Community Solar Rooftop in NYC

**Daroga Power**
2016 & 2042 Pitkin Ave
Brooklyn, NY 11207

Utility: ConEdison

DC Solar System Size: 1,165 kW-DC
AC Solar System Size: 800 kW-AC

Solar Production (Yr.1): 1,366 MWh

Inverter type: SolarEdge string inverters
Problem: Challenging grid location

- 2 buildings across the street from each other located in BQDM area in ConEdison, proposed as interconnected behind new meters for community solar (CDG)
Solution: Dynamic Volt-VAR

- Results of impact study:
  - Downsize to 300kW-AC between the two buildings, or
  - Interconnect the proposed 800kW-AC, implement dynamic volt-var and install SCADA and updated settings at network transformer

- Utility was concerned with voltage rise outside of ANSI C84.41 service voltage limits, so took into account voltage drop from POI to inverters and provided volt-var curve
Solution: Smart inverters

- Issue: during voltage rise events, inverters derate their kW output to provide VAR support, and thus the system generates less kWh. For example, at a VAR% of +/- 0.6:

<table>
<thead>
<tr>
<th>Model</th>
<th>KVA rating</th>
<th>KW</th>
<th>kVAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE33.3KUS</td>
<td>33300</td>
<td>26640</td>
<td>19980</td>
</tr>
</tbody>
</table>

- Without data from utility on frequency and length of events, impossible to calculate the lost revenue.

- Risk was mitigated by adding more inverters and derating their max kW output to ~25kW, so they can run at their updated max output while providing the full amount of VAR support required by the utility.

- Tested by ConEdison during witness test by verifying the settings on the inverter screens and using the inverter voltage simulation function
Conclusion

▪ Smart control solutions can be a good alternative to expensive utility upgrades or to avoid system downsizing

▪ Upfront financial analysis is critical to size system properly

▪ Close coordination with client on their needs and facility operations

▪ Honest conversations with utilities to determine what solution they’re comfortable with

▪ More cost-effective, faster to implement than storage solutions