



# Energy Mixology

**Speaker Pro Tem Jeff Morris**

# Three Hats

## ○ Progressive Energy Policies

- Promote renewable energy industry.
- Increase alternative fuel usage.
- Improve energy efficiency standards.





# Examples of accomplishments

## **Promote renewable energy industry.**

- ✓ Sales and tax breaks for constructing wind farms, solar installations and bio-mass facilities.
- ✓ Expedite permitting process for wind farms and other renewable energy projects.
- ✓ One of the first states to promote fuel cell use through tax incentives and state procurement.
- ✓ Tax breaks for solar cell manufacturers



# Examples of accomplishments

## **Promote renewable energy industry.**

- ✓ Passed solar production credit paying producers up to \$2000.00 per year for production
- ✓ Produced first state wide interconnection standard up to 25kw
- ✓ Created a first in the nation pre-identified wind farm mitigation area where wind farm developers can mitigate any environmental disturbance caused by farm construction or operation.
- ✓ Best in the Nation” net metering law that creates a standard for you to get compensated for generating renewable electricity at your home. Increased the generating capacity of net metering systems from 25 kW to 100 kW. Allowed Aggregate net metering



# Examples of accomplishments

## **Increase alternative fuel usage.**

- ✓ One of the first biofuel packages in the nation to promote the development of a biofuel industry.
- ✓ Incentives for purchasing hybrid vehicles.
- ✓ Second state to adopt climate change law.



# Examples of accomplishments

Increase alternative fuel usage.

- ✓ Created Energy Freedom Fund
- ✓ **Renewable fuel standards for biodiesel and ethanol.** Washington's fuel supply will contain 2% renewable fuel by December 1, 2008, or sooner if there are sufficient in-state crops to support a 2% standard. The standard is a volumetric standard rather than a blend; 2% of all fuel will be biofuel (not 2% of each gallon). The standard will increase to 5% biodiesel or 10% ethanol in the future if certain conditions are met, including sufficient in-state feedstock and crushing capacity, and air quality requirements.



# Examples of accomplishments

## Increase alternative fuel usage

- ✓ **California vehicle standards.** Adopts the California vehicle emissions standards, without the zero emission vehicle regulations. The rules will be effective only for those model years for which Oregon has adopted the emissions standards. Broadens the diesel school bus retrofit program to include other publicly owned diesel equipment. Vehicle emissions testing may be done by authorized auto dealers and repair shops beginning in 2012



# Examples of accomplishments

## Improve energy efficiency standards.

- ✓ One of the first 10 states to adopt energy efficiency laws on 10 appliances for in-state use that could conserve some 900 million kilowatt-hours of electricity by 2020, enough to power over 90,000 homes. Added more appliances this year.
- ✓ **Integrated resource plans (IRPs).**  
Requires public and private utilities with more than 25,000 customers to develop IRPs, which lay out current and future energy needs and the energy sources, conservation and efficiency improvements they'll use to meet those needs at the lowest reasonable cost.

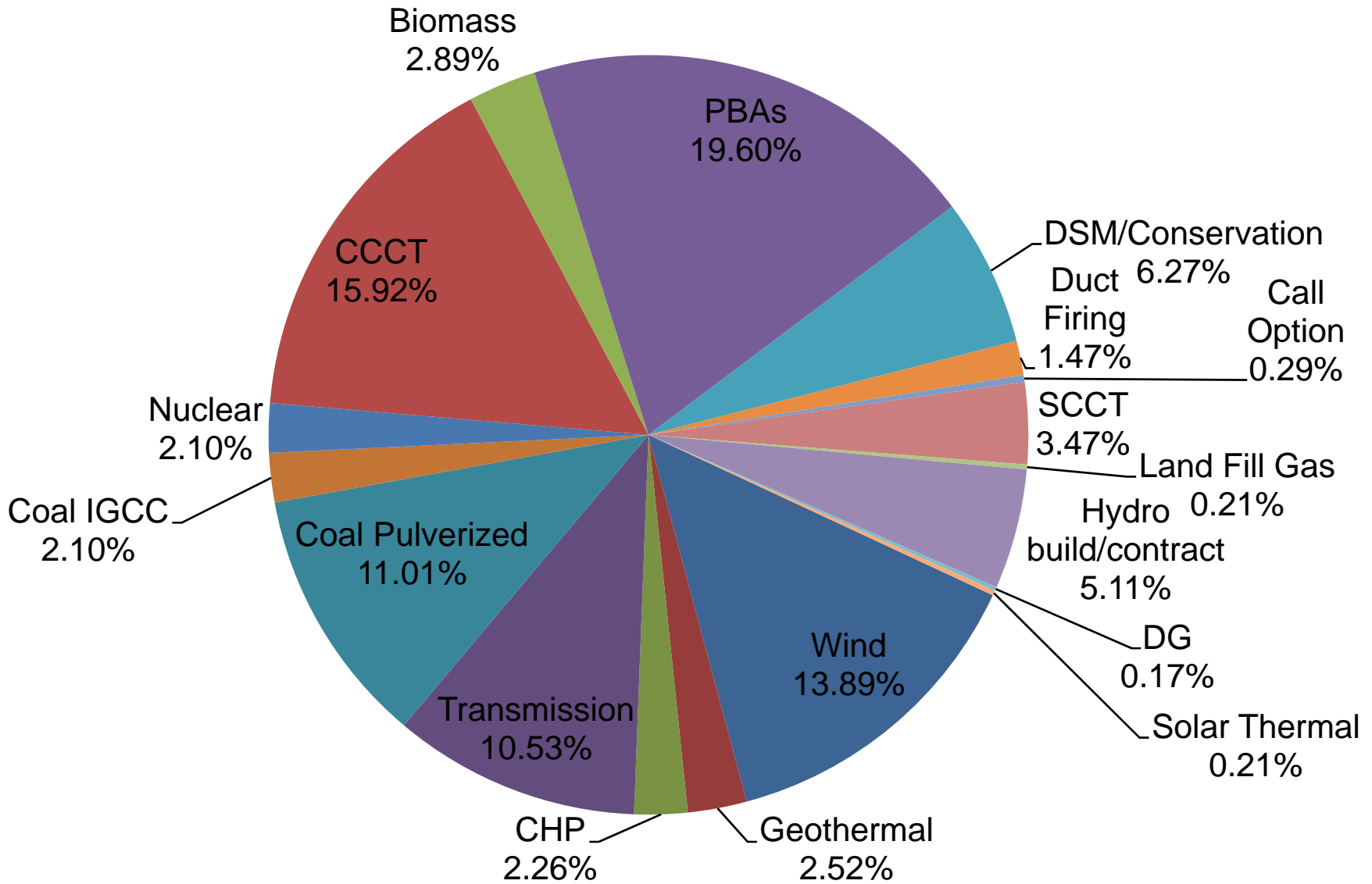


# **Integrated Resource Planning** **key to our Region's Future**

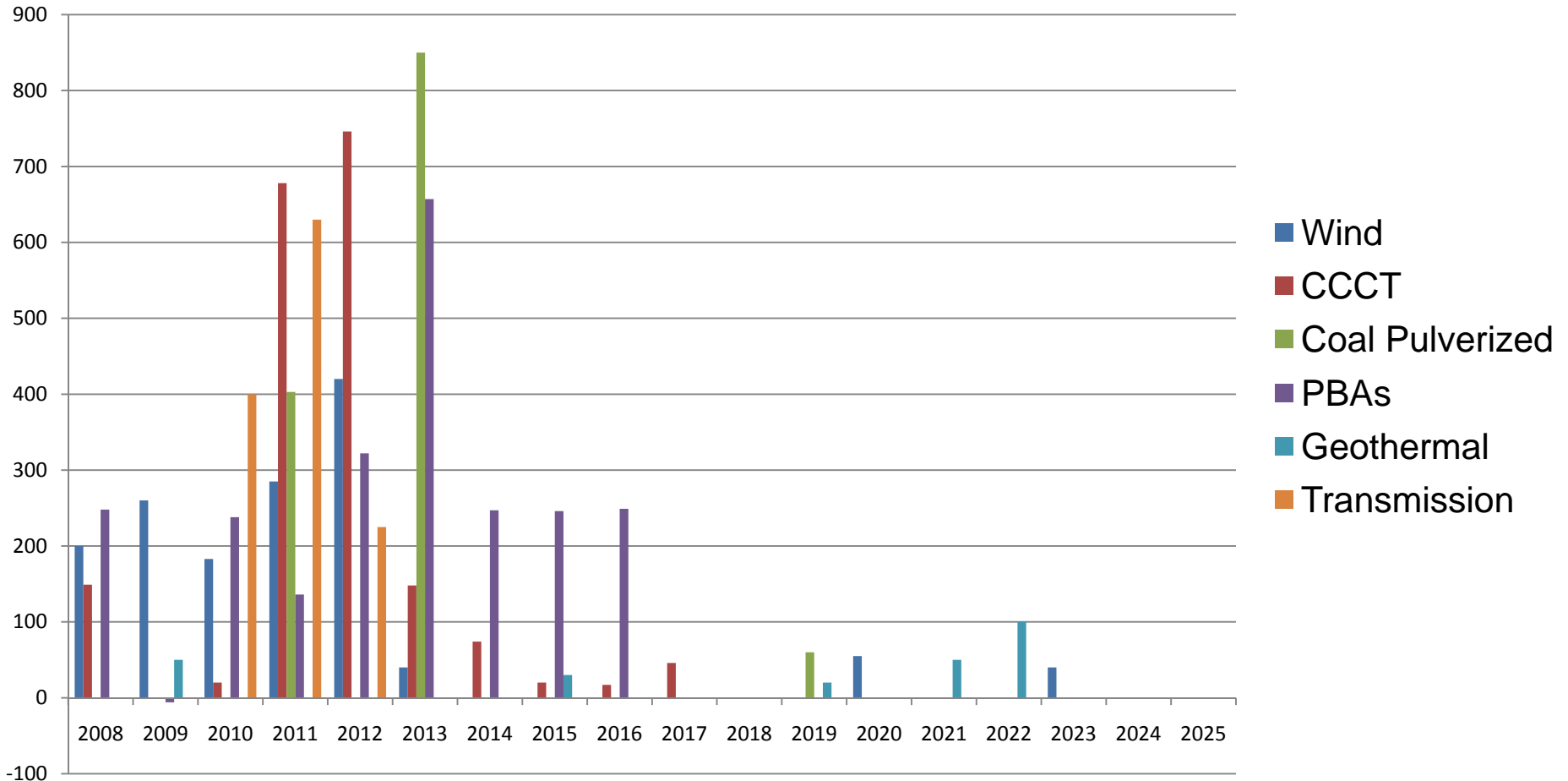
## **What is an Integrated resource plan?**

- Integrated Resource Planning is an assessment of demand-side and supply-side resources, evaluated under consistent assumptions, to produce a cost-effective resource mix that meets expected short-term and long-term demand. The goals of the IRP are to produce a best-cost portfolio of supply side and demand side management alternatives to meet customer requirements of reliability under given constraints, to reduce costs for customers, to help diversify energy supply mix, and to improve modeling of demand, supply, and conservation.

# PNWER's Energy Horizon 7/1/2007 Additions 2008-2025



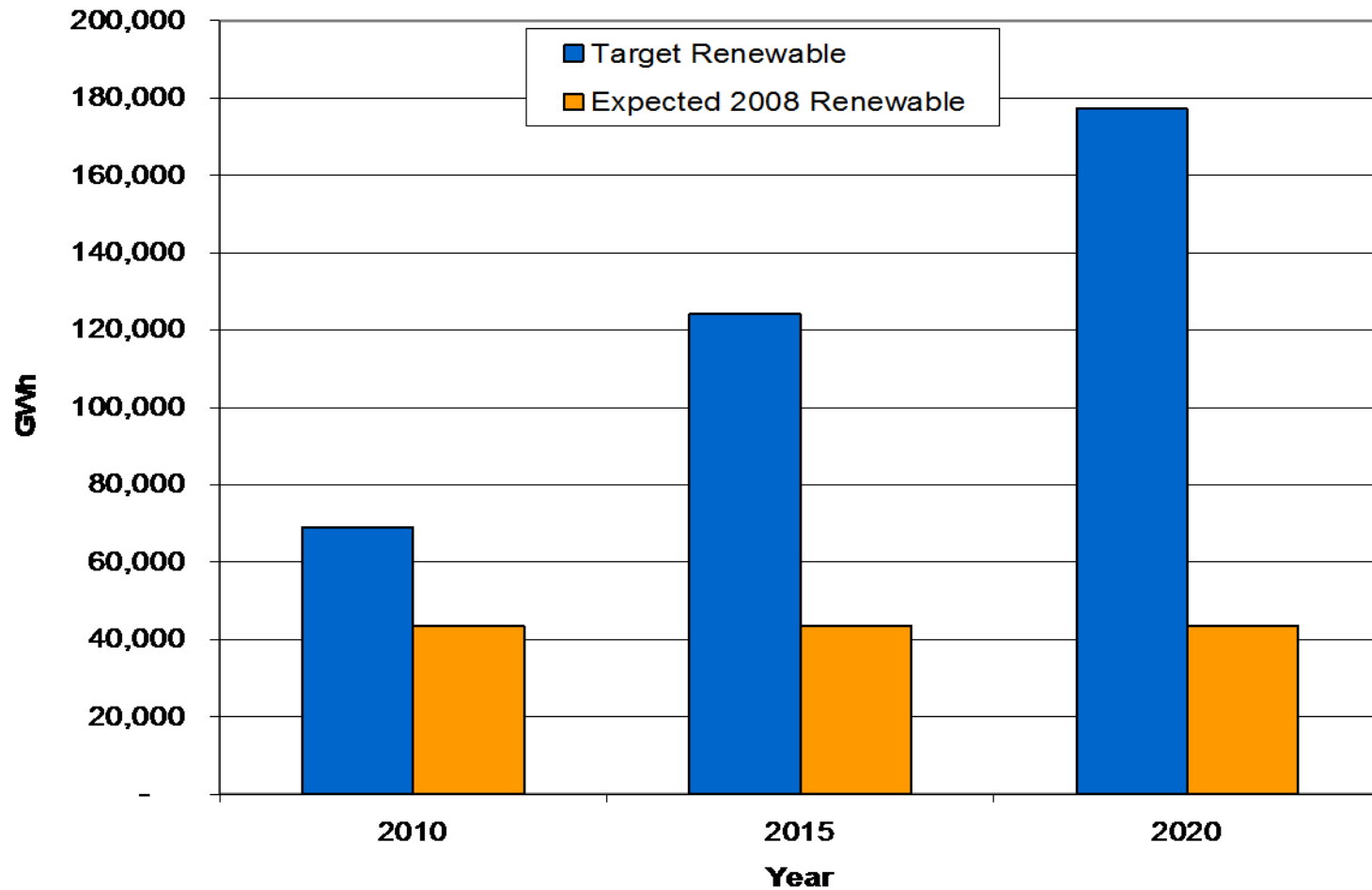
# Top New Generation in Region 2008-2025

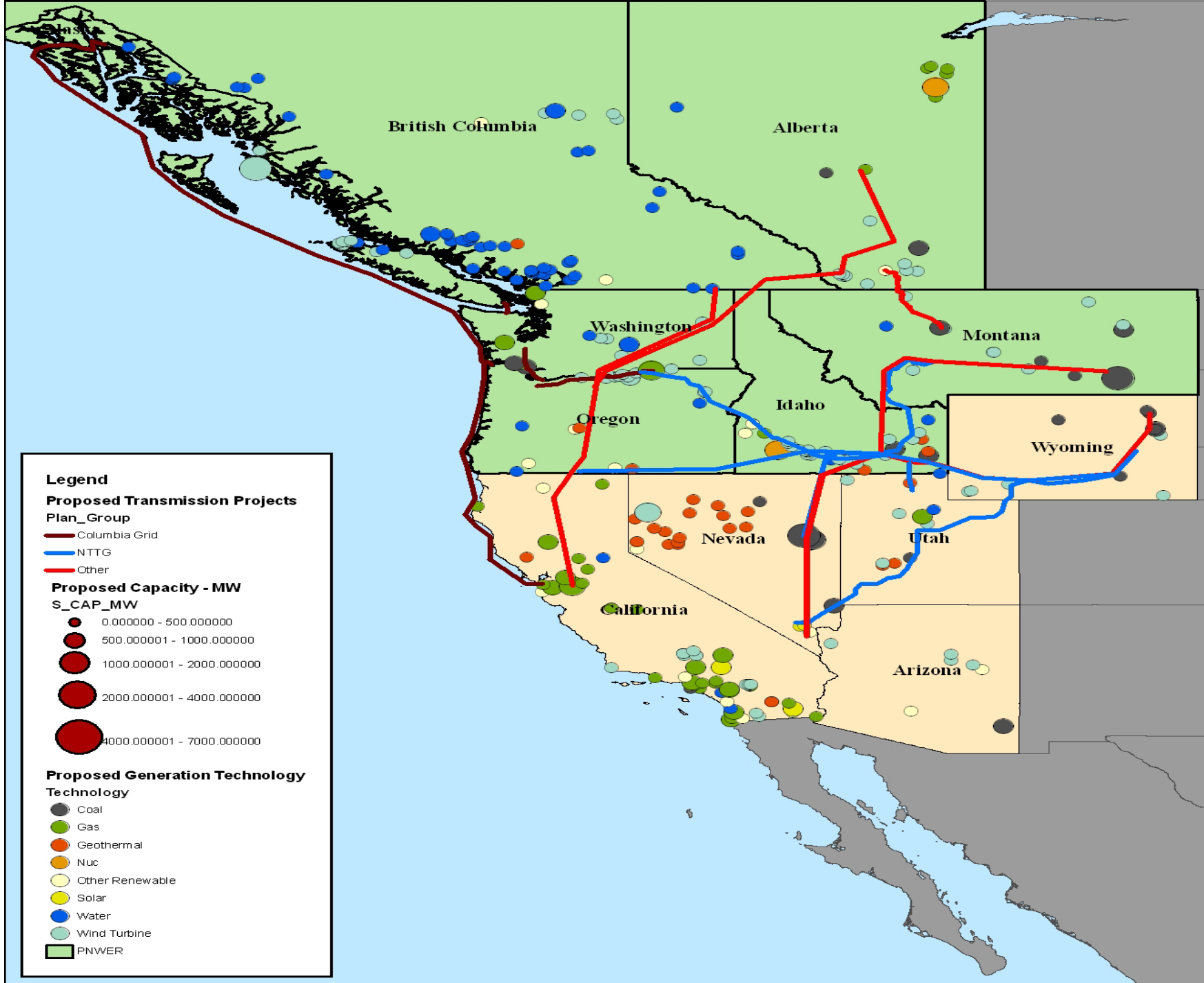


# WECC RPS Mandates

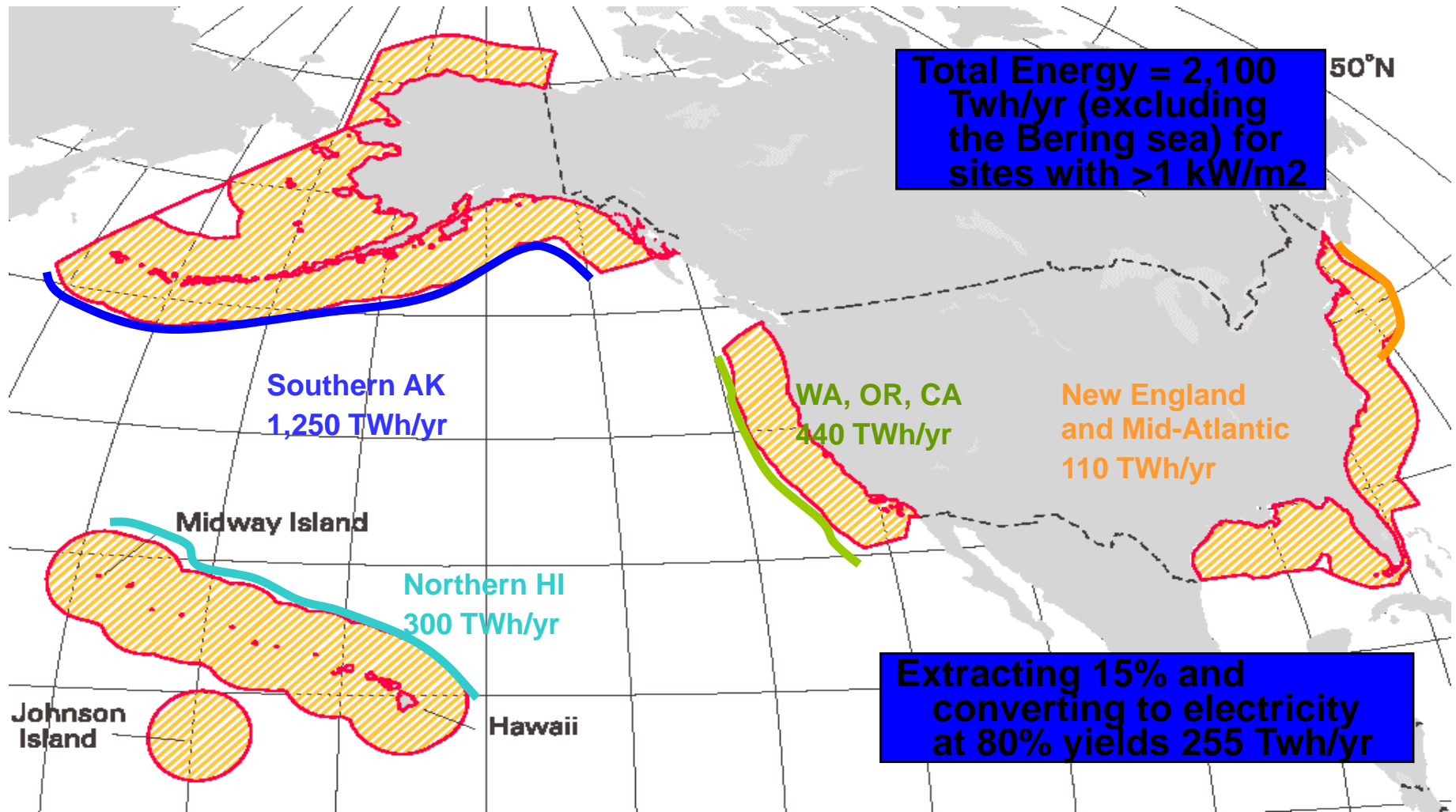
| <b>State</b> | <b>2010</b>                       | <b>2015</b> | <b>2020</b> |
|--------------|-----------------------------------|-------------|-------------|
| BC           | N/A                               | N/A         | N/A         |
| Alberta      | N/A                               | N/A         | N/A         |
| Washington   | 0                                 | 3%          | 15%         |
| Montana      | 10%                               | 15%         | 15%         |
| Oregon       | 0                                 | 15%         | 20%         |
| Idaho        | 0                                 | 0           | 0           |
| Wyoming      | 0                                 | 0           | 0           |
| California   | 20%                               | 26%         | 33%         |
|              | <b>Must at least +1% per Year</b> |             |             |
| Nevada       | 12%                               | 20%         | 20%         |
| Utah         | 0                                 | 0           | 0           |
| Colorado     | 5%                                | 15%         | 20%         |
| Arizona      | 2.50%                             | 5%          | 10%         |
| New Mexico   | 0                                 | 15%         | 15%         |

# Renewables...WECC wide: Goals vs. Current

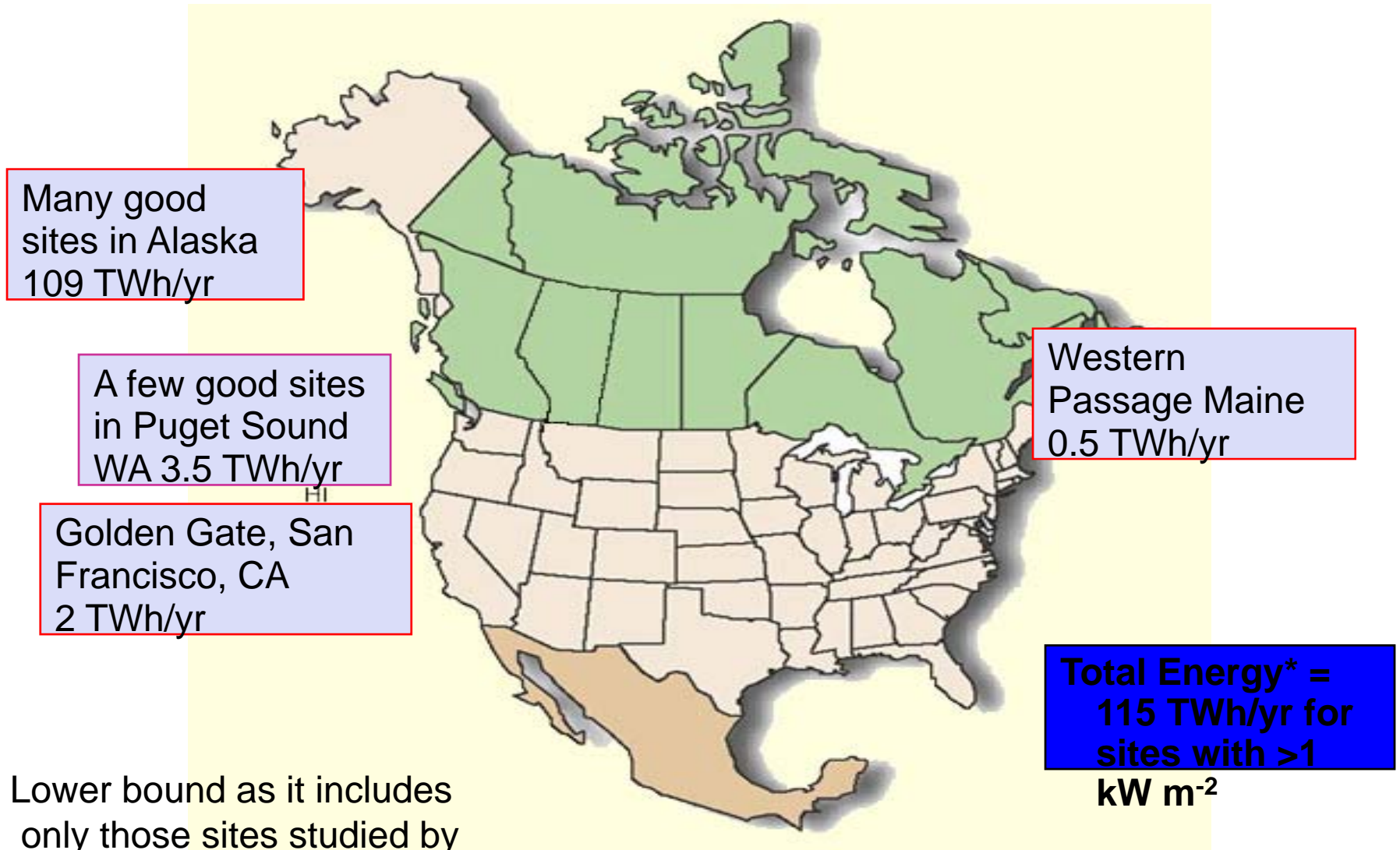




# U.S. Offshore Wave Energy Resources



# U.S. Tidal Energy Resource



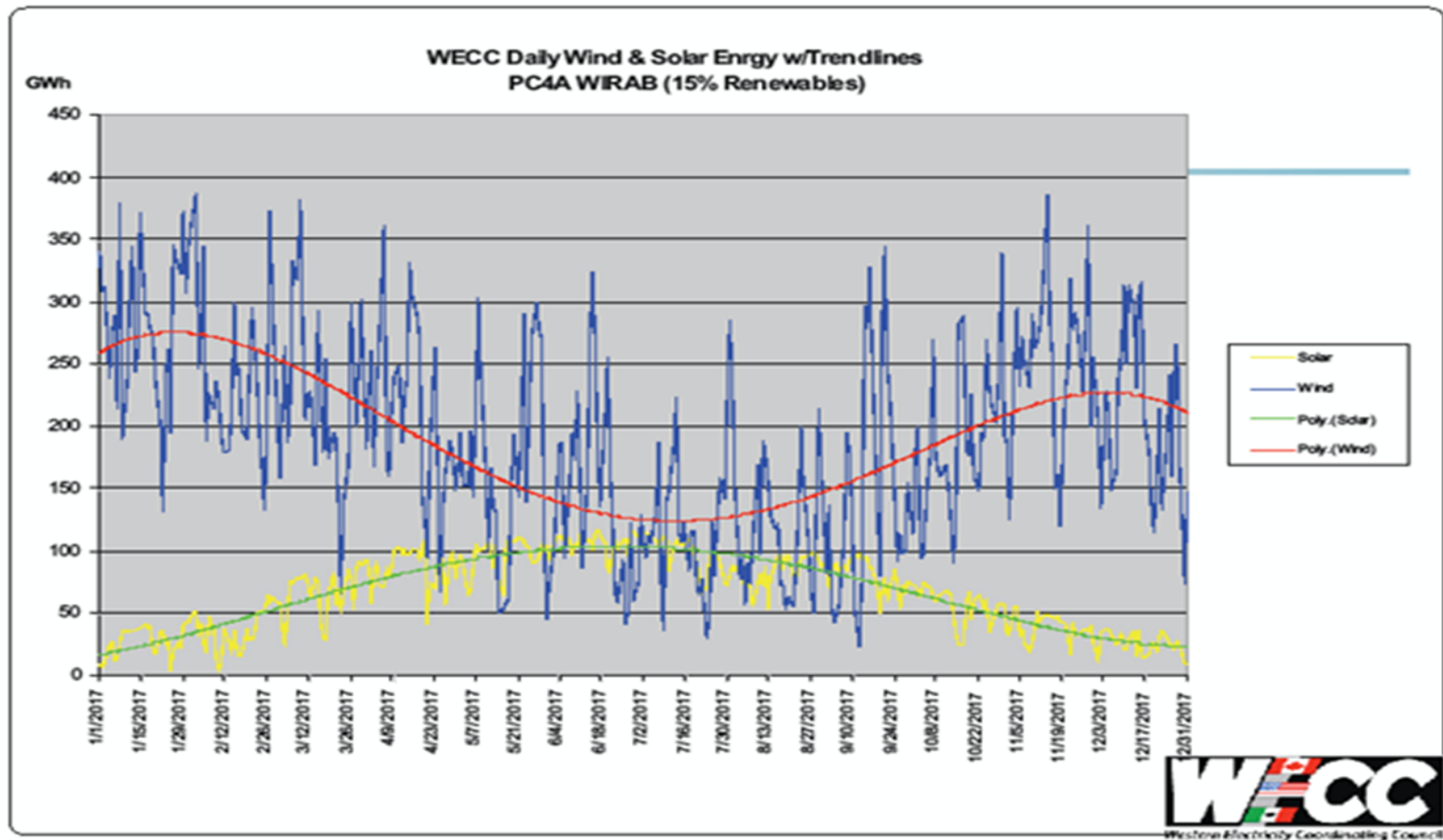
\* Lower bound as it includes only those sites studied by EPRI

# Understanding Wind Energy

- Wind is primarily an ***energy***, rather than a ***capacity resource for system operations***.
- The primary value of wind energy lies in its ability to displace fossil fuel consumption, reduce carbon emissions, and limit exposure to volatile natural gas prices.
- The natural variability and uncertainty of wind energy increases the demand for balancing reserves. This increased demand for balancing reserves requires changes in system operations with corresponding integration costs and consequences for balancing resource availability.
- While it is important to acknowledge the operational characteristics of wind energy wind developers and operators are exploring many innovative approaches to reliably integrating wind into the grid.

\* From Brian Silverstein, BPA

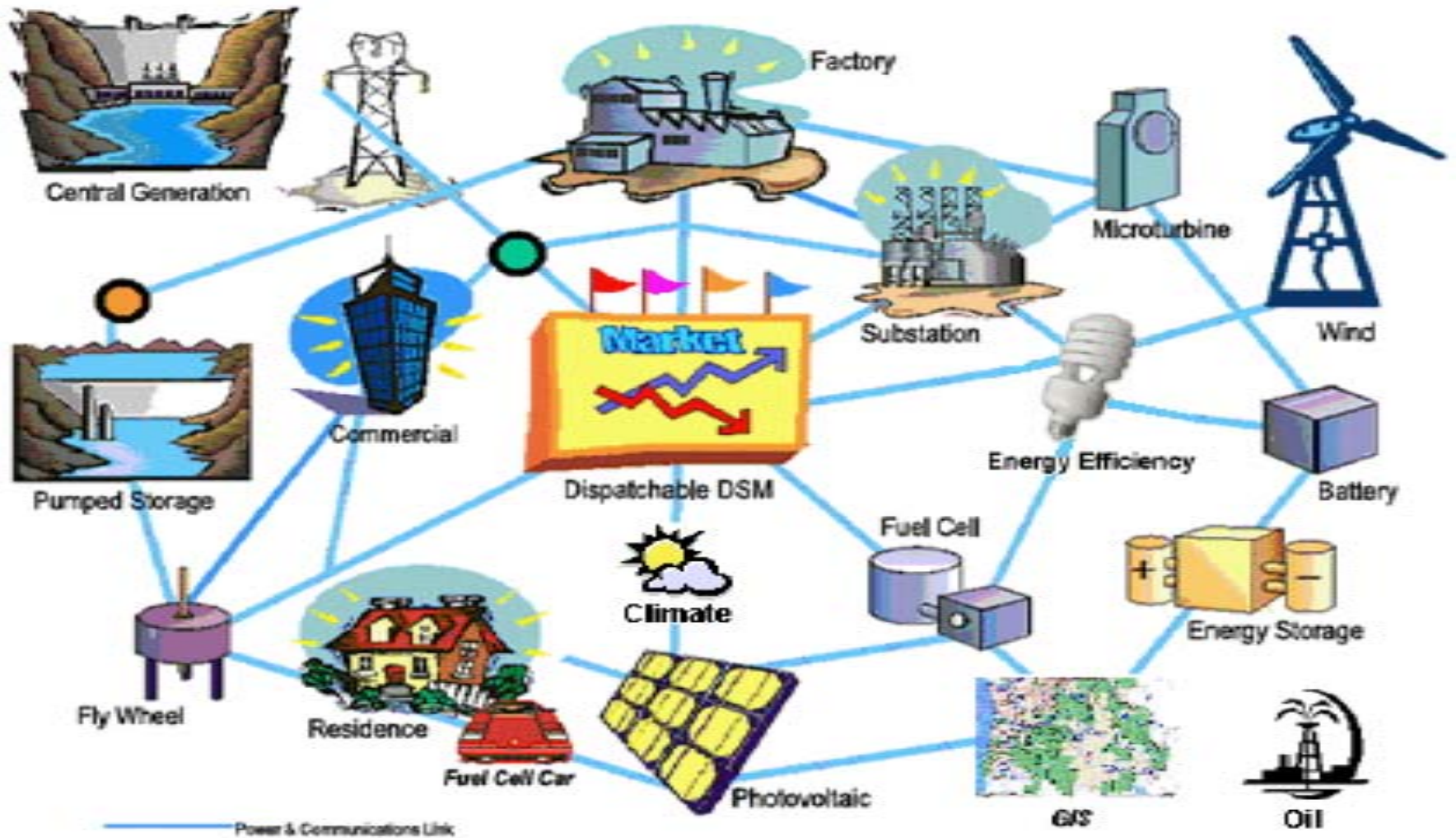
# Firming the Challenge!



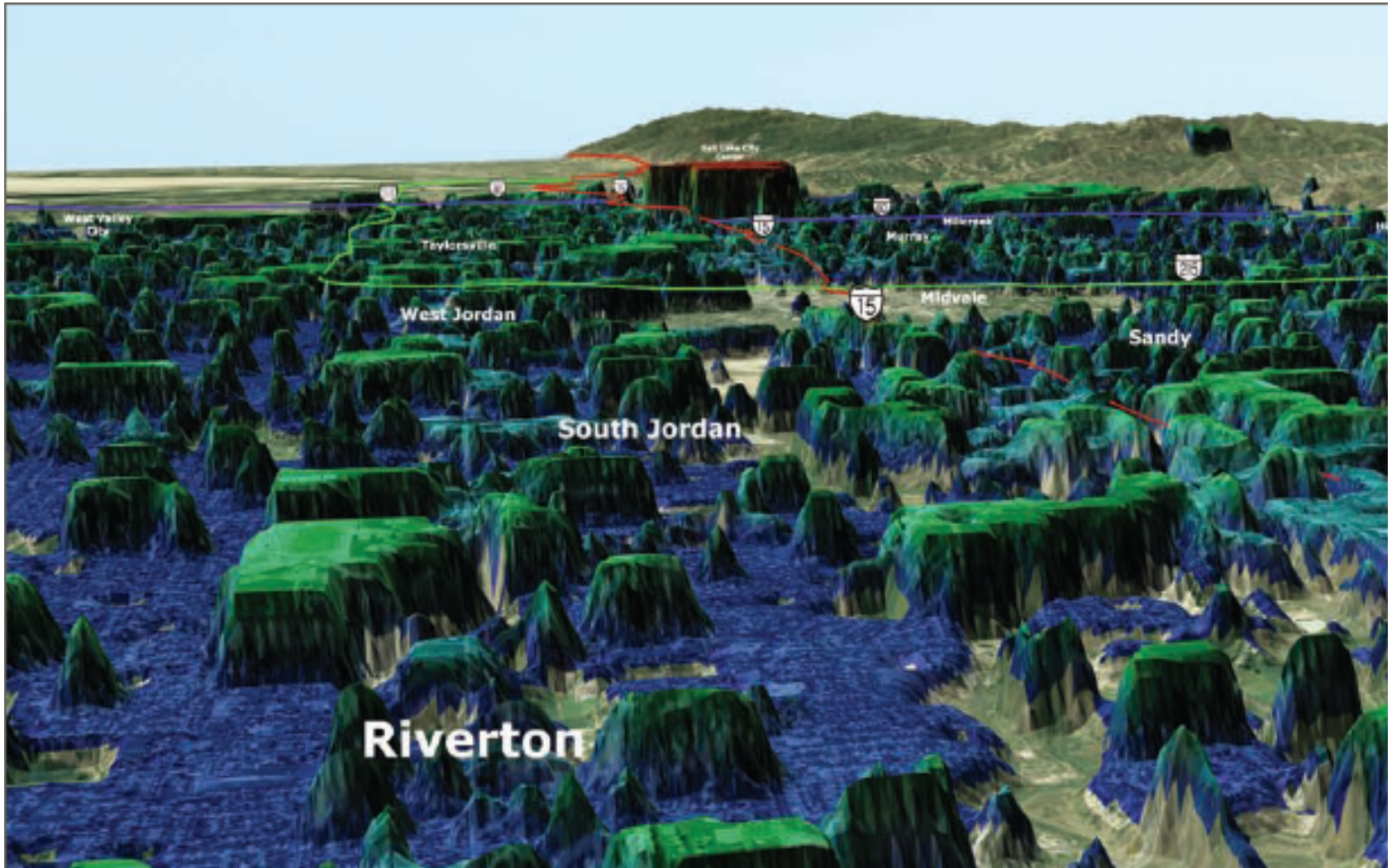
# Smart Grid What is it?

- The term "smart grid" represents a vision for a digital upgrade of distribution and long distance transmission grids to both optimize current operations, as well as open up new markets for alternative energy production.
- Use of robust two-way communications, advanced sensors, and distributed computing technology will improve the efficiency, reliability and safety of power delivery and use.
- One United States Department of Energy study calculated that internal modernization of US grids with smart grid capabilities would save between 46 and 117 billion dollars over the next 20 years.
- If smart grid technologies made the United States grid just 5% more efficient, it would equate to eliminating the fuel and greenhouse gas emissions from 53 million cars.

# BPA: The Energy Web a New Kind of Network



# A View of the 3D Load Model during Fly-Over (looking north across Salt Lake Valley)





## Regional Issues

- Risk of market spikes caused by uncoordinated mandates
- Transmission critical for immediate mandates
- Lack of knowledge of policy makers of infrastructure
- Boutique standards for RPS mandates
- Pancaking of climate change taxes
- Lack of coordinated State or Regional Strategy on new energy technologies.
- Regional standards for interconnection lacking
- Credit situation not forecasted in projections.
- Lack of “what if? “ policy planning tool for regions policy makers.
- Lobbying presence in State Capitol for new energy technologies is none existent.



# What can you do?

- **Ask, email, call or write, policy makers to coordinate policies with neighboring jurisdictions.**
  - **Coordinate local jurisdiction permit requirements.**
  - **Pancaking of climate change taxes**
  - **Lack of coordinated State or Regional Strategy on new energy technologies.**
  - **Regional standards for interconnection lacking**
- **Join and support groups or blogs that seek to build knowledge of policy makers of infrastructure needed to accomplish a low carbon future. i.e. AWEA, Solar Washington**
- **Participate in the hearing process on IRP plans...they are the future of what comes into your wall outlet**
- **Join groups that Lobby State Capitol for new energy technologies.**
- **Be evangelical about the benefits our new future will have!**