



Leveraging the Value of DISTRIBUTED ENERGY RESOURCES



More Than Smart

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EXPERIENCE AND APPROACH

DER PROVIDER PERSPECTIVES / DISCUSSION

Pre-Olivine

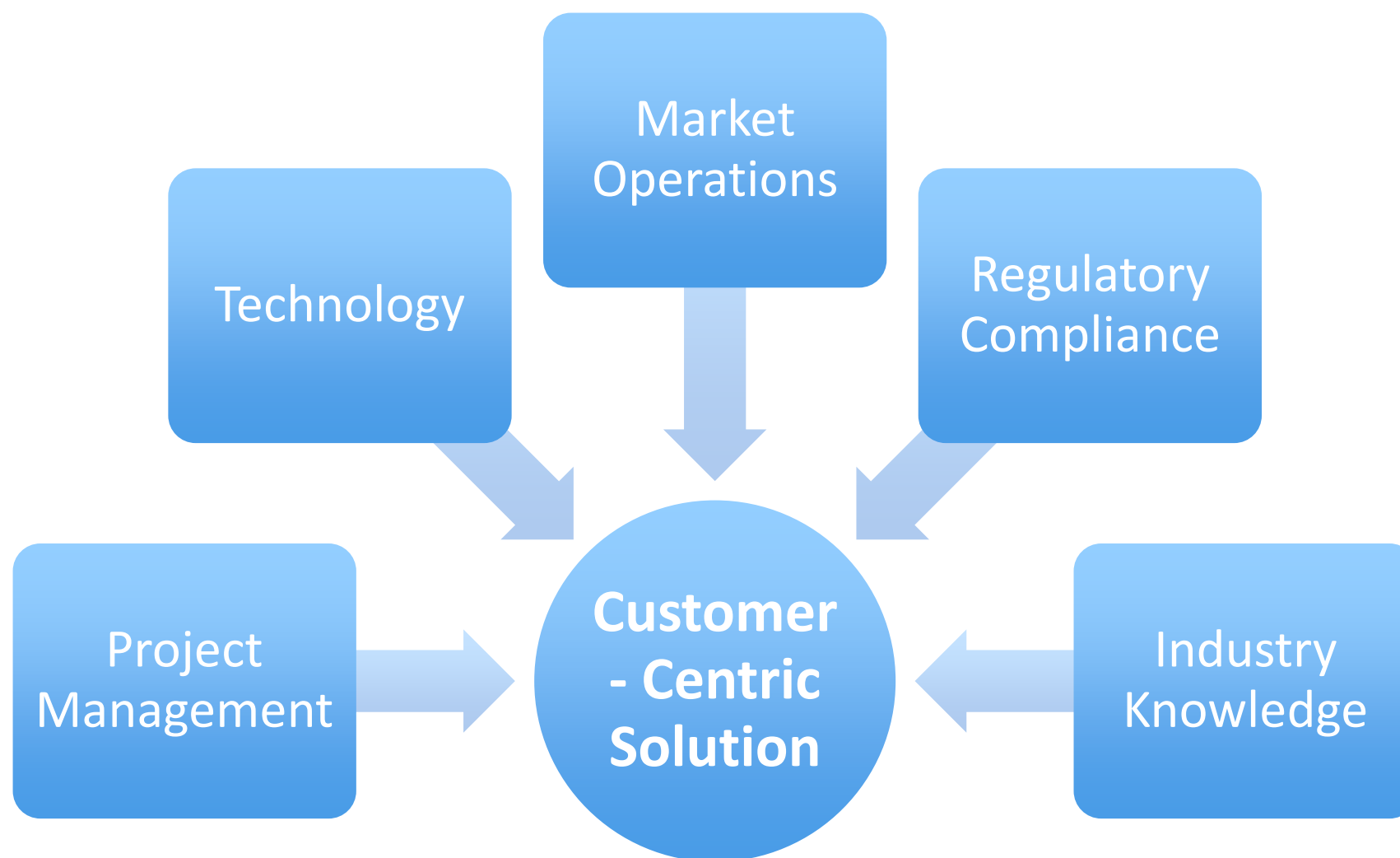
- First SaaS applications for utility customers (40% IOUs in NA)
- Managed CA Demand Reserves Partnership (Designed CBP)
- Delivered PL Pilots (SDG&E)

2010-2015

- CAISO PDR Stakeholder Process
- First demand-side resources certified in CA
- SDG^E DRWMP / OPRA
- IRM2, SSP/XSP
- Began continuous bidding PDR

2016-2017

- Olivine DER Coalition
- DRAM
- Exelon Utilities
- Continuous bidding RDRR & RA
- DER Single Program Administration



The Olivine team is a lead by a dynamic team of professionals with years of experience in energy markets, utility operations, program management, and software platform design, strategy, and development.

PROGRAM DESIGN AND IMPLEMENTATION

OLIVINE DER

- Software as a Service for DER Program and Resource Implementation
- Multi-tenant and multi-instance
- Supports utility, aggregator, customer use
- White label functionality

PROGRAM ADMINISTRATION AND OPERATIONS

- Full enrollment and participation operational support
- Integration of retail capacity programs with wholesale market
- Multiple program capabilities under a single login (e.g., SSP, XSP, and CBP can all interact together)
- Participant support services (e.g., help desk and priority phone support)

MARKET SCHEDULING COORDINATOR AND DRP SERVICES

Wholesale Market Bids

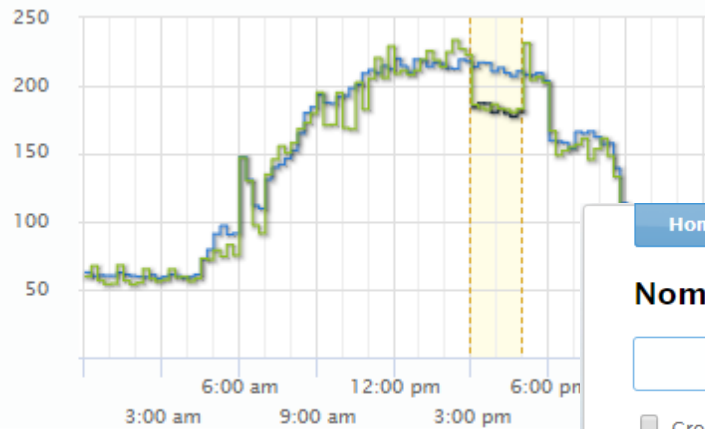
Options

Resource Id: SCEC_I_PDRP01
 Description: Power of US PDR
 Organization: Olivine
 Market Date: 4/23/2014
 Quantity and Price Units: kW and cents

Submit Revert Changes Help

Time	Day-Ahead		Real-Time	
	Energy	Price	Energy	Price
11:00 AM				
12:00 PM			100	11.200¢
01:00 PM			50	8.700¢
02:00 PM			90	11.830¢
03:00 PM				
04:00 PM				

Aggregate Performance Data



Time	Baseline	Expected Reduction	Target	Load	Reduction
02:45 pm	219.32			227.24	-7.92
03:00 pm	217.99			222.84	-4.85
03:15 pm	214.04	30.00	184.04	186.08	27.96

Nomination Manager: Capacity Bidding Program (CBP)

Month: June 2017 LSE: Southwest Power & Light

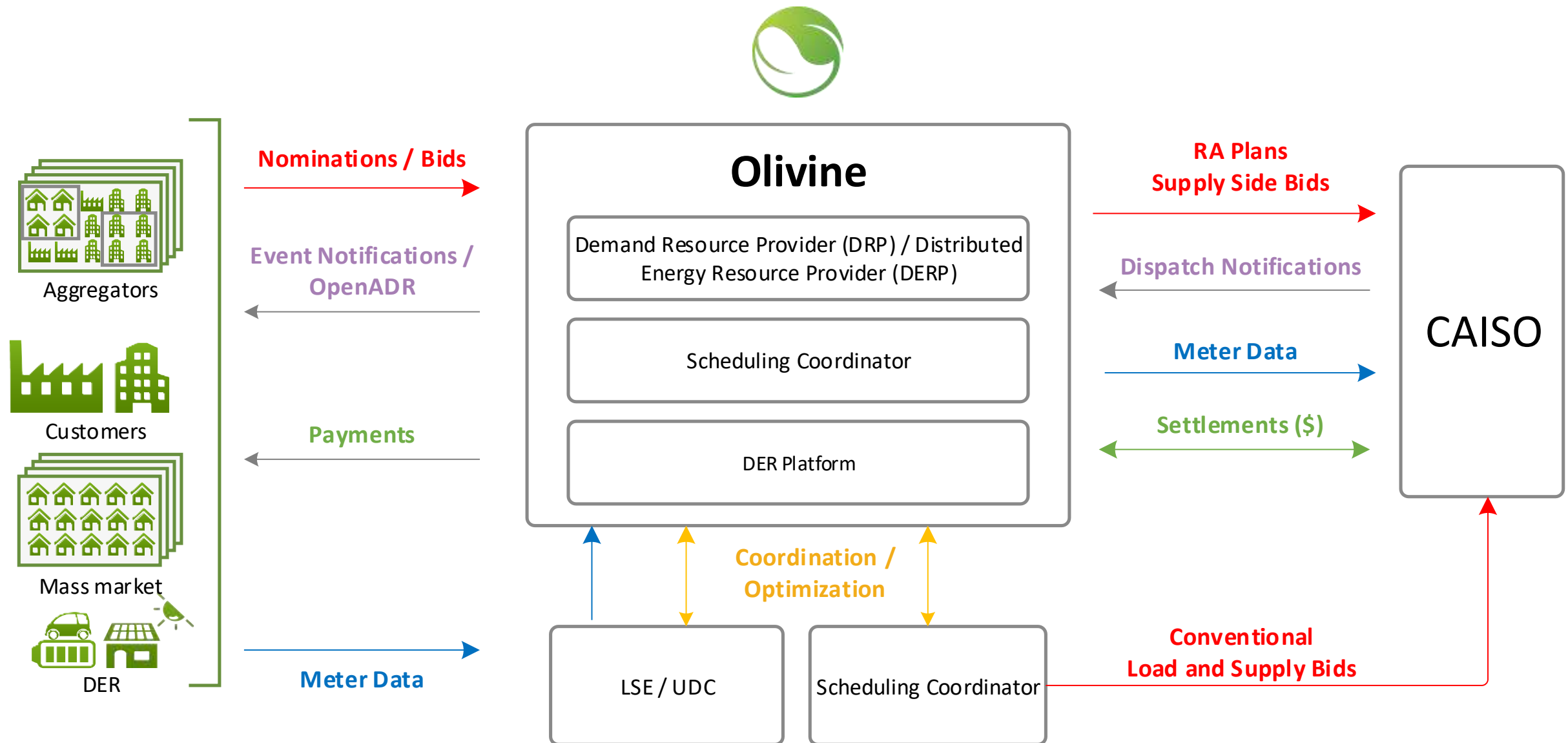
Group grid rows by Product Enter nominations for each account

Acct Num	Description	Max. (kW)	1-4 hours	2-6 hours
1897646	Lewis Industries	230		
2341984	A.F.R., 264 Broadway Ave.	200		✓
3184638	Rewind Data Recovery Services	35		✓
3446485	City of Asheville, Dept. 0298	120	✓	
3479622	Artisan Bakeries	45	✓	
4316486	MicroGrids, Inc.	95		
4698464	Permanent Solutions	60		
4859646	Crest Valley Industries	245		
5646168	El Pollo Grande	60		
		Count:	2	3
		Max. (kW):	165	310
		Nomin. (kW):	100	250

Refresh Export

Count: 22

PROGRAM ADMINISTRATION





DER PROVIDER PERSPECTIVE, CHALLENGES

Behind the meter needs attention

Modelling challenges

LSE / DLA issues

PRIMARY REASONS

- Multiple use with retail “bill management” requires it
- Lower cost and shorter timelines

NEED AN EXPORT SOLUTION (REGULATORY AND POLICY)

- Step 1: decouple load reduction from onsite generation (e.g., solar)
- Step 2: allow BTM export (perhaps requiring MGO)
- May requires WDAT Interconnection

NEED BI-DIRECTIONAL (RU/RD)

- DDR might have been a solution to BTM RU/RD
- Metering and telemetry solutions have been proposed since 2014/2015
- Perhaps need a “wholesale/retail rates” settlement

SHIFTING (OVER-GENERATION)

- Need retail rates solution to incentivize (not penalize)
- Wholesale market product (RT energy income insufficient)
- PG&E XSP has already shown challenge with rates (primarily demand charge)

REALITIES

- DERs are constrained within Sub-LAPs
- Full Network Modelling (FNM) takes ~210 days
- Changes require new modelling

SUB-LAPS CHANGE

- Customers “move” Sub-LAPs with seasonal distribution grid reconfiguration
- Not theoretical, we see it happen
- Can “break up” resources, invalidate them, leave DERs stranded
- Creates RA liability to resource owner (issue for PDR/RDRR today)
- CAISO has the Sub-LAP requirement, IOUs can change them

DER SITES ADD AND DROP

- New FNM process for every change?
- Some CAISO DERs (NGRs) would always be in FNM update, with resource capability lagging behind changes in makeup.

SOLUTIONS

REALITIES

SUB-LAPS CHANGE

DER SITES ADD AND DROP

SOLUTIONS

- Multiple resources on “stand by” with advance IOU notice (and RA flexibility)?
- Remove Sub-LAP requirement!
- Allow disparity in FNM? (i.e., ignore)
- Parallel (rapid?) CAISO FNM updates to minimize disparity?
- New FNM process for every change?
- Some CAISO DERs (NGRs) would always be in FNM update, with resource capability lagging behind changes in makeup.

REALITIES

- Behind-the-meter requires customer registration by LSE
- Default Load Adjustment is calculated by LSEs

LSE CHANGES (CCAS)

- Large number of customers defaulting in as new CCAs come on board
- Like Sub-LAPs:
 - Can “break up” resources, invalidate them, leave DERs stranded
 - Creates RA liability to resource owner (issue for PDR/RDRR today)

SOLUTIONS

- With CAISO DRS retirement, allow providers to submit SQMD per LSE
- Eliminate the Default Load Adjustment!
- For completeness only: bar customers from switching LSEs if in market



CONTACT

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