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April 25, 2011

MEMORANDUM

TO: Power Committee Members

FROM: Ken Dragoon

SUBJECT: Estimating Renewable Resource Development

Council staff is developing estimates of the expansion of renewable resources to meet Northwest and California RPS targets through 2025. Council staff will present preliminary estimates and uncertainties around levels of renewable resource development in the Northwest to meet both Northwest and California renewable energy standards.

The draft *Effects of an Increasing Surplus of Energy Generating Capability in the Pacific Northwest* paper released by the Council examined the effects of renewable energy development over three future development scenarios. A question has been raised regarding how the highest level of development examined in the paper compares with the new 33% renewable portfolio standard (RPS) in California. An estimate of the effects of the new law on Northwest development is necessary to verify whether the higher build-out scenario in the analysis is a reasonable approximation of the expected effect of the California RPS.

Bonneville Power Administration and the Council have jointly agreed to continue the series of Wind Integration Forum (WIF) Steering Committee meetings beginning June 6, 2011. The earlier Northwest Wind Integration Action Plan examined whether 6,000 MW of wind energy could be integrated into the power system. Now that the region is nearing that level, WIF will need to address the feasibility of accommodating the continuing growth in wind energy in the region. Estimating the magnitude of new renewable energy development in the region is necessary to framing that work.

The presentation will project requirements in out years and lay out approaches to estimating how much of the California requirement might come from resources in the Northwest.

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Wind Development to Meet Northwest and California Renewable Energy Standards

Power Committee Go-To-Meeting

May 5, 2011

Ken Dragoon

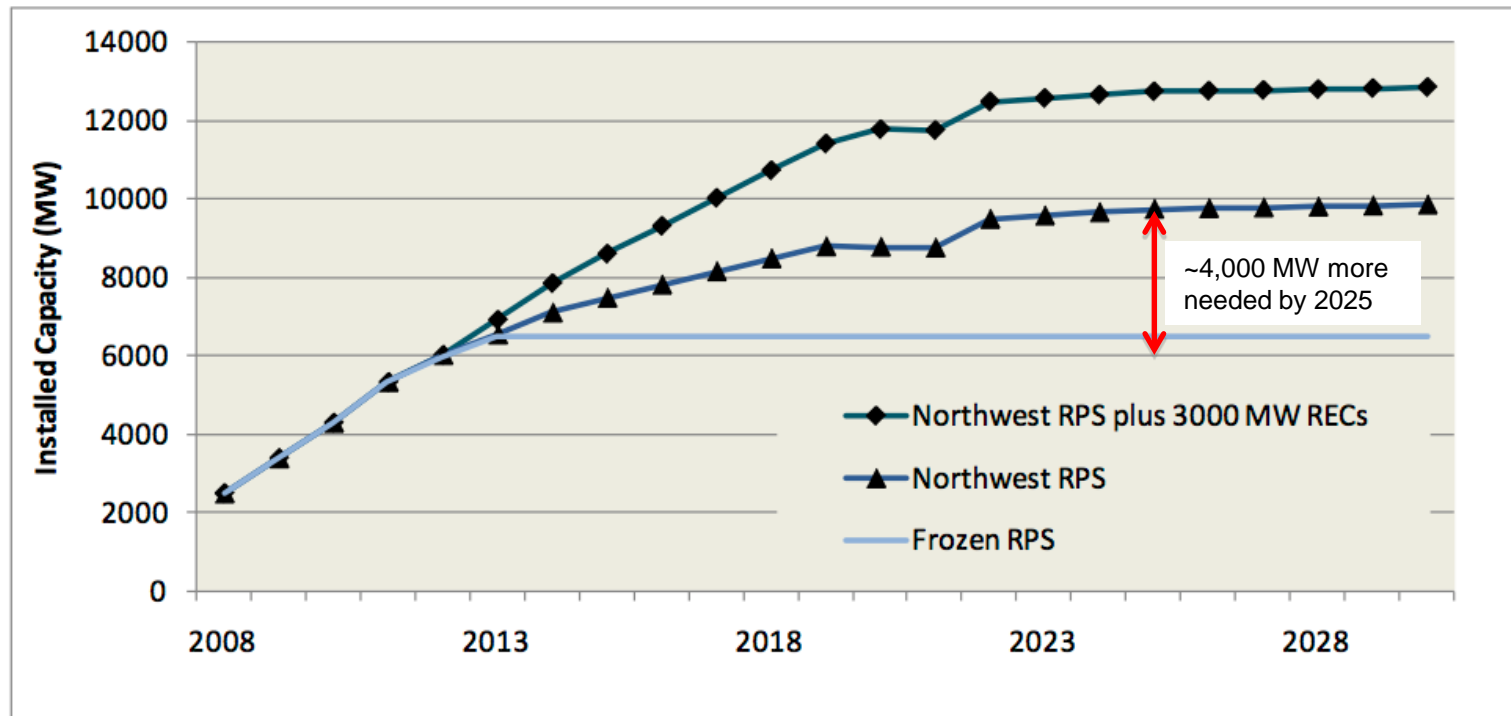
Need for Estimates

- NW Wind Integration Action Plan examined feasibility of 6,000 MW of wind.
 - Nearly 6,000 MW currently operating or under construction.
 - Wind Integration Forum considering next mission– the next 6,000 MW? More?
- Surplus energy paper sensitivity examined 3,000 MW of wind being added “beyond NW requirements.”
 - Is 3,000 MW representative of the effects of California’s 33% standard?

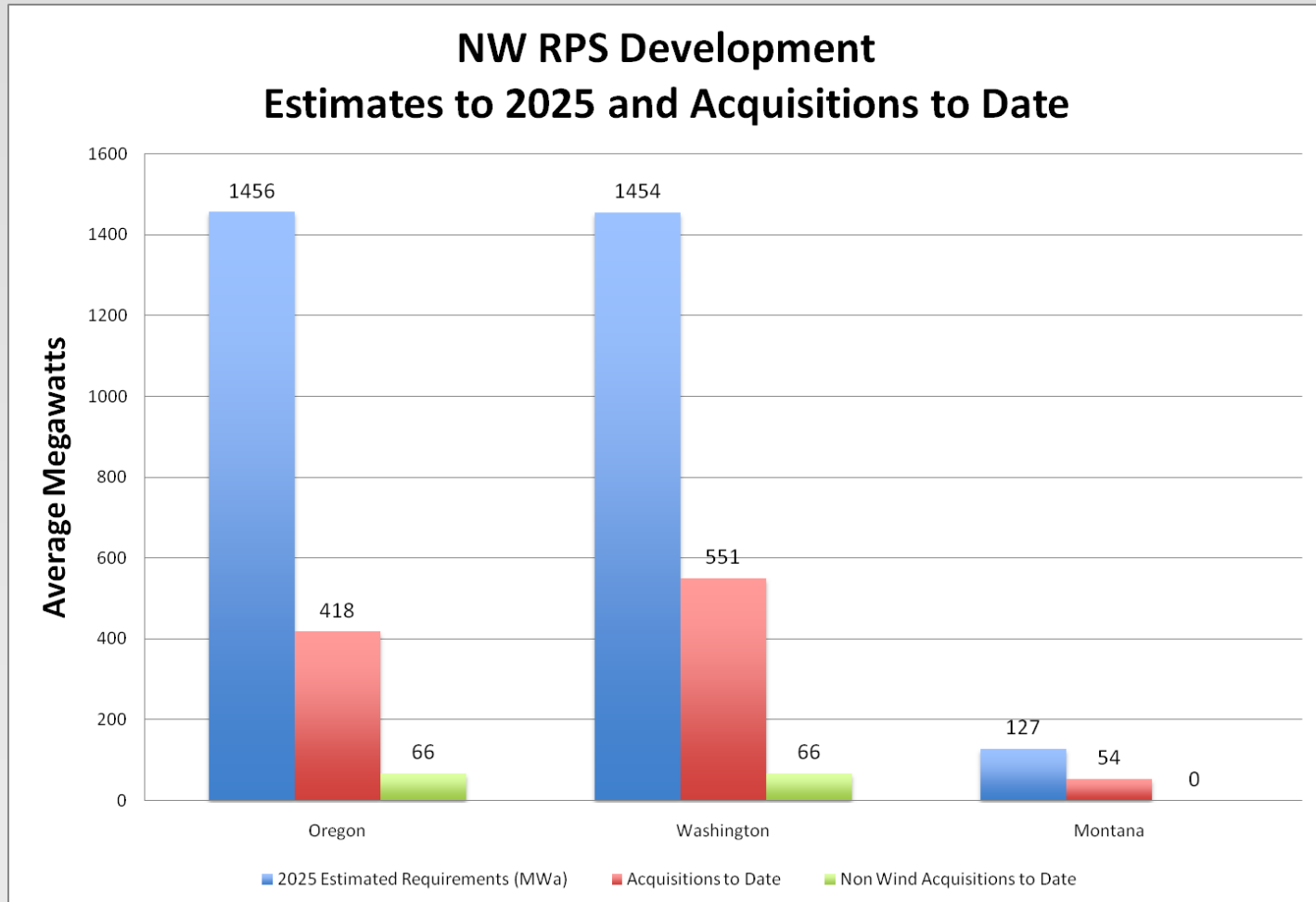
Surplus Energy Paper Data

Shows about 4,000 MW more resources needed to meet NW RPS requirements, for a total of about 10,000 MW (assuming all is wind).

Figure 3: Build-out of Northwest wind capacity for the three cases



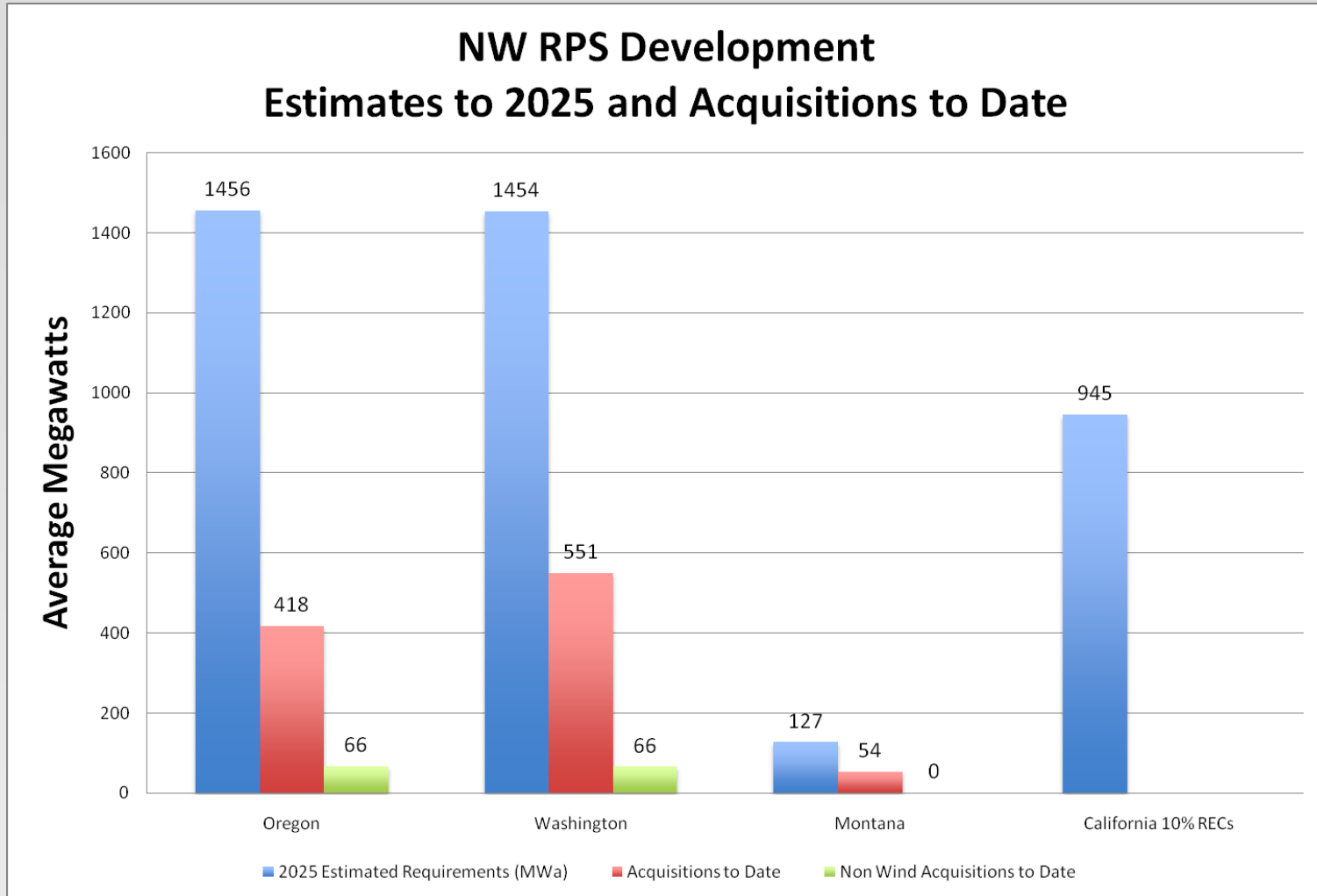
Estimated 2025 NW RPS Requirements and Acquisitions to Date



Summary of NW 2025 Demand

- Approximately 2,900 MWa total demand under current renewable standards.
- To Date, 1,100 MWa have been acquired.
- Of the acquisitions, 15% have been non-wind renewable resources.
- About 1,800 MWa of additional resources will need to be acquired to meet 2025 standards.
 - Corresponds to 5,000-6,000 MW of wind capacity.

The California Wildcard



California 33% RPS

- California legislation grandfathers existing out-of-state contracts
- Allows 10% of qualifying resources to come from unbundled renewable energy credits.
 - Unbundled allowance equivalent to about 950 MWa of renewable resources.
 - Could add another 3,000 MW of wind to Northwest.
- Because these resources are relatively unrestricted, unlikely to all be NW wind.

California Bundled RECs

- Legislation allows bundled RECs to count toward RPS under restrictions that appear to require transmission.
 - Rules not finalized.
 - It may be possible to use NW resources on nonfirm transmission.
- Perhaps as much as 1,000 MW of wind might be developed consistent with the bundled REC requirements.
 - Entails risk to California utilities.

Limiting Factors

- Analysis aimed to determine the upper limit on wind build out. Limiting factors include:
 - Rate impact and cost limits on renewable resource acquisitions.
 - Amount of non-wind resources acquired (currently 15% in NW).
 - Cost of competing resources to contribute to California unbundled REC category.
 - Cost of competing resource technologies such as Southwest solar.
 - Implementation rules to be developed by California PUC.
 - In Oregon, “REC banking” can push out the need further if jurisdictional utilities acquire early.
- Representatives of both Southern California Edison and Iberdrola related very diminished expectations for Northwest development to meet California demand.

Summary

- New Wind development to meet NW RPS requirements may reach 5,000-6,000 MW beyond today's level of development by 2025.
- New wind development in the NW to meet California's 33% standard could add from 3,000 to 4,000 MW of wind, though much lower levels are more likely.
- Total wind development under current RPS legislation could total from 5,000 to 10,000 MW of wind.
- Surplus energy paper may have under-estimated wind additions to meet NW RPS requirements.