

Late Backup



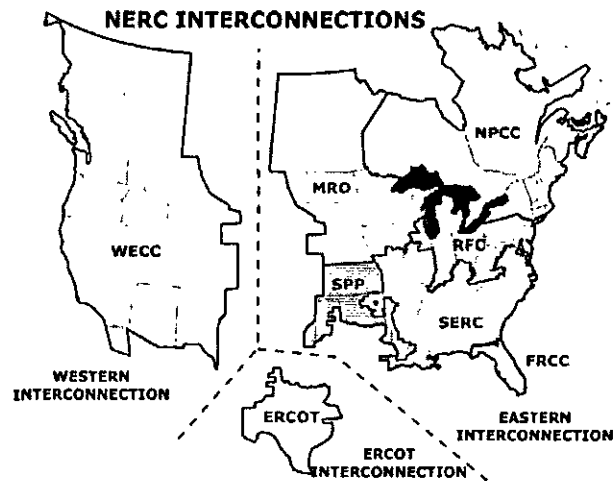
Austin Energy Briefing on System Operations Rolling Blackouts

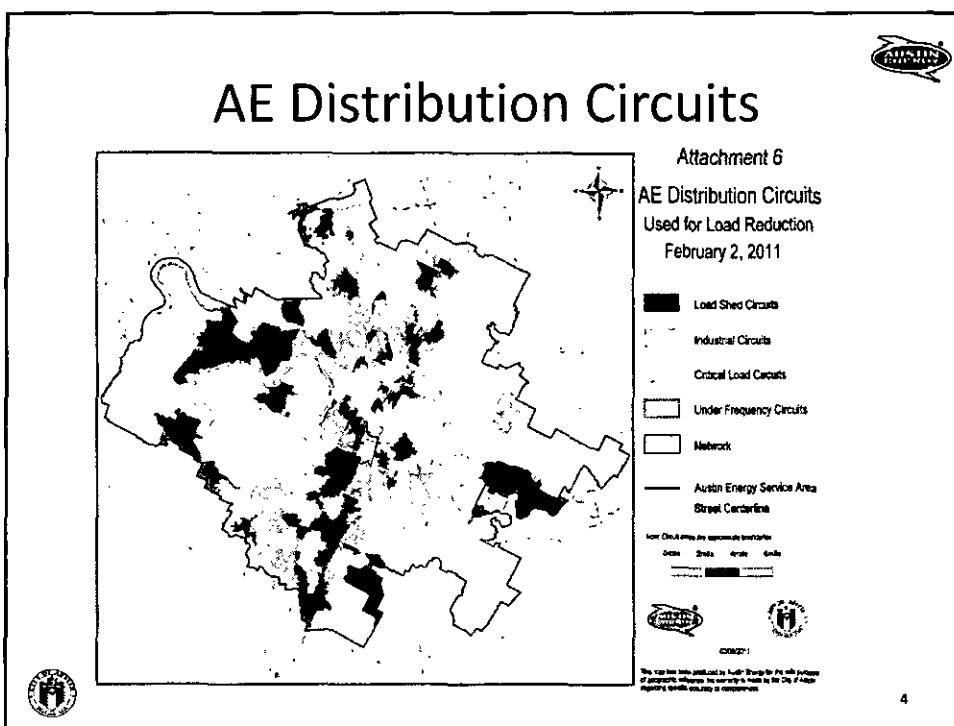
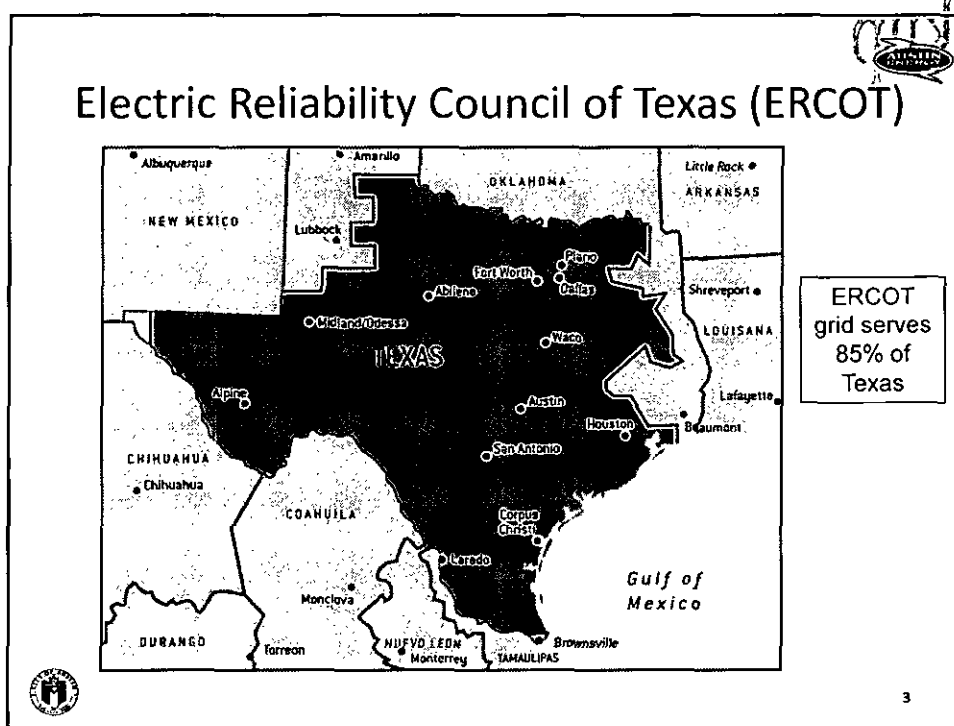
Mission: Deliver clean, affordable, reliable energy and excellent customer service

Larry Weis, General Manager
February 10, 2011



North American Reliability Regions





ERCOT Rolling Blackouts



- Weather event - insufficient generation and high consumption
- Third time in recent history for AE (12/22/1989, 4/17/2006, 2/02/2011)
- Additional generation unable to start and stay online
- ERCOT alerts when reserves below 3,000 MW
- Rolling blackouts ordered by ERCOT as last step to restore grid balance
- If grid frequency declines to 59.3 MHz, relays activate automatically to prevent system blackout



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Rolling Blackout Response



- AE's system "shares the outage" within ERCOT
- Energy Control Center staff responded to ERCOT directive to begin load shedding immediately
- AE generation had minor interruptions
- Situation progressed rapidly
 - 12:01- 6:00 a.m. – Over 80 generating units trip & reduced output
 - 2:47 a.m. - Reserves shortage by ERCOT
 - 5:08 a.m. - ERCOT issued physical response below 2,500 MW notice
 - 5:17 a.m. - Energy Emergency Alert Level 2a (EEA2a) activated Emergency Interruptible Load Service (EILS) and Loads Acting as Resources (LaARs)
 - 5:43 a.m. - Load shed ordered



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Austin Energy Communications



- 5:42 a.m. - AE corresponded with City Of Austin Emergency Operations Center (EOC) shortly after ERCOT issued Energy Emergency Alert Level 2a (EEA2a) at 5:17 a.m.
- 6:14 a.m. - AE communicated with media and Corporate PIO initially followed by
 - Ongoing status reports throughout the day
- AE maintained staffing at City Of Austin Emergency Operations Center (EOC) once activated



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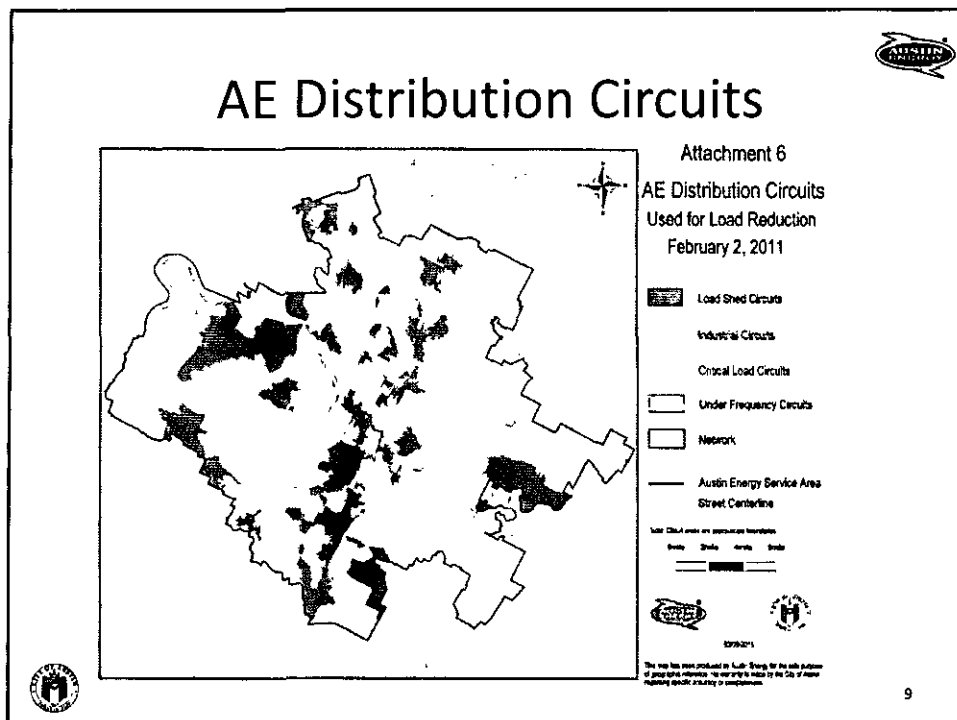
AE Criteria for Load Shed Plan



- ERCOT requires AE to develop a load shed plan
- AE plan is to shed 4% share of 1,000 MW or 40 MW via rolling blackouts
- Plan includes 44 circuits with rotations targeting about 7-10 minute outages for 10 circuits at a time
- Internal policy considers the function and service of each of the 376 circuits in service at any given time
- 332 circuits are excluded from load shed plan
 - 211 health and safety critical loads and industrial loads
 - 31 serving downtown network
 - 90 with automatic required under frequency load shed relays
- 48 circuits utilized for rolling blackouts impacting more than 80,000 or 20% of AE customers



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Downtown Network

- Serves Central Business District, State Capitol Complex and portions of West Campus
- Multiple circuits that backup each other
- Redundancy is automatic, not controlled remotely
- Dropping a circuit would not result in load reduction due to redundancy
- Dropping circuits could potentially cause overloading and damage to facilities

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Health and Safety Critical Loads



- Defined as those benefiting public safety, security and health
 - Hospitals, inpatient treatment and surgery centers with overnight facilities
 - Licensed eldercare nursing facilities, dialysis facilities, residential hospice
 - Water and sewage treatment facilities
 - Airport
 - Public safety, military, detention facilities, 911 & 311
 - Media broadcasting facilities



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Outages larger and longer than planned



- AE Plan based on 1,000 MW system wide load shed, 40 MW for AE
- ERCOT rapidly increased load shedding requirement to 4,000 MW system wide, 160 MW for AE
 - Duration of rolling blackout intervals increased to 30-45 minutes
 - Included up to 40 circuits at a time to meet ERCOT obligations
- Power outages also occurred outside load shed operation



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AE Customers Responded



- About 45 commercial & industrial customers responded to AE's appeal for conservation on behalf of ERCOT
- AE staff in constant contact with 500+ customers to encourage load conservation and provide updates including:
 - State and local agencies
 - School districts (8), local colleges and universities
 - Hospitals
 - Industrial facilities
 - Large residential retirement communities
- AE staff expanded communications to include small businesses, national retail and social service non-profits



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Overall AE Power Plants Performed Well



- AE planned for the weather
- Outage crews were ready
- Some weather impact on AE units
 - 400 MW unit producing 90 MW tripped off line at 1:04 a.m. and was back online at 2:14 a.m. prior to rolling blackouts
 - 50 MW unit tripped at 8:53 a.m. and 11:17 a.m. and was running consistently by 12:54 p.m.
 - 25 MW unit failed to start at 4 a.m. and was online at 2:33 p.m.
- AE switched from gas to oil in a 325 MW Decker unit to mitigate potential gas supply issues



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Next Steps



- **Reviews of this event already initiated by**
 - Public Utility Commission of Texas (PUCT)
 - Electric Reliability Council of Texas (ERCOT)
 - North American Electric Reliability Corporation (NERC) and Texas Reliability Entity (TRE)
 - *Texas Senate Business and Commerce and Natural Resources Committees (Tuesday, February 15)*
 - Texas Railroad Commission (Natural Gas Regulation)
- **AE to evaluate process and identify improvements**
 - Policies and load shed plan
 - *Communications procedures*
 - Other alternatives

