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Filer:	Stephanie Bailey
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Southern California Electricity Reliability Workshop

Update on Western LA Basin Procurement

August 29, 2016



Overview of SCE's Western LA Basin LCR Procurement

- LTPP Track 1 and Track 4 Decisions authorized SCE to procure incremental resources to meet long-term local capacity requirements by 2021 due to the retirement of Once-Through Cooling plants and SONGS.
- SCE conducted a competitive RFO and executed agreements for the following mixture of preferred, energy storage and gas fired resources:

Product Category	Total Contracts	Max Quantity (LCR MW)
Preferred Resources (PRs) and ES		
EE	26	124.04
DR*	7	75.00
Renewable DG	4	37.92
ES	23	263.64
Total PRs and ES	60	500.60
GFG Resources		
GFG	3	1,382.00
Total PRs, ES, and GFG	63	1,882.60

LCR RFO Western LA Basin Contracts

- In November 2014, SCE filed an application seeking CPUC approval of the contracts selected through the LCR RFO.
- The CPUC issued its final decision on the LCR LA Basin application in November 2015, however applications for rehearing challenging the decision were subsequently filed.
- In June 2016, the CPUC issued a decision denying the applications for rehearing of the LA Basin decision and modifying the decision.
 - The decision was modified to require SCE to procure an additional ~170* MW to meet the minimum procurement requirements established in the Track 1 and 4 decisions.
- Due to the timing of the issuance of the decision on the applications for rehearing, online dates for some agreements were changes, however, the projects contracted for should be online by 2021.

* 70MW of Demand Response contracts were rejected



Preferred Resources Pilot

**Meeting
Local Demand
Through
Clean Energy
Resources**



Southern California Electricity Reliability Workshop SCE's Preferred Resources Pilot (PRP)

August 29, 2016

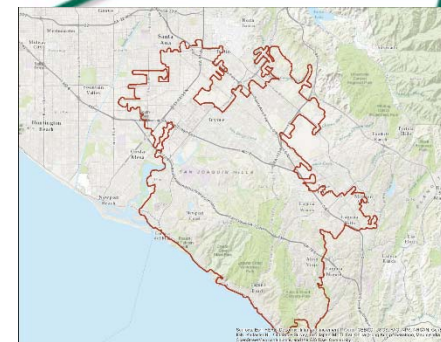
Preferred Resources Pilot (PRP) at a Glance

Objective

- Advance the use of preferred resources¹ (PRs) to meet reliability needs by determining if they can deliver what is needed, when needed, and for as long as needed.

Value

- Supports western LA basin reliability.
 - Resources are more effective in the southwestern portion of SCE territory.
 - Provides additional mitigation to already planned activities.
- Informs the development of the future grid, including the Distribution Resource Plan demonstration projects.
- Supports consumer use of clean energy technologies.
- Helps California meet its environmental goals.



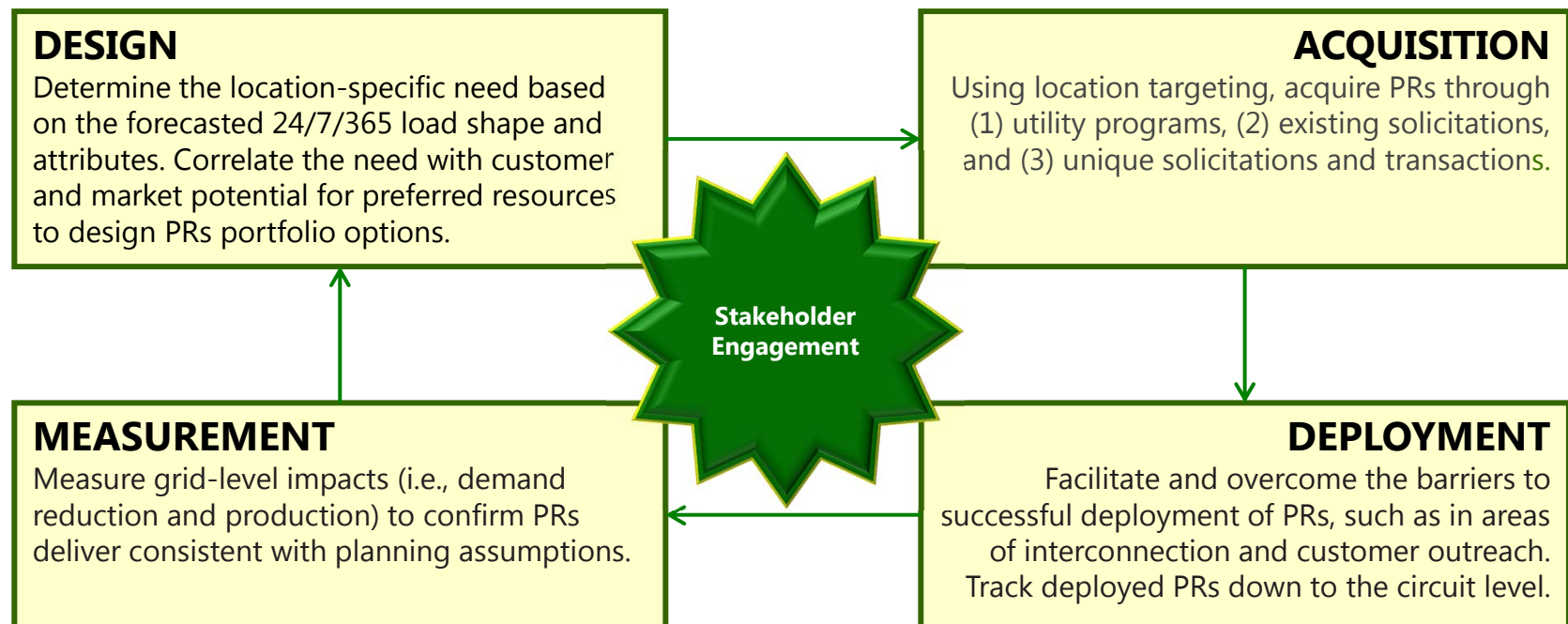
Distribution
Resource Plan
Demonstration
Region

¹ – Preferred Resources for purposes of the PRP include: Energy Efficiency (EE), Demand Response (DR), Renewable Distributed Generation (DG), & Energy

PRP Milestone and Project Approach

PRP Milestone 1 – to be evaluated early 2018

- Demonstrate the ability to **acquire** and **deploy** a mix of preferred resources that meet the 2022 forecasted local needs.
- **Measure** the performance capabilities of those resources to defer or eliminate the need for new gas-fired generation in the PRP region.



PRP Progress

Resource Type	MW Deployed ¹	Measurement Status	MW Expected by YE 2017 ²	MW Expected by YE 2020 ²
EE	20.16	<ul style="list-style-type: none"> • Programs: Measured using ex-ante values • Contracts: Pending deployment 	37.53	43.53
PLS	0	<ul style="list-style-type: none"> • Contracts: Pending deployment 	5.76	25.60
DR (LR, ES)	32	<ul style="list-style-type: none"> • Programs: Measured using AMI data • Contracts: Pending deployment 	49	49
DG ³ (PV, CHP)	41.8	<ul style="list-style-type: none"> • Programs: Measured with model benchmarked against small set of actual values • Contracts: Pending deployment 	55.97	55.97
ES	< 0.1	<ul style="list-style-type: none"> • Programs: TBD • Contracts: Pending deployment 	7.50	7.50
Total	93.96		155.76	181.6

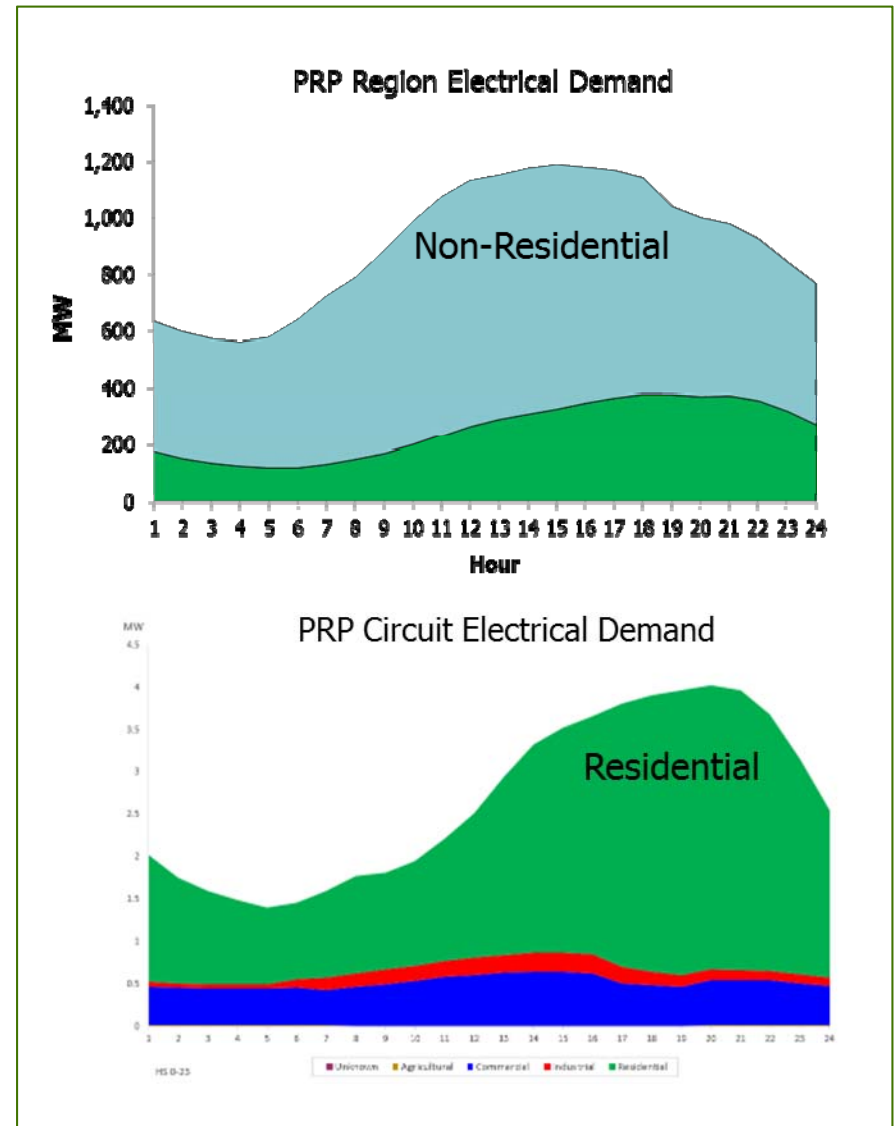
PRP RFO 2 is seeking 100 MW of additional preferred resources in the PRP area, which may increase the 2020 expected MW to 281.6 MW or more.

Notes:

1. Majority of data is as of July 2016. DR MW deployed is as of September 2015.
2. Future EE and DR from DSM programs or solar PV from natural adoption is not included in the 2017 or 2020 MW expected numbers.
3. DG deployed includes 19.6 MW from landfill project not under contract with SCE but interconnected in the PRP area.

Insights and Opportunities

- **Locational Targeting**
 - **Resource attribute needs**
 - Urban versus rural
- Customers
 - Finite customer set coupled with numerous offerings
 - Demographics - Owner/tenant
 - Customer participation
 - Enhanced incentives
 - Testing new technology
- Grid Resource and Readiness
 - Circuit level EE
 - Behind the meter (BTM) resource performance
 - Infrastructure assessment



Insights and Opportunities

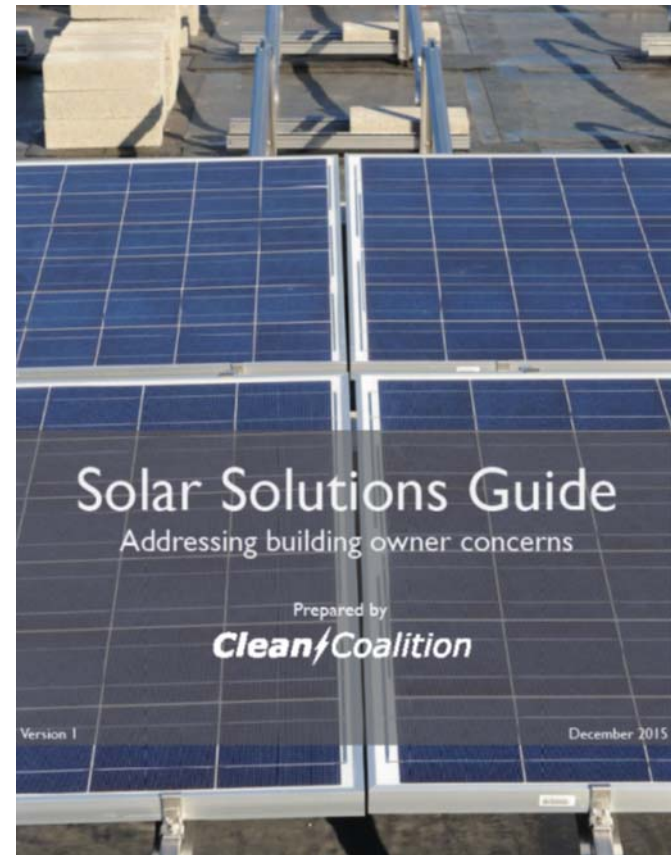
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Location specific request for offers specify substations and circuits.

CIRCUIT	DELIVERY HOURS
Euro	12:00:00 – 14:59:59
Guilder	
London	17:00:00 – 18:59:59
Myford	18:00:00 – 20:59:59
Muirlands	
Elden	
Hines	
Magazine	

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Options for Your Business to Go Green with SCE and Energy Solutions Providers

New offers to create a cleaner grid of the future — together

Options for Your Business to Go Green with SCE and Energy Solutions Providers

Advanced Microgrid Solutions
Advanced Microgrid Solutions provides energy storage systems and energy management solutions to help customers reduce consumption of energy from the grid and provide load reduction in support of SCE's demand response programs.
Email: info@admicrogrid.com
Phone: 415-638-6140
www.admicrogrid.com

nrg
The NRG Lockheed Energy Efficiency program leverages energy efficiency equipment associated with compressed air, refrigeration, lighting and process systems (cooling, heating, and material transport) that will result in decreased energy use for SCE's commercial and industrial customers.
Douglas J. Paschall
Email: douglas.j.paschall@nrg.com
Phone: 844-235-3182

ONSITE ENERGY
OnSite Energy provides identification and implementation of energy efficiency projects such as lighting, compressed air, process improvements and HVAC optimization and controls that result in decreased energy use for SCE's commercial and industrial customers.
Richard T. Spertberg
Email: rspertberg@onsiteenergy.com
Phone: 360-476-4140
www.onsiteenergy.com

nrg
Ice Bear, brought to you by NRG, provides energy storage for 5-20 ton commercial air conditioning units. By freezing water at night, it uses the energy stored in ice to cool buildings during peak hours and reduce energy consumption. The storage units are designed to serve all or a portion of the electrical consumption by displacing the AC unit compressors to provide cooling for the sites.
Brandon McNeil
Email: bmcneil@ice-energy.com
Phone: 844-235-3182
www.nrg.com/IceBearSCE

nrg
The NRG CoolSave program featuring Evaporcool® is a way to increase the efficiency of your existing air-cooled HVAC system while reducing electrical energy usage. Best suited for users of large packaged rooftop units and air-cooled chillers, Evaporcool's pre-cooling technology reduces peak demand and improves efficiency on hot days.
Ben Taube
Email: btaube@evaporcool.com
Phone: 844-235-3182
www.nrg.com/CoolSave

STERLING ANALYTICS
Sterling Analytics provides LED lighting retrofits and other solutions including light HVAC with variable frequency drives, damper controls and energy management systems (EMS) to improve energy efficiency and sustainability.
Tim Swanson
Email: tswanson@sterlinganalytics.com
Phone: 678-325-7115
www.sterling-analytics.com

nrg
NRG Curtailment Solutions' demand response program provides an automated method to reduce the commercial and industrial customers' use of electricity during peak demand periods when needed to support the electrical grid.
Robert Harvey
Email: dr-info@nrg.com
Phone: 877-711-6463
demandresponse.nrg.com

stem
Stem provides energy storage and energy management solutions to help customers reduce consumption of electricity from the grid, manage load in support of SCE's demand response programs, and monitor real-time energy use.
Email: info@stem.com
Phone: 415-937-7836
www.stem.com

SUNPOWER™
SunPower installs onsite solar power systems that will help reduce the overall energy consumption from the grid.
Kevin Gardner
Email: Kevin.Gardner@sunpower.com
Phone: 844-607-6627
www.sunpower.com

SOUTHERN CALIFORNIA EDISON
A BROAD ENERGY GROUP COMPANY

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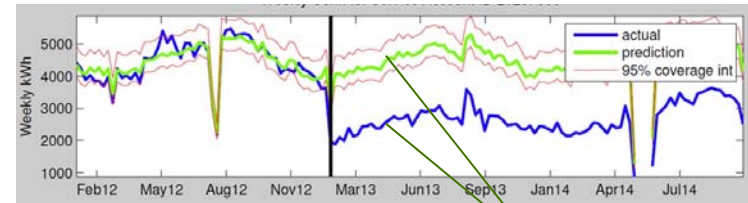
PRP Region Offers

- Owner direct incentive process allows building owners to apply directly for rebates without going through the Tenant (SCE customer).
- Locational incentive adder for custom EE projects and no threshold.
- LED tube retrofit offers new, lower-cost LED lighting.

Insights and Opportunities

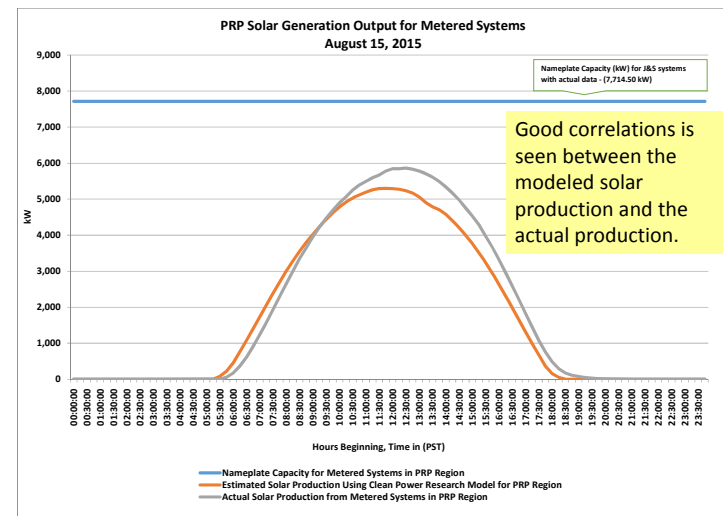
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Developing methods to optimize the use of EE:



▶ *Energy Efficiency Savings*

Developed method to measure some BTM resources:



Next Steps

- Complete PRP RFO 2 and seek CPUC approval of executed contracts.
- Continue acquisition of resources through DSM programs.
- Once contracted resources are on-line, reporting systems will be completed built to capture and report MW generation and savings.