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May 27, 2010

## MEMORANDUM

**TO:** Power Committee

**FROM:** Terry Morlan

**SUBJECT:** Contributions to Carbon Reduction

Staff has done some additional work to understand better the effects of various scenarios and assumptions on carbon reductions in the Sixth Power Plan. The presentation will show how renewable portfolio standards, efficiency improvements, and carbon pricing affect carbon emissions from the Northwest power system.

# How the Power Plan Achieves Carbon Reductions

Power Committee  
Missoula, MT  
June 8, 2010



## Effect of Carbon Risk Scenario on Carbon Emissions from Power

- 2005 emissions = 57 million tons per year (MMtpy) adjusted for normal water
- 1990 emissions = 44 MMtpy
- Without energy efficiency improvements, renewable standards, or carbon pricing, 2030 emissions could grow to 64 MMtpy
- The carbon risk scenario reduces expected emissions to 39 MMtpy by 2030, a reduction of 25 MMtpy

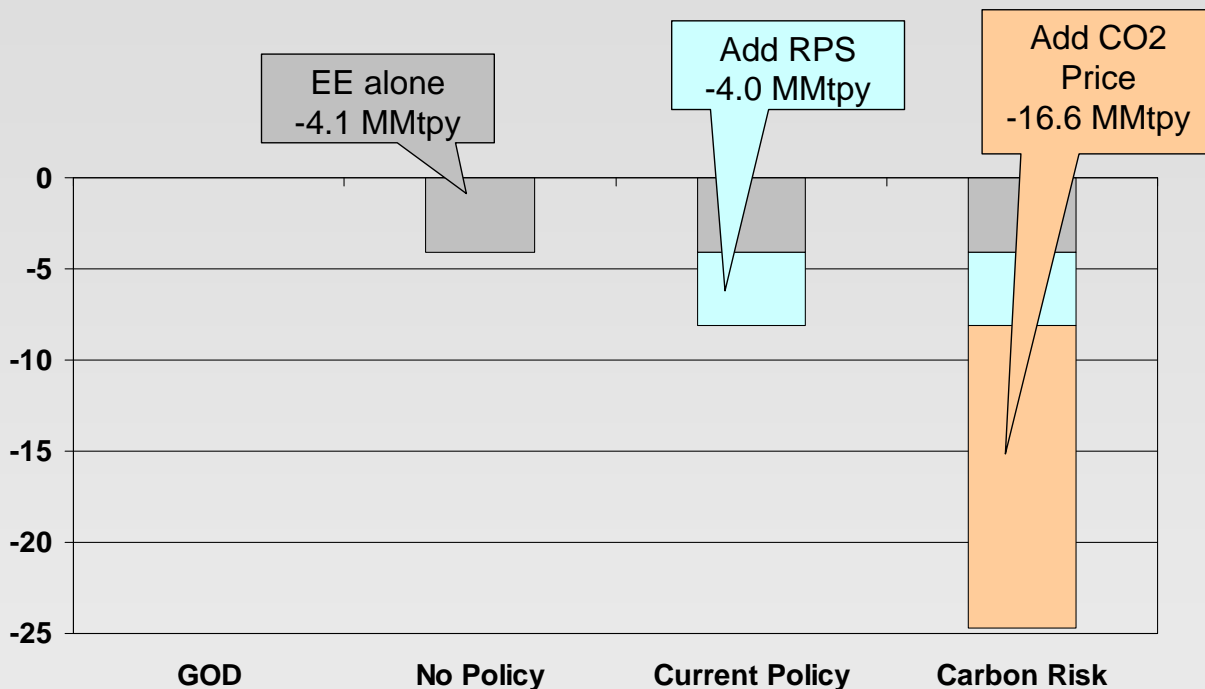


# Using Scenarios to Determine Causes of CO2 Emissions Decline

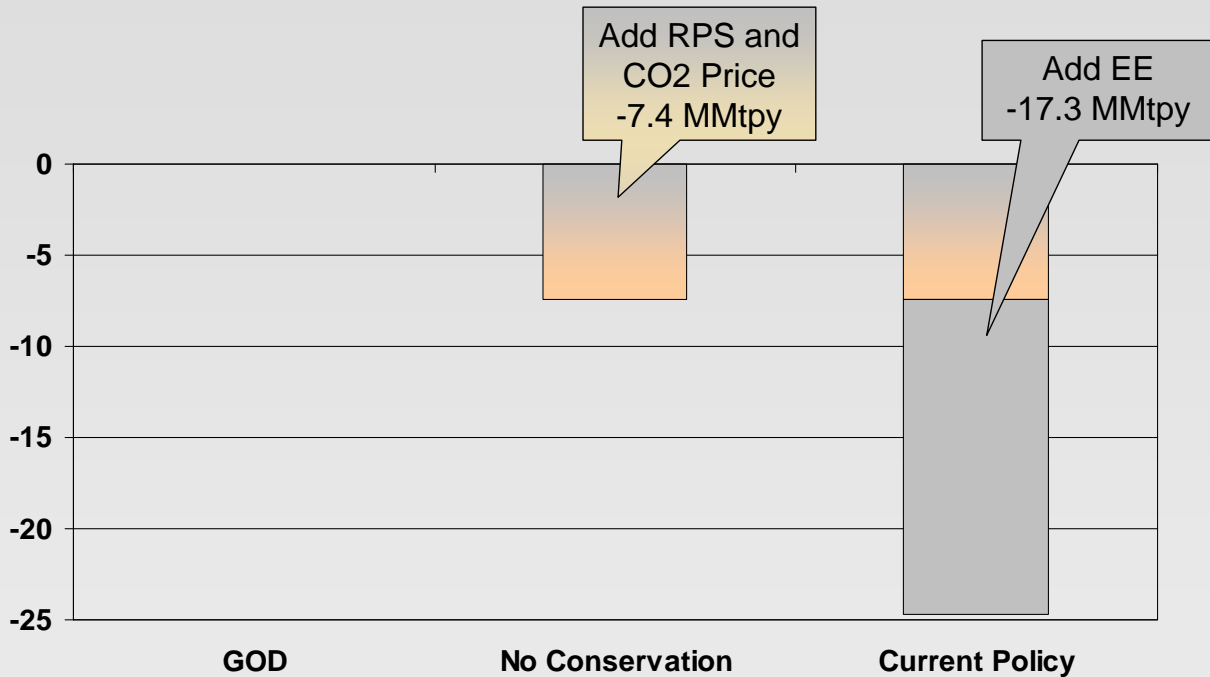
SCENARIO	RPS	EE	CO2 Price
Good Old Days	No	No	No
No Policy	No	Yes -4.1	No
Current Policy	Yes -4.0	Yes	No
Carbon Risk	Yes	Yes -17.3	Yes -16.6
No Conservation	Yes	No	Yes



## Contribution to Carbon Reduction 1



## Contribution to Carbon Reduction 2



## Summary

- Neither carbon pricing nor conservation alone will meet carbon goals
  - Conservation alone leaves coal plants at high capacity factors
  - Carbon pricing alone results in greater use of natural gas-fired generation to meet load growth
- Phasing out coal plants will accomplish similar results as carbon pricing if combined with conservation