



## **PDR Working Group Compensation Issues**

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# Introduction

- “Missing Money” or “Double Payment”
  - Problem: If ISO pays for both unobstructed deviation (LSE) and demand reduction (CSP), the ISO is paying twice for the same MWs
  - Solutions in Eastern markets
- PDR solves “missing money” problem but creates the need for a settlement between LSEs and CSPs
- Potential solutions to PDR settlement issue
  - PDR Settlement Proposal – As Is
  - PDR “Hybrid Settlement” Proposal
  - Net Economic Benefit Approach
  - Modifications to Net Economic Benefit Approach

# “Missing Money” or “Double Payment” Problem (PJM, ISO-NE, NYISO)

## LSE

- LSE submits a load bid for 100 MWs in DAM
- LSE’s metered load in RT is 80 MW
- LSE purchased 100 MWs, RT load is 80 MWs
- 20 MWs uninstructed deviation
- RTM clears at \$200/MW

## ISO

- ISO pays LSE for 20 MWs at \$200/MW
- ISO pays LSE \$4000 (uninstructed deviation)

## CSP

- CSP submits a demand reduction bid for 20 MWs in DAM at \$150/MW
- DAM clears at \$200/MW
- Therefore, CSP bid is accepted

## ISO

- ISO pays CSP for 20 MWs at \$200/MW
- ISO pays CSP \$4000 (demand reduction)

# “Missing Money” or “Double Payment” Solutions

## Solutions:

- Uplift: To the extent that the demand response was economic (offsetting higher cost resources), then the LMP is less than it otherwise would have been and “benefitting” customers pay.
  - A System Benefit (ISO-NE)
  - A Local Benefit (NYISO)
- Net Economic Benefit: LSE lost the retail revenues associated with the demand response; therefore, the LSE receives the equivalent of the wholesale generation costs in retail rates (“G”) and the CSP receives LMP minus “G”

# PDR Example

## LSE

- Schedules 100 MWs to meet customer demand in day-ahead market
- ISO adjusts LSE's DA schedule by CSP cleared demand reduction bid (20 MWs)
- LSE net DA load bid is 80 MWs
- Metered load is 80 MWs in real-time
- No unobstructed deviation
- No additional settlement with ISO

## CSP

- Submits bid in DAM for 20 MWs of demand reduction
- DAM clears at \$200/MW
- CSP is paid \$4000 by ISO
- Real-time demand response reduction is 20 MWs
- No unobstructed deviation
- No additional settlement with ISO

# PDR Solves “Missing Money” Problem but Creates Settlement Issue

## Settlement Issue:

- LSE schedules 100 MWs in DA for expected customer demand
- ISO adjusts LSE’s DA schedule to reflect cleared demand reduction bid from CSP
- LSE expects remuneration for 20 MWs of scheduled load for which no retail revenues will be received from either the customer or the CSP
- Without consistent agreement regarding reasonable compensation for LSE, CSPs would have to negotiate a separate settlement with each LSE prior to offering DR services
- Direct participation of CSPs in CAISO markets could be rendered uneconomic if LSEs wished to discourage such demand response participation

# Potential Solutions to PDR Settlement Issue

- PDR Settlement Proposal – As Is
  - Compensation is whatever CSPs and LSEs negotiate, assuming they can reach agreement
- PDR “Hybrid Settlement” Proposal
  - CSP is paid difference between Default-LAP price and Custom-LAP price
  - LSE is paid Day-Ahead Default-LAP price for cleared Day-Ahead PDR bids
- Net Economic Benefit Approach
  - CSP is paid difference between relevant LMP and generation portion of retail rates
- Modifications to Net Economic Benefit Approach
  - CSPs and LSEs settle outside CAISO settlement process but on standardized contract basis with known compensation to LSE

# PDR Settlement Proposal – As Is

- Settlement between CSP and LSE based on negotiated bilateral contracts between CSP and each LSE
- Advantages:
  - Simplifies CAISO settlement process
- Disadvantages:
  - No visibility into the appropriate settlement price
  - Requires separate, potentially dissimilar contracts with each LSE
  - Results in lack of conformity
  - Burdensome administrative process for CSPs
  - May be untenable for CSPs who are not LSEs

# PDR “Hybrid Settlement” Proposal

- CAISO settles with both the CSP and the LSE based on an agreed to price and/or method
  - Pay CSP difference between Default-LAP price and Custom-LAP price
  - Pay LSE Day-Ahead Default-LAP price for cleared Day-Ahead PDR bids
- Advantages:
  - Formalized settlement process increases transparency into the settlement
  - May encourage more participation by CSPs
- Disadvantages:
  - Burdensome administrative process for CAISO
  - Compensation methodology may not be appropriate

# Net Economic Benefit Approach (PJM/MSM)

- Like the “Hybrid Settlement” proposal, ISO settles with both the CSP and the LSE based on an agreed to price and/or method.
  - CSP receives LMP minus “G.” Total payment to both LSE and CSP is LMP.
- Advantages:
  - Formalized settlement process increases transparency into the settlement
  - Eliminates need for CSP to negotiate compensation with each LSE
  - May encourage more participation by CSPs
- Disadvantages:
  - CAISO settles with both CSP and LSE
  - Burdensome administrative process for ISO
  - Difficulty with ESP retail rate not visible
- PJM Approach
  - Bids above a trigger price receive full LMP
  - Bids below a trigger price receive LMP-Retail Rate
  - DR is only dispatched when Economic (not Emergency DR)
    - Bid Clears DAM or RTM
    - CSP is paid the Net Benefit – the difference between market clearing price and retail rate
    - LSE is paid what they would have otherwise received – retail rate

## Modifications to Net Economic Benefit Approach

- Maintain existing framework of PDR where CSPs and LSEs settle outside CAISO settlement process, but on a standardized contract basis with known compensation to the LSE.
- DA customers have a contractual commitment to the ESPs. Some customers have an obligation to pay the ESP for energy scheduled on the customer's behalf. Therefore, the ESP would receive payment for difference between scheduled and metered energy from DA customer.
  - CSPs would have to work with DA customers for equivalent value proposition relative to bundled service customers
- IOUs do not currently have tariff language to recover lost “G” revenues from DR customers who participate through ARCs. The design of such language would have to work through issues such as who pays (all or participants).
- CSPs could compensate IOUs for “G” component. Would require a contract between IOUs and CSPs.

# Modifications to Net Economic Benefit Approach (Continued)

- Advantages:
  - CAISO settles directly with CSP
  - Transparent standardized compensation mechanism approved by FERC/CPUC
  - Eliminates need to negotiate compensation with each LSE
  - Actual settlement outside CAISO process so no programming changes
  - No need for CAISO to know retail rates
- Disadvantages
  - May need separate mechanism for IOUs and ESPs

# Where do we go from here...

- Discussion by PDR Working Group



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