Technical Assessment of Beneficial Use in Handling Gas

Rule 1118.1 – Control of Emissions from Non-Refinery Flares

INTRODUCTION
➢ Outline the scope of work for contractor to address in the technical assessment

BACKGROUND
➢ Industries that generate excess gas
  • Oil and gas extraction/production sites
  • Landfills
  • Wastewater treatment/Other digesters
➢ Gas composition and emission consequences (VOC, GHG, Toxics) from:
  • Subsurface crude oil exploration
  • The mixing of refuse material
  • Decomposition of organic waste
  • Wastewater treatment and digestion
➢ Current handling of gases (% of gas flared)
➢ How excess gas is regulated
  • Rule 1118.1 – Non-Refinery Flares
    ▪ Capacity caps that will encourage beneficial use

BENEFICIAL USE ASSESSMENT
For each of the technologies and affected industries (both small and large facilities) assess:
✓ Emissions data profiles (lifecycle analysis)
  o Emission savings
  o Emissions generated
✓ Cost and potential revenue
✓ Hurdles?
✓ Potential systems problems (safety/reliability)?
✓ Incentives?

➢ Technologies
  • Current types
    ▪ Micro-turbines/Turbines
    ▪ Engines
    ▪ Fuel cells
    ▪ Compressing gas to CNG or LNG
  • Near future (e.g., Sierra Energy FastOx Gasification)
  • Long-term future (e.g. SoCalGas projects)
References
  ▪ World Bank’s Global Gas Flaring Reduction Partnership White Paper
  ▪ Rule 1118.1 staff report
  ▪ CARB Draft White Paper
  ▪ Oilfield Flare Gas Electricity Systems (OFFGASES) Project

➢ Potential Uses for Gas/Generated Energy
  • Transportation Fuel (Gas cleanup)
  • Pipeline Injection (Gas cleanup)
  • Energy Generation
    ▪ Combined heat and power
    ▪ Battery storage (excess power)
    ▪ Microgrid (distributed generation)

➢ Potential Hurdles to Beneficial Use
  • Regulatory Hurdles
    ▪ California Public Utilities Commission (CPUC) (1 MW restriction)
    ▪ Permitting
    ▪ California Environmental Quality Act (CEQA)
    ▪ Land use (local) approval – political will
    ▪ Other regulations? (e.g., state GHG)

➢ Other Challenges, Observations, Suggestions or Solutions
  • Infrastructure
    ▪ Electric grid
    ▪ Pipeline
  • Utilities charges + restrictions (demand charge)
  • On-site gas cleanup
  • Transmission

➢ Cost Considerations
  • Cost of technology/other charges
    ▪ Utility demand charge
  • Potential revenue
  • Funding/incentive opportunities
    ▪ CARB’s Low Carbon Fuel Standard (LCFS) for Renewable Natural Gas
    ▪ U.S. EPA Renewable Gas Standard/Renewable Identification Numbers (RINs)
    ▪ SoCalGas Tariff Program
    ▪ Sales tax exemption for beneficial use projects

➢ Other Incentives
  • Green House Gas (GHG) Incentives
    ▪ California’s Global Warming Solutions Act of 2006 (AB32)
    ▪ Senate Bill 100 – zero carbon electricity by 2045
    ▪ Executive Order B-55-18 Carbon Neutrality by 2045 and achieve and maintain net negative GHG emissions
    ▪ World bank Zero Routine Flaring by 2030 Initiative
  • Others
DRAFT OUTLINE

- Emission reduction programs (RFPs)
- Rebate programs (like solar)
- Partnerships with other entities
- Potential future developments for energy/fuel incentives

CONCLUSION

- Lessons learned from Technology Assessment
- Further action(s) to remove or help remove hurdles or encourage beneficial use of flare gas