

A Look Back: 2016 DR Market Integration

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Background: 2016 DR Enrollments

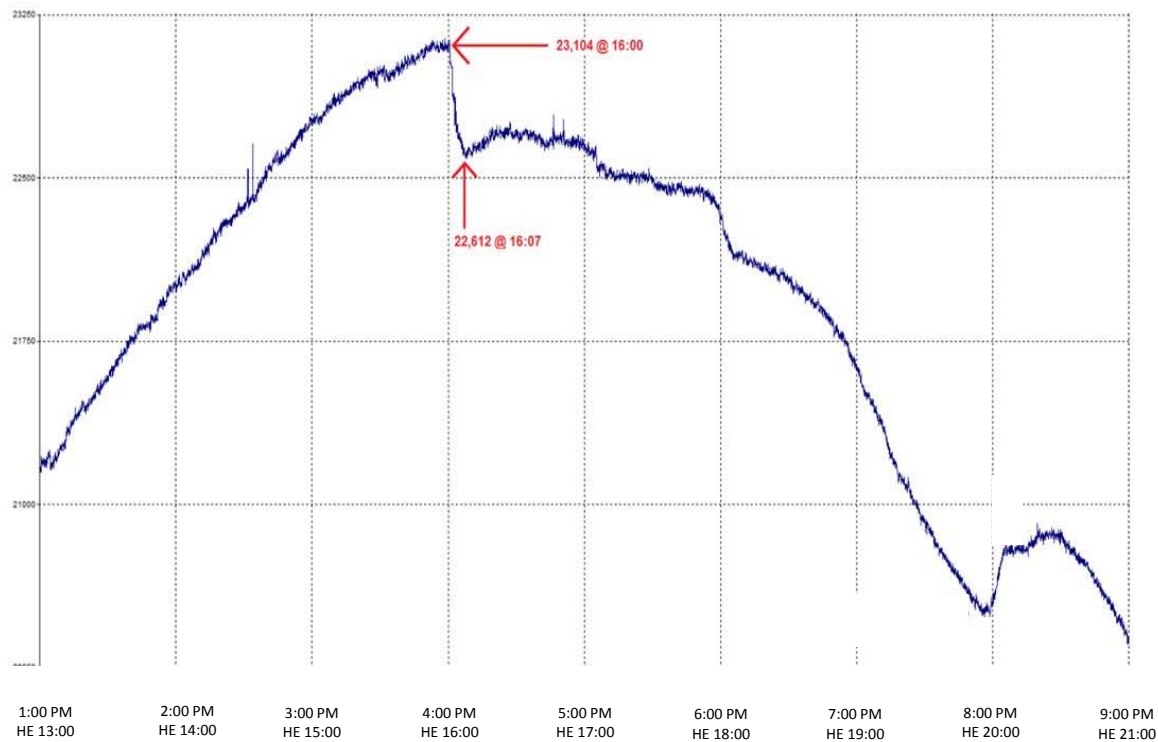
- More than 650,000 DR Customers
- Over 1.2 GW of Demand Response available
 - Residential Customers (approximately .2 GW)
 - Non-Residential Customers (approximately 1 GW)

Reliability	Economic
Base Interruptible Program (15 or 30 minute response options)	Demand Bidding Program*
Agricultural Pumping Interruptible	Critical Peak Pricing Rate*
	Aggregator-Managed Programs (including Capacity Bidding Program)
	Peak Time Rebate* (Res)
Summer Discount Program (Res/Non-Res)	

**Load Modifying programs – not integrated into CAISO wholesale market*

Demand Response Dispatched on June 20, 2016

- On June 20, 2016, temperatures peaked at 101 degrees in Los Angeles (114 in Riverside) while SCE's demand was nearing all-time peak levels of over 23,000 MW
- All of SCE's DR programs were dispatched that day with the exception of BIP and API
- Nearly 600 MW of SCE-managed demand response responded to system conditions



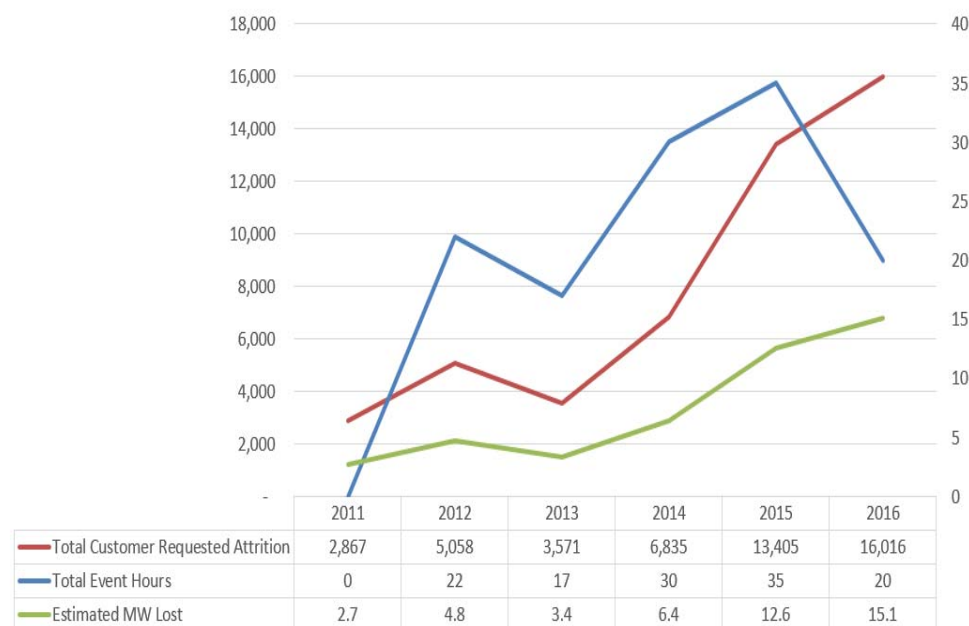
Market Integration Challenges

- The frequency and duration of dispatch for SDP program has caused a significant reduction of the resource.
- There continues to be circumstances and issues impacting market-integrated DR with respect to CAISO market rules and systems limitations. There are approximately 130 MW that remain unintegrated and at risk of not receiving supply side RA credit.

Frequent SDP Events Drive Customers Away

- 2012 to September 2016, SDP-Residential lost total of 44,885 customers due to event related attrition (customers de-enrolling due to cycling events), representing approximately 42 MW
- Customer attrition reached the highest level in 2016 even with reduced number of dispatch hours (20 event hours)
 - Event related attrition is not just a function of the number of hours dispatched in any given year but is influenced by past years experiences.

SDP Residential Attrition



Estimated MW's lost based on load impact ex ante results for September 2014; 1 in 2 year; average of 0.94 kWh per Residential Service Account

Highest Load Customers Flee Fastest

High Load Customers are Opting Out in Higher Proportions

- Customers who de-enrolled in 2016 were among the highest performing customers in 2015, a trend observed in past years

6/30/2015 Event

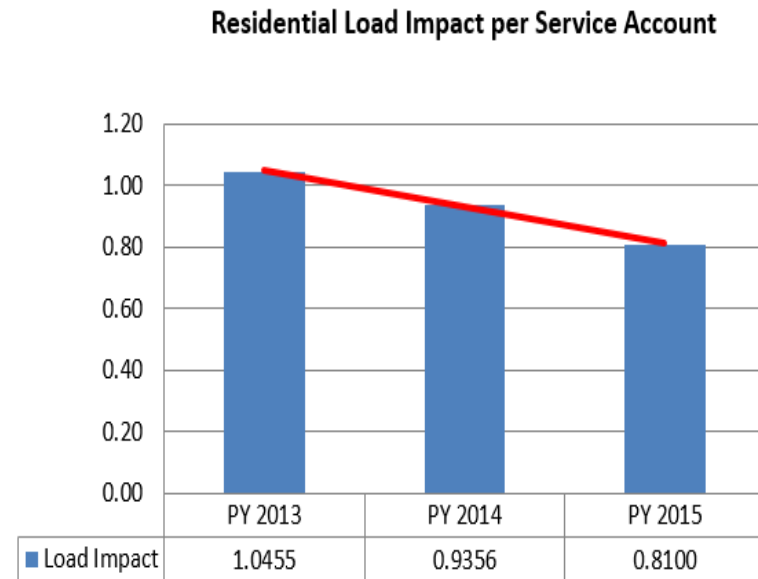
	Avg First Hour Load Reduction, kW/SA
Overall Average Load Reduction	-0.80
Customers still enrolled	-0.77
De-enrolling Customers	-1.35

9/09/2015 Event

	Avg First Hour Load Reduction, kW/SA
Overall Average Load Reduction	-0.95
Customers still enrolled	-0.92
De-enrolling Customers	-1.61

Overall program LI per SA is reduced by 23%

- As a result of losing high performing customers, SDP Residential Load Impact (LI) (kW per Service Account) has been decreasing every year



Program Year (PY) September ex Ante, 1 in 2, average customer load impact

Other Market Integration Challenges

Remapping of existing service accounts to new SLAPs effective 1/1/17 was largely a manual process

Total 36,219 accounts affected (12.3% of enrollments)

- SCE managed programs – 35,271
- Aggregator managed programs (including CBP) - 627
- Rule 24/DRAM - 321

Rule 24 Challenges for 2016 DRAM Sellers

- 2016 DRAM Pilot (July – Dec) was first to test out Rule 24
- Green Button Connect cumbersome process
 - Majority of customers are residential
 - Minimum 13 pages, 7 input fields, 20 clicks
- Non-residential Sellers preferred CISR-DRP process
 - Backlog during peak enrollment periods
 - High CISR rejection rate (historically ~50%)
- D. 16-06-008 required development of Click-Through process
 - SCE filed the AL 1/3/17 and received a few protests.
 - The AL and reply to protest stated that SCE would support most click-through features requested by the DRPs
 - Expecting a draft Resolution on the Click-Through AL
 - SCE expects to implement Click-Through in 4th Quarter 2017
- SCE currently supports approximately 7,400 service accounts under Rule 24
 - This is a significant increase from the approximately 4,200 at the end of the year
 - Still far below the 42,000 registration cap and 100,000 cap proposed in Feb. 7th AL

Rule 24 Challenges and Successes

Challenges:

- Defense process in DRRS is cumbersome
 - DRPs cannot defend beyond the LSE/UDC review step in an automated manner
 - If there is a problem with the defense, the DRP must re-submit, which creates a lot of manual work for the DRP and SCE
- SCE has noticed that there is some miscommunication between DRPs and customers surrounding their eligibility for SCE programs if enrolled in a DRP program
- SCE is unable to process large numbers of locations in DRRS

Successes:

- Rule 24 processes are generally becoming more streamlined and faster
 - SCE implemented flags in its system to alert if data reports are missing: don't have to wait for DRP to alert SCE
 - SCE was not receiving de-enrollment info from DRPs if customer de-enrolled from their program. Issue is mostly resolved w/DRRS implementation
 - Validating registrations takes very little time now that it is machine to machine with DRRS
 - Streamlined defense process in DRRS makes process easier for both SCE and DRPs, and resulted in location defenses completed within 10 days