

Dairy Subgroup #2: Fostering Markets for Digester Projects



Committee Membership Breakdown

CO-CHAIRS

- Michael Boccadoro (West Coast Advisors)
- Jim Lucas (SoCalGas)
- Ryan Schuchard (CALSTART)

25 Subgroup committee members consists of representatives from...

- dairy industry
- utilities
- project development
- environmental justice
- transportation and fuel industries
- non-governmental organizations
- local government
- financial consulting
- advocacy groups
- health organizations

Fostering Markets for Digester Projects

Four Primary Objectives & Recommendations

1. Expand Dairy Digester Development
2. Further Maximize Environmental Benefits & Minimize Impacts
3. Increase Pipeline Injected Biomethane
4. Increase Access to Transportation Fuel Markets

Environmental Justice Concerns

- General Agreement to Maximize Environmental & Local Community Benefits
- Not Fully Aligned on Mitigation of All Impacts

Final Recommendations

- **Thorough comprehensive process**
- **More than 30 separate recommendations, many of which have been implemented and adopted; including:**
 - **Continuing incentives**
 - **Increasing in-state production of RNG Implementation of SB 1440**
 - **Extend pipeline biomethane incentive program**
 - **Local permitting agencies should continue as environmental review**
 - **Increased incentives for small dairies and nutrient export**
 - **Extend BioMAT FiT program**
 - **Vehicle weight exemption for RNG trucks**
 - **Increased incentives for heavy duty RNG trucks**
 - **Development of pilot financial mechanism**



Dairy Digester Emissions Matrix

November 30, 2018

		A	B	C	D	E	F	G	H	
		CO ₂ e (20-yr GWP)	CO ₂ e (100-yr GWP)	NOx	PM ₁₀	PM _{2.5}	CO	SOx	VOCs	
1	Uncovered Lagoon	Baseline Totals (Local + Remote)	70,581	24,519	<0.1	<0.1	<0.1	<0.1	3.0	
2	Onsite Reciprocating Engine to Grid and EVs	Local	17,491	7,474	0.5	0.2	0.2	8.5	<0.1	0.6
3		Remote	765	318	0.1	<0.1	<0.1	0.1	0.1	<0.1
4		Subtotal (Row 2 + Row 3)	18,256	7,792	0.6	0.2	0.2	8.6	0.1	0.6
5		Diesel Displaced	8,609	7,629	5.5	1.1	0.6	5.4	2.4	1.0
6		Pathway Emissions (Row 4 - Row 5)	9,647	163	-4.9	-0.9	-0.4	3.2	-2.3	-0.4
7		Net Benefit vs. uncovered lagoon (Row 6 - Row 1)	-60,934	-24,356	-4.9	-0.9	-0.4	3.2	-2.3	-3.4
8	Pipeline Injection to NG Vehicles	Local	15,448	5,268	0.1	<0.1	<0.1	1.2	<0.1	0.3
9		Remote	4,839	3,568	4.6	0.2	0.2	52.5	0.2	0.6
10		Subtotal (Row 8 + Row 9)	20,287	8,837	4.7	0.2	0.2	53.7	0.2	0.9
11		Diesel Displaced	4,197	3,720	8.8	0.4	0.2	1.6	1.2	12.0
12		Pathway Emissions (Row 10 - Row 11)	16,090	5,117	-4.1	-0.2	<0.1	52.1	-1.0	-11.1
13		Net Benefit vs. uncovered lagoon (Row 12 - Row 1)	-54,491	-19,402	-4.1	-0.2	<0.1	52.1	-1.0	-14.1
14	Pipeline Injection to Power Plant, Grid and EVs	Local	15,448	5,268	0.1	<0.1	<0.1	1.2	<0.1	0.3
15		Remote	3,860	2,957	0.4	0.1	0.1	0.4	0.2	0.1
16		Subtotal (Row 14 + Row 15)	19,307	8,226	0.5	0.1	0.1	1.6	0.2	0.4
17		Diesel Displaced	11,916	10,560	7.6	1.6	0.9	7.4	3.3	1.4
18		Pathway Emissions (Row 16 - Row 17)	7,391	-2,334	-7.1	-1.5	-0.8	-5.8	-3.1	-1.0
19		Net Benefit vs. uncovered lagoon (Row 18 - Row 1)	-63,190	-26,853	-7.1	-1.5	-0.8	-5.8	-3.1	-4.0
17	Pipeline Injection to Hydrogen Vehicles (H₂ from SMR)	Local	15,448	5,268	0.1	<0.1	<0.1	1.2	<0.1	0.3
18		Remote	6,140	5,017	3.5	0.6	0.6	1.9	2.4	0.4
19		Subtotal (Row 17 + Row 18)	21,588	10,285	3.6	0.6	0.6	3.1	2.4	0.7
20		Diesel Displaced	7,709	6,832	4.9	1.0	0.6	4.8	2.1	0.9
21		Pathway Emissions (Row 19 - Row 20)	13,879	3,453	-1.3	-0.4	<0.1	-1.7	0.3	-0.2
22		Net Benefit vs. uncovered lagoon (Row 21 - Row 1)	-56,702	-21,066	-1.3	-0.4	<0.1	-1.7	0.3	-3.2
23	Pipeline Injection to Fuel Cell, Grid and EVs (Solid Oxide Fuel Cell)	Local	15,448	5,268	0.1	<0.1	<0.1	1.2	<0.1	0.3
24		Remote	3,860	2,957	0.6	<0.1	<0.1	0.5	0.1	0.1
25		Subtotal (Row 23 + Row 24)	19,308	8,225	0.7	0.1	0.1	1.7	0.1	0.3
26		Diesel Displaced	13,292	11,779	8.5	1.8	1.0	8.3	3.7	1.5
27		Pathway Emissions (Row 25 - Row 26)	6,016	-3,554	-7.8	-1.7	-0.9	-6.6	-3.6	-1.2
28		Net Benefit vs. uncovered lagoon (Row 27 - Row 1)	-64,565	-28,073	-7.8	-1.7	-0.9	-6.6	-3.6	-4.2

Note: Units are metric tons per year (MT/yr.) for all numerical values.