

Grant Programs and Incentives

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Overview

❖ Regional Efforts

- U.S. EPA- biogas mapping tool, research and projects
- State of CA Energy Commission- action plan and research

❖ Grant Programs and Other Incentives

- Infrastructure to electricity
- Vehicle conversions to CNG or LNG
- Others



EPA Waste to Biogas Mapping Tool

www.epa.gov/region9/biogas

- ❖ Interactive mapping tool
- ❖ Designed to connect organic waste producers (i.e. food processing facilities, grease renders) and potential users (e.g. dairy digesters, wastewater treatment plants)
- ❖ Beta version – second version will likely include more information such as the quantity of waste available
- ❖ Currently soliciting feedback to make the tool more useful in its second version

EPA Waste to Biogas Mapping Tool

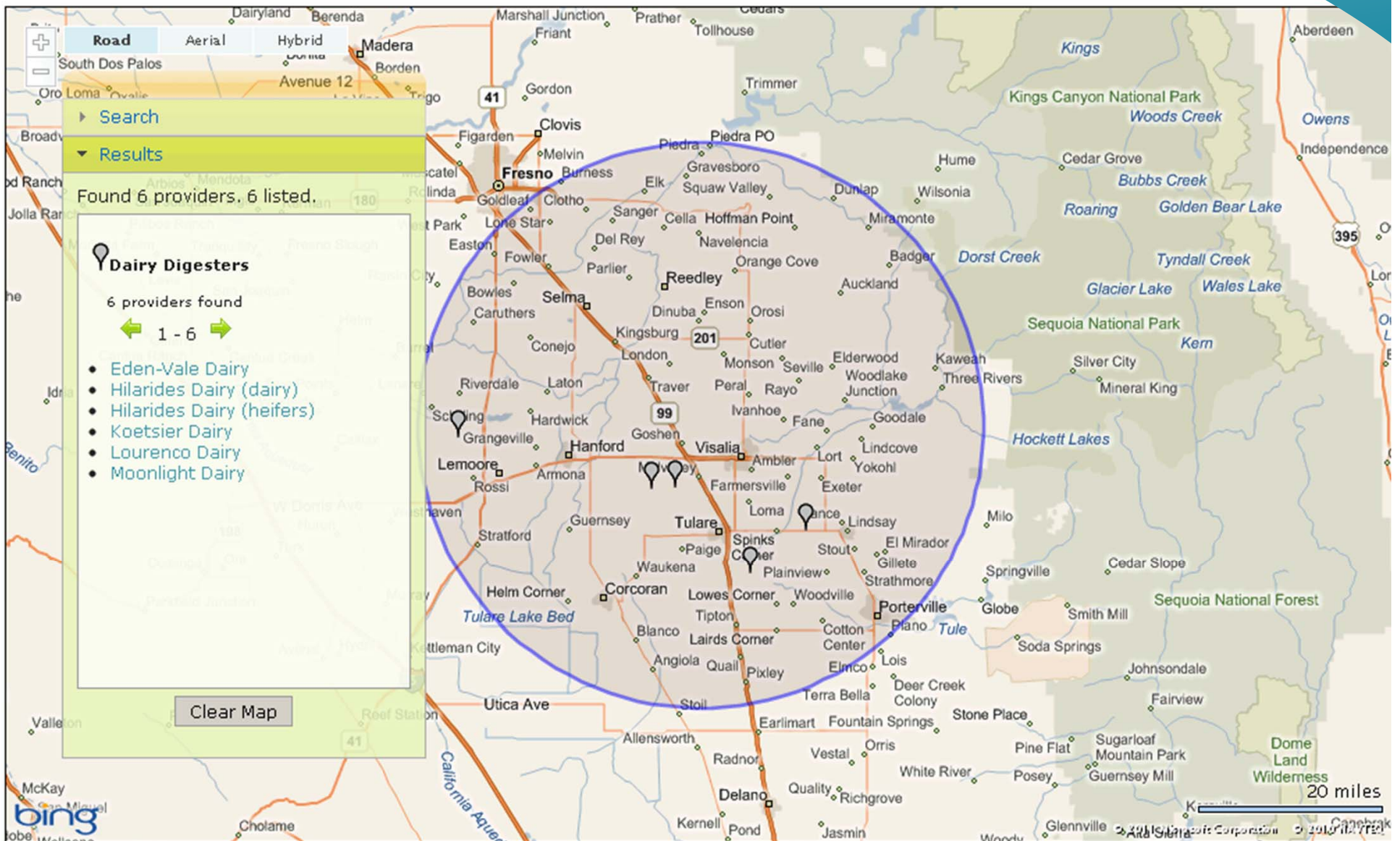
Sources

- Food Processers
- Grocery Stores
- Dairies
- Fats, Oils, and Grease Collection
- Cities with Organics Collection

Users

- Wastewater Treatment Plants with Anaerobic Digesters
- Dairy Digesters

EPA Waste to Biogas Mapping Tool





EPA Research: *Understanding Air Quality, Climate Change, and Economic Impacts of Various Biogas Management Technologies*

Key Variables

Sources of Biogas

- Landfills
- Wastewater Treatment Plants
- Dairy Digesters

Biogas Utilization Technologies

- Flaring
- Pipeline Injection
- Vehicle Fuel
- Combined Heat and Power (IC Engines and Microturbines)
- Fuel Cell
- Boiler

Key Metrics

Economics & Operations

- Capital
- O&M
- Net Present Value
- Efficiency

Air Quality

- Nitrogen oxides (NO_x)
- Sulfur oxides (SO_x)
- Particulate matter (PM)
- Carbon monoxide (CO)
- Volatile organic compounds (VOCs).

Climate Change

- Methane (CH₄)
- Carbon dioxide (CO₂)



EPA Research -*Continued*-

- ❖ Compare air quality, GHG, and economic impacts creating energy from biogas using IC engines, microturbines, fuel cells, pipeline injection, and vehicle fueling

- ❖ Informed a lot by NOx issues in CA

- ❖ Results:
 - Side-by-side comparison of biogas management technologies to provide valuable insight into economically and geographically appropriate biogas technologies
 - Report detailing comparison and providing context for decision-makers to understand environmental and economic considerations when choosing a biogas management technology

Clean Air Technology Initiative

- ❖ Established in 2008 to address worst air quality regions in California
- ❖ EPA, CARB, SCAQMD and SJVAPCD



United States
Environmental Protection Agency



California
Air Resources Board



South Coast
Air Quality Management District



San Joaquin Valley
Air Pollution Control District

- ❖ Traditional tools, technologies and practices are not enough to address severe air quality challenge
- ❖ Showcase areas:
 - San Bernardino and Southern San Joaquin Valley

Goals of the Clean Tech Initiative

- ❖ Accelerate development, demonstration and deployment of new, clean technologies by:
 - Supporting early-stage transformative technologies
 - Streamlining the testing, verification, and certification
 - Improving cost effectiveness by mass commercialization and deployment
- ❖ Showcase technologies, then expand to other areas nationwide
- ❖ Foster local economic development, education, and workforce training and green jobs
- ❖ Enable community empowerment

Clean Tech Initiative Biogas Projects

- ❖ Landfill gas with FlexEnergy
 - Flex powerstation for ultra-low NOx emissions in San Joaquin Valley
- ❖ Dairy gas with Engine, Fuel and Emissions Engineering
 - Biogas engine with selective catalytic reduction (SCR) system

State of CA Energy Commission (CEC) 2011 Action Plan



- ❖ Address siting, permitting, and regulatory barriers to increased biogas production.
- ❖ Continue research and development of low-emission technologies and policy mechanisms that account for GHG benefits associated with each technology.
- ❖ Increase the availability of affordable biogas products collected through sustainable practices.
- ❖ Develop new and revised policies necessary for meeting biogas goals.



Funding Opportunities: Infrastructure

- ❖ CEC- AB118 Alternative and Renewable Fuel and Vehicle Technology Program
 - \$21.5 million for biomethane production facilities for energy (\$7M for biomethane to natural gas fuels)

- ❖ EPA → to the Air Districts

- ❖ San Joaquin Valley Air District
 - ~\$2M available this summer for biogas projects

- ❖ Others Tech Advancement Programs
 - Visit your local Air District web site



Funding Opportunities: Fuels and Vehicles

- ❖ CNG and LNG vehicles have 70-88% GHG reductions
- ❖ EPA National Clean Diesel Campaign ~\$50M/year
 - National competitive funding to replace existing vehicles; pays cost difference of CNG/LNG to diesel fuel
- ❖ CEC- AB118 ~\$15M
 - \$13M light, medium, and heavy duty natural gas vehicles
 - \$2M natural gas fueling stations
- ❖ CA Air Resources Board- AB118 Air Quality Improvement Plan (AQIP) ~\$50M
 - Cleaner truck loans
- ❖ CA Air Districts
 - Carl Moyer ~\$100M (emission reductions)
 - Prop 1B funding ~\$250M (line-haul trucks)



Funding Opportunities: EPA Climate Change Showcase Community Grants

- ❖ Competitive funding to reduce GHG emissions
- ❖ \$20M annual funding
- ❖ Cities, Counties, and Tribes are eligible to apply





Funding Opportunities: *More Info*

❖ EPA

epa.gov/region9/biogas

epa.gov/cleandiesel

epa.gov/statelocalclimate/local/showcase/

❖ CARB

arb.ca.gov/ba/fininfo.htm

❖ CEC

energy.ca.gov/2010-ALT-1/background.html



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