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State Affairs
Texas House of Representatives
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Current Records – as of April 21, 2016

Peak Demand Record: 69,877 megawatts (MW)
• 69,877 MW, August 10, 2015

Weekend Record
• 66,530 MW, Saturday, August 8, 2015

Winter Peak Record: 57,265 MW
• 57,265 MW, February 10, 2011

Wind Generation Records (instantaneous)
• 14,023 MW, February 18, 2016, 9:20 p.m.
  – Supplying 39.5% of the load
• 48.28% Wind Penetration, March 23, 2016, 1:10 a.m.
  – Total Wind Output = 13,154 MW
  – Total Load = 27,245 MW

Summer 2015 monthly peaks
June: 61,732 MW (June 10)
July: 67,650 MW (July 30 – new July record)
August: 69,877 MW (Aug. 10 – new all-time record)
• The fundamental concept behind ERCOT operations is that generation has to match load at all times.

• In other words, a 1 MW reduction in load has exactly the same effect on the grid as a 1 MW increase in generation.
Operational Risk Management: Layers of Protection

Prevent

• Plan and operate the system so loss of a single transmission line or generator causes no problems and additional contingencies cause no major problems.

• Reserve enough generation/load resource capacity to maintain frequency when load and generation output vary, up to loss of two largest units.

Respond

• If more severe conditions occur, manually reduce demand to protect the system (localized or systemwide rotating outages).

• If frequency drops to extremely low levels, automated protection systems that reduce demand systemwide provide a safety net.

Recover

• Maintain, and routinely practice, a coordinated “black start” plan to restart the system in unlikely event these responses fail and system collapses.
Grid conditions – Protecting the grid, Informing the public

- **Normal Conditions**
  - Sufficient generation, all is well.

- **Conservation Alert**
  - Potentially tight operating reserves — generation/demand
  - Don’t issue routinely just because hot or cold

- **Power Watch**
  - Energy Emergency Alert (EEA) 1
  - Operating reserves <2,300 MW
  - First stage demand response programs

- **Power Warning**
  - EEA 2: Operating reserves <1,750 MW
  - Load resources, Emergency Response Service

- **Power Emergency**
  - EEA 3
  - Direct transmission providers to begin rotating outages to reduce demand on system.
Grid Restoration: Preparedness and Practice

Texas has never experienced a systemwide blackout.
• ERCOT has a plan to restore the grid and practices those procedures annually.
• Staff and market participants receive training and often practice disaster scenarios, with operators using realistic simulators.

Black start generation units
• ERCOT contracts with certain units that can start independently.
• Black-start units are tested regularly.
• Black-start units form basis for electrical islands.

Restoring the grid, connecting “islands”
• Electrical islands would be energized in a systematic manner, carefully maintaining system balance with load.
• Transmission operators, under ERCOT coordination, would carefully energize lines to connect islands, eventually restoring entire system.
• Restoration timeline depends on the cause and extent of system damage.
ERCOT Cyber & Physical Security Program

- ERCOT has a dedicated and integrated cyber/physical security organization and established strategy.

- ERCOT uses layered cyber and physical security architectures known as a defense-in-depth strategy, along with careful monitoring.

- ERCOT is committed to external collaboration with relevant government agencies, law enforcement, industry and national labs to enhance its and the industry’s security posture.
External Collaboration

Federal/National:

State:

Industry:

Critical Infrastructure Protection Working Group (CIPWG)
Utility Owners/Operators

National Labs:
Communicating During Emergencies

Operations coordination and communication
• Established procedures and protocols to ensure shared awareness
• Numerous training opportunities to ensure shared understanding and expectations – preparedness drills conducted at least annually

Crisis communications procedures
• Reviewed and updated at least annually
• Includes guidelines for variety of potential emergencies

Outreach to regulatory agencies, elected officials, other key contacts
• Specific audiences depend on issue, system conditions
• Staff with expertise in regulatory, legal and legislative matters

Media and public communication
• News releases, advisories and interviews (phone and in person)
• Social media channels, mobile app, website and email list
• Coordinated communication through market participants