Potential impact of MOPR order on DR resources

DRS
3/9/2020
• Overview of MOPR order impact to DR
• Subsidies
• MOPR existing resource
• MOPR price structure
• DR process and MOPR order

This is a work in progress which will evolve for PJM compliance filing
• Assume all approaches discussed at DRS must comply with FERC order (whether you agree with the order or not)

• MOPR order impact
  – If resource receives “subsidy” then MOPR is applied
  – Resource that do not receive a “subsidy” may still need to change existing offer process to facilitate the calculation of MOPR prices for other resources
  – DR resources used as part of FRR plan are exempt

This is a work in progress and specifics may change for compliance filing
This process determines the Daily Deficiency charges (penalty)
MOPR Decision Tree for DR/EE

- **State-Subsidized Resource?**
  - NO: No MOPR
  - YES: Owned by Self-Supply Entity?
    - NO: Qualifies for DR/EE Exemption?
      - NO: Elects Competitive Exemption?
        - NO: Cleared in Prior Auction?
          - NO: MOPR at New Price
          - YES: MOPR at Existing Price
        - YES: No MOPR
      - YES: No MOPR
    - YES: Qualifies for DR/EE or Self-Supply Exemption?
      - NO: No MOPR
      - YES: Cleared in Prior Auction?
        - NO: MOPR at New Price
        - YES: MOPR at Existing Price
  - NO: No MOPR
  - YES: MOPR at New Price

Cleared = DR Pre-Registered
A direct or indirect payment, concession, rebate, subsidy, non-bypassable consumer charge, or other financial benefit that is (1) a result of any action, mandated process, or sponsored process of a state government, a political subdivision or agency of a state, or an electric cooperative formed pursuant to state law, and that (2) is derived from or connected to the procurement of (a) electricity or electric generation capacity sold at wholesale in interstate commerce, or (b) an attribute of the generation process for electricity or electric generation capacity sold at wholesale in interstate commerce, or (3) will support the construction, development, or operation of a new or existing capacity resource, or (4) could have the effect of allowing a resource to clear in any PJM capacity auction.
• No later than X days prior to the auction, the owner of any resource must identify in Capacity Exchange if it is eligible or ineligible to receive a state-subsidy for the relevant delivery year.
• By this same deadline, the owner of a State-Subsidized Resource may certify in Capacity Exchange that it will forgo the state-subsidy for the relevant delivery year (i.e., competitive exemption)
• The identification of a resource as a state-subsidized resource will carry across delivery years.
• An existing resource that is not eligible for a state-subsidy at the time of the certification process that subsequently elects to accept a state-subsidy for any part of the relevant delivery year will forgo capacity market revenues for that delivery year (subject to retroactive unit exception review)
Existing Process - Resource => Registration => Location

**Resource** (Zone, RPM/FRR commitment = 3 MW)
- Joe CSP, PSEG zone, 3 MW ICap

**Registration** (Term, Capacity nomination = 4.5 MW)
- Acme, Elizabeth, 3 MW ICap
- Acme, 0.5 MW
- School 51, 1 MW

**Location** (EDC acct, physical address, DR capability = 6 MW)
- Acme, Elizabeth1, 3MW capability
- Acme, Elizabeth2, 1 MW capability
- Acme, Roselle, 1MW
- Acme, Roselle, 1MW
- School 51, 1MW
- School 51, 1MW

DR capability – can be used to prorate nomination

- GenDR – Diesel 2 MW
- LoadDR – HVAC 1 MW
Current DR Existing vs Planned process

- CSP submits DR plan for “new” and “existing” resources
  - Existing resources criteria (currently registered and expect to be registered for future DY):
    - BRA (may) – Newer CSP (greater of DY and DY+1 MW)
    - 1rst IA (sep) – current DY CSP (greater of DY and DY-1 MW)
    - 2nd IA (jul) – current DY CSP (greater of DY and DY-1 MW)
    - 3rd IA (feb) – Newer CSP (newer of DY and DY+1 MW)
  - Planned/New resource – Load reduction capability currently not registered
- CSP offers DR MWs into auction for typically 1 resource for each zone/LDA
  - When we had multiple products, a resource was created for each product
    - CSP would have multiple resources per zone
Key MOPR order “existing” parameters – PJM believes we can maintain current DR “existing” process for MOPR

- **(Existing_Exempt)** Existing Resource qualified for exemption
  - PJM plans to define as all any location* that was registered for at least 1 DY:
    - 14/15 DY through 19/20 DY, or
    - 20/21 to support MWs cleared in BRA/1rstIA/2ndIA, or
    - 21/22 to support MWs cleared in BRA/1rstIA
      - PJM may need to develop an interim process to allow CSPs to register for 21/22 early

*PJM will track by EDC account number, CSP to report any EDC account number changes. Mass market utility programs expected to be based on number of locations since they are registered in aggregate.

- **(New)** New customers are treated similar to Generator uprate/repower
  - Customers Pre-Registered for first time in 22/23 or later DY

- **(Existing)** Existing Resources not qualified for exemption
  - New customers that are Pre-Registered in subsequent DY and is linked to a resource that cleared the auction.

- PJM will make Location status (Existing_Exempt, New, Existing) transparent to CSP for Pre-Registration process

“Existing” for exemption is different from “Existing” for future MOPR price
Competitive Exemption

- Competitive exemption allows a resource/location that receives a subsidy to forgo the subsidy and therefore not be subject to MOPR
- Track by Location during Pre-Registration process & compare to status during registration to support cleared Resource
  - If location elects Competitive exemption (forgo subsidy) OR indicates that location is NOT eligible for subsidy and then subsequently receives a subsidy then:
    - Existing location is not allowed to receive capacity revenue for entire DY
      - Unless it could demonstrate under the Unit-Specific Exemption that it would have cleared in the relevant auction
    - New location is banned from market for default asset life (“20 years”)
• Pre-Registered: Location A, New – No subsidy – clears in DY1
• Registered: Location A – Subsidy – DY1, Banned for 20 years, forfeit revenue
• Pre-Registered: Location B, New – Subsidy w Competitive Exemption – clears DY1
• Registered: Location B – Subsidy – DY1, Banned for 20 years, forfeit revenue
  – Same alternative outcomes as above

Same logic for Existing except not banned for 20 years
PJM expects to file language that will allow flexibility to justify only the cost associated with wholesale capacity market participation.

- We may still pursue new offset “benefit” categories (e.g.: avoided retail cost) but need to be careful with how this coordinates with focus on wholesale capacity market only cost.

For example – if CSP can justify that unit does not have any additional cost to participate in the wholesale market (built and maintained for reliability) then MOPR price = $0
• Work in progress
  – Potentially use weighted average for two different resources
    • For example – Wind and DR
### MOPR price structure

#### GenDR
- Diesel
- Gas
- Etc.

#### LoadDR
- 3 year average offer prices

We do not have GenDR and LoadDR offers, registrations or capacity nominations today.
GenDR breakdown (19/20 registrations) based on CSP reported capability
GenDR breakdown (19/20 registrations) based on CSP reported capability

### Count of LOCATION_ID

<table>
<thead>
<tr>
<th>Column Labels</th>
<th>Diesel</th>
<th>Gasoline</th>
<th>Natural Gas</th>
<th>None</th>
<th>Oil</th>
<th>Propane</th>
<th>Waste Products</th>
<th>#N/A</th>
<th>Grand Total</th>
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<tr>
<td>Combustion Turbines</td>
<td>11</td>
<td>6</td>
<td>19</td>
<td></td>
<td>5</td>
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<td>Internal Combustion Engine</td>
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<td>1</td>
<td>339</td>
<td>1</td>
<td>9</td>
<td>4</td>
<td></td>
<td>1,976</td>
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<td>Steam Engines and Cogeneration Units</td>
<td>4</td>
<td>38</td>
<td>2</td>
<td></td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td>51</td>
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<td>#N/A</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Grand Total</td>
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<td>7</td>
<td>396</td>
<td>2</td>
<td>1</td>
<td>9</td>
<td></td>
<td>16</td>
<td>2,116</td>
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</table>

**2,033 units are Gas or Diesel engines**

### Sum of MAX_OUTPUT KW

<table>
<thead>
<tr>
<th>Column Labels</th>
<th>Diesel</th>
<th>Gasoline</th>
<th>Natural Gas</th>
<th>None</th>
<th>Oil</th>
<th>Propane</th>
<th>Waste Products</th>
<th>#N/A</th>
<th>Grand Total</th>
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<tbody>
<tr>
<td>Combustion Turbines</td>
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<td>36,895</td>
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<td>Internal Combustion Engine</td>
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<td>1,728,875</td>
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<tr>
<td>Steam Engines and Cogeneration Units</td>
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<td>Grand Total</td>
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<td>35</td>
<td>302</td>
<td>28,695</td>
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<td>1,923,687</td>
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Priorities:  
1) RICE – Diesel,  
2) RICE – Gas,  
3) CT – Gas,  
4) Cogen/Steam - Gas
DR MOPR prices

- **GenDR**
  - New (netCONE)
    - RICE
  - Existing_NonExempt (netACR)
    - RICE
  - Other will go through unit specific exemption process

- **LoadDR**
  - New – weighted average offer from last 3 BRAs by LDA.
    - PJM to use Load DR amount from Pre-registrations tied to offers for calculation.
  - Existing_NonExempt – PJM expect to file $0 which is consistent with our original filing
GenDR vs LoadDR – CSP to allocate on registration

- PJM to provide registration default allocation based on CSP reported GenDR vs LoadDR location load reduction method %.
- CSP can adjust default allocation to improve accuracy, as needed
- Allocation will be used for MOPR amount and LoadDR MOPR price calculation
### DR offers and impact of MOPR prices

<table>
<thead>
<tr>
<th>Class</th>
<th>Subsidy</th>
<th>Type</th>
<th>Existing_Exempt</th>
<th>Existing_Nonexempt</th>
<th>New</th>
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<tbody>
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<td>LoadDR</td>
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<td>–</td>
<td>–</td>
<td>$0</td>
<td>3yr Avg</td>
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<tr>
<td>LoadDR</td>
<td>No</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
<td>GenDR</td>
<td>yes</td>
<td>gas</td>
<td>–</td>
<td>net ACR</td>
<td>net CONE</td>
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<tr>
<td></td>
<td></td>
<td>diesel</td>
<td>–</td>
<td>net ACR</td>
<td>net CONE</td>
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<tr>
<td></td>
<td></td>
<td>etc…</td>
<td>–</td>
<td>net ACR</td>
<td>net CONE</td>
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<tr>
<td>GenDR</td>
<td>no</td>
<td>gas</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
<td></td>
<td></td>
<td>diesel</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
<td></td>
<td></td>
<td>etc…</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Expect CSPs to offer individual resource for all categories that do not receive MOPR but separate resources when MOPR is applicable.