

## CASE STUDY

# Simulation identifies the optimal interconnection solution for the US power system, unlocking \$1 billion in value.

**Using PLEXOS, an industry alliance led by the National Renewable Energy Laboratory was able to show that, despite very little electricity being transferred between the Western Interconnection, the Eastern Interconnection and the Electric Reliability Council of Texas (ERCOT), the financial benefits of their interconnection would be huge.**

Representatives from more than 30 utilities, system operators (MISO, SPP, WECC, AESO, ERCOT, IESO) and industry organizations, including Energy Exemplar, developed a study to evaluate the optimal solution for joining the interconnections.

The team found more than \$1 billion in value could be gained from strengthening the connections (or seams) to encourage efficient development and utilization, creating a more reliable, resilient, sustainable and affordable electricity system.

It also proved that proper modeling (extreme accuracy with minimal complexity) incorporating geographic diversity (wind, solar, hydro) increases the ability to integrate more renewables into a power system and deliver energy certainty.

PLEXOS was chosen because of its unprecedented resolution and Mixed Integer Programming. Ninety-eight thousand nodes, more than 100,000 transmission lines and 12,000 generators were fed into the model – the first to simulate the East and West Interconnections together.



**The National Renewable Energy Laboratory (NREL) is dedicated to research, development, commercialization and deployment of renewable energy and energy efficiency technologies.**