

A cow is visible in the background, partially obscured by a blue overlay. The cow is facing right and has dark fur with some lighter patches. The background shows green foliage and a clear sky.

LOOKING AHEAD

*HOW CALIFORNIA IS LEADING THE NATION IN
TRANSFORMING THE NATION'S LARGEST DAIRY SECTOR,
REDUCING GREENHOUSE GASES AND PRODUCING
BIOENERGY*

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MARCH 28, 2018 / AECA/NEW YORK CITY, NY

CALIFORNIA CAP-AND-TRADE

- AB 32 (2006). The Global Warming Solutions Act, requires California to reduce greenhouse gas (GHG) emissions to 1990 levels by 2020
- SB 32 (2016). Sets new target GHG emissions reduction by 40 percent below 1990 levels by 2030.
- Market based regulation to reduce greenhouse gases (GHGs) from multiple sources.
- With a carbon market, a price on carbon is established for GHGs. Market forces spur technological innovation and investments in clean energy.

CALIFORNIA CLIMATE INVESTMENTS

Statewide initiative that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions.

Strengthening the economy and improving public health

More than \$6 billion for GHG emission reduction projects.

CUMULATIVE OUTCOMES



Nearly 30,000 projects installing efficiency measures in homes



105,000+ rebates issued for zero-emission and plug-in hybrid vehicles



16,000+ acres of land preserved or restored



6,200+ trees planted in urban areas



200+ transit agency projects funded, adding or expanding transit options



1,100+ new affordable housing units under contract



50% of projects benefiting Disadvantaged Communities (\$614M)



140,000+ total projects implemented

RAPID DEVELOPMENT OF ANAEROBIC (DAIRY) DIGESTERS UNDERWAY IN CA

2017

18 new projects
awarded support or
produce
transportation fuel

2018

CDFA will be awarding
estimated 35-40 new
projects \$61- \$75 million.

2019

Similar funding and
project development is
expected

**ALL TOTALED, THE STATE COULD HAVE 100-120 DAIRY
DIGESTER PROJECTS OPERATING IN CALIFORNIA IN THE NEXT
4-5 YEARS.**

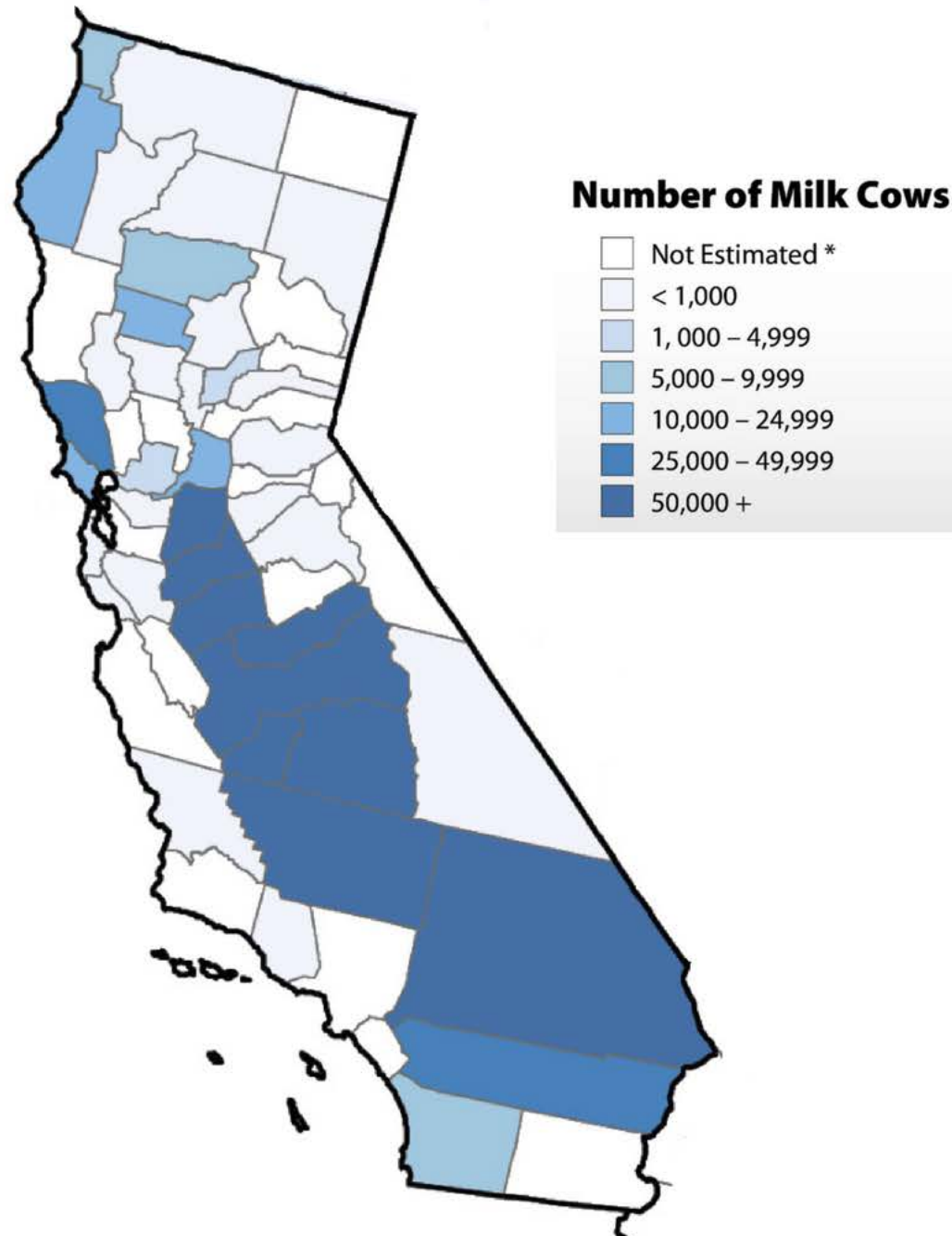
CALIFORNIA'S DAIRY REGIONS

VARY BY OVERALL POPULATION, DAIRYING STYLE, CLIMATE, AND ENVIRONMENTAL CONDITIONS.

Approximately 91 percent of state's dairy cows and more than 80 percent of dairies are in the Central Valley.

3 percent of state's dairy cows are in North Coast region, such as Humboldt, Marin and Del Norte counties, primarily on pasture.

5.6 percent of dairy cows are in Southern California, including Riverside, Imperial, and San Diego counties, primarily on drylots



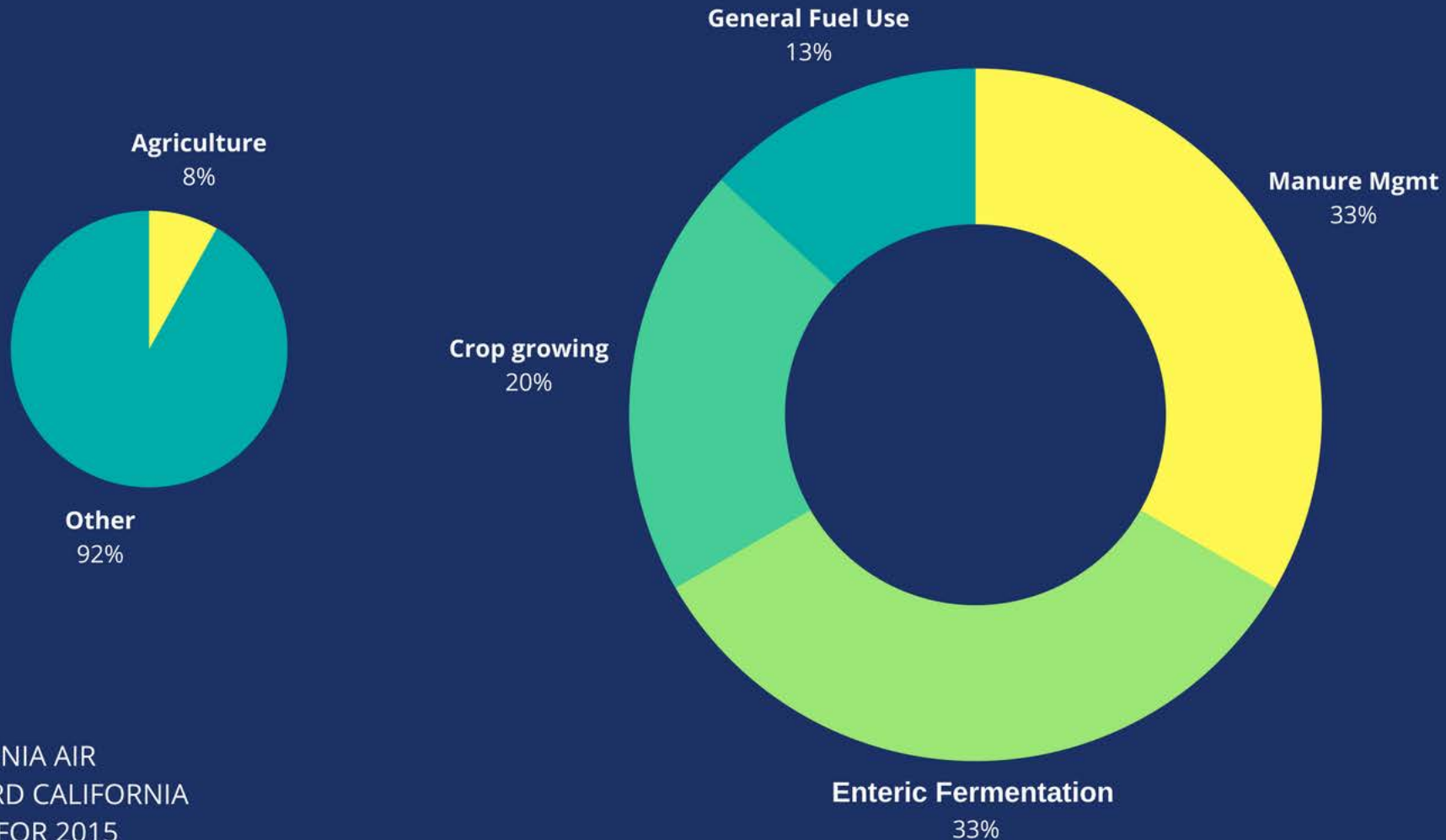
DRIVERS - LEGISLATION

SB 1383 (2016) Regulate
dairy methane emissions

- Requires 40% reduction in dairy and livestock methane emissions by 2030
- No regulation until 2024
- First time any agricultural sector in US regulated for GHG emissions



CA DAIRY GHG EMISSIONS



SOURCE: CALIFORNIA AIR
RESOURCES BOARD CALIFORNIA
GHG INVENTORY FOR 2015



DRIVERS – INCENTIVES & REVENUE ENHANCEMENT

- The rapid expansion of digesters is being driven by the state's existing Low Carbon Fuel Standard (LCFS) and BioMAT Feed-in-Tariff programs.
- CDFA Dairy Digester Program – provides grants up to \$3 million with 50% cost share.
- CA Public Utilities Commission – Recently released RFP to develop 5 dairy biomethane pilot projects where costs of biogas collection lines, gas treatment facilities and pipeline will be paid for rate-payers.
- RNG vehicle incentive programs



LOW CARBON FUEL STANDARD & BIOMAT

- **LCFS** - Goal is to reduce the carbon intensity (CI) of transportation fuel by at least 20% by 2020 and provide other benefits.
- Complement other AB 32 measures, reduce petroleum dependency reduce emission of criteria pollutants.
- **BioMAT Feed-in-Tariff**– As result of legislation (SB 1122/2012) – requires 3 utilities to procure bioenergy from 3 different sources of feedstock including agricultural biomass and dairy manure.
- Set terms 10, 15 or 20 years at good price.

CDFA FUNDED DIGESTER PROJECTS



- 2015 – 6 projects funded and now completed - all electricity
- 2017 - 18 funded projects will provide estimated 7.1 million DGE RNG
- In total these 24 projects will result in GHG emission reduction estimate of 5.7 million MTCO₂e/10 years.
- Five clusters under development and six new clusters proposed.

**\$46.4 MILLION TO DATE WITH
\$107.7 MILLION IN MATCH**

**GHG REDUCTIONS
= 5.7 MILLION
MTCO₂E/10
YEARS**

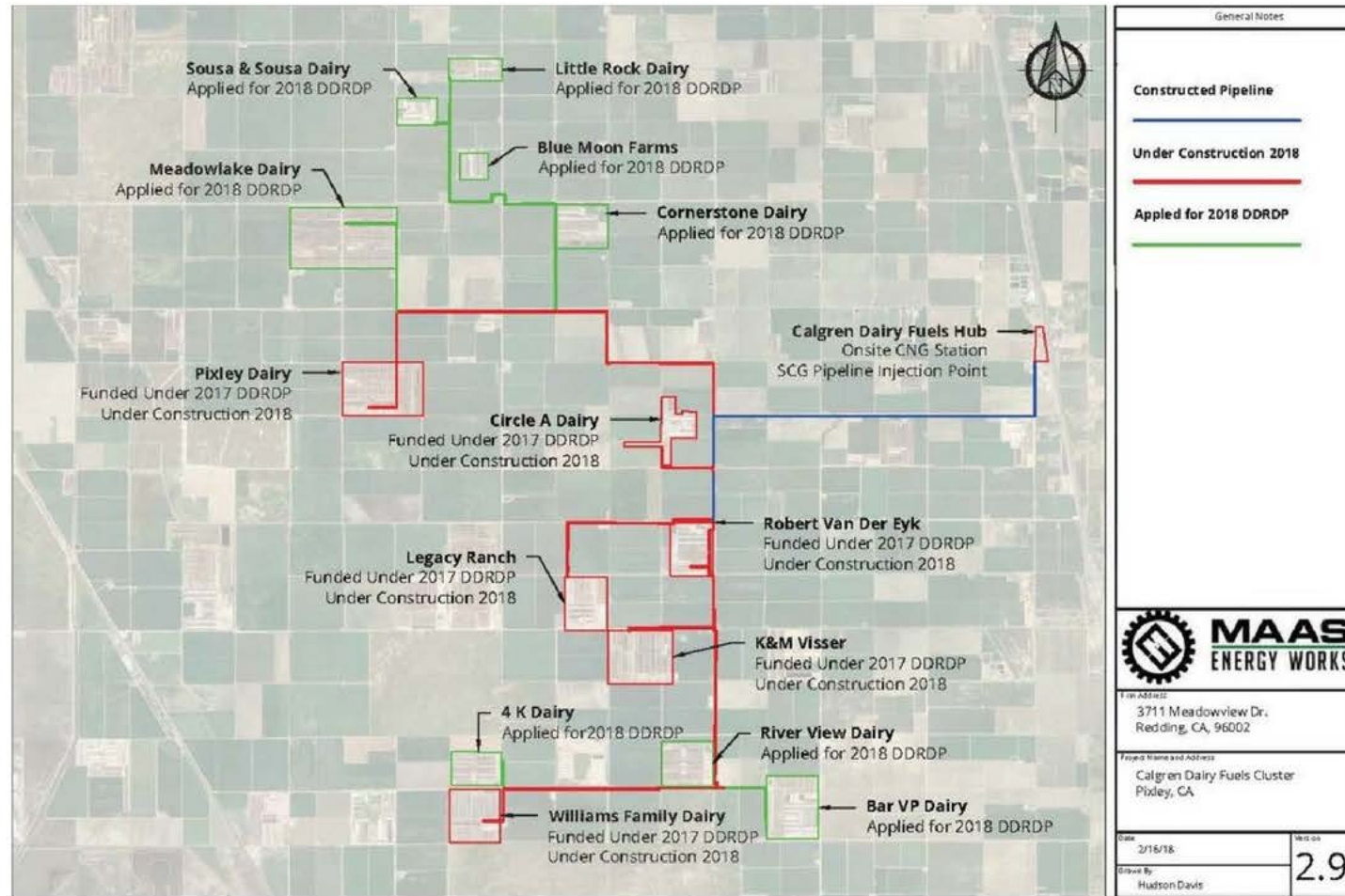
CALIFORNIA BIOENERGY: KERN COUNTY CLUSTER

- Kern County, near Bakersfield
- Adjacent to I-5 near Highway 99
- Composed of 16 modern dairies
- Approximately 50,000 milk cows, 100,000 cows
- SoCal Gas and PG&E pipelines
- 1B SCF/Yr of Biogas or 3 MM DGE potential



CALGREN DAIRY: MAAS ENERGY WORKS- TULARE CO.

- Six dairies digesters with 8 additional digesters planned
- Private pipeline to Pixley Ethanol plant where fuel will be cleaned up and used to lower carbon intensity of ethanol production.
- Developing local RNG fueling station.



KEY FEATURES OF CDFA DIGESTER PROGRAM

- GHG emissions estimated using the CARB Quantification Methodology
- All applicants must conduct community outreach, determine potential adverse impacts and commit to mitigation measures
- Must report actual emission reductions
- Projects must meet strict environmental criteria for air and water quality
- Robust financial and scientific review



ADDRESSING CHALLENGES

Regulatory Certainty

**Permitting
challenges**

Policy Engagement

**Increase # of
developers**

A green-tinted photograph of a cow farm. In the foreground, several black and white cows are gathered behind a wooden fence. The background shows a grassy field with more cows and a line of trees under a hazy sky. The overall scene is peaceful and rural.

**THANK YOU
FOR LISTENING!**

QUESTIONS?