NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Potential Application of MORE Power to Wind Power Siting for the Northwest

SPSC pre-meeting webinar

David Hurlbut

October 10, 2011

Sample analytical task

In 2009, 5 GW of wind capacity in Oregon, Washington, Wyoming and Montana produced 10 TWh of electricity

- Could that same amount of electricity have been produced with less capacity if the wind farms had been optimally distributed and sited among the four states?
- Would the optimal distribution be any different if the objective were to minimize the hourly differences between total load and total wind generation?
- What would optimal distributions be at higher TWh production levels?
  - 25 TWh
  - 50 TWh

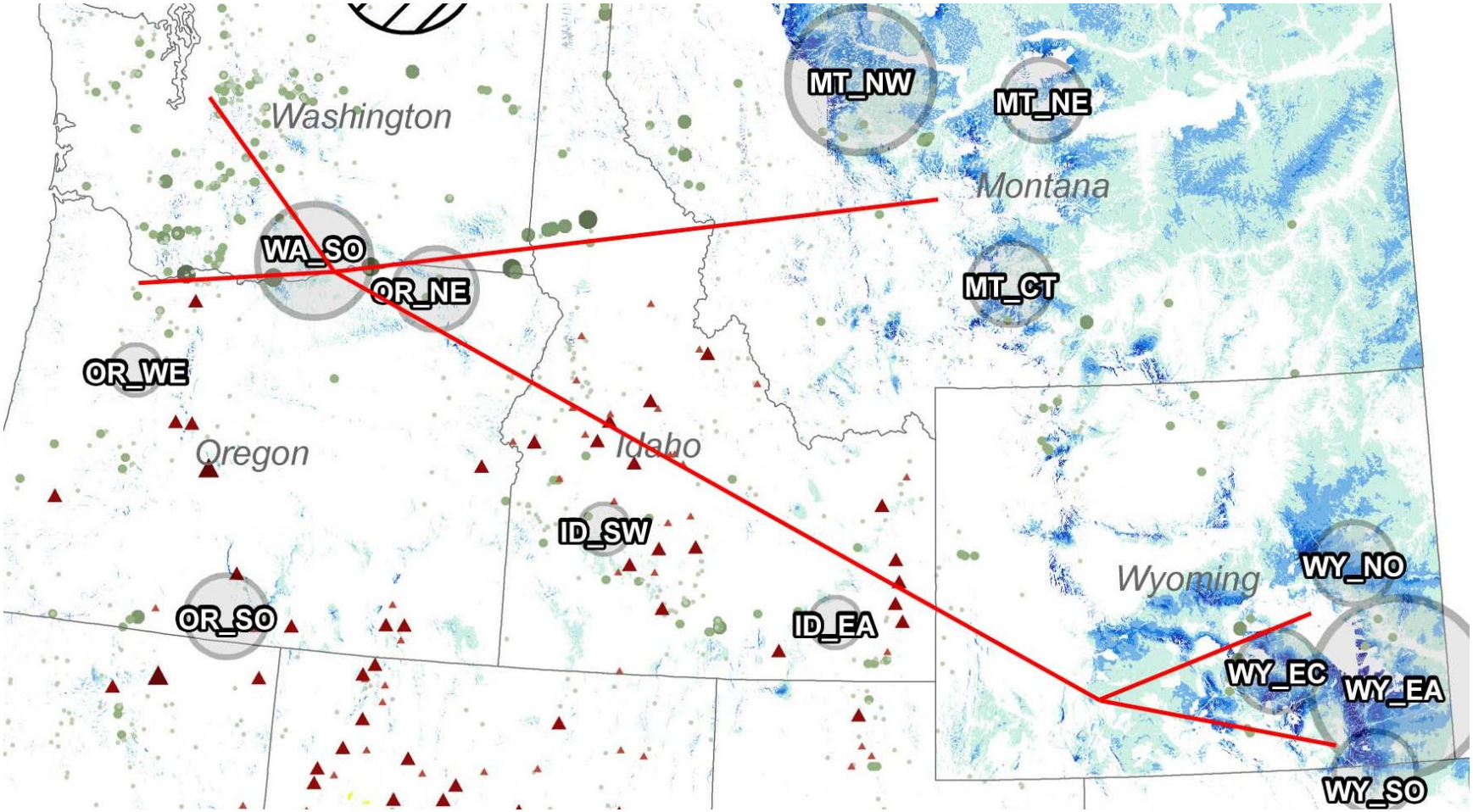
Parameters

- Target load areas: Seattle and Portland
- Available wind capacity: three renewable energy zones (REZs) in Montana, four REZs in Wyoming, and the two REZs along the Columbia River in Washington and Oregon.
- Wind production data: top of the hour for 2004, 2005 and 2006, taken from NREL's Western Wind and Solar Integration Study data set
- Hourly load data: public sources

Constraints

- Exclude from possible selection the same areas excluded from the WREZ analysis
- No more than 25% of the non-exclusion area contained in any WREZ QRA may be selected

General area covered by sample analysis



Transmission sensitivities

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