The Opportunity for a New, Cleaner & Waterproof Electrical Grid in a Time of Drought

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Senate Committee on Business and Commerce

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Overview

- Supply issues in electric market are real
- Air Quality and Water Resource Challenges are Real under Present Electric Resources;
- EPA Rules are here and could lead to some idling or retirements - even without CSAPR
- Some utilities already moving away from coal while other are considering it
- Gas fracking is part of our energy future, but water issues are real and need to be dealt with..
- Opportunity for PUC and ERCOT to take steps now to position yourself for air and water challenges;
- Continue Push for Transformative Water-proof Technologies;
- Commit to a plan for more complete report and recommendations to Legislature in 2013;

Electric System Stresses are Real

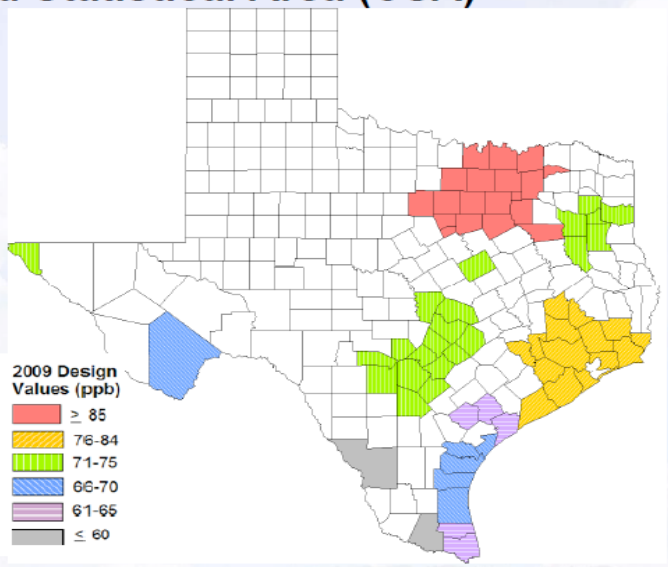
- February 2011 and August 2011 events showed:
  - We have some good programs such as EILS and LAARS which helped us meet demand and were absolutely necessary but could be improved;
  - There has not been significant new construction in Texas for generation other than a few gas plants and some coastal wind in the last few years;
  - Whether or not we had additional federal environmental requirements like CSAPR, new policies and programs are needed to help us meet demand and keep our system reliable, clean and affordable

Air Quality Challenges are Real and Part of Answer will be New Cleaner Electric Grid

- Reducing emissions from rural power plants by adding on SCRs or retiring these old plants may be far less expensive than cleaning up urban sources
- CSAPR reductions will lead to real health and economic benefits for surrounding communities

2009 Primary Ozone Design Values by Combined Statistical Area (CSA)

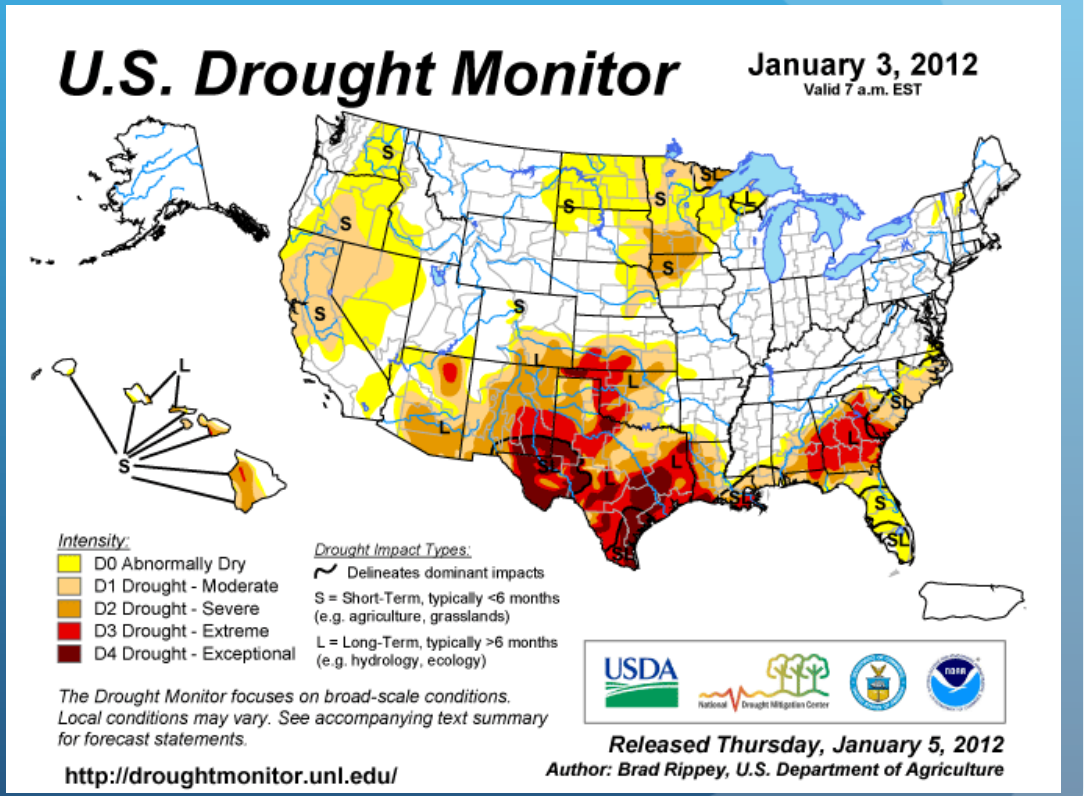
CSA	2009 8-Hr Ozone DV (ppb)
DFW	86
HGB	84
BPA	77
NETX	75
ELP	75
ARR	75
SAN	74
WACO	72
CC	69
Big Bend*	66
VIC	65
LRGV	62
LAR	55



*Brewster County monitor is maintained by the national park service and reported in EPA AQS.

Water Needs for Electricity are Real But so too is Drought and other needs

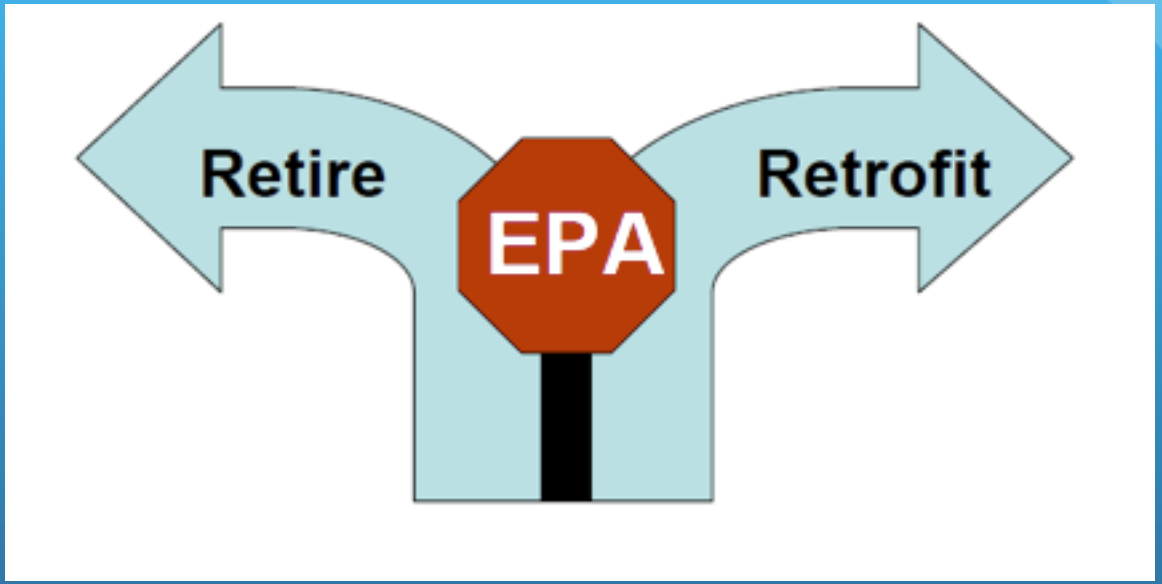
- Water availability is expected to decline by 35%
- The current drought throughout Central Texas sets the trend for what we can expect in the future.
- Droughts are expected to get worse and thus energy sources that require little or no water will be far more viable
- Drought favors energy efficiency, demand response, dry cool air technology for natural gas plants, as well as solar PV and coastal wind



Upcoming EPA Rulings

- NO2 NAAQS
- BACT for GHGs (Delayed)
- SO2 NAAQS Review
- PM2.5 PSD Increment Rule
- Ozone NAAQS Reconsideration (NOW PUSHED TO 2013)
- Repeal of PM10 Surrogacy
- CEQ Climate Change Guidance
  - HAPs Standards for non-EGU Boilers
- Coal Ash Waste Regulation
- CSPAR (LEGAL STAY UNTIL APRIL APPEAL)
- Section 316(b) Water Intake Standards
- OSM Regulation of Ash Minefillls
- PM2.5 NAAQS Reconsideration
- Haze FIP (Comments due next month)
- Hazardous Air Pollutant MACT Standards (Finalized in December)
- Ozone NAAQS Area Designations
- NSPS for EGUs (NOx / SO2/ PM / CO2)
- NSPS for non-EGU boilers (NOx / SO2/ PM / CO2)
- Secondary SO2 and NOx NAAQS
- ELGs for Electric Generating Units

Retrofit vs. Retire is a Decision Being Made Today



Many Utilities Already Moving Away from Big Water User Coal

- Regional Haze and MACT could be big deal and require more specific control technology by 2016;
- Coal companies & utilities already reacting to regulations and increasing coal transport and fuel costs by examining retire vs. retrofit
- Some utilities – CPS Energy (Deely) and AEP (Welsh) -- in Texas already have announced retirements of coal units;
- Austin Energy and LCRA added scrubbing technology already but may be impacted by MACT standard shortly
- Austin Energy and City Council studying potential to get out of Fayette Power Plant in 2016-2020 period;
- Luminant has announced Monticello will continue to operate, but long-term plans unclear given CSPAR uncertainty

And what of natural gas and water?

- As coal plants retire, natural gas will likely be part of solution… but
- Some natural gas plants use significant water resources as well (though combined cycle relatively efficient, especially if use dry air cooling)
- Fracking has become of increasing importance in Texas and it uses significant water resources
  - Latest TWDB Water Plan did not take into account fracking
  - Recent UT Bureau of Economic Geography determined fracking will continue to be small overall part of water use, but will become a more significant water user in South and North Central Texas, which could impact water resources
  - Power needs in South Texas to run fracking operations also consume water
  - Legislature should look at water use permits for certain kinds of oil and gas operations, require very specific water use reporting and consider requirements for water reuse for fracking where possible

Opportunites for Cleaner, Water-Proof Energy Future! (Part 1: Implement the Laws you guys just Passed)

- Take concrete steps today to position yourself for future challenges
- Implement SB 1125 Sooner Rather than Later – Energy Efficiency don't use water
  - Transition to 0.4% of peak demand goal
  - Allow more varied and direct energy efficiency programs
  - Keep some cost caps for EE programs, but allow adjustment and allow flexibility between programs
  - Strawman too limiting– must be strengthened
  - Encourage ERCOT to adopt rules now to allow market-based demand response programs – PJM has tripled DR over last five years
- Work with SECO to implement reporting requirements of SB 898 and SB 924 (energy efficiency goals and reporting by political entities, Cooperatives and Municipalities)
- Adopt advanced building codes for state-funded buildings (HB 51)
- Work with SECO and ESL to incorporate building code efficiencies into planning and forecasting (HB 51)
- Adopt rules for demand side renewables (SB 981) and energy storage (SB 943)

Opportunities for Cleaner, Water-Proof Energy Future! (Part 2: Do some stuff administratively)

- EILS is a shadow of what It should be in times of grid stress – lower minimum requirement to play from 1 MW to 200 kw and increase cap from 500 to 1,000 MWs so that other commercial and even residential aggregation can be called upon – Proposed rule is a first step but concern about reliance on back-up diesel generators with air emissions issues
- Get pricing right in scarcity market to encourage new generation build-out
- Get use of LARS for large industrial expanded when needed – could increase 50% cap during peak summer months;
- SECO should begin examining 2012 Energy Conservation Codes for new building construction now for 2013 adoption, even as cities adopt 2009 IECC today by 2012 deadline
- Continue to push for better demand and supply forecasting short and long-terms – incorporation of building codes, EE programs, demand side, etc.
- Consider reopening 500 MW rule for non-wind renewable energy at PUC since they never took action

We can mitigate some of potential cost and challenge of drought and upcoming regulation through demand response & EE

- Program — Amount Saved, 2015
- EE Program – SB 1125 (30% of load growth or 0.4% of Peak) — 681 MWs
- LARS –Industrial — 1,063 MWs
- Expansion of EILS- Commercial & Residential — 1,000 MWs
- Expansion of Market-based Demand Response — (3,000 MWs)
- EE Programs – Implementation of ERCOT Coops, Munis and Political Subdivisions — (1,500 MWs)
- Implementation of Advanced Building Codes — (500 MWs)

Potential Savings of Peak Demand by 2015 — 7,744 MWs (?)

Future of Large-Scale Solar Still Unclear

- Austin Energy and CPS Energy have announced some 450 MWs in development
- Another 600 MWs may be waiting for clarity from PUC on rules for renewables
- Federal subsidies and loan guarantees running out
- Solar could help mitigate any possible retirements, particularly if they could be co-located with wind and/or gas
- PUC should Reopen and Implement the 500 MW non-wind RPS now

Proposed Utility-Scale Solar Plant	Area to Serve	Size in MWs
Travis	Austin	60
Travis – OPERATING since DECEMBER 2011	Austin	30
Presidio	San Antonio?	144
Presidio	Unknown	90
Pecos	Unknown	135
Reeves	Unknown	50
Tom Green	Unknown	90
Ector	Unknown	40
Kent	Unknown	100
Howard	Unknown	60
Total		799

ERCOT 2011 Report on Capacity, Demand and Reserves, Proposed Projects with Interconnection Agreements, 2011.

Transition to Transformative Technologies

- Coastal and offshore wind
  - Major new additions in CREZ and coastal and off-shore announced
  - Austin Energy adding between 200 and 500 MWs of Coastal: CPS Energy adding 200 MWs
  - Treat coastal vs. West Texas wind differently in terms of assigned capacity at peak
- Geothermal – Opportunities in new geothermal, including coproduction with natural gas, and Geopressured-Geothermal (brine) energy resources
- Get market rules fleshed out for energy storage
  - Implement SB 943
  - NPRR 340
  - Work of ETWG at ERCOT to define role of storage
  - Future rulemaking at PUC on other energy storage issues
- Implement SB 981 for renewable distributed to get those markets moving now
- Prioritize Co-location -Figure out colocation of resources at CREZ lines and prioritization lines for storage, solar, wind and yes natural gas
- Identify and address barriers to entry for large-scale solar
- Get market rules right for new technologies

Plan for the Future

- Follow this hearing with a commitment to plan for the future
- like it or not, federal rules are here and Texas must respond with policies to spur the market
- Like it or not, climatologists and the TWDB suggest water will be limiting factor
- Question is how will Texas position itself to provide the clean, affordable, reliable energy its economy needs within this context?
- nothing prevents PUCT from collaborating with RRC, TCEQ, TDHCA, TWDB, SECO and other state agencies to assess our position and plan for success

Plan for success

Use PUC, ERCOT, Natural Resources, State Affairs and B & C discussions as the beginning of a blueprint for an approach

- identify the tools you will need to address these issues before the 83rd Texas Legislature convenes and make sure state leaders understand these challenges and the options to address them.
- Be prepared to answer the questions by December of 2012 and what recommendations are needed, such as:
  - May need to look at retirement strategy and transition strategy for early retirement, including use of natural gas reserve capacity
  - Workers in mines and plants need protection – retraining to work in other power plants and specific training for coal miners
  - Purchasing commitment for state needs
  - Use of state credit for loan guarantees for transitional resources
  - Quick adoption of Energy Efficiency, Demand Response, Energy Storage, EILS, Distributed Renewables and Non-Wind Renewables through Rules and Protocols