covered entities
 - ◆ Tracking will be electronic and available over the Internet
 - ◆ Banking of allowances is unlimited, a two year compliance period allows borrowing from one year ahead without penalty, limited borrowing from 2-5 years ahead

Stationary Source Standards

- EPA must propose a list of uncapped sources within one year of enactment – then promulgate NSPS for them (3/5/7/10-year increments, depending on contribution). Uncapped sources that are:
 - ◆ **greater than 10,000 metric tons** and
 - ◆ responsible in the aggregate for emitting **at least 20% annually of uncapped GHG emissions**
- EPA may promulgate a design, equipment, work practice, or operational standard, or any combination thereof, in lieu of a standard of performance *without regard to any determination of feasibility that would otherwise be required under section 111(b)*.
 - ◆ However, EPA is required to take into account projected allowance prices such that the marginal cost of compliance (\$/ton CO₂e reduced) would not exceed the projected allowance prices (initial NSPS date to next revision date)
- NSPS cannot be promulgated for capped sources, with the exception of coal fired power plants

Stationary Source Standards

- Hazardous Air Pollutants
 - ◆ No GHGs may be added to HAP list under section 112 unless it meets the listing criteria of 112(b) independent of its effects on climate change
- New Source Review
 - ◆ NSR shall not apply to a major facility that is initially permitted or modified after January 1, 2009, on the basis of GHG emissions.
- Title V Operating Permit
 - ◆ Notwithstanding Title III or V, no stationary source shall be required to apply for a Title V permit solely because the source emits any GHGs.
 - ◆ Permit interactions for covered sources – TV revisions may be required
- Black carbon report is required of EPA within one year of enactment, potential regulation within 18 months of enactment, if justified

Coal Power Plant Performance Std.

- Coal-fired power plants that derive at least 30% of annual heat input from coal, pet coke, or any combination of those fuels.
- Unit “initially permitted” on or after January 1, 2020
 - ◆ Achieve 65% reduction in CO₂
- For units “initially permitted” after January 1, 2009 and before January 1, 2020
 - ◆ Achieve a 50% reduction in emissions of CO₂
- *Initially permitted - received a Clean Air Act preconstruction approval or permit, for the covered electric generating unit as a new (not modified) source but administrative review or appeal has not been exhausted. Subsequent modification of any such approval or permits, administrative court review, appeals, or challenges, etc. do not affect the date on which the unit is considered initially permitted.*

Coal Power Plant Performance Std.

- Compliance with Carbon Capture & Sequestration requirements for all other Coal Power Plants is based on the earliest of either:
 - ◆ Four years after EPA publishes a report that there is generating unit equipment with carbon capture and sequestration technologies that:
 - have a total of at least 4 GW of nameplate generating capacity; and,
 - include at least 2 EGUs each with a nameplate capacity 250 MW or greater that capture, inject, and sequester CO₂ into geologic formations other than oil and gas fields, and
 - are capturing and sequestering at least 12 million tons of CO₂ per year, on an aggregate annualized basis;
 - ◆ Or January 1, 2025
- New electric generating units that are subject to the performance standards are not subject to any NSR requirements with respect to GHG emissions.

Interaction with State/Regional Cap and Trade

- Moratorium on state/regional cap and trade programs – 2012 to 2017
 - ◆ Does not cover authority of state/region to implement reduction requirements during this period outside the use of tradable instruments (e.g., through command and control regulations)
 - ◆ Does not include vehicle fleet requirements or that fuels meet an average pollution emission rate or lifecycle greenhouse gas standard.
- Impact on AB32, WCI, and RGGI?
 - ◆ Compensation by Federal government for value of allowances for AB32, WCI, and RGGI allowances (on a \$ for \$, not a ton for ton basis)



Establishing a Response Strategy

Establishing a Response Strategy

■ Recognition

- ◆ Carbon will have a cost if cap and trade passed, what is your potential cost?
- ◆ If cap and trade is not passed, EPA may exercise Clean Air Act Authority (endangerment finding) to establish regulations – what may this mean?
- ◆ Bottom line is that understanding the legislation is key to establishing a strategy
- ◆ Waiting until cap and trade is passed and EPA issues regulation to establish a firm strategy may be imprudent
- ◆ Realize that your strategy may change as requirements become more clear and as the bill(s) morph

Establishing a Response Strategy

- Potential Actions for Consideration
 - ◆ Track cap and trade developments closely
 - ◆ Complete comprehensive GHG inventory – regulatory and non regulatory inventory
 - ◆ Create preliminary bound of current/future carbon costs
 - ◆ Evaluate registration of offset projects in voluntary registries that may qualify under ACES
 - ◆ Consider energy auditing to determine where reductions are appropriate
 - ◆ Evaluate/prioritize/plan for carbon reduction projects (factoring in carbon costs)
 - ◆ Determine long term carbon data management needs



Common Questions and Answers

Common Questions/Answers

- Why do the targets note 2005 levels while the baseline in the legislation is 2007 to 2010?
 - ◆ The 2005 levels are macro-level GHG emissions for the U.S.
 - ◆ The 2007 to 2010 baseline emissions levels are principally used to understand emitting levels and award allowances
 - ◆ Note that if this information is not available, EPA can either waive submittal of this data or elect to substitute reasonable data

Common Questions/Answers

- What industries are considered “trade vulnerable / energy-intensive, how “covered” are they and how are allowances awarded?
 - ◆ Coverage: **likely includes** but not limited to:
 - ferrous and non ferrous metals
 - non metallic mineral products (cement, lime, glass, brick)
 - pulp and paper (mills, not all sub industries)
 - chemicals (large chemicals, carbon black, organic/inorganic chemical)
 - flat glass
 - iron ore mining
 - glass containers
 - nitrogenous fertilizers
 - wet corn milling

Common Questions/Answers

■ Allowance Distribution

- Degree of Coverage: industry sectors believed to be mostly covered through free allocation for allowances needed through 2035 (ramp down in 2025-2030)
- Methodology Example: by NAICS
 - ◆ Baseline 2007 to 2010
 - ◆ Emissions for facilities submitted to EPA
 - ◆ Facility emissions summed to sector, average emissions intensity calculated for the sector
 - ◆ Facilities with emissions intensity that is lower than average will receive more allowances than required, facilities with emissions intensity higher than average will receive fewer allowances than needed
 - ◆ Incentivizes early actors for reductions as well as more efficient members of sectors

Common Questions/Answers

- What accounting methods will be used to count carbon emissions and credits?
 - ◆ Carbon Emissions (Facility GHG Emissions Inventory)
 - Legislation does not have this degree of detail presently
 - Bill refers to crediting work done under The Climate Registry, etc.
 - Presumably program would lean on EPA's Mandatory Reporting Program (proposed 40 CFR Part 98) for consistency
 - However, there is currently minor inconsistency with global warming potentials (IPCC FAR)
 - If a bill signed by the President, the EPA implementing regulation will provide more detail on this element.

Common Questions/Answers

- What accounting methods will be used to count carbon emissions and offsets? (ctd.)
 - ◆ Offsets
 - Senate version of bill and/or EPA implementing regulation will provide more detail on offsets, a positive list of project types has not been developed to date
 - Likely that Climate Action Registry (CAR) and Regional Greenhouse Gas Initiative (RGGI) offset project protocols will be relied upon (potentially also certain Clean Development Mechanism protocols)
 - EPA currently has funding to develop project-based protocols
 - Likely to be performance-based standards for offset projects
 - Landfill gas and coal-mine methane projects will likely be regulated via NSPS and not eligible for offsets – may change in Senate version of bill

Common Questions/Answers

- Are there allowances awarded to entities to offset increased natural gas/electricity costs for downstream users?
 - ◆ Potentially yes, even if the facility is not a “covered entity”
 - ◆ However, if the Local Distribution Company (LDC) already holds the allowances, no allowances would be awarded to the industrial user to avoid double counting.
 - ◆ If the downstream industrial user is not anticipated to see cost increases, then no allowances are awarded.
 - ◆ Fewer rebate allowances may be provided to more energy intensive generating states and greater allowances to less energy intensive generating states
- How does the ACES Act compare with the EU Emissions Trading Scheme?

Item	ACES	EU ETS
Emission Targets	<ul style="list-style-type: none"> •3% below 2005 levels by 2012. •20% below 2005 levels by 2020. •83% below 2005 levels by 2050. 	<ul style="list-style-type: none"> •21% below 2005 levels by 2020 (without global agreement) •30% below 2000 levels by 2020 (w/global agreement) •80% below 2000 levels by 2050.
Coverage	<ul style="list-style-type: none"> •86% of US emissions, upstream and downstream sources •Excluding aviation. •Six GHGs. 	<ul style="list-style-type: none"> •52% of EU emissions from Phase 3. •+12,000 sites. •Covering direct downstream sources, including electricity, iron & steel, cement, paper •Excluding transport, includes aviation
Allocation	<ul style="list-style-type: none"> •Free allocation of 20% allowances trade vulnerable/energy intensive, declining over time and phased-out by 2035. •Free allocation of 40% of allowances to selected sectors to consumers (electricity, natural gas and heating oil suppliers) •Free allocation of 20% of allowances to incentivize technologies •Remaining allowances auctioned, increasing from 18% in initial years to about 70% by 2030. 	<ul style="list-style-type: none"> •Free allocation to most covered sources, limited auction for certain countries •Phase 3 will auction 60% of allowances •Free allocation phases out in 2020
Offsets	<ul style="list-style-type: none"> • 2 billion offsets per year., 1 billion international offsets, rising to 1.5 billion under certain circumstances. •Offsets from forestry, agriculture and landuse changes are potentially eligible. 	<ul style="list-style-type: none"> •Allow use of Kyoto credits (up to 50% of the obligation), or about 200 million CERs/ERUs from 2008 to 2020. •From Phase 3 domestic offsets are eligible but there are no guidelines yet published. •Offsets from forestry, agriculture and landuse changes are not eligible.

Adopted from: Think Carbon, Word Press,

<http://thinkcarbon.wordpress.com/2009/07/11/comparison-of-waxman-markey-eu-ets-and-cprs-emissions-trading-schemes/>

US Landscape - Recent Developments

- Endangerment finding
 - ◆ Finalize prior to March 2010
- Section 202 GHG regulation for cars and light duty trucks – Sent to OMB
 - ◆ Anticipated to be finalized by March 2010
- PSD threshold rule – Sent to OMB 9/2/09
 - ◆ Derived from Section 202 GHG regulation from cars – regulate GHGs as a regulated pollutant under PSD/NSR
 - ◆ Anticipated to be finalized prior to March 2010
- Greenhouse gas inventory rule proposal – sent to OMB
 - ◆ Likely finalized October to November 2009
 - ◆ Implementation January 1, 2010 notwithstanding changes to draft rule

US Landscape - Recent Developments (Cont'd)

- Renewable fuels rule proposal
 - ◆ Goal of finalizing in August 2009 and implementation January 1, 2010
- Stationary source permitting for new and modified units
 - ◆ Obama Administration reconsidering Bush Administration decision not to impose GHG controls on permits
- Carbon sequestration proposal
 - ◆ Possible final rule in early 2010
- **Questions and Answers**

