

# Texas Electricity Grid

## Challenges and Opportunities

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### Introduction

Enverus Intelligence Research's long-term electricity price forecast is based on a model that estimates the future power grid dynamics by forecasting load and resource portfolio evolution from 2024 to 2050.

### Input parameters

- Set of generating units with their characteristics;
- Zonal representation of the transmission network;
- Hourly load forecast for 2024-2050, including various load drivers from the electrification of oil and gas assets to data center demand growth;
- Construction and operation cost data;
- Fuel price forecast;
- Hourly CF profiles for wind and solar.

### Generation and Transmission expansion Model

- Project completion probability model;
- Least-cost optimization electricity system capacity expansion;
- State initiatives.

### Production Cost Model

- Hourly economic dispatch;
- Zonal wholesale power prices;
- Transmission flows and congestion;
- Renewable generation and curtailment.

### Key Findings

- Optimal economic generation mix requires solar and batteries growth of 10X and 12X by 2050;
- New natural gas facilities are planned for load centers and Far West zone to minimize congestion and grid losses;
- Batteries prefer areas with higher installations of renewables;
- Additional transmission capacity is planned towards the Coast zone and from the West to the Center;
- Coast and South Central zones achieve significant price premiums;
- The growth of renewable energy installations suppresses the utilization of base load gas-fired power plants but increases the revenue of peaker plants;
- There is an increase in congestion for moving power to the Coast.

