



Western Electricity Coordinating Council



Regional Transmission Planning in the West

FERC Technical Conference on Planning Models and Software

AD10-12-000

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WECC Facts

- The Western Interconnection includes all or part of 14 U.S. states, 2 Canadian provinces and a portion of Baja California Norte, Mexico
- WECC is governed by an independent and balanced stakeholder board consisting of 32 directors drawn from the WECC membership classes
- Membership - 253 members in seven classes

WECC Functions

Non-Planning Functions

- Compliance Monitoring and Enforcement
- Standards Development
- Reliability Coordination
- Market-Operations interface
- Operator training
- WREGIS

Planning Functions

- Loads and Resources Assessments
- Reliability studies
- Transmission Expansion Planning

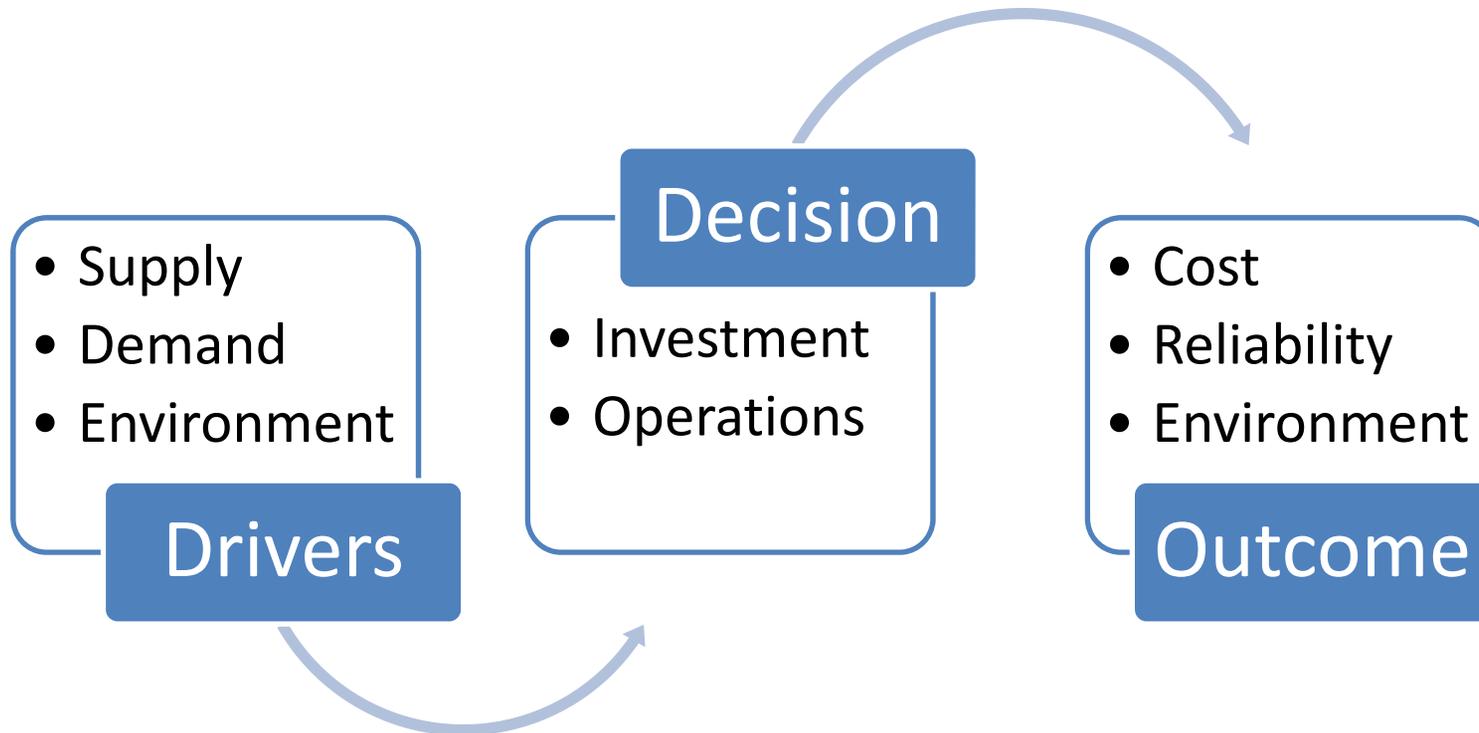
Today's Discussion

- What are we planning for?
- Planning Organizations in the West
- Planning Models at WECC
- Regional Transmission Expansion Planning (RTEP) Project

What is Planning?

- Identification of future infrastructure needs to
 1. Serve the expected load reliability
 2. Meet public policy directives
 3. Minimize cost and environmental impact
- Transmission planning – identify future transmission capacity needs given a future set of loads and resources
 - It's all about resource planning
- Planning serves project development

Planning for Uncertainty



Loads – Resources – Transmission

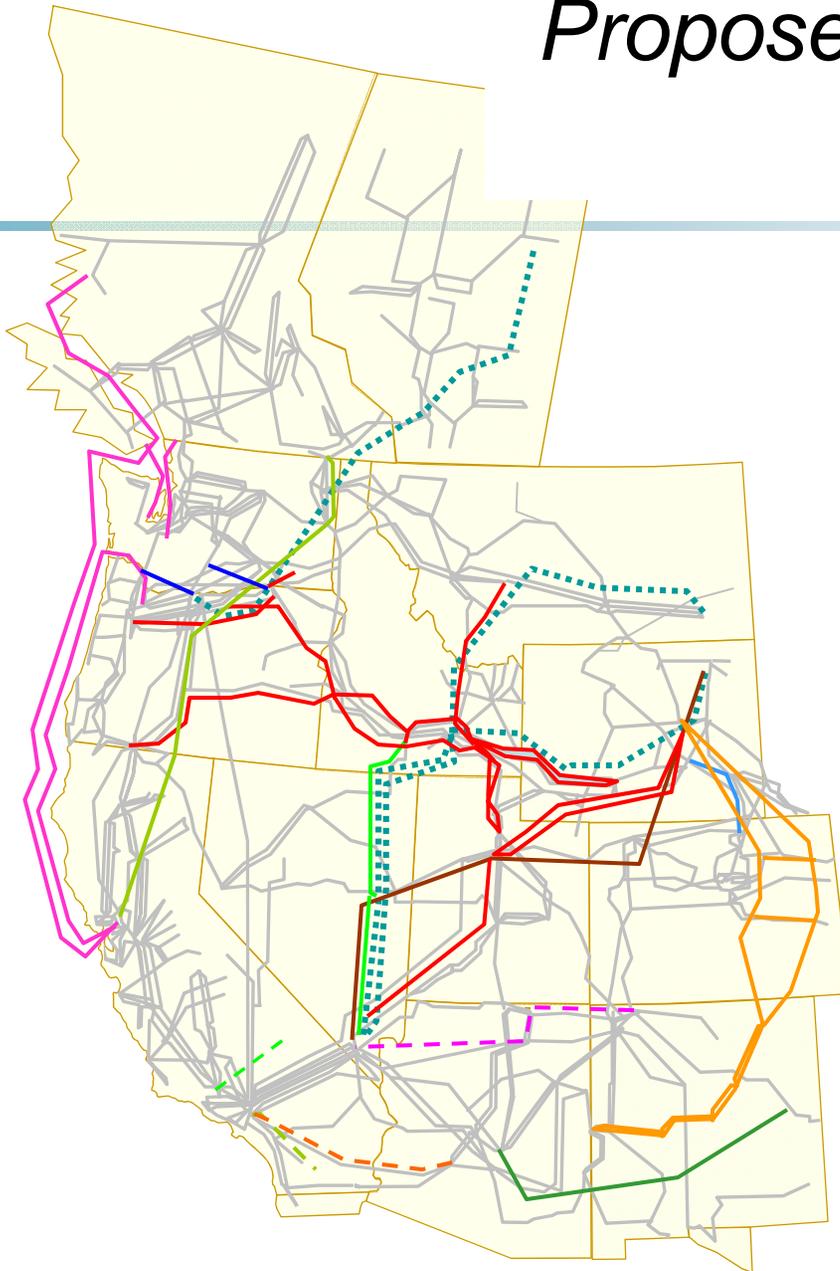
Proposed Major Transmission Projects in WECC

Proposed Transmission Projects in the Western Interconnection

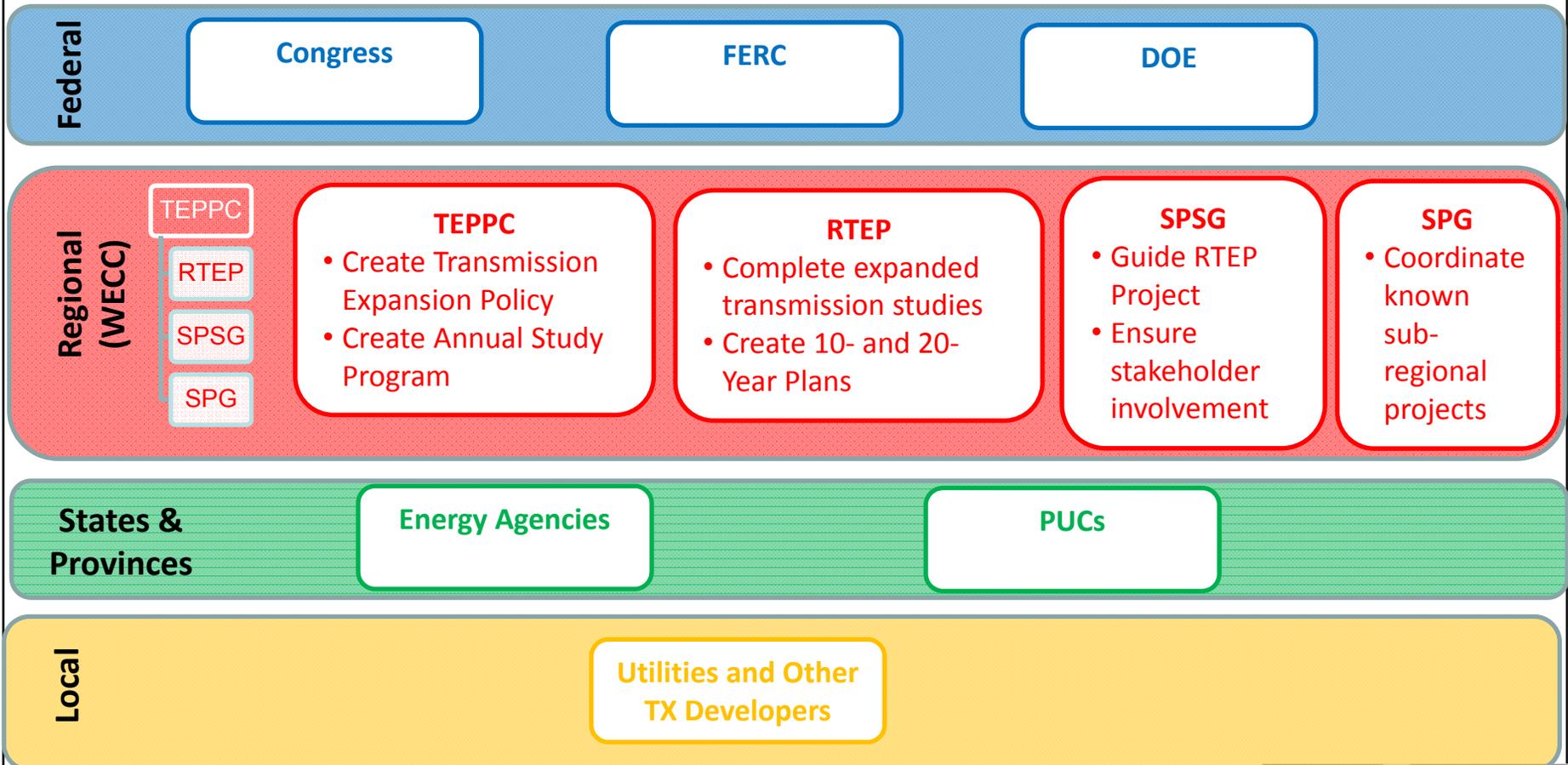
Note: This plot includes selected projects from Table 3.2 of 2008 TEPPC Study Plan(v7)

Projects have been grouped to simplify coding.

- Sea Breeze Projects
- ⋯ TransCanada Projects
- Gateway & Other NTTG Projects
- Columbia Grid Projects
- TransWest Express
- LS Power & Great Basin Projects
- WY-CO Intertie Project
- High Plains Express
- Sun-ZIA
- Canada/PacNW-NoCalif
- - - Central CA Clean Energy (C3ET)
- - - Green Path North
- - - Devers-Palo Verde 2
- - - Navajo Transmission Project



Organizations Involved in Transmission Planning



TEPPC

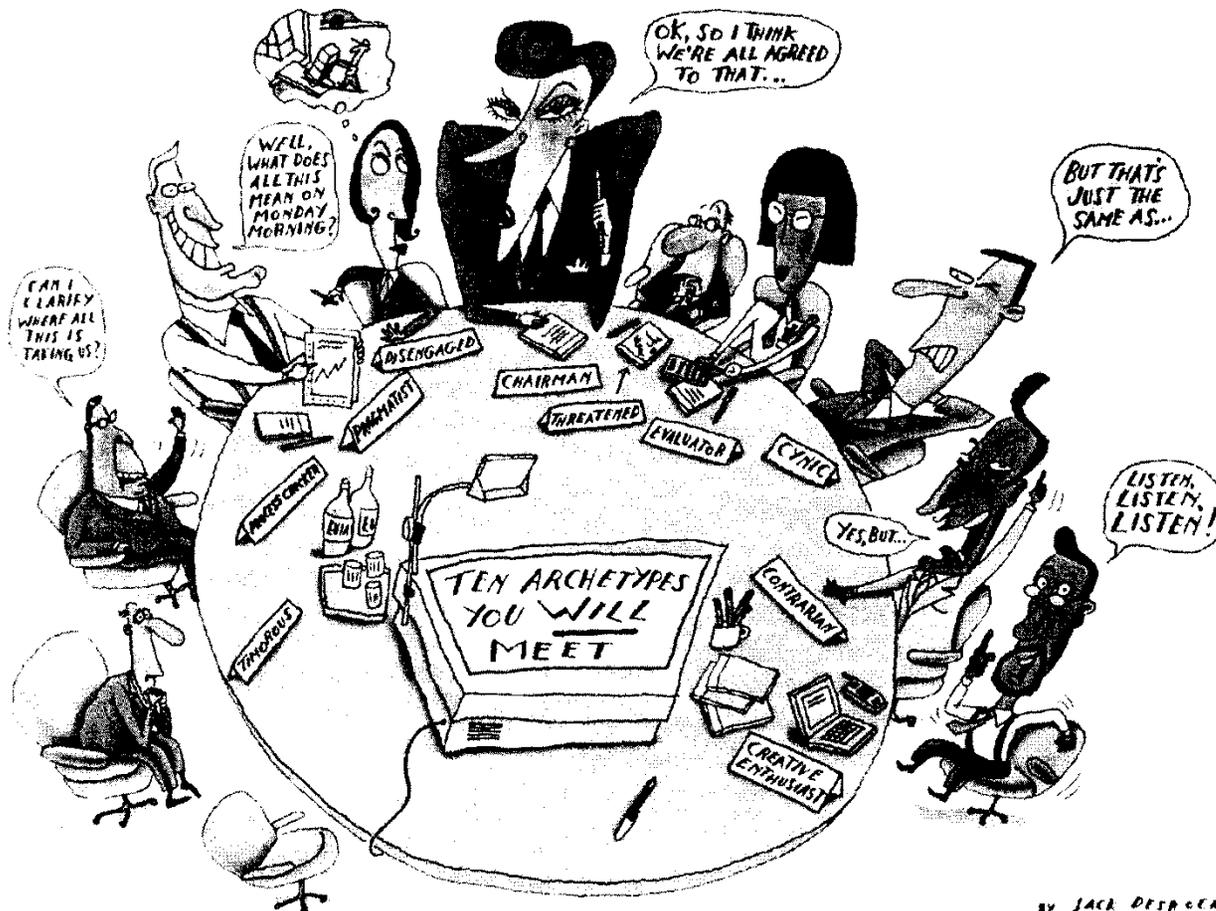
Transmission Expansion Planning Policy Committee

- TEPPC's analyses and studies focus on studies with Interconnection-wide implications
 - Reliability, Cost, Emissions
- TEPPC's role does **not** include
 - Detailed project-specific studies
 - Advocating projects
 - Identifying potential “winners” and “losers”
 - Siting and cost allocation
- Provides governance over the RTEP project

WECC's Transmission Expansion Planning Policy Committee (TEPPC)

- TEPPC Annual Study Program
 - Study Request window is open every year from Nov 1st until Jan 31st
 - Any interested stakeholder is welcome to submit a study request to TEPPC for consideration
- TEPPC's analyses and studies focus on studies with Interconnection-wide implications, and evaluate:
 - Regional transmission congestion
 - Economic generation dispatch, variable production cost, emissions, capital costs, etc.

Planning Meetings



The “Archetypes”

- The Chairman
- The Cynic
- The Timorous
- The Disengaged
- The Contrarian
- The Process Checker
- The Threatened
- The Pragmatist
- The Evaluator
- The Creative Enthusiast

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Planning Models

- Production Cost Models
 - Operational simulations
 - Variable costs
 - Transmission congestion
 - Emissions
- Capital Cost Models
- Loadflow and Stability Models
 - Capacity planning
 - Reliability analysis

Future TEPPC Modeling Tools

- To conduct a 20-year scenario analysis:
 - Multiple resource scenarios must be considered
 - Multiple transmission expansion alternatives must be investigated
- A Long Term Planning Tools Task Force was established by TEPPC to evaluate alternative tools that could analyze long-term expansion planning scenarios more efficiently than production cost simulation tools

Future TEPPC Modeling Tools

- This tool will help screen scenarios for transmission needs
 - Scenario visualization tool
 - Nodal expansion analysis tool
- The task force has completed a review of available tools to meet the future needs of TEPPC, and is in the process of preparing an RFP

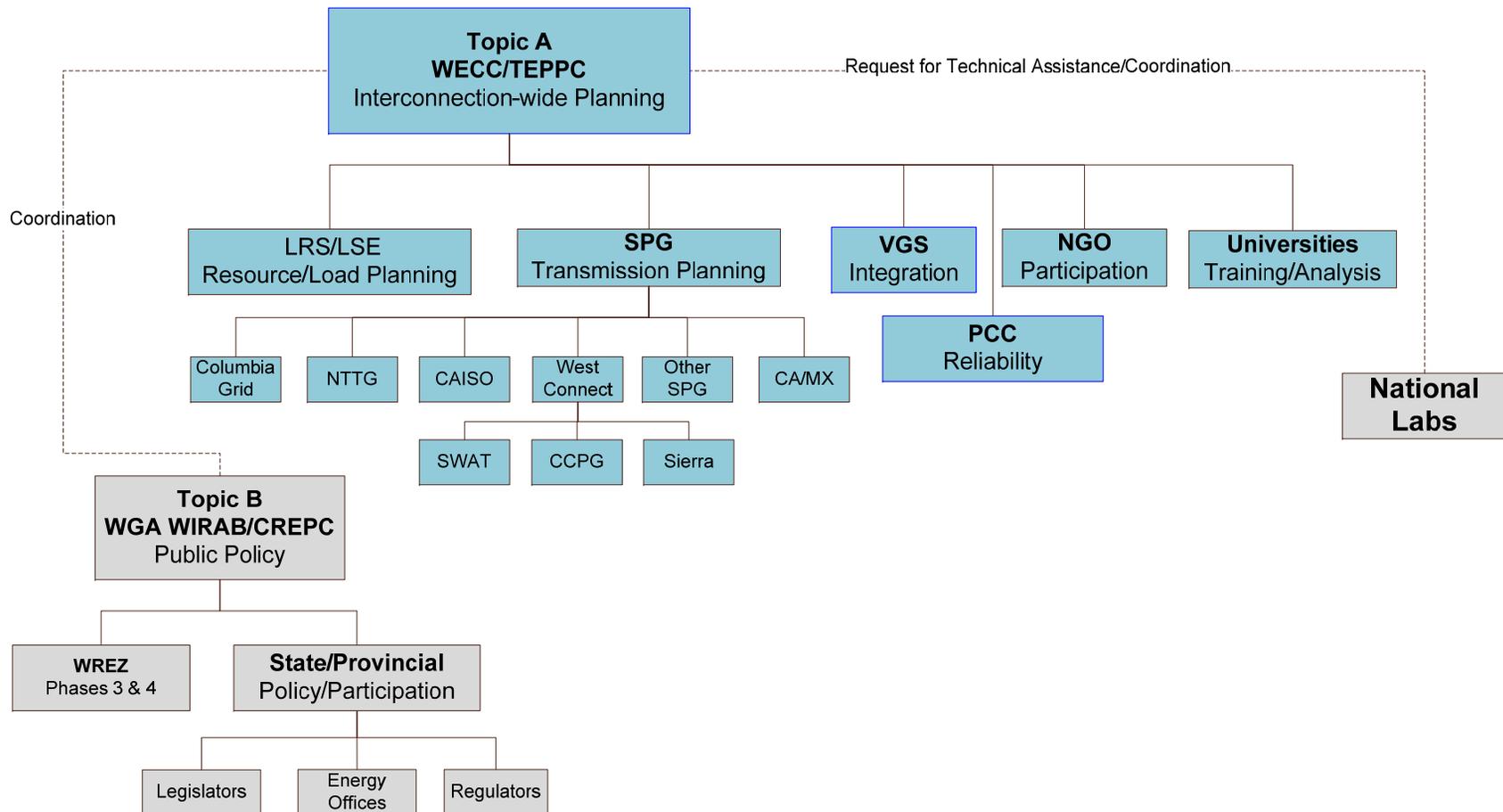
RTEP

Regional Transmission Expansion Planning

- ARRA-funded via a \$14.5M DOE Grant to WECC
 - Corresponding \$12.0M Grant to WGA
- Activities managed by TEPPC
- WECC's proposal available at the RTEP website – www.wecc.biz

RTEP

Activities Funded in part by the DOE Grant



RTEP

Primary Deliverable

- Interconnection-wide Transmission Plans
 - A body of analysis that identifies new or greatly-upgraded lines required under a wide range of potential futures
 - Include operational implications, emissions and cost
 - Analyses must be transparent, and produced through collaboration among industry experts and representatives from states, federal agencies, and relevant NGOs
- Requires multi-constituency steering group to provide strategic direction
 - at least 1/3 of steering group to be state officials

Planning Activities (new activities in Red)

	Short Term 0-5 Years	Medium Term 5-10 Years	Long Term 20 Years
Regional (WECC)	<ul style="list-style-type: none"> • OTC, TTC • Rating Process • TEPPC (5yr) 	<ul style="list-style-type: none"> • TEPPC Congestion Analysis • <u>10yr Regional Plan</u> • Project Planning & Rating Process • Reliability Assessment 	<ul style="list-style-type: none"> • <u>20yr Regional Trans Target Plan</u> • <u>LSE Planning Coordination (WIRPF)</u>
Subregional (SPG)	<ul style="list-style-type: none"> • OTC, ATC • Short-term Assessment • Short-term Design Planning 	<ul style="list-style-type: none"> • Sub-Reg Trans Biennial Cap • Annual Econ Study • SPG 10yr Att K Plan • <u>10yr SPG Coordinated Reliability Plan</u> 	
Local (Utilities)	<ul style="list-style-type: none"> • OATT studies • Operating Studies • Compliance Studies 	<ul style="list-style-type: none"> • Attachment K or equivalent • Compliance Studies 	<ul style="list-style-type: none"> • Long-range studies

Questions

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All information on the RTEP project can be found on the WECC website at
<http://www.wecc.biz/Planning/TransmissionExpansion/RTEP/Pages/default.aspx>

Glossary

- DSM – Demand-Side Management
- EE – Energy efficiency
- FERC – Federal Energy Regulatory Commission
- FOA – Funding Opportunity Announcement
- NERC – North American Electric Reliability Corporation
- NGO – non-profit, Non-governmental Organization
- RTEP – Regional Transmission Expansion Planning
- SPG – Subregional Planning Group
- SPSG – Scenario Planning Steering Group
- SPSC – State and Provincial Steering Committee
- TEPPC – Transmission Expansion Planning and Policy Committee
- VGS – Variable Generation Subcommittee
- WGA – Western Governors' Association
- WIEB – Western Interstate Energy Board
- WREZ – Western Renewable Energy Zone