

## 1. Resilience Planning

The Tennessee Valley Authority (TVA) works in partnership with 154 individual local power companies (LPCs) to keep safe, clean, reliable and affordable public power flowing to homes and businesses throughout the seven-state Tennessee Valley region. TVA defines grid resiliency as the system's ability to bounce back quickly from or completely avoid disruptions such as adverse weather events, cybersecurity threats, solar flares and/or electromagnetic pulses (EMPs). TVA maintains an active resiliency plan focused on three areas: (1) ensuring constant equipment reliability, (2) monitoring, detecting and responding to physical or cybersecurity threats, and (3) recovering from damage if an event occurs. Importantly, TVA has had a 99.999% reliability rating for over 16 consecutive years.

TVA is conducting a preliminary assessment of the suitability of CHP as a grid asset. The authority has held stakeholder meetings and engaged with LPCs served by TVA and are researching potential options for CHP as a customer offering. TVA is exploring resiliency planning efforts towards the implementation of CHP for the healthcare sector and at certain industrial sites. Specifically, TVA is exploring the potential of battery storage, microgrids, and the integration of CHP systems within microgrids. Through these efforts, TVA will develop a better understanding of the impacts of CHP systems on TVA and LPC operations. These activities will also help TVA study the value streams that CHP systems can provide and assess if they are the least cost asset to meet desired grid needs.

## 2. Program or Project Implementation

TVA has successfully built and implemented cogeneration solutions at two locations – at the chemical company [Chemours in Johnsonville, TN](#) and at a [General Mills plant in Murfreesboro, TN](#). These solutions enabled TVA to effectively serve thermal and electric loads and increase onsite reliability and resilience. TVA is also currently working on a \$6.75 million grant project with Erlanger Hospital in Chattanooga, Tennessee. This project will install 8MW of generation and expects to come online in fall 2018.

TVA supports a vision for a low-cost and clean energy resources that can enhance air quality in its service territory. Accordingly, TVA entered into a mitigation agreement with the Environmental Protection Agency (EPA) in April 2011, resulting in 11 projects to meet renewable energy and energy efficiency goals. As part of one of these projects, TVA partnered with the EPA on a Waste Heat Recovery/Combined Heat and Power project to promote the use of CHP by industrial customers. Under the terms of the project, TVA issued an RFP in 2015 and awarded contracts to two proposers in March 2016.

TVA believes that demonstrating the value of CHP systems through studies and reports will be beneficial. For example, one study can explore the locational value of CHP to the grid from the perspective of electric utilities that generate electricity. A second study could examine the ability of CHP systems to provide N+1+1 resiliency and reliability services to utilities that are high voltage transmission providers.

## 3. Lessons Learned

TVA recognizes that open communication can accomplish a lot of the heavy lifting as there is often a general lack of awareness of the benefits of CHP technologies. For example, establishing the value of CHP systems to TVA and LPCs has been difficult, especially since TVA does not currently need new generation assets to meet power demand. CHP deployment is also limited by existing rate structures.

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**CHP for Resiliency Accelerator Partner Profile**

That said, breaking communication barriers has allowed large organizations like TVA to facilitate discussions on innovative DER technologies and how they can best serve customers. TVA realizes CHP can deliver additional value to customers beyond electric bill savings, including more efficient operations, resiliency, emissions reductions and reduced water use among others. TVA has been able to identify target sectors, subsectors and individual facilities that might benefit from CHP implementation. The [U.S. DOE CHP Technical Assistance Partnerships \(CHP TAPs\)](#) and other third party consultants have proven to be important partners by bringing their own experience and lessons learned to new project development.

**4. Additional Information**

- ▶ [Approaches to Resiliency at TVA](#)
- ▶ [TVA's Grid Resiliency Direction](#)
- ▶ [EPA Mitigation Agreement Projects and RFP](#)
- ▶ [General Mills CHP](#)
- ▶ [Johnsonville Cogeneration Plant](#)
- ▶ [Erlanger Hospital](#)