

Climate Change Regulation: Risks, Opportunities and Timelines for Mitigation Strategies

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American Clean Energy & Security Act (ACES)

- Scope: ACES is a comprehensive GHG and Energy Policy Program. ACES has (5) Titles:
 - I. Clean Energy Program – Renewable Energy Standard (RES) – all electric utilities must sell defined % of electricity from Renewable sources [proposed at 25%; amended to 20%]
 - Smart grid subsidies
 - Carbon Capture & Sequestration subsidies
 - II. Energy Efficiency Standards
 - III. Cap & Trade Program
 - IV. Consumer & Industry Assistance – transition to low carbon economy
 - V. Agriculture and Forestry CO2 Offsets

ACES Act (*cont'd*)

Cap & Trade Mechanism:

- CO₂e levels capped at 2005 levels [2005 = 7.2 BM tons] – a diminishing number of “allowances” are granted or auctioned each year.
- emission allowances can be sold if source has unused allowances.

Cap & Trade Goals:

2012-	emissions 3% below the 2005 baseline
2020-	20% < 2005
2030-	42% < 2005
2050-	83% < 2005

Scope: ACES covers approx. 85% of US economy's GHG emissions.

“Covered Entities” which must surrender allowances equal to annual CO₂e emissions:

- coal, oil, natural gas fired power plants
- liquid fuel importers and producers
- natural gas distribution companies. (to extent their customers not covered)
- large/categorical stationary sources (aluminum; cement; refineries)
- Large manufacturer emissions - if emit > 25Ktp/yr.
- other sources > 25Ktp/yr.

PHASE-IN 2012-2016 (Mfgs to surrender allowances after 2014; Nat Gas LDCs - 2016)

Reporting/GHG Registry

- quarterly reporting to calculate annual allowance obligation – data to be publicly available

ACES Act (cont'd)

Obligations of Covered Entities:

- Base Oblig.: Obtain 1 allowance per MTCO_{2e} emitted in prior year
- Non-Compliance Penalty: 2x market value of shortfall
- Annual Allowance Allocation:
 - Bill now provides for both “free” and auctioned allowances:
 - Free Allocation of 80% of allowances until 2025
 - After 2031 will auction 70% of allowances
- Alternatives:
 - Allowance Banking / Borrowing among years
 - prior and next yr. – 100 usable
 - future 5 yrs. –8% “interest” due at delivery
 - Purchase excess “allowances” or “domestic offset credits” (2012 price estimated at \$14/ton; \$28 @ 2025)
 - Obtain “International allowances” - if project country has CO₂ cap
 - or “offset credits” if credit-generating program equivalent to U.S. credit programs

Oil & Gas under ACES

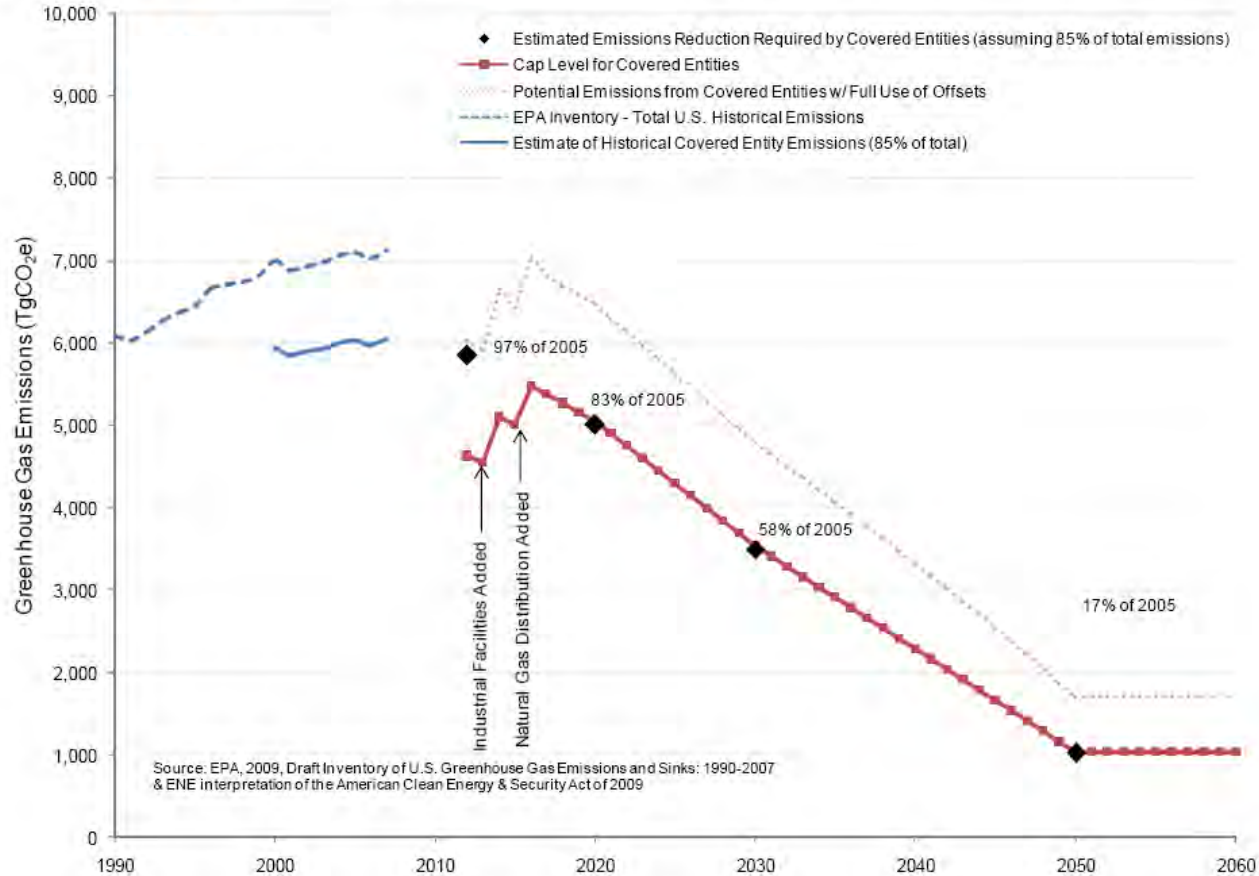
- Upstream: E&P emissions not capped
 - BUT: EPA required to create NSPS standards for uncapped sources within 3 years of ACES enactment.
- Midstream:
 - Processing Plants covered - if boilers combust fossil fuel resulting in 25k tpy of CO₂
 - Pipelines covered if operate fossil fuel boilers
 - Nat gas liquids – producer covered at point of fractionation
- Refiners: Phase-in of compliance starts 2016
 - Refiners must hold/surrender allowances for CO₂ value of liquid fuels produced/imported [not include non-emissive feed stocks].
- Nat Gas - Local Distribution Companies
 - if deliver >460MM cu. ft./year
 - Surrender allowances equal to CO₂ value of “gas delivered”
 - But LDC duty re “fugitives” appears to apply [see sec. 722(b)(10)]

ACES Act (cont'd)

- Offsets May be Purchased or generated to substitute for Allowances:
 - 30% of 2012 obligations may be satisfied by offsets
 - % of allowed offsets will increase as cap decreases
 - W-M Discussion Draft set ½ - ½ US/Int'l offsets with a 1.25 premium required for both Domestic and International offsets (now 1:1 for 5 years)
 - offsets from CO2 reductions must be: real, enforceable, additional and permanent
 - Strategic Reserve est'd: 10% of a Covered Entities' obligation may be purchased at auction
- "Leakage" Rebates and Tariffs - a major C&T problem is the potential movement of jobs/emissions to non-C&T countries due to price/cost advantage
 - ACES grants rebates (i.e., extra allowances) to "vulnerable" industries (e.g., cement/steel – NOT U.S. Refining) to offset portion of compliance costs.
 - Rebates Phase-out 10%/year after 2020 - reduced as other countries adopt Cap & Trade or equivalent controls.
 - "Vulnerable" industry rebates issued per ratio of energy/import exposure.
 - Tariffs: ACES requires President to enforce tariffs after 2020 on imports from countries lacking enforceable CO2 limits.

ACES – Reductions & Offsets

Figure 1: ACES Act GHG Cap and Offsets in Relation to Historic Emissions



Regional & State Cap & Trade Programs

- 20 states have or are developing C&T programs
- 3 Regional Programs
 - RGGI (CT, DE, ME, MD, MA, VH, NJ, NY, RI)
 - WCI (AZ, CA, NM, OR, WA. Manitoba/BC)
 - MGGRA (IL, IA, KS, MI, MN, WI. Manitoba)
- Key Issue - Integration and coordination with federal program
 - GHG Reporting Triggers – some at 10K TPY, others at 100k TPY
 - Reporting Frequency – ACES 1/4ly, GHGRR 1/yr
 - Covered Entities/Sectors – RGGI = utilities, CA = “100% of economy”
 - Offset/Allowance Trading – ACES to exchange for pre-ACES allowances
- Federal Preemption – State Cap & Trade Preempted from 2012-2017
 - “Cap” means programs enforcing a CO2e tonnage limit
 - No preemption of state inventory or reporting obligations

ACES: Notable Issues & Senate Prospects

- Enviro and Renewables Industry want Senate to limit Offset Credits – Seek “Real Reductions” and Price Competitiveness.
- Senators pushing “Price Collar” – to justify reduced offsets? – result in “real” credits or just more paper allowances to limit market price.
- CAA Preemption – NSR, PSD, NAAQS/SIP preempted – but CO2 NSPS mandated: loss of domestic offsets?
- Passage?
 - S.B. 1462 “calving off” of ACES Title I and II (like Australia)
 - “Endangerment Finding” – EPA Rules Step In (PSD, NSR, a CO2 SIP?)
 - State Cap & Trade Programs step in – but not Texas or SE.
 - Lots of new coal-powered electricity in Texas?

Proposed GHG Reporting Rule (GHGRR)

- GHGRR mandated in the 2008 Budget Bill
- GHGRR Proposed: 40 CFR Part 98, Subpart A – 74 Fed. Reg. 16448 (April 10, 2009)
- Covered Gases: “Kyoto-6” GHG’s as converted to their CO₂ equivalents (CO₂e) in metric tons (CO₂; Methane; Nitrous Oxide, HFCs, PFCs Fluorinated gases)
- Objective: Collect data to identify all facilities that emit $\geq 25K$ TPY CO₂e; and to “inform future policy decisions.”

GHGRR (*cont'd*)

- Linkage to U.S. Cap & Trade Laws

The GHGRR is designed to prepare for US Cap and Trade and to address lessons learned from the European Trading System.

- the ETS baseline over-estimated actual CO² emissions
- allowances and reductions were defined by the oversized baseline, resulting in:
 - over-distribution of allowances
 - easily reached “reductions” and
 - surplus allowances caused volatility in European markets for carbon credits

GHGRR (*cont'd*)

- Footprint Accuracy Matters:
 - Footprint methods vary – GHGRR gives some discretion in choice of method.
 - If most ACES allowances will be granted proportionate to baseline data, Cap & Trade-covered facilities may prefer methods that over-estimate baselines.
- Applicability
 - EPA estimates 30,000 entities will gather data to assess applicability and 13,000 will trigger for reporting

GHGRR (*cont'd*)

- Rule Applicability - (6) Criteria:
 - 1) Categorical sources –without a minimum trigger (see slide 15 - *s on (19) source categories)
 - 2) Categorical sources that exceed > 25K TPY – (18) source types
 - 3) Stationary Fuel Combusters if:
 - Aggregate heat input capacity is \geq 30 mm Btu/hr. *and*
 - Emits > 25K TPY CO₂e from all sources
 - 4) Fuel suppliers (and exporters) – potentially require facility and corporate reporting.
 - Coal & coal liquids
 - Petroleum products
 - Natural gas and NGL
 - 5) GH Gas/CO₂ suppliers
 - 6) Engine and vehicle manufacturers

GHGRR (cont'd)

- Some Exceptions:
 - Agricultural Emissions – only manure mgmt. systems w/net \geq 25K TPY
 - Possible legislative action to exempt manure mgmt. systems.
 - Public Sector – reporting required for publicly-owned facilities in source categories (not POTWs) or General Fuel Combustion category
 - “Emergency Generators” excluded - not w/in the facility’s 25K TPY analysis
- “Rules of Thumb” – What is 25K TPY CO₂e Emissions?
 (see www.eia.doe.gov/oiaf/1605/coefficients.html.)

– Nat. Gas Combustion:	457,000 – thousand cu. ft./year
– Diesel, No. 1, 2, 4 fuel oil:	2,462,275 gallons/year
– Coal:	9,694 short tons/year
– Methane:	473,599 – thousand cu. ft./year
– LPG:	3,992,434 gal./year
– Petrol. Coke:	7,396.45 short tons/year

GHGRR (*cont'd*)

- Emissions Calculations and Reporting –montg. techniques vary by source equipment and process.
- Once a facility known to exceed 25K TPY, emissions must be reported by gas-type, by source category and according to the methodology relevant to the source category.
 - e.g., a covered food processing facility must gather data using methodologies prescribed in several source categories:
 - General Fuel Combustion (Subpart C)
 - WW Treatment (Subpart II)
 - Landfills (Subpart HH)
 - Food Processing (Subpart M)

GHGRR (*cont'd*)

- Data collection and monitoring must begin 1/1/2010
- Data reports first due 3/31/2011
- Reporting is made at the facility level – no corp-level aggregation of data, except corp-wide reporting by
 - Vehicle engine manufacturers
 - Fossil fuel importers
 - Natural gas distributing companies
- Verification - Many carbon footprint regimes require 3rd party verification (3PV)
 - EPA will not require 3PV, just certification with EPA data-auditing

Rule Subpart and Source Category

Subpart D—Electricity Generation **

Subpart E—Adipic Acid Production **

Subpart F—Aluminum Production **

Subpart G—Ammonia Manufacturing **

Subpart H—Cement Production **

Subpart I—Electronics Manufacturing **

Subpart J—Ethanol Production

Subpart K—Ferroalloy Production

Subpart L—Fluorinated Gas Prodn.

Subpart M—Food Processing

Subpart N—Glass Production

Subpart O—HCFC-22 Prodn & HFC-23 Destruction

Subpart P—Hydrogen Production

Subpart Q—Iron and Steel Production **

Subpart R—Lead Production

Subpart S—Lime Manufacturing **

Subpart T—Magnesium Production

Subpart U—Miscellaneous Uses of Carbonate

Subpart V—Nitric Acid Production **

Subpart W—Oil and Natural Gas Systems **

Subpart X—Petrochemical Production **

Subpart Y—Petroleum Refineries **

Subpart Z—Phosphoric Acid Prodn. **

Subpart AA—Pulp and Paper Mfg.

Subpart BB—Silicon Carbide Prdn. **

Subpart CC—Soda Ash Mfg. **

Subpart DD—Sulfur Hex (SF6) From Elec. Power **

Subpart EE—Titanium Dioxide Prdn. **

Subpart FF—Underground Coal Mines **

Subpart GG—Zinc Production

Subpart HH—Landfills

Subpart II—Wastewater Treatment

Subpart JJ—Manure Management **

Subpart KK—Suppliers of Coal

Subpart LL—Suppliers of Coal-based Liquids

Subpart MM—Suppliers of Petrol Prods

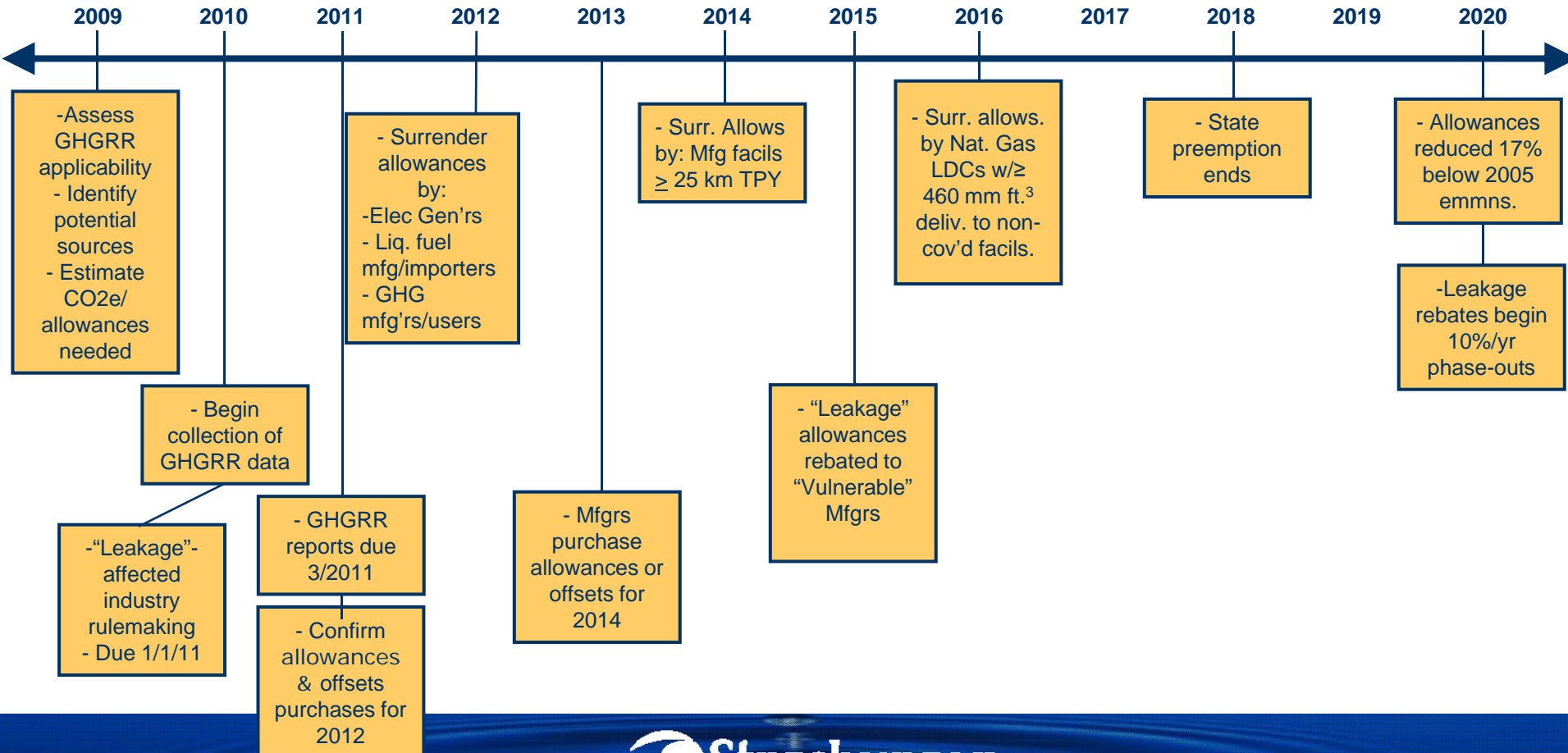
Subpart NN—Suppliers of Nat Gas & NatGas Liqs

Subpart OO—Supps of Indus GHGs

Subpart PP—Supps of Carbon Dioxide

Subpart QQ—Mobile—Vehicles and Engines—Sources

Timelines for Compliance Deliverables



Timelines for Potential Mitigation Strategies

