



Existing Federal Programs

Supporting the biogas and RNG industries

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“Powering Businesses, Homes and Vehicles with Waste”
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“Don’t mess with the RFS!”

Renewable Fuel Standard-RINs

- For upgraded biogas/RNG as vehicle fuel
- Fossil NG = \$3.00/MMBTU
- D3 RIN @ \$3.03 = \$40.00/MMBTU
- D5 RIN @ \$1.12 = \$14.50/MMBTU



Farm Bill

- Energy Title (IX): Rural Energy for America Program, Bioenergy Program for Advanced Biofuel, Biorefinery Assistance Program, Biomass Research and Development Initiative (BRDI).
- Conservation Title (II): Natural Resources Conservation Service (NRCS), Environmental Quality Incentives Program (EQIP), Conservation Innovation Grants.
- Research Title (VII): Agricultural Research Service and National Institute of Food and Agriculture

Agency Programs (Appropriations)

- EPA: AgSTAR, Landfill Methane Outreach Program, Combined Heat and Power Partnership, and Sustainable Materials Management Program
- DOE: Bioenergy Technologies Office, Vehicle Technology Office, Fuel Cell Technologies Office
- Cross Agency:
 - USDA/DOE Biomass Research & Development Technical Advisory Committee
 - EPA/USDA/USGS integrated nutrient management strategy

Tax Policy

- The biogas and RNG industries need PARITY WITH both fossil energy and renewable energy



AD vs. Solar/Wind

Biogas/AD Systems Are Worth It

- **Capacity factor:**
 - Solar: 16% ([EIA, NJ](#))
 - Wind: 22% (average worldwide)
 - Biogas/AD: 90% (DOE, [UW](#))
- **Economic Comparative Analysis:**
 - It takes 6 times as much solar capacity to achieve the same amount of produced energy from anaerobic digestion
 - If NJ would support 100MW of AD projects, you would need 600MW of solar or 400MW of wind to produce the same amount of renewable energy
 - 100MW of AD projects: **about \$400 million** (\$4m/MW capacity)
 - 600MW of solar: **about \$2.2 billion** (\$3.6m/MW capacity; \$20m/MW produced energy)

Tax Policy Parity

- Option 1: extend predictable incentives that other technologies use to biogas/RNG
 - S.988 “Agriculture Environmental Stewardship Act”
 - Give baseload electricity generation technologies in Section 45 long-term tax credit extensions equivalent to those given to solar industry.
- Option 2: create technology neutral tax reform

Don't care about supporting renewable energy?

- **With what infrastructure will we manage:**
 - 66,500,000 TONS of food waste each year
 - The sludge from 31 BILLION gallons of wastewater EVERY DAY
 - The manure AND NUTRIENTS from 8 BILLION cows, chicken, turkey and pigs
- **Where will the nutrients for US agriculture come from?**
 - 12,840,000 short TONS of nitrogen (N) needed
 - 4,321,000 short TONS of phosphate (P_2O_5) needed
 - Nitrogen is mostly made from ammonia using fossil fuels
 - Phosphorus mining in the US creates radioactive waste—or we import it
- **13,500 US Biogas Systems =**
 - \$40 billion in construction spending
 - 335,000 short-term construction jobs and 23,000 permanent jobs



Let's develop smart policy to grow the biogas and RNG industries!

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