Reliability and Cost Implications of the EPA's Clean Power Plan

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Chairman Donna L. Nelson
Public Utility Commission of Texas

What is the Clean Power Plan?

In June of last year, the EPA published a rule that attempts to regulate carbon emissions under the Clean Air Act.

What does the Clean Power Plan mean for Texas?

The EPA's proposed rule would destroy the underpinnings of the ERCOT competitive electric market and is an overwhelming threat to our state, our competitive market, customer affordability, and electric reliability.

Clean Power Plan Key Dates

- **January 2015**

  EPA began the regulatory process for proposing a federal plan to meet goals for cutting carbon pollution from existing power plants for states that failed to implement a state plan.

  EPA plans to propose a federal plan for meeting Clean Power Plan goals for public review and comment this summer.

- **Summer 2015**

  EPA to issue final rules on:

  - Clean Power Plan for Existing Power Plants in States, Indian Country and U.S. Territories.
  - Carbon Pollution Standards for New, Modified and Reconstructed Power Plants.

Clean Power Plan Key Dates

- **Summer 2016**
  - Proposed due date for states to submit compliance plans to EPA – these can be complete plans or initial plans with requests for 1- or 2-year extensions. (2-year extensions are only available for multi-state plans)
  - EPA will be in a position to issue a final federal plan for meeting Clean Power Plan goals in areas that do not submit plans.
- **Summer 2017**

  Proposed due date for compliance plans with 1-year extension.
- **Summer 2018**

  Proposed due date for multi-state compliance plans with 2-year extension.
- **Summer 2020**

  Proposed beginning of the Clean Power Plan compliance period.

Clean Power Plan: Building Blocks

- Make fossil fuel power plants more efficient
  - Average heat rate improvement of 6% for coal steam electric generating units
- Use low-emitting power sources more
  - Dispatch to existing and under construction natural gas combined cycle units to up to 70% capacity factor
- Use more zero- and low-emitting sources
  - Dispatch to new clean generation, including wind and solar
- Use electricity more efficiently
  - Increase demand-side energy efficiency to 1.5% annually

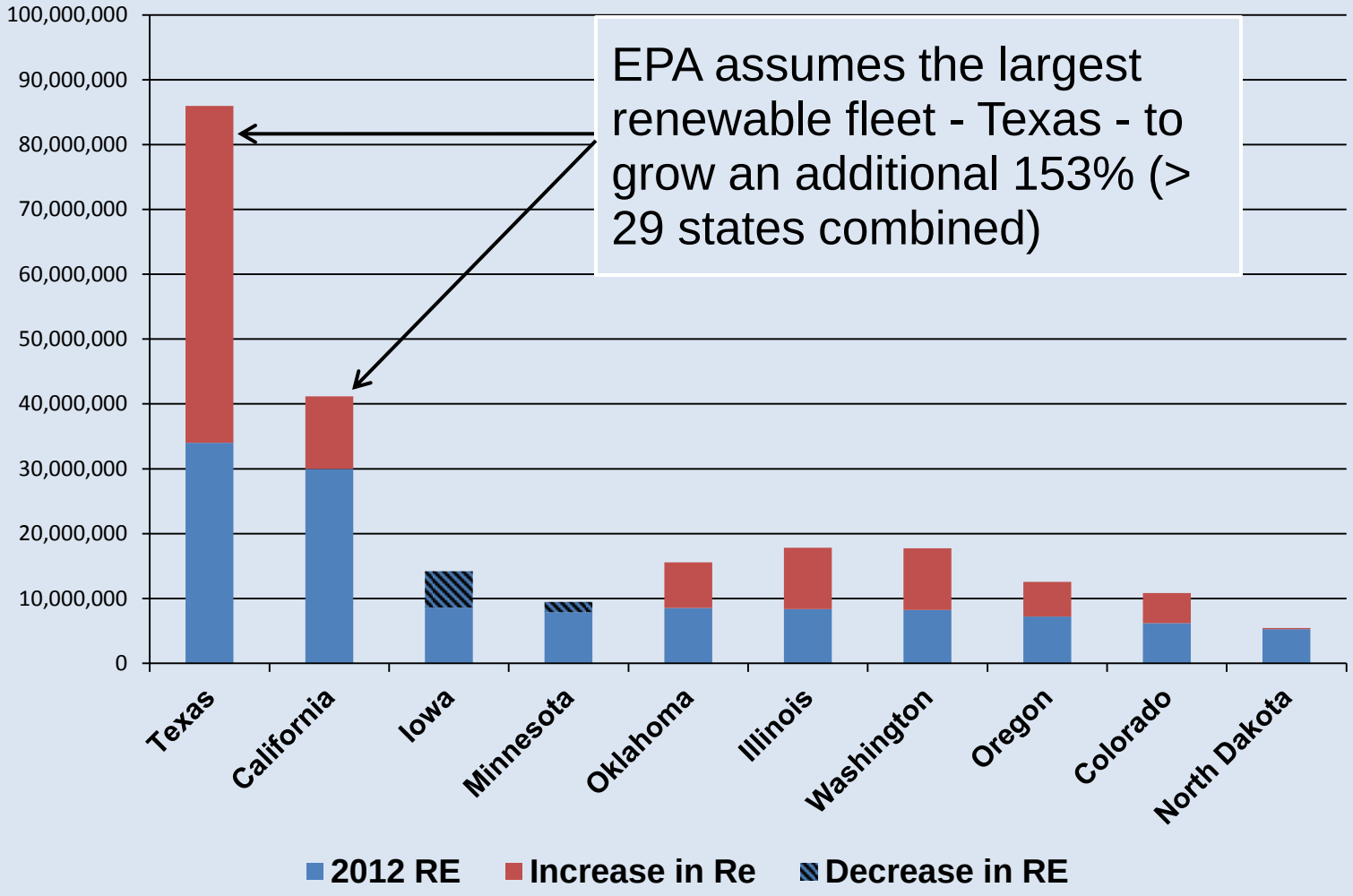
Clean Power Plan: Legal Issues

- The rule as proposed will effectively preempt states from establishing their own renewable energy and energy-efficiency standards. The current RPS and energy-efficiency standards were established by the Legislature.
- Texas has jurisdiction over the wholesale, retail, and transmission issues within ERCOT. Texas is the only state in the continental US that has such authority. This rule effectively transfers authority for those issues to the federal government.

Clean Power Plan: Goals

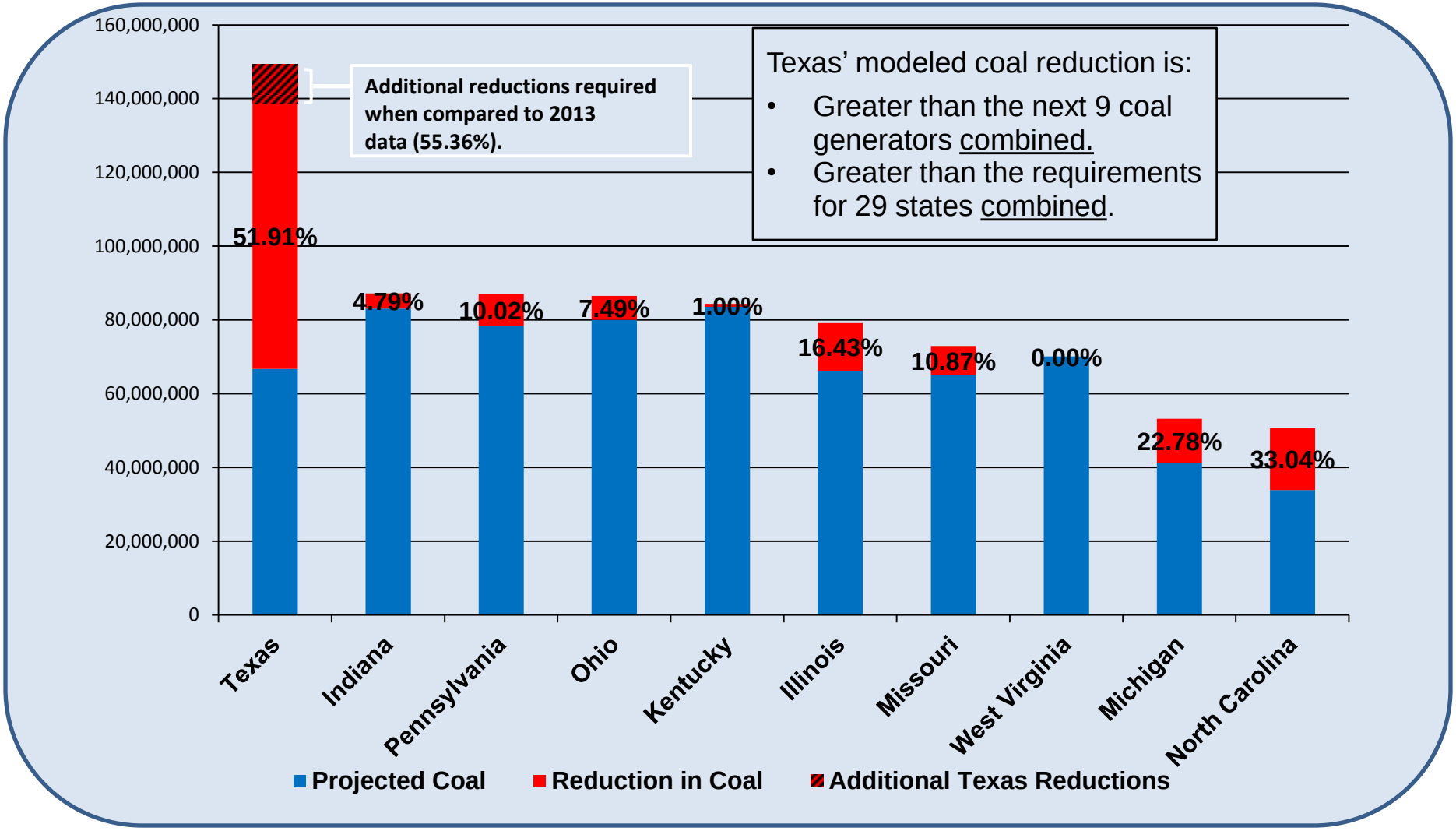
- The EPA will not account for any emissions efficiencies or renewable energy installations that were completed before 2012.
- However, the EPA will take credit for all of the reductions that are attributable to the actions Texas has taken since 2005.
  - Texas has been a leader in building transmission, including transmission that carries renewable resources.
  - The vast majority of our wind fleet was installed before 2012 and Texas will not receive credit for those resources.

Clean Power Plan: Increase in Renewables



*The EPA's renewable mandate is based on a capacity goal in Kansas.

Clean Power Plan: Decrease in Coal Generation



Economic vs. Environmental Dispatch

- All resources in ERCOT, including generation and demand response, bid into the ERCOT market every 5 minutes.

  ERCOT accepts the bids of the resources that are most economic.

- Instead of having economic dispatch within ERCOT, the Clean Power Plan requires environmental dispatch, where resources are dispatched based on a mandate from the EPA.

Reliability: SPP

SPP anticipates:

- Its reserve margin would plummet to 4.7% from 13.6% by 2020—8.9% below its minimum reserve margin requirement.
- A capacity margin deficiency of approximately 4,500 MW.
- By 2024, SPP expects that its reserve margin would further drop to -4.0%, which represents **a capacity margin deficiency of approximately 10,000 MW**.
- The assumed plant retirements in its region would result in significant reactive power deficiencies, the most notable of which were in the Texas Panhandle region.

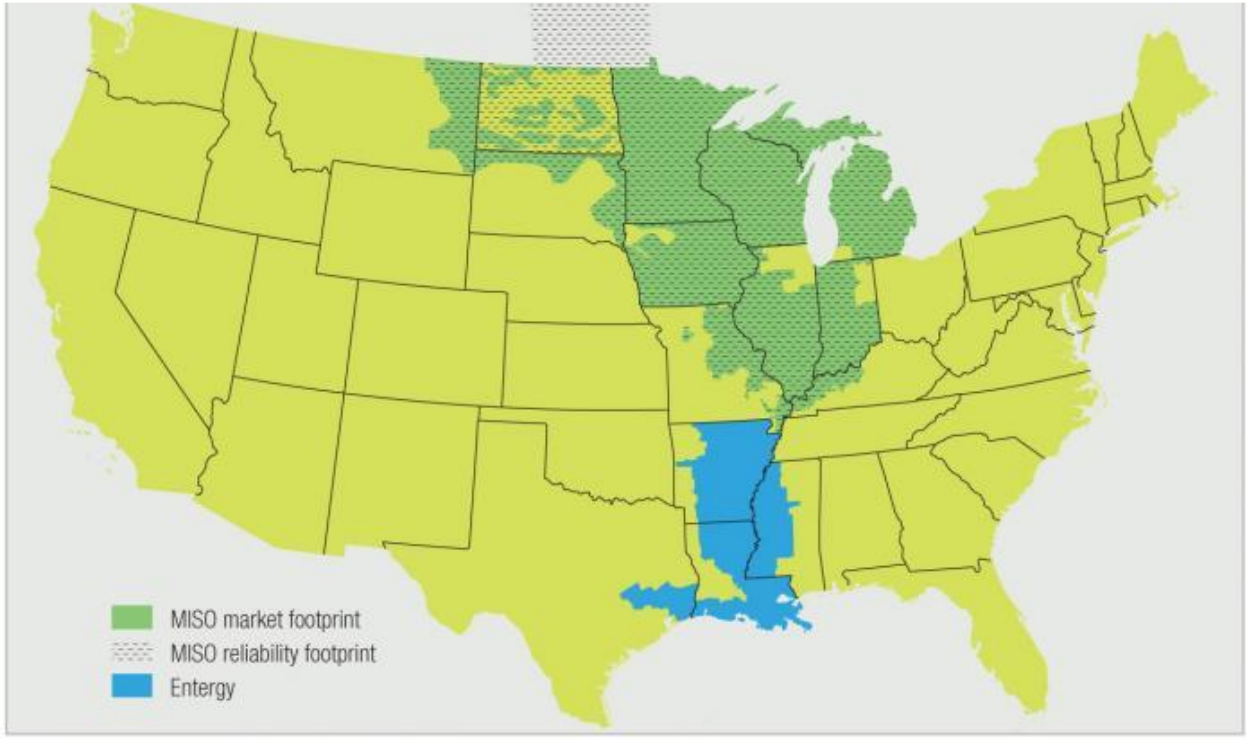
Case Study: SWEPCO (AEP)

SWEPCO anticipates:

- Retiring almost 2,200 MW of generation by 2020, which is:
  - 39% of SWEPCO's total installed capacity
  - 100% of its baseload generation in Texas
- The East Texas pocket of SPP will not have any generation capacity causing:
  - Reliability concerns
  - Voltage control issues

Reliability: MISO

MISO anticipates retiring an additional 14,000 MW of coal generation.



Reliability: ERCOT

ERCOT anticipates:

- Up to half of the existing coal capacity to be retired.
- Challenges to the reliable operation of the grid.
- New wind and solar resources will increase the challenges of reliably operating all resources.
- The loss of reliability services provided by retiring units will strain ERCOT's ability to integrate new renewable resources.

Cost

- The Brattle Group estimated that ERCOT and SPP energy prices will increase by at least $10-$18 per MWh in 2030.
- $35 per MWh is more realistic, according to some stakeholders.

  That means a projected increase from 25% to almost 90%, up to $15 billion annually.
- ERCOT estimates that the Clean Power Plan alone can increase customer prices by up to 20 percent by 2020.

  These estimates do not account for the associated costs of transmission upgrades, higher natural gas prices caused by increased natural gas demand, procurement of additional ancillary services, energy-efficiency investments, or the capital costs of new generation capacity.

Questions?