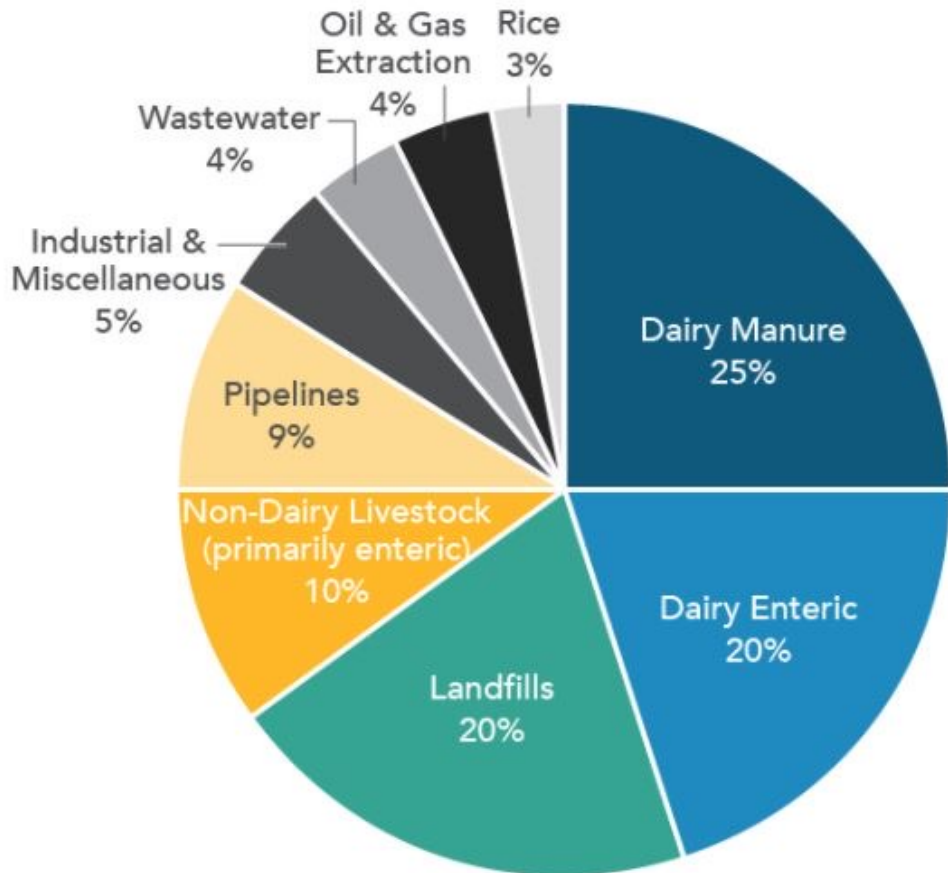


# Planet-Smart Dairy



# California's World-Leading Efforts

## 2013 Methane Emissions by Source



- SB 1383 seeks a 40% reduction in methane emissions by 2030.
- California remains the only jurisdiction with a statutory requirement to reduce methane.
- More than 100 countries, including the U.S., signed the pledge to reduce methane by 30% by 2030.

# Senate Bill 1383 (2016, Lara)



## Collaborative, Incentive-Based Approach

Regulation only after 2024

Initial Focus on  
Manure Methane

**Pictured Left to Right:**

Dairy Farmer, Eric Te Velde

CDFR Secretary, Karen Ross

Senate Bill 1383 Author Ricardo Lara

# Proven Strategies for Reducing Dairy Methane



**Efficiency**



**Methane Avoidance**  
(Alternative Manure Management)



**Methane Capture & Utilization**  
(Digesters)



**Enteric Methane Reduction**



**Research & Innovation**



# California's World-Leading Dairy Methane Reduction Efforts



## Dairy Digesters



Reducing  
**+21 Million**  
MTCO<sub>2</sub>e  
over 10 years

**172 Projects**

Serving 177 Dairies

(117 projects funded through the Dairy  
Digester Research and Development

## Alternative Manure Management



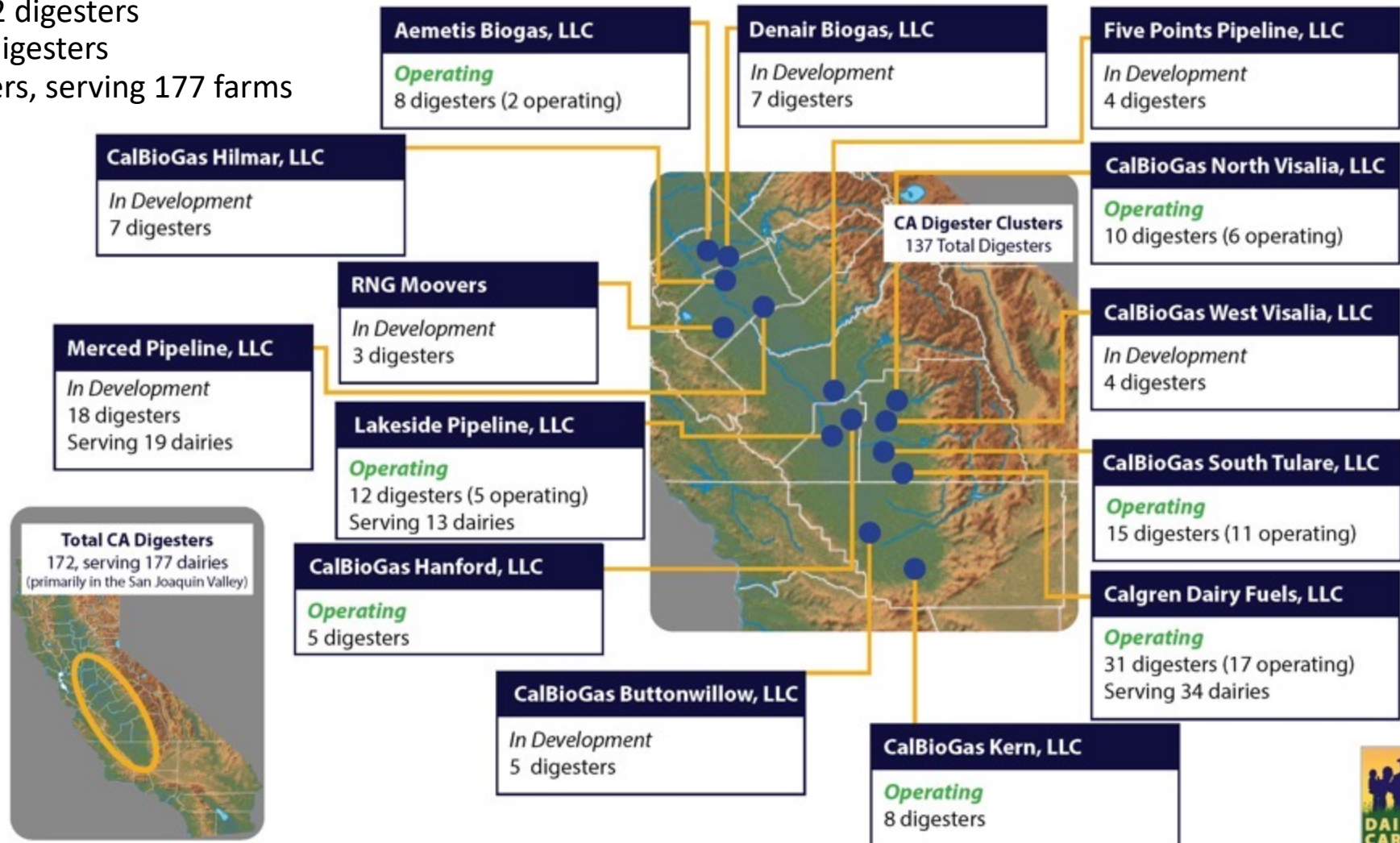
Reducing  
**+2 Million**  
MTCO<sub>2</sub>e  
over 10 years

**144 Projects**

(114 funded through  
the Alternative Manure  
Management Program)

# California Dairy Digester Development

- 16 “clusters” totaling 142 digesters
- Additional 35 individual digesters
- 172 total CA dairy digesters, serving 177 farms



# COWS POWERING HEAVY-DUTY TRUCKS



# COWS POWERING CARS





# COWS POWERING PORTS



# COWS POWERING HOMES



# More than Methane Reduction

- ↓ Nitrogen Oxides (NO<sub>x</sub>)
- ↓ Volatile Organic Compounds (VOC)
- ↓ Ammonia (NH<sub>3</sub>)
- ↓ Hydrogen Sulfide (H<sub>2</sub>S)
- ↑ Water Quality Benefits



# Tremendous Investment

Collectively Approaching \$2 Billion



# Multiple Policies Supporting Methane Reduction

Overall Goal: Profitable Revenue Stream

- 2.1% of Cap-and-Trade funds
- 29% of GHG reductions

**Grant  
Funding**



CA Dept. of Food & Agriculture

CA Energy Commission

CA Public Utilities Commission



**Procurement/  
Program  
Support**



BioMAT

Low Carbon Fuel Standard

RNG Procurement

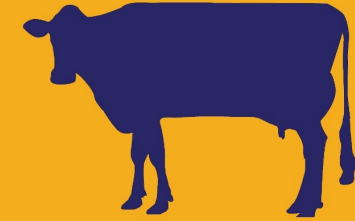
Interconnection Assistance

Net Energy Metering

Cap-and-Trade Offsets



**Dairy Farm  
/ Private  
Investment**



# Progress to Date



More than halfway to the state's target of

40%

below 2013 levels by 2030

Source: California Department of Food and Agriculture, Sept. 2019



# Lessons Learned

1. Voluntary, incentive-based approach works
2. Financial incentives and stable markets necessary
3. Dairy methane reduction efforts evolving with state goals
4. Projects provide tremendous environmental benefits





# Thank you!

**Michael Boccadoro**

[mboccadoro@westcoastadvisors.com](mailto:mboccadoro@westcoastadvisors.com)

**PLANET-SMART DAIRY**

**DairyCares.com**

