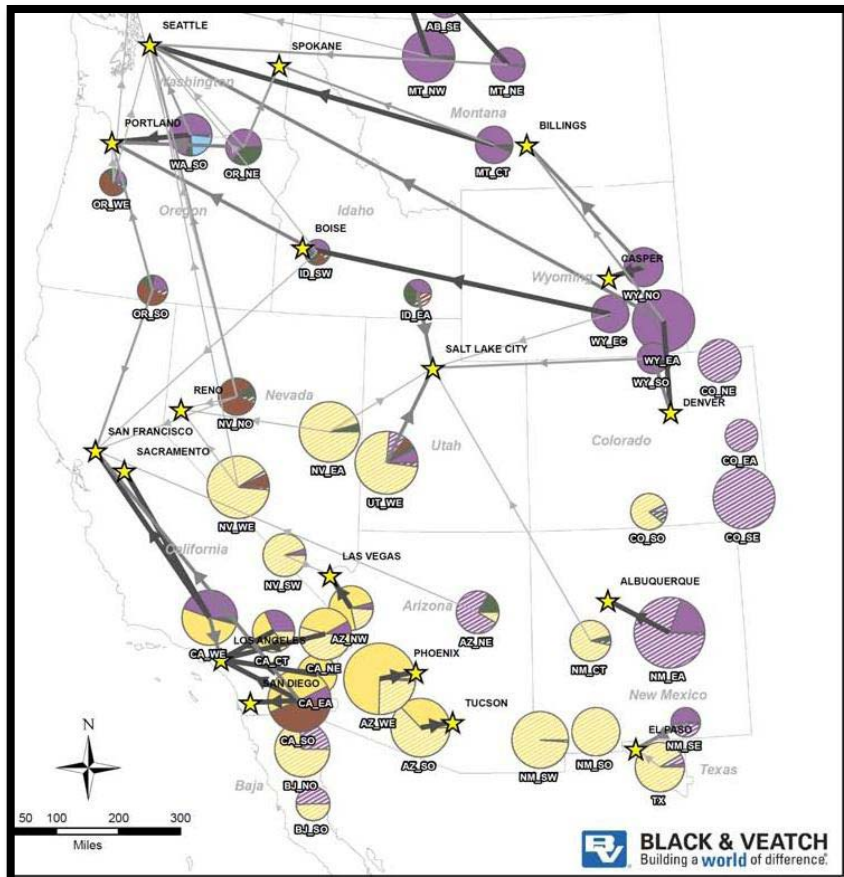


Renewable Energy and Transmission Planning in the West

Betsy Hands, WGA Fellow



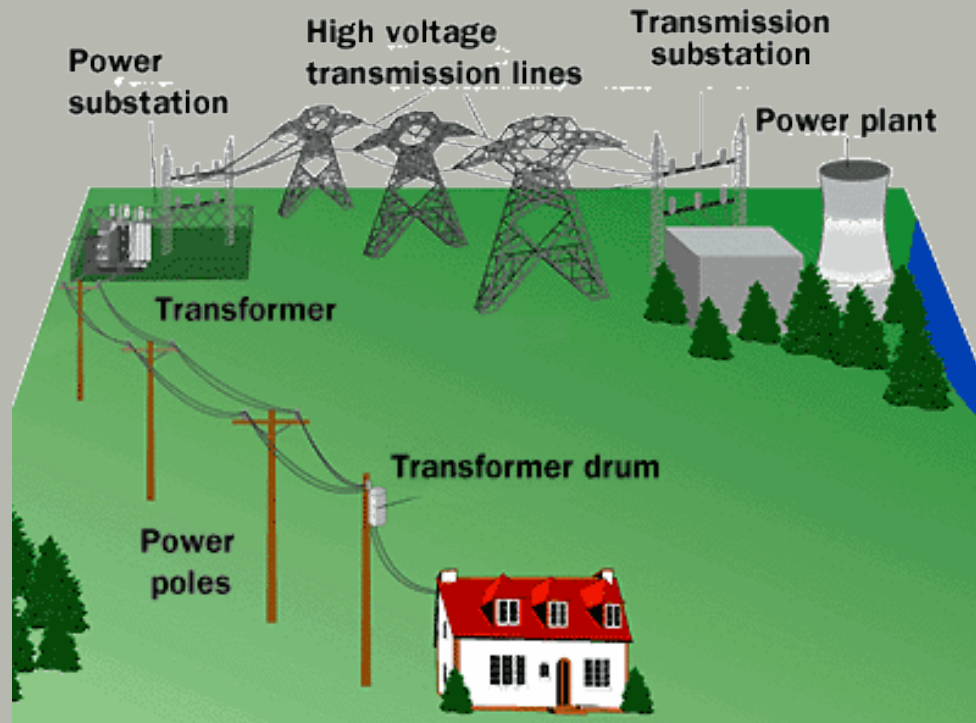
May 14, 2010



Wednesday, May 19, 2010

Grid capacity and reliability

- Reliability
- Thermal limit



Ownership & Rights to Use Transmission System

- Ownership held by the transmission line owners and by holders of long-term contract rights.
- ATC: “Available Transmission Capacity”
- Congestion



Major issues in transmission

- ⦿ Reliability
- ⦿ Congestion
- ⦿ Demand Side management
- ⦿ Cost to build and cost allocation
- ⦿ Siting and uncertainty

ARRA

- ARRA funding to encourage renewable energy development:
- 1) Appropriations for government purposes: Of the \$787 billion more than \$40 billion is appropriated for clean energy initiatives
- 2) Tax-based incentives: new and modified tax incentives are estimated an additional \$20 Billion.

- **WECC received notification from the U.S. Department of Energy (DOE) on December 18, 2009 that it has been awarded \$14.5 million in funding from the ARRA to conduct interconnection-wide electric transmission planning studies in the Western Interconnection.**



WGA Initiatives

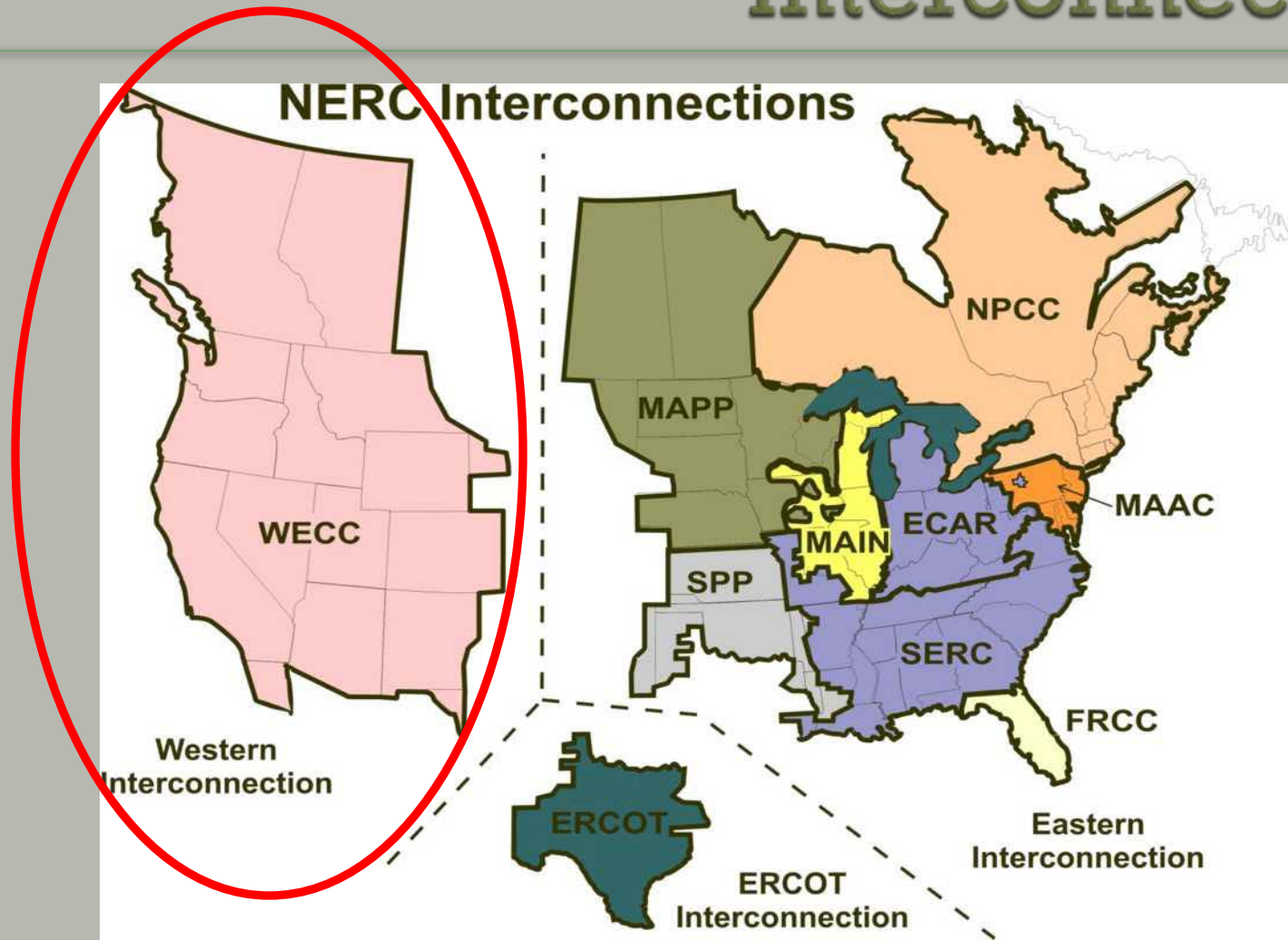
- ◉ **ARRA - The U.S. DoE has awarded the Western Governors' Association \$12 million**
- ◉ **Western Renewable Energy Zones**
- ◉ **Wildlife Council's Wildlife Corridor and Crucial Habitat Initiatives**



Nitty Gritty

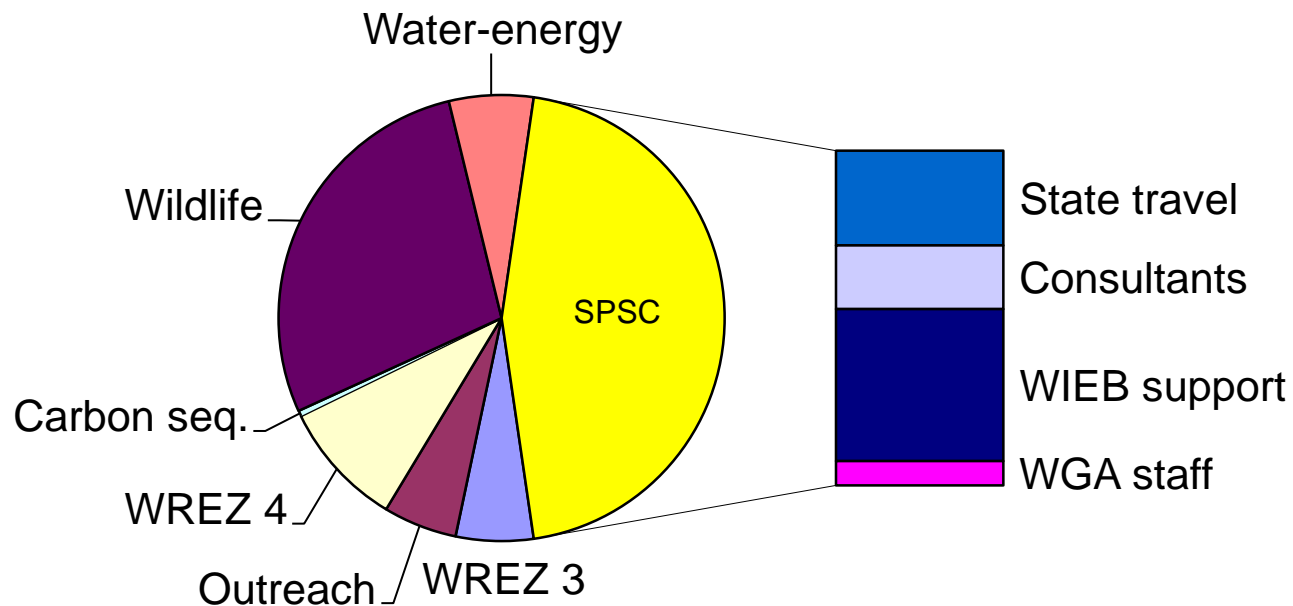
- ⦿ WECC planning process: Why is it important
- ⦿ Lots of discussion about planning and its implications for transmission action

Context – Western Interconnection



Five-year budget

WGA Transmission Planning Contract (\$12 million)



State-Provincial Steering Committee appointees

AB	Premier – Tim Grant	NV	PUC – Rebecca Wagner Gov – Hatice Gecol
AZ	ACC – Kristin Mayes Gov – Mike Anable	NM	PRC – Jason Marks Gov – Sarah Cottrell
BC	Premier – Les MacLaren	OR	PUC – John Savage Gov/SEO – Tom Stoops
CA	PUC – Dian Gruenich Gov – Jeff Byron	SD	Gov – Hunter Roberts
CO	PUC – Jim Tarpey Gov – Morey Wolfson	UT	PSC – Ric Campbell Gov – Dianne Nielson
ID	PUC – Marsha Smith Gov – John Chatburn	WA	UTC – Jeff Goltz Gov – Tom Karrier
MT	PSC – Ken Toole Gov – Tom Kaiserski	WY	PSC – Steve Oxley Gov – Steve Ellenbecker
WGWC Ex- officio	John Harja (UT)	WSWC ex- officio	Alexandra Davis (CO) Wednesday, May 19, 2010

Organization of Topic B Tasks

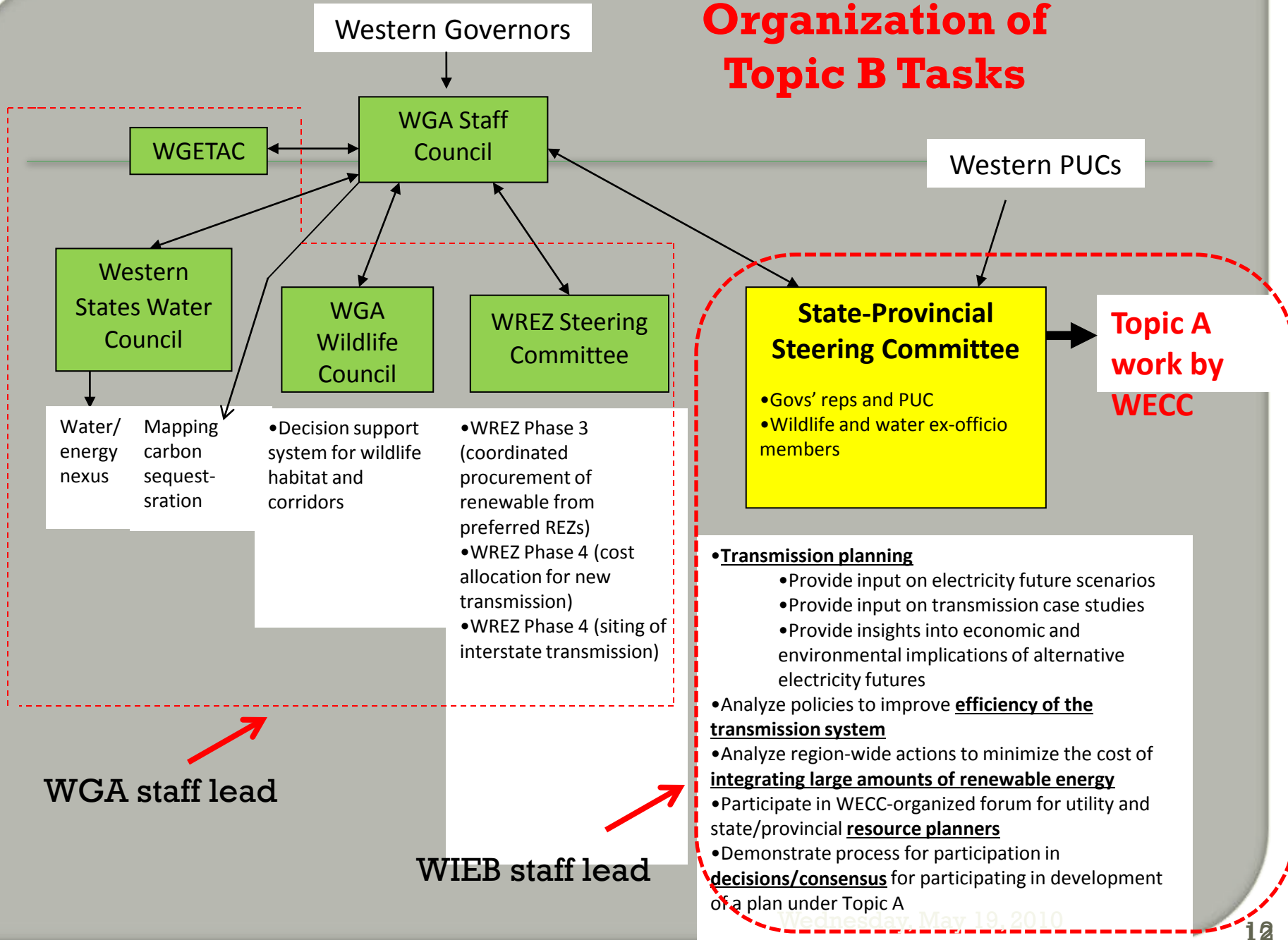
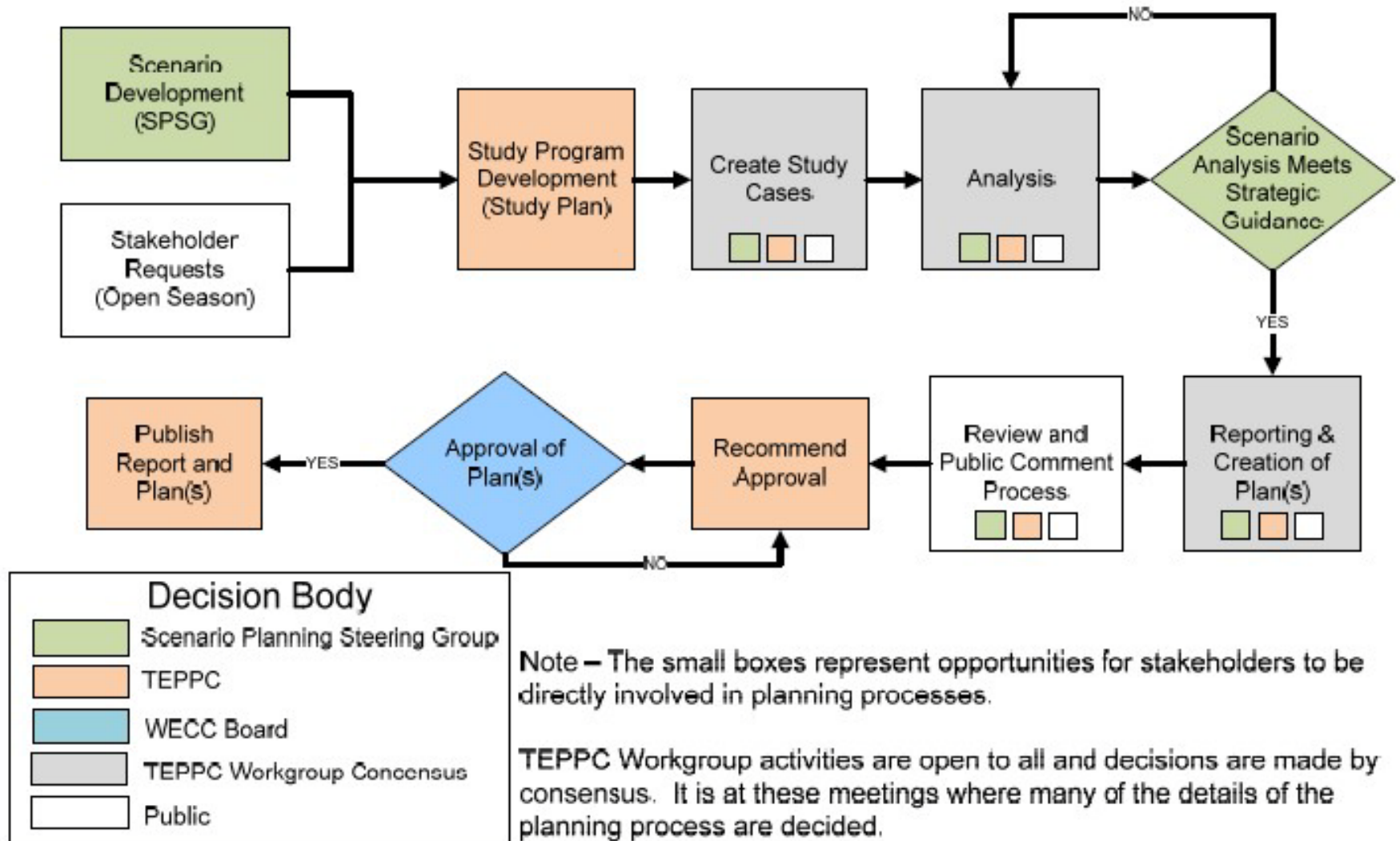


Figure 3 - Regional Long-term Planning Process Flowchart



Scenarios Work Group

- **January 31 study request elements**
 - Reference case: utility IRPs/plans (2020)
 - High DSM scenario (2020)
 - Carbon reduction scenario (2020, 2030)
 - Breakthrough technology scenario (2020, 2030)

All 3 SPSC scenarios are HIGH PRIORITY for WECC's 2010 study plan
- **March 24 SPSC letter to TEPPC**
 - Urged TEPPC to model 10-year and 20-year cases; 20-year case important for policy purposes
 - Encourage TEPPC to move with all deliberate speed on long-term planning tool

Activities outside of State-Provincial Steering Committee

- ◉ Water/energy nexus
- ◉ Carbon sequestration mapping
- ◉ Western Governors' Wildlife Council
- ◉ WREZ 3 – Participate in WECC transmission planning process through Topic B and evaluate scenarios for potential new transmission based on how each one may affect water supplies, wildlife, landscapes and state economies.
- ◉ WREZ 4 – transmission permitting and cost allocation



Water-Energy Nexus

- ◉ WGA will work with the Western States Water Council, RTEP, the DOE national laboratories, and other stakeholders to implement these objectives.
- ◉ Water supply assessments
- ◉ Potential impacts
- ◉ Recommendations
- ◉ Report on Implications

WREZ Phase 4

◎ Two main areas

- Siting, specifically the facilitation of interstate and intergovernmental coordination in the review of transmission siting permit applications for electrical transmission
- Cost allocation options related to high voltage transmission lines from geographically constrained renewable resource areas to load centers

Siting – Major Tasks

- Document and analyze case studies of recent permitting successes and failures from across the region;
- Coordinate and communicate a regional response to implementing any new federal transmission laws or procedures and regional views on implementation;
- Coordinate and communicate a regional response to any transmission corridor reviews or designations;
- Organize a series of public forums for state, local, tribal and federal permitting entities to identify actions to improve coordination of permit reviews and to respond to federal legislation.



Cost Allocation – Major Tasks

- Determine the cost allocation options related to high voltage interstate transmission lines from geographically constrained areas to load centers.
- Evaluate and seek input regarding what constitutes right sizing of transmission additions and determine cost allocation options for right sizing new transmission lines. WGA would use a technical consultant to perform a study on how right sizing could impact cost allocation;

Wildlife-Energy Nexus

- Support the development of wildlife **Decision Support Systems** to examine the impact of energy development on wildlife.
- Integrate wildlife considerations into the electricity generation scenarios and evaluate the implications for wildlife and habitat protection. Examine options for inputting information from state wildlife Decision Support Systems into the analysis of future energy scenarios.
- <http://fwp.mt.gov/wildthings/conservationInAction/crucialAreas.html>

Thanks!



Wednesday, May 19, 2010



DSM Work Group

Two Major Tasks (deriving from the SPSC Study Request)

1. Develop TEPPC reference case DSM assumptions and model inputs
2. Develop DSM assumptions and model inputs for SPSC Scenarios (finalized by end of summer?)



Grid Utilization Work Group

- **Objective 1:** Minimize the **cost of integrating large amounts of wind and solar energy** reliably into the Western Interconnection
- **Objective 2:** Analyze the **utilization of the transmission system**, identify areas of inefficiency and current efforts at reform, and assess usefulness
- **Objective 3:** Identify current and new **grid technologies** that could enable greater and more efficient transfers over existing transmission lines and in existing transmission corridors



Grid Utilization Work Group

- Work Group recommendations adopted by SPSC on April 23
 - (1) The SPSC demonstrate support for the benefit/cost and reliability impacts study of the WECC proposed Seams Coordination Tool and Energy Imbalance Service by committing \$25,000 to the study.
 - (2) The SPSC make the commitment of funds contingent upon
 - (a) the creation of a high-level oversight committee, and
 - (b) the commitment of remaining funds by WECC.