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
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 ≈ 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

- 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

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
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
SRCSD Biogas Enhancement

- Project was operational at the early 2013.
- Project Cost: $2.6 M
  - DOE: $1.46 M
  - CEC: $100K
Before and After Biogas Program

Old Program

FOG → Septage Receiving Station at SRWTP or collection system → Influent Structure at SRWTP → Primary Treatment → Secondary Treatment → Liquids

New Program

FOG → New Receiving Station at SRWTP → Existing Digesters → Methane Gas → Cogeneration Plant/Power
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

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

- 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

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

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

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 Green Bank: Financial Tools

- Grants
- Equity
- Loans
- Subordinated Debt
- Loan Loss Reserves
- Leases, PPAs, and ESAs
- Bonding
- Interest Rate Buy Down
- Special Capital Reserve Fund
- Third Party Insurance
- Energy Savings Performance Contracts
- Commercial Property Assessed Clean Energy
- On Bill Repayment
C-PACE: In 90 Seconds
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

<table>
<thead>
<tr>
<th>Lack of funding?</th>
<th>100% upfront, 20 year financing</th>
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<tbody>
<tr>
<td>Near term plan to sell?</td>
<td>Tax obligation fixed to property</td>
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<tr>
<td>Insufficient payback/ROI?</td>
<td>Positive cash flow in year 1</td>
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<td>Split incentives?</td>
<td>Assessment/savings pass to tenants</td>
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<tr>
<td>Uncertain savings/technical expertise?</td>
<td>Technical underwriting / SIR&gt;1</td>
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# C-PACE Advantage to other stakeholders

<table>
<thead>
<tr>
<th>Capital Providers</th>
<th>Mortgage Lenders</th>
<th>Municipalities</th>
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| • Low risk investment opportunity  
  • Senior lien  
  • Secure repayment mechanism (taxes) | • Improves Building Financials/Risk  
  • **SIR>1** = Increase NOI  
  • No acceleration  
  • More attractive building for occupants and owners  
  • Finances deferred maintenance needs  
  • Adds asset value | • Creates economic development & jobs  
  • Reduces energy costs for businesses  
  • Reduces pollution |

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**Note:** SIR (Savings to Investment Ratio) is a measure used in finance to determine the viability of an investment. A **SIR>1** typically indicates that the savings from the investment exceed the cost of the investment, making it a worthwhile opportunity. **NOI** stands for Net Operating Income.
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

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

- $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
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.
Genevieve Sherman
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Thank you for attending our webinar

Find us online:

www.cesa.org
facebook.com/cleanenergystates
@CESA_news on Twitter

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.

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