Methane Reduction and Renewable Fuels: An Agriculture Perspective

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Biofuels and Bioproducts from Wet and Gaseous Feedstocks: Market Barriers and Opportunities Workshop

June 6, 2017
Berkeley, CA
California GHG emissions.

Legislative updates and background: 2016-17.

Funds allocation for methane emissions reduction.

Dairy Digester Research and Development Program.
  - Program framework and timeline.

Additional efforts and inter-agency coordination.
CALIFORNIA GHG EMISSIONS BY SECTOR

TOTAL CALIFORNIA GHG EMISSIONS

Agriculture: 8.18%

Other Sectors:

- Manure Management
- Crop Growing and Harvesting
- General Fuel Use

33% of agricultural emissions
2.7% of total
LEGISLATIVE UPDATES & BACKGROUND: 2016-17

- SB 1383 (Lara) Short Lived Climate Pollutants - ARB to develop comprehensive strategy no later than Jan. 1, 2018
  - Target: to reduce dairy methane emissions by 40% of 2013 levels by 2030
  - ARB, in consultation with CDFA, to adopt regulations to reduce methane emissions from livestock manure management operations and dairy manure management operations; to take effect on or after January 1, 2024.

- AB 1613
  - $50 million for methane emission reductions from dairy & livestock operations, to be encumbered by June 2018 and expended/liquidated by June 2020.

- SB 859, Section 2 and 6
  - Management practices and criteria air pollutants.
Historically, few digesters for the state with largest dairy livestock population.


Goal: To identify and remove barriers to the wide spread adoption of dairy digester systems in California.

Barriers to development included: expensive, uncertain and complex interconnection and permitting obstacles, high financing risk and costs, among others.

Recommendations included: consolidated permitting process; dedicated funding mechanisms; protection of environmental quality; research on co-benefits of dairy digesters.
DAIRY DIGESTER RESEARCH AND DEVELOPMENT PROGRAM (DDRDP)

- Authorized by the Budget Act of 2014 (Chapter 25, Statutes of 2014). CDFA received $12 million from the Greenhouse Gas Reduction Fund to support projects that reduce greenhouse gas (GHG) emissions from California dairy operations by capturing GHGs, harnessing GHGs as a renewable bioenergy source and promoting low carbon fuels.
- CDFA funded 6 projects, funded $11.1 million total; $28 million in matching funds by recipients.
- Projects to generate renewable electricity (approx. 40 million kWh per year)
- Total GHG emissions reduction estimated at 1.56 MTCO$_2$e over 10 years. Annually:
  - 0.04% of the total GHG emissions in California.
  - 1.3% of GHG emissions from dairy manure management.
- Funded a research project ($225,000) titled “Converting Manure to Reduce Greenhouse Gas Emissions, Minimize Environmental Impacts, and Enhance the Economic Feasibility of Dairy Operations” with Dr. William Horwath, UC Davis.
Total funds appropriated: $50 million.

Dairy Digester Research and Development Program (DDRDP): $29-$36 million.


Non-digester management practices.
PROGRAM DEVELOPMENT PROCESS

- Initial Program Framework Draft
- Technical Advisory Committee
- Revise Draft
- Feedback from public, stakeholder, sister agencies
- Finalized Grant Solicitation
- Review of Submitted Applications
- Award of Grant Funds

- Stakeholder and partner input: industry, EJ, etc.
- Public comments
- Policy Documents and Research Literature
- Public Meetings
- Written Comments
Grant size: A maximum of 50% of the total cost of project, up to $3 million.

Matching funds - Minimum of 50% matching funds required (no more than 25% in kind).


Eligibility:
- Existing milk producers, dairy digester developers.
- Cluster projects.

Eligible bio-methane uses: On-site use or into electrical grid/pipeline (electricity generation or transportation fuel/RCNG), utilization of thermal energy on site or at neighboring facility.
ENVIROMENTAL PROTECTION

- **Water Quality Protection:**
  - Double-lined ponds consistent with the Tier 1 specification of the Dairy General Order Central Valley Regional Water Quality Control Board, or,
  - Above-ground tank, or,
  - Below-ground concrete lined tank.

- **Air Quality Protection:**
  - Total NOx emissions no greater than 0.50 lb/MW-hr.
## SCORING CRITERIA

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<thead>
<tr>
<th>Application Section/Scoring Criteria</th>
<th>Max. Points</th>
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<tr>
<td>Feasibility of Digester Project</td>
<td>20</td>
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<tr>
<td>Financial Soundness/Budget Worksheet</td>
<td>10</td>
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<tr>
<td>GHG Emissions Calculations &amp; Reporting</td>
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<td>Project Readiness</td>
<td>10</td>
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<tr>
<td>Environmental Performance</td>
<td>15</td>
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<td>Benefits to Local Communities</td>
<td>10</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
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Applications uploaded and submitted via State Water Resources Control Board Financial Assistance Application submittal Tool (FAAST) https://faast.waterboards.ca.gov/

Application Workshops.

Q&A period.
# DDRDP Program Timeline

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<th>Item</th>
<th>Estimated Dates*</th>
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<td>Public/Stakeholder Meetings and Public Comment Period</td>
<td>November – February, 2016</td>
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<td>Notice of Funding Availability</td>
<td>May, 2017</td>
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<td>Grant Application Workshops</td>
<td>May, 2017</td>
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<td>Grant Applications Due</td>
<td>June 2017</td>
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<td>Grant Evaluation Period</td>
<td>July – September, 2017</td>
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<td>Announce Grant Awardees</td>
<td>September 2017</td>
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*Subject to change

SB 1383 – Methane Reduction:

- Dairy Methane Workgroup in coordination with ARB, CEC and CPUC.

SB 1383 – Organic Diversion from Landfills:

- Healthy Soils Initiative in coordination with CalEPA, California Natural Resources Agency and Governor’s Office.
- Incentivizing practices such as compost application through the Healthy Soils Program:
  - $7.5 million in 2016-17 to develop and administer Healthy Soils Program to fund CA farmers and ranchers to implement management practices that sequester soil carbon and reduce GHG emissions.
  - Anticipated release of Request for Grant Applications in July, 2017.
  - Direct incentives and demonstration projects.
CDFA OFFICE OF ENVIRONMENTAL FARMING AND INNOVATION

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