You Can Make Community Solar Better!

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DER Project Manager

Community Solar Procurements, Programs and Pricing
June 8, 2017 • Golden, Colorado
• Led by Extensible Energy, with funding from US DOE SunShot. AJ Howard DER Project Manager, comes from Olivine, one of four firms supporting this effort.

• CSVP works with utilities, industry innovators, and community partners. The Project provides demonstration and documentation of four ways to make utility-led community solar better, including:
  • strategic design
  • target marketing
  • procurement and pricing
  • solar-plus integration

www.communitysolarvalueproject.com
Deploying Distributed Energy Resources (DERs) Throughout Communities

- Olivine is working with various communities with the explicit goal of enabling the deployment of DERs. We work with:
  1. Municipal Governments and Utilities
  2. Community Choice Aggregators
  3. Investor Owned Utilities

- Includes a variety of DERs: community solar, smart EV charging, energy storage, facility demand charge management, demand response, ancillary services, etc.

- Olivine has over 100 MW of resources in the CAISO market
- Focus on a single administrator model for
  - Compliance management
  - Brand extension
  - Allowing participation by a wide variety of DER technologies and aggregators to increase customer choice
DER Implementation and Aggregation Framework

DER Resources
- Residential DR
- Distributed Generation
- Stationary Storage
- Electric Vehicles and Charging Infrastructure
- Commercial DR

Technology Aggregators
- Demand Response Provider (DRP) / Distributed Energy Resource Provider (DERP)
- Scheduling Coordinator
- DER Platform

Olivine

Utility / CCA

Coordination / Optimization

Settlements ($)

Dispatch Notifications / ADS

CAISO

Payments

Event Notifications / Open ADR

Meter Data
Community Choice Aggregations (CCAs)

- **Operational CCA/CCEs**
  - MCE Clean Energy (includes Marin and Napa Counties, parts of Contra Costa and Solano Counties)
  - Sonoma Clean Power
  - Lancaster Choice Energy
  - Clean Power San Francisco
  - Peninsula Clean Energy (San Mateo County)

- **2017 Launch**
  - East Bay Community Energy (Alameda County)
  - Mendocino County (as member of Sonoma Clean Power)
  - Redwood Coast Energy Authority (Humboldt County)
  - Silicon Valley Clean Energy (Santa Clara County)
  - Town of Apple Valley

- **2018 Launch (anticipated)**
  - Contra Costa County
  - Monterey Bay Community Power (Monterey, Santa Cruz and San Benito Counties)
  - Los Angeles County (Phase 1)
  - Placer County
  - Valley Clean Energy Alliance (Yolo County and City of Davis)

- **Exploring / In Process**
  - Butte County
  - City of Hermosa Beach
  - City of Pico Rivera
  - City of San Jacinto
  - City of San Jose
  - Fresno County
  - Inyo County
  - Kings County
  - Nevada County
  - Riverside County
  - San Bernardino County
  - San Diego County
  - San Joaquin County
  - San Luis Obispo County*
  - Santa Barbara County*
  - Solano County
  - Ventura County*
  - *Central Coast Tri-County

CCAs are also active in
- Illinois
- Massachusetts
- New Jersey
- Ohio
- Rhode Island
- New York

Source: Lean Energy US
Renewable Over Generation in California

- Solar projects in the works are projected to double California capacity from 17 GW in 2016 to 34.5 GW in 2022
- The effects of solar over generation are driving negative prices and increased curtailment
- Deploying DERs to help balancing solar over generation is critical need in areas of high solar penetration!
Olivine DER Valuation Model

**Technologies**
- Solar PV
- Stationary storage
- Electric vehicles
- Building and facility demand response

**DER Use Cases**
- Energy/Capacity
- Grid services
- Deferred infrastructure investment
- Emergency-backup power

**DER Services**

**Energy/Capacity Valuation Model**

**Grid Services Valuation Model**

**Deferred Infrastructure Investment Valuation Model**

**Emergency-backup Power Valuation Model**

**Other indirect and societal benefits**

**Combined Value Stream Analysis**

**Deployment Case Studies**
1. Community solar, solar + storage
2. Demand charge management with solar and stationary storage
3. Smart charging of electric vehicle charging stations
4. Emergency backup power with solar + storage

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Community Solar Valuation Case Study

• Analyzing a potential community solar program for the City of Lancaster / Lancaster Choice Energy
• Three Lancaster city sites, 3 MW installations each

Analysis
• Avoided costs vs modeled solar output (8760 model)
• Comparing different community solar business models
  – Community-scale distributed solar (rate-based)
  – Subscription-based model with retail billing credits (virtual net metering)
  – Rate structure specific to local solar content
• Examining community solar as load modifying vs a wholesale resource
• Will be examining the value impact of including storage and load-following smart inverters
The Presenter and the Project

AJ Howard is a DER Project Manager at Olivine, Inc and a DER expert for CSVP. AJ focuses on projects to determine the value of DERs with the goal of deploying them at scale throughout communities. Contact him at ahoward@olivineinc.com

The Community Solar Value Project led by Extensible Energy, Lafayette, CA, (John Powers, Project Director) with support from Cliburn and Associates, Navigant, Olivine and Millennium Energy. See more at www.CommunitySolarValueProject.com john@extensibleenergy.com