



Environmental Issues and Potential Impacts

Jenell Katheiser
Economist

January 10, 2011

Agenda

- Summary of environmental discussion from December 2nd meeting
- How environmental regulations affect existing generation
- What environmental regulations will affect new generation
- Impacts to new generation siting

Summary of environmental discussion from December 2nd meeting

- **Pat Braddock from Fulbright & Jaworski**
 - EPA regulations to be aware of
 - Cooling water intake technologies
 - Maximum Achievable Control Technology (MACT): mercury and other hazardous pollutants
 - Clean Air Transport Rule (CATR): particulates
 - Coal Combustion Residuals (CCR): coal ash
 - Non-attainment zones
- **Tom “Smitty” Smith with Public Citizen**
 - Health impacts from emissions
 - Environmental impact from emissions
 - Water resource concerns

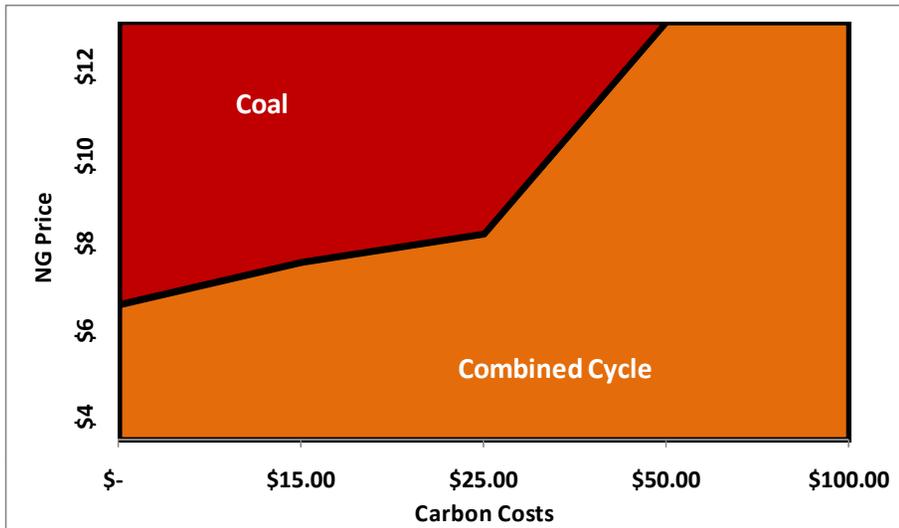
How environmental regulations affect existing generation

- **Many of the existing gas steam units have some emission control technology already in place**
- **However, the EPA regulations discussed in this presentation will have some effect on the retirements of existing units**
- **We will be evaluating the effect of these regulations on the capacity retirements in the context of each scenario as part of this study**

What environmental regulations will affect new generation

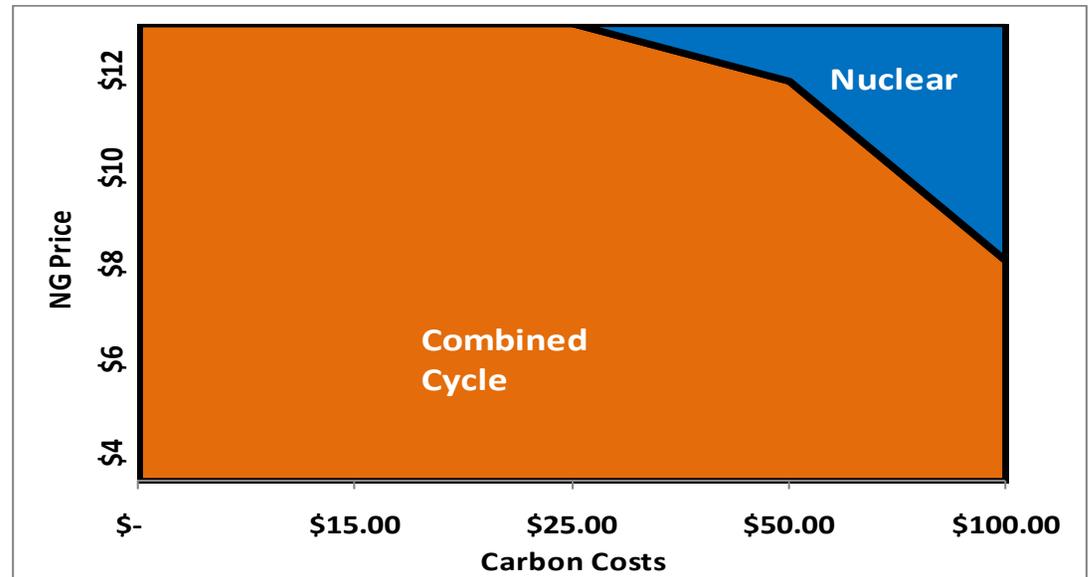
- **The biggest unknown for new generation will be carbon (CO₂)**
- **What range of carbon tax should be evaluated**
 - \$0/ton to \$???./ton

What environmental regulations will affect new generation contd.

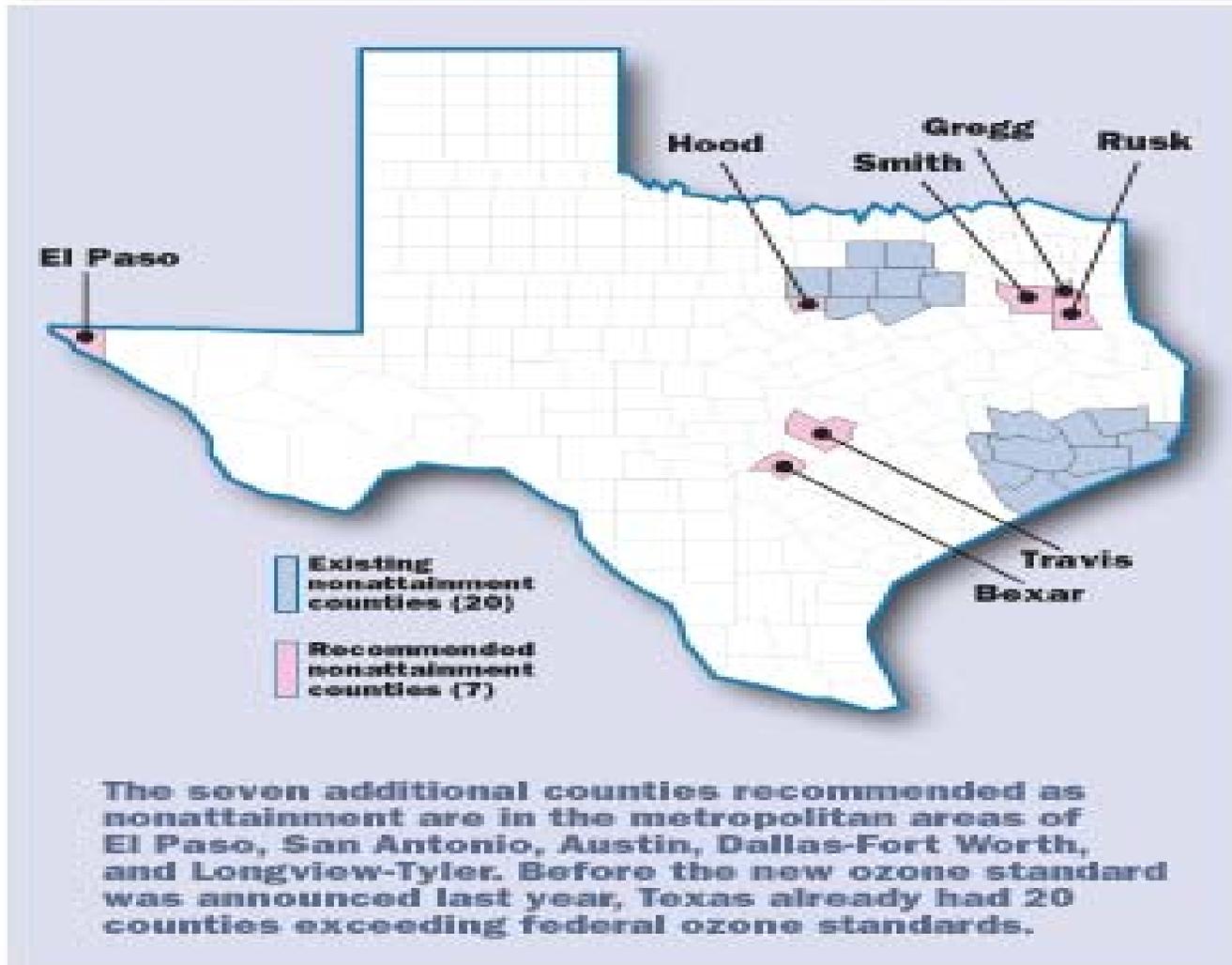


A carbon price above \$100/ton will not have any additional effect on the choice between building a new combined cycle unit or a new coal unit.

A nuclear unit is more economical with a Natural Gas price above \$12/mmbtu and a carbon price above \$50/ton or a Natural Gas price above \$8/mmbtu and a carbon price above \$100/ton.



Recommended Nonattainment Counties



Source: http://www.tceq.state.tx.us/comm_exec/forms_pubs/pubs/pd/020/09-02/nonattainmentcounties.html

Impacts to new generation siting

- **Non-attainment zones will affect the location of new generation**
- **Proximity to water resources will need to be considered as well**
- **Long-term effect could be the need for new or larger transmission projects in less developed areas**