Northwest Power and Conservation Council

July 29, 2009

MEMORANDUM

TO: Council Members

FROM: Terry Morlan

SUBJECT: Draft Power Plan Presentation for Hearings

The Council has typically opened its hearings on the draft Power Plan with a 20 to 30 minute briefing on the plan. It provides a high level summary of the key findings and recommendations of the Power Plan.

At the Power Committee and Council meetings in Spokane, I would like to run through the draft presentation and get suggestions and comments from the members. Ultimately, I think it will be up to the Council members in each state how they want to handle the briefings. Council's members could do the briefings, staff could do the briefings, or it could be some combination of those options.

The draft presentation is attached. It describes the goal of the plan and the major issues it addresses. That is followed by a one slide summary of the Plan. Then the array of resources that have been assessed is described, and the recommended resource strategy is presented. There is some description of each of the major resource categories in the Plan (conservation, renewables, and natural gas-fired generation) and the value they bring to the strategy. There is a brief summary of the carbon scenarios we analyzed. The presentation ends with one slide on the major Action Plan recommendations.

Attachment

851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348
www.nwcouncil.org

Steve Crow
Executive Director

503-222-5161
800-452-5161
Fax: 503-820-2370

The Sixth Northwest Electric Power and Conservation Plan

Northwest Power and Conservation Council

Goal of the Sixth Power Plan

- Recommend a low-cost and low-risk resource strategy to assure the region of an adequate, efficient, economic, and reliable power system
- Support adequate and reliable implementation of fish operations

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Major Issues for the Plan

- How should the region respond to:
  - Probable but uncertain future carbon control policies?
  - Higher and more volatile energy prices?
  - Growth of variable output generation?
- The changing role of Bonneville
- Potential of emerging technologies such as smart grid and demand response

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Plan in a Nutshell

- Aggressive conservation
- Renewable generation to meet RPS requirements
- Additional energy, capacity, and flexibility needs provided by natural gas-fired generation
- Cost-effective, small-scale, local renewable and cogeneration opportunities should be developed

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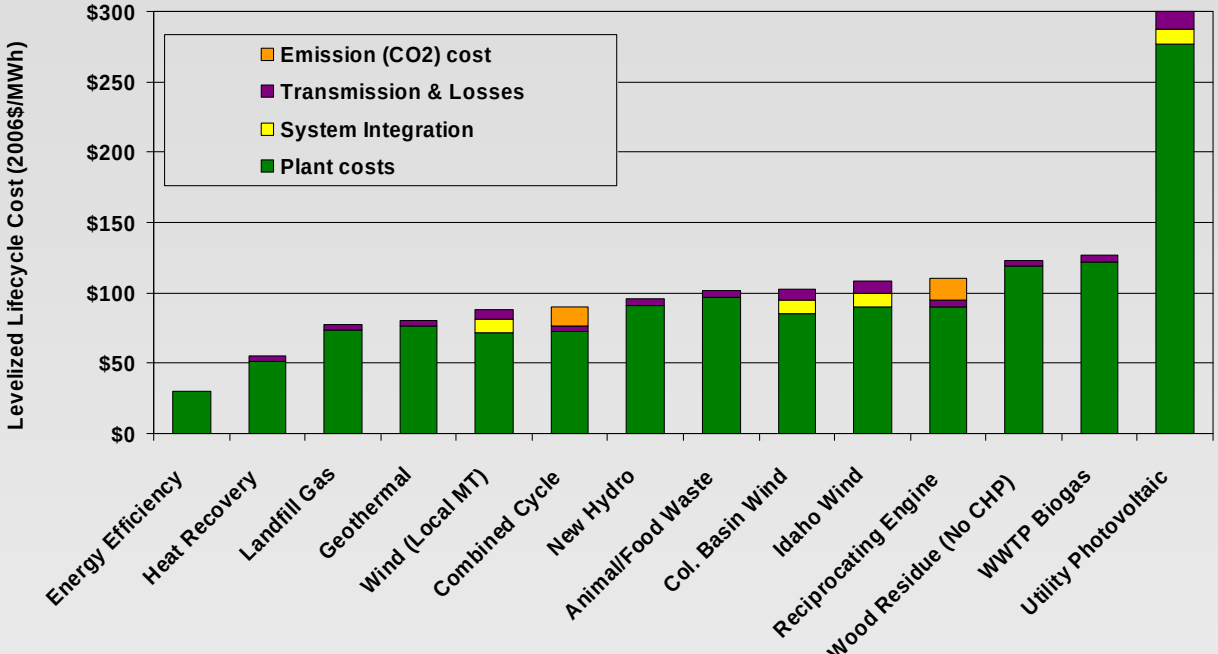
The Cost of Resources Available in the Near-term



Assumptions :

Efficiency Cost = Average Cost of All Conservation in Draft 6th Power Plan Under $100 MWh

Transmission cost & losses to point of LSE wholesale delivery

2015 service - no federal investment or production tax credits

Baseload operation (85% CF) of dispatchable thermal plants

Medium NG price forecast

Mean value CO2 cost (escalating, $8 in 2012 to $47 in 2029).

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Other Potential Contributors

- Demand response (firm capacity, flexibility)
- Smart grid development (system operation, demand-side opportunities)
- Energy storage (firm capacity, flexibility)
- Carbon sequestration (reduced CO2)
- System operations (flexibility, market access)
- Transmission expansion (firm capacity, flexibility and energy via access to resources and markets)
- Direct use of natural gas (?)

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Conservation

- Conservation is first priority because:
  - It is the lowest cost resource by far
  - It has no greenhouse gas emissions and therefore reduces risk from potential carbon pricing policies
  - It avoids fuel price risks
  - It provides both capacity and energy
  - It is a source of local jobs and economic activity

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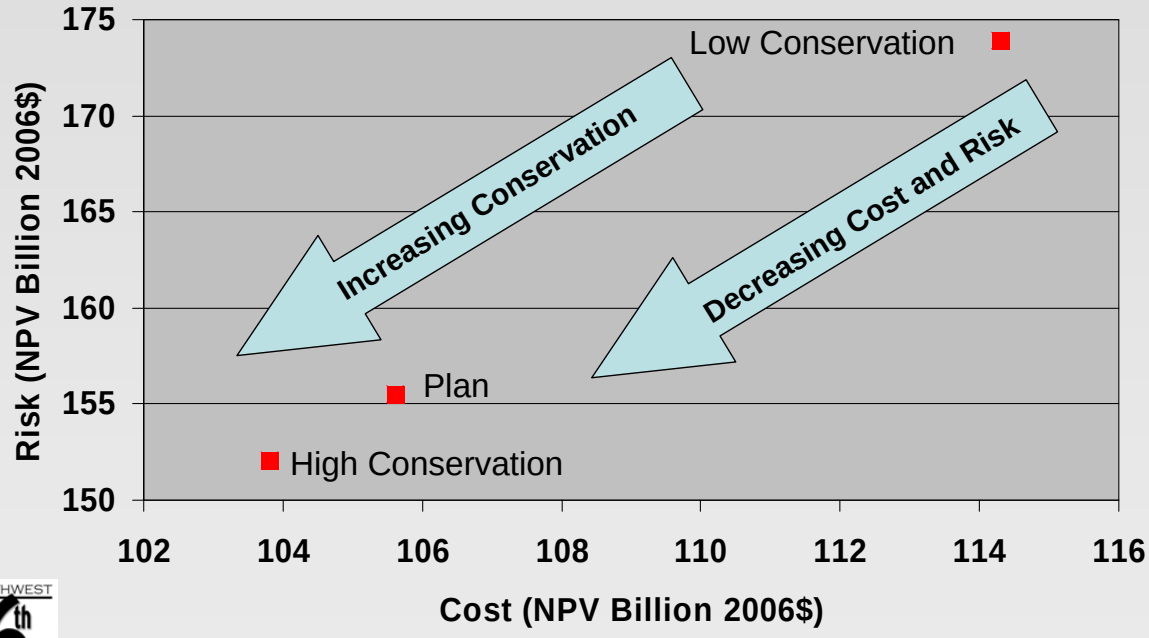
Conservation Reduces Power System Cost and Risk



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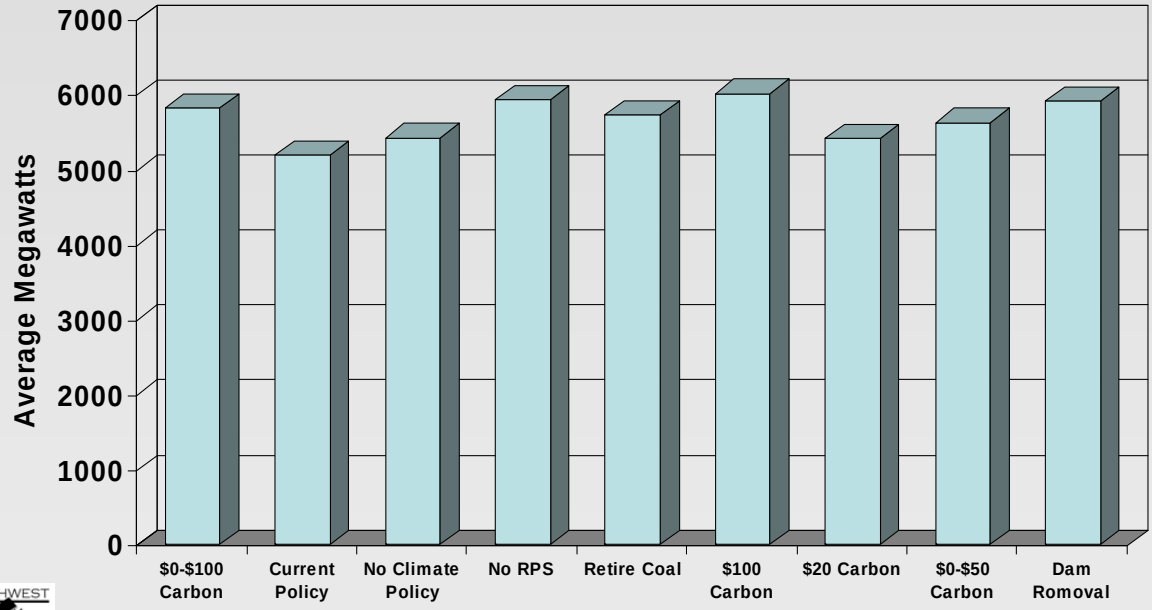
Conservation is Cost-effective Under Many Different Future Scenarios



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Renewable Generation

- Wind power is expected to meet the majority of RPS requirements
  - About 1,800 average megawatts (5,400 nameplate)
  - Variable wind output creates integration challenges
- Geothermal and other smaller-scale renewables such as biogasification, bioresidue combustion, hydropower upgrades, and new hydropower may be cost-effective and should be explored when available at the local level

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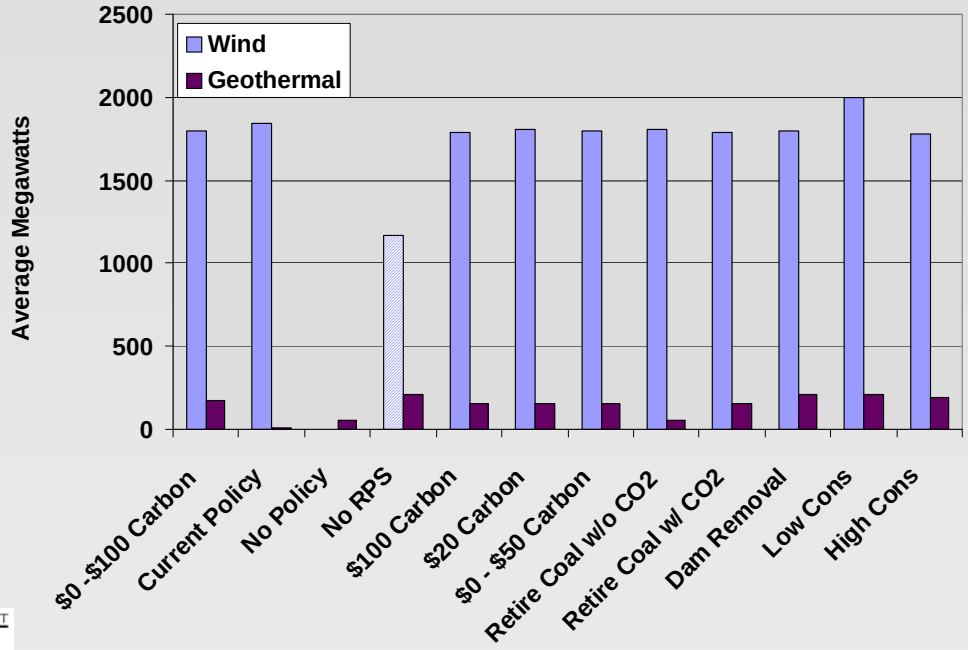
Wind Development is Driven by Renewable Portfolio Standards



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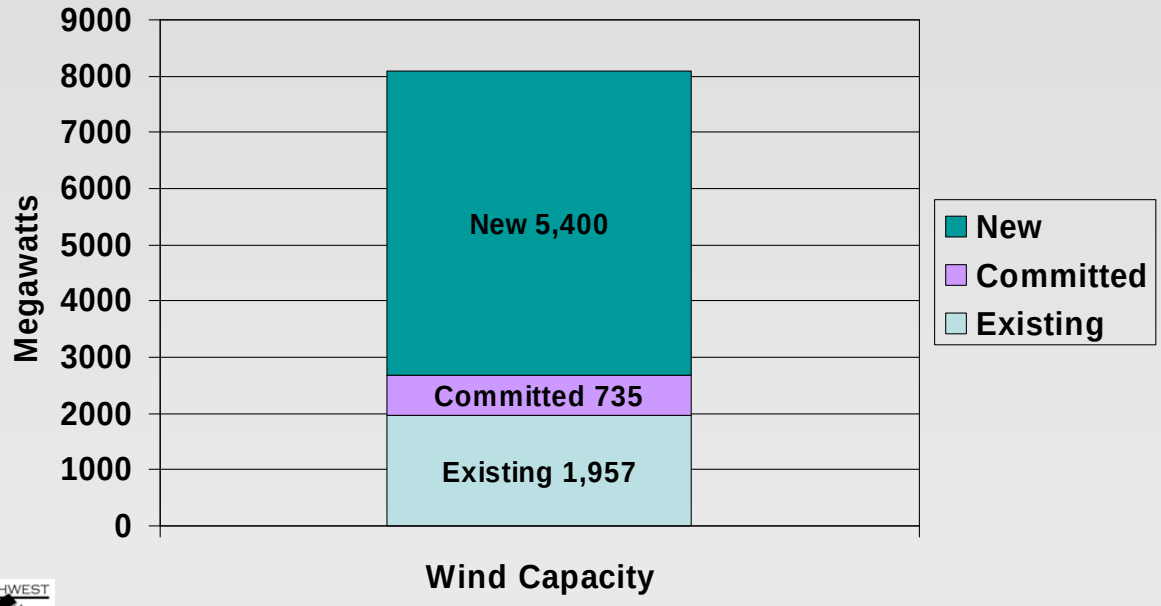
Existing, Committed, and New Wind Generating Capacity



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Natural Gas

- Natural gas-fired generation can provide energy, firm capacity and flexibility when needed
  - Substantial fuel price risk
  - Moderate capital risk and short lead time
  - Lower carbon emissions than coal
- Gas-fired generation options provide protection against rapid growth and offer reduced carbon-emission generation if carbon prices are high
- The role of natural-gas fired generation varies among scenarios

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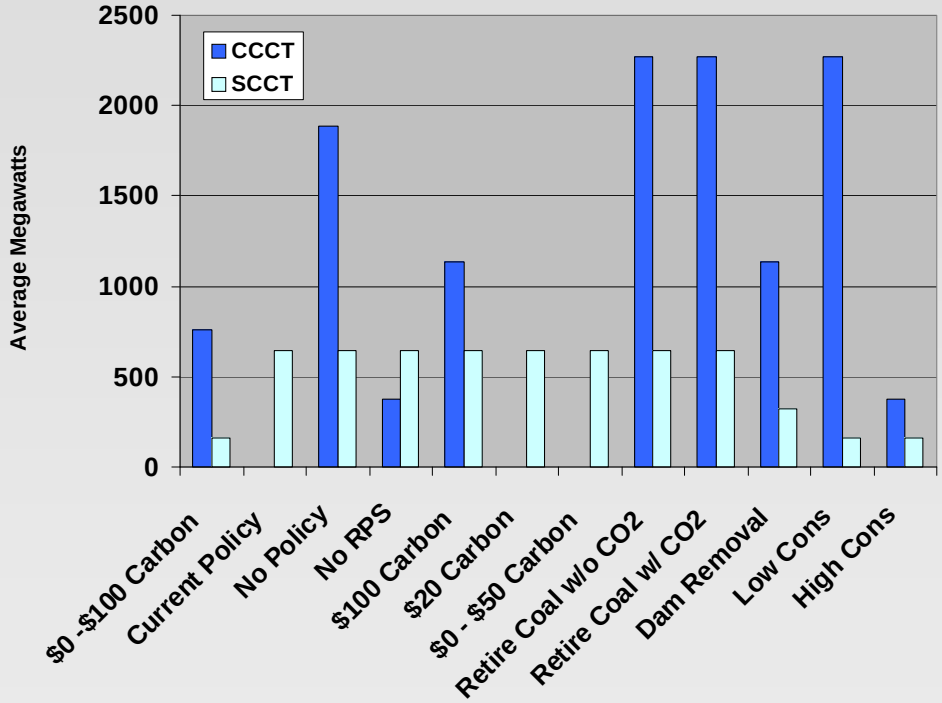
Gas-Fired Generation Options



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Scenarios Examined

- No Carbon Policy Case: no RPS, no RECs, but no new coal allowed
- Current policy only: with no carbon price risk
- Current policy + $0 to $50 carbon price risk
- Current policy + $0 to $100 carbon price risk
- Current policy + $0 to $100 carbon price risk without RPS
- Current policy + fixed carbon prices: at $100 and $20
- Coal retirement cases: with and without carbon price risk
- Removing lower Snake River dams

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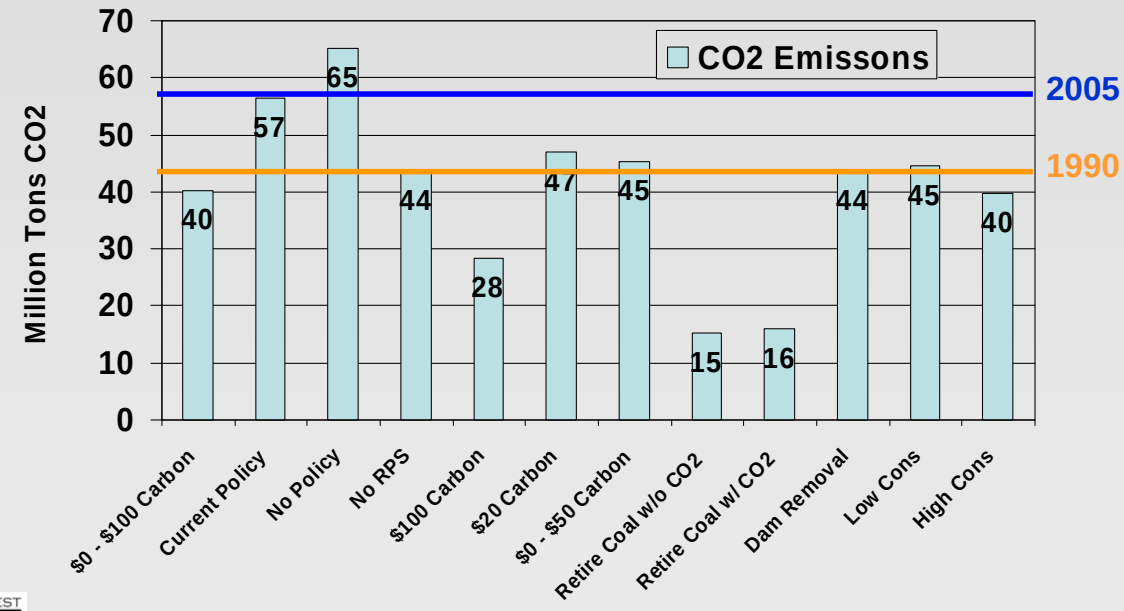
Carbon Emission Effects of Scenarios



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5-Year Action Plan

- Develop 1,200 average megawatts of conservation by 2014 (1,100 to 1,400 range)
  - Evaluate midway through Action Plan
- Develop cost-effective new generation if needed for energy, firm capacity or flexibility
  - As warranted by individual utility situations
  - Special efforts to acquire small-scale renewables and cogeneration
- Improve power system operation and capability to improve market access, provide ancillary services, and integrate wind generation
- Research and demonstrate promising new technologies for improved efficiency, demand response, and generation

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