Northwest Power and Conservation Council

June 30, 2009

MEMORANDUM

TO: Council Members

FROM: Terry Morlan

SUBJECT: A Current Policy Scenario

Staff was asked at the June meeting to look at an alternative case that includes only current climate policies. This was done by taking what we called the "base case" at the June meeting and removing the carbon price risk. Thus the "current policy" case only includes current RPS requirements, carbon emissions limits on new generation, and renewable energy credits.

The attached memorandum and Power Point presentation discuss the resulting scenario and compare it to two other cases; the "plan case" and the "no-carbon-policy case". The "plan case" is what was previously called the base case. We changed the name because there was confusion about what should be the base case. It is more descriptive to call it the plan case.

Attachments

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Comparison of Plan, Current Policy, and No-Policy Cases

Power Committee Web Meeting

June 30, 2009

Definition of Cases

- Current Policy Case
  - Includes RPS, RECs, new plants emissions limits
  - No carbon price risk
- No Policy Case
  - No RPS, RECs, or carbon price risk
  - No new coal plants allowed
- Plan Case
  - Includes RPS, REC, new plant emissions limits, and carbon price risk

Comparison of Plan Case and Current Policy Case

- Current policy case includes:
  - 630 MWa less conservation
  - 426 MWa more RPS renewables
  - No CCCT options
  - 4 Times as many SCCT options
- Current policy case cost is 17 percent lower (rates 11 percent lower)
- Current policy carbon emissions in 2030 are 42 percent higher (at 2005 level)

NORTHWEST 6th POWER PLAN

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Comparison of Plan Case and No Policy Case

- No policy case includes:
  - 395 MWa less conservation
  - No RPS renewables
  - 2.5 times more CCCT options
  - 4 times more SCCT options
- No policy case cost is 34 percent lower (rates 15 percent lower)
- No policy carbon emissions in 2030 are 63 percent higher (14 percent above 2005 level)

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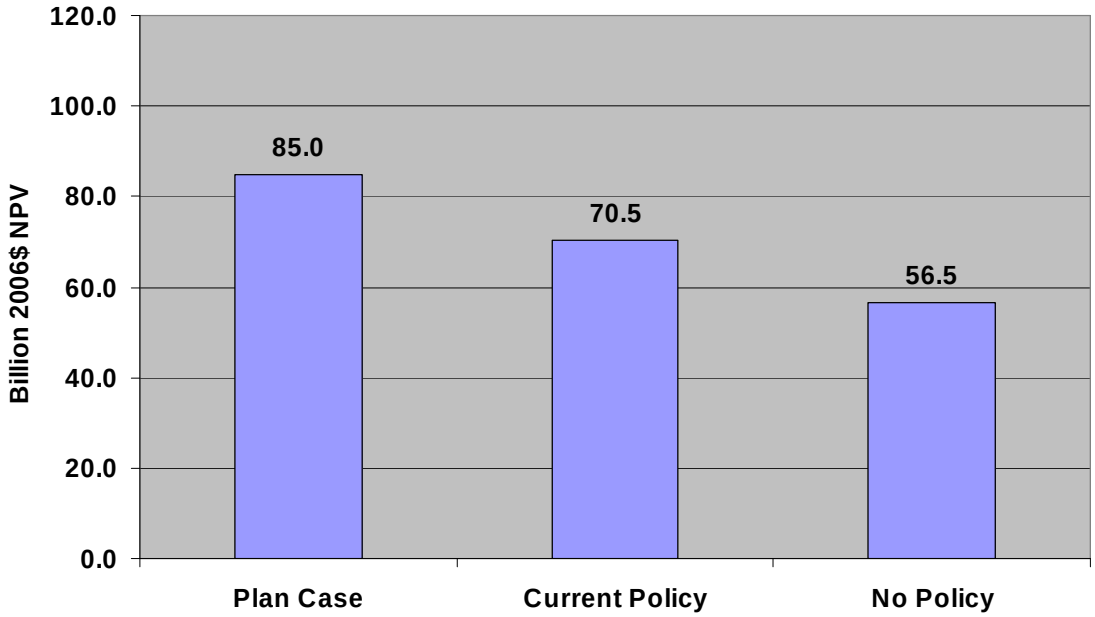
Power System Cost: Excluding Carbon Penalty



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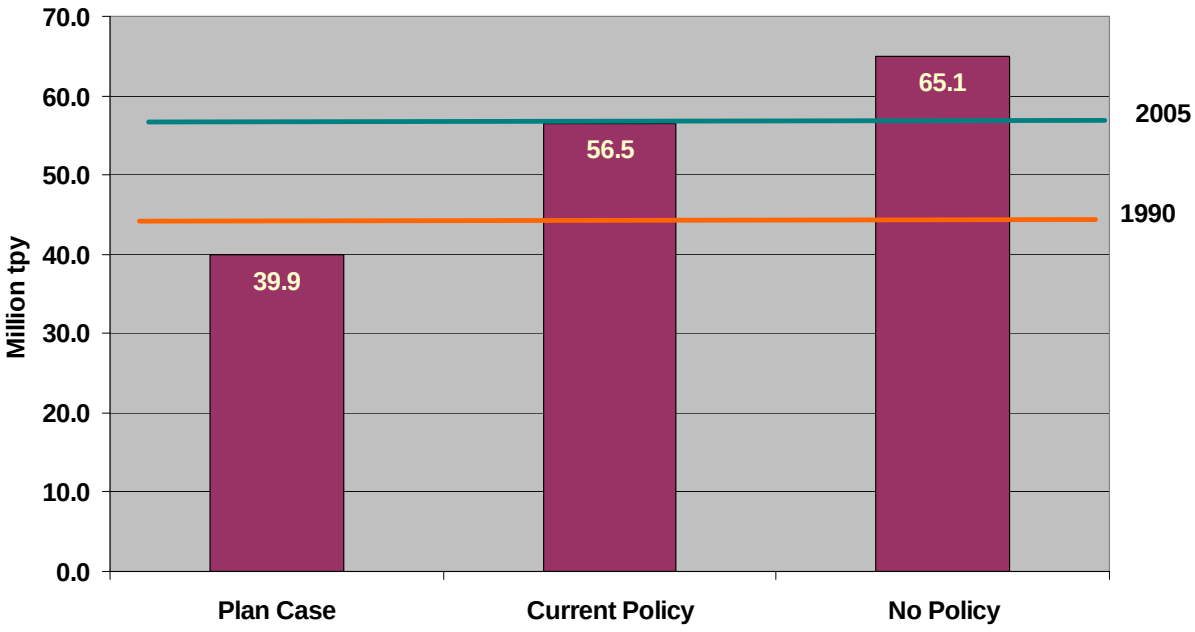
Carbon Emissions



NORTHWEST 6th POWER PLAN

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Summary

	Plan Case	Current Policy	No Policy
Cost (billion 2006$ NPV)	**$85.1**	**$70.5**	**56.5**
Carbon Emissions (Gen) (Millon Tons/year)	**40.2**	**56.5**	**65.1**
Conservation (MWa)	**5,827**	**5,197**	**5,432**
Resource options 2030			
RPS MWa	**1,439**	**1,865**	**0**
Geothermal Options	**169**	**13**	**52**
CCCT Options	**756**	**0**	**1890**
SCCT Options	**162**	**648**	**648**

NORTHWEST 6th POWER PLAN

Northwest Power and Conservation Council

Comparing the Effects of Carbon Policies:
No Policies, Current Policies, and Future Policy Risk

At the June Council Meeting, staff was asked to develop a case where only current carbon policies are considered, the "current policy case." In this note, the current policy case is compared to the ***plan case*** (formerly referred to as the base case) and the ***no policy case***.

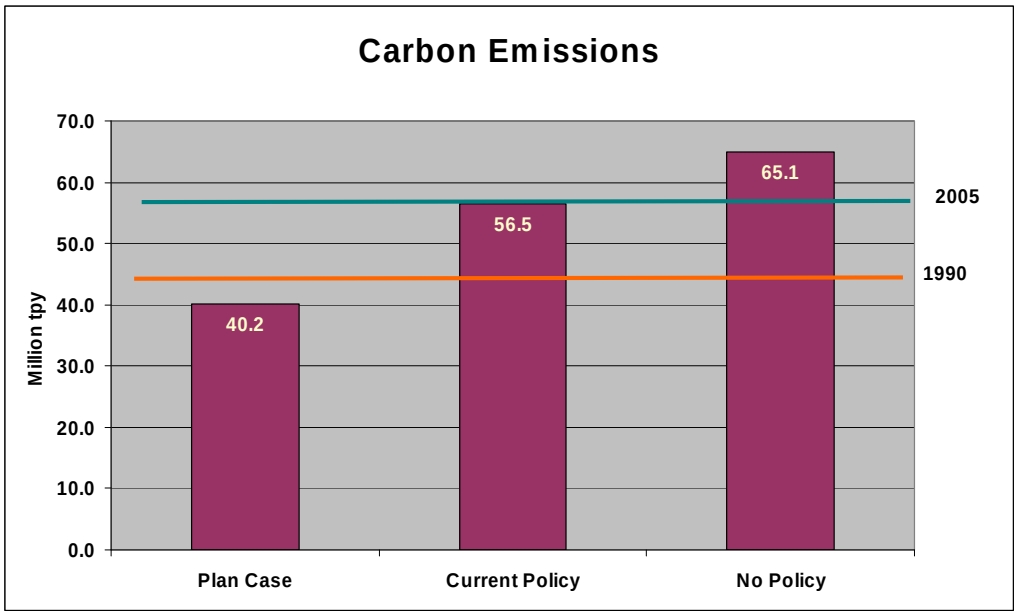
The ***current policy*** case assumes no carbon emission penalty and includes current RPS requirements in three states and new generation carbon emission limits that exist in some states. However, it does not consider the fact that most states are participants in the WCI and have set carbon emission reduction goals. This case differs from the ***plan case*** only in the carbon emission penalty assumption. The ***plan case*** assumes unknown levels for, and timing of, a carbon penalty, with an expected value of $47/ton across all futures by the end of the study.

The ***no policy*** case goes a step further. Like the ***current policy*** case, the ***no policy*** case assumes no carbon emission penalty, but it also assumes no RPS requirements and no REC credit for wind generation. New coal plants are not allowed in any of these three cases. The table below compares the expected or average results for each case over the 750 futures considered.

	Plan Case	**Current Policy**	**No Policy**
Cost (billion 2006$ NPV)	$85.1	$70.5	56.5
Carbon Emissions (Gen) (Millon Tons/year)	39.9	56.5	65.1
Conservation (MWa)	5,827	5,197	5,432
Resource options 2030			
RPS MWa	1,439	1,865	0
Geothermal Options	169	13	52
CCCT Options	756	0	1890
SCCT Options	162	648	648

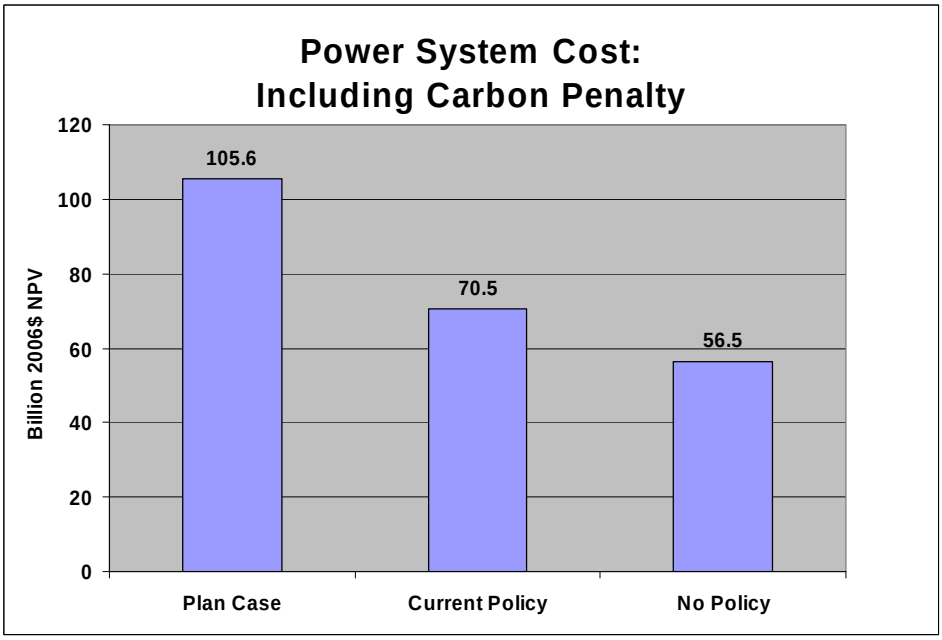
Carbon Emissions

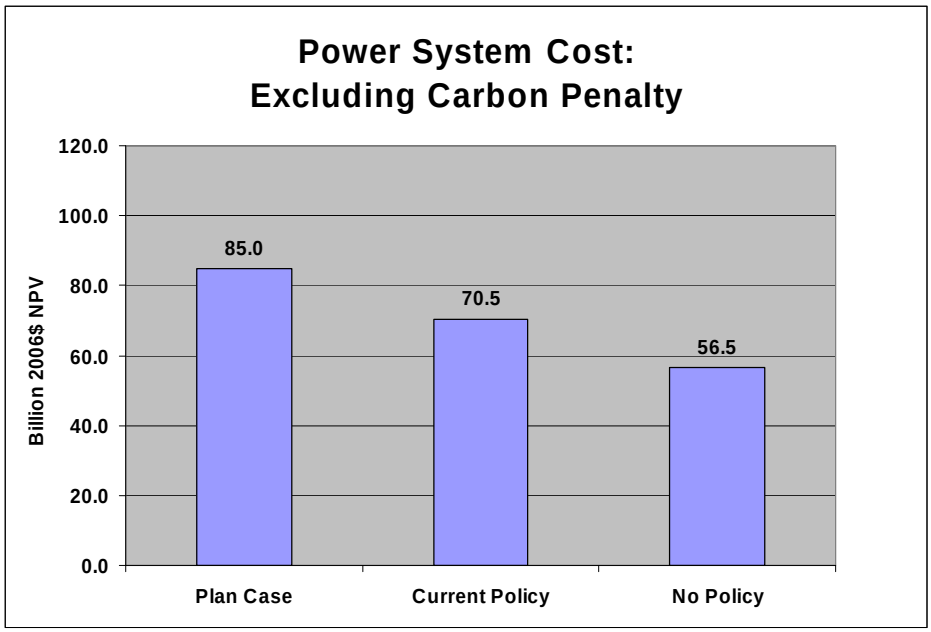
The estimated carbon emissions in 2005 from the Northwest power system are 57 million tons. In the ***no policy*** case, emissions continue to grow in the power system reaching 65 million tons by 2030. In the ***current policy*** case, carbon emissions are stabilized and remain at about 2005 levels. In the ***plan case***, emissions fall to 40 million tons by 2030, 30 percent below 2005 levels, which is close to the Oregon and Washington goals for 2020.



Power System Cost

The cost of achieving these reductions is considerable. The ***plan case*** costs are 50 percent higher than the ***no policy*** case, and 20 percent higher than the ***current policy*** case. The plan case costs exclude carbon penalties that could flow back to the region as free allowances, tax rebates, or other reimbursements. If carbon penalties were included the net present value of ***plan case*** costs, the value becomes $106 billion, about 50 percent higher than the ***current policy*** case. The actual cost to the power system of the ***plan case*** is likely to be somewhere between $105 and $85 billion dollars depending on the design of a policy, although current policy proposals provide free allowances for most of the planning period and would put the cost close to the $85 billion level.





Resource Portfolio

The mix of resources varies among these three scenarios, although the total of the conservation and optioned generating resources is similar in all three. Without any carbon policies, no wind is developed and the plan relies on conservation and gas-fired turbines. With current policy less conservation is developed and a significant amount of wind is developed. The RPS is forcing the wind development and only simple-cycle turbines are added for capacity support. When we move to the ***plan case,*** the resource mix becomes the most diversified. More conservation is developed, a substantial amount of renewable generation is added, and both combined-cycle and simple-cycle turbines are optioned.

The ***plan case*** reflects the fact that in order to reduce carbon emissions substantially it is necessary to displace coal use. The carbon penalty forces non-emitting or low-emitting resources to be developed in order to mitigate the high cost of carbon emissions. The model does not retire the coal plants in these cases so they remain available and may cause an overstatement of the surplus resources in the region. In reality, the coal plants may not be economic to maintain at such low capacity factors and could be retired.