

**NARUC — Summer 2006 — Electricity Committee**  
**Western Regional Planning**

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# Presentation Overview

**I. Context of Western Regional Planning**

**II. Western Transmission Planning Process:  
Is it Working?**

**III. Western Transmission Planning Process:  
Can It be Improved?**

**IV. Addendum Slides**

# I. Context for Western Regional Planning

Western system is one physical interconnection-WI

- ❖ WI has one regional reliability council-WECC
- ❖ WECC is governed by a hybrid stakeholder-independent board
- ❖ Currently the only western institution for regional electricity decisionmaking (bylaws, voting, budget)
- ❖ Focus and authority has traditionally been for transmission system reliability (non-commercial)

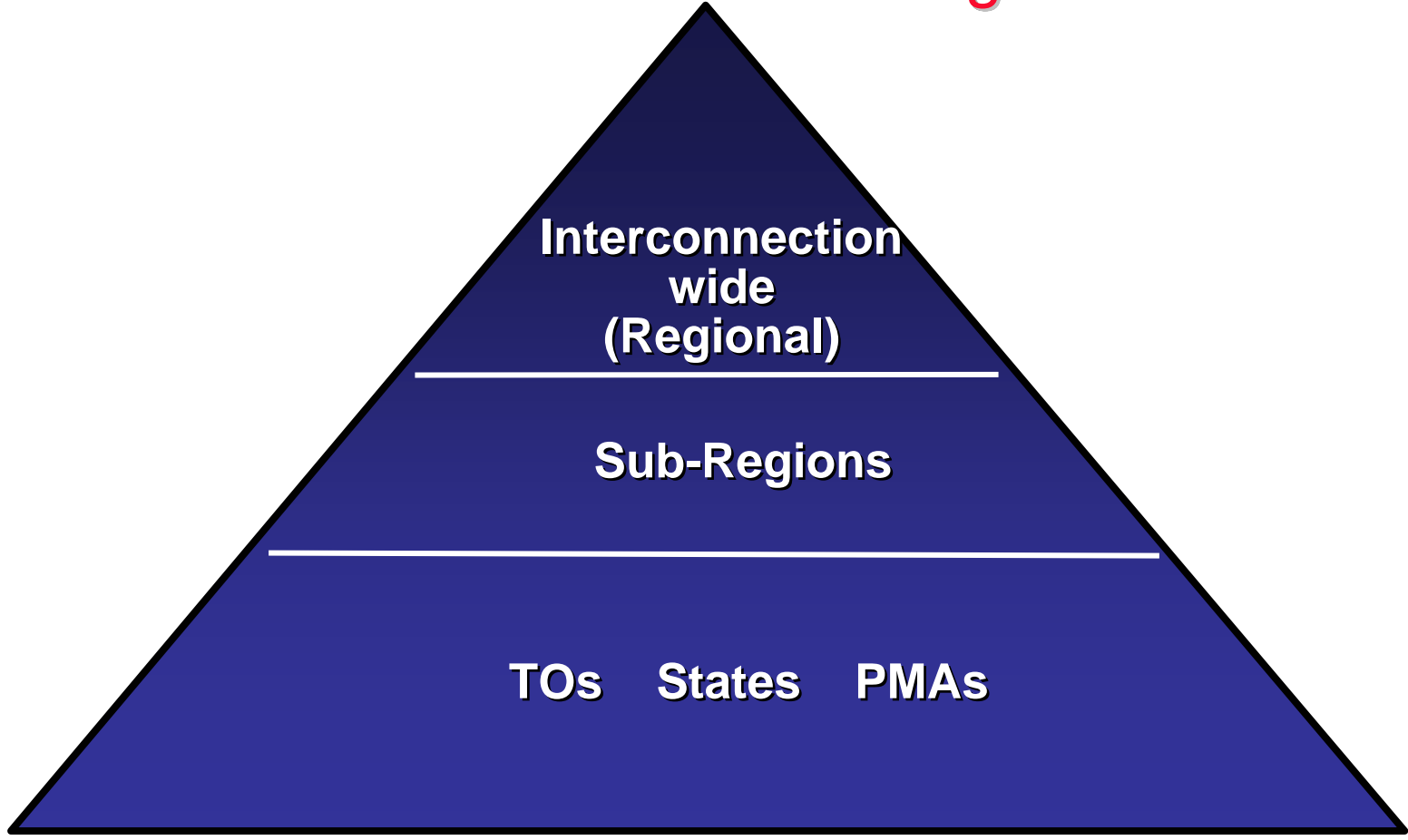
# I. Context for Western Regional Planning (cont.)

## Characteristics of WECC regional planning:

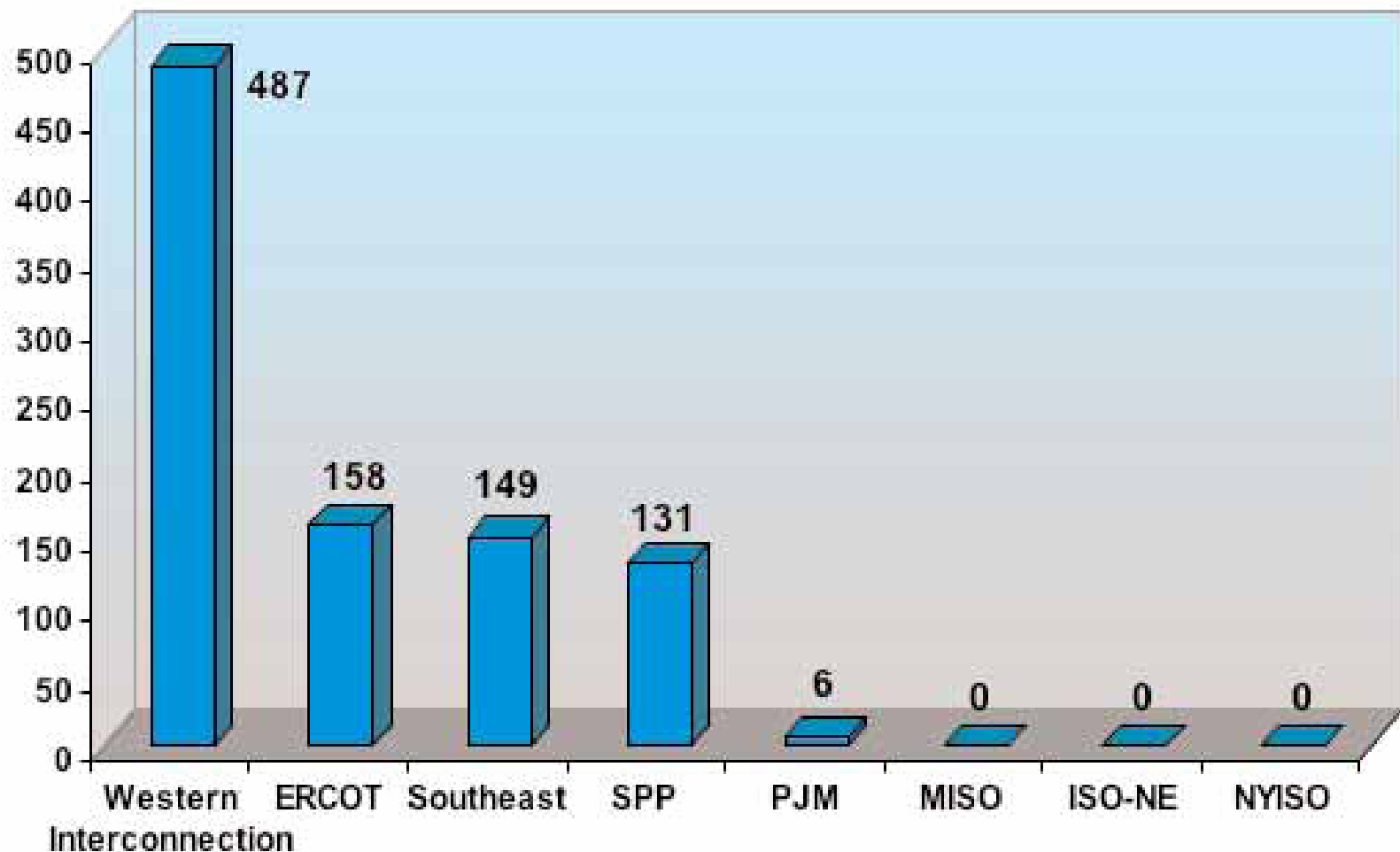
- ❖ Inclusive
- ❖ Open
- ❖ Interconnection-wide
- ❖ Voluntary and reactive
- ❖ Planning = Assessment (studies)
- ❖ Assessment not linked to standards or implementation

# I. Context for Western Regional Planning (cont.)

## Western Transmission Planning Processes



**Miles of Transmission Added in 2004  
230kV and Higher**  
Source: FERC 2004 State of the Markets Report

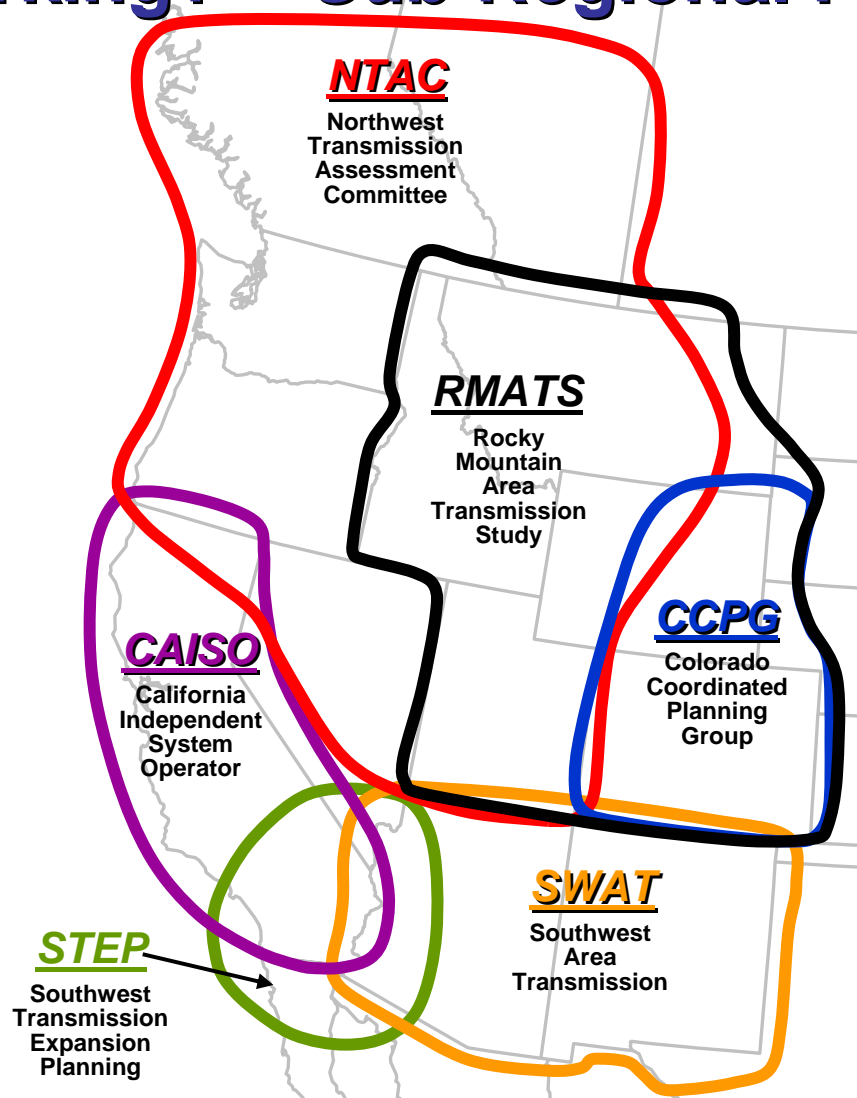


## II. Western Transmission Planning: Is it Working?

### TO/state/PMA processes

- ❖ 2005: 310 miles added (230 kV and above)
- ❖ 2006-2015: > 5000 miles of additions reported by control areas
- ❖ Multiple state siting proceedings, e.g. CPUC, CalSO
- ❖ Arizona's Biennial Transmission Plan Process
- ❖ Others

## II. Western Transmission Planning: Is it Working? -- Sub-Regional Planning Groups



RMATS – <http://psc.state.wy.us/htdocs/subregional/home.htm>

CAISO – <http://www.aiso.com/thegrid/planning/index.html>

NTAC – <http://www.nwpp.org/ntac>

SWAT – <http://www.azpower.org/swat>

STEP – <http://www.aiso.com/docs/2002/11/04/2002110417450022131.htm>

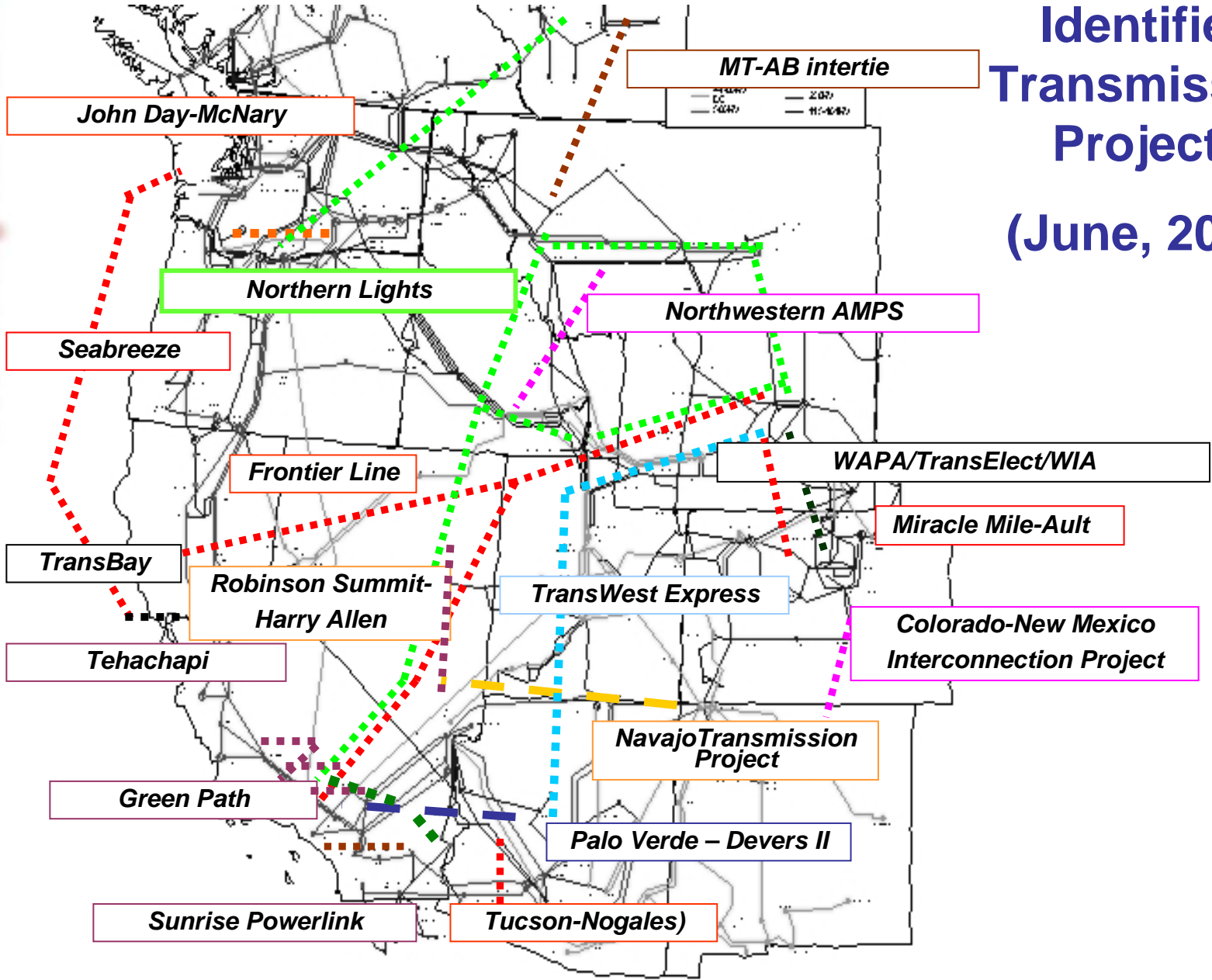
CCPG – <http://ccpg.basinelectric.com>

## II. Western Transmission Planning: Is it Working? (cont.)

### Sub-regional Planning Groups (SPGs)

- ❖ Bottoms-up, self-initiated, each unique
- ❖ All sub-regions have successfully completed expansion studies and reports
- ❖ Multiple interstate projects at concept stage;
- ❖ Two major lines undergoing coordinated feasibility studies.

# Identified Transmission Projects (June, 2006)



## II. Western Transmission Planning: Is it Working? (cont.)

### Six interconnection-wide processes

#### ❖ **WECC Regional Planning and Path Rating**

- ✓ System reliability/impact studies for new lines
- ✓ Three-phase path rating process
- ✓ Effective, but reactive only, not planning
- ✓ Required to receive path rating and energize

#### ❖ **Seams Planning Work Group- PWG**

- ✓ Developed production cost database
- ✓ Conducted 2003 and 2005 system expansion studies
- ✓ Prepared Planning Process diagram and description
- ✓ PacifiCorp technical team

## II. Western Transmission Planning: Is it Working? (cont.)

### Six interconnection-wide processes

#### ❖ **Western Congestion Task Force- WCATF**

- ✓ Self-initiated as a regional stakeholder team
- ✓ Conducted analyses of congestion
- ✓ Prepared template of all current plans project studies
- ✓ Contracted with DOE to provide western 1221 analyses

#### ❖ **Western Governor's Clean and Diverse- CDEAC**

- ✓ Transmission Task Force report on policies
- ✓ Modeled transmission for clean and diverse resources

## II. Western Transmission Planning: Is it Working? (cont.)

### Six interconnection-wide processes

#### ❖ **Western Assessment Group-WAG**

- ✓ Stakeholder group to review commercial issues
- ✓ Consensus to seek increased WECC role

#### ❖ **WECC Transmission Expansion Planning-TEPPC**

- ✓ Board Committee of 17 members
- ✓ WECC budget allocates over \$400K annually
- ✓ Institutionalizes and funds expansion planning

### III. Can Western Planning be Improved?



#### **Enhance transparency**

- ✓ Require filing and use of public load data
- ✓ Track efficiency and DR program impacts
- ✓ Maintain and update data base in open process
- ✓ Pursue “open source” methods



#### **Increase consensus re generation assumed**

- ✓ Direct link to approved, financed projects
- ✓ Build reference cases for future years to reflect state/local policy and public interest goals



#### **Ensure processes have independent facilitator**

## III. Can Western Planning be Improved? (cont.)

- ❖ **Broaden participation and commitment**
  - ✓ Mandatory? Reciprocity?
- ❖ **Increase support for state commission and NGO representatives**
- ❖ **Nurture limited pool of technical staff of TOs, states others**
- ❖ **Support transition in WECC roles--TEPPC**
  - ✓ Budget
  - ✓ Committee membership
  - ✓ Participation and products

## III. Can Western Planning be Improved? (cont.)

### ❖ **Implement EPAct provisions rationally**

- ✓ Closely integrated among related EPAct sections
- ✓ Consistent w/ regional constructs
- ✓ Rely on regional analyses to enable good outcomes

### ❖ **Match expectations to institutions**

- ✓ No western energy czar
- ✓ No “Western Transmission Plan”

# Postscript:

## Where does the West want to be? Where is Congress headed?

### The Planning Spectrum



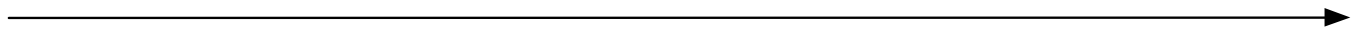
What, me worry?

Analysis

WECC  
TEPPC

Planning w/  
Reqmt. for action

Central  
planning



Increasing authority,  
responsibility

## **IV. Addendum Slides**

**Illustrative Relationships: EPA Act and Regional/State Processes**

**Illustrative Western Planning Process Diagram (SSG-WI)**

**Results of Western Congestion Assessment (2)**

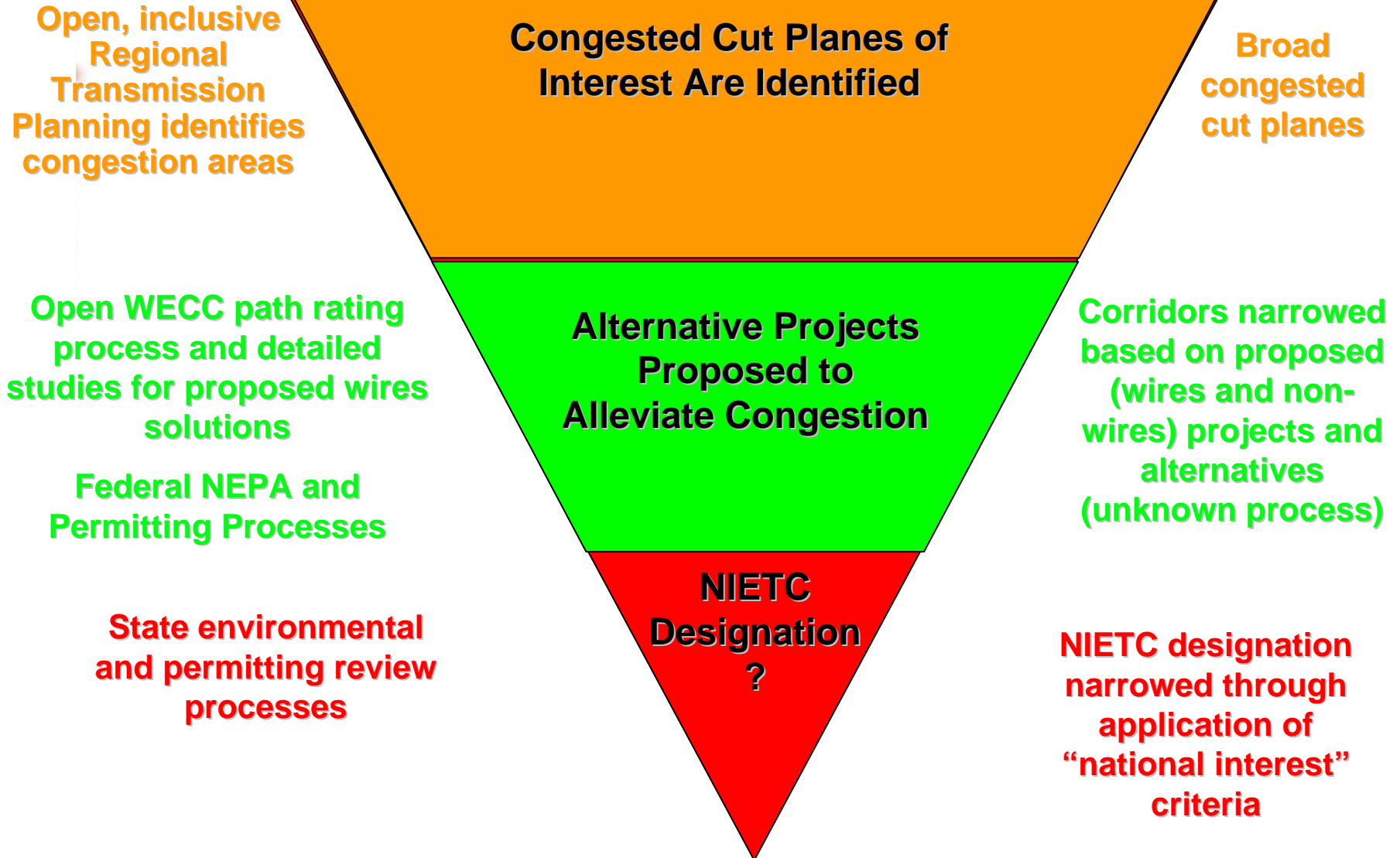
**WECC Organization Chart with TEPPC**

**Illustrative Tasks for WECC TEPPC**

**WECC Control Area Transmission Project Lists by sub-region(4)**

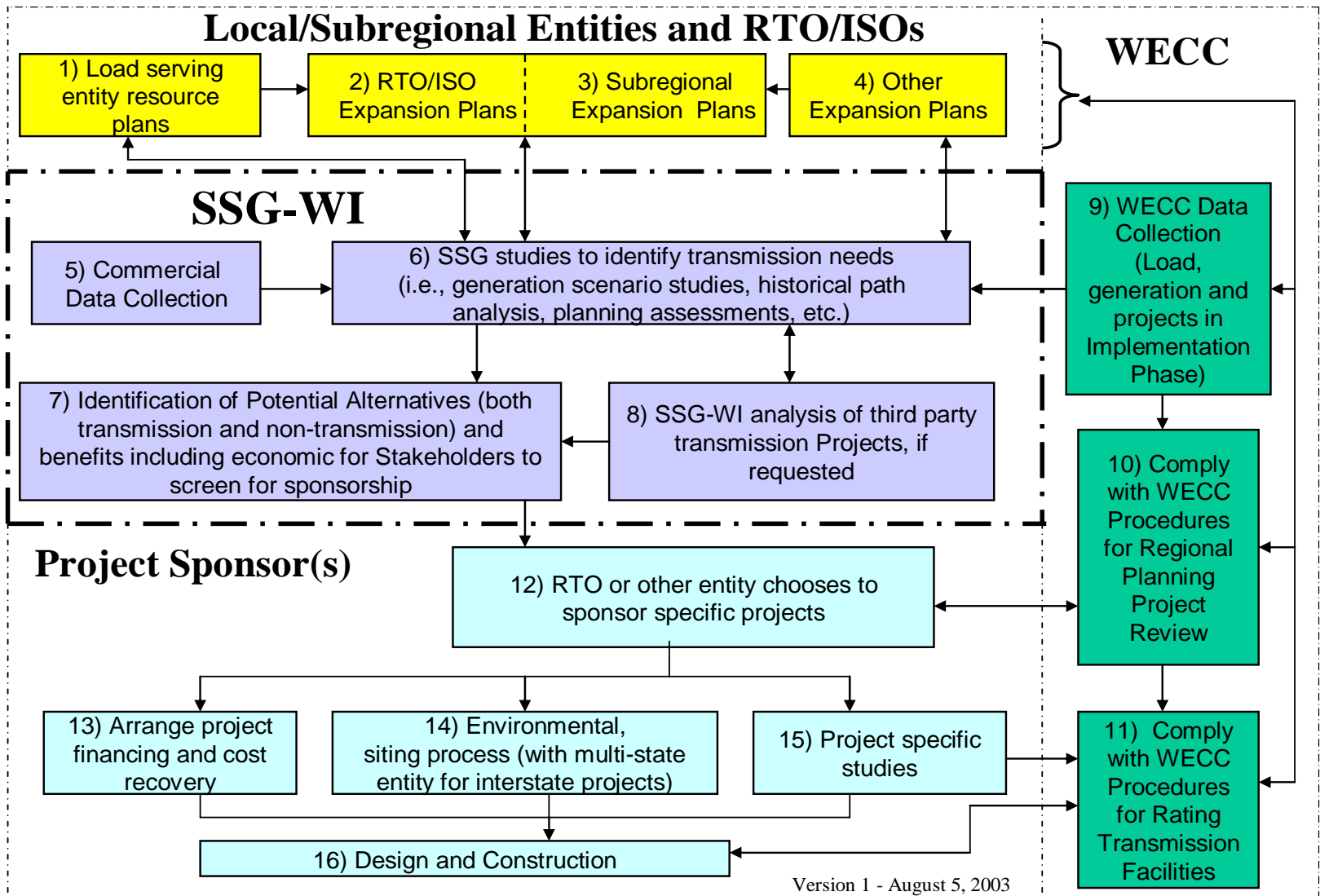
**Map of WI Transmission Paths**

# Illustrative: Conceptual Relationship of Western Planning and DOE 1221/368 Processes

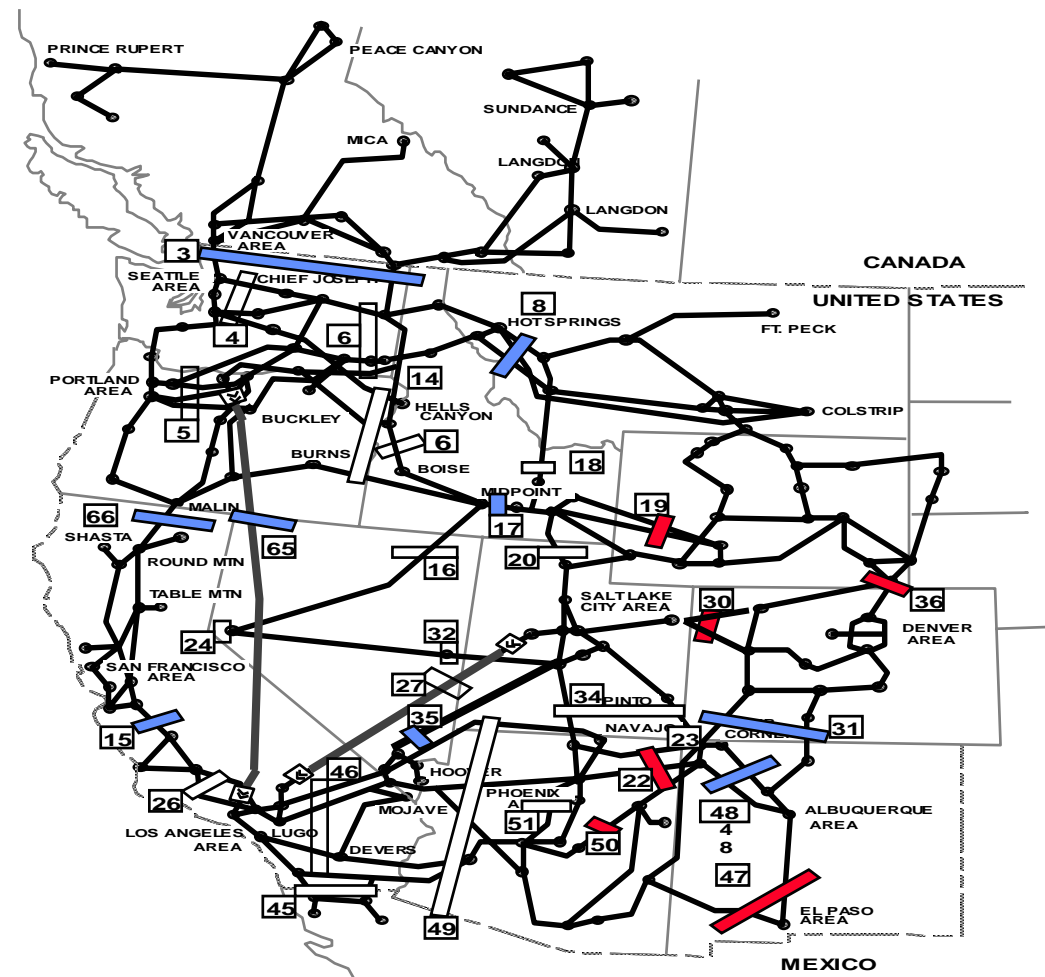


# IV. Addendum Slides—Planning Work Group Successes

## SSG-WI Planning Function’s Interactions within the Western Interconnection



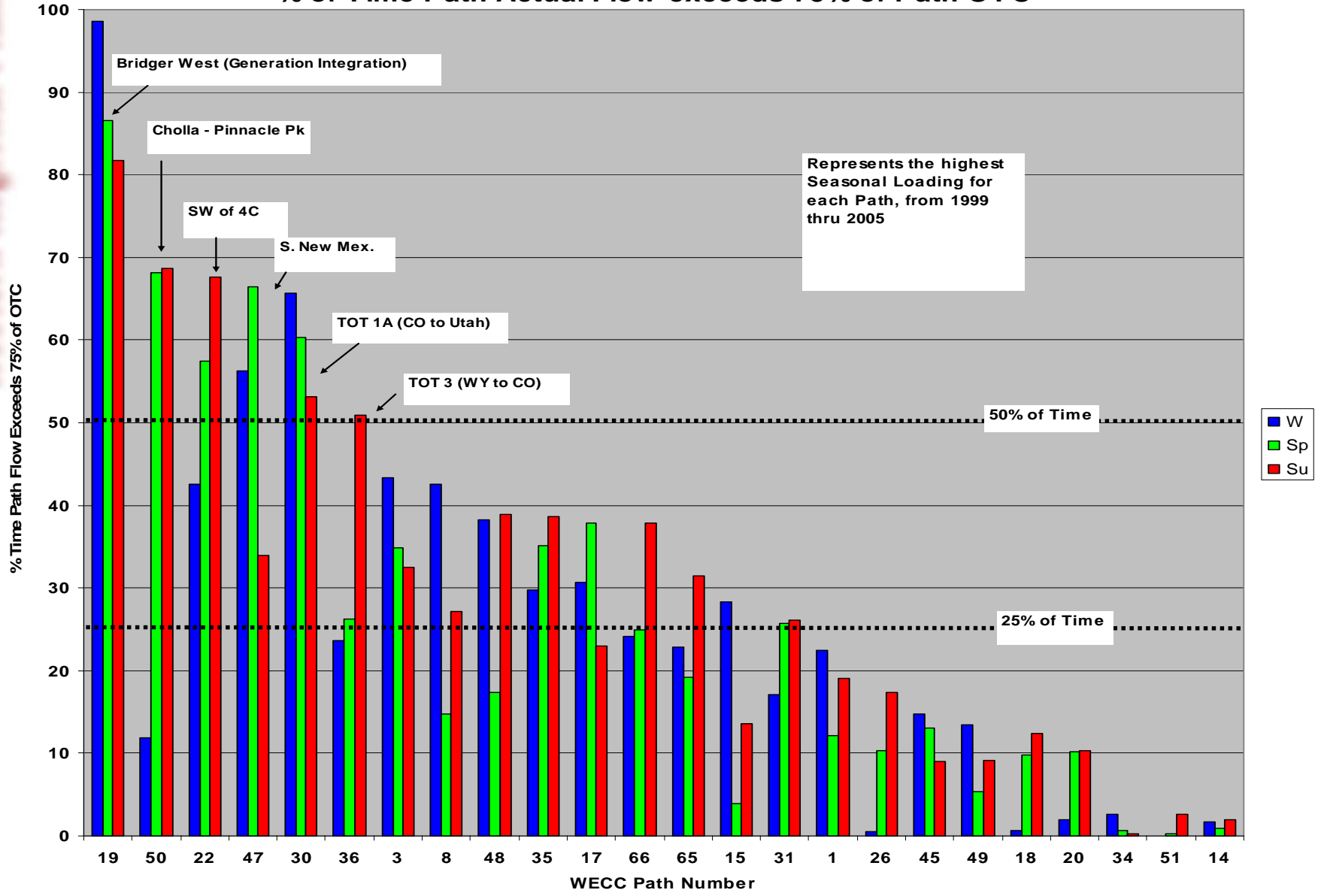
# IV. Addendum Slides: Western Congestion Assessment

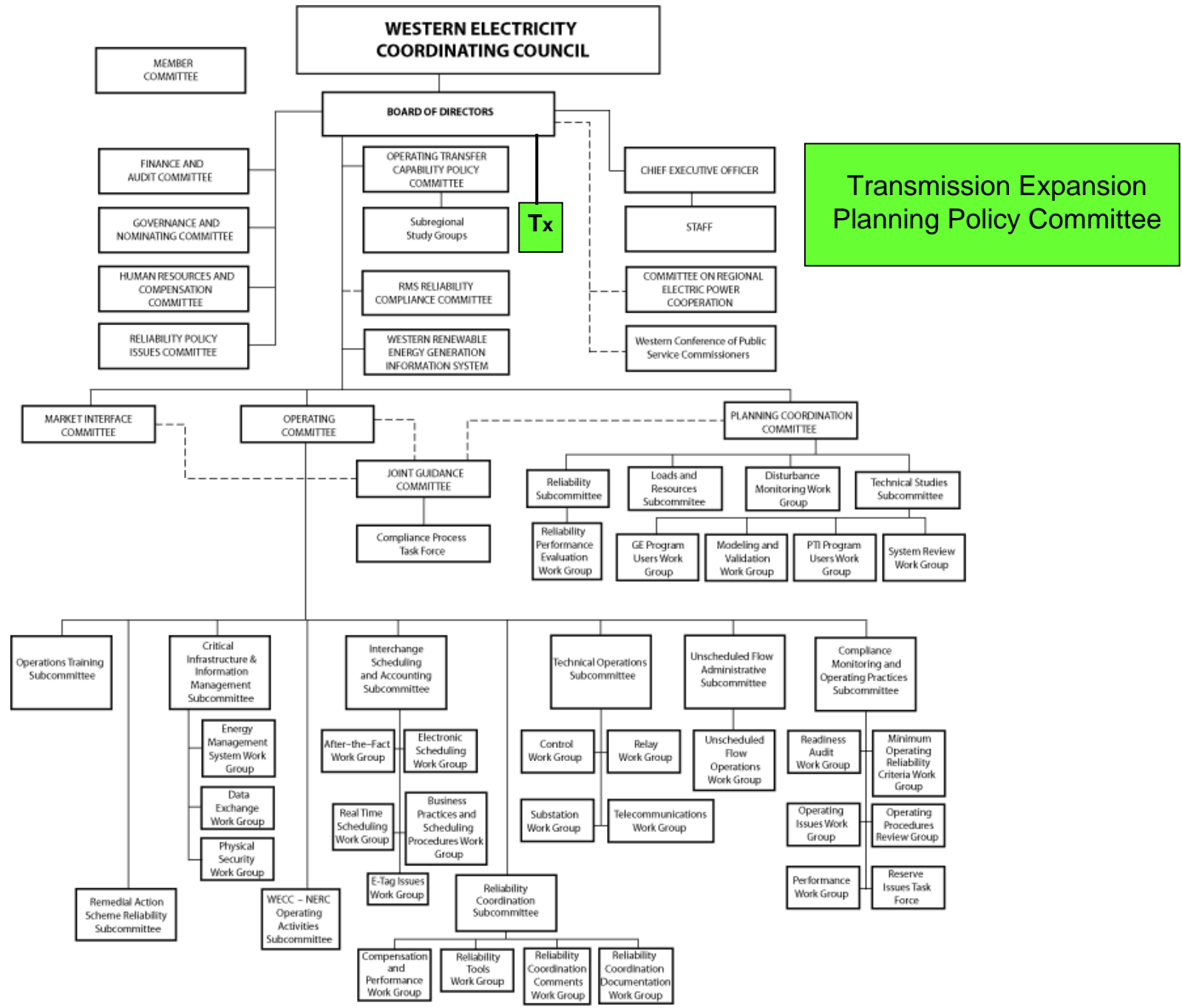


All Seasons 1999 thru 2005 (Based on Heaviest Loading Year)

-  Actual Flow > 75% of OTC greater than 50% of time
-  Actual Flow > 75% of OTC between 25% and 50% of time
-  Actual Flow > 75% of OTC between 0% and 25% of time

**Addendum Slides: Western Congestion Assessment Successes**  
**Path Ranking--Maximum Seasonal Values from 1999 through 2005**  
**% of Time Path Actual Flow exceeds 75% of Path OTC**





## IV. Addendum Slide: Tasks for WECC/TEPPC

- ❖ Open, peer review process of updating public database
- ❖ Document shortcomings in existing models and invite fixes
- ❖ Provide repository and web briefings on all transmission plans
- ❖ Support information needs of sub-regional planning efforts
- ❖ Continue to provide analysis for DOE on congestion in the WI
  - ✓ Peer review congestion analysis delivered to DOE
  - ✓ Public database on projects proposed to relieve congestion
  - ✓ Annual update of analysis of historical flow data CREPC

## IV. Addendum Slide: Project Lists as Reported by WECC Control Areas January, 2006

### Proposed NWPP Projects > 50 Miles

Cordell, AB to Metiskow, AB 240-kV line	Completed Nov. 2005
Ellensburg to Sunnyside WA 500-kv Line	Completed Dec. 2005
Goose Lake to N. Lethbridge, AB 240-kV line	Permitting 2007
Benewah, ID to Shawnee, WA 230-kV line	Planning 2007
Montana-Alberta 230-kV merchant line	Permitting 2007
American Falls, ID to Hunt, ID 230-kV line	Underway 2007
Vancouver Island-Arnott 230-kV line	Planning 2008
Keephills-Genesee-Ellerslie, AB 500-kV line	Permitting 2009
Genessee, AB to Langdon, AB 500-kV line	Permitting 2009
Cranbrook, BC to Invermere, BC 230-kV line	Planning 2011
Mona, UT to Salt Lake, UT 345-kV line	Planning 2007/2011
Nicola, BC to Meridian, BC 500-kV	Planning 2013
Southwest Intertie project (ID-NV 260 mile tie)	Planning 2013

## IV. Addendum Slide: Projects Lists as Reported by WECC Control Areas January, 2006

### Proposed AZ-NM Projects > 50 Miles

Harry Allen, NV to Mead 500-kV line	Underway2007
Stirling Mt-Northwest-Vista, NV 230-kV line	Planned 2007
Palo Verde-TS5 500-kV line	Permitted 2009
Palo Verde to Southeast Valley (Phoenix area) 3 Parts	
A. Hassayampa to Pinal West 500-kV line	Underway 2008
B. Pinal West to Santa Rosa 500-kV	Underway 2008
C. Santa Rosa to Browning 500-kV line	Permitted 2011
Centennial II (Las Vegas, NV area) 500-kV line	Planning 2011
TS5-Raceway 500-kV line	Planning 2012
Pinal West-Tortolita, AZ 500-kV line	Planning 2012
Palo Verde-North Gila 500-kV line	Planning 2012
Shiprock, NM to Marketplace, NV 500-kV line	Permitted 2010/2013
Northern to central New Mexico 345-kV generation outlet	Planning 2013
Greenlee-Springerville, AZ #2 345-kV line	Planning 2014
Tucson, AZ area 345-kV reinforcements	Planning 2014
Nogales, AZ to Sahuarita, AZ 345-kV lines	Planned 2014

## IV. Addendum Slide: Projects Lists as Reported by WECC Control Areas January, 2006

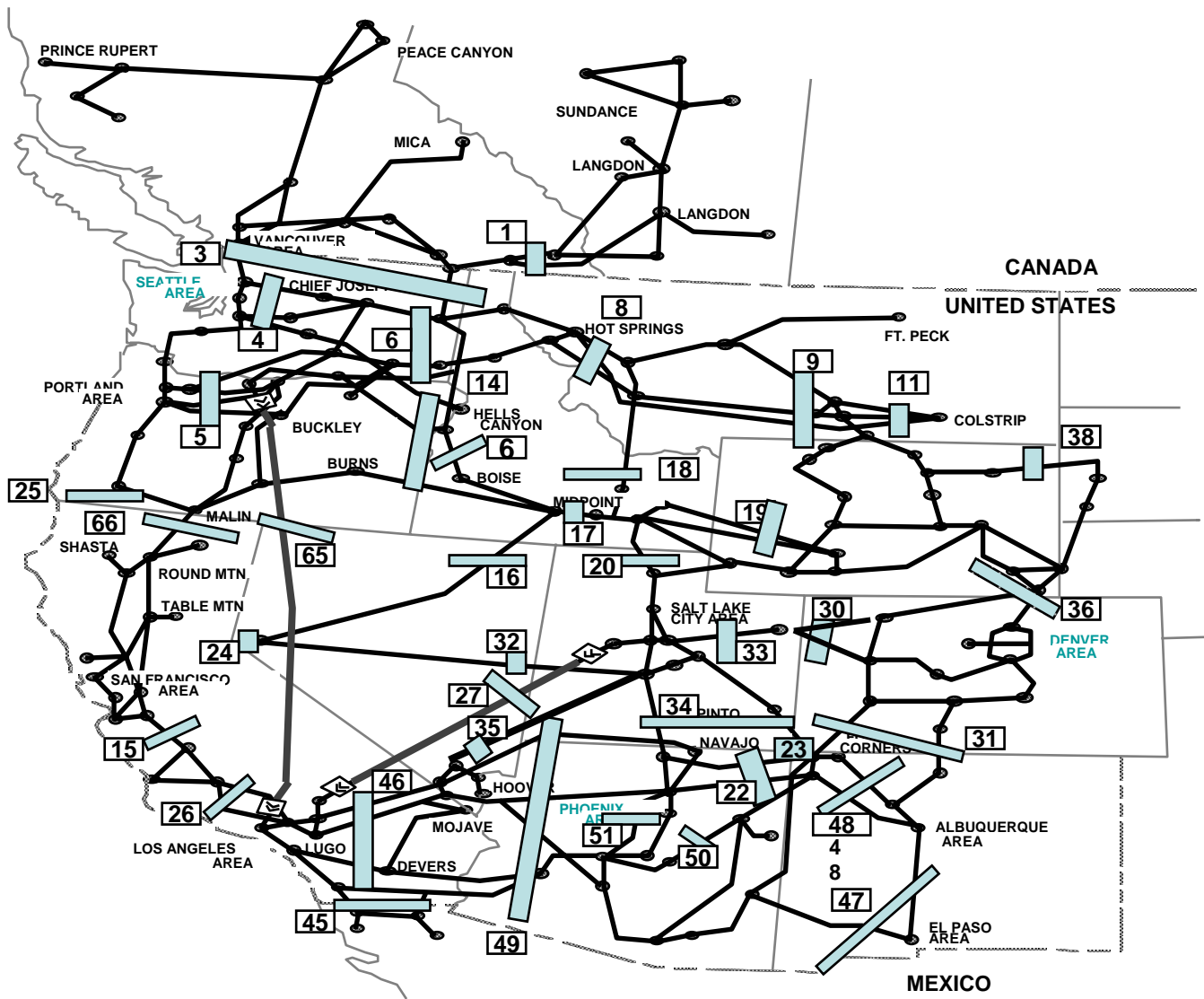
### Proposed RMPA Projects > 50 Miles

Carr Draw-Hartzog-Teckla, WY 230-kV	Completed Nov. 2005
Walsenburg, CO to Gladstone, NM 230-kV line	Underway Late 2007
Hughes, WY to Sheridan, WY 230-kV line	Planned 2008
San Luis Valley-Walsenburg, CO 230-kV line	Planned 2009
Upgrades to Path 36 (TOT3) between southeast Wyoming and northeast Colorado	Underway 2009
Comanche-Daniels Park #1 & #2 345-kV lines	Planned May 2009
Beaver Creek-Erie #2 230-kV	Underway 2010
Holcomb, KS to Front Range, CO 500 kV	Planned 2011

## IV. Addendum Slide: Projects Lists as Reported by WECC Control Areas January, 2006

### Proposed CA-MX Projects > 50 Miles

<b>La Jovita Project, MX 230-kV lines</b>	<b>Planning 2009</b>
<b>Palo Verde-Devers #2 500-kV line</b>	<b>Permitting 2009</b>
<b>Imperial Valley-San Diego 500-kV line</b>	<b>Planning 2010</b>
<b>Indian Hills-Upland 500-kV line</b>	<b>Planning 2010</b>
<b>New Vincent-Mira Loma 500-kV line</b>	<b>Planning 2011</b>
<b>Tehachapi Area Transmission 500-kV</b>	<b>Regulatory ?</b>



NOTE: not all WECC rated paths are shown on this chart

# Addendum Slides: WECC Transmission Paths