

Thermostat Control for Integration Value

CSVP Webinar Series
July 28, 2016



Community
Solar Value
Project

CommunitySolarValueProject.com



Thermostat Control for Integration Value

Our Speakers:

- John Powers, CEO Extensible Energy and Contract Officer for the Community Solar Value Project
- Brad Davids, Business Development Manager at Nest, focused on the energy sector

Join Us For Future Webinars

- Thursday August 18: Making Solar Carports Happen
- Thursday September 29: Solar Plus Storage Solutions
- Thursday October 27: Smarter Procurement for Community Solar Programs
- Thursday December 1: Keeping It Local

For registration information, contact

stacey@communitysolarvalueproject.com

And seen more news, events and resources at:

www.communitysolarvalueproject.com

The Community Solar Value Project

- Led by Extensible Energy, with expertise of 3 additional firms
- Funded by U.S. Department of Energy SunShot Initiative
- Utility-led community solar programs, using a variety of project ownership options



www.communitysolarvalueproject.com



Four Ways to Add Net Value And Make Community Solar Better



Strategic solar
design &
specifications



Best-practice
project
financing &
procurement



Target
marketing
& a more
customized
offer



DR &
storage
companion
measures

Demand Response in Community Solar

- Why Should Community Solar Program Managers Care about DR? (Or: Am I in the Right Webinar?)
- Customers are busy
- Solar penetrations are rising
- Add and offset net load variability all in the same program
- Extract additional sources of utility value for community solar programs



From Peak Shaving to Distributed Energy Resource Integration

- Easy or hard?
- Three-legged stool of utility programs
 - Technology Selection
 - Customer Engagement
 - Program Design
- Each component will change from current DR programs to measures adapted to Community Solar
- Detailed CSVP Program Guide Section on DR:
 - Posted on www.communitysolarvalueproject.com
 - Subject of Spring 2016 PLMA Presentation



Selecting DR Measures for Community Solar Programs

1. Characterize Utility Integration Needs

2. Identify Existing Utility DR Measures

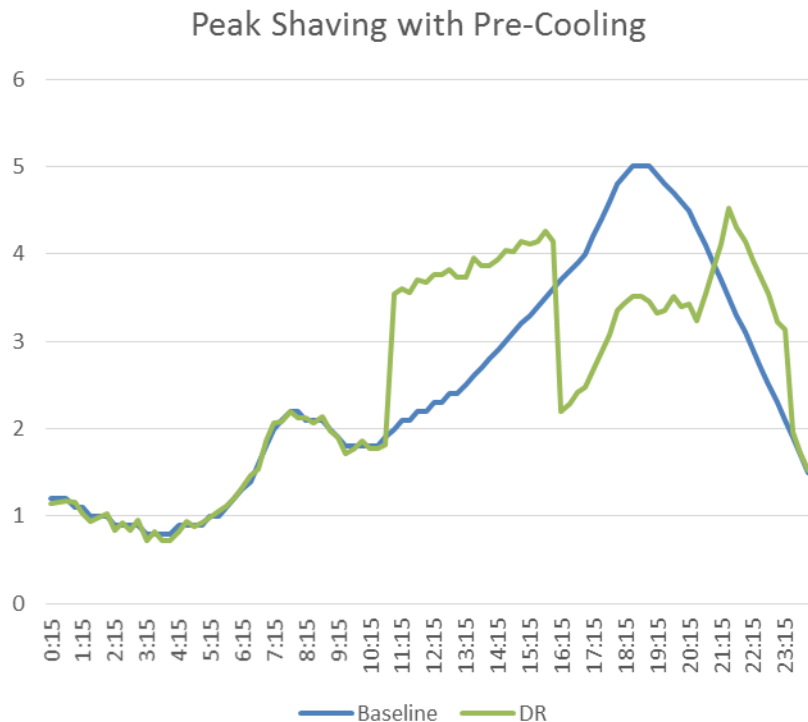
3. Review Scoring Matrix For DR Measures
That Address Integration Needs

4. Evaluate High-scoring DR Measures For
Inclusion in Community Solar Program



From Peak Shaving to Distributed Energy Resource Integration

Peak Shaving Program



DER Integration Program

- Control at many different times of day
- Control for much shorter intervals (to match solar variability)
- Control under multiple different types of weather conditions



Smart Thermostats

- Popular with consumers
- Increasingly, accessible to utility control
 - Navigant Research: More than 50,000 customers enrolled in BYOT pilots, with market potential of 20 Million
- Vastly more capable than old 1-way load control switches
 - Two-way communication (verify impact)
 - Abundant data collection capabilities
- Allows frequent, flexible control (not just “three hottest days”)
- Self-install capabilities (no truck roll required)
- Consumer benefits on all days, not just control days
- Can be networked with other devices in the home



The Nest Learning Thermostat



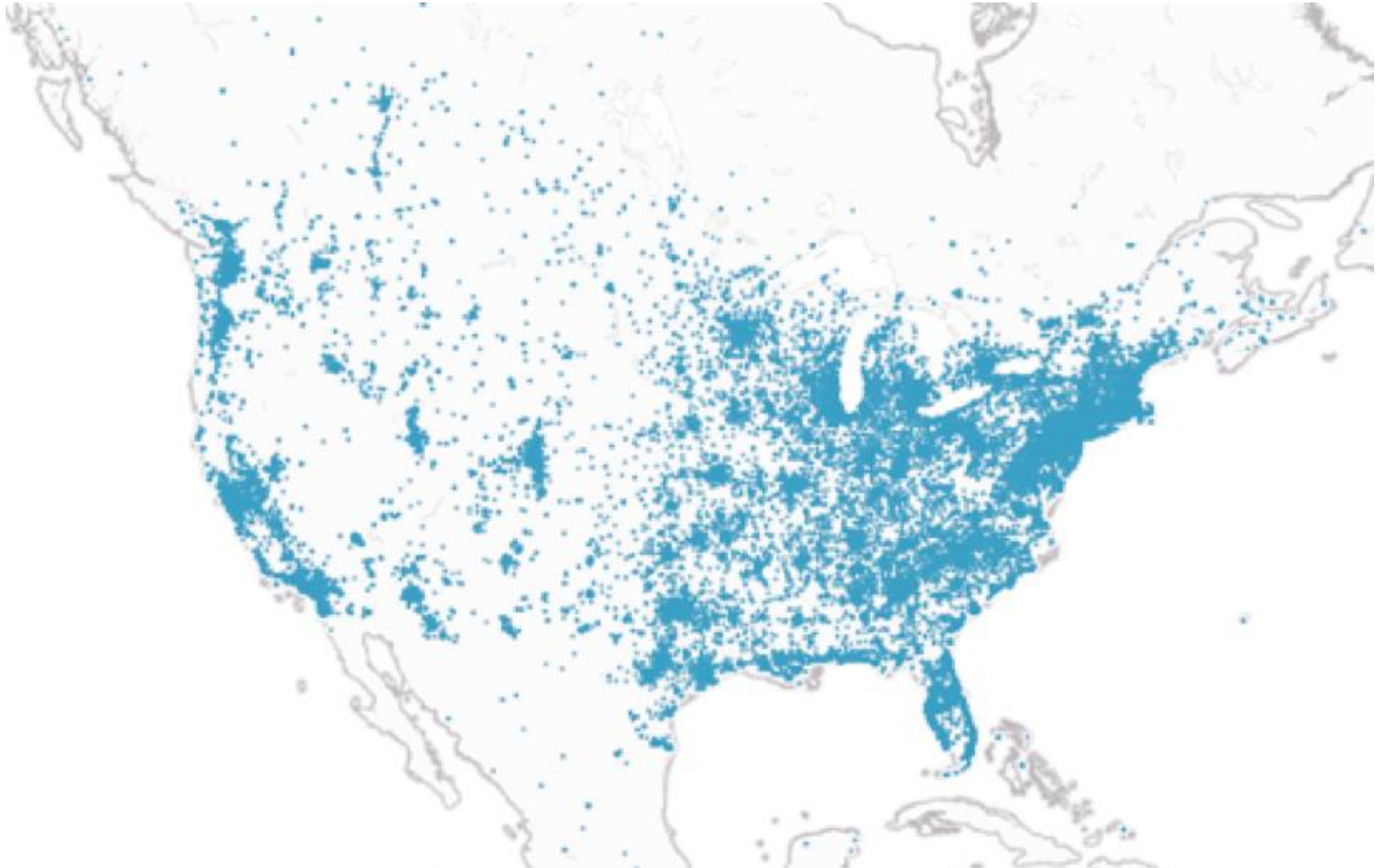
Building a “thoughtful home”

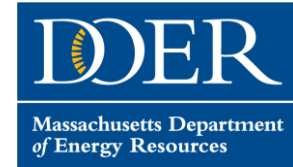


Creating an integrated ecosystem



So where are all these
smart thermostats?





powering lives



DR Program Implementation Options



Direct Install



Free
Installation

\$25 Annual
Incentive



Self Install



\$50 Self
Installation
Incentive

\$25 Annual
Incentive



Bring Your Own Thermostat



\$50 to \$150
Enrollment
Incentive

\$25 to \$40
Annual Incentive

Smart Thermostats for Advanced DR

- Load control can be tailored to each individual home
 - Use customized thermal model for each home to optimize cycling
 - Preserve occupant comfort via optimized pre-conditioning
 - Enhance customer satisfaction and retention
- Thermostat can facilitate price-based DR
 - Software can be updated remotely to reflect changing seasons and tariffs
 - Studies have shown that time-varying rates with “enabling technology” deliver significantly higher load shift
 - Customers can choose how to balance savings vs. comfort
- Analytics and two-way communication improve operations
 - Real-time visibility into capacity availability
 - Accurate estimates of load reduction (even w/o interval metering)

Questions?

Please type your questions into the question pane on the dashboard.



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Thank You!

This webinar is recorded and will be available on demand on our website in a few days. Visit:

www.communitysolarvalueproject.com



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