



RAP

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Western Utility Procurement Plans for Renewable Resources

Western Renewable Energy Zones Survey

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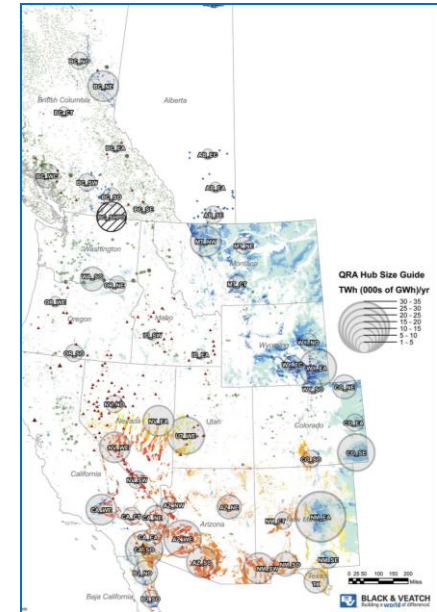
Western Renewable Energy Zones

- Western Governors' Association project
 - Identify and develop areas with enough high-quality renewable resources to justify a high-capacity transmission line (≥ 500 kV AC)
 - In areas with low environmental impacts
 - Facilitate interstate transmission lines

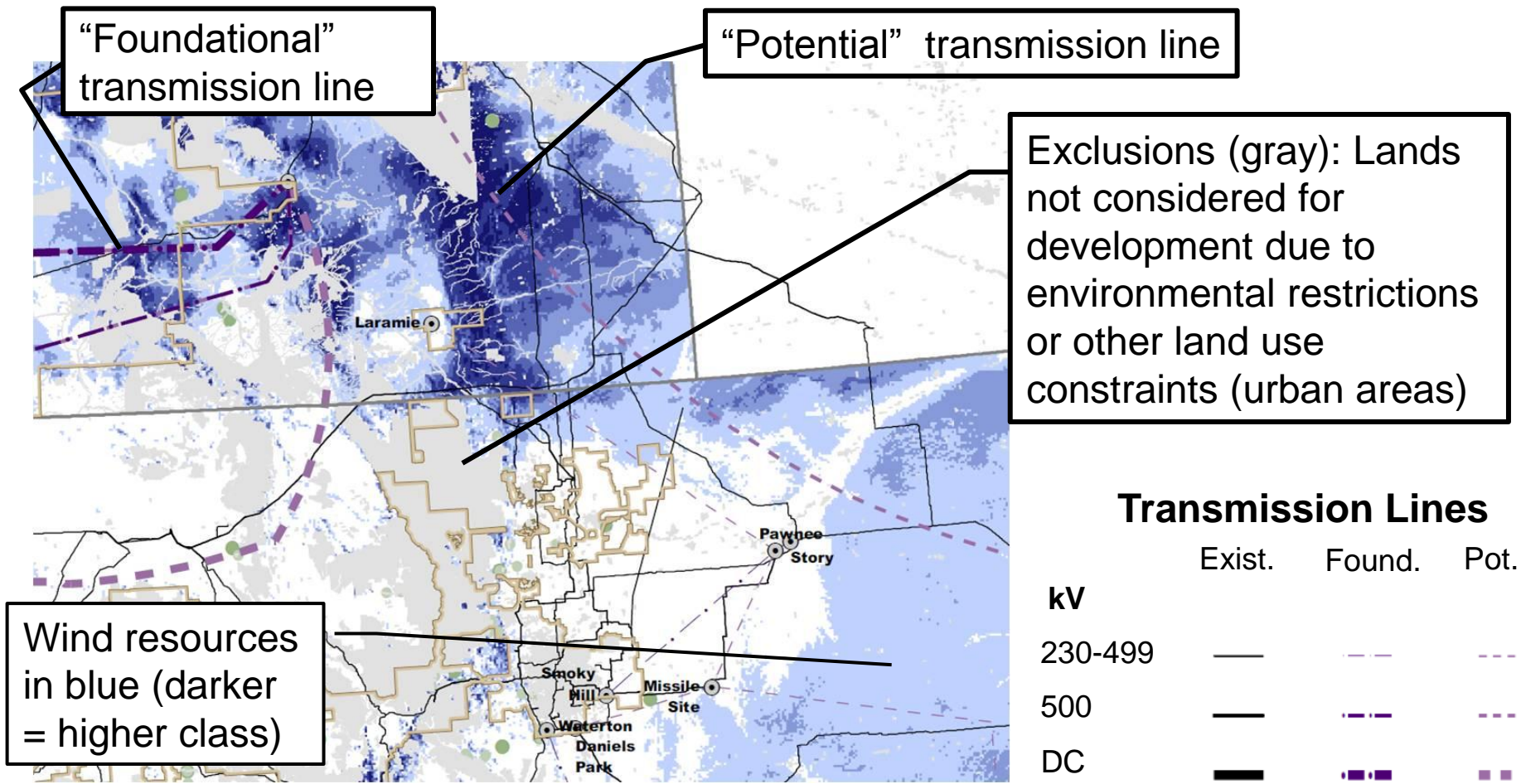
Funded by U.S. DOE
- May 2008 kickoff

WREZ So Far

- Mapped renewable energy hubs
- Resource supply curves by zone
- Easy-to-use model to estimate delivered cost to load centers
- Screened sensitivity of least-cost resource selection West-wide (incl. transmission) with high RR targets: base case vs. HVDC lines, low cost wind, tradable RECs
- New: utility-specific results (posted soon on WIEB Web site for 25 utilities)



Example: Potential Wyoming-South Resources for PacifiCorp



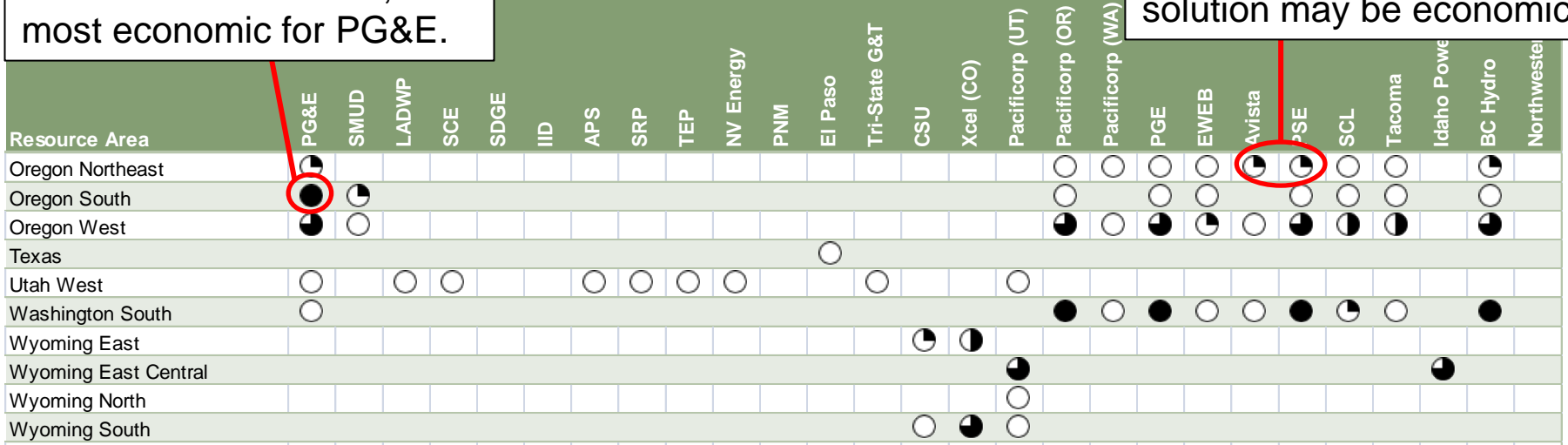
Coordinated Procurement

- Identify WREZs of common interest
 - WREZ model
 - Utility surveys
- Explore coordinated resource development in these zones with utilities and state regulators
- Goal: Create critical mass of transmission needs in the same timeframe for efficient build-out

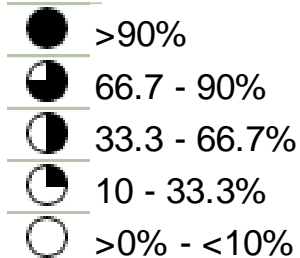
Partners or Competitors?

While other utilities may be interested in this zone, it is most economic for PG&E.

Zone common to Avista & PSE; shared transmission solution may be economic



Percentage of WREZ energy identified as most economic



Note: Only partial results shown

- The more filled in the circle, the better the resource fit.

Early Feedback From Utility Interviews

- Interviews underway
- Following slides summarize early responses to a few of the survey questions
- Also interviewing state utility regulators
- Findings will be documented in report

Early Feedback From Utility Interviews

1. Are top WREZs and resources ID'ed by model consistent w/long-run utility acquisition plans?
 - Generally, yes, but outliers
 - More solar for CA
 - Some top WREZs ID'ed by model haven't shown up in IRPs or as bids in utility RFPs & *vice versa*
 - Where unbundled RECs are allowed, utilities are acquiring resources not selected by model (e.g., Idaho)*
 - Model assumptions ignore state-specific RPS eligibility requirements (e.g., for resource location, delivery) and exclude resources outside WREZs

*LBNL modeled unbundled REC scenario; see report cited at end of slides

Early Feedback From Utility Interviews

2. Where are utilities developing RR – and why?
 - Utilities are developing close-in resources
 - Generally have lower CF and higher busbar costs, but lower delivery costs and more likely to be completed on time
 - RPS requirements may restrict location
 - Comes down to delivered cost & risk around estimate
 - Transmission is a small part of the cost, but new lines are high risk (“Biggest thing is transmission,” “#1 criterion”)
 - Projects using existing transmission strongly preferred
 - Commercial operation date for meeting RPS requirements, getting production tax credits/grants
 - Treatment of utility costs when project doesn’t go forward

Early Feedback From Utility Interviews

- “Permitability” is a big issue
 - Projects crossing several states pose more risk, including timely completion
 - Federal lands crossed
 - Siting issues in some areas may push development elsewhere
- Pancaking charges are a factor
 - But a close-in resource can require a double wheel, while a distant resource may just need one wheel
- New transmission (from MT, etc.) would change things
- Smaller utilities need to partner with others for new transmission to RR or use line to import gas generation as well as RR

Early Feedback From Utility Interviews

3. Is coordination among utilities to develop WREZs possible?
 - Yes, but considerations include the following:
 - RPS eligibility requirements; in-state preference
 - May be more difficult for utilities that primarily buy power instead of own projects (e.g., CA IOUs)
 - RFPs are utility by utility & don't set resource location
 - Big utilities have no incentive – they have a big demand and don't need partners
 - Some utilities don't even look at resources where transmission is not currently available

Early Feedback From Utility Interviews

- Utilities work together only if it's the only way to get something done – e.g., to share high capital costs or new technology risk, or get major economies of scale
- RR typically are small and modular – not developed all at once – so they're not as amenable as large thermal plants for joint or even coordinated development
- Related, utilities may meet RPS just in time (even with liberal REC banking provisions)
- COUs and IOUs may not want to work together

For More Information

- WREZ Phase 1 report, maps and other information:
<http://www.westgov.org/wieb/>
- LBNL report on transmission and least-cost WREZ resources with a West-wide 33% renewable energy target in 2029 under various assumptions:
<http://eetd.lbl.gov/EA/EMP/reports/lbnl-3077e.pdf>
- Detailed WREZ resource assumptions:
www.nrel.gov/docs/fy10osti/46877.pdf
- Full description of WREZ model and assumptions:
<http://www.westgov.org/wga/initiatives/wrez/gtm/documents/GTM%20V%202.0%20Method%20Assumptions.pdf>

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

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