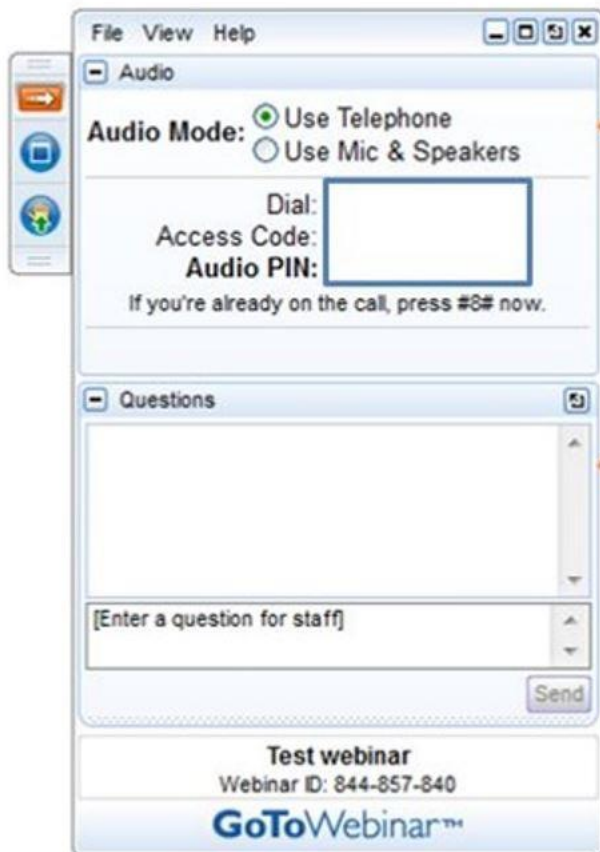


**Clean Energy States Alliance**  
**State Leadership in Clean Energy Webinar Series**

**Clean Energy from Coast to Coast,  
Featuring California & Connecticut**

Hosted by  
Warren Leon, Executive Director, CESA  
Friday, January 16, 2015

# Housekeeping



All participants are in “Listen-Only” mode. Select “Use Mic & Speakers” to avoid toll charges and use your computer’s VOIP capabilities. Or select “Use Telephone” and enter your PIN onto your phone key pad.

Submit your questions at any time by typing in the Question Box and hitting Send.

**This webinar is being recorded.**

You will find a recording of this webinar, as well as all previous CESA webcasts, archived on the CESA website at

[www.cesa.org/webinars](http://www.cesa.org/webinars)

# About CESA

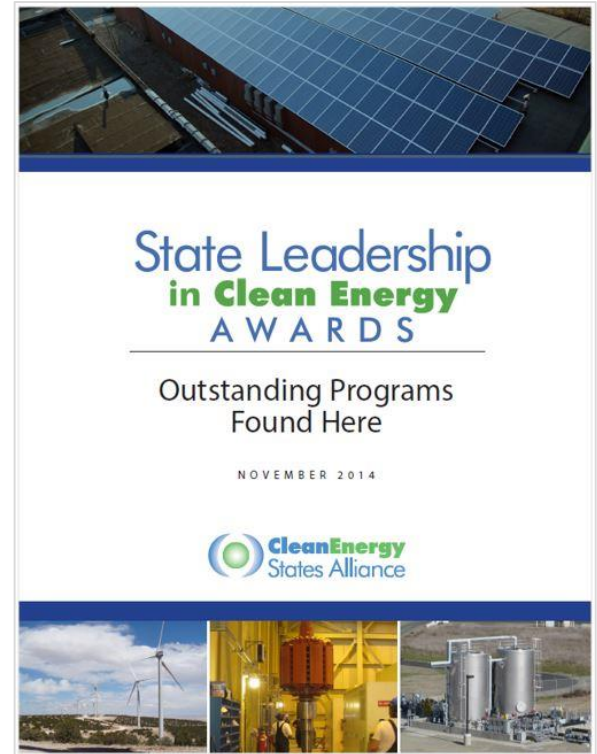
Clean Energy States Alliance (CESA) is a national nonprofit organization working to implement smart clean energy policies, programs, technology innovation, and financing tools, primarily at the state level. At its core, CESA is a national network of public agencies that are individually and collectively working to advance clean energy.

# The 2014 State Leadership in Clean Energy Awards

Upcoming webinar: “Achieving Net Zero in Alaska and Oregon,” featuring the Alaska Energy Authority and the Energy Trust of Oregon. Friday, January 23, 2-3pm ET.

More information, including case studies about the winning programs and information about previous and upcoming webinars, is available on our website:

<http://www.cesa.org/projects/state-leadership-in-clean-energy/2014/>



# Today's Guest Speakers

**Elaine Sison-Lebrilla**, Senior Project Manager,  
Sacramento Municipal Utility District (SMUD)

**Genevieve Rose Sherman**, Acting Director, C-PACE,  
Connecticut Green Bank

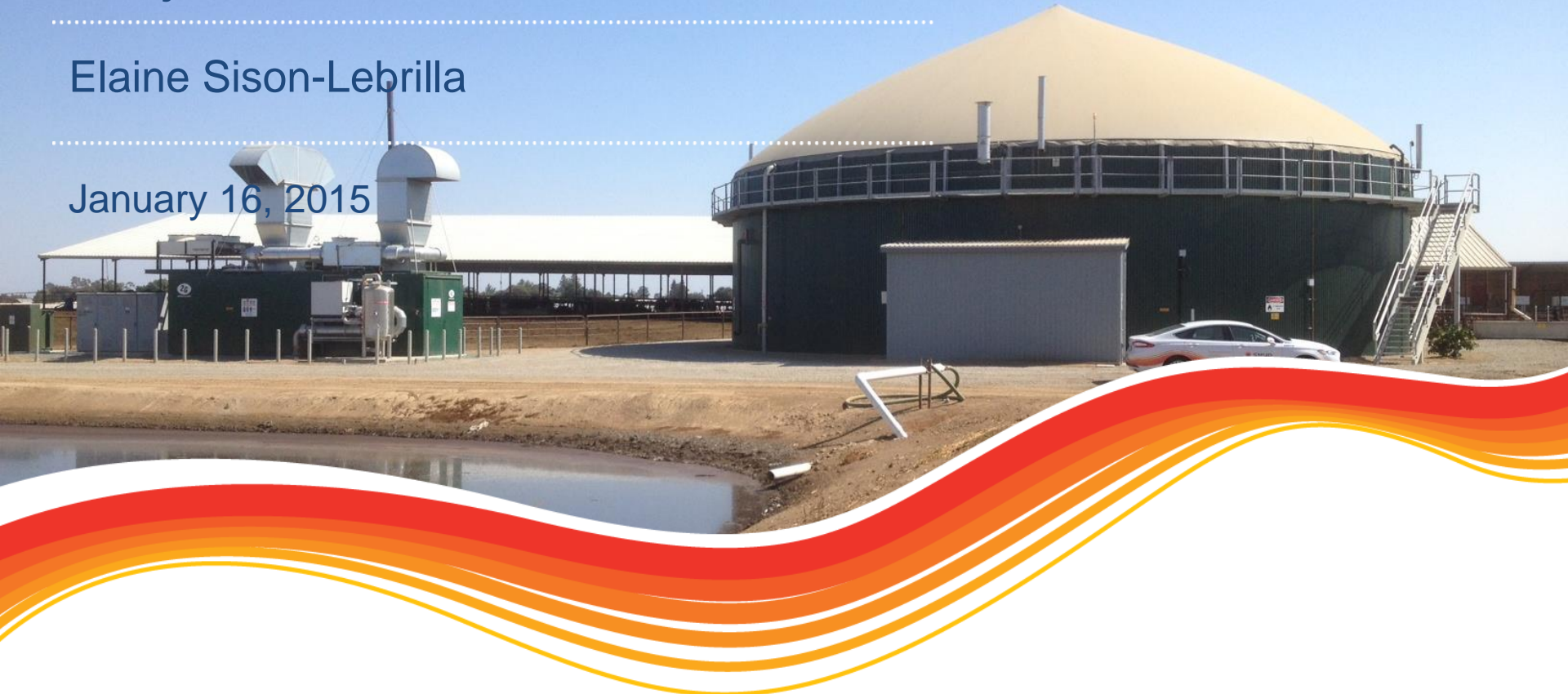




# State Leadership in Clean Energy Webinar: Community Renewable Energy Deployment Projects

Elaine Sison-Lebrilla

January 16, 2015

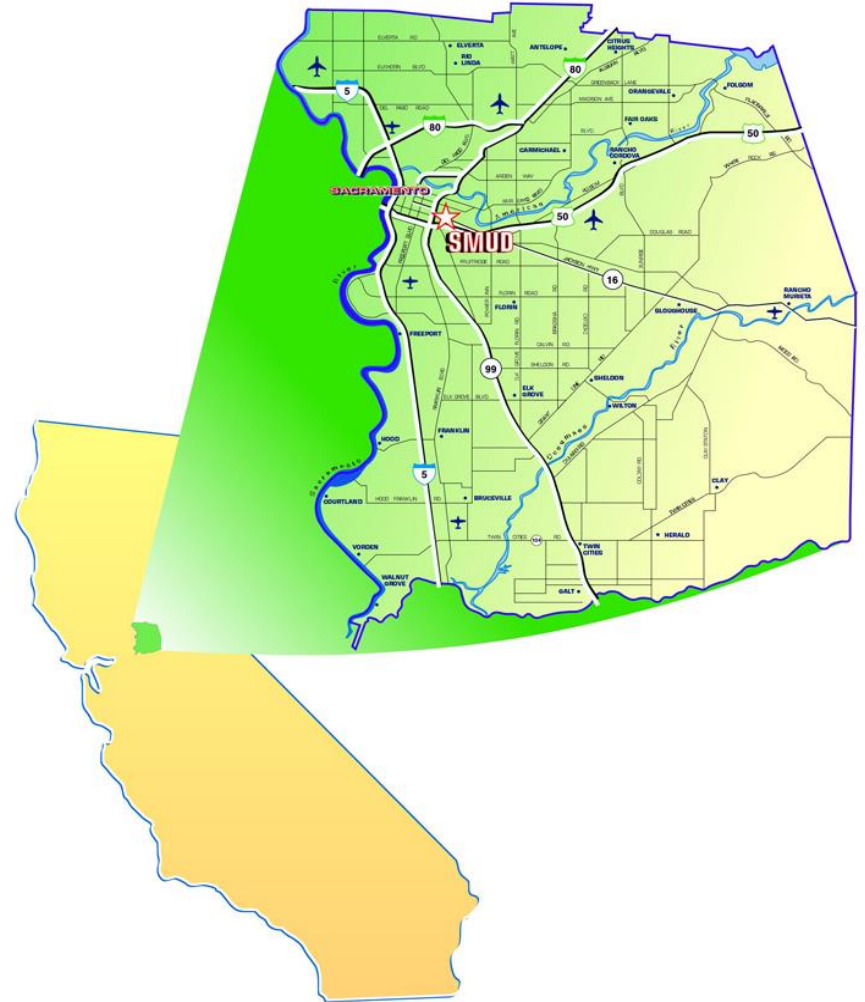


Powering forward. Together.



# Overview

- ◆ SMUD
- ◆ CRED Projects
- ◆ Summary



# Sacramento Municipal Utility District

- ◆ Not for Profit, Publicly Owned Utility, Voter-Approved (1923) Began (1946), elected Board of Directors
- ◆ Sacramento County (and Placer County), almost 600,000 customers, 1.4 million population
- ◆ Manage Balancing Author. (BANC)
- ◆ SMUD Peak = 3300 MW  $\approx$  5:00 pm (Summer); AC Needle = 400 MW- 40 hours/yr
- ◆ Aggressive 37.4% by 2020
- ◆ GHG Reductions by 2050 (10% of 1990 levels, <350,000 metric tonnes/year)



# Community Renewable Energy Deployment

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- ◆ Simply Solar
- ◆ Co-Digestion of Fat, Oil, Grease Waste and liquid food wastes at County Wastewater Treatment Plant
- ◆ Anaerobic Digester at New Hope Dairy
- ◆ Anaerobic Digester at Warmerdam Dairy

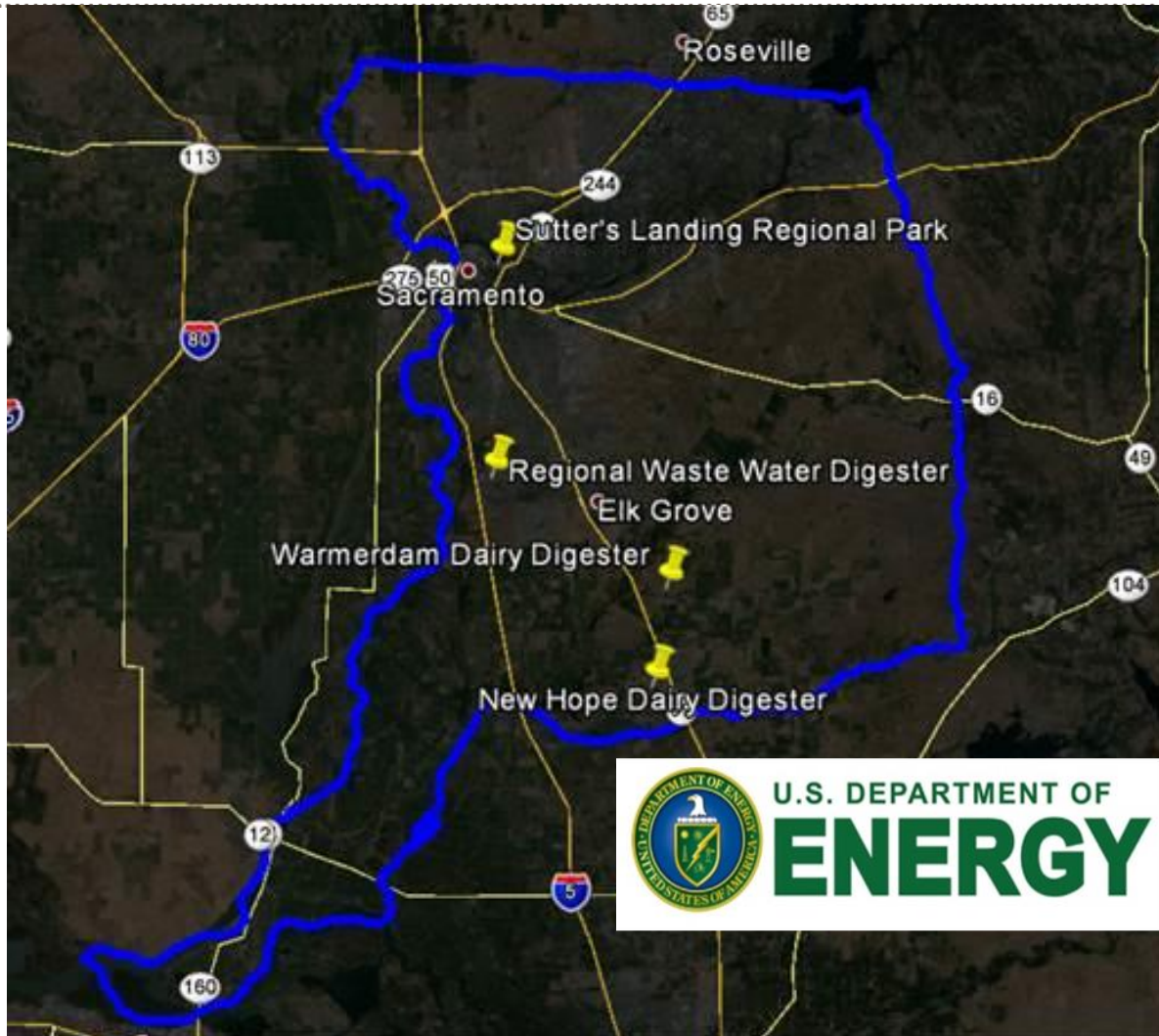
Grants: \$5,050,000(DOE) & \$500,000 (CEC)

Total Costs: \$13.6M, Match \$8.0M

(Partners: \$6.0M, SMUD: \$2.0M)



# SMUD CRED Locations



# Simply Solar Project

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A highly visible, community scale solar installation (1.5 Megawatts) on disturbed/marginal land near the region's load center.

## ◆ Partners:

- ◆ Conergy
- ◆ City of Sacramento

## ◆ Project Cost: \$4.1 M

- ◆ DOE: \$1.7 M
- ◆ CEC: \$125K



# Simply Solar

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- ◆ The project consists of a parking lot shade structure, a set of structures in a dog park, and a ground-mounted system constructed on a previously paved parcel.
- ◆ Project was operational at the end of August.



# SRCSD Biogas Enhancement

Full scale co-digestion of fats, oil and grease (FOG) and liquid food processing waste with sewage at the Sacramento Regional Wastewater Treatment facility (estimated power recovery of 1 - 3 MW).

## ◆ Partners:

- ◆ Sacramento Regional County Sanitation District
- ◆ Contractors – Brown & Caldwell, Carollo Engineering and Western Water





# SRCSO Biogas Enhancement

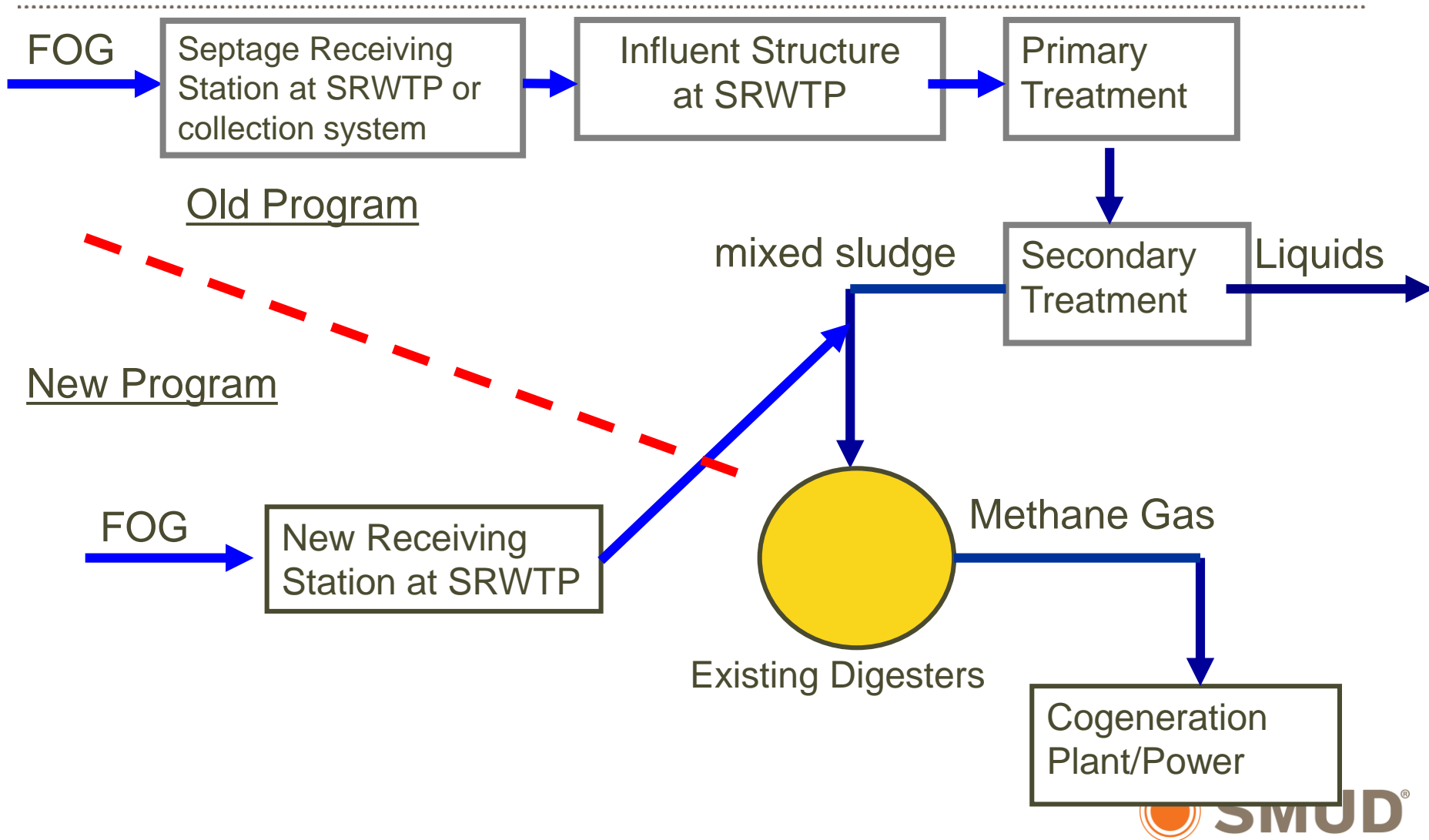
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- ◆ Project was operational at the early 2013.
- ◆ Project Cost: \$2.6 M
  - ◆ DOE: \$1.46 M
  - ◆ CEC: \$100K





# Before and After Biogas Program



# New Hope Dairy AD Project

Above ground digester and 450 kW engine genset for combined heat and power (CHP) application at New Hope Dairy Farm in west of Galt, California which has over 1200 dairy cows



## ◆ Partners:

- ◆ ABEC New Hope LLC
- ◆ California Bioenergy
- ◆ MT-Energie USA
- ◆ New Hope Dairy



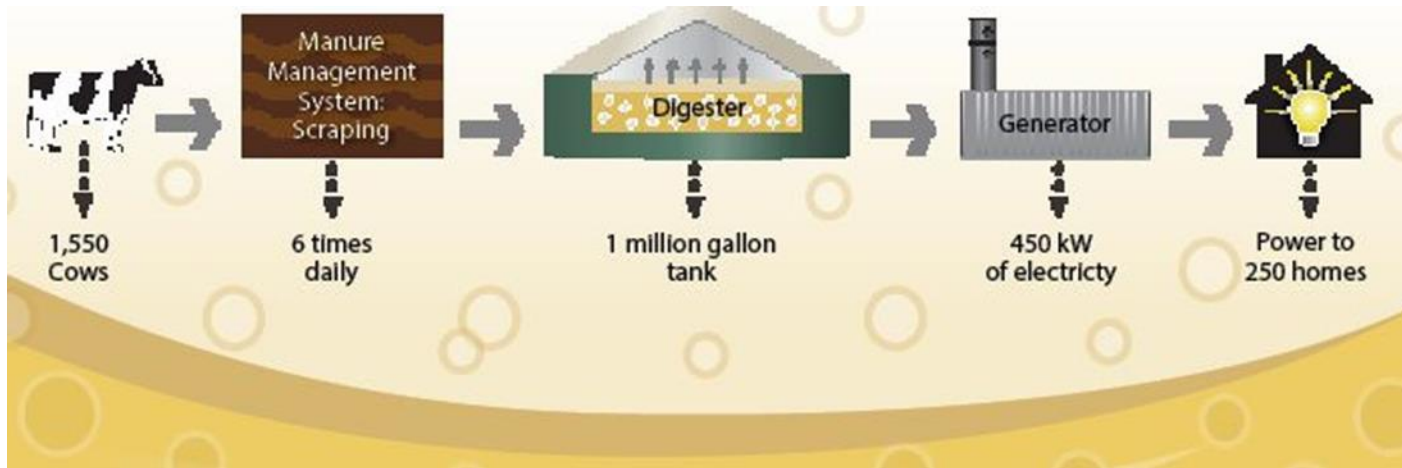
## ◆ Project Cost: \$3.1 M

- ◆ DOE: \$806k
- ◆ CEC: \$125K



# Project Technology

## ◆ Operational mid-2013



# Warmerdam Dairy AD Project

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A covered lagoon digester and genset that will generate an electrical output of 600 kW for CHP application which has about 1200 dairy cows at Warmerdam Dairy farm located north of Galt, California.



## ◆ Partners:

- ◆ Van Warmerdam Dairy Farm
- ◆ Maas Energy Works

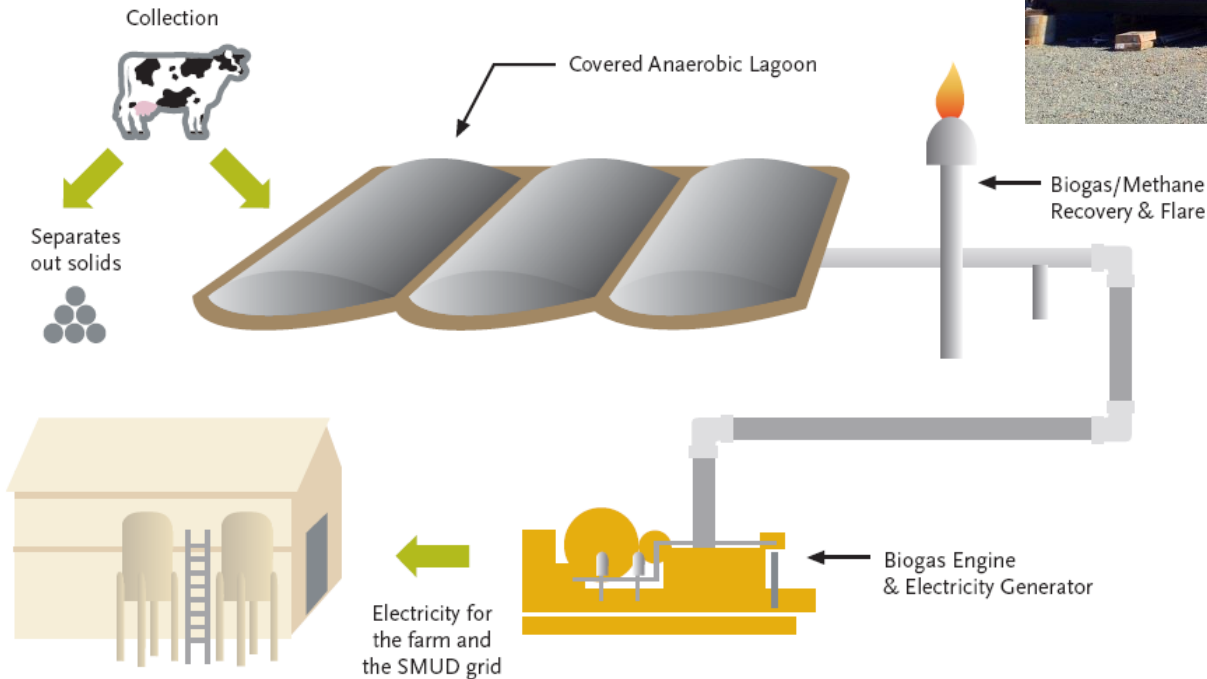
## ◆ Project Cost: \$1.5M

- ◆ DOE: \$781K
- ◆ CEC: \$125K



# Project Technology

◆ Operational mid-2013



# Lessons Learned

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- ◆ Financing can be challenging
- ◆ Grant Funding is a two-edged sword
  - ◆ Funding
  - ◆ Requirements - compliance
- ◆ Permitting takes time
- ◆ Everything takes longer than you expect.
- ◆ Cancelled project or changed developer if needed



# Conclusion

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- ◆ GHG/RPS goals/regulation driving SMUD to more renewable energy resources
- ◆ Utilization of local renewable resources provide benefits/challenges
- ◆ Implement through collaboration between developers and local business owners, and supported through a combination of state and federal programs
- ◆ SMUD is committed to sustainable and environmentally beneficial energy solutions for our customer-owners

# Questions/Comments??

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Elaine Sison-Lebrilla, P.E.  
Renewable Energy Program Manager  
Elaine.Sison-Lebrilla@smud.org

Special Thanks to SMUD CRED Team:  
Valentino Tiangco, Marco Lemes, and  
Kathleen Ave





Empowering you to make  
smart energy choices

# The Connecticut C-PACE Program

# Energy Challenge in Connecticut



## High Cost

CT has THE highest cost for electricity in the "lower 48"



## Old, Energy Inefficient Building Stock

CT has some of the oldest and most energy inefficient building stock



## Need for "Cleaner / Cheaper" Energy Sources

Programs that will diversify our energy mix into renewable/clean power



## "More Reliable" Grid

5 major storms in 2 years with widespread outages

# Connecticut Green Bank: Visionary Leadership



*...transitioning programs away from government-funded grants, rebates, and other subsidies, and towards deploying private capital*

...CEFIA was established in 2011 to develop programs that will *leverage private sector capital to create long-term, sustainable financing for energy efficiency and clean energy to support residential, commercial, and industrial sector implementation of energy efficiency and clean energy measures.*

# Connecticut Green Bank: Mission and Goals



Support the Governor's and legislature's energy strategy to achieve cleaner, cheaper and more reliable sources of energy while creating jobs and supporting local economic development

Attract and deploy capital to finance the clean energy goals for Connecticut



Develop and implement strategies that bring down the cost of clean energy in order to make it more accessible and affordable to consumers

Reduce reliance on grants, rebates and other subsidies and move towards innovative low-cost financing of clean energy deployment






# Attract and Deploy Capital


## Financial Innovation AND Marketing Innovation

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Attract and deploy capital to finance the clean energy goals for Connecticut



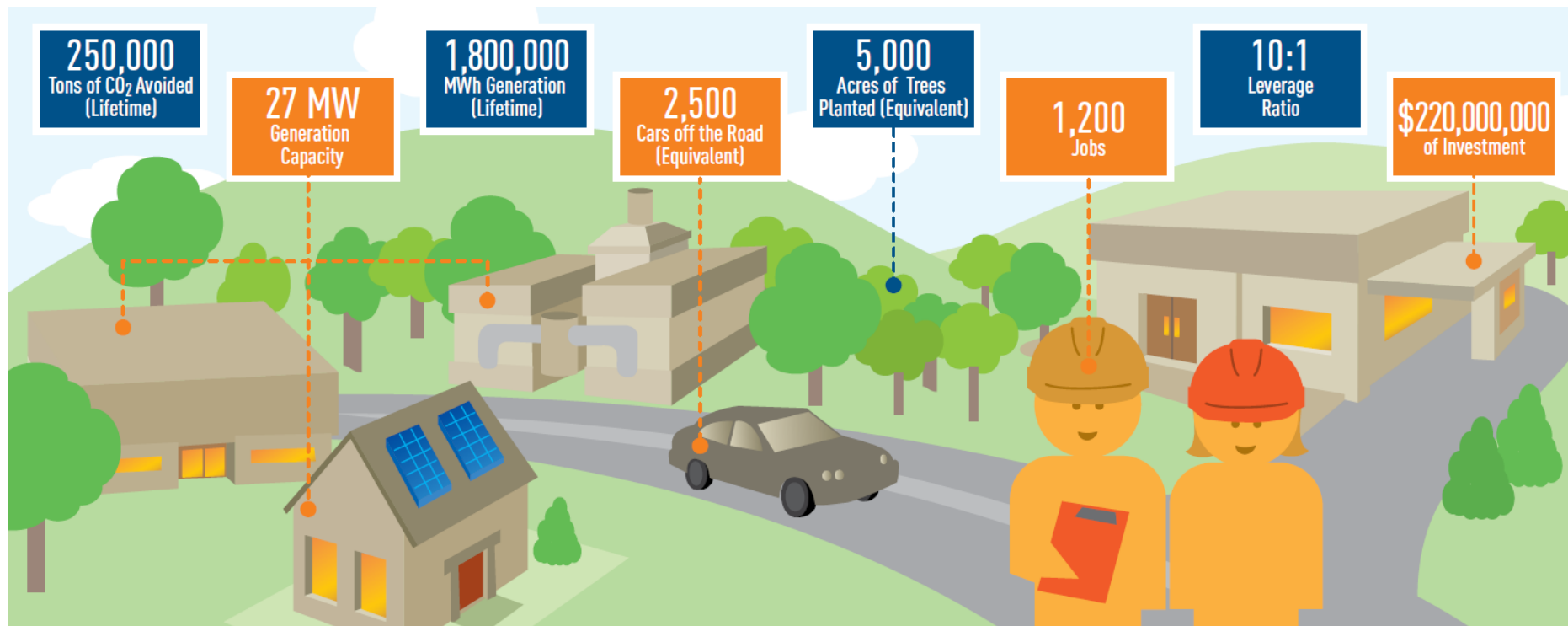
Increase the attractiveness to capital providers



Increase the attractiveness to consumers

# Green Bank Model Works

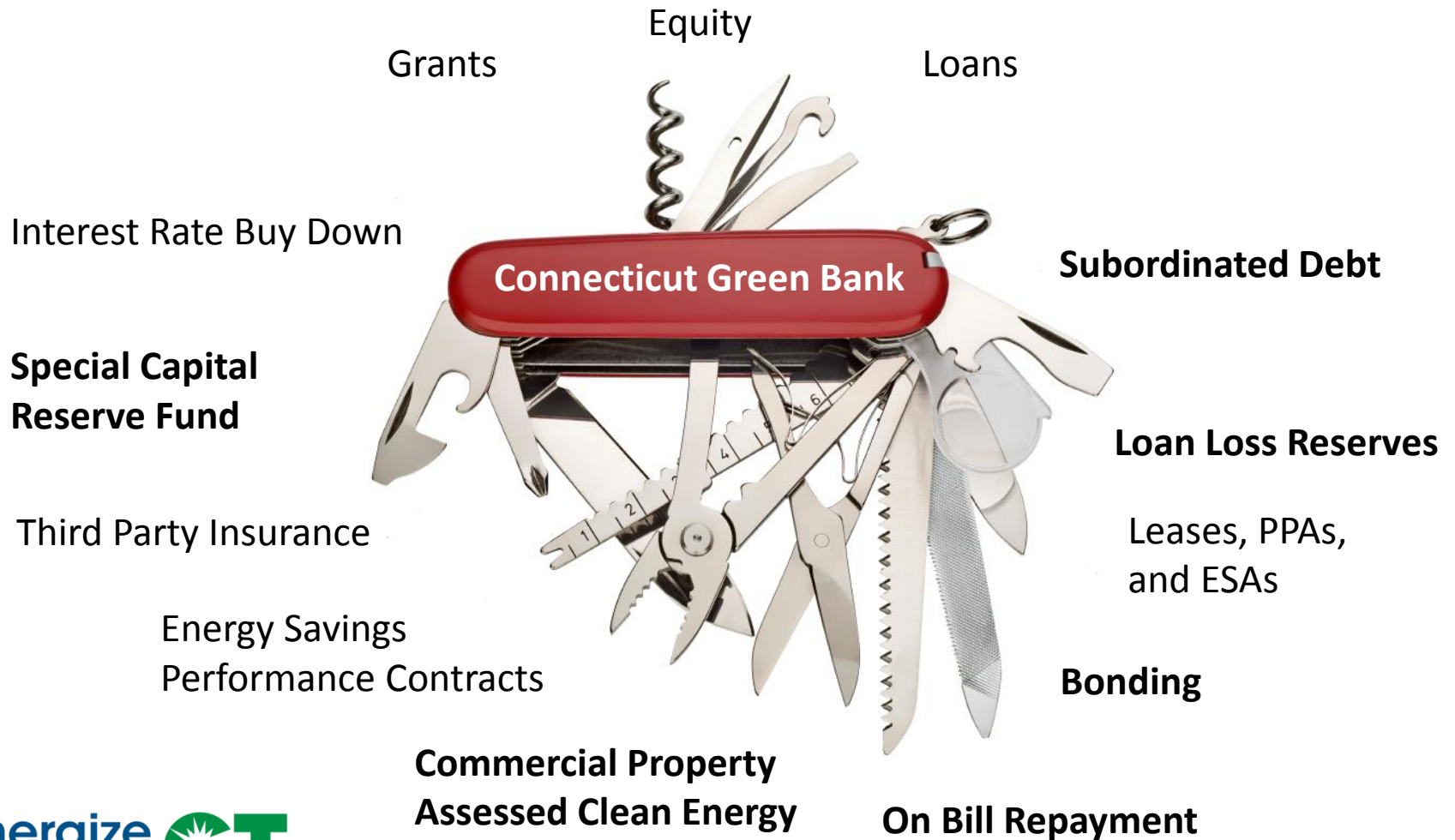
## Doing More, Faster and Under Budget



### REFERENCES

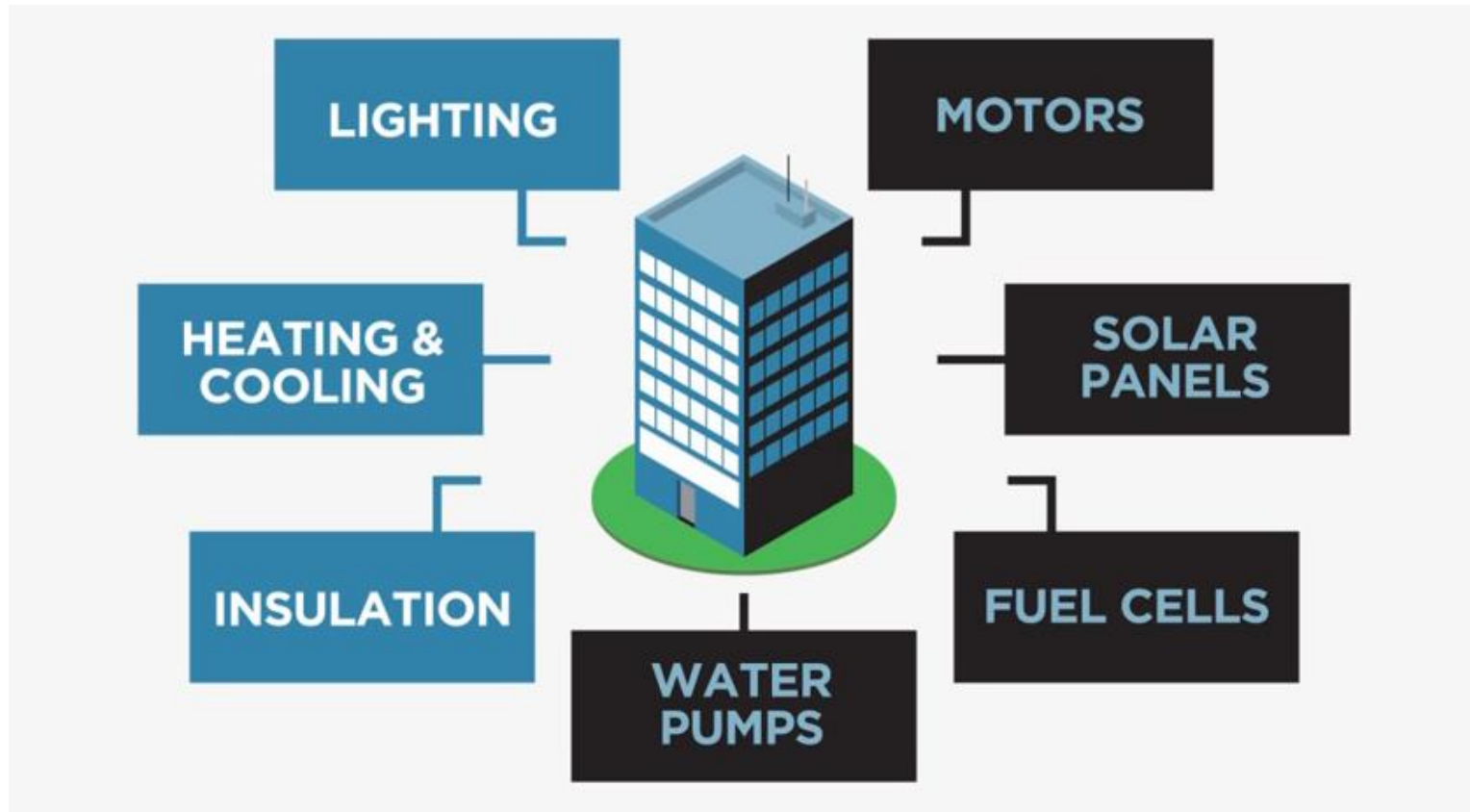
Connecticut's Green Bank – Energizing Clean Energy Finance (FY 2013 Annual Report)

# Connecticut Green Bank: Financial Tools



# C-PACE: In 90 Seconds

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# Property Assessed Clean Energy

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- An innovative financing structure that enables commercial, industrial, and multi-family property owners to access financing for qualified energy upgrades and repay through a benefit assessment on their property tax.

Private capital provides 100% upfront, low-cost, long-term funding

Repayment through property taxes

A senior PACE lien is put on the property and stays regardless of ownership

# C-PACE Addresses Key Barriers

Lack of funding?

Near term plan to sell?

Insufficient payback/ROI?

Split incentives?

Uncertain savings/technical expertise?

**100% upfront, 20 year financing**

**Tax obligation fixed to property**

**Positive cash flow in year 1**

**Assessment/savings pass to tenants**

**Technical underwriting / SIR>1**



# C-PACE Advantage to other stakeholders

## Capital Providers

- Low risk investment opportunity
  - Senior lien
  - Secure repayment mechanism (taxes)
- Legal and technical structure administered by CT Green Bank

## Mortgage Lenders

- Improves Building Financials/Risk
  - **SIR>1** = Increase NOI
  - No acceleration
- More attractive building for occupants and owners
- Finances deferred maintenance needs
- Adds asset value

## Municipalities

- Creates economic development & jobs
- Reduces energy costs for businesses
- Reduces pollution

# Case Study: Comprehensive Energy Efficiency



**Location:** 855 Main Street, Bridgeport, CT

**Building Type:** Large Office (>50,000 SF)

**Building Size:** 112,000 Square Feet

**Total Project Cost:** \$2,462,000

**Utility Incentives:** \$469,317

**C-PACE Financing:** \$1,992,683

**Term:** 20 Years

**Annual Interest Rate:** 5.5%

**Annual C-PACE Assessment:** \$166,563

**Annual Energy Cost Savings:** \$241,900

**Lifetime Energy Cost Savings:** \$6,047,504

**Annual Energy Savings:** 6,650,053 kBTU



# Case Study: Solar with ZRECs

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**Location:** 1841 Broad Street, Hartford CT

**Building Type:** Industrial

**Total Project Cost:** \$325,000

**Incentives:** ZREC

**C-PACE Financing:** \$325,000

**Term:** 20 Years

**Annual Interest Rate:** 5.5%

**Annual C-PACE Assessment:** \$26,995

**Annual Energy Cost Savings:** \$46,108

**Lifetime Energy Cost Savings:** \$922,165

**Annual Energy Savings:** 143,941 kWh

# Program Snapshot

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- \$60 million in deals approved; \$30 million closed
- Sold initial \$30M+ portfolio through bid process (closed 5/15/2014)
- 104 towns on board = 85% of the CT market eligible
- 200+ contractors trained
- 20 qualified capital providers
- 100 Projects in Pipeline = over \$70M
- 25 mortgage lenders have provided consent

# CEFIA Capital Partners



**Bank of America**



**Deutsche Bank  
USA**



**PACE**Connecticut.

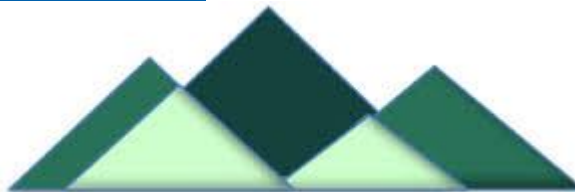


**CLEAN:FUND**



**Renew Energy Partners**  
*A Smart Approach to Making Energy Efficient Upgrades*

**Brookfield**



**structured finance** ASSOCIATES, LLC



# C-PACE: Greentech Media

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## In a 'Watershed' Deal, Securitization Comes to Commercial Efficiency



Connecticut's green bank executes the first securitization of commercial efficiency assets.

Nick Lombardi  
May 19, 2014

Securitization, the holy grail of energy efficiency finance, has finally arrived in the commercial sector.





Empowering you to make  
smart energy choices

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Clean Energy Finance and Investment Authority  
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[www.c-pace.com](http://www.c-pace.com)

# Thank you for attending our webinar

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[www.cesa.org](http://www.cesa.org)

[facebook.com/cleanenergystates](https://www.facebook.com/cleanenergystates)

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