California Barriers to the Development of RNG as a Transportation Fuel

THINK GREEN:
Technological, Economic and Environmental Potential of Natural Gas as a Sustainable Transportation Fuel in the United States
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Greening WM’s Fleet
Waste Management’s Natural Gas Fleet Evolution

Investment in NGV is a Strategy with one of the Highest Rates of Return of any investments in WM’s portfolio
WM Fleet Facts

- WM’s Fleet Goal: Reduce emissions & increase fuel efficiency by 15% by 2020
  - GHGs already down 18%
- WM has 38,400 Vehicles
  - 20,400 Collection HDVs
  - 18,000 MD & LD support & HD post collection transfer vehicles
- Over 3,200 NG HDVs - 50% are in California
  - Goal: All CA NGVs will be fueled by Renewable NG - near zero GHGs
- 61 natural gas stations built in 27 states, 2 provinces
  - 10 public fueling stations + 12 others with 3rd party use
- 90% of new truck purchases are natural gas - Mostly CNG
  - On line to purchase 700+ natural gas trucks per year nationwide

Alternative Transportation Fuel Technologies

Recovery of Energy Products via Emerging Processes

- BioGas converted to ultra-low carbon low-carbon fuel for CNG/LNG trucks
- BioGas to electricity sent to grid from which fleets power electric vehicles can qualify for cellulosic RINs and LCFS credit
- BioGas to Diesel technology can produce advanced or cellulosic biofuels
- MSW to ethanol via large-scale plasma gasification
- Commercial-scale facility 400-500 tpd
Developing Renewable Natural Gas from the Wastes WM manages should be a No-Brainer – Right?

Yes, But . . .

There are LIONS and TIGERS and BEARS (and WITCHES) to overcome:

Chuck’s Top Ten Witches:

1. Historic Low Price of Fossil Natural Gas

2. Uncertainty of LCFS and RFS2 Credit Value
3. Inability to Secure Long Term LCFS/RFS2 Credit Contracts

Obligated Parties have been Unwilling to Enter into Long-Term Contracts for the Values of the LCFS/RFS2 Credits

4. Mixed Messages from Natural Gas Utilities

- Utilities pushed for stringent RNG standards
- But, some Utilities do offer conditioning service
- Some Utilities recognize that lowering the Carbon Intensity of pipeline gas is “coming”.

Making California Pipeline Biogas Work

- AB 1900 (Gatto) Signed in 2012
  - AB 2196 (Chesbro) Also Enacted
    - Limits ability of Out-of-State Biomethane for RPS
- Allows for Pipeline Injection and Transportation of Biomethane
  - Including Landfill Gas
- Directs CPUC to Develop Standards: 1) Human Health & Safety + 2) Pipeline & Pipeline Facility Safety & Integrity
- CPUC Phase I Proceeding Set Standards 2013; Phase II Proceeding Allocates Costs 2015
- Also CPUC proceeding for use of NG GHG C&T Revenues
5. Pipeline Access Standards for RNG Difficult

- CPUC Standards are Toughest in US
  - 990 BTU/scf - 98% pure methane
  - Siloxane thresholds not measurable
- No evaluation of fossil NG
- Only 1 RNG to Pipeline in CA Multiple
- Out-of-State projects (LCFS pathways)
- Utilities are Offering Conditioning Service

6. Pipeline Interconnection Costs $$$

- Pipelines not always near where RNG is Produced
  - Interconnection Cost: $3 million or more
  - Recent CPUC decision helps: up to $1.5 million
  - Should Utilities be obligated to cover interconnection costs as a public GHG good?

7. Short Lived Climate Pollutants (SLCPs)

- What Controls will CARB adopt for Methane?
- Will LCA’s be required?

8. Regulatory Preference for Zero Emission Vehicles (Electricity and Hydrogen)

- Cummins/Westport -- Near Zero
  - NOx Emissions ISL-G Natural Gas Engine - 0.02 gNOx/bhp-hr
  - 9 liter now, 12 liter soon
  - Same or lower than ZEV
  - Transition Fuel to near zero GHG RNG
9. Landfills are Cost Effective Source of RNG - But Not Preferred
- Fugitive Methane Emissions Concerns
- Organic Waste to AD units Preferred
- But, LFs produce methane more than 30 years
- AD won’t produce significant RNG for 15 yrs

10. Need to Think Outside of Boxes
Agencies in Silos (Air, Energy, GHGs, NOx, Waste)
- Example: SCAQMD Rule 1110.2 on Biogas Engines
- NOx limits aren’t cost-effective
- Back to Flaring?
- Gas to Pipeline Better at limiting Emissions

Thank You -- Any Questions?

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