Creating the Customer Powered Grid Across Texas

Demand-Side Management Options in ERCOT

To maintain grid reliability and help organizations in Texas offset their energy use and spend, ERCOT offers the following demand-side energy management programs:
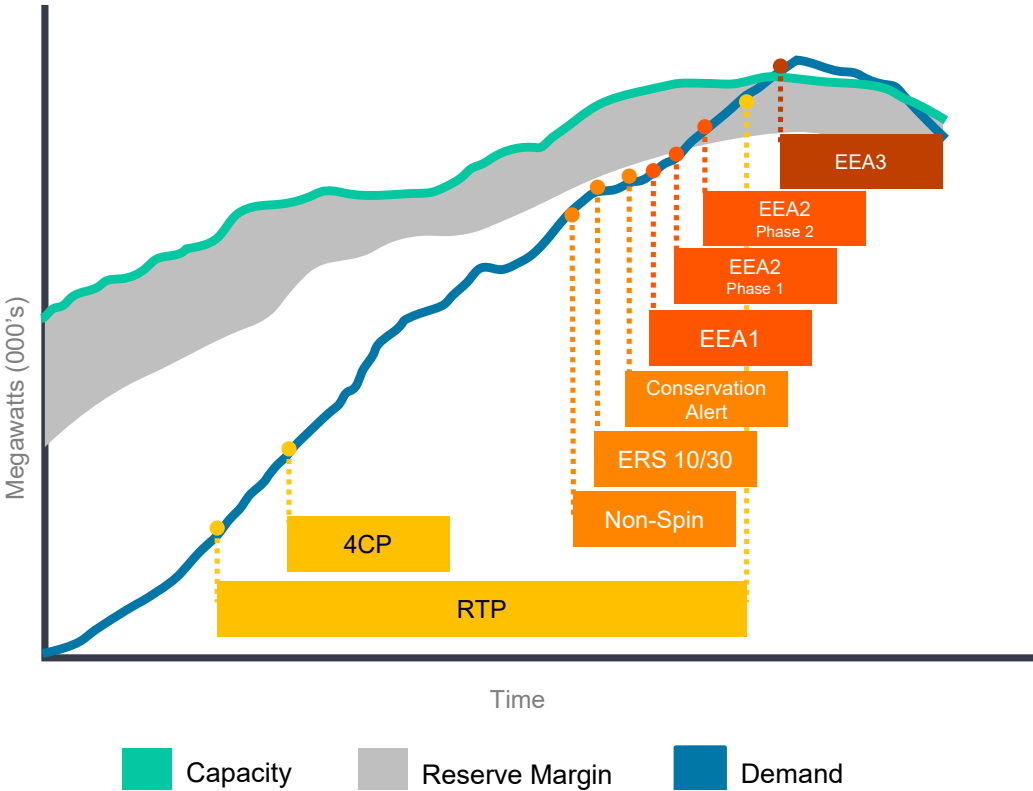
Demand Response Programs

- **Emergency Response Service (ERS)**
  ERCOT's entry-level demand response program, ERS pays organizations for using less energy when the grid is stressed or when electricity prices are high. There are two types of ERS programs: ERS 10 and ERS 30, which pay businesses for being available to curtail their energy loads within 10 and 30 minutes.

- **Load Resource (LR)**
  LR is one of the more financially rewarding ERCOT programs with the potential for revenue upside depending on market conditions. If more than the procurement limit clears the market, then proration will be triggered.

- **SOP Utility Program**
  Like ERS, this is a grid defense program used prior to ERCOT emergencies. Utilities offering this program (Oncor and CenterPoint) have different MW targets and budgets for curtailment and payments. There are summer and winter options and each run 24/7.

- **ERCOT Contingency Reserve Service (ECRS)**
  One of the newest and most valuable programs in ERCOT, ECRS is similar to LR with a required response time of 10 minutes. An under frequency relay (UFR) is not required to participate, but it is allowed.

Demand Management Programs

- **4CP Management**
  Every month your business is charged a fee—called a peak charge or, more specifically in Texas, a 4CP charge—based on how much electricity an organization consumed during the period when electricity demand on the grid was at its highest. 4CP management involves curtailing energy consumption during periods of peak system load, thereby lowering 4CP value, which in turn reduces 4CP power charges the following year.

ERCOT Sequence: "Arsenal" for Grid Defense

Megawatts (000's)

Time

- **Capacity** (green)
- **Reserve Margin** (gray)
- **Demand** (blue)

Labels in chart: EEA3, EEA2 Phase 2, EEA2 Phase 1, EEA1, Conservation Alert, ERS 10/30, Non-Spin, 4CP, RTP

Emergency Alert Progression

When the grid is stressed, ERCOT takes these steps to avoid blackouts across the state.

Real Time Pricing (RTP)	Relies on basic economics to deter electricity consumption. As demand rises and approaches the reserve margin, prices start to rise. Large consumers monitor the real-time price and determine it's more economically sound to stop consuming (and producing in the commercial sector) given the escalating electricity prices.
4CP Management	Involves curtailing consumption during periods of peak system load. Charges are based on consumption during periods of highest demand. In summer months, about 1,500 MW of "peak-chasing" load can be curtailed by consumers seeking to lower 4CP charges the following year. Typically, this load will come off the grid 3-6pm during the year's hottest days.
Non-Spinning Reserves	Procures 4,500 MW of non-spinning reserve in the day-ahead market and up to an additional 2,000 MW on days with high demand forecasted or uncertainty such as an estimated lack of wind or sun that could lead to wind and solar power resources being unable to produce electricity.
ERS 10 & 30	ERS (Emergency Response Service) ERS 10 and 30 may be called by ERCOT at this point (<3,000 MW reserves for 30 min) prior to public conservation alerts.
Conservation Alerts	When demand infringes the 3,000 MW mark of the reserve margin, ERCOT issues a series of public address announcements urging consumers to voluntarily shed their load.
EEA 1	With EEA (Energy Emergency Alert) 1, ERCOT operator's authority calls on all available power supplies.
EEA 2, Phase 1	ERCOT can reduce demand on the system by interrupting power from large industrial customers with contractual agreements. SOP winter/summer resources can be used.
EEA 2, Phase 2	Risk of rotating outages. ERCOT Contingency Reserve Service escalates to a Power Warning, which allows operators to dispatch Load Resources, providing LR-RRS and ECRS.
EEA 3	Controlled outages in progress. Warnings of rolling blackouts to all areas of ERCOT grid. If the capacity shortage is not relieved using voluntary and contractual demand response, ERCOT will instruct utilities to rotate power outages to prevent statewide blackouts.