Clean Energy and Transactive Campus Project (CETC)

Project Description
CETC will create a “recipe” to replicate and scale transactive control technologies for application in buildings, campuses, and communities across the nation. CETC will also establish a clean energy and responsive building load research and development infrastructure in Washington and Ohio.

Expected Outcomes
- CETC will provide tools that enable the buildings sector to replicate the project’s technology implementations and methods, leading to improved energy efficiency, increased integration of renewable energy, and enhanced power grid reliability.
- Outcomes of the project include:
  - Short-term (immediate): Development, validation, and release of open source energy efficiency and transactive control software tools compatible with VOLTTRON™; associated technical documentation and user guides that will comprise the “recipe” and enable replication.
  - Medium-term (<3 years): Two or more energy service providers to deploy the software tools to benefit buildings and the grid.
  - Long-term (>3 years): One or more utilities to deploy transactive energy concepts at a distribution scale.

<table>
<thead>
<tr>
<th>Significant Milestones</th>
<th>Date</th>
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<tbody>
<tr>
<td>Preliminary report of transactive controls on PNNL campus project</td>
<td>9/30/16</td>
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<tr>
<td>Development and testing of “max-tech” controls complete</td>
<td>9/30/17</td>
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<tr>
<td>Testing and validation of multiple-campus experiment complete</td>
<td>12/31/18</td>
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Progress to Date
- Three transactive control and one energy efficiency experiment designed, developed, and validated on PNNL campus buildings.
- 5 peer-reviewed journal papers and one magazine article published.
- 4 technical reports and 4 user guides completed.
- Solar panels, totaling 100 kW, and micro-inverters installed and commissioned at University of Washington.
- 72 kW PV system and inverters procured, installed, and operational and VOLTTRON nodes integrated into PVs at Washington State University.