CHP Working Group Meeting

**Act 129 CHP Market Potential Assessment**
PA PUC Offices
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Presented by Act 129 Statewide Evaluation Team

Presenter:
Salil Gogte
President
EcoMetric Consulting, LLC
P: 610-601-4127
E: salil@ecometricconsulting.com
CHP MARKET POTENTIAL STUDY
WORK PLAN
Study Objectives

• Provide a more granular, bottom-up assessment of CHP potential by examining utility data for potential hosts
• SWE will consider only topping cycle CHP systems in the study
• Study will be limited to CHP potential for largest electric and natural gas users in Pennsylvania
Methodology

- **Technical Potential**: Estimate of CHP potential constrained only by technological limits
- **Economic Potential**: Calculate cost-effectiveness at the measure-level
- **Achievable Potential**: Estimate market adoption
Technical Potential

• SWE team will estimate technical potential for each EDC, limited to the largest users and best applications for CHP

• The technical potential estimate will be broken down into commercial versus industrial, and other sub-segments if enough data are available
Technical Potential Steps

1. Identify target markets
2. Quantify size of the market
3. Estimate potential for CHP in each market
4. Subtract existing CHP
## Technical Potential: Single Host vs. District Energy

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<th>Single Host CHP</th>
<th>District Energy CHP</th>
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<td>• Produces electricity as primary output</td>
<td>• District energy facilities produce steam/chilled water</td>
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<td>• Waste heat from electric generation is recovered to provide useful thermal energy</td>
<td>• Thermal loads of district energy suited for CHP installations</td>
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Technical Potential: Identify and Quantify Target Markets

- **Identify large energy users**
  - Users most-likely to be cost-effective for CHP

- **Year-round thermal and electric load**
  - Focus on customers with large & steady thermal load round the year

- **Quantify CHP eligible customers**
  - SWE needs access to electric and natural gas data from the EDCs and NGDCs
Technical Potential: Estimate CHP Potential

**Optimize CHP system**
- Size the CHP system to meet year-round thermal loads

**Identify exporters**
- Identify customers who would be capable of exporting excess power generated

**Add exported power**
- Exported power will be added to estimated technical potential

**Estimate CHP potential**
- Include total electricity and net thermal energy impacts
- Account for fuel used to run CHP
Economic Potential

• SWE Team will adhere to the guidance provided in the Act 129 TRC and Implementation Orders

• TRC will be determined at the measure level, TRC threshold TBD

• Non-Energy Benefits (NEBs) will be limited to water and fossil-fuel benefits

• CHP purchase, installation, fuel and O&M costs will be included in TRC
Achievable Potential

Steps will include -

• calculating measure adoption based on program influence, barriers, and customer and developer views of efficiency measures
• conducting secondary research of larger CHP studies and Act 129 CHP participation
• incorporating the achievable potential along with the other energy efficiency measures to fit within the EDC’s legislative budget caps
Calculating Achievable Potential

- Return-On-Investment for Customer
- Achievable Potential
- Customer willingness based on incentive Provided
- Significant investment of resources
NGDC Data Request

- SWE will request gas usage data to identify potential CHP candidates
- Large customers usage data from each NGDC
- NAICS/SIC code for market segmentation
- Daily usage data, if available
Questions for the CHP Working Group

• How can we estimate market share for different types of CHP – natural gas, reciprocating engine, steam turbine etc.?  
• What’s the best way to match CHP type to a facility?  
• What’s the best source of liquid fuel costs?  
• What are the best sources of information to analyze market barriers?