

CPUC Demand Response Strategies Briefing

January 2014



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Changing Energy Landscape

San Diego is home to:

Vehicles

One of the largest concentrations of Plug-in Electric Vehicles in the US, with over 3,300 vehicles on the ground in San Diego

Technology

Solar to EV technology at San Diego Zoo is the first of its kind.

Innovative Programs

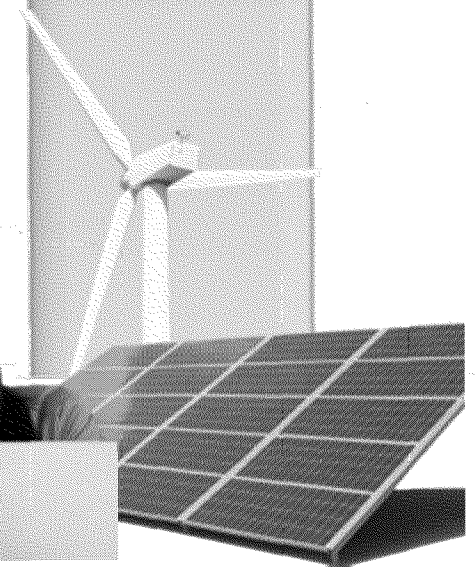
Microgrid Project simulates real-time pricing changes to Borrego Springs customers.

Customers

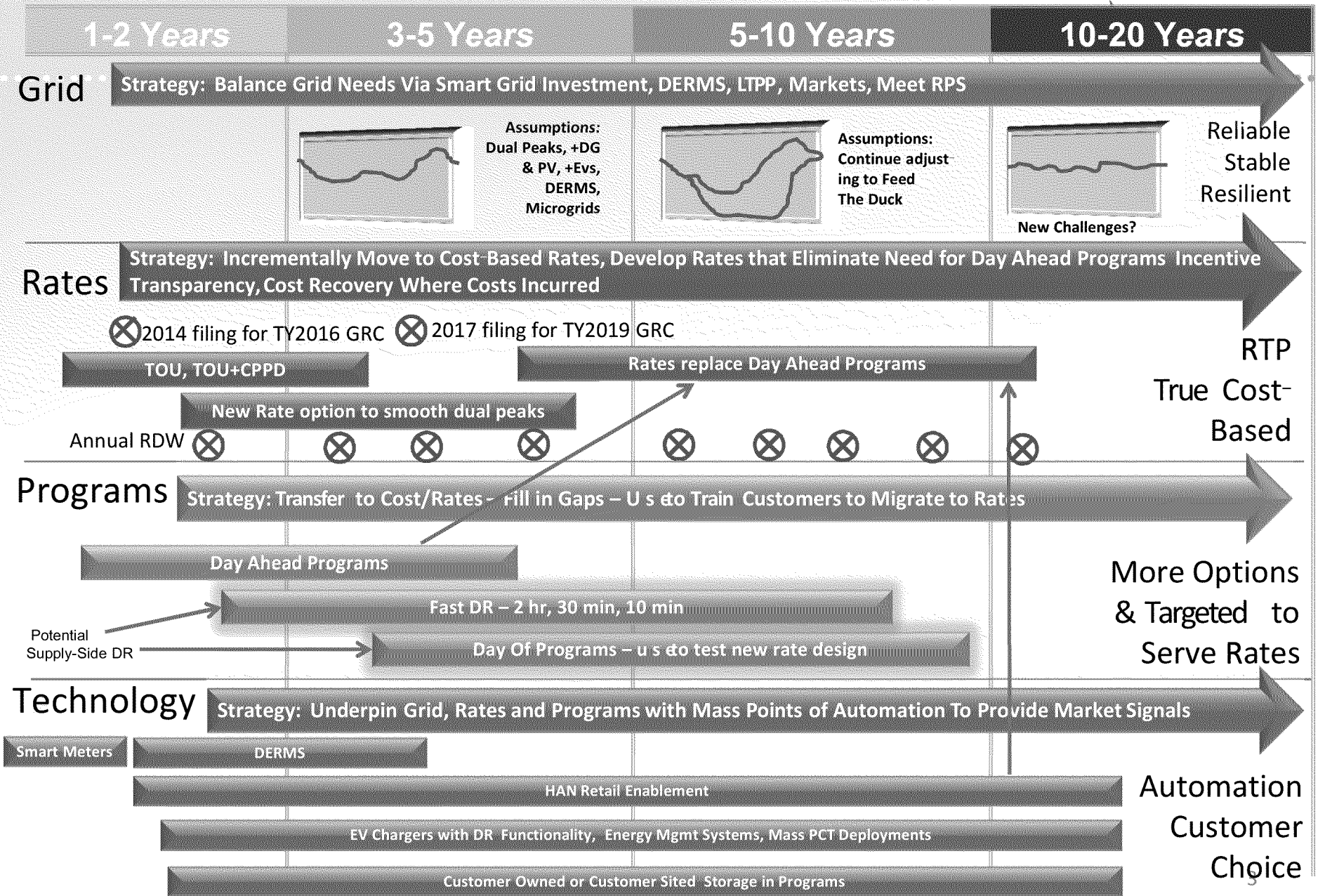
Leader in solar rooftop penetration with over 30,000 rooftop solar installations.

Renewables

Nearly 21% renewable portfolio in 2012.



Framework for Demand Response Strategy



Transition Day-Of Programs to Supply-Side DR



- Modify Capacity Bidding Program over next two years
 - Transition day-ahead product and create a 30-minute product by 2015
 - Target customers with stranded AutoDR assets for win back
 - Test bidding into the wholesale market
 - Share experience
 - When rule 32 takes effect, support the integration of customers into the wholesale market
- Transition SDG&E into multiple roles: providers for load modifying and supply-side DR

- 2014: Bid portion of the bundled Capacity Bidding customers into wholesale energy market
- 2015: Test and bid other DR portfolio customers into wholesale energy market

	Bundled Customers	Direct Access Customers	Total
Capacity Bidding Only	4.6	13.3	17.9
Dual Participation (CBP & CPP-D)	3.6	0	3.6
Total	8.2	13.3	21.5

Potential DR Rates and Product Offerings in 2014



- Support and improve dynamic rates: PTR opt-in and roll-out of Smart Pricing options
- Current DR RFPs
 - *Direct Load Control DR*
 - *PCTs for residential customers (15K endpoints)*
 - *PCTs for small and medium commercial customers (24k endpoints)*
 - *Watching SCE's Living Pilot*
- Potential DR Pilot Efforts
 - Locational DR pilots
 - Modifying direct load control programs
 - Behavior Pilot
 - Electric Vehicle DR pilot in conjunction with EV team

Proposed Innovative DR Program Growth

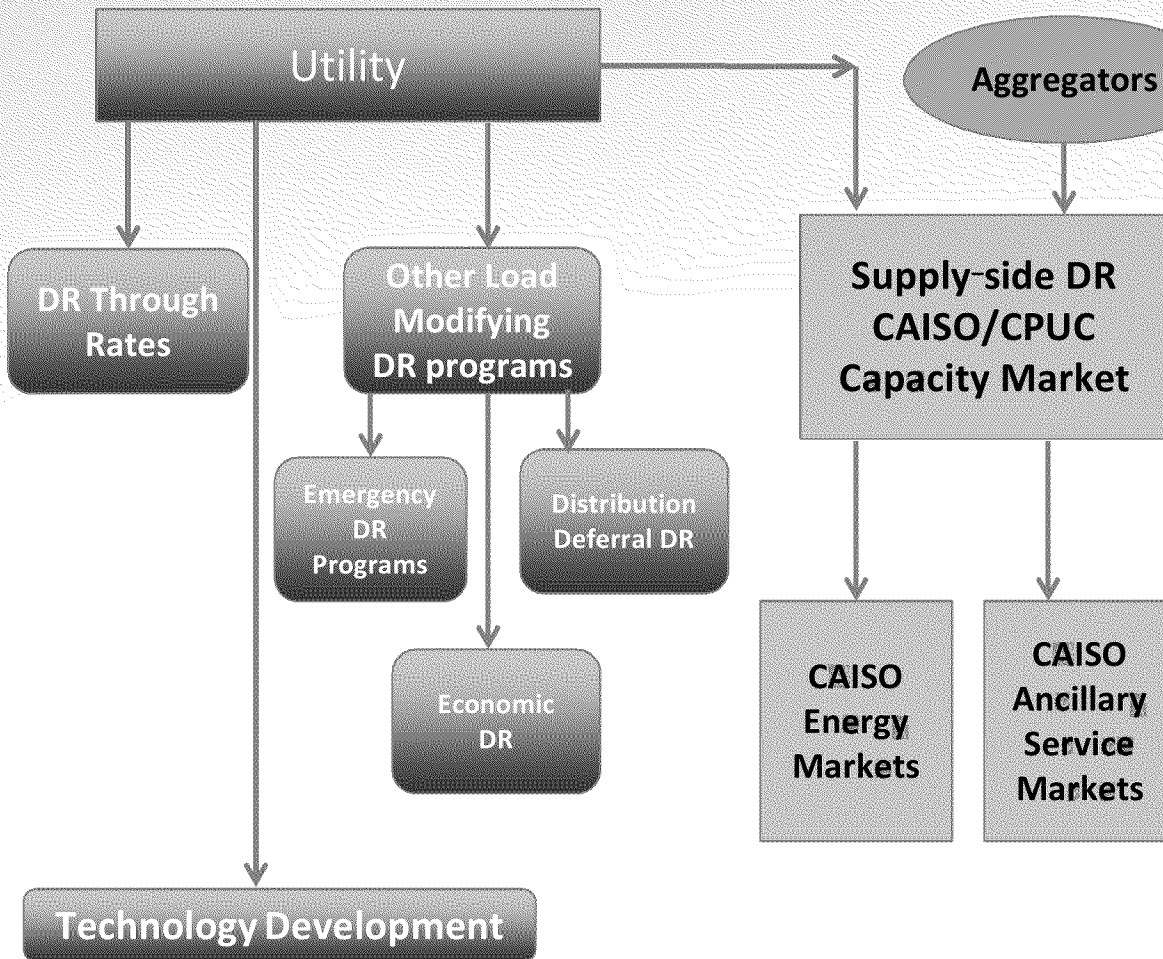
- Advanced Energy Storage – Customer Side Batteries
 - Fast responsive DR – Dispatches in under 10 minutes
 - 24/7 availability in 2015 and beyond
 - Additional functionality including ancillary services
 - Seeking approval to make the new DR program available in 2014

New DR Capacity	2014 MW	2015 MW	2016 MW
Advanced Energy Storage	0.5	2.0	5.0

- Programmable Communicating Thermostats (PCT) and Permanent Load Shift (PLS)
 - Advanced technologies in PCT – behavioral learning

Incremental DR Capacity	2014 MW	2015 MW	2016 MW
PCTs for residential customers	5.0	7.5	7.5
PCTs for small and medium business customers	10	15	15
Permanent Load Shift (PLS)	2.5	2.5	2.5

The Future



Challenges

- Transitioning customers to supply-side DR (helping them be successful) with minimum costs and confusion
- Unified Cost-effectiveness and Baseline Calculation
- Revised compensation mechanism that adequately differentiates quality and availability of various DR programs
- Dealing with multiple programs participation, and rates/other
- Negotiating CAISO market participation rules
- Competitively-neutral technology development
- Integration with load varying resources