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Western Interconnection
Planning in the Western Interconnection
DOE Congestion Study Workshop
December 13, 2011

Subregional Planning Groups

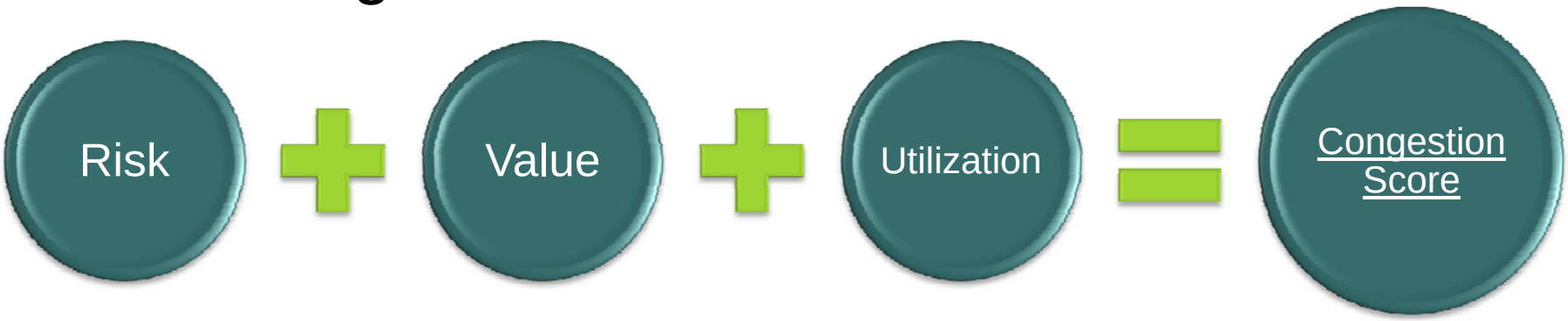
Planning Information in the West
Good information to draw from

- WECC Regional Transmission Plan
  - o High level, interconnection-wide
- Subregional Planning Group plans
  - o Detailed plans, reliability centered
- State and provincial regulatory activities
  - o What's being submitted and approved
- Utility plans (transmission, resource)
  - o Local needs from the load service perspective

Transmission Congestion

Understanding transmission's value propositions

- Risk: Is the load able to access generation necessary to keep the lights on?
- Value: Is economic generation able to access loads?
- Utilization: At what level is the transmission line being used?



WECC Congestion Information

Congestion Information Collected for each WECC Path Displayed on Congestion "Dashboard"		
Past Congestion	*Present* Need	*Future* Congestion
•TEPPC Transmission Path Utilization Study Reports	•Project development information from: -SCG Common Case Transmission Assumptions (CCTA) -WECC Transmission Project Information Portal	•TEPPC study case results •NERC LTRA

WECC 10-Year Plan Dashboard

Main View

(High value indicative of congestion)

Path #	Path Name	Voltage (kV)	Path Rating (MW)	Historical Congestion	Design Congestion	Project Development	Foundational Project Dev.	Recurrent Count	Total Recurrent Congestion Score	2019 Base Case	Arizona/S. Nevada	Wyoming	British Columbia	N. Nevada	Alberta	Montana	New Mexico	Northwest Coastal	SPSC Reference Case	High Load	High DSM (Low load)	Carbon Reduction	Aggressive MT Wind	Aggressive WY Wind	Max Conditional Congestion Score	Most Conditional Scenario
										2019										2020						
										← Conditional Congestion Score →																
1	ALBERTA - BRITISH COLUMBIA	500	1000	X	-	4	1	8	4.49	0.52	0.49	0.48	0.92	0.47		0.52	0.48	0.61							0.92	British Columbia
3	NORTHWEST - CANADA	500	3150	X	-	4	1	3	2.11				0.47								0.85	0.79			0.85	High DSM (Low load)
8	MONTANA - NORTHWEST	500	2200	X	-	2	0	14	9.00	0.37	0.38	0.49	0.32	0.30	0.38	1.63	0.41	0.31	0.55	0.45	0.44		2.11	0.85	2.11	Aggressive MT Wind
9	WEST OF BROADVIEW	500	2573	ND	-	1	0	1	0.35															0.35	0.35	Aggressive WY Wind
10	WEST OF COLSTRIP	500	2598	ND	X	1	0	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00					0.00	
11	WEST OF CROSSOVER	500	2598	ND	-	0	0	12	2.53	0.15	0.14	0.30	0.10	0.08	0.16		0.16	0.08	0.19	0.42	0.11			0.63	0.63	Aggressive WY Wind
14	IDAHO - NORTHWEST	500	2400	-	-	2	1	0	0.00																0.00	
16	IDAHO - SIERRA	345	500	ND	-	1	0	2	0.85					0.47							0.38				0.47	N. Nevada
17	BORAH WEST	345	2557	X	-	4	0	0	0.00																0.00	
18	IDAHO - MONTANA	230	337	-	-	2	0	2	2.41							0.87							1.54		1.54	Aggressive MT Wind
19	BRIDGER WEST	345	2200	X	X	4	0	1	1.03															1.03	1.03	Aggressive WY Wind
20	PATH C	345	1000	X	-	5	1	0	0.00																0.00	
22	SOUTHWEST OF FOUR CORNERS	500	2325	X	-	4	0	3	2.26			0.57					1.02							0.67	1.02	New Mexico
23	FOUR CORNERS 345/500	500	840	-	-	3	0	0	0.00																0.00	
27	IPP DC LINE	500	1920	X	X	2	0	13	6.04			0.52	0.24	0.58	0.18	0.34	0.36	0.23	0.48	0.33	0.89	0.43	0.74	0.73	0.89	High DSM (Low load)
29	INTERMOUNTAIN - GONDER 230 KV	230	200	ND	-	1	0	9	2.35	0.19	0.18	0.21			0.18		0.18		0.35		0.54	0.22		0.29	0.54	High DSM (Low load)
30	TOT 1A	345	650	X	-	0	0	1	0.33															0.33	0.33	Aggressive WY Wind
31	TOT 2A	345	690	X	-	0	0	2	0.63			0.24												0.39	0.39	Aggressive WY Wind
32	PAVANT INTRMTN - GONDER 230 KV	230	440	ND	-	1	0	1	1.10					1.10											1.10	N. Nevada
33	BONANZA WEST	345	785	ND	-	2	1	2	1.05			0.27												0.78	0.78	Aggressive WY Wind
34	TOT 2B	345	900	-	-	0	0	0	0.00																0.00	
35	TOT 2C	345	300	X	-	5	1	14	4.36	0.34	0.31		0.41	0.58	0.36	0.27	0.32	0.39	0.20	0.30	0.29	0.22	0.16	0.22	0.58	N. Nevada
36	TOT 3	345	1605	X	-	4	1	2	2.46			0.61												1.84	1.84	Aggressive WY Wind
42	IID - SCE	230	600	ND	-	2	2	5	1.22										0.31	0.48	0.16	0.12		0.14	0.48	High Load
43	NORTH OF SAN ONOFRE	230	2440	ND	-	0	0	6	2.15		0.45	0.34		0.39	0.37		0.42			0.18					0.45	Arizona/S. Nevada
46	WEST OF COLORADO RIVER (WOR)	500	10623	-	-	13	2	0	0.00																0.00	
47	SOUTHERN NEW MEXICO (NM1)	345	1048	X	-	4	0	0	0.00																0.00	
48	NORTHERN NEW MEXICO (NM2)	345	1970	-	-	3	0	0	0.00																0.00	
49	EAST OF COLORADO RIVER (EOR)	500	9300	X	-	12	3	0	0.00																0.00	
50	CHOLLA - PINNACLE PEAK	345	1200	X	-	2	0	1	0.06								0.06								0.06	New Mexico
51	SOUTHERN NAVAJO	500	2800	-	-	4	0	0	0.00																0.00	
52	SILVER PEAK - CONTROL 55 KV	55	17	ND	-	0	0	1	1.74					1.74											1.74	N. Nevada
60	INYO - CONTROL 115 KV TIE	115	56	ND	-	0	0	6	4.06										0.65	0.70	0.68	0.56	0.55	0.91	0.91	Aggressive WY Wind
61	LUGO - VICTORVILLE 500 KV LINE	500	2400	ND	-	0	0	1	0.23	0.23															0.23	2019 Base Case
65	PACIFIC DC INTERTIE	500	3100	-	-	5	0	4	1.69										0.31		0.72		0.31	0.35	0.72	High DSM (Low load)
66/65	COI + PDCI	500	7900	X	-	5	0	5	6.81										1.21		1.86	1.36	1.17	1.22	1.86	High DSM (Low load)
66	COI	500	4800	X	-	5	0	15	23.19	1.18	1.30	1.34	1.70	0.95	1.34	1.65	1.23	1.69	1.60	1.09	2.34	2.33	1.87	1.58	2.34	High DSM (Low load)
75	MIDPOINT - SUMMER LAKE	500	1500	ND	-	2	0	9	4.50	0.40	0.47	0.94	0.40		0.44	0.33	0.49	0.32						0.71	0.94	Wyoming
76	ALTURAS PROJECT	345	300	ND	-	0	0	1	0.74					0.74											0.74	N. Nevada
78	TOT 2B1	345	600	ND	-	2	0	3	0.60			0.22		0.22			0.16								0.22	N. Nevada
80	MONTANA SOUTHEAST	230	600	ND	-	0	0	1	1.57														1.57		1.57	Aggressive MT Wind

The WECC 10-Year Plan Dashboard brings together information on past, present, and future transmission utilization and congestion information to help TEPPC identify potential network needs in the 10-year time frame.

Voltage: The highest voltage, in kV, of the set of lines defined by the path.

Path Rating: The maximum path transfer capability, in MWs, of the path's predominant direction as defined by the WECC path rating catalog.

Historical Congestion: An "X" denotes that the path was identified as one of the 10 most contested paths in one of the three most recent TEPPC path congestion reports.

Design Congestion: An "X" denotes the path is highly utilized by design.

Project Development: Indicates the number of known transmission projects that directly cross, run parallel to the path or may have a direct or indirect impact on the path.

Recurrent Count: The number of study cases where the path met the utilization screening test.

Recurrent Congestion Score: The sum of the conditional congestion scores. Helps to identify "chronic" congestion.

Conditional Congestion Score: The sum of the value, risk, and utilization scores for that scenario.

Max Conditional Congestion Score: The maximum Conditional Congestion Score, considering all cases, for that path.

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Connecting DOE to WECC

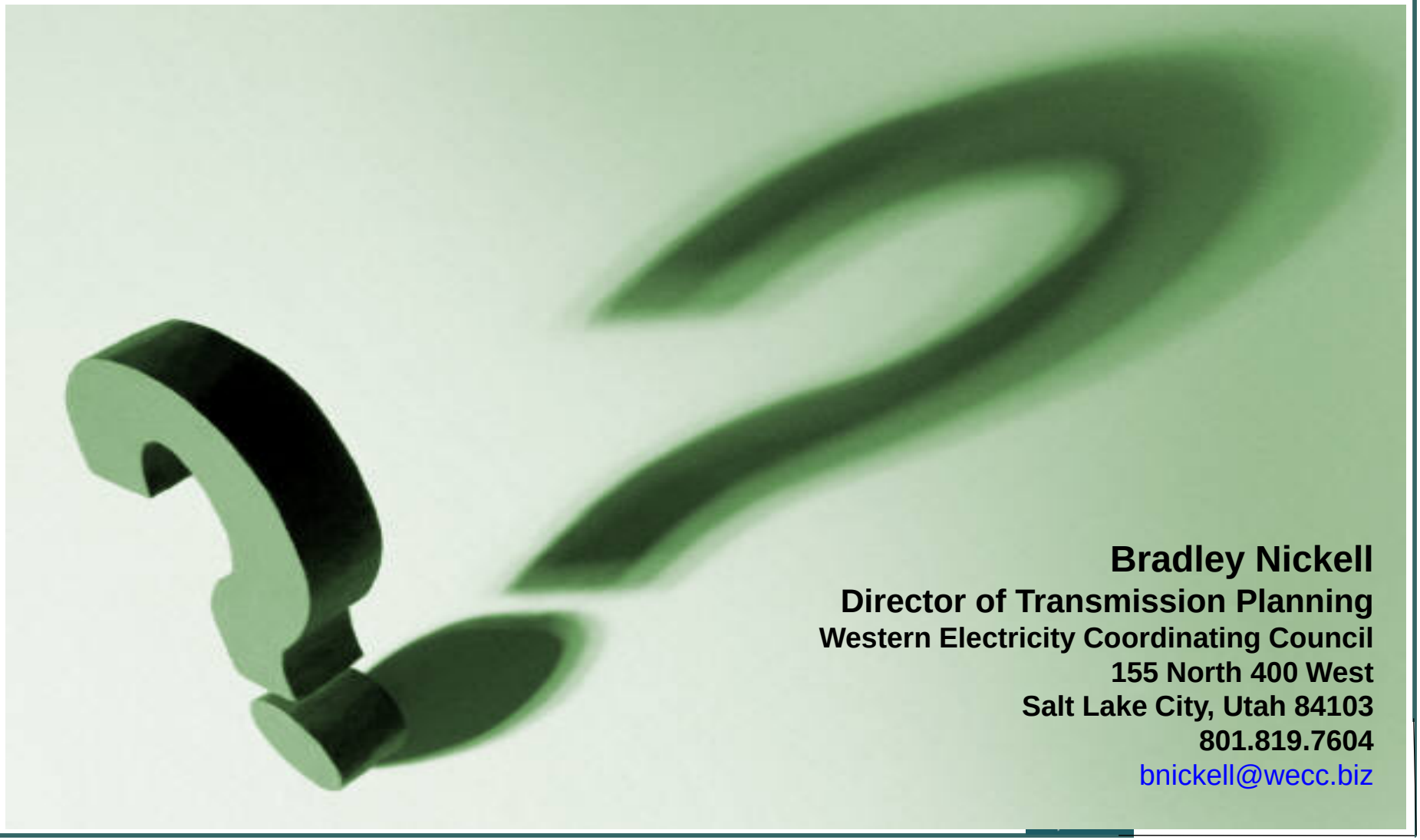
What does WECC want to see in the Study?

- Comparability to previous DOE studies
  - What drove the change?
- Comparability to studies in the West
  - Explanation of variances.
- Use the most current information available
- Focus on congestion that limits optionality to access reliable, cost-effective resources to serve future needs

Things to Consider

- What message will the Congestion Study send the industry?
- How will the Congestion Study support (or not) other planning activities?
- When will the Congestion Study be published and how does this coincide with other activities?

Questions



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