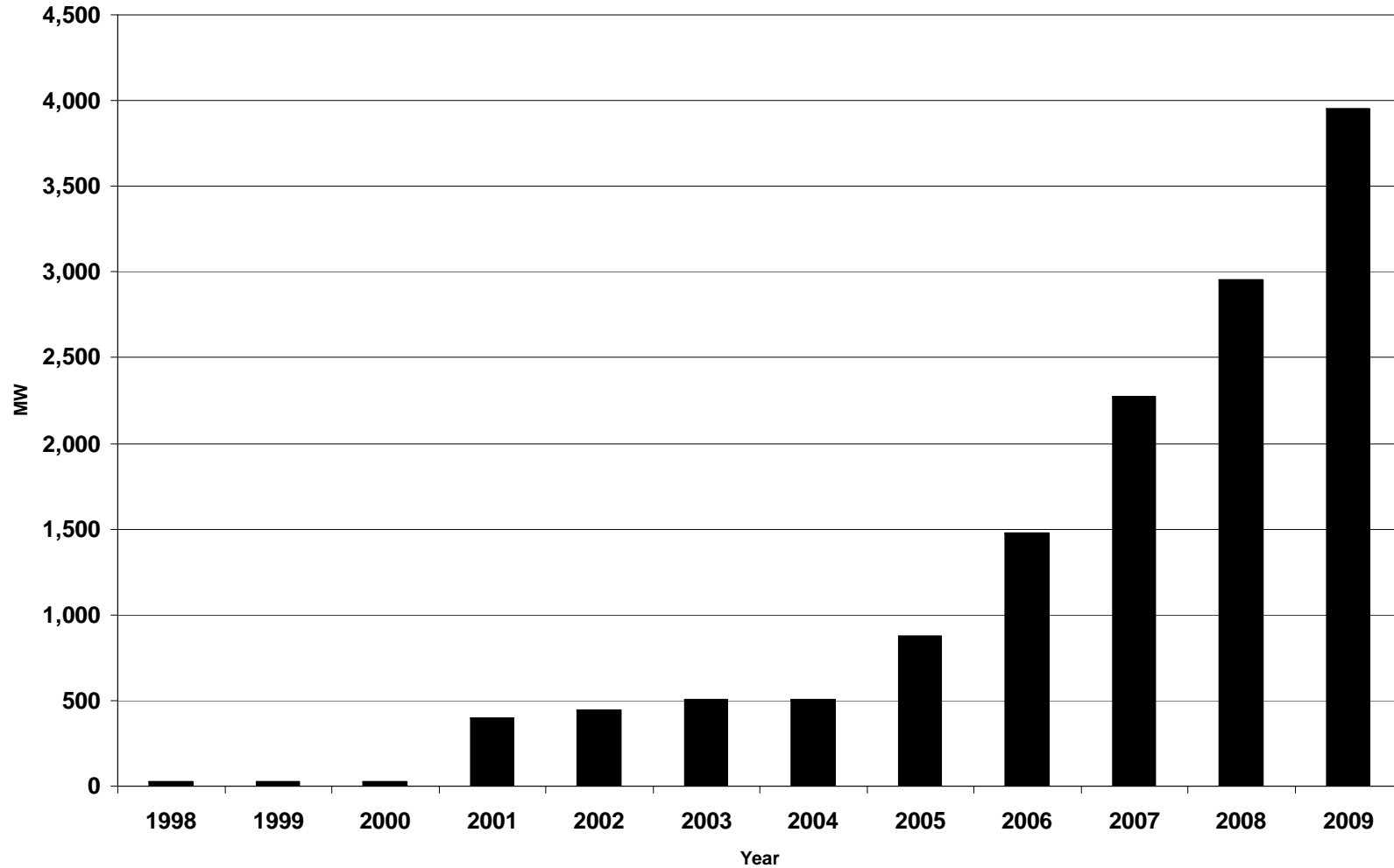


# Meeting the Wind Integration Challenge in the Pacific Northwest

Elliot Mainzer, BPA  
NARUC Summer Meeting  
July 20, 2008

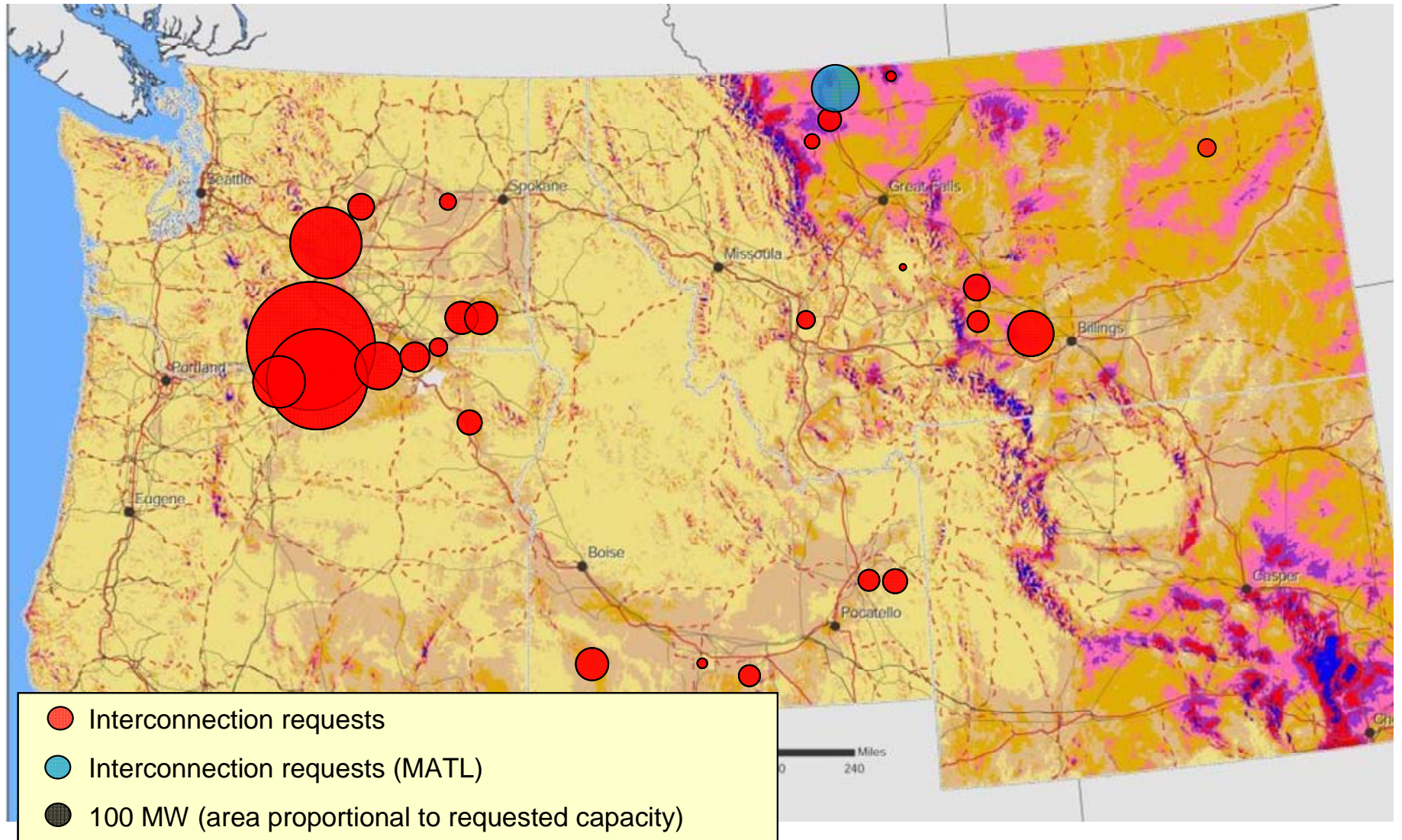


### Pacific Northwest (WA/OR/MT/ID) Wind Development 1998-2008



# Northwest Wind Integration Challenges

- Declining hydro flexibility
  - Load growth
  - Endangered fish protection
  
- Transmission Constraints/Geographical Concentration
  - Physical and commercial congestion
  - Potential for severe ramping behavior
  
- Large number of individual Balancing Areas
  - 17 BAs in the Northwest Power Pool
  - Multiple transmission planning organizations



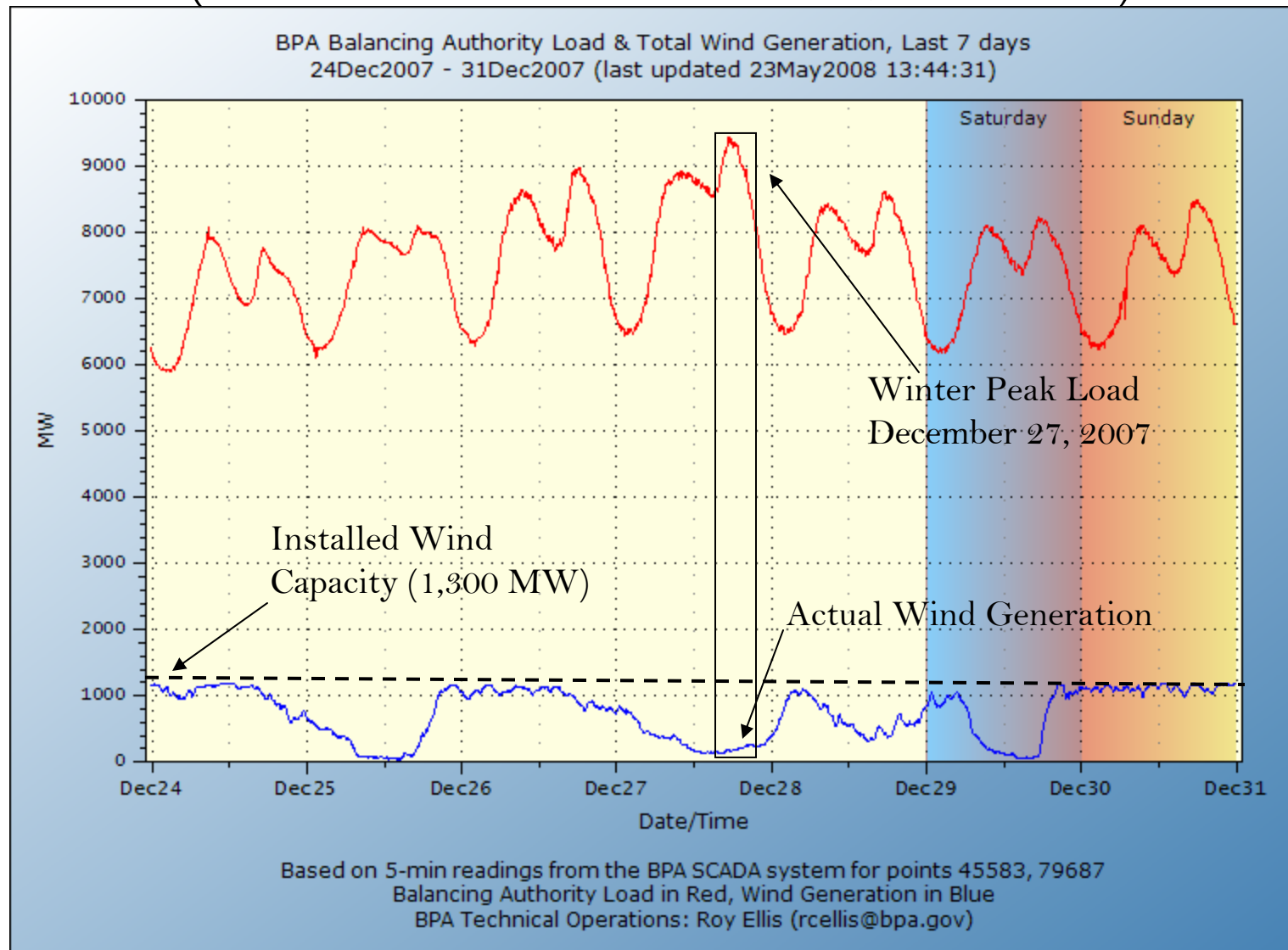
## NW Wind Integration Action Plan -- 2007

- Major collaborative regional effort.
- Examined all dimensions of wind integration topic.
- Confirmed general nature and impacts of wind energy.
- Offered 16 specific actions to help the Northwest meet its wind energy objectives at the lowest possible cost.
- Control area coordination/ancillary services market development and transmission utilization/ marketing/ planning/expansion were high on the priority list.
- Implementation of the Action Plan is well underway.

# Action Plan Implementation

- Control Area Collaboration/Ancillary Services Market Development
  - ACE Diversity Initiative
  - NTTG/Columbia Grid/West Connect Collaboration
  - Dynamic Capacity Product
  - Northern Intertie Dynamic Capacity Study
  - BPA RFP for Third-Party Supply
  - California/Northwest Collaboration
  
- Transmission Utilization/Marketing/Planning/Expansion
  - Redispatch Pilot
  - Conditional Firm Transmission Service
  - BPA Network Open Season
  - “Big Tent” Transmission Planning

# Load and Wind on BPA System December 24-31, 2007 (Total Installed Wind of 1,300 MW)



## For More Information

Elliot Mainzer

Manager, Transmission Policy and Strategy

Bonneville Power Administration

503 230 3000

[eemainzer@bpa.gov](mailto:eemainzer@bpa.gov)