

Texas Experience with Permitting Power Sources at Data Centers

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Overview

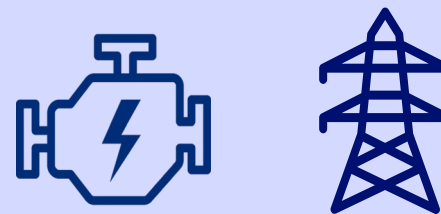
- Data center sources requiring air permits
- Types of Power Needs
- Applicable Air Permit Authorizations in Texas
- Challenges



Data center sources requiring air permits

- Electric Power Generation

- Typically provided by engines or turbines
- Available authorization mechanisms:
 - Permit by Rule
 - Standard Permit
 - Case-by-Case New Source Review



- Cooling Towers

- Only present at sites using evaporative cooling methods
- Source of particulate matter air emissions (PM/PM₁₀/PM_{2.5})
- This presentation does not address water usage



How much power?

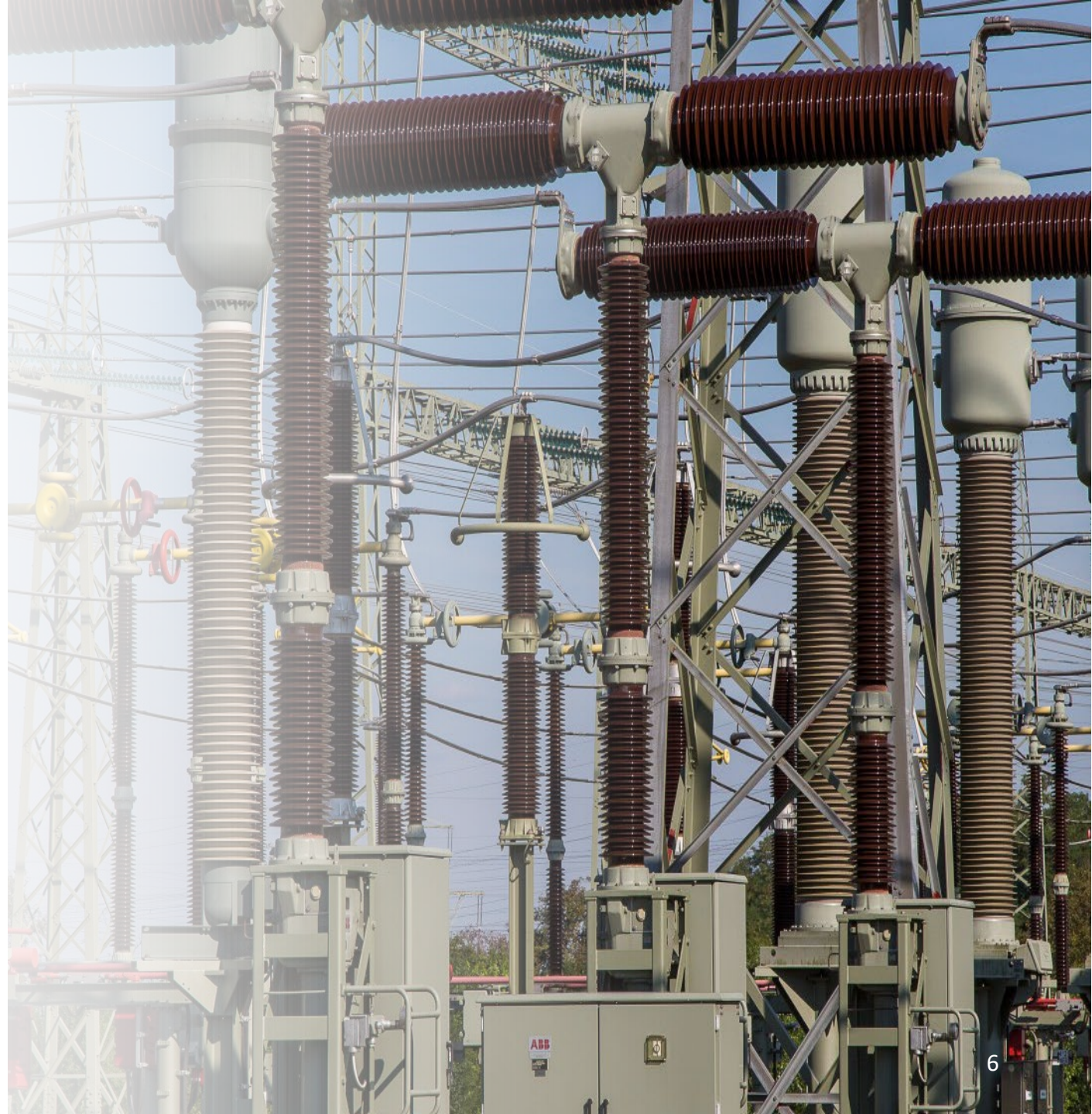
- The amount and source of power of the data center dictates the permitting strategy.
- Backup/Emergency Generation
 - Receive routine power from the existing electric grid and/or Source Specific Power Station
 - Commonly authorized by [PBR 106.511 Portable and Emergency Engines and Turbines](#)
- Source Specific Power Generation
 - May be located contiguous or adjacent to the data center.
 - Generate routine power. May not be connected to the grid.
 - Commonly authorized by the [Air Quality Standard Permit for Electric Generating Units](#) or NSR Case-by-Case individual permit.



Electric Generating Facility Air Authorization Options

Authorization Type	Facilities Authorized	Megawatt (MW) Range	Project Type
Permit by Rule (PBR)	Engines/Turbines	Up to 3.2 MW	Portable, emergency, or onsite generation only Not used for sending power to the grid
EGU Standard Permit	Engines/Smaller Turbines	Less than 1 MW to greater than 10 MW	Small electric generation to the grid and backup power
Natural Gas EGU Standard Permit	Gas Fired Engines	Up to 1.1 MW/engine; up to 6 engines	Small electric generation to the grid or for use onsite
Minor Case-by-Case Permit	Simple Cycle Turbine or Combined Cycle Turbine	44-300 MW 685 kW	Onsite use or power to the grid
Major Case-by-Case Permit	Simple Cycle Turbine or Combined Cycle Turbine	>415 MW	Onsite use or power to the grid

Air Permit Authorizations Specific to Power Generation Sources



Permit by Rule (PBR) 106.511

Portable and Emergency Engines and Turbines

30 TAC §106.511 “Internal combustion engine and gas turbine driven compressors, electric generator sets, and water pumps, used only for portable, emergency, and/or standby services are permitted by rule, provided that the maximum annual operating hours shall not exceed 10% of the normal annual operating schedule of the primary equipment; and all electric motors. For purposes of this section, "standby" means to be used as a "substitute for" and not "in addition to" other equipment.”

Defined Emergency

- Texas rules regulating combustion sources define emergency situations.
- Federal Standards such as NSPS III, MACT ZZZZ, etc. also include operational requirements for emergency engines.
- 100 hours/year is allowed for maintenance/testing
 - These hours are included in the 876 hours/year allowed under PBR §106.511
- Texas state and federal rules are independent of each other and compliance with both regulations must be met as applicable.



General PBR Requirements

- General Emission Limits for Attainment Areas:
 - 250 tpy CO or NO_x
 - 25 tpy VOC, SO₂, or PM
 - 15 tpy PM₁₀
 - 10 tpy PM_{2.5}
 - 25 tpy of any other air contaminant (exceptions for water and other non-pollutants)
- PBRs are limited to authorizing minor projects
- Recordkeeping requirements
- Review timeline of 45 days



Air Quality Standard Permit for Electric Generating Units

- Includes NOx emission limitations (lb/MWh) based on location, operating hours, and unit size
 - Lowest standard is 0.14 lb/MWh for units >10 MW operating more than 300 hours in West Texas
- Limits fuel type to:
 - Natural gas (≤ 10 grains sulfur per 100 dry scf)
 - Gaseous renewable fuel, landfill, digester, or stranded oilfield gas (≤ 30 grains sulfur per 100 dry scf)
 - Liquid fuels not containing waste oils or solvents ($< 0.05\%$ by weight sulfur)
- Requires unit re-certification every 16,000 hours of operation, but no less frequently than every three years.
- Review timeline of 45 days

Air Quality Standard Permit for Natural Gas Electric Generating Units

- Provides an additional authorization option alongside the existing EGU Standard Permit
- Includes distances requirements based on number of engines at the site (max: 6)
- Emission limitations for NO_x, CO, VOC, PM, SO₂, Formaldehyde, and H₂SO₄
- Limits operating hours for each engine to 400 hours of operation per rolling 12-month period
- Requires initial stack sampling and continuous demonstration of compliance
- Review timeline of 45 days

NSR Case-by-Case Permit

- Required for projects that cannot meet PBR or Standard Permit requirements
- Required for projects that trigger PSD or Nonattainment Major Source Permitting
 - PSD for GHGs typically triggered at data centers when PSD applies for non-GHGs
- Extensive review process which includes BACT, impacts, and public notice
- Review timelines
 - Up to 285-day review timeline for minor permits
 - Up to 365-day review timeline for major sources
 - Expedited permitting program available



Challenges in Texas



Challenges for TCEQ



PERMITTING
CHALLENGES



PUBLIC
PARTICIPATION



MEDIA AND
LEGISLATIVE
INTEREST

Permitting Challenges

- Resources
- Speediness of issuance
- Quality of applications
- Site determinations
- Public notice requirements
 - Two public notices required for all initial air permits and some amendments
 - Potential for public comments, public meeting, and/or a contested case hearing
 - The response to comments, a public meeting, or contested case hearing will delay project issuance

Public Participation

- Public interest
 - 22% of applications received comments
 - 18% received a public meeting request
- Location vs Amount of Interest
 - Rural, attainment areas
 - Distance from nearest neighbor

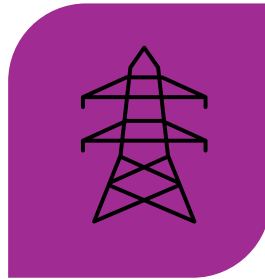
Media and Legislative Interest

- Press releases before an application received
- Media inquiries
- Legislative questions and public meeting requests

Challenges for Texas



WATER
AVAILABILITY



POWER GENERATION



SENATE BILL 6

Questions?