

# Wind Powering America 2006 State Summit Pittsburgh, PA

Western Regional Transmission

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West Wind Wires  
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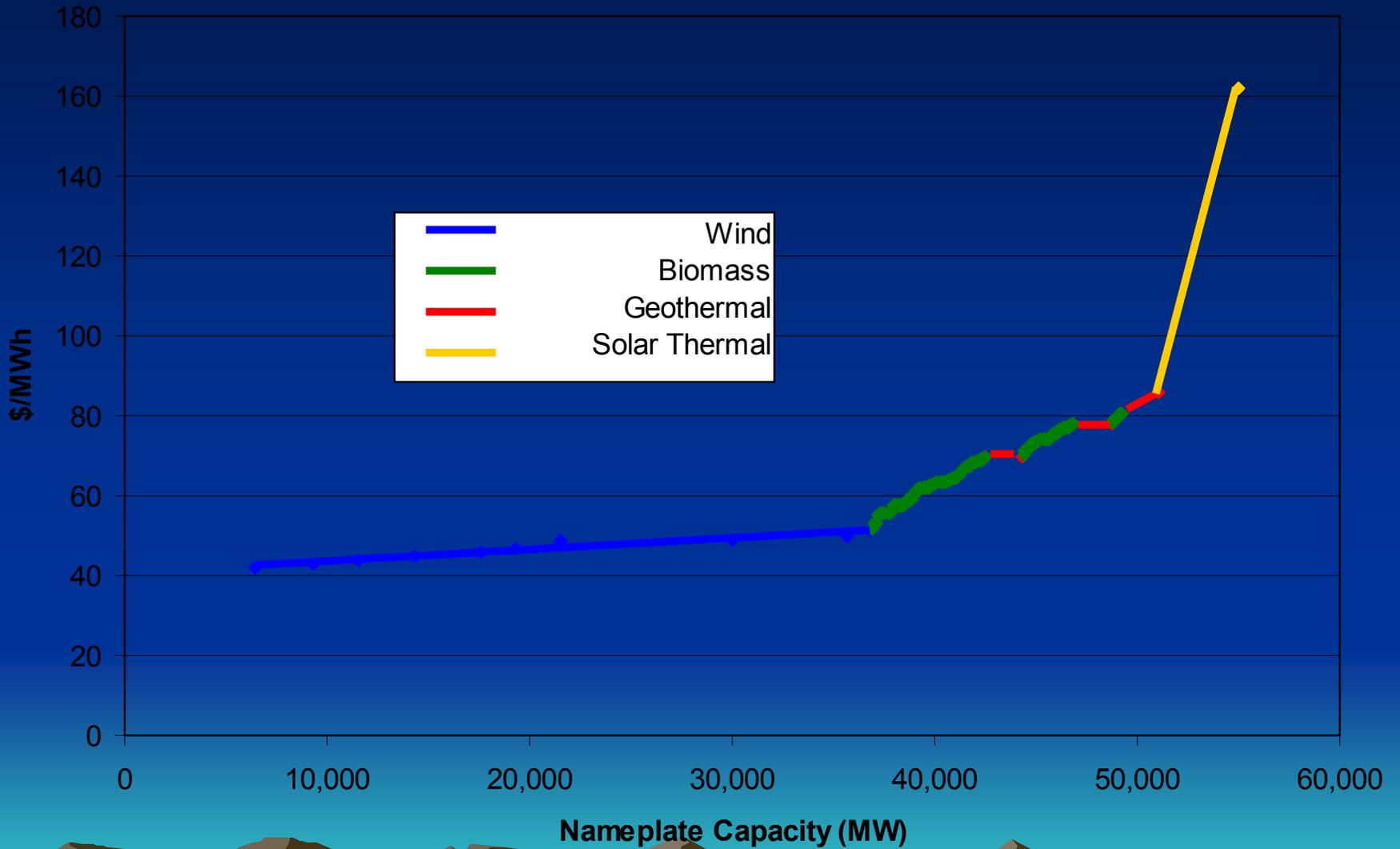
A stylized silhouette of a mountain range in shades of brown and tan, positioned at the bottom of the slide against a blue gradient background.

# Inconvenient Truths

- People don't live where the wind blows
- Wind needs transmission (along with other renewables: geothermal and central solar)
- Existing grid built for coal and hydro
- Most system operators see wind as uninvited dinner guest
- People want wind for clean air and GHG reduction
- State mandates for utilities in RPS and IRP
- Potential for future carbon regulation make coal risky
- Transmission lines are obtrusive



# Composite Supply Curve



# CDEAC High Renewable Energy Scenario

State Incremental Renewable Generation  
(Nameplate MW)

### Proposed Transmission Additions

- High Fossil Case
- High Fossil or Renewable Case

### Renewable Generation

- Geothermal
- Biomass
- Solar CSP
- Wind
- Solar PV

### Transmission Lines\*

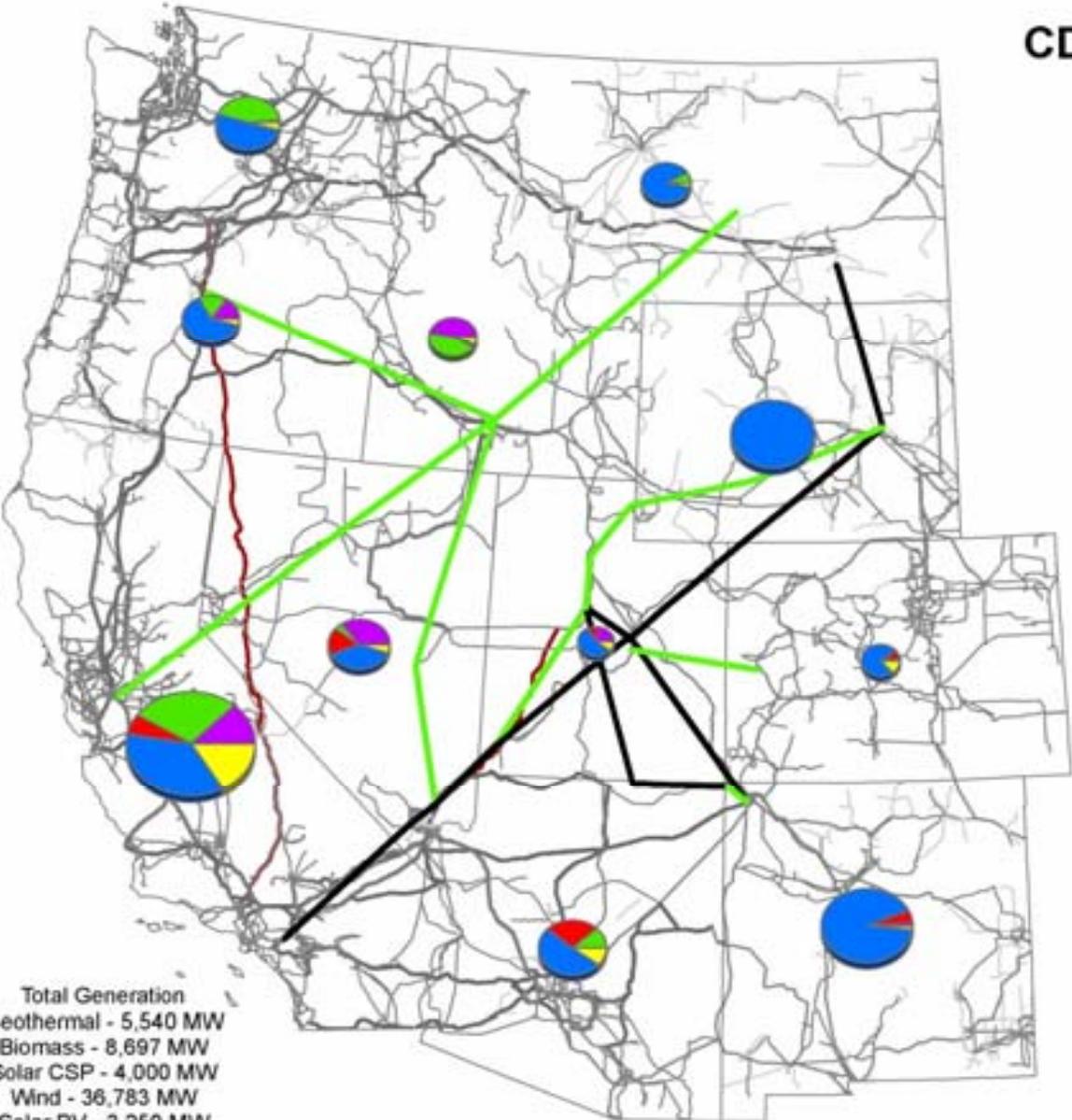
- Voltage
- 1 - 99
  - 100 - 161
  - 230 - 360
  - 500 - 765
  - 1000 (DC)

\* Data Source: Platts POWERmap, ©2006

U.S. Department of Energy  
National Renewable Energy Laboratory



**Total Generation**  
 Geothermal - 5,540 MW  
 Biomass - 8,697 MW  
 Solar CSP - 4,000 MW  
 Wind - 36,783 MW  
 Solar PV - 3,250 MW



# Getting More Grid to Use

- Work to resolve the coal wind transmission line dilemma by exposing carbon footprints and advocating for renewables only transmission
- New paradigm: wind as anchor tenet for new transmission , efficiency for peak shaving and demand reduction, clean coal and gas to shape and integrate renewables
- Support expansion of state and WECC subregional planning (NTAC, RMATS, SWAT, STEP,CCPG)
- Participate in federal and state corridor reservation process and congestion studies
- Advocate cost recovery for non-network upgrades (Tehachapi, Texas models) and transmission approval in advance of interconnection requests



# Using More of the Grid

- Develop national standards for determining unused transmission capacity
- Make Conditional Firm service commercially available via tariff amendment request to FERC
- Develop REC's and take advantage of WREGIS
- Develop RTO's to consolidate control areas and facilitate integration of wind
- Advocate for queue reform to allow priority access for wind projects that fulfill IRP, RPS, and GHG standards and to remove deadwood from transmission



# System Operation

- Wind/hydro integration studies (PMA's)
- BPA wind storage and shaping service as a model for other TO's
- WAPA regulation service reform
- Integration cost analysis
- Dynamic scheduling of wind generation across control area boundaries
- Generation procurement strategies for more operational flexibility
- Dynamic line rating



# To Do List

- Attend NWCC meeting July 18 to 19 and support western governors CDEAC implementation
- Continue participation in USDOE corridor analysis to ensure FERC backstop for renewables transmission (3 year review cycle)
- Work with USAF on wind/flight path conflict
- Take a control room operator to lunch
- Send a thank you note to a transmission planner who plans for high levels of wind: cc the CEO



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