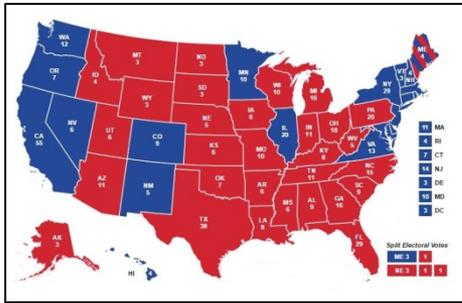


Electric Market & Environmental Regulatory Update

Southern States Energy Board 57th Annual Meeting

Charleston, South Carolina
September 24, 2017





Outline

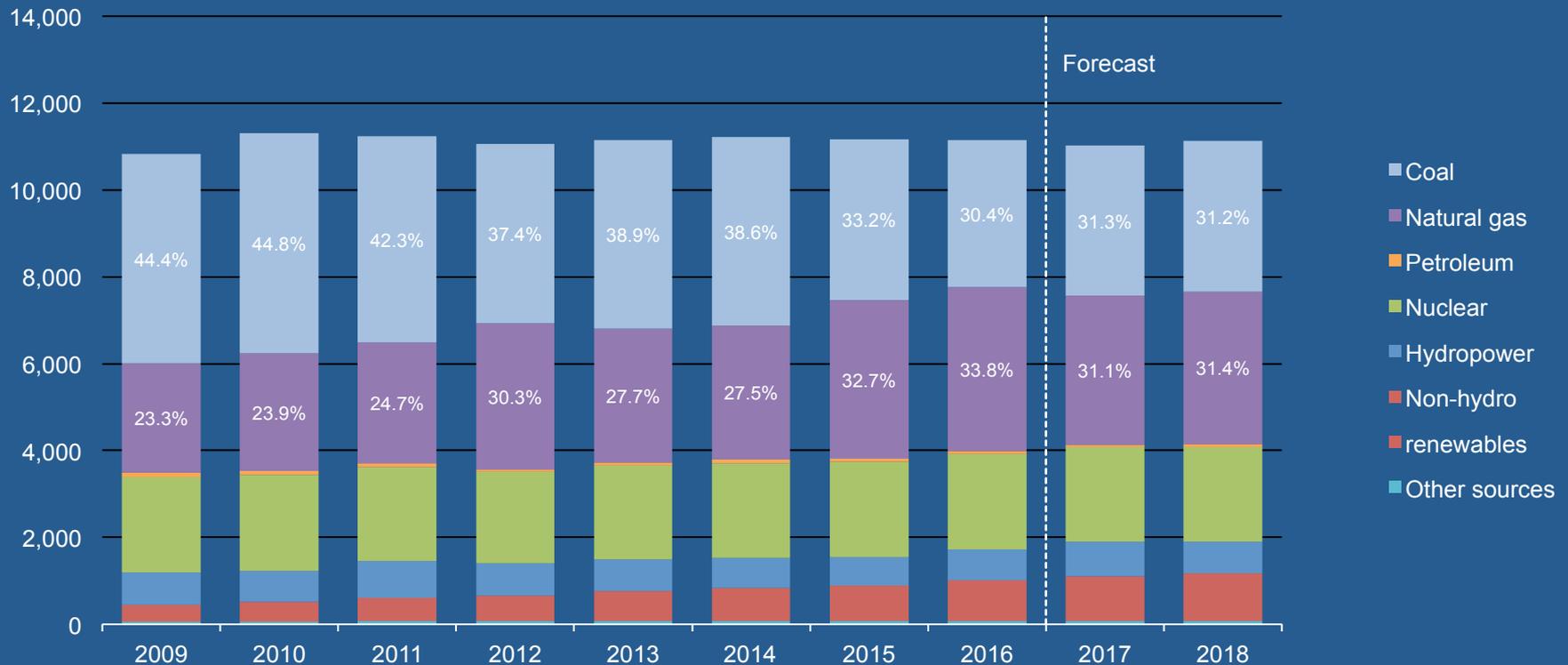


- *Electric Market Update*
- Status Update on Actions & Appointments
- Broad Reforms to Expect on Energy
- Specific Environmental Rule Discussions



Diversity of Current Electric Market

U.S. electricity generation by fuel, all sectors
thousand megawatt hours per day



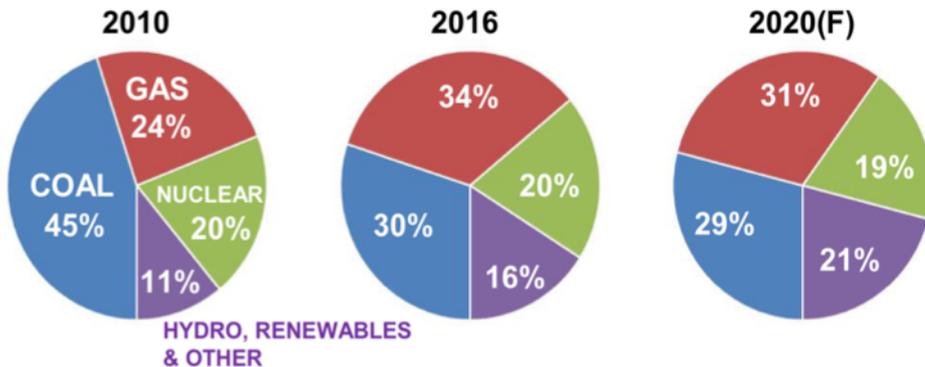
Source: Short-Term Energy Outlook, July 2017. Note: Labels show percentage share of total generation provided by coal and natural gas

Myth: “Coal is Dead and President Trump Cannot Bring it Back.”

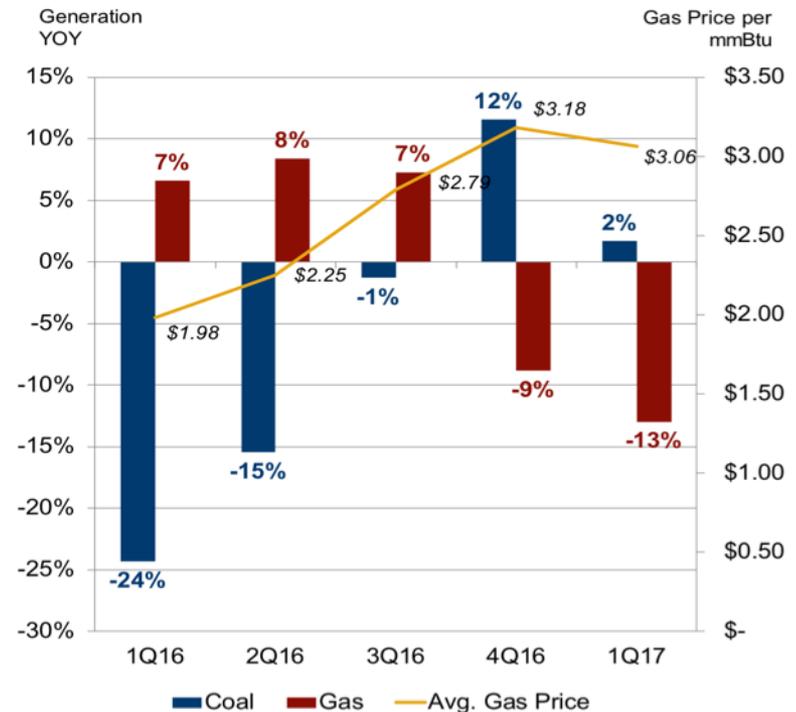
TRUTH:

1. Without CPP, current (surviving) coal fleet expected to last well into 2030-2040.
2. < 1\$ upward movement in natural gas prices swings dispatch to coal across U.S.
3. Projected international demand for coal remains strong for decades.
4. Real threat to Coal (& nuke & gas)—market distortion resulting from renewable subsidies.

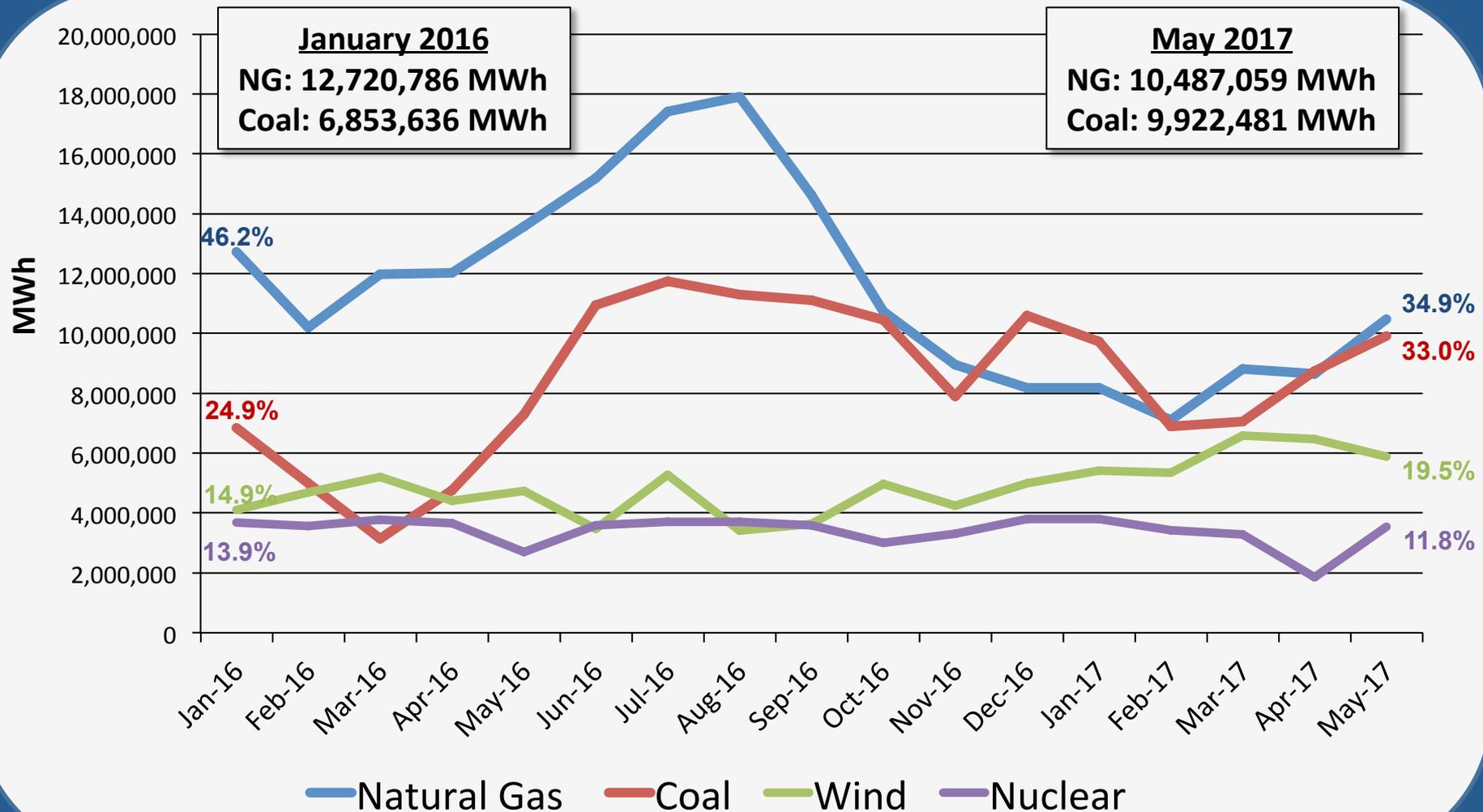
U.S. Electricity Generation by Fuel



U.S. Quarterly Coal and Gas Generation



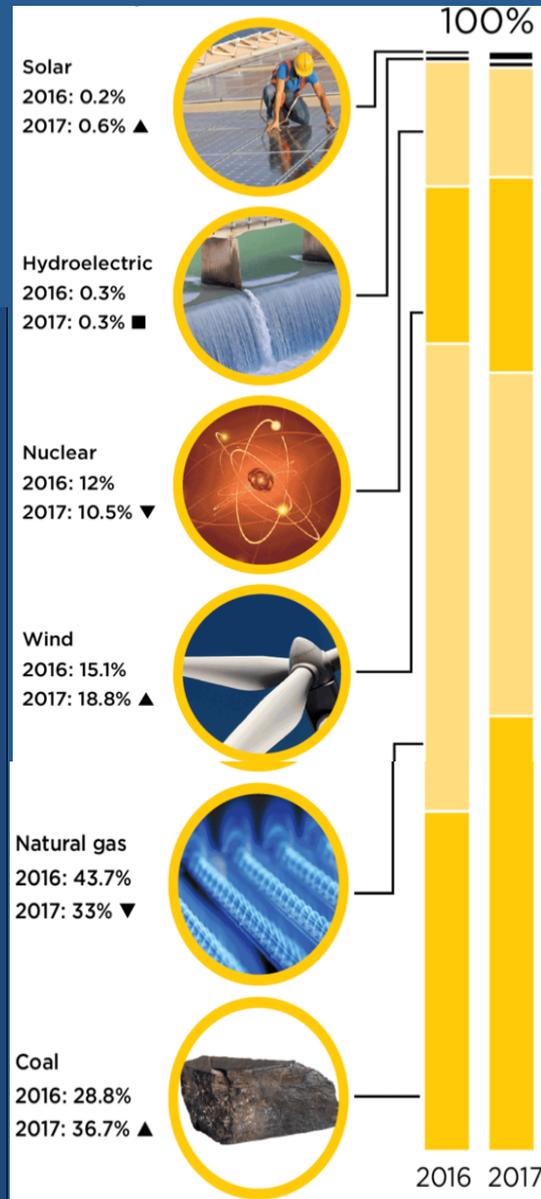
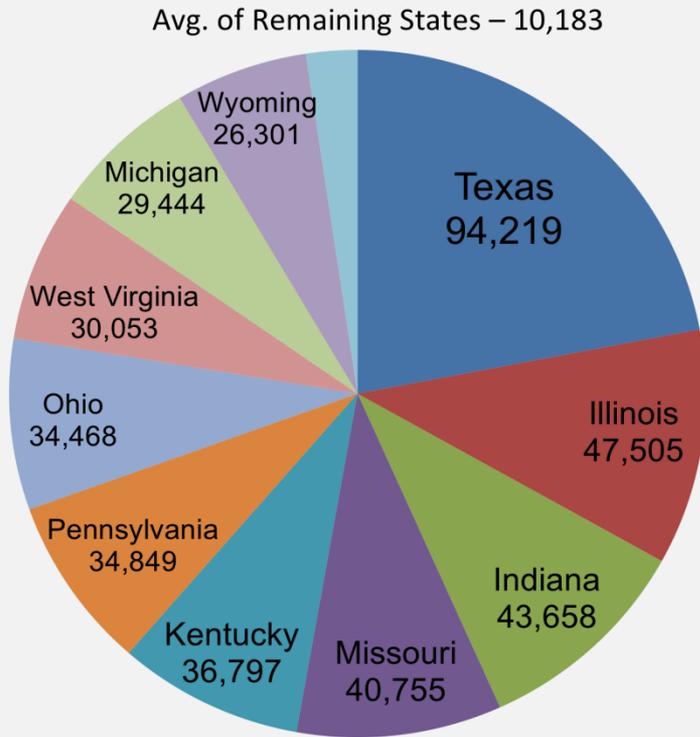
Case Study in Texas Energy Diversity



Source: ERCOT, 2016 and 2017 Demand and Energy Reports. Not listed generation includes: solar, water, net DC/BLT, and other, which make up approximately 1% of total generation.

Texas Relies Upon Coal for its Fuel Diversity & Global Competitiveness

Coal Consumed for the Production of Electricity (Thousand Short Tons)



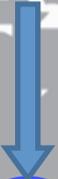
Source: U.S. Energy Information Administration, Annual Coal Report, 2016, Table 26 – U.S. Coal Consumption by End Use Sector. Coal consumption is based on an average of the coal consumption for 2014 and 2015. Average of remaining states excludes Idaho, Rhode Island, and Vermont which providing no data, no meaningful data, or an absolute percentage less than 0.05.

Source: *Dallas Morning News*, 8/19/17

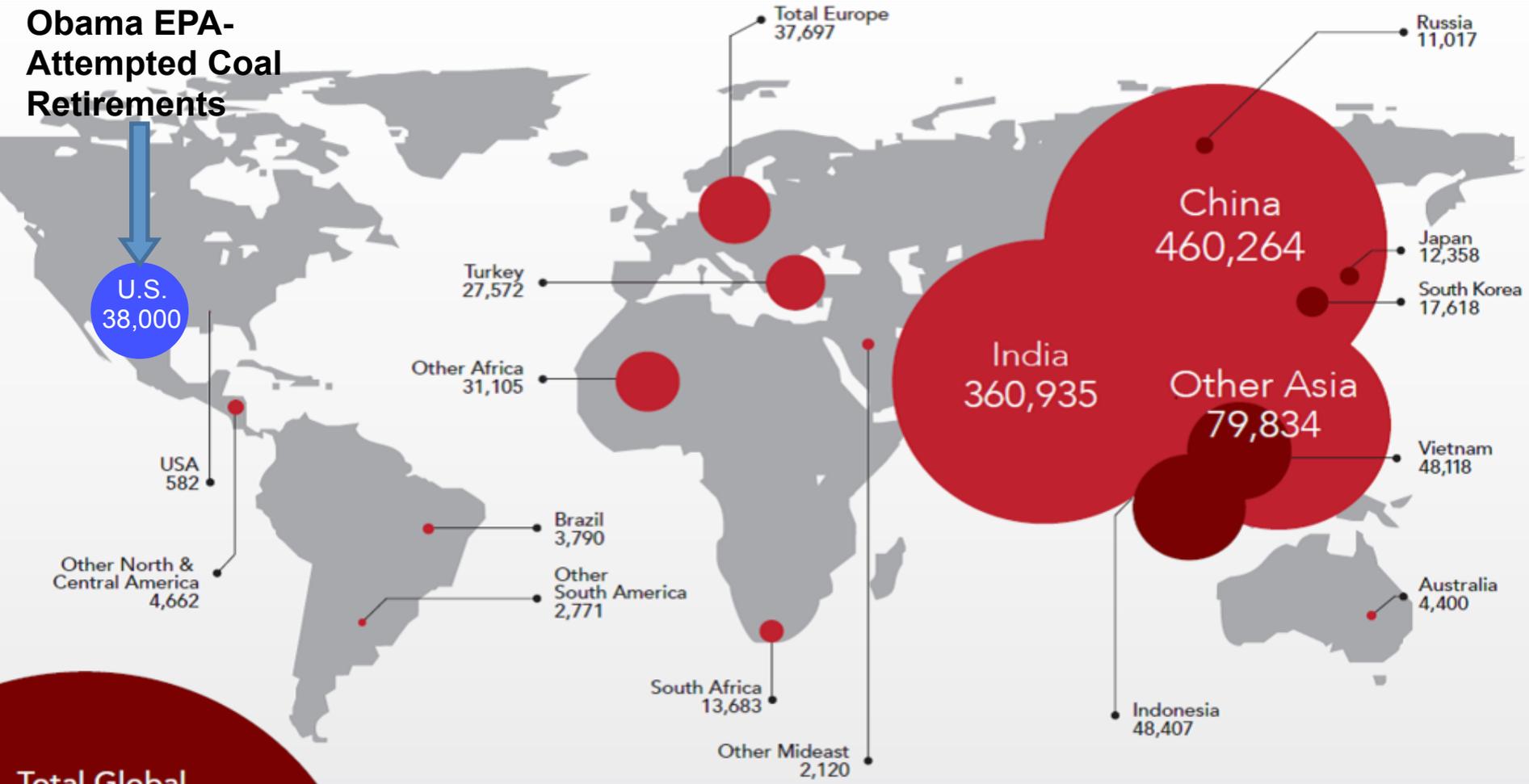
GLOBAL DEMAND FOR COAL STILL STRONG – NEW BUILDS

- for each coal plant the CPP would have retired, 31 being built elsewhere.
- 3/4 of entire US fleet currently being built in China and India alone.

Obama EPA- Attempted Coal Retirements



U.S.
38,000



Total Global Proposed Capacity:
1,167,114

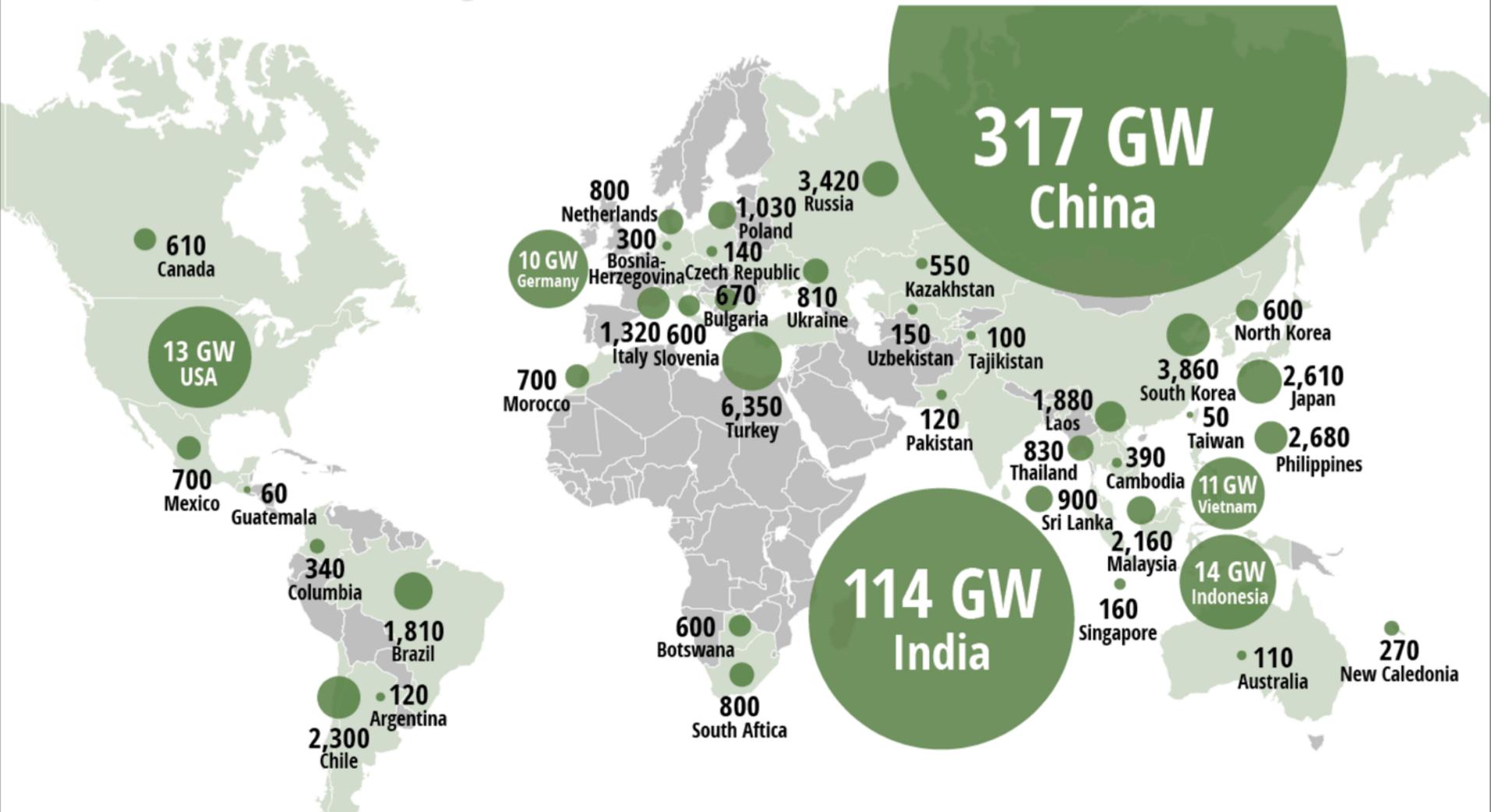
Sources: U.S. Chamber of Commerce, Institute for 21st Century Energy, Coal-fired Power Plants Planned and Under Construction (citing Platts database, September 2015); EPA CPP RIA.

Source: Platts database, September 2015

GLOBAL DEMAND FOR COAL STILL STRONG – RECENT BUILDS

Retrofit Technologies Should be Central to Global Climate Discussions

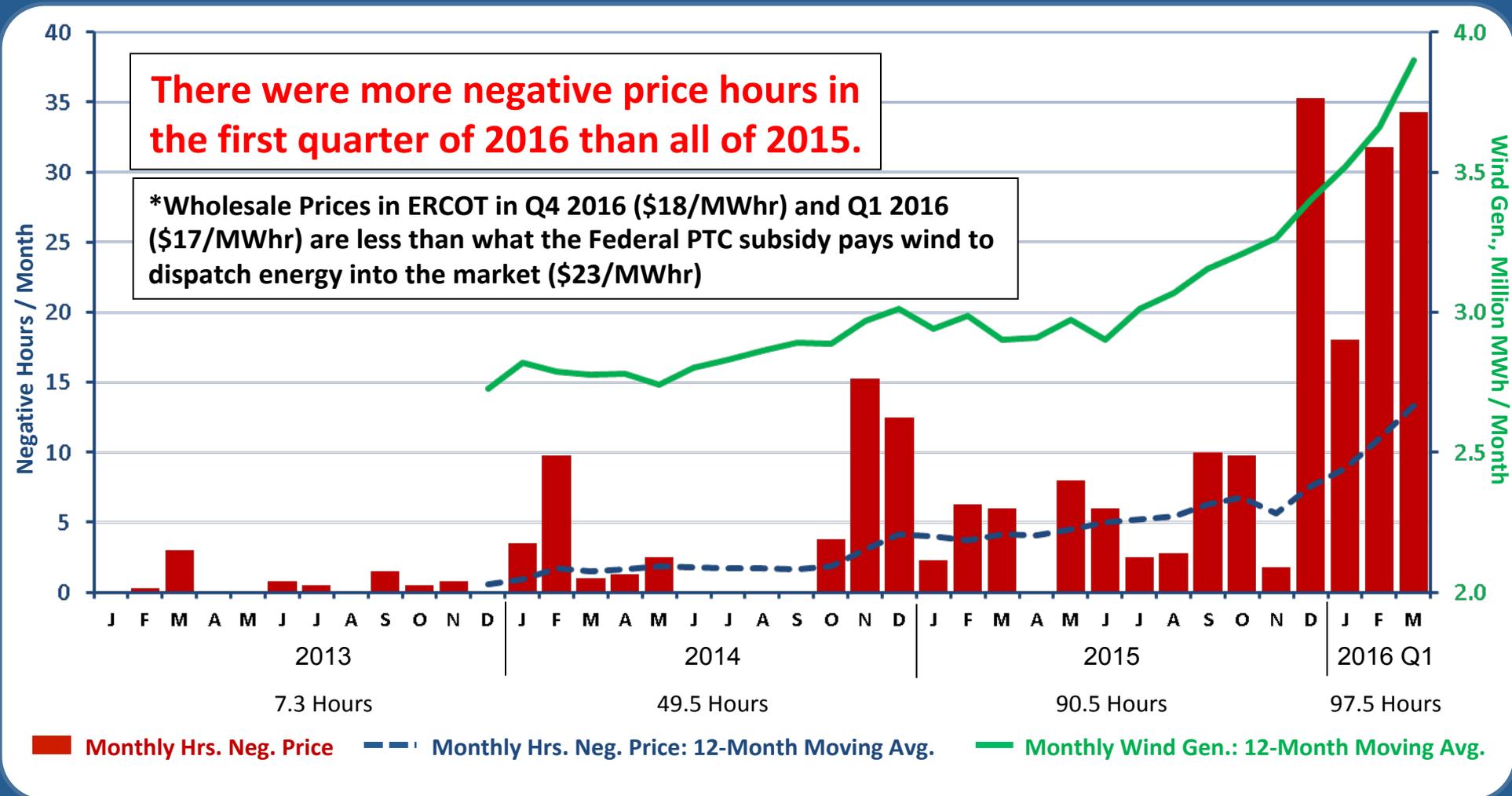
1,200+ New Generating Units Have Come Online (Since 2010)



Source: Platts World Electric Power Plant database, December 2016. Generation capacity represented in megawatts, excluding China, Germany, India, Indonesia, United States and Vietnam.

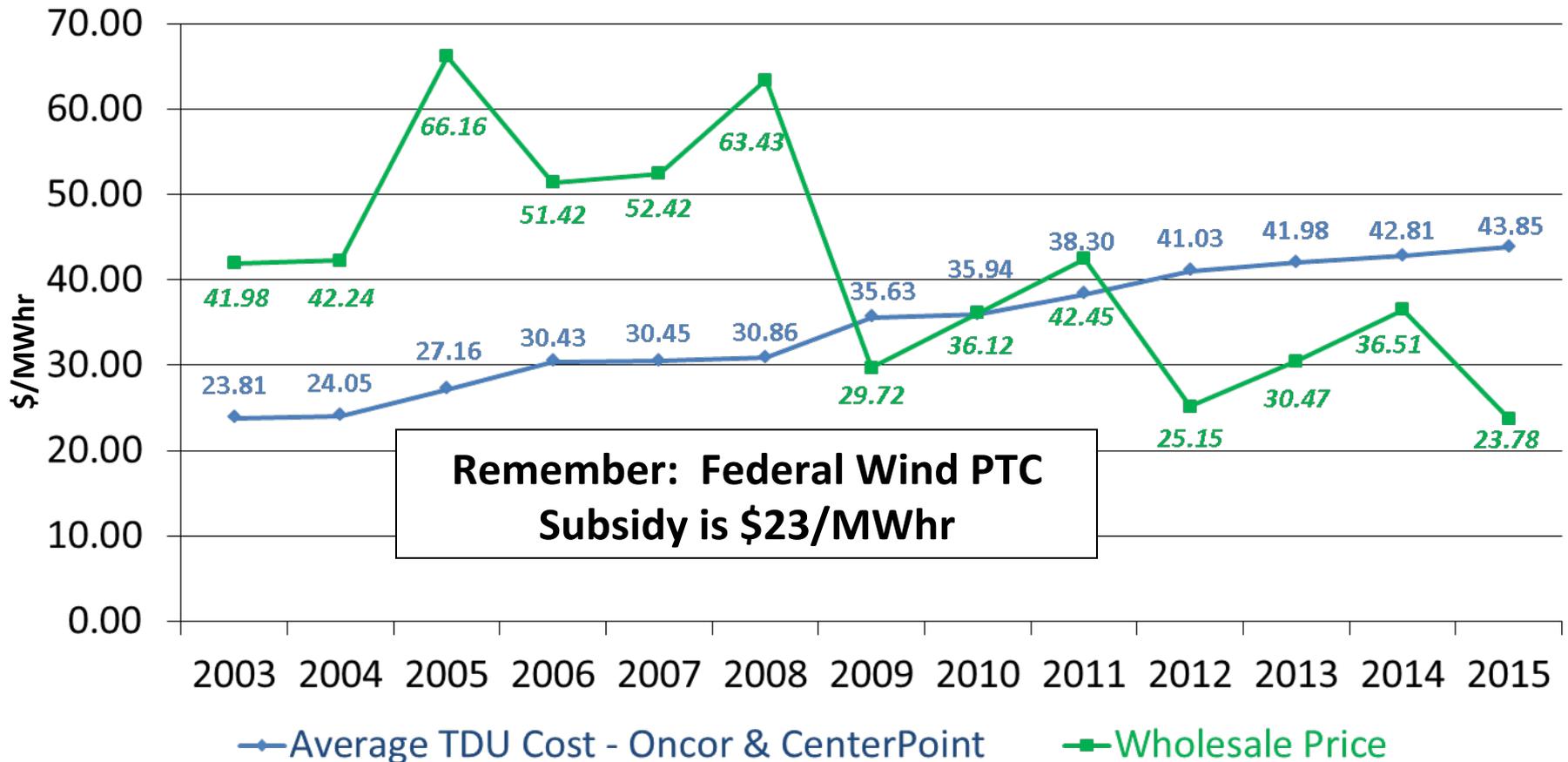
Case Study in Texas Market Distortion:

“Negative Pricing” = When wholesale price of power actually is LESS THAN ZERO (i.e. generators have to pay to stay online and generating)

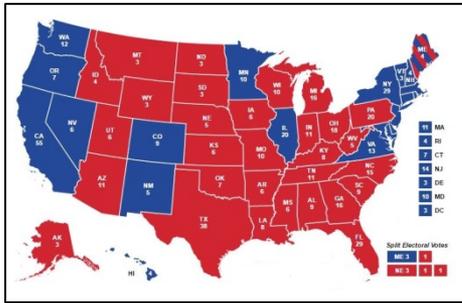


1 out of every 3 bids in the ERCOT market is now negative!

Looming Risk – Transmission costs associated with renewables masked by low gas prices.



* Oncor and CenterPoint are Texas' two largest electric delivery companies (83% of Texas load).



Outline



- Electric Market Update
- *Status Update on Actions & Appointments*
- Broad Reforms to Expect on Energy
- Specific Environmental Rule Discussions





EXECUTIVE ACTIONS - COAL & POWER SECTORS

August 15, 2017: Rebuilding Infrastructure Executive Order:

- Environmental review processes to be reformed to be made more efficient and effective (e.g., joint RODs + 90-days to issue permits)(CEQ in charge).

March 28, 2017: Energy Independence Executive Order:

- **Reconsideration** of 111(b) & (d) Rules (EPA notices & Court filings)
- **Reconsideration** of Oil & Gas Methane rules for new sources
- **Retraction** of coal lease moratorium on federal lands
- **Retraction** of President Obama Memos re: Climate-related initiatives
- **Retraction** of NEPA guidance (& Social Cost of Carbon TSD)
- **Review** of regulatory burdens on domestic energy (6 month timeline)





OTHER KEY ENERGY-RELATED EXECUTIVE ACTIONS

Apr. 14/Aug. 23, 2017 : Sec. of Energy Perry orders/issues study of the U.S. electrical grid to examine whether policies that favor wind and solar energy are accelerating the retirement of coal and nuclear plants critical to ensuring steady, reliable power supplies. Final report warns of looming problems with markets.

Mar. 21, 2017: EPA Memorandum on 2018 budget released. Budget proposed at \$5.655 billion; a 31 percent decrease from 2017; 25% reduction in employees; elimination of 56 programs.

Feb. 28, 2017: Executive Order requesting EPA and USACE to review WOTUS Rule and propose rule rescinding or revising the Rule.

Feb. 24, 2017: Executive Order to establish “Regulatory Reform Task Forces” within agencies to evaluate existing regulations for repeal or modification.

Jan. 30, 2017: Executive Order to require the elimination of two regulations for every new one enacted.

Jan. 20, 2017: Issued Memorandum placing a freeze on regulations from all agencies, pending final appointments of Cabinet members.



APPOINTMENTS TO DATE IMPACTING ENVIRONMENTAL POLICY



- **EPA Administrator - Scott Pruitt**
 - Former Oklahoma Attorney General
- **Secretary of Energy – Rick Perry**
 - Former Governor of Texas
- **Secretary of Interior – Ryan Zinke**
 - Former Montana Congressman
- **Secretary of Agriculture - Sonny Perdue**
 - Former Governor of Georgia
- **FERC – Chatterjee/Glick/Powelson/McIntyre**





OTHER ENERGY & ENVIRONMENTAL NOMINATIONS



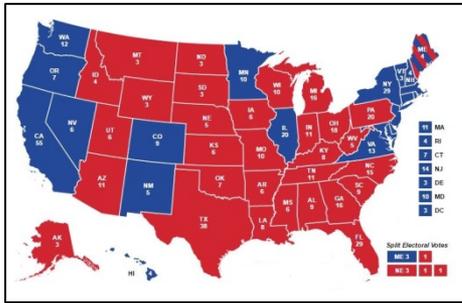
AGENCY	POSITION	PERSON	STATUS/BACKGROUND
EPA	General Counsel	Matthew Leopold	Pending Sen. confirm.; announced 9/2/17
EPA	A. Admin. – Water	David Ross	Pending Sen. confirm.; announced 9/2/17
EPA	A. Admin. – Air & Rad.	William Wehrum	Pending Sen. confirm.; announced 9/2/17
EPA	A. Admin. – Chem. Safety & Poll. Prev.	Michael Dourson	Pending Sen. confirm.; referred to comm. 7/19/17
EPA	A. Admin. – Enforc. & Comp.	Susan Parker Bodine	Pending Sen. confirm.; hearing on 6/13/17
EPA	Chief of Staff	Ryan Jackson	Former Sen. Inhofe aide and Staff Director of Senate Env. & Public Works Committee
EPA	Regional Admins.	Pending; Reg. 6 Acting Admin. Sam Coleman	Pending appointments of Regional Administrators
DOE	Deputy Sec.	Dan Brouillette	Confirmed Aug. 3, 2017
DOE	General Counsel	David Jonas	Pending Sen. confirm; hearing 7/20/17
DOE	Under Sec. – Science	Paul Dabbar	Pending Sen. confirm; hearing 8/3/17
DOE	Under Sec. – Manag. & Perf.	Mark Menezes	Pending Sen. confirm; hearing 8/3/17
DOE	Assist. Sec. – Fossil Energy	Steven Winberg	Pending Sen. confirm; announced 9/2/17
DOE	Assist. Sec. – Energy, Elec., Delivery & Reliability	Bruce Walker	Pending Sen. confirm; announced 9/2/17



OTHER ENERGY & ENVIRONMENTAL NOMINATIONS



AGENCY	POSITION	PERSON	STATUS/BACKGROUND
DOI	Deputy Sec.	David Bernhardt	Confirmed 7/24/17
DOI	Solicitor	Ryan Douglas Nelson	Pending Senate confirm.; announced 8/1/17
DOI	Assist. Sec. – Policy, Manag. & Budg.	Susan Combs	Pending Senate confirm.; hearing 7/20/17
DOI	Assist. Sec. – Insular Affairs	Douglas Domenech	Confirmed Sept. 13, 2017
DOI	Assist. Sec. – Land & Minerals Manag.	Joseph Balash	Pending Senate confirm; referred to comm. 7/25/17
DOI	Comm. – Bureau of Rec.	Brenda Burman	Pending Senate confirm; hearing 7/20/17
DOI	Dir. of Bureau of Safety and Envir. Enforce.	Scott Angelle	Senate confirmation not required – 5/22/17
DOI	Surface Mining Direct.	Pending; Acting Dir. – Glenda Owens	Pending nomination of Director
DOI	USFWS Director	Pending; Acting Dir. – Greg Sheehan	Pending Nomination of Director
CEQ	Chair	Pending	Pending appointment of Chair



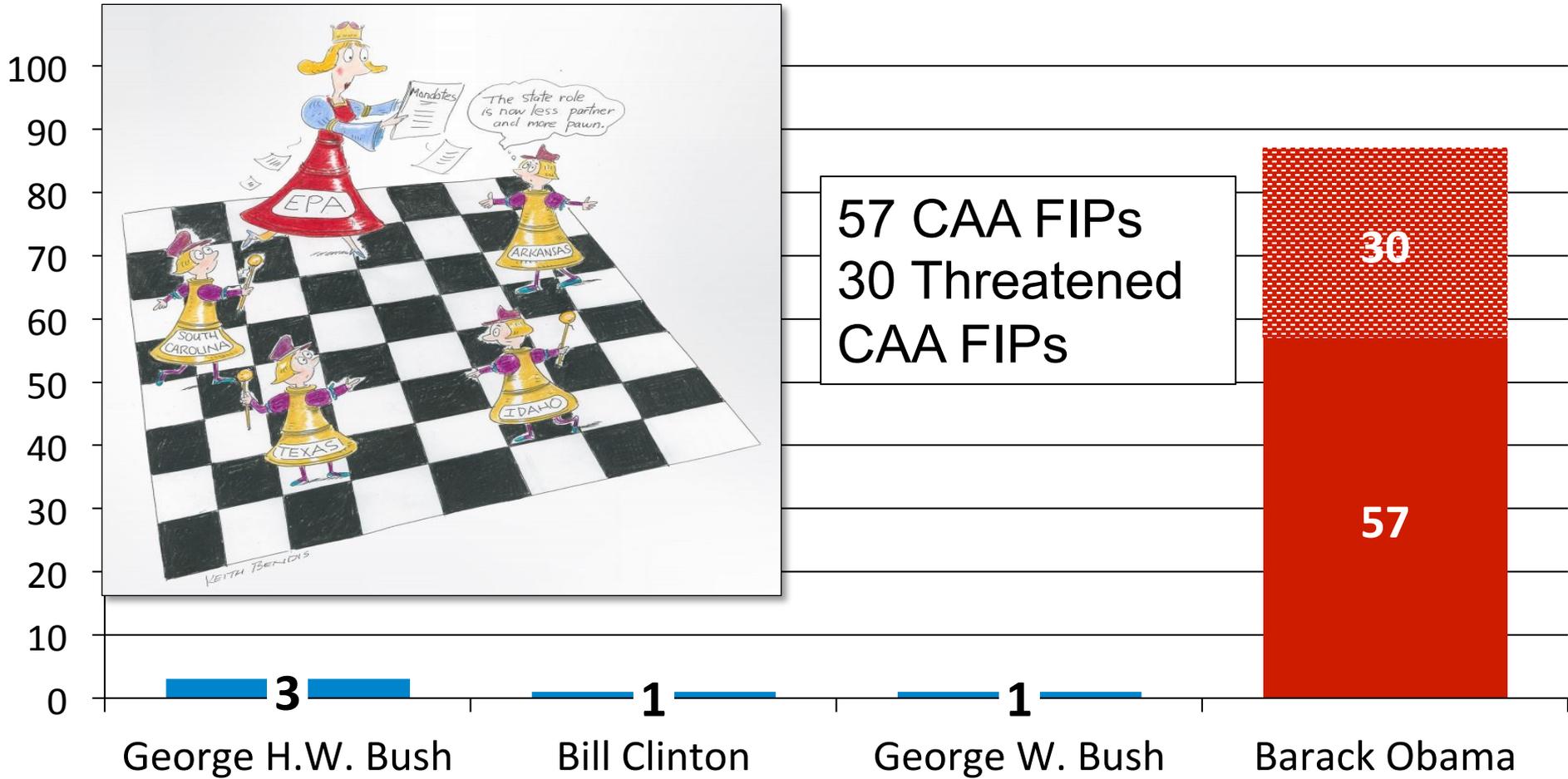
Outline



- Electric Market Update
- Status Update on Actions & Appointments
- ***Broad Reforms to Expect on Energy***
- Specific Environmental Rule Discussions



REFORM # 1: End The Age of Coercive Federalism



Source: Karen Harbert, Institute for 21st Century Energy, citing to Competitive Enterprise Institute.

Stop FIP-First Approach: Allow time for state implementation plans (SIP) revisions before issuing federal implementation plans (FIPs)



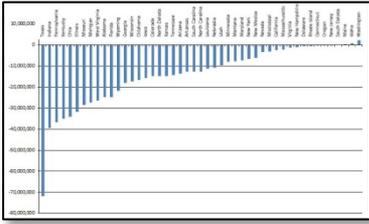


OTHER NEEDED BROAD REFORMS ON ENERGY



- Eliminate Reliance on Claimed Co-Benefits of Rules
 - Benefits must come from pollutant being regulated
 - No benefits should be assumed for reductions below NAAQS (no LNT)
- Re-establish Credibility with Science-based Approach
 - Reform scientific review process to ensure objectivity
 - Restore legitimate standards for causation (monitors > models)
- Reform NEPA Guidance to Comport with Original Intent:
 - Restore effective & efficient reviews with appropriate scope
 - Retract/reform guidance mandating consideration of GHG/climate effects (part of Energy Independence Executive Order).



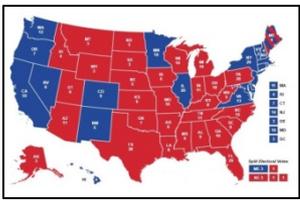


Power Plant GHG Rules: Pre-Election



- **Carbon Pollution Standards (111(b) New-Source Rule)**
 - Oct. 23, 2015 – Final Rule published in *Federal Register*.
 - Jan. 2016 – Briefing wraps up in D.C. Circuit.
 - Apr. 17, 2017 – Oral argument scheduled at D.C. Circuit.
- **Clean Power Plan (111(d) Existing-Source Rule)**
 - Oct. 23, 2015 – Final Rule published in *Federal Register*.
 - Feb. 9, 2016 – Supreme Court grants first-ever stay of a pending rule.
 - Sept. 27, 2016 – *En Banc* hearing of D.C. Circuit.
 - Dec 2016 - Feb. 2017 – D.C. Circuit opinion anticipated.
- **Range of Climate-related Executive Orders & Guidance**
 - Social Cost of Carbon; Mandatory GHG Consideration under NEPA





GHG Rules: Post-Election



3/28/17 – EO 13783 -“Promoting Energy Independence and Economic Growth”

- Instructs EPA to review both 111(b) & (d) rules (DOJ Motion for Abeyance).
- Instructs EPA to review methane (and VOC) rule for oil & gas sector.
- Rescinds GHG-related EOs; instructs CEQ/agencies to withdraw NEPA GHG guidance and Social Cost of Carbon Technical Support Document.

3/30/17 – D.C. Cir. delays previously scheduled oral argument in 111(b) case.

6/1/17 – President Announces Intent for U.S. to Withdraw from Paris Agreement

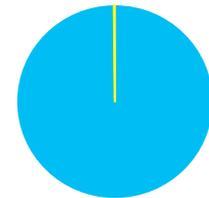
7/20/17– OMB-OIRA: EPA “proposes to withdraw [111(b) and (d) Rules] on grounds that they exceed EPA’s statutory authority.”

8/8 & 8/10/17 - D.C. Cir. grants stay of 111(b) & (d) cases (60-days of (d)case).





Potential “3 Track” GHG Regulatory Strategy



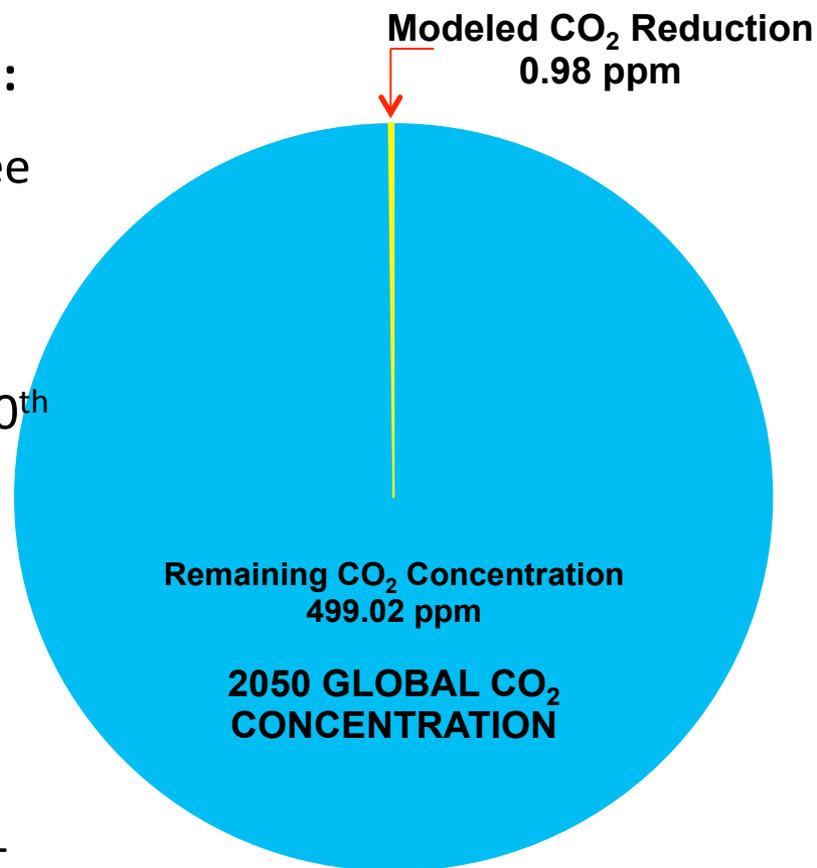
1. EPA develops a replacement for the 111(b) & (d) Rules that are expressly contingent upon the outcome of. . .
2. A concurrent docket to assess whether power plants and oil and gas facilities “significantly contribute” to alleged GHG-related endangerment which will also build a record that could lead to. . .
3. A parallel docket to rewrite/replace/narrow the 2009 Endangerment Finding.



Setting the Context for “Significant Contribution” Debate

CALCULATED CLIMATE BENEFITS OF CPP (total from EGU Sector = 2x or 2.05 ppm):

- 0.2% reduction in CO₂ concentration (see pie chart)
- Global temperature reduced by 0.01° F
- Sea level rise reduced by less than 1/100th of an inch (a dime)
- In 2025, total annual US reductions will be offset by approximately 3 weeks of Chinese emissions
- For every coal plant EPA predicted the CPP would shut down under the CPP, 31 more are being built across the globe.



“ Sources: “Climate Effects” of EPA’s Final Clean Power Plan, ACCCE, August 2015 (Intergovernmental Panel on Climate Change (IPCC) projected concentrations of CO₂ in 2050 from 450 to 600 ppm); Statement of Karen Harbert, U.S. Chamber of Commerce, U.S. House of Representatives Comm. on Science, Space, & Technology, April 15, 2015; National Centers for Environmental Information, NOAA, Global Analysis – Annual 2014; U.S. Chamber of Commerce, Institute for 21st Century Energy, Coal-fired Power Plants Planned and Under Construction; EPA CPP RIA.



Regional Haze Before Election: AR & TX



- **Texas**

- Jan. 5, 2016 – EPA publishes Reasonable Progress FIP.
 - New scrubbers on 7 units, upgraded scrubbers on 8 others.
 - Does not address BART for EGUs.
- July 15, 2016 – Fifth Circuit stays Reasonable Progress FIP; strong language against EPA.
- Nov. 3, 2016 – EPA releases proposed rule to withdraw Texas from CSAPR annual budgets for SO₂ and NO_x.

- **Arkansas**

- Sept. 27, 2016 – EPA publishes Arkansas Final FIP requiring scrubbers on multiple coal units and separate controls on the same coal units and other gas units.



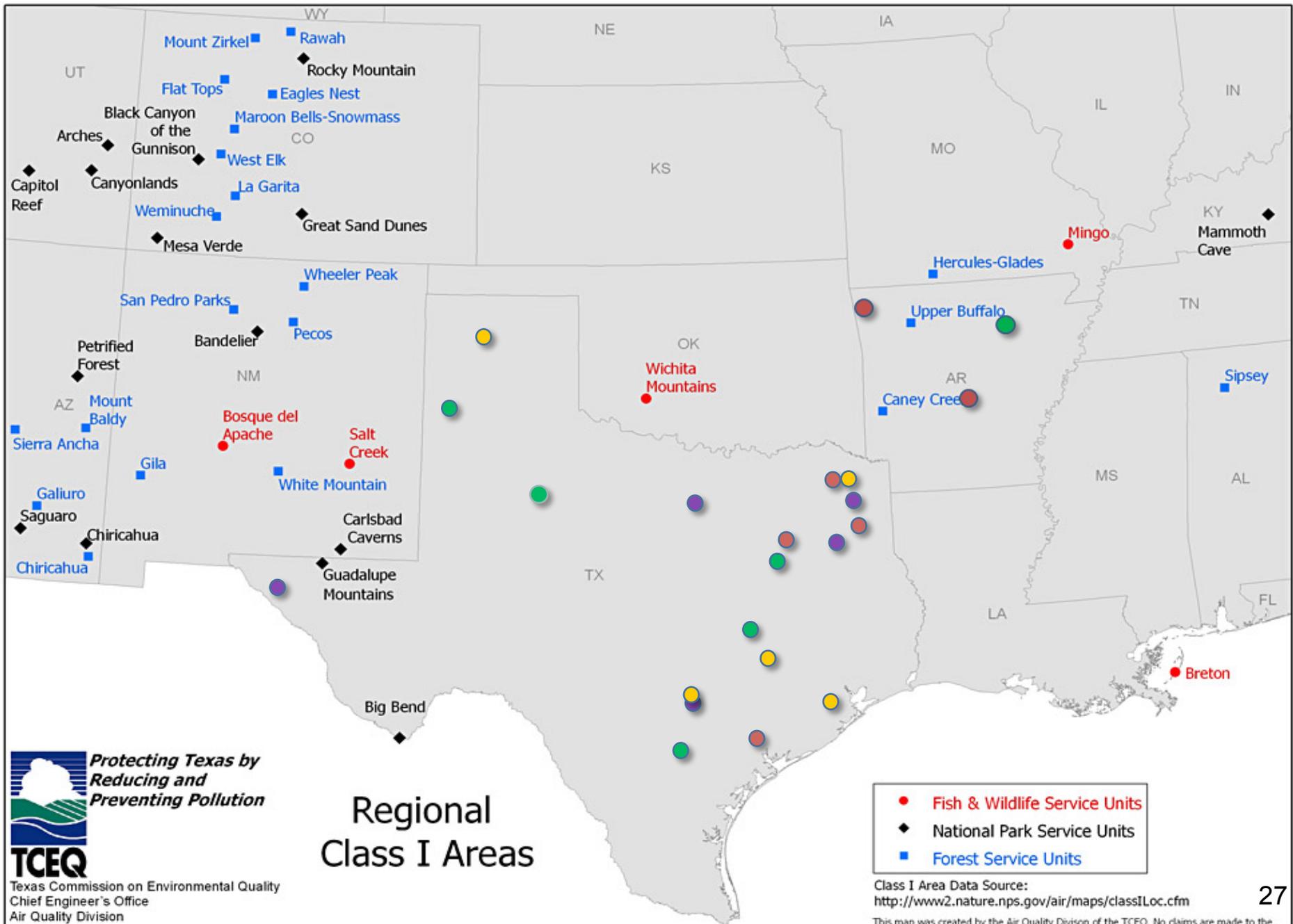
Arkansas & Texas Units Targeted by Reasonable Progress and BART FIPs

TEXAS		TEXAS	
UNIT	CAPACITY (MW)	UNIT	CAPACITY (MW)
Coal – Reasonable Progress & BART		Coal – BART	
Big Brown 1	593	Fayette 1	615
Big Brown 2	593	Fayette 2	615
Monticello 1	593	Harrington 061B	360
Monticello 2	593	Harrington 062B	360
Monticello 3	793	JT Deely 1	486
Coletto Creek 1	622	JT Deely 2	446
Martin Lake 1	793	W A Parish 5	734
Martin Lake 2	793	W A Parish 6	734
Martin Lake 3	793	Welsh 1	558
Coal – Reasonable Progress		Gas (Burn Oil) – BART	
Limestone 1	893	Graham 2	387
Limestone 2	957	Newman 2	82
Sandow 4	591	Newman 3	122
San Miguel	410	O W Sommers 1	446
Tolk 171B	568	O W Sommers 2	446
Tolk 172B	568	Stryker Crk ST 2	523
		Wilkes 1	180
		Expected FIP-Driven Retirements	<u>3,000-8,400 MW</u> (out of 17,247 MW included)

ARKANSAS	
UNIT	CAPACITY (MW)
Coal – BART	
Flint Creek 1	558
White Bluff 1*	900
White Bluff 2*	900
Coal – Reasonable Progress	
Independence 1	900
Independence 2	900
Gas (Burn Oil) or Other – BART	
Bailey 1	120
McClellan 1	136
Lake Catherine 1	552.5
Domtar 1	19.5
Domtar 2	47
Total	5,033

* White Bluff also includes separate limits for its auxiliary boiler.





Texas Commission on Environmental Quality
 Chief Engineer's Office
 Air Quality Division
 P.O. Box 13087
 Austin, TX 78711-3087

Regional Class I Areas

- Fish & Wildlife Service Units
- ◆ National Park Service Units
- Forest Service Units

Class I Area Data Source:
<http://www2.nature.nps.gov/air/maps/classIloc.cfm>

This map was created by the Air Quality Division of the TCEQ. No claims are made to the accuracy or completeness of the data or to its suitability for a particular use. For information concerning this map, please contact Margaret Earnest at 512.239.4581, sh 2/27/07

What a Difference a FIP Makes

Under Texas SIP

With FIP Implemented



- Wichita Mountains (OK): 0.14 deciview improvement (above)
- Even Less Improvement in Texas
 - Big Bend National Park: 0.03 deciview improvement
 - Guadalupe Mountains NP: 0.04 deciview improvement





5th Circuit Opinion Regarding Importance of Grid Reliability

Texas v. EPA, 829 F.3d 405 (5th Cir. 7/15/2016)



- “The Clean Air Act requires EPA to consider ‘the energy [] impacts of compliance’ with the emission controls in a SIP or FIP. Petitioners have a strong likelihood of success in showing that **EPA failed to do so** when it devised its FIP because the Final Rule would render several of the affected electrical generating units uneconomical and cause the closure of 3,000 to 8,400 MW of generating capacity in Texas.” (emphasis added; citations removed)
- “EPA, responding to concerns ERCOT submitted in the notice and comment period, attempted to address all questions about the impact of the Final Rule on power capacity in Texas **in half of one page** of the Federal Register... EPA summarily dismissed [ERCOT] concerns about grid reliability in Texas and relied on a report prepared by a private expert outside the agency to bolster its conclusion.” (emphasis added; citations removed)



5th Circuit Opinion Regarding Importance of Grid Reliability

(Cont. . .)



- As EPA’s reliance on an outside expert demonstrates, **EPA has no expertise on grid reliability**—its sister agency FERC, uninvolved in this regulatory scheme or this rulemaking, is the federal expert in that area....Particularly when contrasted with the expert report of ERCOT, the group with the greatest knowledge regarding questions of grid reliability in Texas, EPA’s truncated discussion of grid reliability indicates that the agency may not have fulfilled its statutory obligation to consider the energy impacts of the FIP.” (Emphasis added; citations removed)
- “Even setting aside the costs of compliance for the power company petitioners, if the Final Rule causes plant closures, the **threat of grid instability and potential brownouts alone constitute irreparable injury to Texans.**”



Regional Haze

After Election: AR & TX



- **Texas**

- Jan. 4, 2017 – EPA releases BART FIP proposal.
 - New scrubbers on 12 units; scrubber upgrades on 4 units.
- Mar. 22, 2017 – Litigation on Reasonable Progress FIP Update.
 - Fifth Circuit grants EPA’s motion for partial remand of the case for reconsideration; case is being held in abeyance.
- Aug. 18, 2017 – EPA requests extension of consent decree extension until Dec. 31, 2018 (previously Sept. 9, 2017) to provide time for Texas to develop its own plan.
- Aug. 31, 2017 – D.C. District Court denies extension request (later provides extension until Sept. 30, 2017 due to EPA addressing Hurricane Harvey).

- **Arkansas**

- Apr. 25, 2017 – EPA publishes in *Federal Register* notice of partial stay and reconsideration of Arkansas FIP.
- EPA, Arkansas, and relevant parties engage in negotiation on FIP.
- July 31, 2017 – Eighth Circuit grants motion to continue to hold case in abeyance until September 26, 2017.
 - The “court will not look favorable [sic] upon any additional delay beyond that date.”



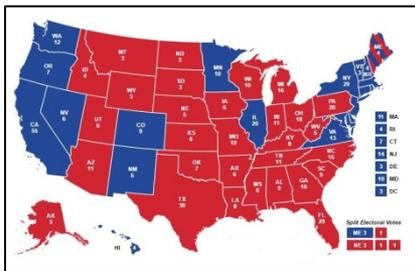


Regional Haze: Key National Reforms Needed



- Stop using reasonable progress/long-term strategy regs. in place of BART-focus.
- Require material visibility improvement demonstration before regulation is warranted (\$/deciview instead of \$/ton)
- Return Power to the States
 - Stop the FIP-first approach
 - Stop sue-and-settle empowerment of environmental & judicial activists





MATS Rule: Post-Election



- Status: Cost-benefit analysis currently subject to legal review in D.C. Circuit and agency action
- Problem: Most of damage to fleet already done
- Opportunity:
 - Request that court remand for reconsideration, particularly on the use of co-benefits to justify rule?
 - Notice to withdraw rule because of lack of benefits compared to costs
 - When re-proposed, reduce O&M costs in tight market





CCR Rule: Post-Election



STATES

STEP 1: GET READY

Assess state programs for approvability, legality, and resource adequacy:

- State legislation needed?
- State appropriation needed?

STEP 2: GET GOING

Develop a simple, incorporation-by-reference state rule that cross references existing federal criteria.

STEP 3: GET FIXED

Once EPA has finalized federal rule refinements, develop and promulgate more site-specific, risk-based state program and submit for EPA approval.

FEDERAL

STEP 1: GIVE RELIEF & GUIDANCE

- Announce relief from initial GW data deadlines for states seeking approval.
- Develop process for state program review, funding for state programs, & guidance on interpretive issues.

STEP 2: REVIEW & APPROVE

Review, approve, and fund initial state program submittals (concurrent process).

STEP 3: REFINE & RE-APPROVE

Rulemaking to refine rule to allow for more site-specific requirements including alternative liners and risk-based groundwater protection standards.





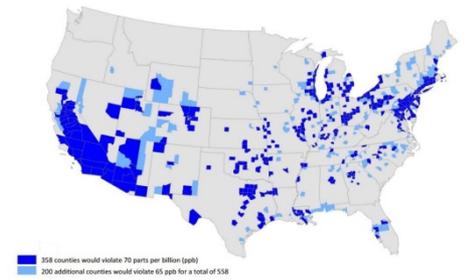
Effluent Limitations Guidelines Reconsideration



- November 3, 2015 – Effluent Limitations Guidelines Rule finalized.
 - Best available technology economically achievable (“BAT”) effluent limitations and pretreatment standards for: fly ash transport water, bottom ash transport water, flue gas desulfurization (“FGD”) wastewater, flue gas mercury control wastewater, and gasification wastewater.
 - To begin going into effect on November 1, 2018 (no later than Dec. 31, 2023).
- April 12, 2017 – EPA Administrator Pruitt announces EPA will reconsider the Rule.
 - Grants petitions of the Utility Water Act Group (filed March 24, 2017) and the U.S. Small Business Administration’s Office of Advocacy (filed April 5, 2017).
 - EPA is delaying the implementation of the BAT effluent limitations and pretreatment standards noted above.
 - EPA cited to “capital expenditures” and found “that justice requires it to stay the compliance dates of the Rule that have not yet passed, pending judicial review.”
 - Will preserve the regulatory status quo while the litigation is pending and the reconsideration is underway.
- Also litigation proceeding in the U.S. Court of Appeals for the Fifth Circuit addressing many of the same issues in the reconsideration.
 - Court rules that EPA will have to conduct notice and comment rulemaking for delaying compliance deadlines.
- September 13, 2017: EPA releases rule imposing a two-year delay (from Nov. 2018 to Nov. 2020) in best available technology economically achievable (“BAT”) effluent limits and pretreatment standards for bottom ash and FGD wastewater.



Ozone NAAQS Rule: Pre-Election



October 26, 2015 – Final Rule published in the *Federal Register*

- Moved standards (primary and secondary) from 8-hour standard of 75 ppb to a standard of 70 ppb
- Hundreds of billions of dollars in projected compliance costs

October 1, 2016 – States submit designation recommendations

October 1, 2017 – EPA scheduled to issue area designations

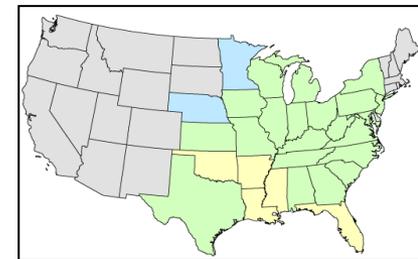
2020 to 2021 – States to complete State Implementation Plans

2020 to 2037 – States are required to meet the primary standard



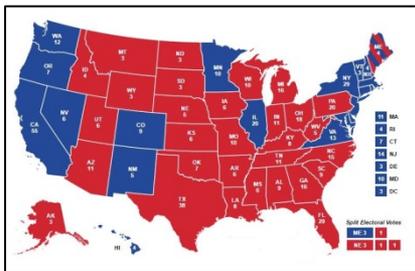


Cross-State Air Pollution Rule: Pre-Election



- August 8, 2011 – Final Rule published in *Fed Register*—limits to hit in January 2012
- December 30, 2011 – Rule stayed by D.C. Circuit
- August 21, 2012 – Rule reversed on facial challenges by D.C. Circuit
- April 29, 2014 – Supreme Court upholds Rule but remanded “as applied” challenges
- January 1, 2015 – EPA begins implementing CSAPR and recording allowances
- July 28, 2015 – D.C. Circuit rules on as-applied challenges; certain states “over controlled” (remands w/out vacatur)
 - Ozone Season limits invalid for 11 states
 - SO₂ Phase 2 limits invalid for 4 states
- June 27, 2016 – EPA issues “offer” to 4 states where D.C. Circuit found over control of SO₂: Comply with original CSAPR Annual Budgets or EPA will impose BART FIP
- September 7, 2016 – EPA releases ozone-season update final rule on reduced budgets based on 2008 ozone standard (CSAPR was based on 1997 standard)
- January 2017 – Texas proposed to be removed from annual #s (we won in court)





Ozone & CSAPR

NAAQS: Post-Election



- Revisitation of 2015 ozone standard (70 ppb)(note difference from administration decision not to stall implementation rule):
 - Based on review of science; would demonstrate that rule is not needed.
 - Walk Back to 2008 ozone standard (75 ppb) - would alleviate ozone-related future phases of CSAPR and new nonattainment issues.
- CSAPR
 - Finalize removal of over-controlled states (e.g., Texas)
 - Several Options Warrant Attention Given “Good Neighbor” issues;
 - Could leave aspects in place or reform the rule;
 - End coercive process of forcing over-controlled states to still comply with rule in order to avoid BART risks (e.g., Texas).

