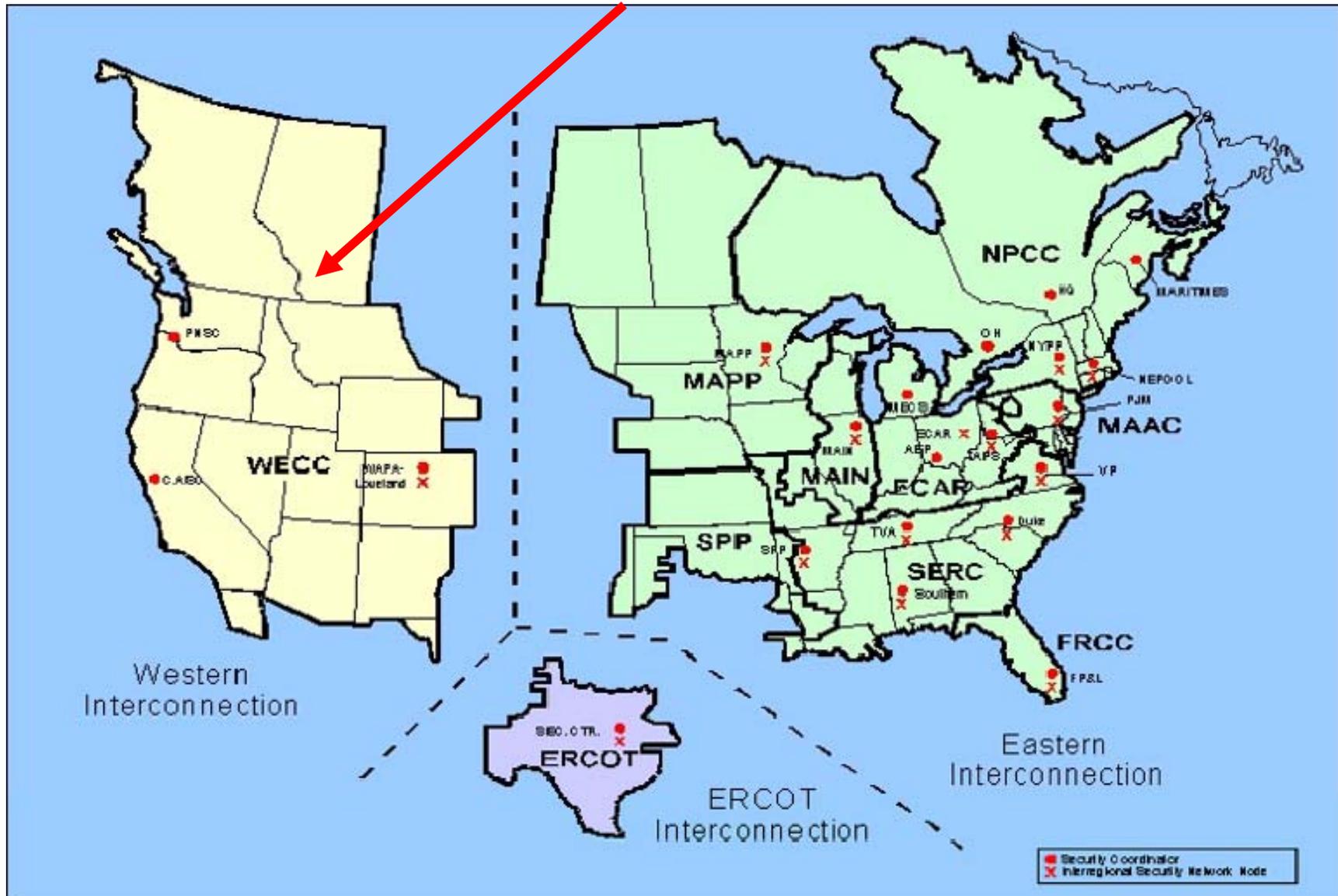


# Wholesale Electricity Markets in the Western U.S.



Commissioner Marsha H. Smith  
Idaho Public Utilities Commission  
Council of European Energy Regulators  
4<sup>th</sup> EU/US Energy Regulators' Roundtable  
Lisbon, Portugal  
May 12, 2003

# Western Interconnection (WI)



# Standard Market Design Notice of Proposed Rulemaking

- SMD NOPR issued July, 2002
- Aim: reform Order 888 open access tariff, to standardize markets and eliminate remaining undue discrimination
- Mandatory for all IOUs (even if not in an RTO) and RTOs
- Extensive detail on market design and ITP requirements
- High level approach is like RTO West proposal

# Wholesale Market Platform

- New White Paper issued April 28, 2003
- Still mandatory to join RTO or ISO, but implementation of certain features not required where costs outweigh benefits
- Allows phased-in implementation tailored to each region and that allows modifications that benefit customers in each region

# SMD Proposal – New Issues – 1

- Jurisdiction over bundled retail sales
  - Requires vertically integrated utility without retail access to take service for bundled retail sales under SMD tariff
  - Same service for retail load as for wholesale load
  - Big change from Order 888 tariff, which had special conditions for “native load”
  - Prior to SMD, FERC did not assert jurisdiction over bundled retail sales, but only over unbundled sales (i.e., where state had allowed retail access)

# Wholesale Market Platform -1

- FERC will not assert jurisdiction over transmission component of bundled retail service
- Non-price terms and conditions (e.g. reviewing capacity and scheduling service) will be under FERC jurisdiction
- Such terms will apply on a “not unduly discriminatory basis, with appropriate protection of native load customers.

# SMD Proposal – New Issues – 2

- Resource adequacy requirement
  - Enforced by ITP, aims to ensure adequate generation or demand response to avoid shortages
- Market power mitigation strategy
  - Combination of resource adequacy requirement, price caps and automatic mitigation mechanisms
  - Aim to avoid repetition of 2000-2001 Western market problems

# Wholesale Market Platform - 2

- Does not include a minimum level of resource adequacy, but RTO still responsible to plan for transmission expansion via regional state committee
- Market monitoring and mitigation now coupled, new tariff must include appropriate measures to mitigate market power and clear rules for market conduct

# Differences that make a difference for the West

- Water -- the most important
- Other physical differences
- Institutional differences

# The West IS water (or lack of it)

- **FIRST, SOME PICTURES**
- WECC is the West
- Columbia River is the Northwest
- **THEN, SOME WORDS**
- As Mark Twain had it: "Water is for fighting, whisky is for drinking."

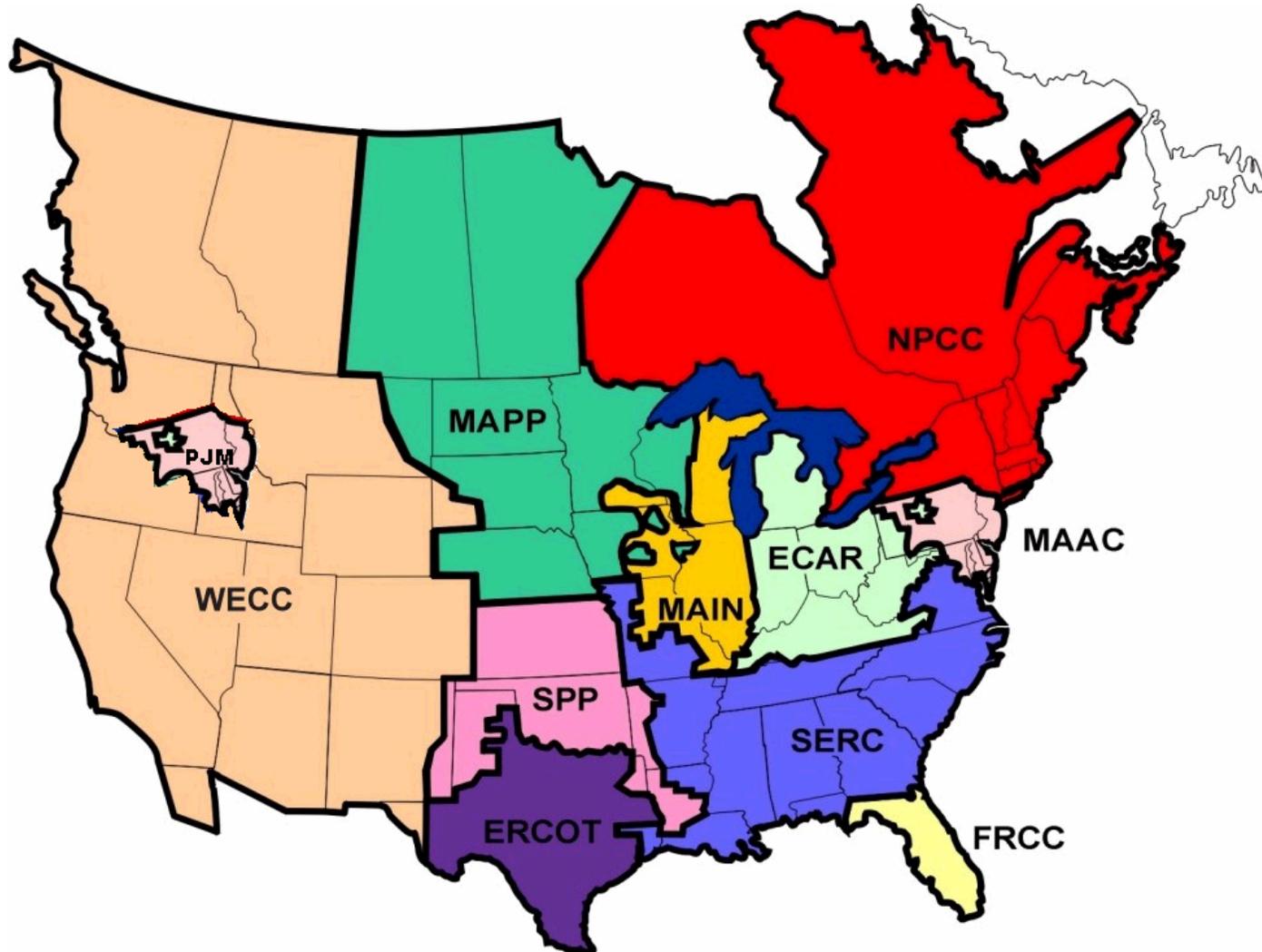
# Lifeblood of the Northwest



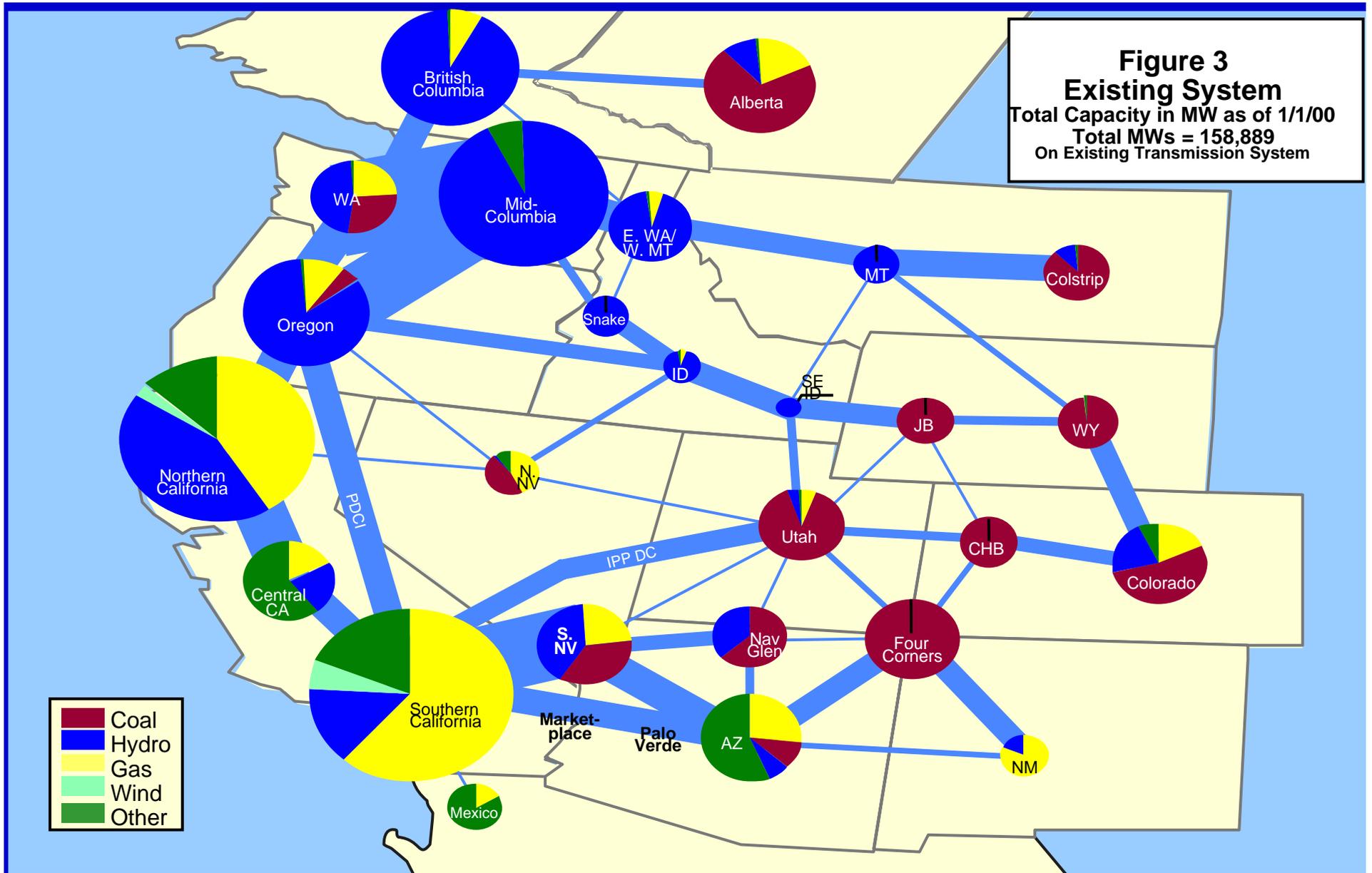
# Comparing West to EU

- Population
  - 71 million - West
  - 375 million - EU
- Area
  - 4.662 million square kilometers - West
  - 3.130 million square kilometers - EU
- Countries
  - 14 U.S. states, 2 Canadian provinces, 1 Mexican state - West
  - 15 member states -EU

# Western Interconnection Is BIG



# Western Interconnection Trades Widely



# Physical Differences 1

<b>FEATURE</b>	<b>Northwest/West</b>	<b>East/MidAtlantic</b>
Population Density	Low (53 persons/sq. mi.)	High (126 persons/sq.mi.)
Major Generation Location	Remote from load centers	Close to load centers
Generation Type	Mainly hydro (60% in NW, 35-40% overall)	Mainly thermal
Transmission Systems	Radial and long (hundreds of miles) (.4 miles per MW)	Integrated and shorter (.16 miles per MW)
Transmission Reliability Limits	Stability-limited	Thermal-limited

## Physical Differences 2

<b>FEATURE</b>	<b>Northwest/West</b>	<b>East/MidAtlantic</b>
System Limits and Time Horizon for Resource Adequacy	Energy-limited (water). Time horizon months to years	Capacity-limited (generator output). Time horizon hours to days
System Dispatch	“Loose” power pool (no central dispatch)	“Tight” power pool (central dispatch)
Load-Following	Mainly hydropower	Mainly thermal plants
Plant Dispatch Flexibility	Coordinated hydropower very flexible (minutes)	Unit commitment (day or more ahead of time)
Plant Relations	Necessarily cooperative	Competitive

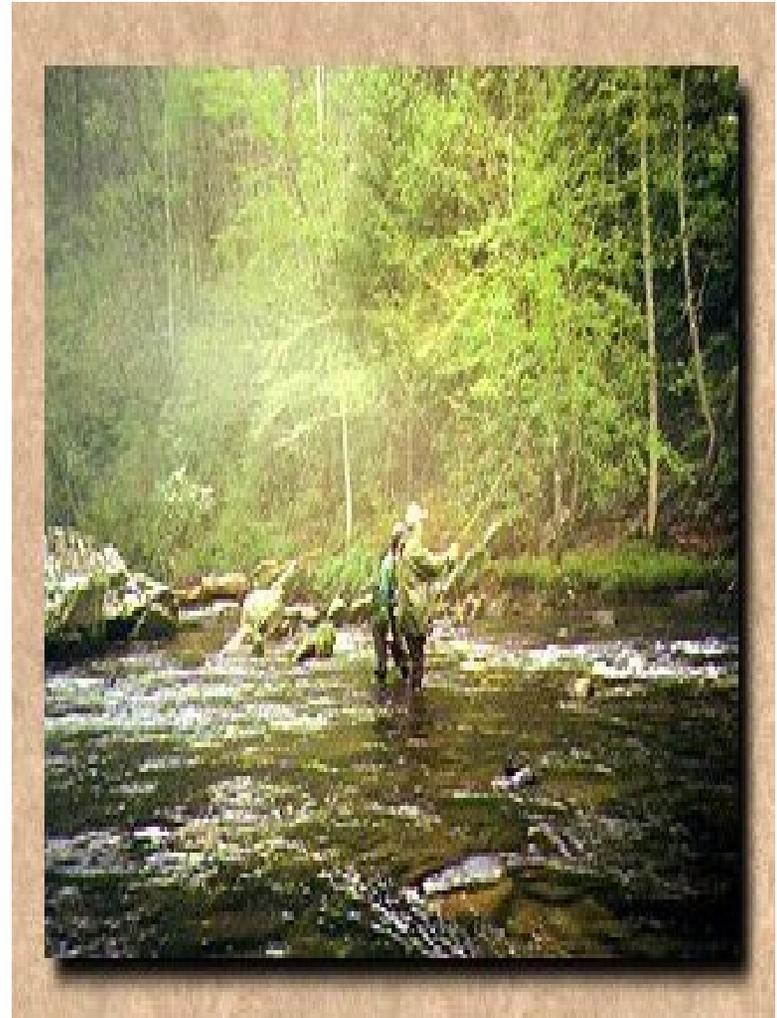
## Physical Differences 3

<b>FEATURE</b>	<b>Northwest/West</b>	<b>East/MidAtlantic</b>
Fuel Dedication	Multiple dams use the same water	Single plants with their own fuel sources
Fuel Uses (and associated legal constraints)	Multiple uses: power, irrigation, barging, fisheries, flood control, recreation, treaties)	Single use: electricity
Transmission Congestion	Rarely seen as a problem	Often requires remediation through TLRs

# The Choice



**..OR..**



*With apologies to Wm. Shakespeare,*

**Power OR water: that is the question.  
Whether 'tis nobler in a dysfunctional  
wholesale market  
To ignore the slings and arrows of fish  
advocates,  
Or to wield demand-response measures  
against outrageous prices,  
And by curtailing, obviate supply  
deficiencies.**

# Institutional Differences 1

<b>FEATURE</b>	<b>Northwest/West</b>	<b>East/MidAtlantic</b>
Transmission Ownership	Mixed public/private (80% federal)	Mainly private
Plant Ownership	Majority public	Mainly private
Retail Utility Structure	Mainly vertically integrated	Mainly unbundled with retail access
Retail Utility Ownership (percentage of customers)	One-third public; WA is 60 % public	Mainly private

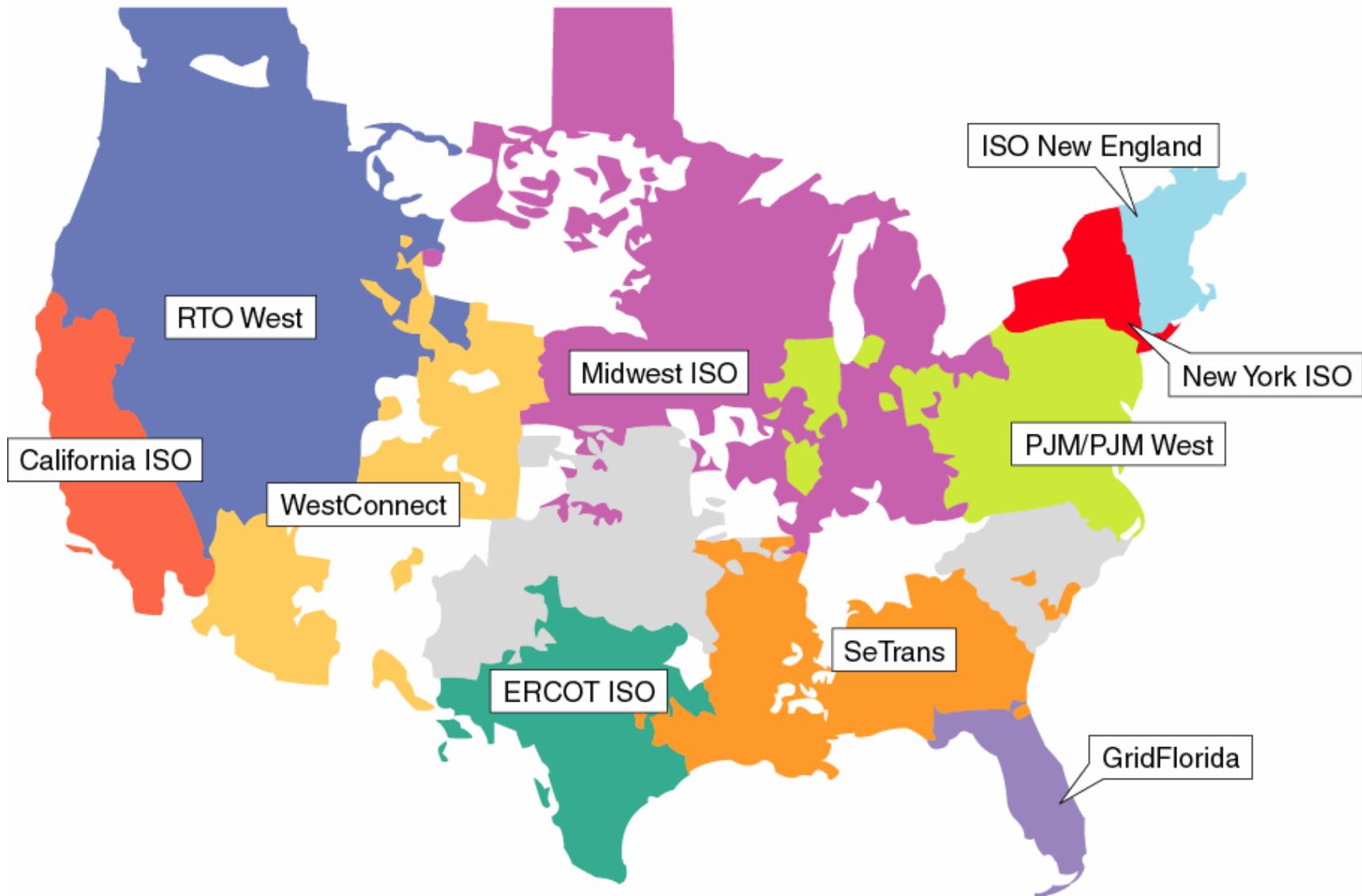
## Institutional Differences 2

<b>FEATURE</b>	<b>Northwest/West</b>	<b>East/MidAtlantic</b>
Federal Land Ownership	Substantial (54% of all federal land is in 11 states – MT at 28% is the lowest, NV at 83%, ID at 63% )	Minimal
Resource Planning	Regional Planning Councils too numerous to mention – Westwide and regional	
Retail Electricity Rates	Less than US average (despite huge temporary rate increases to cover Perfect Storm of 2000-01)	Greater than US average



# Approved RTOs and Existing ISOs

Utility Participation as of March 2003

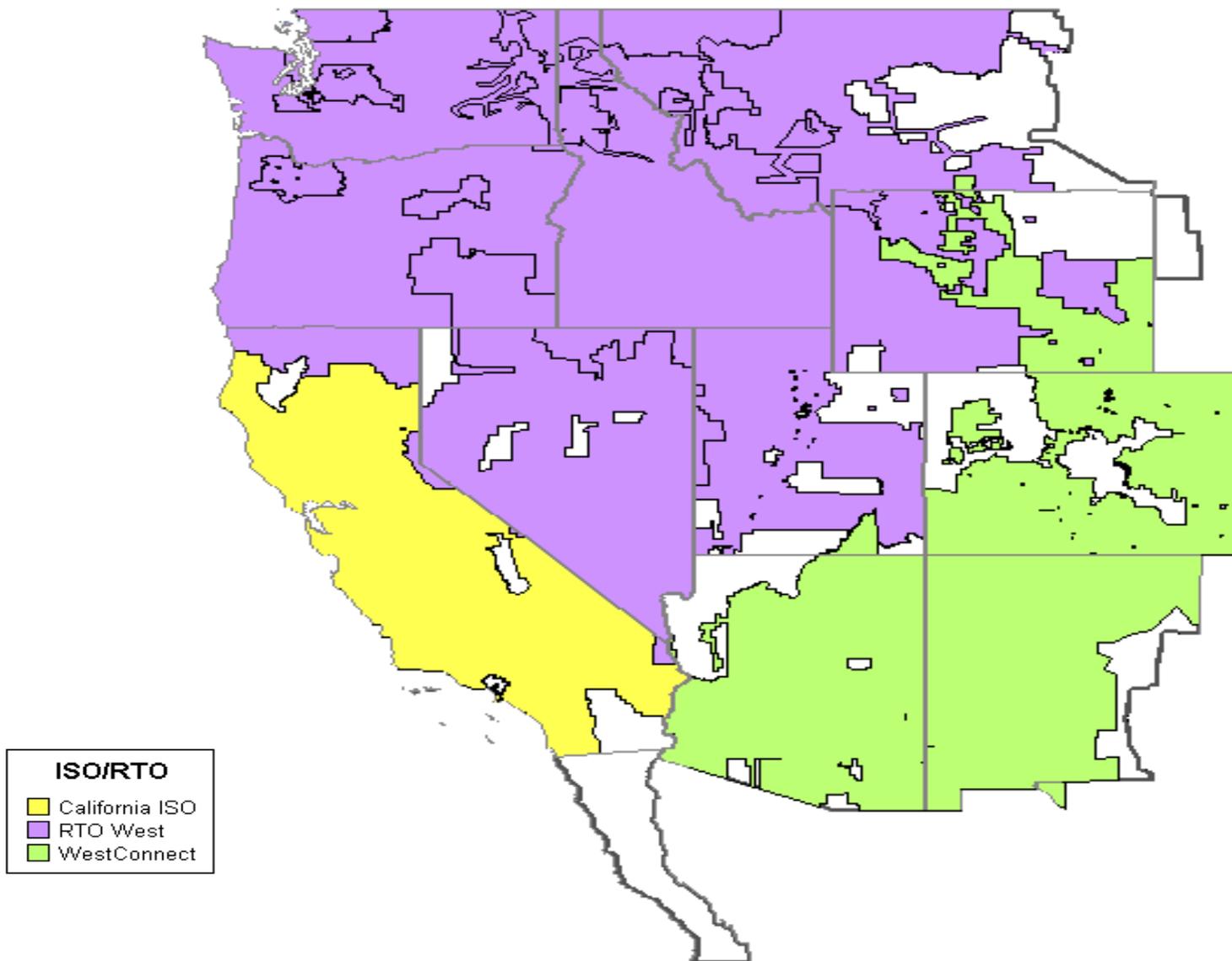


Note: Map includes service territories of transmission-dependent utilities.

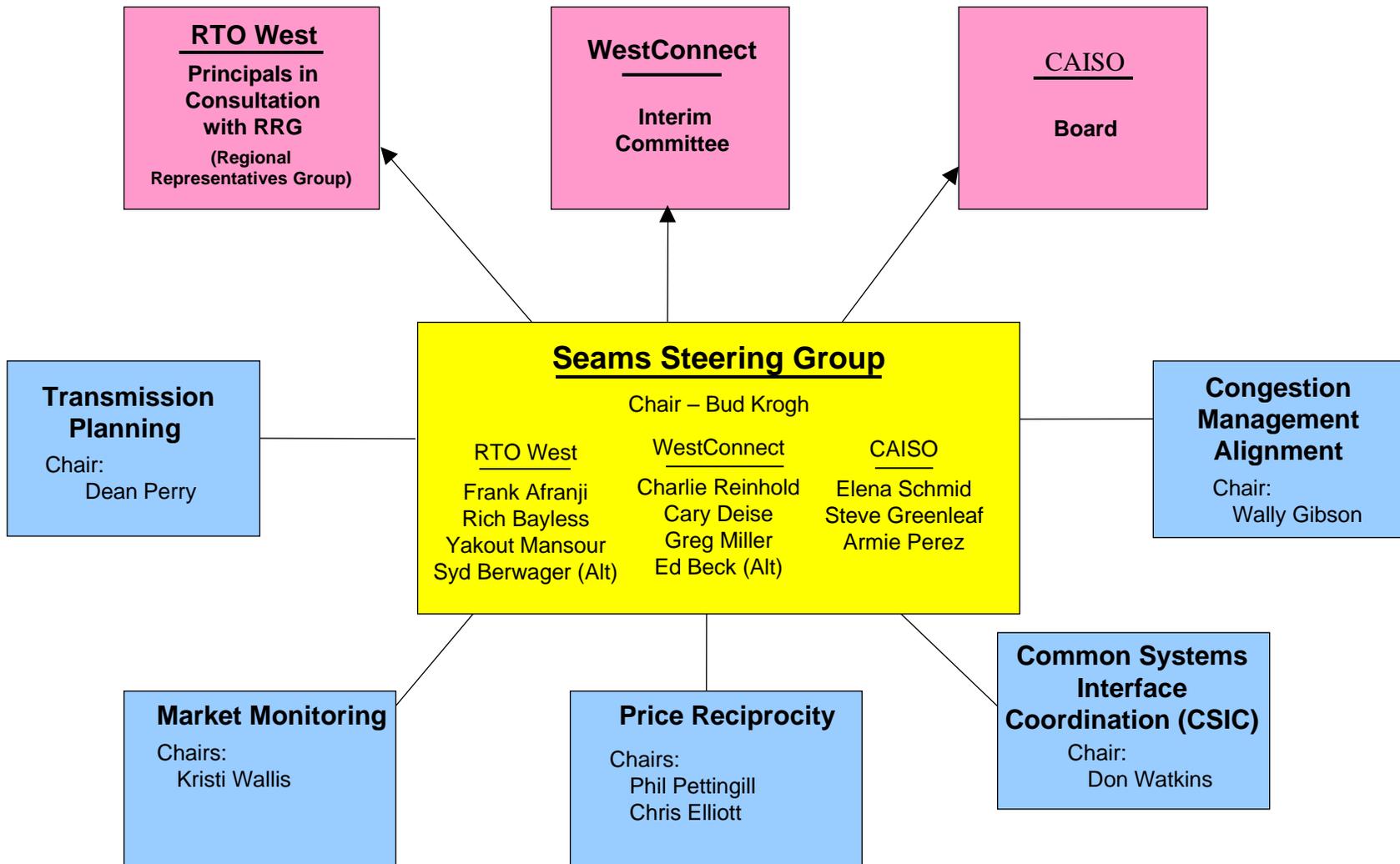
This map is available to EEI electric company members at [http://www.eei.org/products/rto/maps/rto\\_map.pdf](http://www.eei.org/products/rto/maps/rto_map.pdf) (PDF) or [rto\\_map.ppt](#) (PowerPoint)

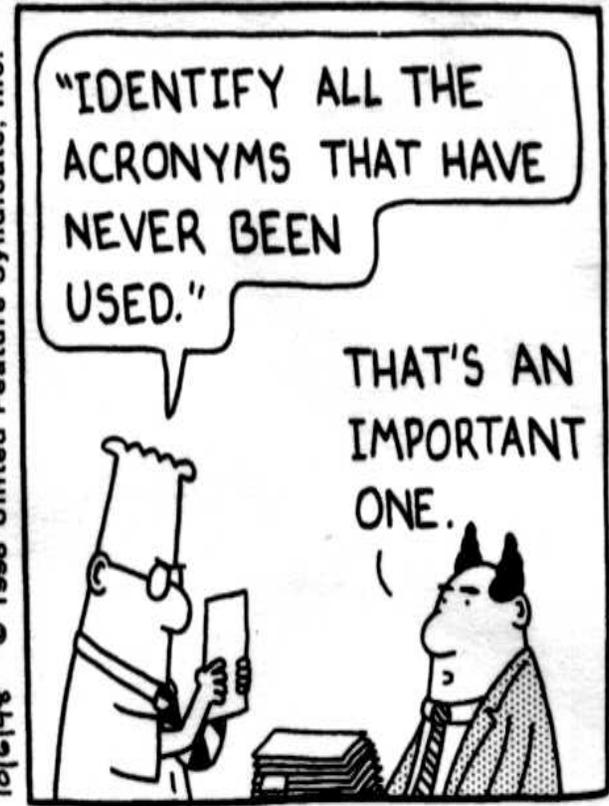
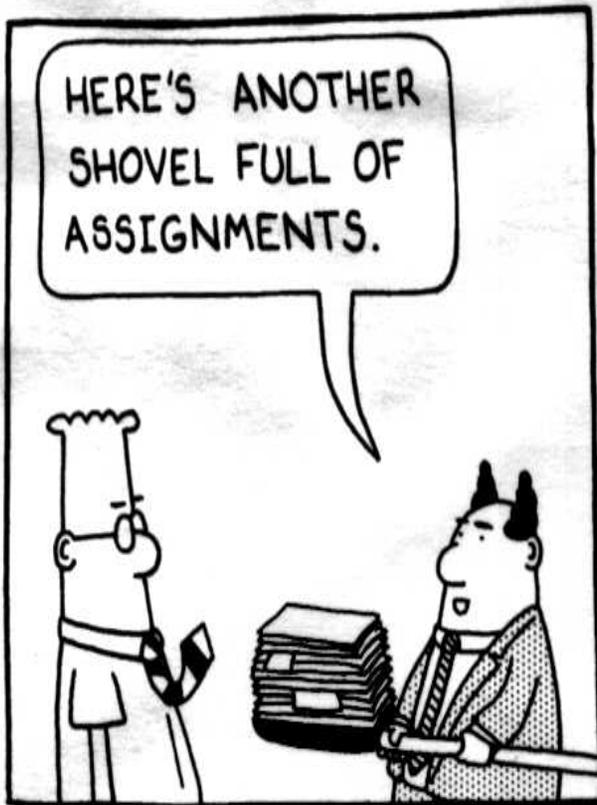
© 2003 Edison Electric Institute. Service territory data source: POWERmap, 2nd quarter 2002 release, © Platts, a Division of the McGraw Hill Companies.

# Existing California ISO and Proposed RTOs in the West



# Organization Chart





# Western Regional Collaboration

Committee on Regional Electric Power Cooperation (CREPC) established in 1983

- Joint committee of the WIEB and WCPSC
- Includes all state/provincial agencies in WI with electric power responsibilities
- Effective forum for interstate discussions and regional interactions with industry and FERC
- Action by unanimous vote
  - Supported formation of the Western Systems Power Pool
  - Supported creation of regional transmission groups (WRTA, SWRTA, NRTA)
  - Supported creation of WECC

# West-wide Resource Assessment Team (WRAT)

- West-wide Resource Assessment Team (WRAT) is an *ad hoc* technical working group within CREPC
- Participants from technical staff of 7 states (CA ID WA MT OR UT WY NV) plus representation and support from NWPPC.
- Initiated series of conference calls after Fall 2002 CREPC meeting
- Impetus for formation– FERC's SMD
  - uncertainty over resource availability
  - desire to indicate to FERC West is functioning on its own

# Review of Western Resource Assessment Efforts

- Northwest Power Planning Council  
(<http://www.nwcouncil.org/>)
- California Energy Commission  
(<http://www.energy.ca.gov/index.html>)
- Seams Steering Group--Western Interconnection  
(<http://www.ssg-wi.com/>)
- Western Electricity Coordinating Council  
(<http://www.wecc.biz/main.html>)

# Resource Assessment Report to CREPC--Conclusions

- Current assessment efforts not sufficiently comprehensive and robust for the entire WI or its sub-regions.
- NWPPC and CEC inherently focus on WI sub-regions and have incomplete data on loads and resources for the portions of the WI outside their respective areas. Because imports and exports are critical, a west-wide internally consistent assessment remains elusive.
- WECC effort is limited in part by historic role as a voluntary reliability council and the inability to compel participants (and non-participants) to provide complete and consistent information.
- The SSG-WI assessment by design focuses on transmission planning scenarios rather than near-term resource assessment.

# Ideal Outcomes from WRAT

- Robust comprehensive annual analyses
- Transparency in all aspects of analysis
  - An open, public process to develop and review results
  - Identification of analytic inputs from public domain
  - Development and scrubbing of public data bases
  - Provision for maintenance and updating of data bases
  - Prevent further devolution of public sites (e.g., WICF)
  - Refrain from proprietary black box approaches
- Integration of generation and transmission planning methods
- Encouragement of multiple methodologies
- Support for multiple entities asking related questions

# Ideal Outcomes (cont.) -- Leadership from Industry & Regulators

- Industry--
  - Develop and maintain data bases
  - Utilize multiple methodologies
  - Cooperate with one another
  - Form partnerships with technical staff of agencies
  - Develop improved modeling approaches
- Regulators--
  - Require development of public data bases
  - Develop uniform guidelines for data confidentiality classification.
  - Conduct oversight of assessment results
  - Support industry commitments to transparency
  - Commit to ongoing participation of technical staff

# Western Regional Collaboration

## **Gubernatorial leadership driven by 2000/2001 crisis**

- 1/01 Emergency energy conservation appeal
- 2/01 Energy policy roundtable
- 5/01 Transmission roundtable
- 8/01 Conceptual Transmission Plans report
- 2/02 White paper on transmission financing
- 6/02 12 governors/4 federal agencies sign transmission permitting protocol

# The “Perfect” Storm

**Poor Hydro  
Conditions**

**Tightening  
Supplies &  
Higher Gas Prices**

**Environmental  
Constraints**

**Under-  
investment in  
Generation,  
Efficiency**

**Limited Price  
Response**

**Growing  
Demand**

**Unprecedented High  
Wholesale Power Prices,  
Risk of Curtailment**

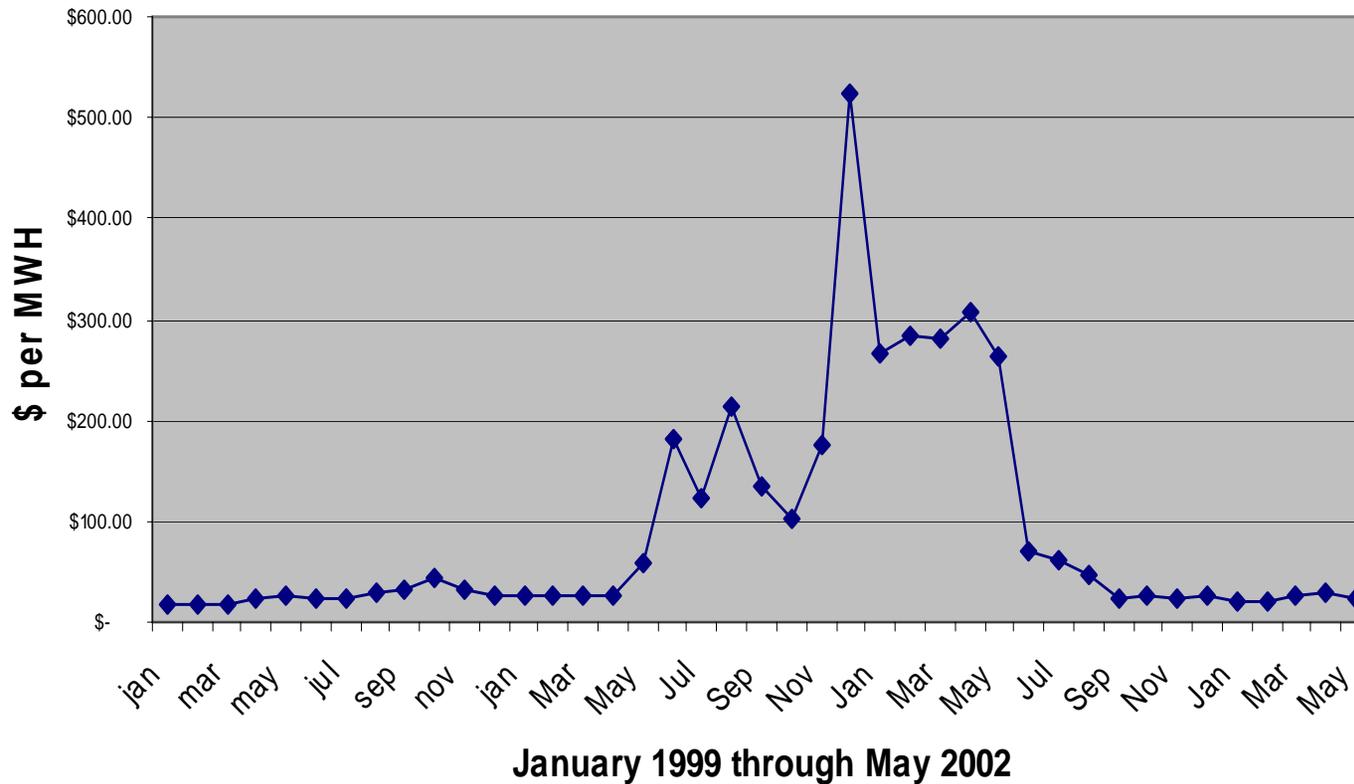
**Dysfunctional  
California  
Market**

# Background -- What you need to know about the NW

- Hydro-based system
  - 70 percent of generation in “normal” year
  - Little ability to store hydro energy from year to year
    - 30-40% of normal runoff
  - Significant variability
    - +/- 4000 Avg Megawatts around the average
  - Used to plan for “critical hydro,” but that’s now up to the market
- Joined at the hip to rest of West Coast -- strong interconnections

# What happened in 2000-2001?

Monthly Average Mid-C Price



# Western Regional Collaboration

## **December 2002 - Governors direct investigation of WI electricity decision-making mechanism**

- Forming joint CREPC/WGA steering committee
- Requested DOE assistance in parallel to NGA/NARUC effort in Eastern Interconnection
- Status report to governors in February

# **Proposed Sequence of Analysis of a Western Regional Decision-Making Mechanism**

**Should a Western Interconnection decision-making mechanism be considered? How could it add value to the extensive on-going collaboration in the WI?**

**If a decision-making mechanism is to be created, should it address:**

- ☞ Only issues under state jurisdiction?**
- ☞ Only issues under FERC jurisdiction?**
- ☞ Issues under both FERC and state jurisdiction?**
- ☞ Some combination of the above?**

## **What substantive topics would be the highest priority?**

- Grid reliability**
- FERC market rules**
- Implementation of the WGA transmission permitting protocol**
- Market monitoring**
- Resource assessment**
- Transmission expansion**
- Rate design and revenue requirements**
- Other (seams between RTOs and between RTO and non-RTO participants, demand response, interconnection policies, efficient use of the grid, energy efficiency, related environmental policies)**

**Will the priority of topics and the value of a regional decision-making mechanism change depending on the evolution of the industry (e.g., if RTOs are developed, if SMD is implemented)?**

**What should be the decision rules of the body?** (e.g., unanimity, 2/3rds, majority of states,? A majority of the load,? Some combination of states and load)?

**How should the decision-making body be financed and staffed?**

**What legal structure should be used to establish the body?**

- ☞ Interstate compact
- ☞ MOU
- ☞ Supplementary agreement to an existing compact (e.g., WINC)
- ☞ Federal law
- ☞ Other

**Is it feasible to implement a decision-making mechanism or body whose responsibilities evolve over time?**

**Who should appoint members to the decision-making body?**

☞ Governors

☞ PUCs

☞ Both

☞ Legislative confirmation?

**What would be the legal effect of the body's decisions? (e.g., information to states/ FERC, recommendations, recommendations that require deference)?**

# Herding Cats ?

