

**W. Bill Booth**  
Chair  
Idaho

**James A. Yost**  
Idaho

**Tom Karier**  
Washington

**Dick Wallace**  
Washington



**Bruce A. Measure**  
Vice-Chair  
Montana

**Rhonda Whiting**  
Montana

**Melinda S. Eden**  
Oregon

**Joan M. Duker**  
Oregon

September 24, 2009

## MEMORANDUM

**TO:** Power Committee

**FROM:** Terry Morlan, Division Director

**SUBJECT:** Discussion on carbon price assumptions for the final plan

Carbon penalty is a significant source of cost and risk, according to the regional portfolio model. It is also an assumption that is needed for forecasts of electricity demand and electricity market rates. Thus, it is one of the early assumptions we need to make before revising the Sixth Power Plan analysis. If there is a need to revise the assumptions for the final plan it would help to identify that need now.

We have not to date received comment from the public about the carbon penalty assumptions in the draft Plan. Because of the prominence of the issue, however, it is prudent to review the assumptions before completing the final plan. Scenarios were included in the plan that explored alternative assumptions about carbon penalties. While different assumptions did change carbon emissions and costs, the resource strategy did not vary significantly among these scenarios.

The draft Plan distribution and two alternatives are discussed in the attached PowerPoint. We will review the assumptions and have a preliminary discussion of whether any change is warranted in the final plan.

# A Review of the Carbon Penalty Distribution

Power Committee Meeting  
October 7, 2009

## Is the Council satisfied with the carbon penalty distribution used in the Draft Plan?

- Implications of the carbon penalty distribution
- Existing and alternative distributions
- Other considerations

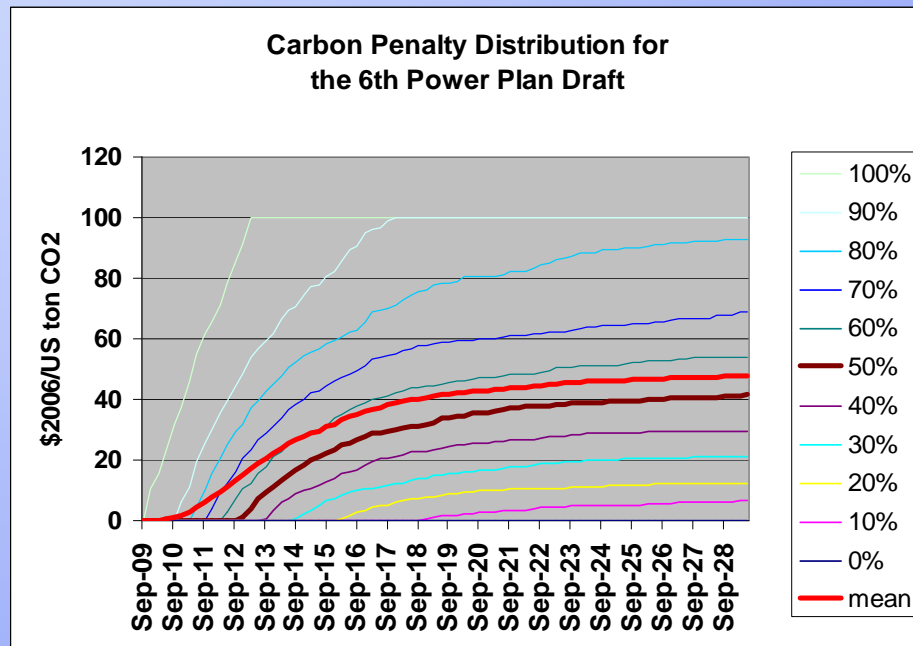
# Implications

- While costs are sensitive to carbon penalty assumptions, the preferred resource portfolio is not.
- Cutting the distribution range of values for each period in half had a relatively small effect on the least-risk portfolio.
  - 48 MWa less conservation by Dec 2019; 200 MWa less conservation by Dec 2029
  - June 2020 and June 2022 CCCTs replaced by a smaller set of SCCTs



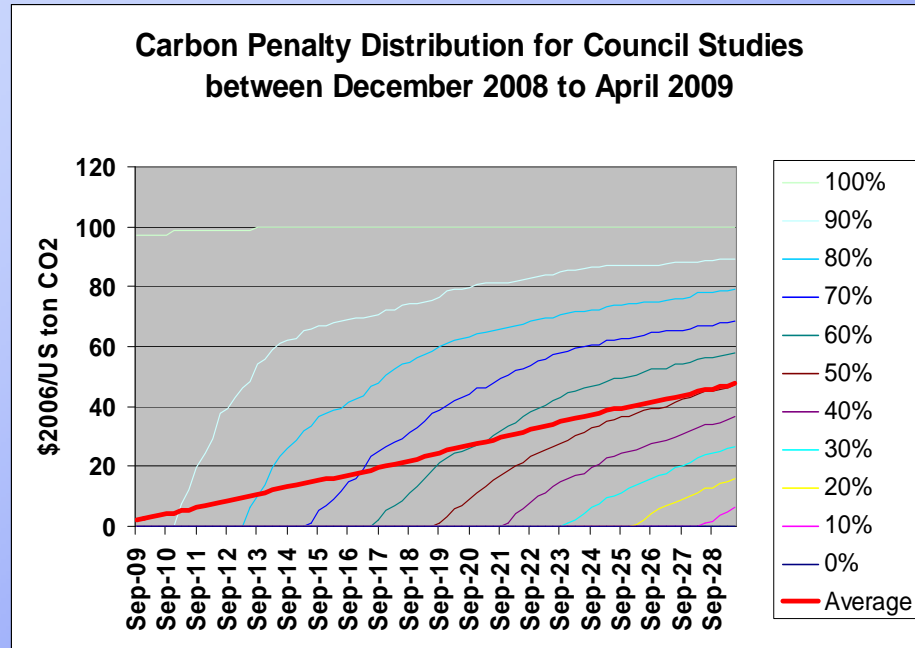
## Alternatives: Draft Plan Distribution

- Average: \$47 by end of study
- “Even chance” of tax by 2012



# Alternatives: Earlier Council Distribution

- Average: \$47 by end of study
- “Even chance” of tax by 2019

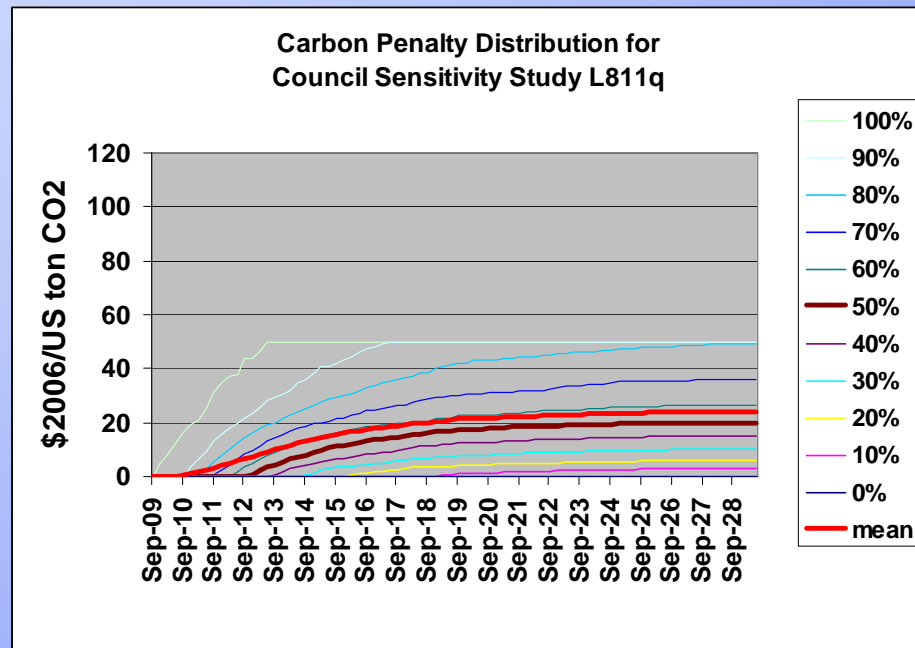


Source: Workbook "Carbon Tax stats for Maury and Jeff.xls" worksheet "0CO2Tax\_P"



# Alternatives: Sensitivity Case

- Average: \$24 by end of study
- “Even chance” of tax by 2012



Source: "CO2\_Penalty.xls", and module mod\_Deciles of "L811q auditor.mdb"



## Other Considerations

- We have received no comments from the public about the carbon penalty distribution using in the draft Plan.
- Others would like to point to the Council's carbon penalty work. However, they typically would use the distribution average instead of the distribution itself. Because they do not adopt the distribution, they really do not have a comparable carbon penalty.
- Rather than attempting to predict a carbon penalty, staff studies have focused on what level of carbon penalty would be necessary to change the preferred resource portfolio.

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## Thoughts?

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