Con Edison Tariff Changes That Impact Combined Heat and Power Projects

Health Engineering Society of Greater New York

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Objectives

- Understanding standby charges
- Latest changes to Con Edison tariff related to CHP and Distributed Energy Resources (DER)
- Reliability Credit
- Standard Versus Standby Rates
Standby Service is defined in the Con Edison tariff as, “...the delivery of power and energy that is used: ... to replace and/or supplement the power and energy ordinarily generated by means of a private generating facility on a Customer’s premises ...”

Source: Con Edison Tariff No.10, Leaf 152, General Rule 20, Section 20.1
Billing mechanism that recovers the utility’s investment in infrastructure that is seldom used by the customer.

The Contract Demand charge accomplishes this. It applies to the customer’s maximum peak demand for the entire facility including all distributed generating sources.

Standby charges reduced the economic savings and increase the of ROI of CHP and other distributed resource projects.
Overall population of DERs, especially CHP, is a minor part of overall electric load.

DERs do not “go down” at the same time.

Not all DERs are created equally – reliable design/operation

DERs provide a reliability (financial) benefit to the grid which is not recognized.

Today, CHP and other DERs enable Con Edison to avoid or postpone investments in transportation and distribution.
Who Is Exempt From Standby Charges

- Customers exempt from standby – Rule 20, Sec. 20.3.1
  - Generator is less than 15% of total building load
  - Residential/small commercial
  - Total load is < 50 kW
Sec. 20.3.2 - Designated Technologies

- Must be operational by May 31, 2019
- Fuel cells, wind, solar thermal and PV, sustainably-managed biomass, tidal, geothermal, and/or methane waste
- Efficient CHP < 1 mW
- Efficient CHP from >1 and <15 mW
Eligible for Standby but Can Be Exempt

- Battery storage with up to 1 mW of inverter capability;
- New, efficient CHP greater than 1 mW may get a Targeted Exemption for 4 to 10 years depending on system efficiency. They must also meet more stringent emissions requirement's and be operational by 2021.
Recent Changes aka Do I Want to be Exempt from Standby

• In 2015, Con Edison’s tariff was changed to allow for the possibility for a reliable CHP system to be rewarded by qualifying for a Performance Credit against its Standby Charges.
• In 2016, 11 customers earned about $3.5 million in credits with three earning more than $500,000 each. The average system reduced its Standby charge by 36% with a range of 4 to 63%.
• Effective this summer, customers will be able to take part in new program and earn Standby Reliability Credits.
Reliability Adjustment is defined as the difference between the customer’s Contract Demand and the highest demand recorded on the meter and the Contract Demand Charge per kW.

- Requires certain metering and communications.
- Customers are allowed up to three outage events per summer period. The outage events in total are limited to no more than five 24 hour periods.
- Customers must request the Reliability Credit and specify the outage events to be excluded by October 10th of each year.
Standby Reliability Credit

• For 2017: The measurement period for all customers will only consist of 2017 measurement period hours.
• For 2018 and beyond: The measurement period for returning participants will consist of both 2017 and 2018 summer.
• Measurement Hours:
A NYC Hospital

- Peak Demand = 6.3 mW and 31 million kWh a year
- CHP Capacity = 2.7 mW
- Scenarios Modeled – Non-scheduled outages (maintenance on weekends)
  - 1. CHP runs 95% of max capacity all year round.
  - 2. CHP runs 95% all summer except for 4 outages of reduced generation occurring once in each summer month. Each outage lasts all day and occurs on a weekday.
  - 3. Same as 2 except no September outage.
# Standard Rates SC 9 Rate 2

<table>
<thead>
<tr>
<th>Rate</th>
<th>Usage (kWh)</th>
<th>Peak Demand (kW)</th>
<th>T&amp;D Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 9 Rate 2 LT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without CHP</td>
<td>31,134,187</td>
<td>6,264</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2,563,490</td>
</tr>
<tr>
<td>Scenario 1</td>
<td>8,664,787</td>
<td>3,699</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1,082,460</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>8,872,147</td>
<td>5,454</td>
<td>$</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>1,381,272</td>
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<tr>
<td>Scenario 3</td>
<td>8,823,547</td>
<td>5,366</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1,298,941</td>
</tr>
</tbody>
</table>

Note Changes from Before and After CHP: Load Factor changes from 57% to 27% as energy decreases by 72% and demand by just 41%.
Utility Usage vs. Generator Output
Scenario 1: No Summer Outages and Unit Runs at 95% Load Throughout

Contract Demand = 6,264 kW

Credit = 6,264 – 3,699 = 2,565 kW
3 mulligans used. 4th outage drops down to 1,350 kW.

Credit is 6,264 – 4,914 = 1,350 kW

Utility Usage vs. Generator Output
Scenario 2: Four Summer Outages and Two Winter Outages
Utility Usage vs. Generator Output
Scenario 3: Three Summer Outages and Two Winter Outages

Since we do not count the three outages, the credit is $6,264 - 3,699 = 2,565$ kW

3 mulligans – results same as Scenario 1

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# Standby Savings Impact

<table>
<thead>
<tr>
<th>Scenario</th>
<th>T&amp;D Cost (No Credit)</th>
<th>Reliability Credit</th>
<th>T&amp;D Cost w/Credit</th>
<th>Savings Compared to Rate 2</th>
<th>Savings Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC9 Rate 2</td>
<td>$2,563,490</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No CHP</td>
<td>$1,082,460</td>
<td>$218,538</td>
<td>$1,046,268</td>
<td>$36,192</td>
<td>3%</td>
</tr>
<tr>
<td>Scenario 1</td>
<td>$1,264,806</td>
<td>$1,279,900</td>
<td>$1,164,880</td>
<td>$216,391</td>
<td>16%</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>$1,307,888</td>
<td>$1,089,350</td>
<td>$209,591</td>
<td>16%</td>
<td></td>
</tr>
</tbody>
</table>

The Standby credits as a percentage of standby charges were 41%, 22% and 41% respectively.

**Note:** This analysis is unique to this example. The results will differ based on outage assumptions, load factor and sizing and should be analyzed for all projects independently. Also, commodity costs are not included in this analysis.
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