



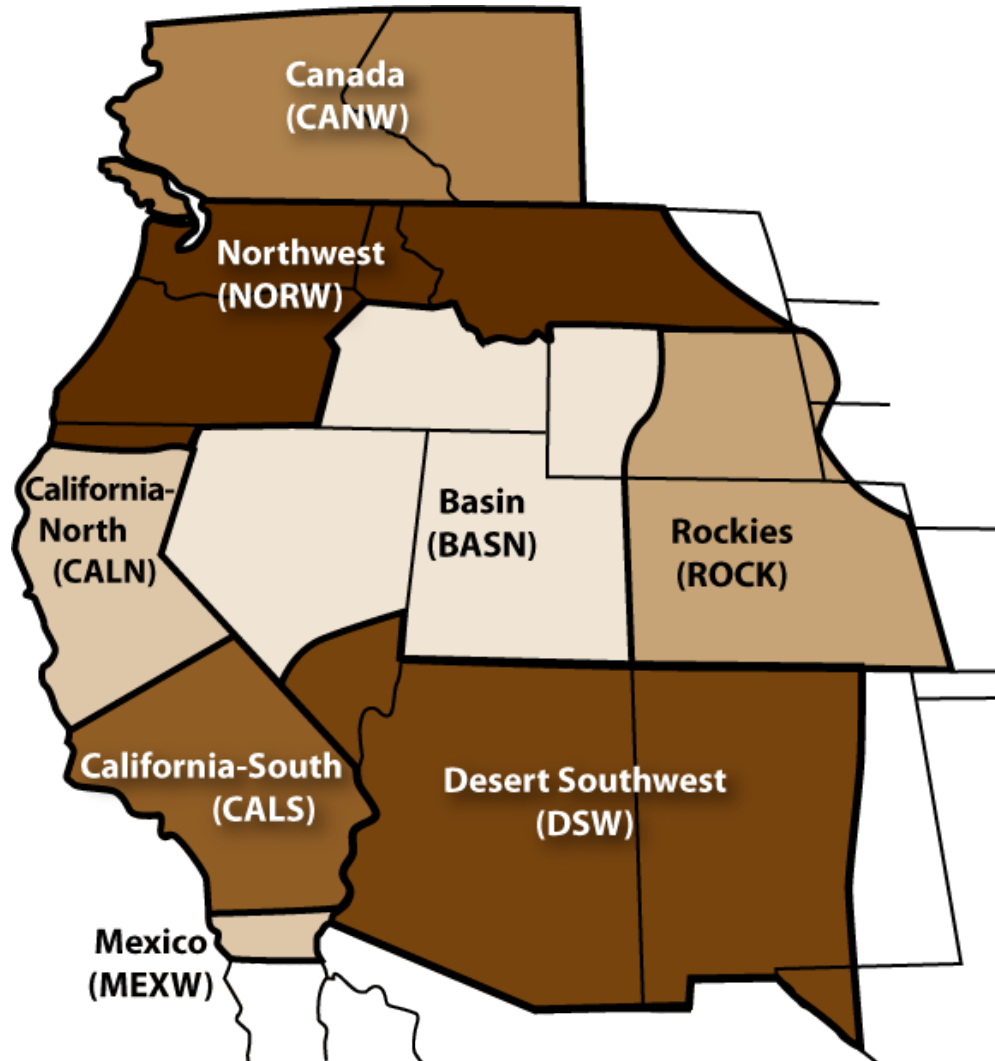
Byron Woertz
Senior Project Manager

WECC Transmission Planning Process
New Energy Industry Task Force
January 16, 2013, Carson City, NV

Overview

- What is WECC?
- WECC Transmission Planning Process
- Transmission Planning Products
- Next Steps

What is WECC?



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

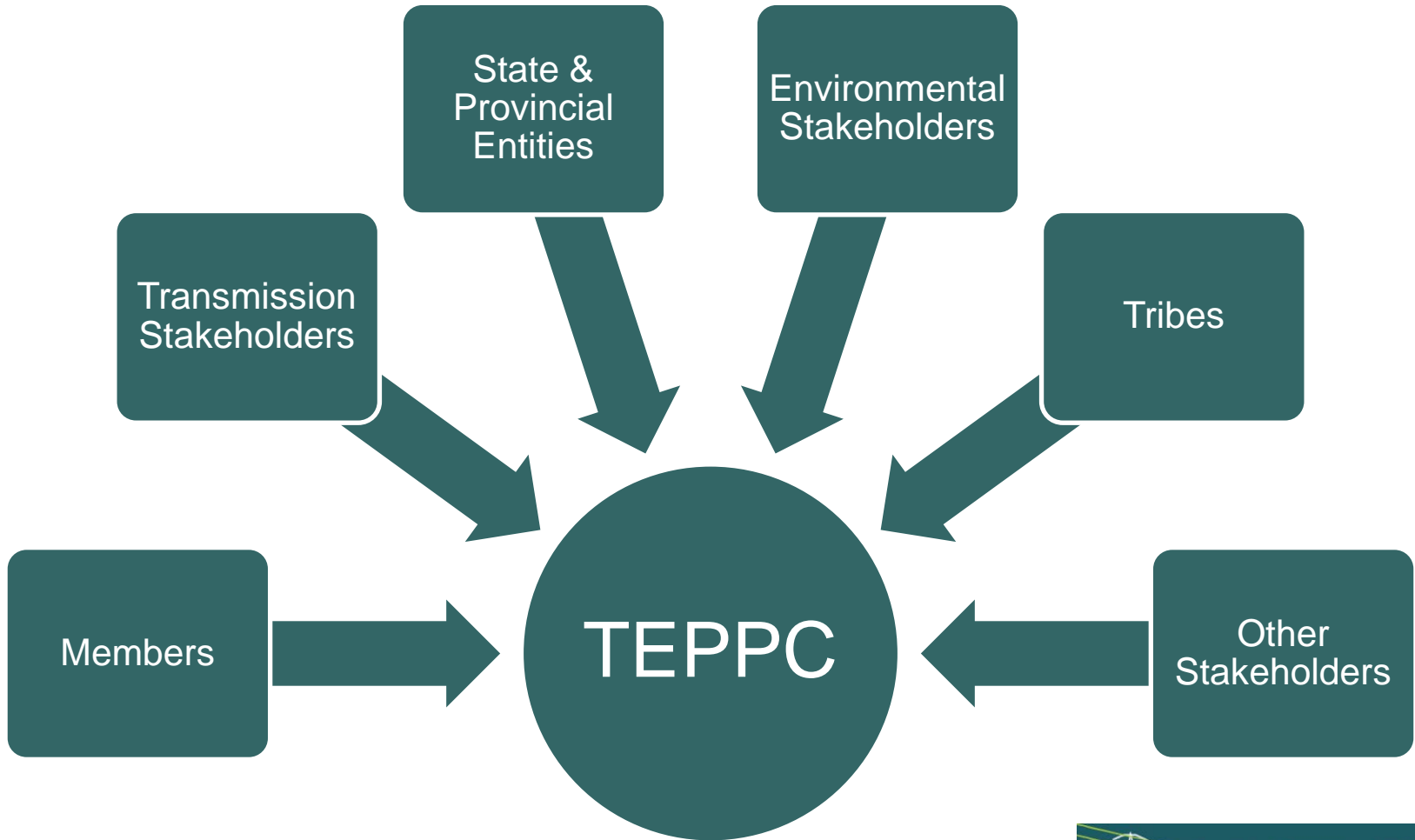
Why Transmission Planning?

“My interest is in the future because I am going to spend the rest of my life there.”
...Charles Kettering

Transmission Planning at WECC

- Transmission Expansion Planning Policy Committee (TEPPC)
 - Leads transmission expansion planning for Western Interconnection (WI)
 - Annual study program
 - Congestion studies
- Subcommittees and work groups focus on:
 - Technical analysis
 - Data
 - Modeling
 - Scenarios

Who Does TEPPC Serve?



Primary Transmission Planning Products

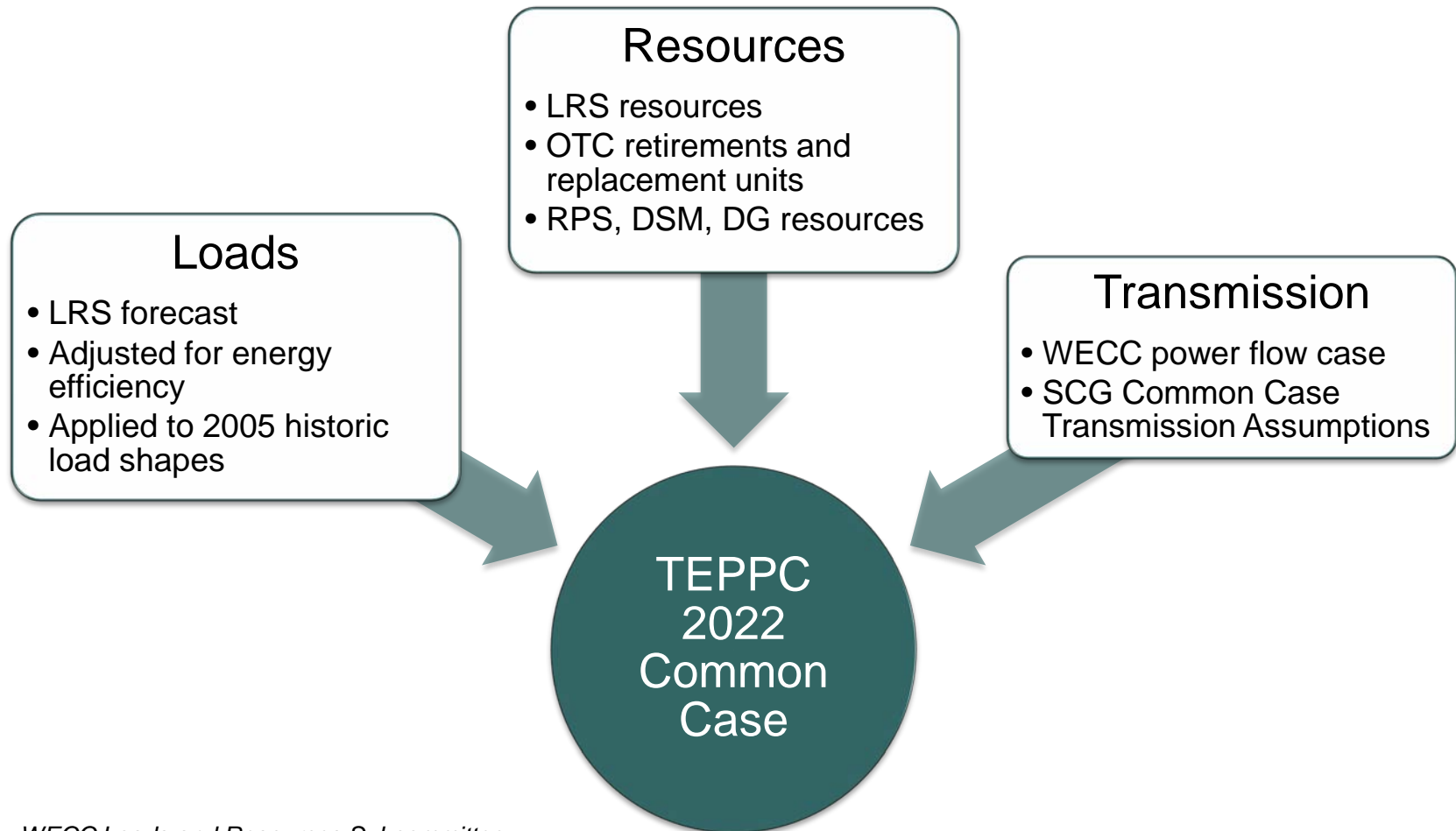
- 10-Year Regional Transmission Plan
- 20-Year Regional Transmission Target Plan
- Data supporting transmission plans and other stakeholder needs

10-Year Regional Transmission Plan

- Central question: “How will planned and potential new activities affect the current bulk electric system grid?”
- Starts with Common Case
 - Best estimate of system conditions based on current environment 10 years into the future
- Uses Production Cost Modeling
 - Simulation of every hour of the year, based on study case inputs
- Stakeholders request study cases during “open season”
- Identifies assumptions used in analysis

Common Case Assumptions

“The bricks of the foundation”



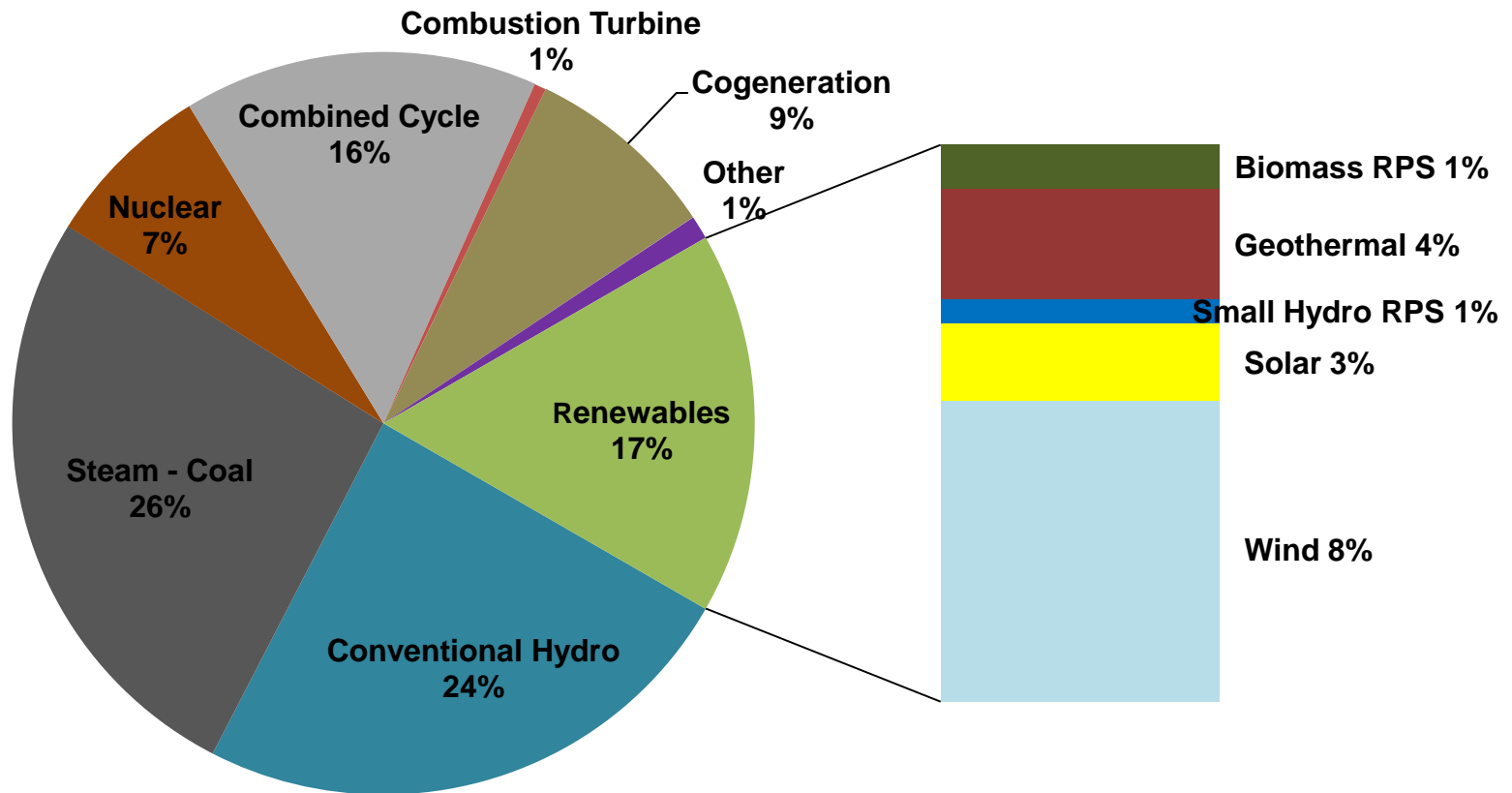
LRS – WECC Loads and Resources Subcommittee

OTC – Once Through Cooling

SCG – Subregional Coordination Group

What is our resource mix like?

WECC 2022 Energy Generation by Type



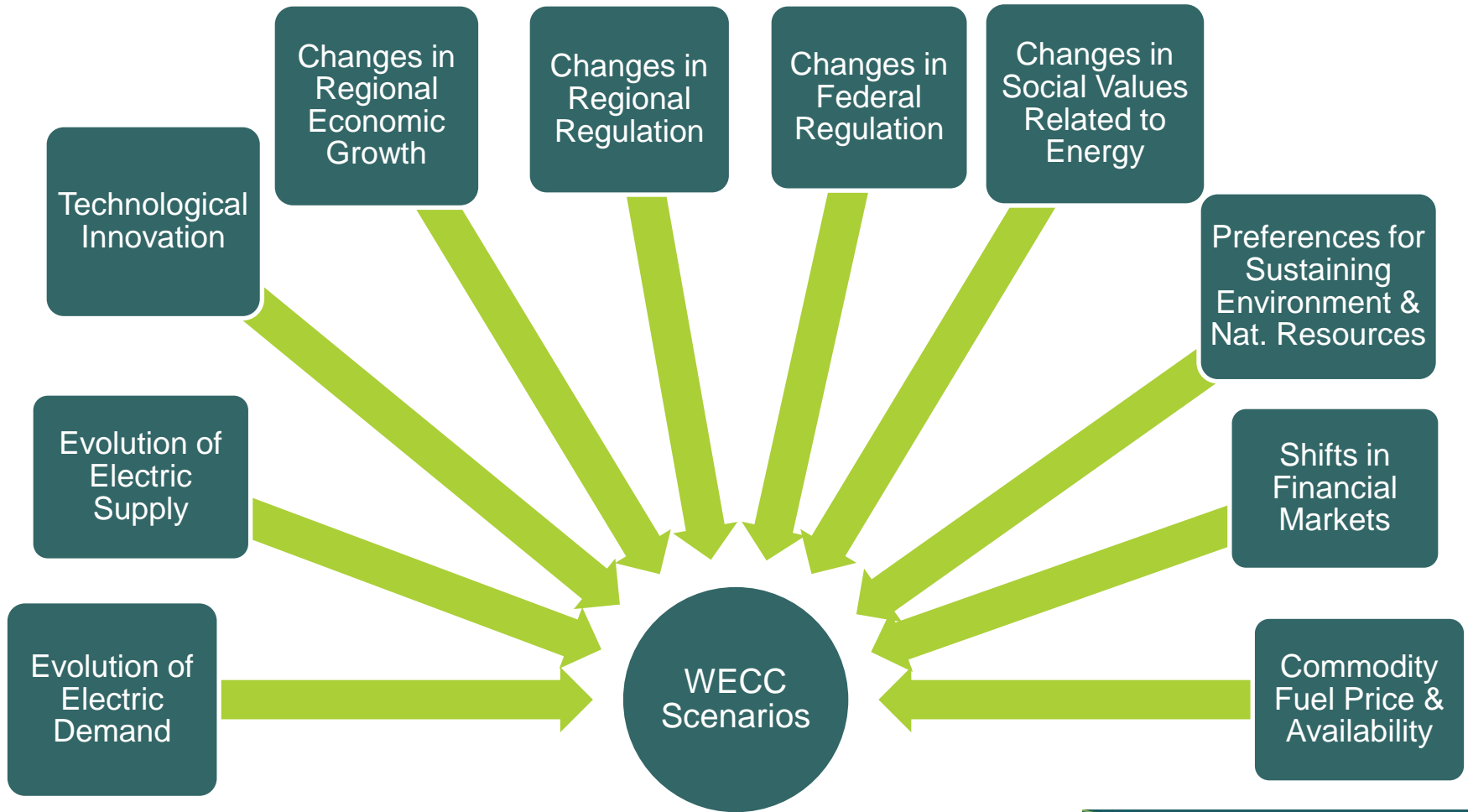
10-Year Plan...cont.

- First 10-Year Plan published in 2011
- Primary results
 - 1) Cost-effective remote renewable resources
 - 2) Upgrades or mitigation for Montana-to-Northwest (Path 8)
 - 3) Upgrades or mitigation for California-Oregon (Paths 65 & 66)
 - 4) Operational impacts of variable generation
 - 5) Planning cooperation
 - 6) Environmental and cultural considerations in transmission planning
 - 7) Water resource impacts on future generation mix
 - 8) Future regional transmission planning processes
- Plan to be revised in 2013

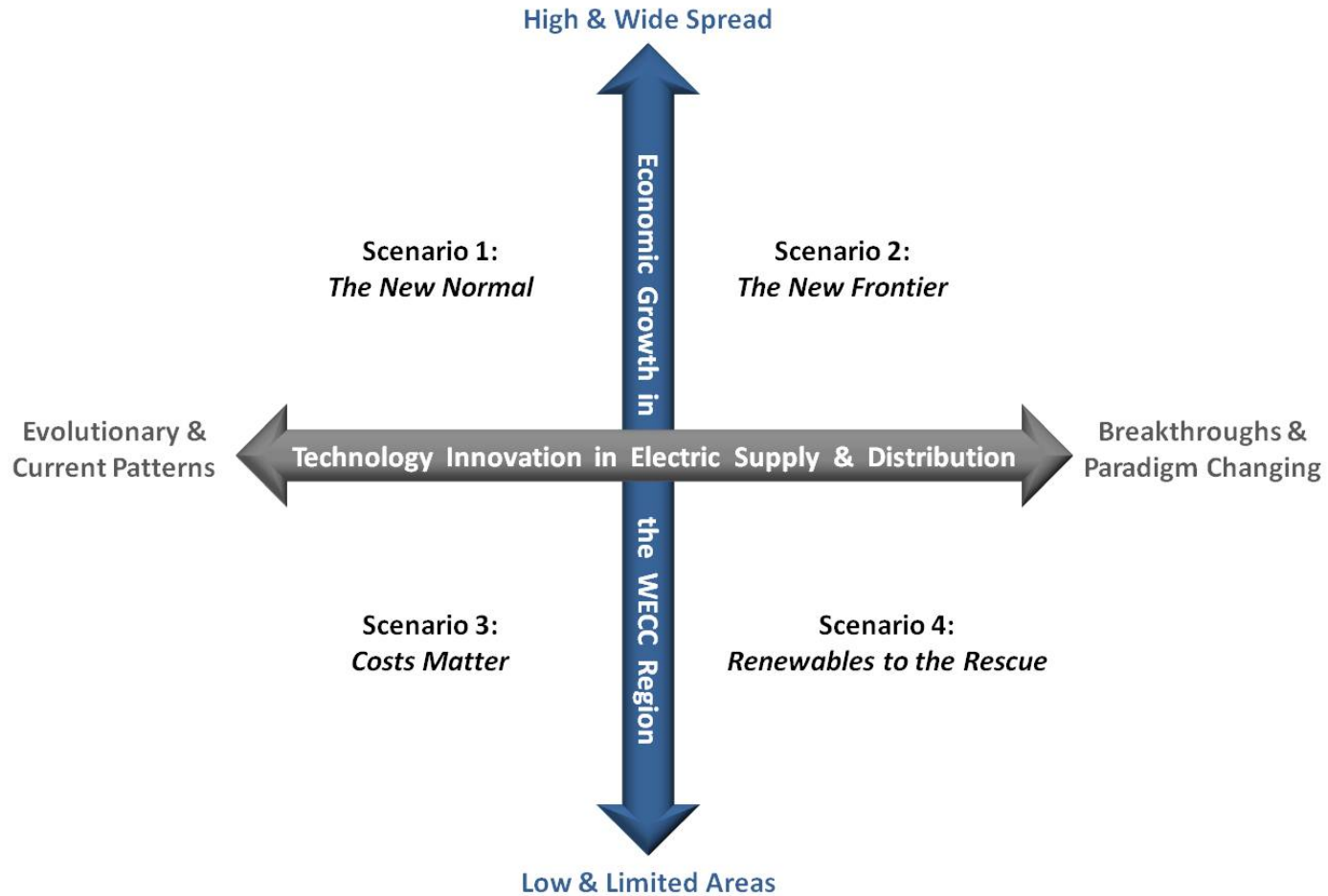
20-Year Regional Transmission Target Plan

- Central question: “How will the demand for electric power services change in the future and how will electric supply services and the bulk transmission system need to change to accommodate that demand?”
- First 20-Year Plan to be produced in 2013
- Scenario-based
 - Alternate feasible futures for the Western Interconnection
 - Based on key drivers
 - Implications for transmission
 - Guides strategic choices

Scenario Drivers



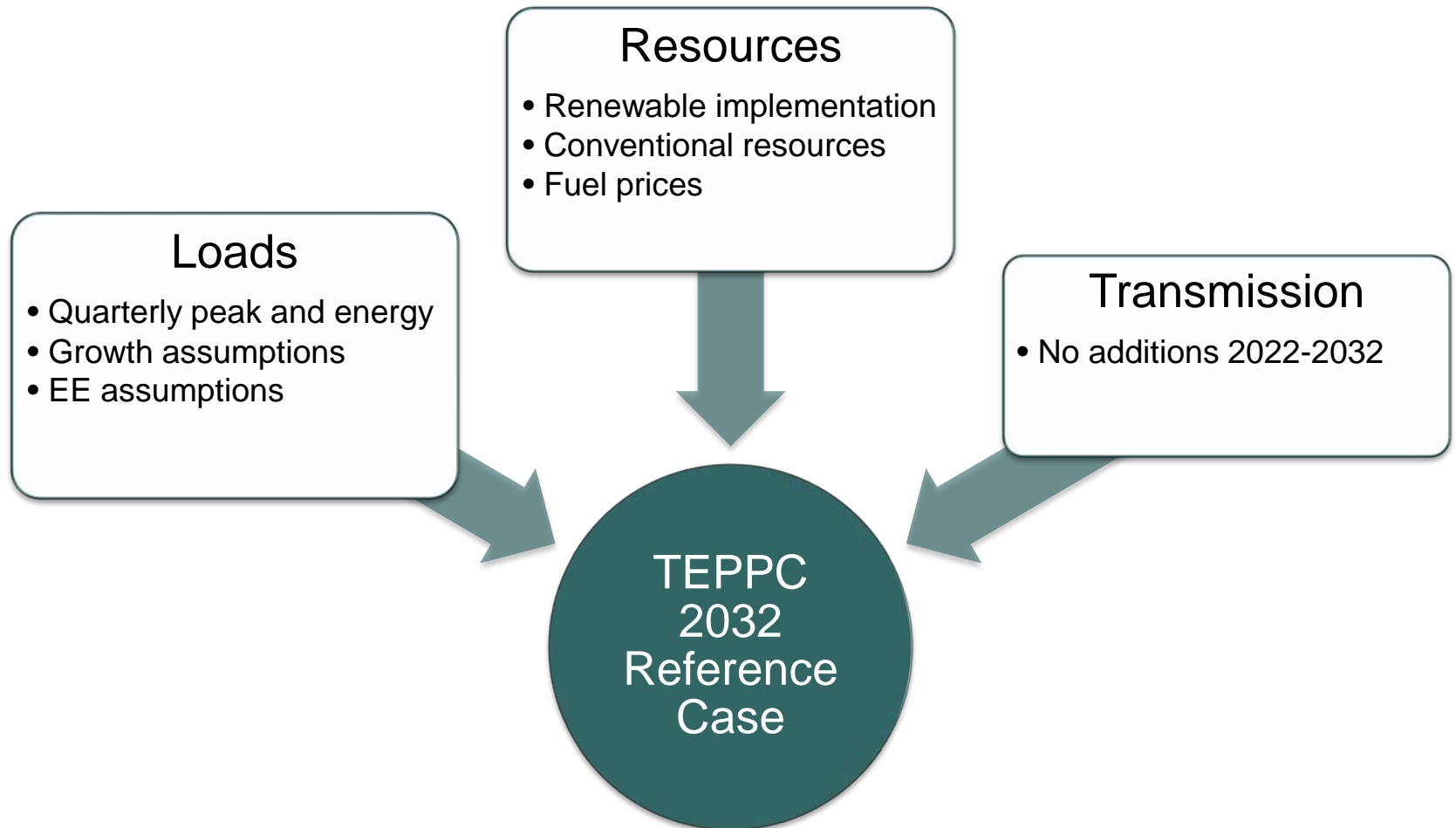
WECC Scenarios



2032 Reference Case

- Best estimate of system conditions if conditions for 2022 Common Case continued additional 10 years

2032 Reference Case



20-Year Plan...cont.

- Uses “Long-Term Planning Tool” (LTPT)
 - Capital cost model
 - Based on levelized cost of energy
 - Considers quarterly energy and capacity needs based on study case inputs
- Inputs developed by:
 - Metrics Definition Task Force
 - Data Work Group
 - Modeling Work Group
 - Studies Work Group

20-Year Plan Components

- Content and structure under development
- Potential components
 - Transmission expansion plan for each study case—
detailed analysis
 - Common expansion needs across scenarios and study
cases
 - Environmental and cultural recommendations
 - Policy considerations
 - Implementation considerations

Next Steps in Transmission Planning

ID	Task Name	Start	Finish	Q1 13			Q2 13			Q3 13		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Complete Study Cases	1/1/2013	2/28/2013	█								
2	Review Study Case Results	1/1/2013	3/29/2013	█								
3	Draft 10-Year and 20-Year Plans	3/1/2013	4/30/2013			█						
4	Review Draft Plans with Stakeholders	4/1/2013	6/28/2013				█					
5	Finalize Draft Plans	7/1/2013	8/30/2013							█		
6	Plans Approved by TEPPC	8/15/2013	8/15/2013									
7	Plans Approved by WECC Board of Directors	9/9/2013	9/9/2013									

Collaboration is the Key

“Unity is strength...when there is teamwork and collaboration, wonderful things can be achieved.” ...Mattie Stepanek

Questions



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