WECC

PCDS Meeting

August 14, 2024

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Items

- WECC Website
- Runtime suggestions
- Fuel Types
- Change Cases
  - SWIP–North
  - TransWest Express
- 2034 ADS V2 comments

Runtime Suggestions—Yi

1. Solar and wind generators were modeled at wrong locations
2. Batteries were modeled at wrong locations, so they cannot absorb solar and wind surplus appropriately
3. Transmission models were not right, especially line ratings, path ratings, or path definitions are not right

Runtime Suggestion—Yi

1. Some areas have very high percentage of non-conforming load. The non-conforming load in those areas need to be validated.
2. Most Station Service loads are modeled “in service.” They probably need to be modeled as “off.”
3. In California areas, load with ID “EE,” “TE,” and “FS” are modeled as non-conforming load. They are really load modifiers AAEE, AATE, and AAFS, respectively. The CEC forecast provided hourly profiles for these load modifiers. Apparently they are not flat for the year, and need to be modeled differently from non-conforming load.

Runtime Suggestions—Yi

1. Adjust the load model of each load area to make sure the load profile is not below the total non-conforming load of the area
2. With the load model adjusted, can further consider to model non-conforming load as distributed generator with negative generation output. May need Jin and Hongyan to confirm whether this step can significantly (e.g., more than 10%) save simulation time
3. Aggregate and distribute battery storage

- Only monitor 230 kV and above

Runtime Suggestions—Kevin

- Found 5,508 MW of PV limit with a 28 MW xfmr. If not being monitored, then 120 kV system 4 lines limited to ~564 MW
- Generic new supply was added to existing bus/gen bus, which caused xfmr/line congestion depending on what is monitored

Runtime Suggestions—Hitachi

- Some BTM units have not distributed, which caused significant overloads near the inject bus.
- There are total of 572 Pumped Storage units in ADS case. 96 of units with capacity less than or equal to 10 MW. 37 of units with capacity greater than 10 and less than or equal to 20 MW, . 23 of units with capacity greater than 20 and less than or equal to 30 MW, 22 of units with capacity greater than 30 and less than or equal to 40 MW, etc. if we can combine the smaller units together by area and then distributed to the originally assigned buses in the area, we can effectively reduce the number of pumped storage units. It will reduce runtime.
- The Pumping/Generating Pmin should be zero, not negative number.

Runtime Suggestions—Hitachi

- The major factor affecting the simulation time is the total pumped storage generator numbers. With the half number of pumped storage generators (disable generation capacity less than 100 MWs) the simulation time reduces 1/3. Without non-conforming load (these loads allocate to area level) the simulation time reduces another 24%.
- Also checked the non-conforming load data, found data issues(In email):
- Some load areas the total non-conforming load is bigger than the minimum hourly load in April. These non-conforming load data for these load areas need to be fixed.
- In summary, reduce total number of pumped storages with option 4 at plant level will be the best way to reduce runtime. For the small generation/pumping capacity pumped storage generators can merge / aggregate to large capacity generators using generation distribution to bus/area level. If the total number of pumped storages can reduce to 200 level, then the total simulation time will reduce to half at least.

<Public>

Standardize Fuel Types

Unique New FuelType

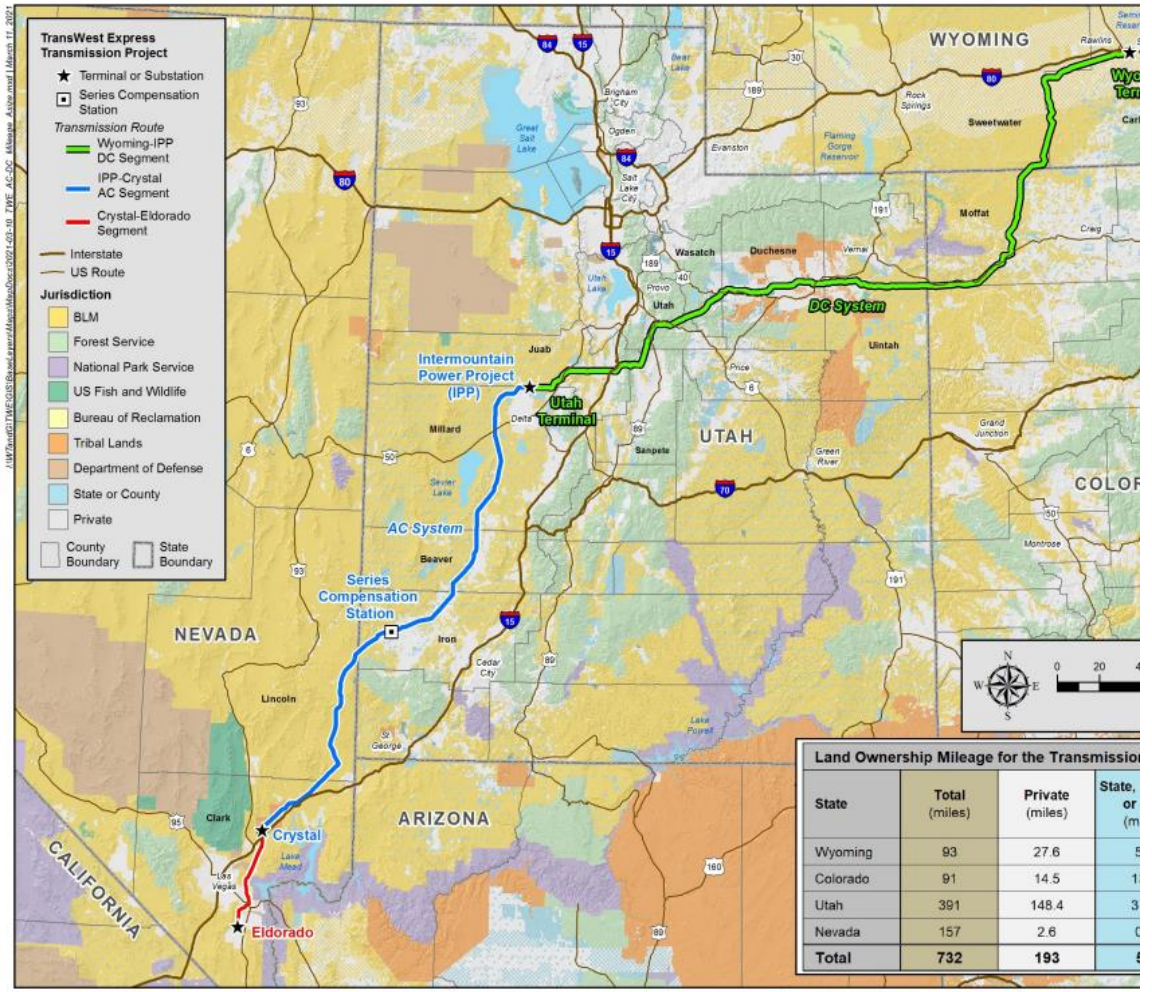
- Bio
- Biogas
- Coal
- Gas
- Geothermal
- MWh
- Natural Gas
- Oil
- Petroleum Coke
- Steam
- Sun
- Unknown
- Uranium
- Water
- Wind

Currently in case

- Bio
- Biogas
- Coal
- Electricity
- Gas
- Geo
- Geothermal
- MWh
- NaturalGas
- NG
- Oil
- Petroleum Coke
- Steam
- Sun
- Unknown
- Uranium
- Water
- Wind

TransWest Express Modeling

- Nomogram used so TWE generation will all go on TWE DC system



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Electric Reliability and Security for the West

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