# Data Center Air Permitting in Pennsylvania

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# Logistics

- How can I ask questions?
  - Please enter your questions in the Questions box.
  - There will be a Q&A at the end.
- Will I get a certificate of completion?
  - Yes, all attendees will automatically be sent a certificate of completion a few hours after the webinar concludes.
- Will I get a copy of the slides?
  - Yes, we will post a recording of the webinar and a copy of the slides on our website. A link will be emailed to all registrants.

# Overview

- Regulatory Background for Air Permits
- Federal vs. State Air Permitting
- Emission Source Types
- Early Permitting Considerations
- Challenges
- Nuances of Pennsylvania Air Permitting
- Timeline and Post-Submittal Actions

# Federal Regulatory Background

- Clean Air Act (CAA) and CAA Amendments
  - Established National Ambient Air Quality Standards (NAAQS)
  - Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR)
  - Created the Operating Permit Program (Title V of the CAAA of 1990)
  - Established Standards of Performance for New Stationary Sources (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP)

# Federal vs. State Air Permitting

- Federal construction permitting through New Source Review (NSR)
  - If area is classified as in attainment with NAAQS, falls into PSD permitting
    - Major source threshold for data centers of 250 tons/year of a criteria pollutant
  - If area is classified as in nonattainment NAAQS, falls into Nonattainment NSR permitting
    - Major source thresholds vary based on classification (Moderate, Serious, Severe, or Extreme)
  - Lengthy permitting process for major sources with extensive modeling, emissions offsets, public input, and/or emissions control requirements
  - These programs consider “project” emissions – may be facility-wide or a subset
- Avoid Major NSR by taking federally enforceable operating limits and permit as a Synthetic Minor Source

# Federal vs. State Air Permitting

- Each state has its own air quality program to meet U.S. EPA commitments and targets
  - Air pollution control regulations
  - Air permitting program, including key thresholds and exemptions
    - Required forms and other construction permit application components
    - Air dispersion modeling requirements
    - Short term emission rate requirements
    - Identification of pollutants of concern
  - Air compliance/enforcement program
- Federal construction permitting is typically conducted at the state level, although it may involve U.S. EPA input

# Federal vs. State Air Permitting

- In addition to construction permitting, operating permits may be required
  - Major Source Title V Operating Permit
    - Threshold is 100 tons/year for criteria pollutants unless area is in nonattainment
    - Federal program, but issued at the state level
    - This program considers aggregated emissions from entire facility/campus
  - Minor Source (True or Synthetic)
    - Some states require their own operating permit

# Emission Sources at Data Centers

- Air permitting for data centers is driven by the engines
  - Diesel-fired emergency generators (NSPS Subpart IIII)
  - Natural gas-fired emergency generators (NSPS Subpart JJJJ)
  - Natural gas-fired combustion turbines (NSPS Subpart KKKK)
- Other equipment of interest includes fuel storage tanks, cooling equipment, fuel cells, and emission controls (if required)

# Early Permitting Considerations

- Many factors affect air permitting, but considering air permitting early in process might influence aspects of the project
  - Size of Data Center (MW, number of buildings, etc.)
  - Attainment vs. Nonattainment and impact on Major source thresholds
  - Ownership of Data Center
    - Same LLC/owner vs. separate owners
  - Construction Scheduled or Phasing

# Early Permitting Considerations

- Additional factors to consider:
  - Number of generators needed and how they will be operated
    - Emergency vs. Non-emergency
    - Emergency Demand Response
  - Customer Operating Requirements
  - Evaluate need for emissions controls and associated financial cost
  - Evaluate if onsite power generation due to limits on utility availability
    - Separate owner vs. data center owner
    - Additional emissions sources
  - Air Dispersion Modeling
  - Location of the facility [e.g., in Environmental Justice (EJ) area, community perception of data centers]

# Early Permitting Considerations

- Air Permitting strategy culminates in the three main considerations:
  - Regulatory burden
    - Difference in permitting programs (Major vs. Synthetic Minor)
  - Operational flexibility
    - Total operating hours or fuel consumption allowed
  - Capital cost
    - Emissions controls

# Challenges

- Changing Regulatory Requirements
  - Redesignation of attainment status
  - Changing BACT and other requirements that influence emissions controls
  - Proposed/new state-specific requirements for data centers
- Receptiveness of communities, public perception
- Building in states that are unfamiliar with data centers
- Power needs – both denser power on-site and power availability

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# Nuances of Pennsylvania Air Permitting

# Pennsylvania Air Permitting: 5 Things to Know

- #1: Permitting Options for Data Centers
  - Plan Approval Application
  - State Only Operating Permit (SOOP)
    - Synthetic Minor Sources
  - Title V Operating Permit (TVOP)
    - Major Sources
    - Additional compliance requirements
  - Request for Determination (RFD)
  - General Permit (GP-9)

STRATEGY WITH SOLUTION.

PARTNERSHIP WITH A PURPOSE.

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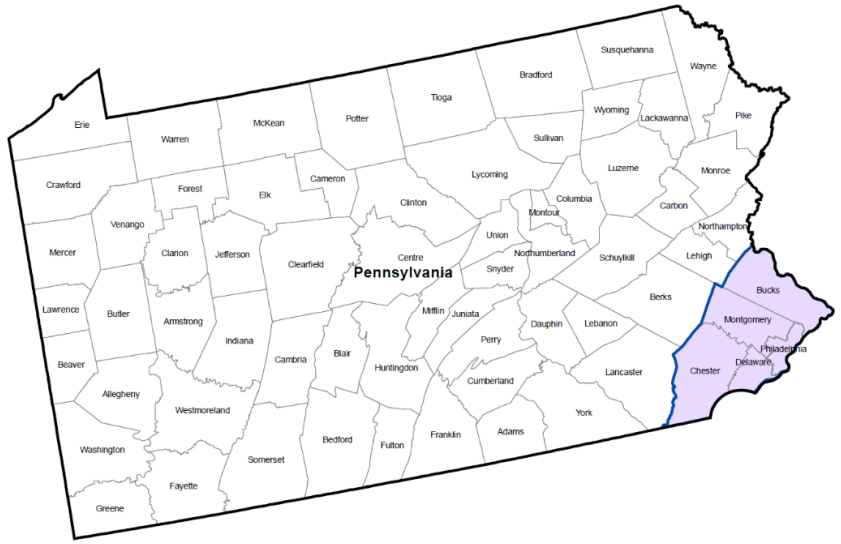
# Pennsylvania Air Permitting: 5 Things to Know

- #2: Five-County Area in Southeast Pennsylvania
  - Designated Severe Nonattainment Area for Ozone
  - Effective May 19, 2007
  - Major Source Thresholds lowered from 100 tons/year to 25 tons/year
    - $NO_X$ or VOC
  - New data centers will need to evaluate taking stricter operating limits or becoming major sources

# Pennsylvania Air Permitting: 5 Things to Know

- #3: Additional Environmental Justice (EJ) Requirements and Air Quality Modeling
  - Pennsylvania has its own EJ policy that impacts air permitting
    - EJ areas are determined based on more than 30 environmental, health, and socioeconomic indicators
  - Data Centers should be prepared to be required to conduct air quality modeling



# Pennsylvania Air Permitting: 5 Things to Know

- #4: Best Available Technology (BAT)
  - Required for most new sources
  - Typically use top-down approach to review all potential control options
  - Identify and implement most effective emissions control strategies
  - Controls are required:
    - In the five-county area designated as a Severe Nonattainment Area for Ozone
    - For a large number of engines

# Pennsylvania Air Permitting: 5 Things to Know

- #4: Best Available Technology Continued
  - Common Data Center BAT in Pennsylvania:
    - Use of Ultra-Low Sulfur Diesel (ULSD)
    - U.S. EPA Tier Certified Engines
  - Additional Considerations
    - Selective Catalytic Reduction (SCR) and Preheaters for SCR
    - Diesel Oxidation Catalyst (DOC) and/or Diesel Particulate Filter (DPF)
    - Startup and Shutdown scenarios
    - Greenhouse Gas Emissions – $CO_2$ and $SF_6$

# Pennsylvania Air Permitting: 5 Things to Know

- #5: Public Notice
  - PAA Minor Source – 30-day comment period
    - Notification via PA Bulletin
    - Municipality notification
    - Local Paper
  - Same process for operating permit
    - SOOP PADEP Public notice
    - TVOP goes through EPA
  - Anticipate comments from local stakeholders and environmental groups

# Pennsylvania Air Permitting: Bonus

- Pennsylvania Fast Track Program (Fast Track)
- Streamlining Permits for Economical Expansion and Development (SPEED)

# Air Permit Components

- Federal and State-specific requirements
- Include operating limits, monitoring, and recordkeeping requirements
- Plan Approvals authorize a temporary operation period of 180 days from the date of commencement of operation
- Typically includes required start-up notifications
- Maintenance schedule provided during permitting may be included as a permit condition

# Pennsylvania Air Permitting: Best Practices

- Set up a pre-application meeting with PADEP
  - Discuss project, ensure correct permitting program, and resolve questions
  - Engage early and often with the appropriate PADEP regional office
- Plan for conversations with PADEP to discuss BAT and control technology possibilities
- All submittals must be submitted online via Pennsylvania's Public Upload/Greenport portal

Pennsylvania
Department of
Environmental Protection

# Pennsylvania Air Permitting: Timeline

- PADEP anticipated approval timeline varies
  - Minor Source: Approx. 6-9 months
  - Major Source: Approx. 9-15 months
  - Fast Track/SPEED
- Draft permit can be requested for review and comments
- Operating permit must be obtained typically within 12-months of initial start-up

# Air Permit Application Submitted, Now What?

- Respond to PADEP information requests promptly
- Prepare for monthly and annual recordkeeping (i.e., tracking tool)
- Non-air considerations:
  - Storage tanks for data centers are generally exempt from air permits, but need to be permitted through PADEP
    - Requires an application submittal and inspected by PADEP Certified inspector
  - Spill Prevention, Control, and Countermeasure (SPCC) Plan and associated training typically required
  - Emergency Planning and Community Right-to-Know Act (EPCRA) Tier II Report

# Questions or Comments?

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