



Greenhouse Gas Permitting in Texas

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EPA Greenhouse Gas Permitting Program in Texas

- + EPA Promulgates Tailoring Rule under Federal Clean Air Act to Allow Permitting under Prevention Of Deterioration (PSD) Program and Title V of the Clean Air Act (CAA)
 - + Rule provided only larger emissions sources addressed initially-thus “tailored” rule to larger sources of GHG emissions
- + Texas Refuses to Implement Federal GHG Permitting Program through State Implementation Plan (SIP), Objects to EPA Regulating Greenhouse Gas (GHG) emissions
- + EPA Issues Federal Implementation Plan (FIP)
 - + EPA Region 6 in Dallas begins reviewing GHG Permits for projects in Texas, But Fails to Hire Sufficient Staff to Handle Workload

Texas Practical Dilemma

- + Permit Applications Begin to Pile up at EPA Region 6 in Dallas
- + 10-20 Billion Dollars Worth of Projects in Texas Not Able to Start Construction without GHG Permit, Resulting in Major Bottle Neck for Texas Economy
- + In 2013, Industry Lobbies Texas Legislature to Pass Legislation to Require TCEQ to Take over Federal GHG Permitting Program from EPA
- + 2013/ 2014 EPA-TCEQ Working to Transition Program to TCEQ
 - + TCEQ proposed rules to implement GHG permitting in Texas
 - + EPA-TCEQ Negotiations Over Rules

Obtaining Permits During the EPA-TCEQ Transition

- + EPA and TCEQ Negotiated Work Share Program Whereby TCEQ Processes Much of Permit Prior to Transition of Program To Texas
- + First Group of Permits Worked by TCEQ, Reviewed and Issued by EPA Region 6, Which Allowed More Permits to Be Issued and Began to Reduce Backlog
- + EPA Proposes Rule to Allow Delegation of GHG PSD Permitting Program to Texas and Withdrawal of Federal Implementation Plan (FIP) by Which EPA Was Implementing the GHG PSD/Title V Permitting Program in Texas
- + Effective Nov. 10, 2014, EPA Issued Rule Allowing Texas to Implement the GHG PSD/Title V Program in Texas

US Supreme Court Rules on GHG Permitting Regulations

- + *Utility Air Regulatory Group v. EPA*, No. 12-1146 (June 23, 2014)
 - + Invalidated EPA Tailoring Rule: PSD and Title V programs only triggered by emissions of conventional pollutants (sulfur dioxide, particulate matter, nitrogen dioxide, carbon monoxide, ozone, and lead) above 100- to 250-ton-per-year thresholds specified in the CAA, not by GHG emissions
- + Supreme Court Allowed Regulation of GHG Emissions by EPA
 - + If EPA is regulating an emissions source anyway because it emits conventional pollutants above threshold levels under the PSD program,
 - + Then EPA may also require these “anyway” sources to implement BACT to control their non-de minimis GHG emissions as well.
 - + What constitutes a de minimis level of emissions, and what would constitute BACT, were left to EPA to define

EPA Regulations after *Utility Air Regulatory Group v. EPA*

- + Under the Supreme Court Decision, EPA Is Required to Develop a De Minimis Threshold Level for GHG Sources.
- + In the Meantime, EPA Is Applying a Threshold Level for PSD Permits
 - + For new sources that emit or have the potential to emit 75,000 tons per year (tpy) or more of GHGs on a carbon dioxide equivalent (CO₂e) basis.
 - + For modified sources, a permit would be required when the following apply: (1) the modification is otherwise subject to the PSD for a pollutant other than GHGs; and (2) the modification results in a GHG emissions increase and a net GHG emissions increase equal to or greater than 75,000 tpy CO₂e.

CCS and GHG Permitting: TCEQ Will Be Required to Review CCS under BACT

- + Under Prevention of Deterioration (PSD) Program, Case-by-Case Evaluation of Best Available Control Technology (BACT)
- + Step 1 – Identify all available control technologies.
- + Step 2 – Eliminate technically infeasible options.
- + Step 3 – Rank remaining control technologies.
- + Step 4 – Evaluate and document remaining control technologies.
- + Step 5 – Select BACT.

Economic Evaluation of CCSU

- + Step 4 of BACT Evaluation When Economics Are Evaluated
 - + Applicants Tend to Still Argue CCS Not Technically Feasible, Despite EPA's Position, but focus has been on Economics
 - + Expected that the same will occur in TCEQ review of BACT for GHG emissions controls
- + Permit Applicants May Rely on Certain EPA Publications or Other Sources for Estimating CCS Costs
 - + E.g., *Report of the Interagency Task Force on Carbon Capture and Storage* (August 2010) (Input in Report from 14 Executive Departments and Federal Agencies)

Example of Carbon Capture and Compression Estimates for One Power Plant during EPA Process

- + Capital Cost As Much as \$1.6 Billion or More for Two 750 MW Natural Gas Combined Cycle Power Plants
- + Costs to Construct Two 750 MW Natural Gas Combined Cycle Power Plant over \$1 Billion, so CCS System 100% or More of Cost to Construct Power Plants
- + CO₂ Pipeline 100 Miles to Oil Field, but Not Clear Capacity Exists for CO₂ from Potential Plants
- + Assuming Capacity Available: Pipeline Costs \$82 Million in Capital Costs, with an Annual O&M Cost Estimated at \$800,000 per Year

Sierra Club Comments to EPA on Application for Natural Gas Power Plant

- + Argued that EPA should have required plant to relocate near fields where CO₂ needed for EOR.
 - + “Locating the plant close to an EOR site would allow LPEC to sequester its CO₂ and receive revenue to offset the costs of carbon capture, compression and transport.”
- + Sierra Club argued that cost estimates by applicant are unsupported and incorrect
 - + Record lacks a site-specific cost analysis of CCS
 - + Does not include estimate of revenue from EOR; Texas market for EOR robust, opportunities exist near site and elsewhere in Texas; conservative estimate of the market price for CO₂ is \$33/tonne
 - + Basis for rejecting CCS in relation to overall costs of project is invalid
 - + Environmental (water) and energy penalty are not sufficiently supported
 - + EPA must consider partial CCS (portion of emissions captured)

Currently EPA Has Concluded That Costs Prohibitive for CCS for Applications to Date

- + Despite Sierra Club's Arguments,
 - + Could not finance this additional cost for CCS,
 - + Project would not be built in ERCOT deregulated market,
 - + Cost of power would be too high and could not be sold in Texas market
- + EPA Agreed with Costs for CCS Too High, Issued GHG Permits for Power Plants and Other Facilities

Current Process with TCEQ Reviewing GHG Emission Permits

- + Eliminated and Stream Lined Air Permitting Process for Large Projects and Reduced Time to Obtain Permits Required to Start Construction of New or Modified Sources Subject to GHG Permitting Requirements
- + Key Element of the Texas Legislation: Exempted the TCEQ GHG Permitting Process from Contested Case Hearing
- + Issue for Future GHG Permitting:
 - + EPA set unrealistic economic thresholds for CCS--\$ per ton of GHG emissions controlled
 - + Problem: If new technology drops costs below that level, but not to a level that actually allows economic CCS, then could create difficulty in obtaining GHG permits for larger emissions sources

Next EPA GHG Regulatory Program: EPA Clean Power Plan to Regulate Existing Power Plants

- + EPA Recognizes No Cost Effective Means to Control GHG Emissions from Power Plants, Focusing Largely on Coal-fired Power Plants
- + Provides Each State a GHG Emission Goal; Provides Various Ways to Achieve Outside of the Fence Line of the Power Plant
- + Program Based on the Rate of GHG Emissions per Unit of Power Generated in a Particular State
- + States Determine How to Meet Those Levels, Using Methods Identified by EPA

EPA's Proposed Approach to Reducing the Rate of GHG Emissions Per Unit of Power

- + 1. Improving Efficiency at Existing Coal-fired Power Plants,
- + 2. Increasing Utilization of Existing Natural Gas Fired Power Plants,
- + 3. Expanding the Use of Wind, Solar, or Other Low- Or Zero-emitting Alternatives, and
- + 4. Increasing Energy Efficiency in Homes and Businesses.

Future of EPA Clean Power Plan

- + EPA Has Received over 1.6 Million Comments on the Proposed Rule
- + Some States Supporting Rule, Others Are Going to File Suit to Challenge the Rules
- + Industry and Business Groups Will Sue as Well
- + Broad Approach to Emissions of Each State's Electricity Grid Will Be Challenged
- + US Supreme Court Will Likely Decide the Ability of EPA to Regulate Existing Power Plants in This Manner under the CAA



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