Suggested "Conceptual Solutions"
for Consideration by the Western Planning Regions

The following "conceptual solutions" are suggested for evaluation in connection with the Western Planning Regions' interregional coordination process. It is suggested that in-service dates in the 2026-2028 time period be assumed.[1] Discussions which may lead to refinements or improvements of these suggestions are welcome.

Montana

1. Create six Montana "reference cases" by assuming the addition of Montana installed wind capacity at the following levels: 500 MW, 1000 MW, 1500 MW, 2000 MW, 2500 MW, 3000 MW. Locate the wind in the Great Falls area.

2. Create Montana "change cases" by assuming the addition of Wyoming installed wind capacity at the following levels: 500 MW, 1000 MW, 1500 MW, 2000 MW, 2500 MW, 3000 MW. Wind location is same as reference case. At each level of installed wind capacity, assume the following "conceptual solution" is built with the indicated increase in transfer capability between the indicated substations:

Conceptual Solution A

- 500 kV AC transmission between Great Falls and Midpoint substations: 3000 MW

3. On a life-cycle basis, compare each "reference case" to the corresponding "change case" accounting for:

- WECC production costs
- Capacity value of Montana wind
- Estimated Montana wind capital costs
- Estimated cost of achieving the indicated increase in transfer capability

4. If relevant, evaluate AC power flow and stability for each reference case and corresponding change case under contingency conditions.

5. Given the results of (3) and (4), assess whether the "conceptual solution" listed above "may meet regional transmission needs in each of two or more Planning Regions more cost effectively or efficiently."

Oregon

1. Create six Oregon "reference cases" by assuming the addition of Oregon installed wind capacity at the following levels: 500 MW, 1000 MW, 1500 MW, 2000 MW, 2500 MW, 3000 MW. Locate the wind in the Boardman area.

2. Create Oregon "change cases" by assuming the addition of Oregon installed wind capacity at the following levels: 500 MW, 1000 MW, 1500 MW, 2000 MW, 2500 MW, 3000 MW. Wind

[1] 2028 is suggested as a way to allow sufficient time to study, plan, design, permit and construct new interregional transmission.

location is same as reference case. At each level of installed wind capacity, assume the following "conceptual solution" is built with the indicated increase in transfer capability between the indicated substations:

Conceptual Solution B

- Upgrade existing +/- 500 kV Pacific DC transmission line between Big Eddy and Sylmar substations: 600 MW (from 3220 MW to 3820 MW)

3. On a life-cycle basis, compare each "reference case" to the corresponding "change case" accounting for:

- WECC production costs
- Capacity value of Oregon wind
- Estimated Oregon wind capital costs
- Estimated cost of achieving the indicated increase in transfer capability

4. If relevant, evaluate AC power flow and stability of each reference case and corresponding change case under contingency conditions.

5. Given the results of (3) and (4), assess whether the "conceptual solution" listed above "may meet regional transmission needs in each of two or more Planning Regions more cost effectively or efficiently."

<u>New Mexico</u>

1. Create six New Mexico "reference cases" by assuming the addition of New Mexico installed wind capacity at the following levels: 500 MW, 1000 MW, 1500 MW, 2000 MW, 2500 MW, 3000 MW. Locate 2/3 of the wind south of Guadalupe and east of Willard substations. Locate 1/3 of the wind southeast of Alamogordo substation.

2. Create New Mexico "change cases" by assuming the addition of New Mexico installed wind capacity at the following levels: 500 MW, 1000 MW, 1500 MW, 2000 MW, 2500 MW, 3000 MW. Wind locations are the same as reference case. At each level of installed wind capacity, assume the following "conceptual solutions" are built with the indicated increases in transfer capability between the indicated substations:

Conceptual Solution C

- 500 kV AC transmission between Guadalupe and Hassayampa substations: 3000 MW

Conceptual Solution D

- 345 kV AC transmission between Afton and Hassayampa substations: 1000 MW

3. On a life-cycle basis, compare each "reference case" to the corresponding "change case" accounting for:

- WECC production costs
- Capacity value of New Mexico wind
- Estimated New Mexico wind capital costs
- Estimated cost of achieving the indicated increases in transfer capability

4. If relevant, evaluate AC power flow and stability of each reference case and corresponding change case under contingency conditions.

5. Given the results of (3) and (4), assess whether any of the "conceptual solutions" listed above "may meet regional transmission needs in each of two or more Planning Regions more cost effectively or efficiently."

Wyoming

1. Create six Wyoming "reference cases" by assuming the addition of Wyoming installed wind capacity at the following levels: 500 MW, 1000 MW, 1500 MW, 2000 MW, 2500 MW, 3000 MW. Locate the wind in the Laramie River Station area.

2. Create Wyoming "change cases" by assuming the addition of Wyoming installed wind capacity at the following levels: 500 MW, 1000 MW, 1500 MW, 2000 MW, 2500 MW, 3000 MW. Wind locations are the same as the reference case. At each level of installed wind capacity, assume the following "conceptual solutions" are built with the indicated increases in transfer capability between the indicated substations:

Conceptual Solution E

- 500 kV AC transmission between Laramie River Station and Populus substations: 1500 MW
- 500 kV AC transmission between Populus and Midpoint substations: 1500 MW
- 500 kV AC transmission between Hemingway and Midpoint substations: 1500 MW

Conceptual Solution F

- 500 kV AC transmission between Laramie River Station and Intermountain substations: 1500 MW

Conceptual Solution G

- +/- 500 kV DC transmission between Laramie River Station and Intermountain substations: 3000 MW

Conceptual Solution H

- +/- 500 kV DC transmission between Laramie River Station and Harry Allen substations: 3000 MW

Conceptual Solution I

- 500 kV AC transmission between Laramie River Station and Populus substations: 1500 MW
- 500 kV AC transmission between Populus and Midpoint substations: 1500 MW
- 500 kV AC transmission between Midpoint and Robinson Summit substations: 1700 MW

3. On a life-cycle basis, compare each "reference case" to the corresponding "change case" accounting for:

- WECC production costs
- Capacity value of Wyoming wind
- Estimated Wyoming wind capital costs
- Estimated cost of achieving the indicated increases in transfer capability

4. If relevant, evaluate AC power flow and stability of each reference case and corresponding change case under contingency conditions.

5. Given the results of (3) and (4), assess whether any of the "conceptual solutions" listed above "may meet regional transmission needs in each of two or more Planning Regions more cost effectively or efficiently."

Common Tariff Language

"Order 1000 Common Interregional Coordination and Cost Allocation Tariff Language

Section 3. Annual Interregional Coordination Meeting
[[Planning Region]] is to participate in an Annual Interregional Coordination Meeting with the other Planning Regions. [[Planning Region]] is to host the Annual Interregional Coordination Meeting in turn with the other Planning Regions, and is to seek to convene such meeting in February, but not later than March 31st. The Annual Interregional Coordination Meeting is to be open to stakeholders. [[Planning Region]] is to provide notice of the meeting to its stakeholders in accordance with its regional transmission planning process.

At the Annual Interregional Coordination Meeting, topics discussed may include the following:

(i) each Planning Region's most recent Annual Interregional Information (to the extent it is not confidential or protected by CEII or other legal restrictions);

(ii) identification and preliminary discussion of interregional solutions, including conceptual solutions, that may meet regional transmission needs in each of two or more Planning Regions more cost effectively or efficiently; and

(iii) updates of the status of ITPs being evaluated or previously included in [[Planning Region's]] regional transmission plan."