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

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