



ESDER – Load Shift follow up

Stakeholder Workshop – January 16, 2018

Load Shift: Scoping

Early 2016: Need recognized. Front-of-meter NGR can help but BTM can't

2016: ESDER Phase 2 Load Consumption Working Group (LCWG) – Stalled

July 2017: CAISO Board directs staff to consider again **with more urgency**

Aug-Sep 2017: Small group works with Staff to scope for ESDER 3 **with ideal launch in Spring 2019**

Nov 2017: ESDER 3 Scoping Workshop – 2 major issues: **Other loads, Complex Implementation**

Overarching Principle: ESDER 3 creates a Minimum Viable Product for BTM resources to address renewables curtailment / overgeneration

Implication: Scope includes minimum necessary design to allow resources to participate - Complicating factors are moved to next iteration in conjunction with the CPUC Load Shift Working Group

This is 1.0

Don't Boil the Ocean

Don't Let the Perfect be the Enemy of the Good

Directly Metered Shift Resources

Stadium Lights Problem

- Useless load increase is the same or worse than renewables curtailment

Define a Shift Resource

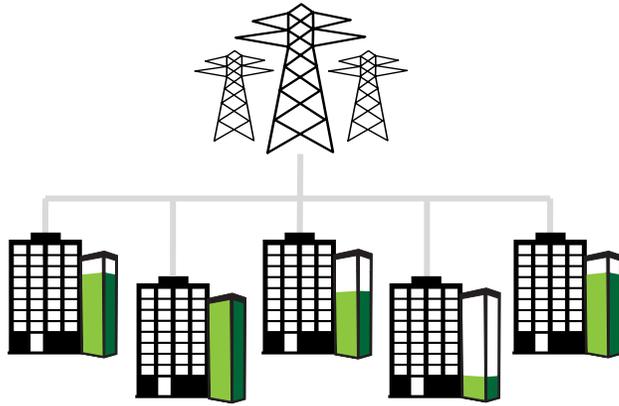
- Any resource that can prove it's providing a shift function
- Shift Function: *An increase in demand on the grid that can be shown will **definitely decrease a comparable amount** of demand from that customer at a later time*
- Important that it's **not** *“may decrease”*
- *“comparable amount”* allows for efficiency losses

Non-Shift Resources may need retail rate adjustment

- Negative price sufficiency problem
- Assuming Shift Resource pays full retail is *much* simpler

Non-shift or indirectly metered resources go against the overarching principle

Working Concept for Scoping: Shift-PDR



Register as a sub-type of PDR:

- Add Shift attributes to PDR reg info: shift type, nameplate demand increase capacity

Metering: Direct meter at each site in resource

Bidding: Negative bid for demand increase

- Never put in positive and negative bid in same interval
- No bid curve – no transitions within interval

Settlement:

- **MGO Baseline:** does not apply to demand increase
- **Net Benefits Test:** Does not apply to demand increase
- **Default Load Adjustment:** Does not apply for now

Impacts to IOUs and CPUC

	Working Concept	Non-shift Loads	Indirect Metering
Registration	Small adds to PDR at CAISO	Depends on retail adjustments	Need to involve IOUs and CPUC
Direct Metering	Don't need to involve retail meter	Direct necessary for simplicity	X
Bidding	Pricing assumes paying full retail rate – No impacts	Big potential barrier	Flipped DR baselines – pricing may be non-viable
Dispatch / DRP	No impact to IOU – subject to GIA	??	X
CAISO – DRP Settlement	Does not require IOU involvement	Does not require IOU involvement	Requires IOU meter data
CAISO – Utility Settlement	No changes – no DLA	?? – added complications?	n/a

BACKUP SLIDES

Evolution of Thinking (stage 1)

“Demand” to “Shift”

- Retail rate impact is a problem for Demand resources
- Do not want to incentivize wasteful load increase
- Move concept from PDR to NGR

Need to modify NGR (why doesn't NGR work for BTM?)

- 24x7 Settlement – [scoped in to ESDER Phase 3](#)
- Wholesale treatment of charging – [ok if non-exporting](#)
- WDAT interconnection / CAISO New Resource Imp – [ok if non-exporting?](#)
- DERP not eligible for RA – [not a big problem?](#)
- [Non-exporting NGR could work. All charging pays retail. No impacts on retail bill](#)

Evolution of Thinking (stage 2)

Metering

- Typical Use (PDR has MGO Baseline)
- NGR 24x7 issue resolution may adopt something similar?

Continuity

- Resources allowed to participate in existing PDR markets (e.g. DRAM)
- Registrations work with existing programs and contracts (e.g. all still reference PDR)

Bid and Dispatch from Charge to Discharge

- NGR allows seamless movement with bid curve
- Load shift doesn't need this and BTM may not want it

Minimum Size

- NGR is 500 KW, PDR is 100 KW
- May be more significant for EV or residential aggregations

Above argues for PDR-subtype, only shift resources, rather than modified NGR

Open Questions

Qualifying as "shift resource"

- Thermal "shift"; Electric vehicles; Beneficial uses

Net Benefits Test

- Threshold Question: Since customer is paying for energy on retail bill, is NBT necessary?
- Same NBT math can apply in reverse; but discharge could offset net cost?

Default Load Adjustment

Tariff Changes: which would be easier to change NGR or PDR?

MGO Baseline

- Threshold Question: No double compensation risk, so is Baseline needed?
- Current MGO Baseline doesn't account for charging; treats as zero