Renewable Natural Gas Project Development
Regulatory Considerations

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Agenda
• What is Biomethane (RNG)?
• Project Examples
• Air Permitting
• Process Safety and Risk Management
• Q&A

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“One man’s trash...”
Methane captured from organic material

- Landfills
- Livestock operations
- WWTP
- Organic waste
Woodland Meadows (WM/Ameresco)

- Commissioned: 2017 in Wayne County, MI
- 6,600 CFM LFG to 3,500 dekatherms/day RNG
- Pressure swing absorption (PSA)
- 3-mile pipeline to interstate pipeline
Westside Gas Producers (DTE Vantage)

- Commissioned: 2001 in Three Rivers, MI
- Processes ~3,000 CFM LFG
- Solvent Absorption
- Sister plant near Dayton, OH
Wood Road RNG (Granger/EDL)

- Commissioned: 2021 in Lansing, MI
- Produces ~2,500 dekatherms/day RNG
- Membrane with Thermal Oxidizer
- Replaced LFG-to-Energy Facility
What’s driving the market to RNG?

• “Race to net-zero carbon”

• Credits available for clean fuel
  • EPA Renewable Fuel Standard Program ("RIN" Market)
  • California Air Resources Board - Low Carbon Fuel Standard ("LCFS")

• Electric prices relatively low

• Utility targets
Air Permitting - Michigan Rule 201

- Gas Cleaning Unit
- Flare
- Thermal oxidizer
- Electric/Heating equipment
- Backup generator
Air Permitting Process

- Pre-construction Permit to Install (PTI)
  - EGLE 180-day review period
  - Construction Waiver?
- Evaluate exemption options for small equipment
- Early engagement
Air Permitting Consideration

• Stationary source determination (Landfill and RNG Plant)
  • Dictates source status
  • Scope of “on-site” modeled sources, footprint and fence line
  • Compliance responsibility once the permit is issued
Air Permitting Considerations

- Permit conditions reflect anticipated operation
  - Commissioning (startup/shutdown)
  - Account for variation in gas composition and short-term “spikes” or upset conditions
  - Stack parameters / equipment layout to satisfy dispersion modeling
- Monitoring and recordkeeping
Additional Regulatory Programs

• Natural Resources (Wetlands)


Process Storage and Delivery to Interconnection

- Linear pipeline facilities (natural resources-wetlands and engineering)
- Tube/Tank Trailer to transport RNG (methane)
  - Each trailer holds 350,000 to 450,000 scf of gas
  - Category 1 flammable gas ≥ 10,000 lbs
- Solvent absorption (e.g., methanol) and process materials
Process Safety Management (PSM)

- Employee participation and training
- Safety and operating/inspection procedures
- Process hazard analysis - Failure mode ("What-if") analysis
- Emergency planning and response
- Compliance audits
Risk Management Plan (RMP)

Section 112(r) of Clean Air Act

1. Hazard assessment for an accidental release
2. Accident prevention
3. Emergency response
Key Takeaways

• RNG has significant growth potential and can be derived from LFG

• Regulatory requirements may overlap

• Early engagement on developing projects is key to success