Combined Heat and Power (CHP) En Banc Hearing

Pennsylvania Utility Commission

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Duquesne Light (DLCo) CHP History

- Historically, DLCo has supported a number of CHP or co-gen customers in our territory. During various parts of the 1990’s, the Company had as many as 8-10 self generating customers on our backup power rates.

- However, over the years, restructured rates and low electric power prices in our Western PJM region made it more challenging to find applications where these technologies have the necessary cost benefit.

- Currently DLCo has one active back-up power customer in our region, Duquesne University.

- In the years since the 1990s, we have also enhanced our interconnection processes and gained experience in supporting self generating customers.

- DLCo is currently working to support two customers that have qualified for incentives under, Watt Choices, our Act 129 energy conservation program.
Watt Choices Review, Measurement & Verification

- Project development assistance provided to potential CHP applications includes:
  - Technical review (assumptions, models, algorithms and calculations)
  - Cost-effectiveness assessment
  - Measurement and Verification Plan

- Establishing baseline operations and energy consumption (electric and also steam and/or gas) of the facility at which proposed projects are metered and documented.

- Upon completion of projects, a site inspection is performed to document installation of the projects as described and approved.

- Pre- and post-installation metering is utilized to quantify energy savings impacts.
Act 129 Incentives for CHP

- DLCo’s will determine CHP project eligibility on a case-by-case basis to determine cost effectiveness and energy savings potential.
- Cost-effective\(^1\) CHP projects are eligible for funding similar to other measures under DLCo’s Act 129 programs, paid based on kWh saved.
- Potential reductions to distribution charges for self generators may exist through back up power rates in Rider 16 in DLCo’s tariff.
- Under the Rider 16 rate structure, CHP customers are charged the normal tariff rate for their rate class based only on their contract load.
- Distribution charges of $2.50 per kW are then applied to the Back-Up load requirements in excess of their contract load.

\(^1\) Cost-effectiveness is determined using the Total Resource Cost test (TRC) as required by Commission Order for all Act 129 energy efficiency programs.
DLCo has refined its interconnection process over the years and works to be a responsive partner to customers seeking to install self generation products, including CHP.

CHP applications typically involve complex installations and a systems study performed by DLCo to help manage a new self-generator’s impact on our system.

Our process is designed to ensure that CHP applications are safely and efficiently integrated into the grid.

Self-Generator (Customer) Interconnection Equipment
- Customer pays to have utility approved interconnection equipment installed
- Interconnection equipment can be installed by the Customer or by Duquesne Light
Active CHP Projects

- DLCo currently has two potential CHP projects that have qualified for incentives and are currently in development.
- CHP Project #1 is an industrial facility that requires a combination of self produced steam and electric power to support the machinery in its production process.
  - Industrial process byproduct gas was vented to atmosphere or burned (“flared”).
  - Now the gas is used to fire a boiler and output steam (heat) is then used for production and to drive a turbine driven generator (power).
  - The CHP project new configuration meets process steam needs and adds 1.9 megawatts of generation capacity.
  - The resulting power generation of 1.9 megawatts, 24 hours a day, seven days a week will provide 16.6 million kWh to the plant annually.
CHP Project #2 is a large hotel who has a significant electric load and year-round thermal loads

- Current configuration utilizes typical utility service (gas and electric) for cooling, lighting and thermal loads.
- DLCO’s Watt Choices redesign is an engineered CHP solution to utilize a natural gas fired generator for on-site generation.
- Generator waste heat is used to serve laundry and pool thermal loads.
- Early stage engineering analysis shows that the 1.2 megawatt generator will serve the customer’s 10 million kWh annual load.
Looking to the Future

- Natural gas is a plentiful resource in our region and DLCo supports the use of CHP technology where it is beneficial to customers.
- Low power prices in PJM West may continue to create challenges to increasing the number of CHP applications in DLCo’s territory.
- DLCo’s current tariff and interconnection standards support CHP installations and we will continue to work with regulators and customers to refine existing CHP policies as appropriate in the future.