



# Interconnection

## Improving Cost-Effective CHP Interconnection in Texas

### Policy Description

For owners of combined heat and power (CHP) systems, an efficient and cost-effective interconnection process is necessary for project success.

Interconnection is the connection of a power system to the grid—the larger utility transmission and distribution system. Although interconnection is integral for most CHP projects, the interconnection process is often not straightforward. In many jurisdictions, barriers are present for CHP projects of different system capacities, especially larger systems.

In Texas, interconnection standards for CHP fall into two tiers. For systems of 10 MW or less, an end user must work with the transmission distribution utility and is not required to undergo an interconnection study through the independent system operator Electric Reliability Council of Texas (ERCOT).<sup>1</sup> CHP systems greater than 10 MW may require complex transmission infrastructure and subsequent upgrades, so the end user must work with ERCOT.

To help with the complex process, the Houston Advanced Research Center (HARC) developed the *Distributed Generation Interconnection Tool for Texas*, a tool that makes the interconnection processes more straightforward and seeks to ease barriers to implementing systems greater than 10 MW.

### Quick Facts

**Location:** Texas  
**Market Sector:** All sectors  
**Policy Type:** Regulatory policy  
**Policy Start:** 2001  
**System Capacity Limit:** 10 MW

### Policy Development

The Texas interconnection regulations and standards were created in response to the 1999 Texas Public Utility Regulatory Act, which allowed customers to install on-site distributed generation and connect to the grid.<sup>2</sup> Made effective in 2001, these regulations established size tiers, specified rules to interconnection based on system capacity, and set timelines for contract rejection and approval. The act did not place a limit on the total interconnected distributed generation capacity for each facility.<sup>3</sup>

### Possible Barriers for Systems > 10 MW

Despite the standardized interconnection process in Texas, several barriers can prohibit the development and installation of a CHP system larger than 10 MW. These systems are typically sited at larger industrial, refining, and manufacturing sites and are governed by ERCOT. Below are possible key barriers identified through discussions with various stakeholders.<sup>4</sup>

#### Project Developers:

- The interconnection process timeline is long. The average interconnection process lasts two to three years, increasing the likelihood that the project will be cancelled.
- Interconnection studies can be expensive and contribute to unfavorable system economics.
- Regulated markets and co-ops are not required to follow Public Utility Commission of Texas (PUC) substantive rules and typically offer little assistance.

<sup>1</sup> <http://www.puc.texas.gov>; <http://www.ercot.com/>

<sup>2</sup> <https://programs.dsireusa.org/system/program/detail/805>

<sup>3</sup> <https://database.aceee.org/state/interconnection-standards>

<sup>4</sup> <https://www.energy.gov/sites/prod/files/2017/09/f37/TX-implementation-model.pdf>

## ERCOT:

- CHP developers often do not understand the project procedures and directions.
- Utilities often hire consultants to do full-scale interconnection studies, and communication between the three parties (utility, ERCOT, and customer) has a tendency to break down.
- ERCOT has identified and attempted to implement efficiencies for interconnection processes, but the PUCT has the authority to make changes.

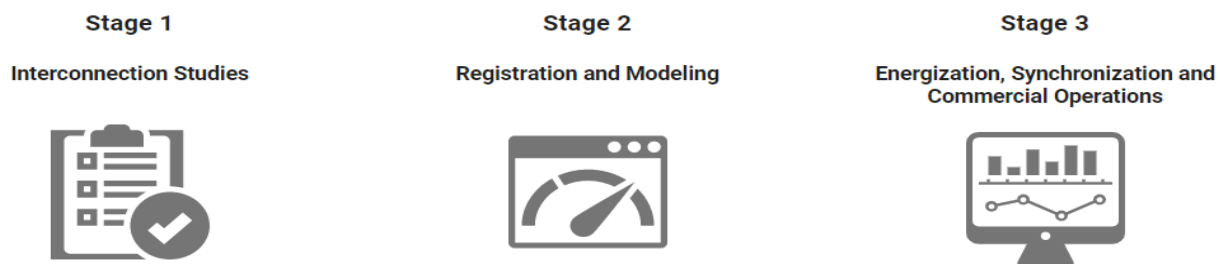
## Utilities:

- Project developers might begin the interconnection process without having secured a location, air quality permits, or project financing.
- Major delays occur when the project entails a significant distribution line extension to the public lines. For this extension, the PUCT must grant a Certificate of Convenience and Necessity (CCN). This process happens in parallel with interconnection and takes two years.

## Solutions to Interconnection Barriers

Two key solutions have been put in place to reduce time and effort for interconnection. First, CHP systems with a capacity of 500 kW or less are eligible for pre-certification, which helps fast-track the process. There are no pre-interconnection study fees for eligible systems, and other applicable fees are lower than what is required for larger systems.

To overcome many of the barriers to implementing systems larger than 10 MW, the Texas State Energy Conservation Office (SECO), ERCOT, and HARC worked together to develop the *Distributed Generation Interconnection Tool for Texas*. This tool offers a step-by-step guide on interconnection between distributed generation systems larger than 10 MW and the ERCOT transmission grid. The guide works in three stages: system interconnection studies; system registration and modeling; and system energization, synchronization, and commercial operations. The phased approach helps to ensure that the interconnection process is timely and successful.



Source: Distributed Generation Interconnection Tool for Texas

## Summary of Policy Results and Outcomes

The interconnection regulations and subsequent standards led to varying system capacity requirements. The interconnection tool is expected to decrease the time and expense involved in interconnection. Those developing the required data and modeling will have better insight into the interconnection process and timeline, reducing the likelihood of interconnection delays. The expected result is fewer project cancellations due to prohibitively long and expensive interconnection processes.

### Resources:

- [\*Distributed Generation Interconnection Tool\*](#)
- [\*ERCOT Resource Interconnection Handbook\*](#)
- [\*Fast Track Information\*](#)

## For More Information