The webinar will be starting shortly.

Audio — From the Audio box, please select Telephone as your audio mode, and enter both an access code and audio pin. All of this information is provided in the GoToWebinar box at right of your screen – call-in procedures are similar to a conference call.

Asking Questions — You are muted throughout the webinar. To ask a question, please “raise your hand” by clicking the icon near your audio controls; you will be recognized and unmuted. Or, type a question into the “Questions” or “Chat” box and this will be noted as quickly as possible during the Q&A section.

Slide Transition — At times, transition between slides will have a delay – approx. 5 to 20 seconds. Please be patient.

Technical Assistance — Please contact Lindsey Riley at 202.986.1032 or lindsey@narc.org.
About Solar America Communities

Solar America Communities is a U.S. Department of Energy (DOE) program designed to increase the use and integration of solar energy in communities across the United States. The International City-County Management Association (ICMA) and ICLEI-Local Governments for Sustainability were competitively selected by DOE to conduct outreach to local governments across the United States, enabling them to replicate successful solar practices and quickly expand local adoption of solar energy. For more information visit www.solaramericacommunities.energy.gov.
Silicon Valley Collaborative Renewable Energy Procurement (SV-REP) Project

Innovative Solutions for Solar Financing Webinar
September 27, 2011

Rachel Massaro
Associate Director, Climate Initiatives

Ben Foster
SVP, Americas
Background

Launched by Joint Venture’s Public Sector Climate Task Force

- Silicon Valley cities, counties, and other public agencies
- Developing effective, collaborative, solutions for the reduction of greenhouse gas emissions from public agency operations

in partnership with the County of Santa Clara, CA
Why Collaborate on Renewable Energy Projects?

- **Challenges**
  - High upfront costs associated with purchase and installation
  - Need to minimize transaction costs and admin time
  - Lack of understanding of financing options and available incentives
  - Reach greenhouse gas emissions reduction goals and meet state mandates

- **Opportunities**
  - Collaborative effort conserves funds and staff time
  - Standardize procurement documents, PPA, and process
  - Accelerate deployment of regional projects
  - Serve as a model for similar efforts across the region and USA
Largest multi-agency project to date

Project Overview

• Complex procurement effort for 70 sites
• Collaboration of 9 public agencies
• Multiple Site Types:
  • Carports
  • Rooftops
  • Ground mounted
• 14.4MW of combined solar PV
• Includes community centers, city halls, fire and police stations, office buildings, libraries, clinics, and other publicly-owned facilities.
Roles & Responsibilities

- Lead Agency
- Regional Convener
- Technical Adviser
- Participants

Other Silicon Valley Public Agencies
Participants

- County of Santa Clara
- City of Cupertino
- City of Milpitas
- City of Morgan Hill
- City of Mountain View
- City of Pacifica
- Town of Los Gatos
- Santa Clara Valley Transportation Authority
- South Bayside Waste Management Authority

rooftop, carport, and ground-mounted installation sites
Agency Collaborative Working Structure

• How it was structured
  – Initial expression of interests with site information from various agencies
  – Formal letter of cooperation (MOU) between partners committed to process
  – All sites bundled and bid out together – however final contracts at each agency

• Lead agency (County of Santa Clara) perspective
  – Providing leadership across County and region
  – Volume discounts and better competition
  – Increased economic activity within and around the County

• Other participating agency perspective
  – Could not easily or cost-effectively pursue this project on their own
  – Much better outcome and can leverage regional expertise
  – Competitive bids for individual site that might otherwise not be attractive to vendors
Project Timeline

2009
- Project Defined
- Agencies Recruited
- Sites Identified
- RFI Conducted

2010
- RFP Issued
- Vendor Awards
- PPA Contracts
- Construction Begins

2011
- Construction Underway
  - Phase 2
  - Additional Agencies & Sites
Strategic Bundling Approach

- Thorough review of individual site characteristics
- Consider site-specific and agency-level constraints
- Bundling sites by installation type, host facility, size and other attributes
- Incorporate solar market input and best practices
- Consider total size (MW) and number of sites per bundle
## Site Bundle Descriptions

<table>
<thead>
<tr>
<th>RPG System Bundle Type</th>
<th>Description/Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bundle 1 - Large systems</td>
<td>This bundle includes rooftop and ground mounted PV systems with a capacity to generate 650kW or more power at a single site.</td>
</tr>
<tr>
<td>Bundle 2 – Medium size systems</td>
<td>This bundle includes rooftop and ground mounted PV systems with a capacity to generate between 160 kW and 650kW at a single site.</td>
</tr>
<tr>
<td>Bundle 3 – Small size combined systems</td>
<td>This bundle includes rooftop and ground mounted PV systems with a capacity to generate upto 160 kW at a single site.</td>
</tr>
<tr>
<td>Bundle 4 – Small size rooftop only systems</td>
<td>This bundle includes exclusively rooftop mounted PV systems with a capacity to generate upto 220 kW at a single site.</td>
</tr>
<tr>
<td>Bundle 5 – Other systems</td>
<td>This bundle includes solar thermal PV, Fuel cell, and micro-wind turbine systems of various capacities yet to be determined based on the type of application.</td>
</tr>
</tbody>
</table>
Santa Clara Valley Transportation Authority

**SITE:** Bus Depot  
**TYPE:** Bus Canopy  
**SIZE:** 1,100 kW

Estimated to provide >100% of onsite power needed
South Bayside Waste Management Authority

SITE: Shoreway Environmental Center
TYPE: Roof, Standing Metal Seam
SIZE: 187 kW
Santa Clara County

Ground Breaking Event

Project Under Construction

SITE: County of Santa Clara, Sheriff’s Office
TYPE: Parking Canopy
SIZE: 800 kW total
Agency & Regional Project Benefits

- Reduced greenhouse gas emissions from local government operations
- Reliable cost of electricity over 20 year term, escalation rates 2%-4.5%
- Volume and competitive pricing yielded 10-14% cost reductions
- Electricity consumption completely offset for 25% of sites
- Projected to generate $70M+ in local economic activity and 300+ jobs
- Over $30M in Federal tax benefits captured via PPA (ITC + Depreciation)
- Demonstrated leadership with large number of installations
- Capture long-term REC benefits with future potential for resale
Broad Applications of Lessons Learned

• Adoption of Best Practices in Creation of Model Documents
  – Attractive agreements
  – Standardization of process
  – Communication strategy

• Strategic Bundling of Sites
  – Achieving economies of scale
  – Competition for bids

• Vendor Outreach
  – Outreach partners
  – Feedback and effective communication
Best Practices Guide

Available for download at: www.jointventure.org/purchasingpower
The Model is Catching On...

- EPA launched an effort in Metropolitan Washington, D.C. (www.epa.gov/cecp)
- Portland, OR evaluating the model
- Cities in China evaluating the model for domestic projects
- Potential for Phoenix, AZ
- New York State Department of Environmental Conservation
- Los Angeles County
Expanded Effort in the Bay Area

- Joint Venture, Alameda County & the Contra Costa Economic Partnership
- Launched in September 2011
- 4-County Effort
- Lead Agency = Alameda County
- Expected to be 2-3 times larger than the SV-REP
Additional Information available at:

www.jointventure.org/renewableenergyprocurement

www.wri.org/buying-solar

www.epa.gov/cecp

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(408) 298-9340
Established in 1993, Joint Venture: Silicon Valley Network provides analysis and action on issues affecting our region's economy and quality of life. The organization brings together established and emerging leaders - from business, government, academia, labor and the broader community - to spotlight issues and work toward innovative solutions.

www.jointventure.org

www.jointventure.org/renewableenergyprocurement
Optony creates value for government, commercial and financial institutions in the USA and China by developing and deploying solar best practices across the entire solar project lifecycle.

www.optony.com
Sonoma County - A little history

• 2001 - Joined ICLEI
• 2004 - All Cities plus the County adopt aggressive GHG goals 25% below 1990 by 2015
• 2006 Climate Action Plan— to reduce our internal emissions by 20% above 2000 by 2010.
• Energy Watch began in early 2009
• SCEIP began in March 2009
Comprehensive Energy Project

Process

- RFP to select Energy Services Company
- AIRCON Energy Selected
  - Inventoryed County Facilities
  - Prepared Investment Grade Audit,
  - 101 Energy Efficiency Measures (EEM) evaluated
- Obtained Private Loan Financing – based on Investment Grade Audit
Comprehensive Energy Project

- **38 EEMs at 24 buildings**
  - Lighting retrofits, 20 buildings, 1.3 MWh savings
  - HVAC replace or rebuild in 4 buildings
  - HVAC Motors & Controls MADF
  - Central Mechanical Plant (CMP) upgrade
  - Water retrofits, including detention, 20 M gallons/yr.
  - Ozonator for Detention Laundry Water
  - 1.4MW Fuel Cell Cogeneration Power Plant
1.4 MW Fuel Cell Power Plant

Fuel Cell Energy DFC 1500
– Generates 10,693,216 kWh/year
– Produces 45 billion BTUs year
– Produces virtually no NO$_x$ or SO$_x$ pollutants
– Reduce GHG emissions by 69% versus grid power
– Designated “Ultra-Clean” by CARB
– Categorically exempt from CEQA
1.4 MW Fuel Cell Power Plant

County Utility Costs –
- Prior County electric bill $5M annually
- New County power costs $3.4M annually
  - Gas bill for fuel cell is $350k
  - Amortize equipment costs (debt repayment)
  - Pay FCE maintenance costs
  - Prepay (amortize) stack replacement @ 5^{th} year

Fuel Cell Payback is Seven Years!
A Recap on Our Process

• Hired an Energy Services Company to do an investment grade audit of almost all of our county facilities
• Obtained a private loan
• Began with lighting work
• Moved on to mechanical systems
• Fuel Cell installation
• Set up a revolving fund to capture efficiency dollars
Our Board

Directive: Make CEP Expense Neutral from Day 1
## Financing Plan

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Project Cost</td>
<td>$22,272,029</td>
</tr>
<tr>
<td>Incentives, Grants, and Rebates</td>
<td>($3,941,226)</td>
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<tr>
<td>Financed Amount</td>
<td>$18,730,803</td>
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<tr>
<td>Estimated Interest Rate*</td>
<td>4.98%</td>
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<tr>
<td>Repayment Term</td>
<td>16 years</td>
</tr>
<tr>
<td>Assumed Closing/Funding Date</td>
<td>1/1/09</td>
</tr>
<tr>
<td>Assumed Annual Energy Cost Escalation*</td>
<td>5%</td>
</tr>
<tr>
<td>First year of positive cash flow</td>
<td>Year 12</td>
</tr>
<tr>
<td>Total payments</td>
<td>$31,794,615</td>
</tr>
<tr>
<td>Total cumulative positive cash flow after 25 years (estimate life of equipment)</td>
<td>$38,404,231</td>
</tr>
</tbody>
</table>
Cost Savings

Comprehensive Energy Project - Phase 2
Energy and Water Savings Projection

Projected Energy and Water Cost
Total Financing and Maintenance Costs

Year

Dollars

$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$-

$1,000,000
$2,000,000
$3,000,000
$4,000,000
$5,000,000
$6,000,000

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
CEP Results

CEP Objectives Met?

1. GHG reduction 6,135 tons*
   - Electricity reduction 13,365,226 kWh
   - Water savings = 19,138,260 gallons
   - Utility savings = $1,689,316

2. Saving $ $$, No General fund impact

3. Replaced old worn out equipment

* Now in 1 year Measurement and Verification

+ Created jobs, collaboration, other benefits
Other renewable projects

• Various 20th Century Efficiency Projects
• First decade 21st Century Projects:
  – 5-6 MW Landfill Gas
  – Local Government Electric Vehicle Partnership
    • County plus 9 Jx = 240 hybrids, plug-ins and EV’s
  – 820 MW Solar 2 projects, more planned with PPAs
  – CEP w/ 1.4 MW Fuel Cell CHP Power Plant
  – 1MW biogas (compost) in development
  – 5MW in solar to date – SCEIP
  – Off bill, ARRA, and QCEB funded projects
  – 5 MW savings – SCEW
  – 42 MW of installed solar countywide
Benefits of the Program

• GHG reduction
• Saving money by saving energy
• Local economic stimulation and Job creation
• Saving local resources
Leverage the Power of PACE

SCEIP opened on March 25th, 2009

Over 1,600 projects already completed

Over $50 million has been financed for efficiency upgrades!

Over 90 eligible improvements
Sonoma County – Other Agencies

- **Sonoma County Water Agency (SCWA)**
  - Goal of carbon free water delivery by 2015
  - 22.4MW in development including CCA feasibility
  - 2.2 MW Solar 3 projects – $15.5M, projects received $4.49M in PG&E rebates
  - 2.64 MW Hydro
  - 32 hybrids and plug-in hybrids
  - Wave power feasibility study – 2 to 5 MW at each of 3 locations, potential expansion 40 MW.
  - Geothermal project in development

- **Sonoma County Fair and Exposition**
  - 1.36 MW Photovoltaic, State grant funding
Thank you!

Sam Ruark– Energy & Sustainability Coordinator

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Questions/Comments?

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