Demand Response

Load Impact Protocols (LIP)
Why?

• To make a determination on the value of DR for Qualifying Capacity (QC) using the Load Impact Protocols (LIPs)
  – Guidelines* to estimate aggregate load drop (impacts) of DR programs
  – 27 Protocols
  – Ex-post (historical) performance informs ex-ante (forecast)

*Adopted in D. 08-04-050
What?

• For QC, what is the resource’s performance:
  – Under 1-in-2 weather year condition
  – On monthly system peak day
  – At portfolio-level (What happens under simultaneous dispatch?)
  – Between 4-9 PM
  – Using the counterfactual (what would have been)
  – At the premise-level
How?

• Regression analysis
  – Relies on historical information about customer loads
  – Create a model to describe or draw out the relationship between dependent variable (energy use) and independent variables (temperature, when event is triggered, etc.)
How? (con’t)

• Example

\[ E_i = a + bT_i + c(T_i)(D_i) + e, \] where

- \( E_i \) = energy use in hour \( i \)
- \( a \) = constant term
- \( b \) = the change in load given a change
- \( T_i \) = the temperature in hour \( i \)
- \( c \) = change in load given change in temperature when event is called
- \( D_i \) = resource variable (= 1 when event is in hour 1; otherwise = 0)
- \( e \) = regression error term
How? (con’t)

• Impact estimates are reported between a range of percentiles:
• The probability distribution reflects the uncertainty associated with the estimates for the adjusted load impacts
  – If the 10\textsuperscript{th} percentile, the adjusted impact is 100 MWs, which means there is 90% probability that the impact is ≤ 100 MWs.
How? (con’t)

• Factors used to Rate MWs
  – Number of enrolled customers
  – Assumptions of statistical method
  – Change in rates
  – Drop-out rates
  – Deployment schedule
# When?

## Final Schedule for Obtaining QC for DR Resources Through LIPs for 2021 RA Year (excluding the preceding Draft Evaluation Plan process)

<table>
<thead>
<tr>
<th>Action</th>
<th>IOUs</th>
<th>DRPs and LCR Contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft LIP Report due</td>
<td>March 18, 2020</td>
<td>May 1, 2020</td>
</tr>
<tr>
<td>Stakeholders, parties, and DRMEC comment on Draft Report</td>
<td>March 25, 2020</td>
<td>May 15, 2020</td>
</tr>
<tr>
<td>Final LIP Report due (including responses to comments)</td>
<td>April 1, 2020</td>
<td>May 29, 2020</td>
</tr>
<tr>
<td>LIP Report Workshop</td>
<td>May 1, 2020</td>
<td>June 5, 2020</td>
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<tr>
<td>Energy Division (ED) DR Section submits eligible DR capacity to RA Section</td>
<td>June 22, 2020</td>
<td>August 17, 2020</td>
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<tr>
<td>IOUs Only: ED RA Section finalizes and posts final QC values on RA website</td>
<td>July 1, 2020</td>
<td></td>
</tr>
<tr>
<td>Initial RA requirements assigned to LSEs</td>
<td>July 2020</td>
<td>July 2020</td>
</tr>
<tr>
<td>Non-IOUs Only: ED RA Section finalizes QC values</td>
<td></td>
<td>September 1, 2020</td>
</tr>
<tr>
<td>Final RA requirements assigned to LSEs</td>
<td>September 2020</td>
<td>September 2020</td>
</tr>
<tr>
<td>DRPs Only: DRPs submit capacity buyers and associated MWs to ED RA + DR Sections</td>
<td>October 15, 2020</td>
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<tr>
<td>LSEs submit RA Year-Ahead compliance filing to ED RA Section</td>
<td>October 31, 2020</td>
<td>October 30, 2020</td>
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</tbody>
</table>
Thank you.

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