

The background of the slide features a blue gradient with a white grid pattern of thick, intersecting diagonal lines. The lines are arranged in a way that creates a sense of depth and perspective, with some lines appearing to recede into the distance.

NorthernGrid

Interregional
Coordination Meeting
March 30, 2021

Topics

Introduction to NorthernGrid

Submitted Data

Study Scope

Power Flow Case Analysis

WECC Anchor Data Set Actions



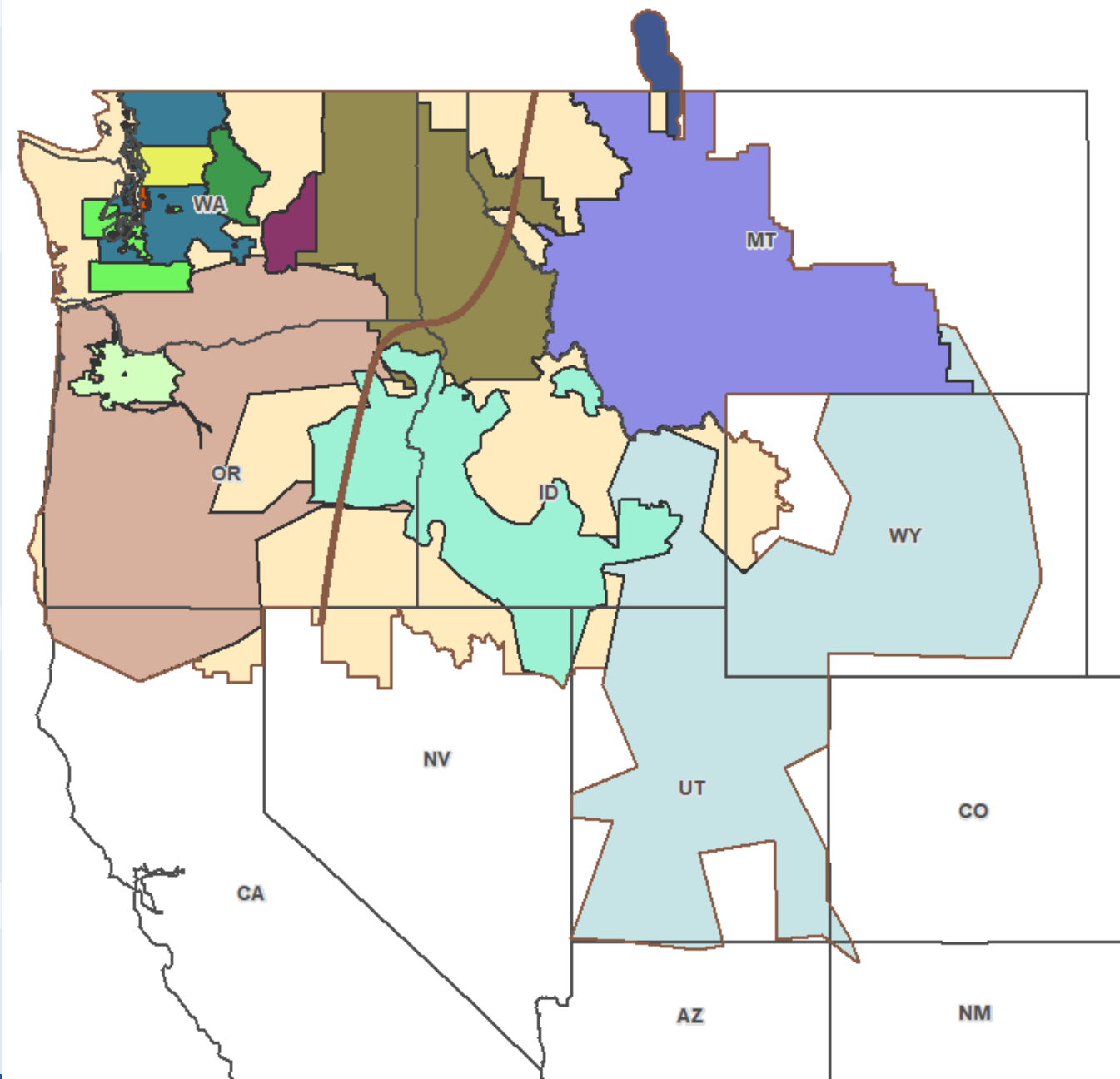
Association of Members



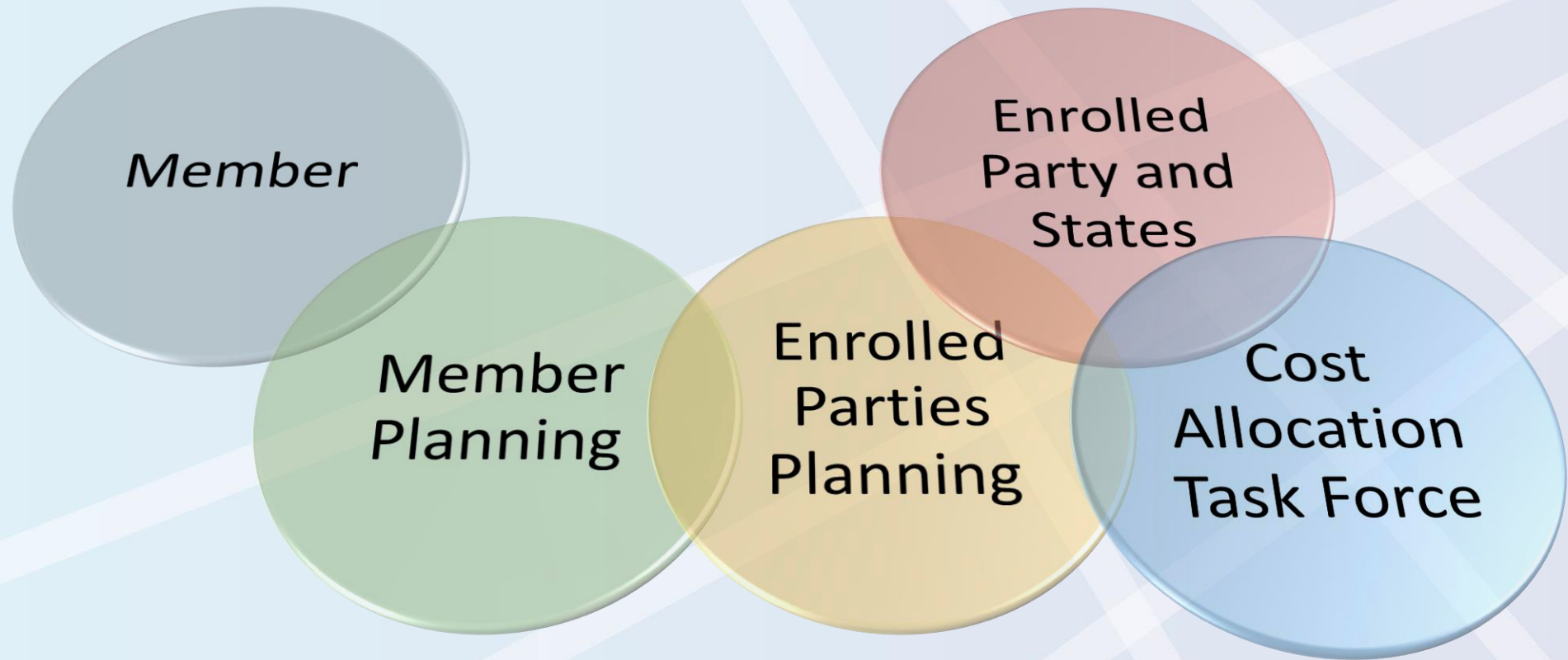
CHELAN COUNTY



An IDACORP Company

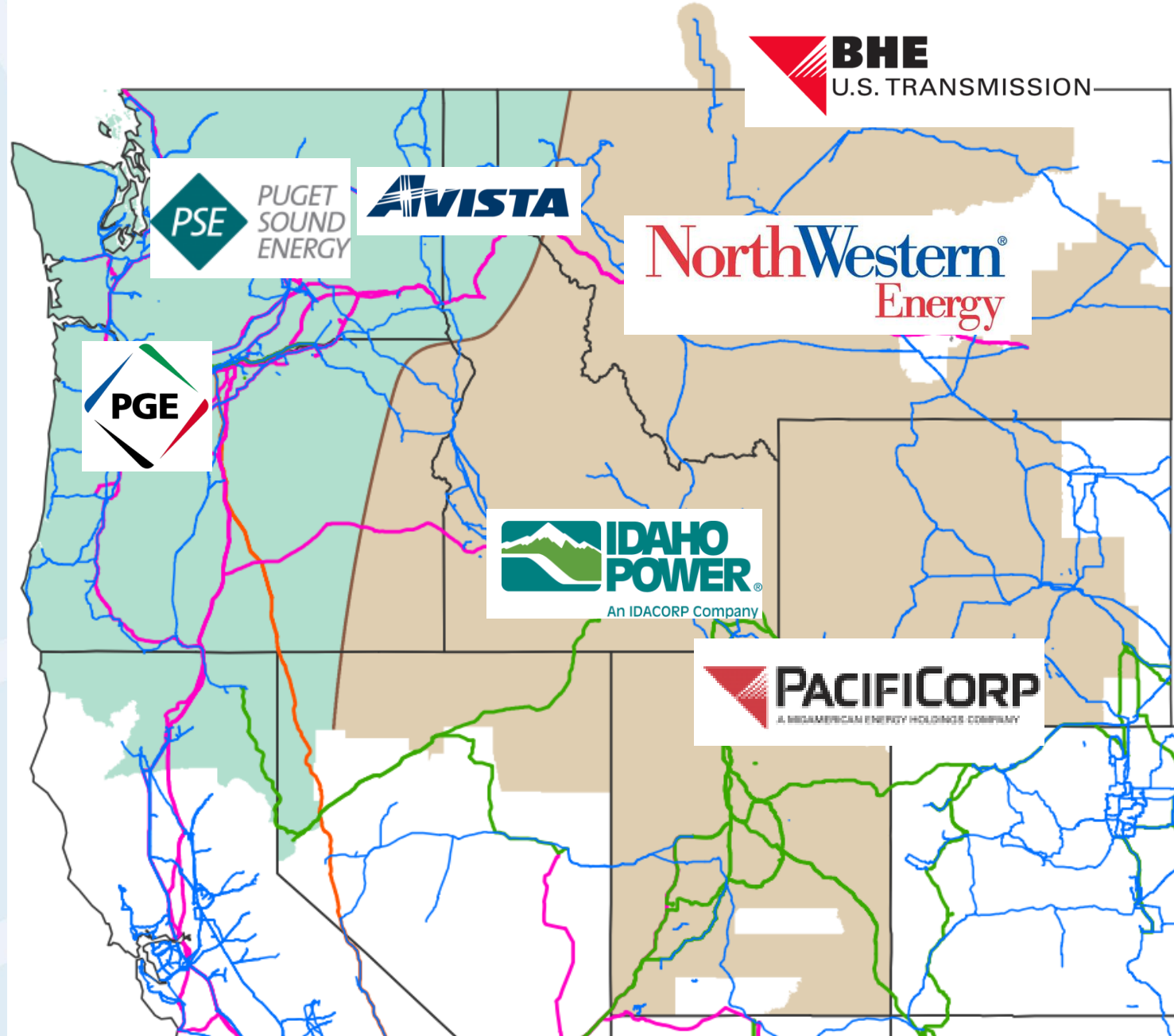


Committees



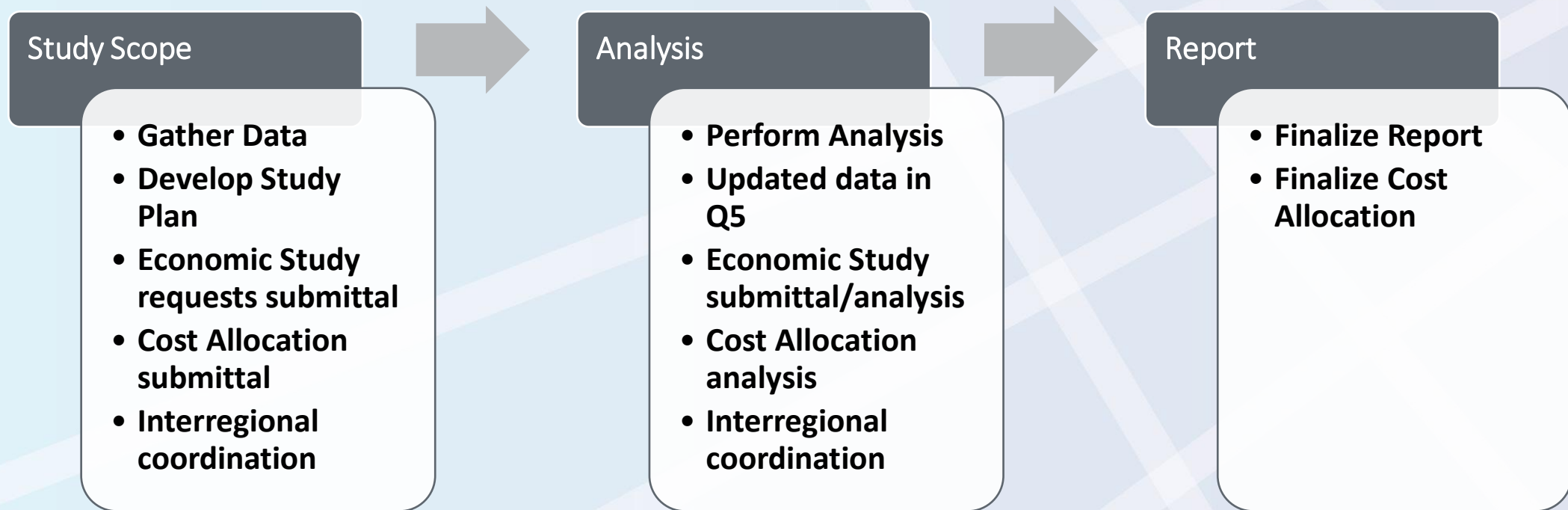
Enrolled Parties

- Members who file a Regional Transmission Planning Tariff with FERC



Regional Transmission Process

- Work together to create a Regional Plan that “exceeds” a simple rollup of all the Local Area Plans



A Regional Transmission Plan is not a Construction Plan

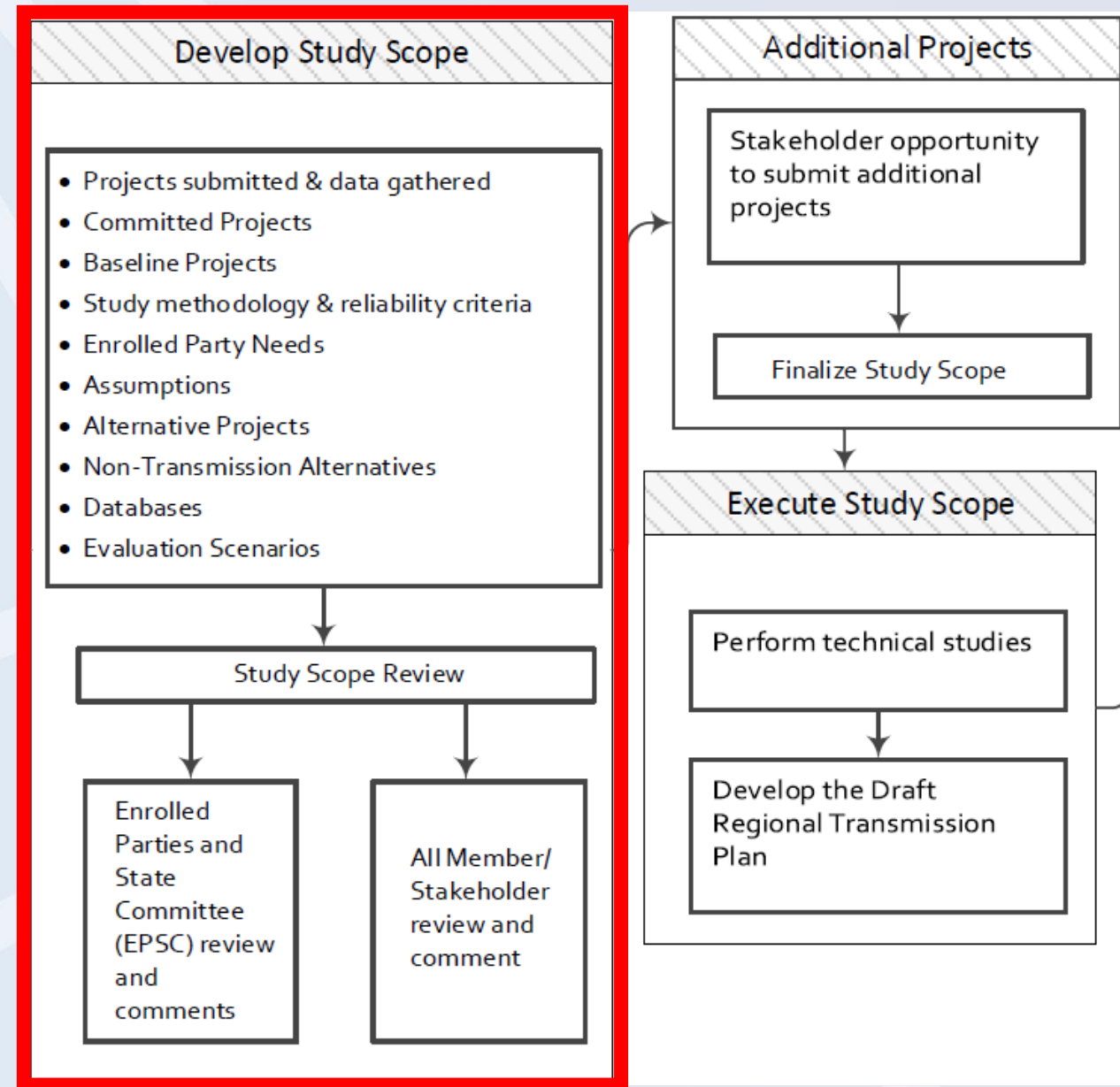
Data Submission Process

- NorthernGrid Utility Data
 - Local Plans
 - Load Forecast
 - Resource Forecasts
 - Public Policy Requirements
- Non-Incumbent and Merchant Project Data
 - Associated Resources

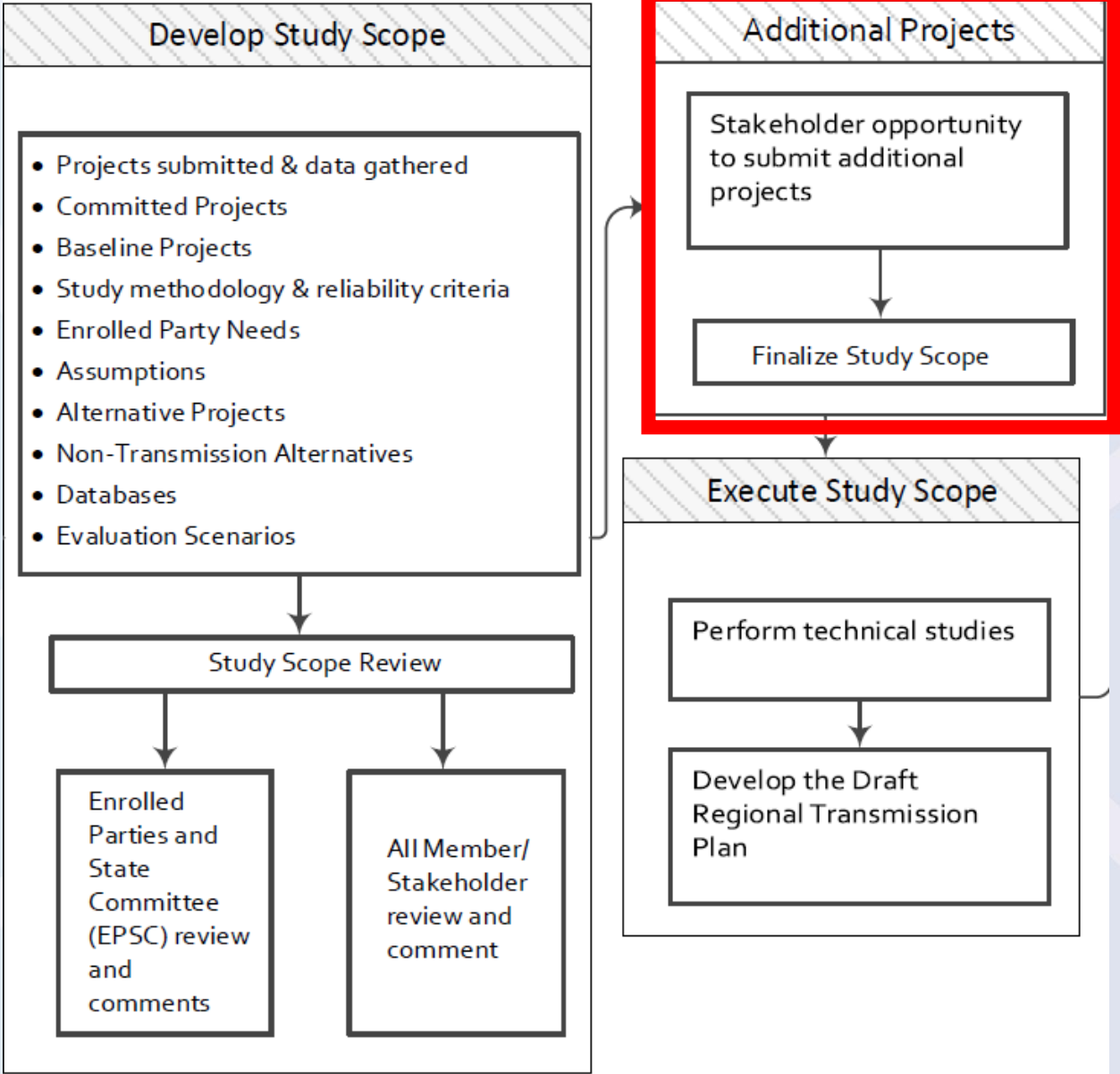
Gather Data

- Prior regional plan
- Local plans
- WECC cases
- Other assumptions and data
- Inter Regional Transmission (ITP) projects
- Projects requesting FERC cost allocation
- Alternative Projects
- Non-incumbent and Merchant Projects

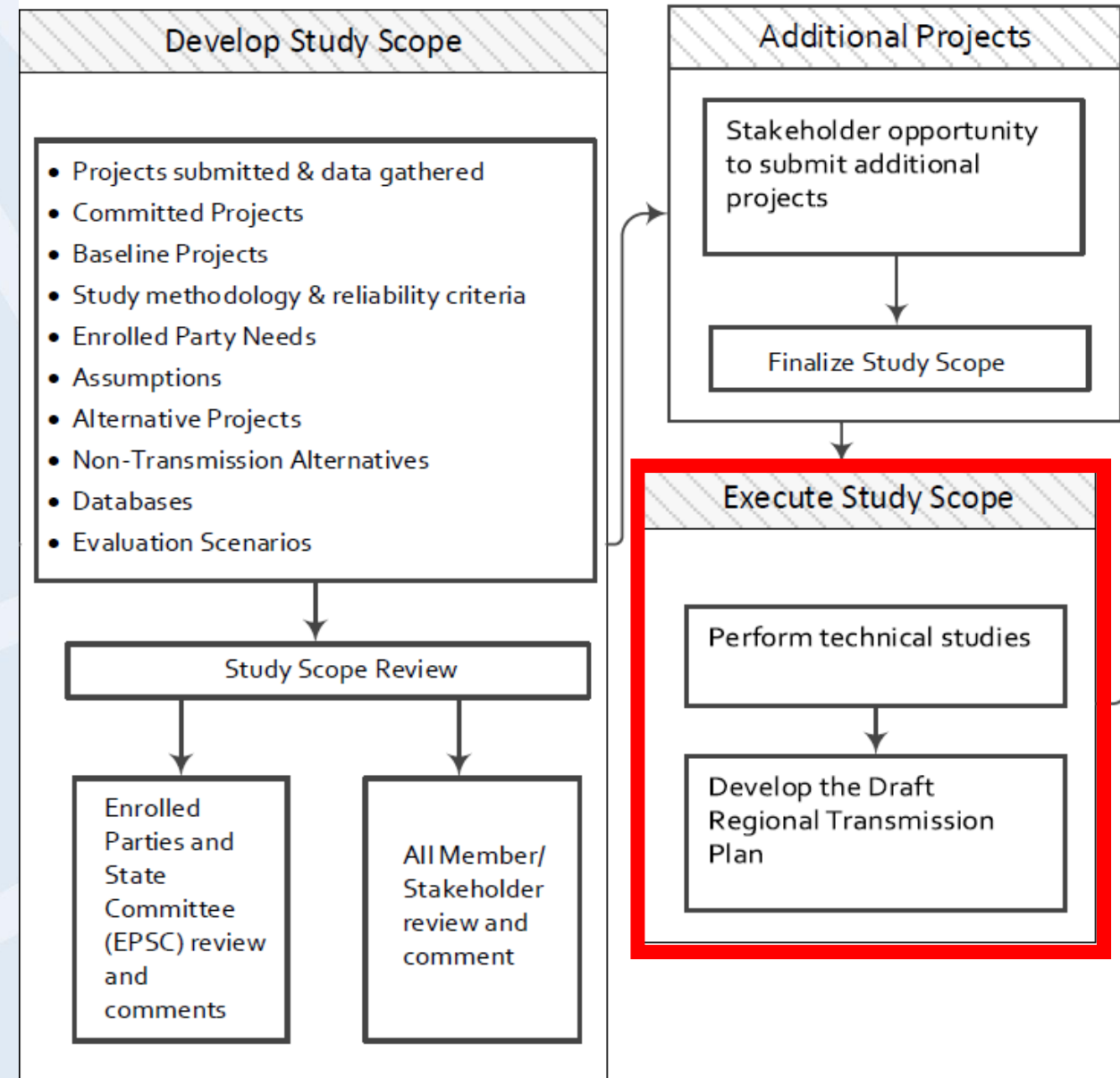
Develop Study Scope



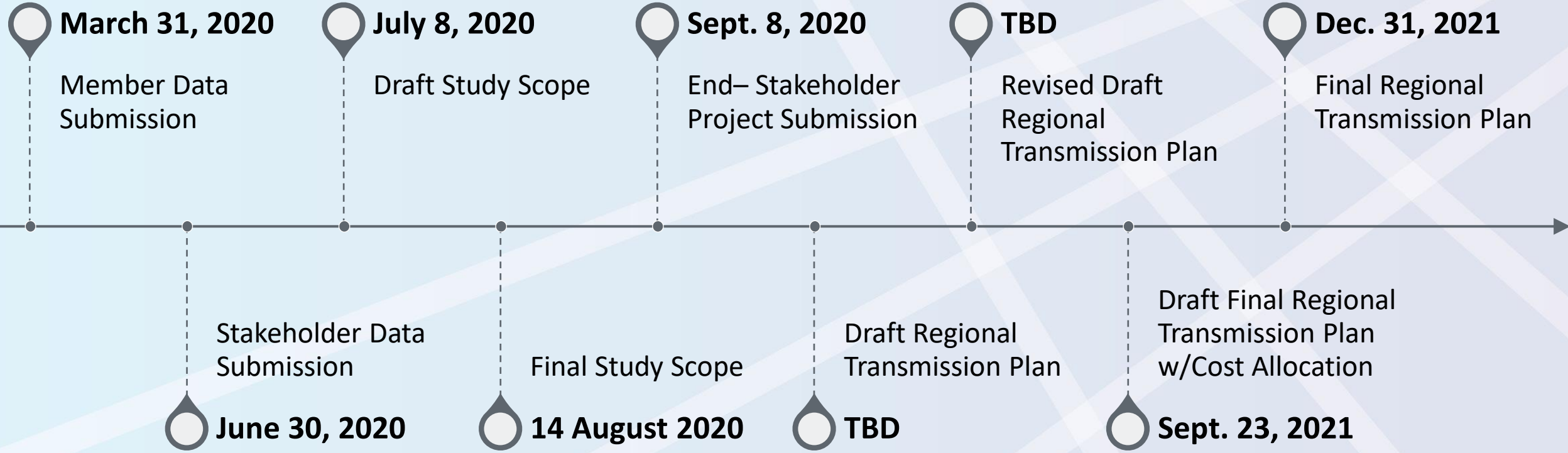
FERC Filing Lessons Learned



Execute the Study Scope

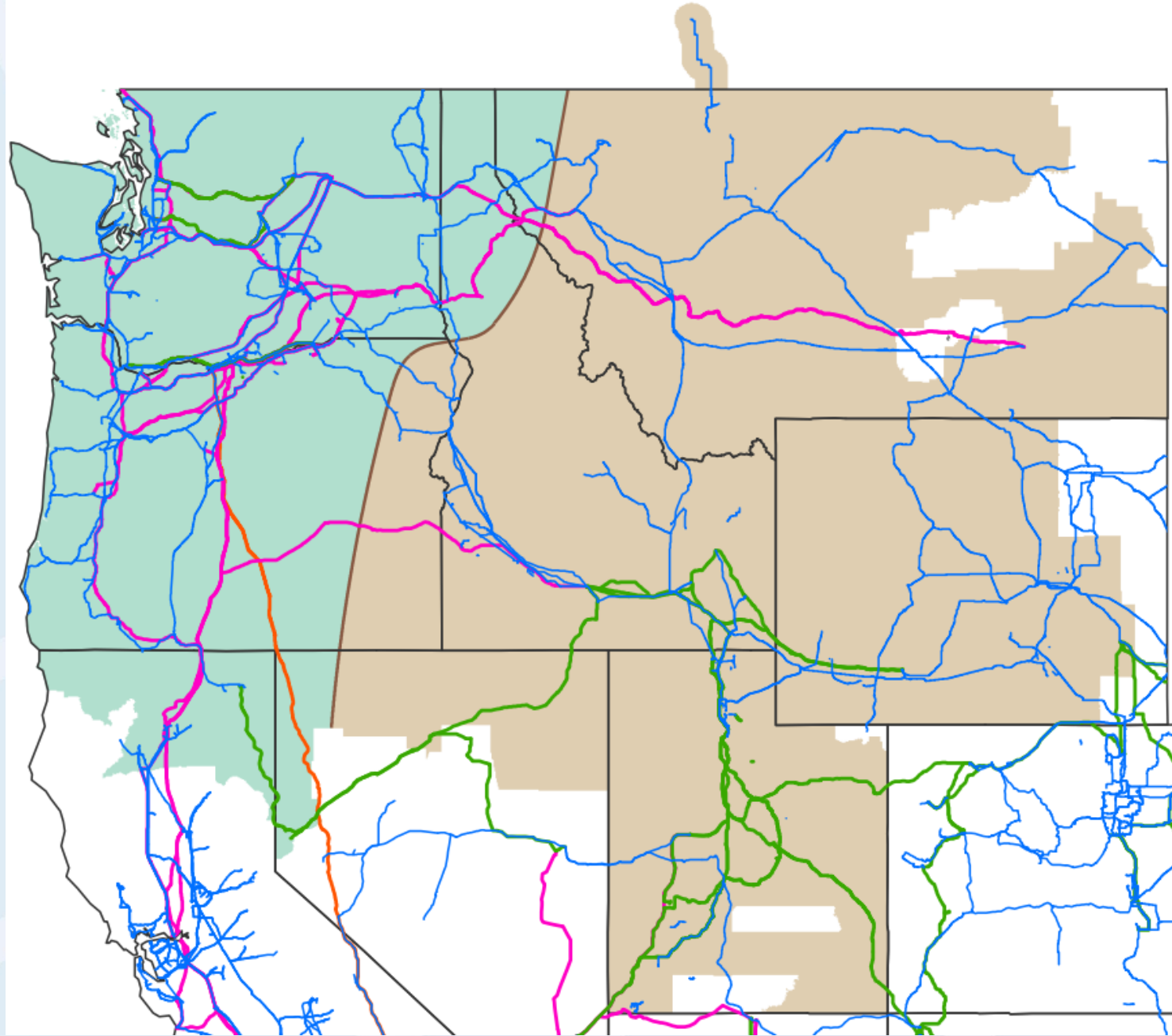


NorthernGrid Schedule of Deliverables



NorthernGrid Subregions

- Pacific Northwest
- Intermountain

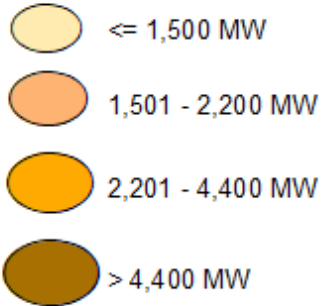


Summer Load

Annual Summer Load Growth and Peak Load

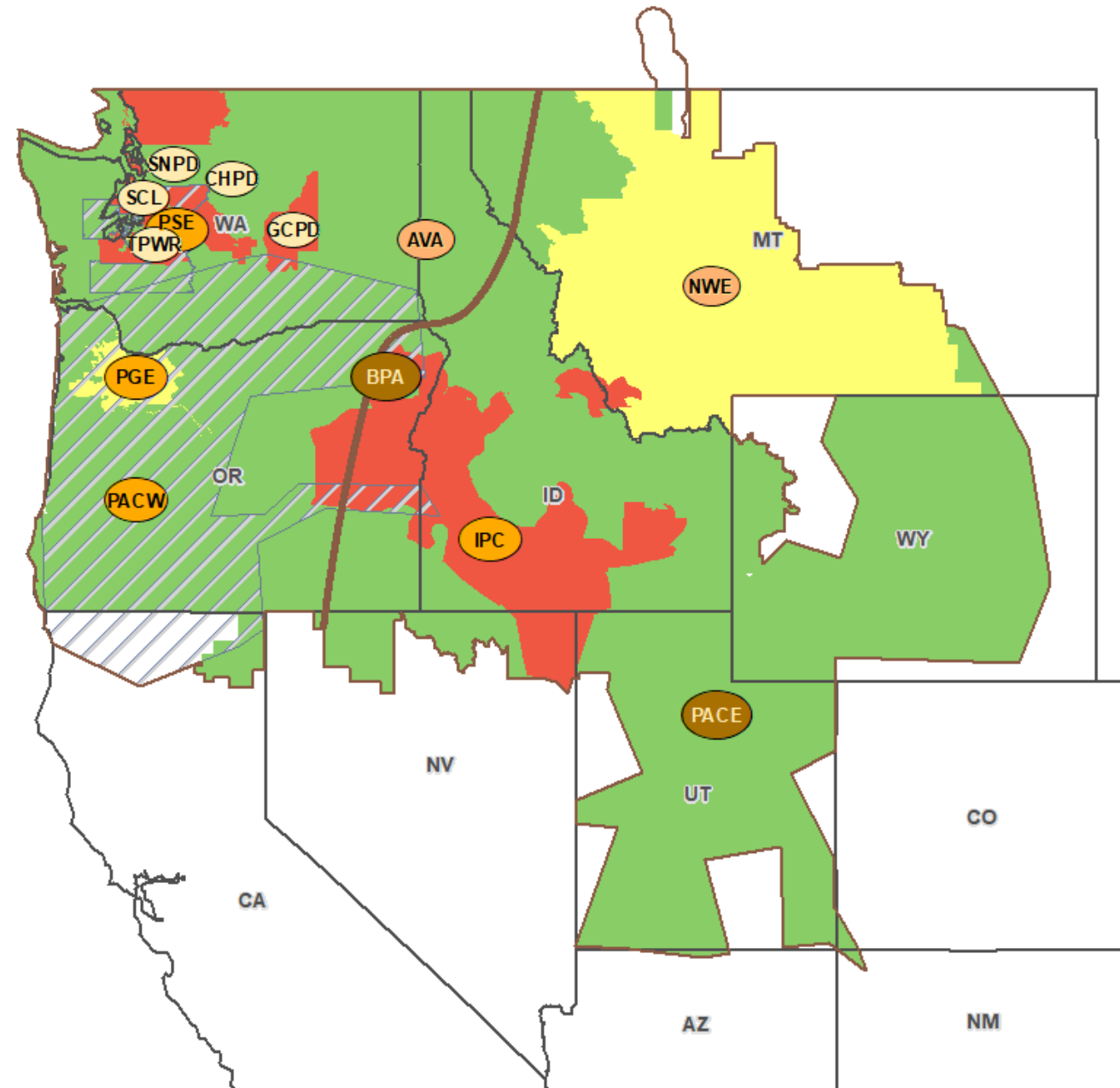
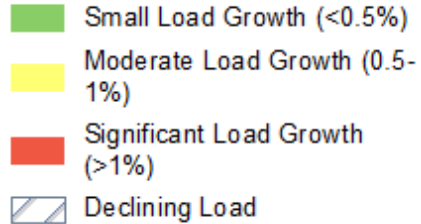
2024 - 2030

Summer Peak Load



NorthernGrid

Annual Summer Load Growth

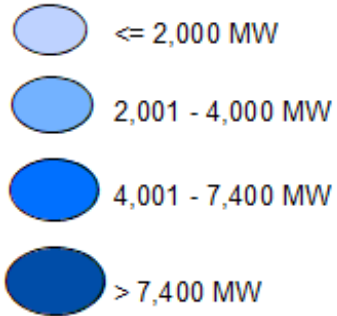


Winter Load

Annual Winter Load Growth and Peak Load

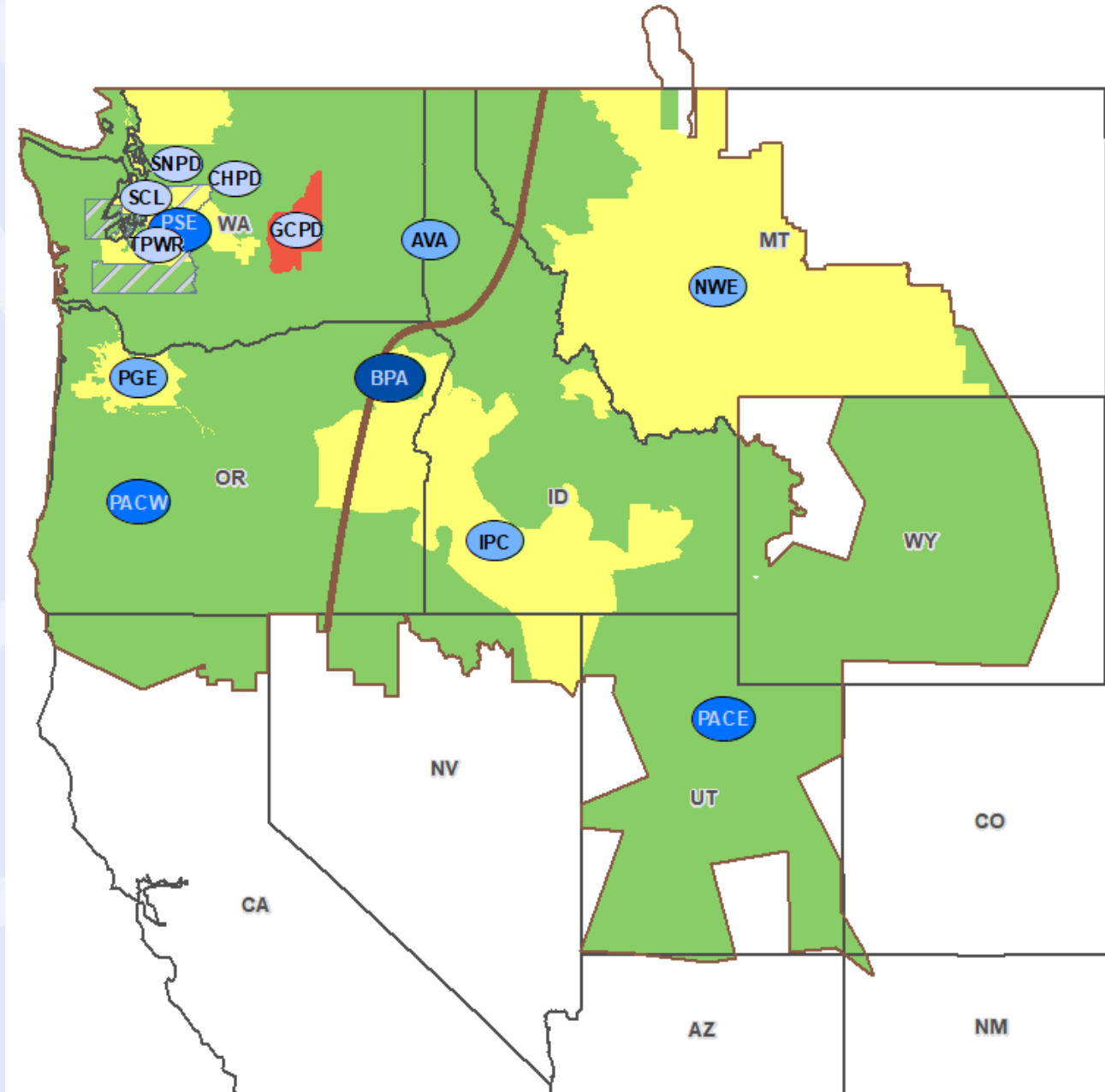
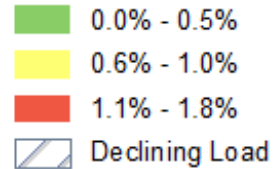
2024 - 2030

Winter Peak Load



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Annual Winter Load Growth



Resource Retirements



Coal



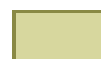
Natural Gas



Wind

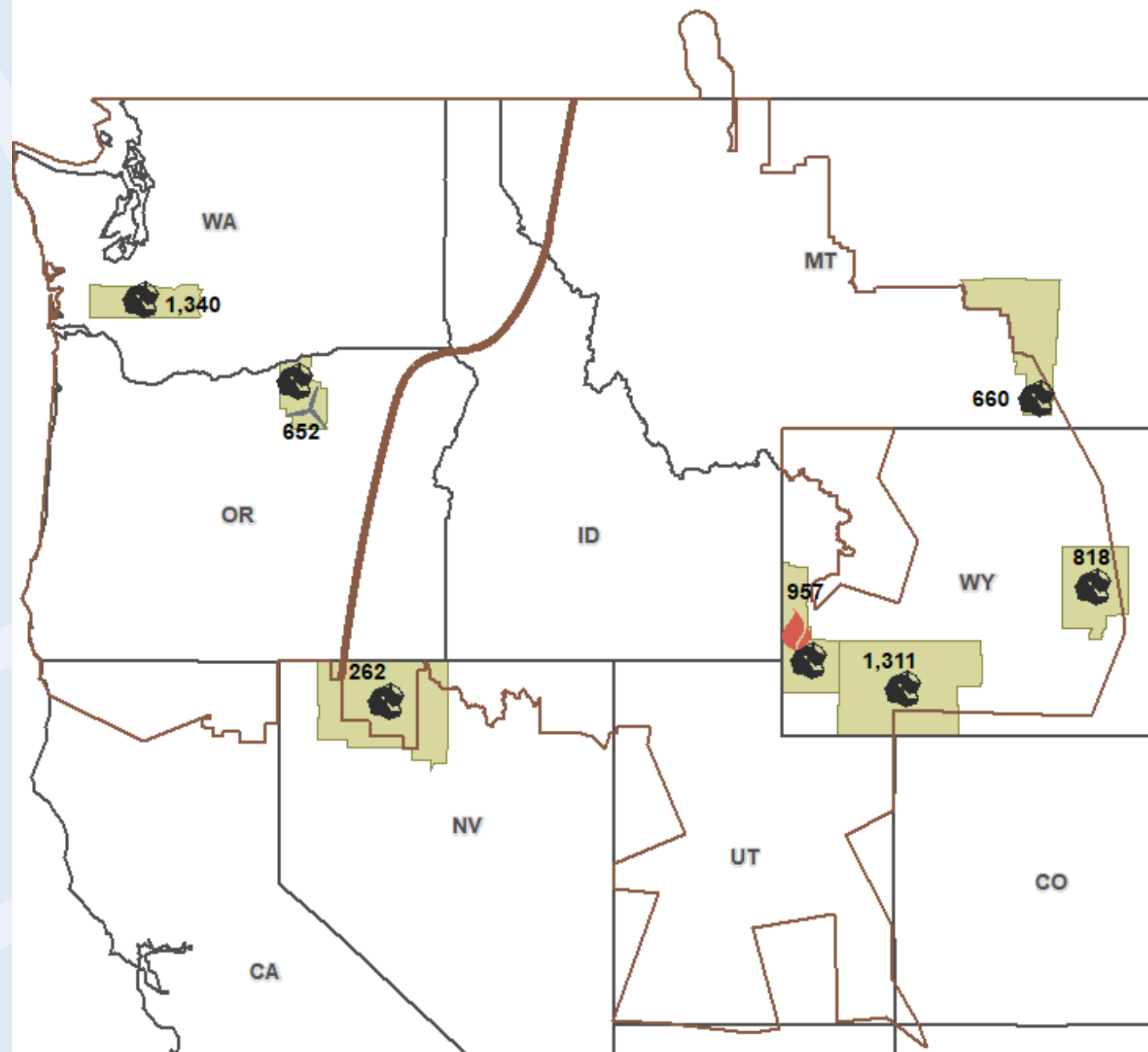


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County with Resource Retirement


Numbers indicate total MW of retirement in the county



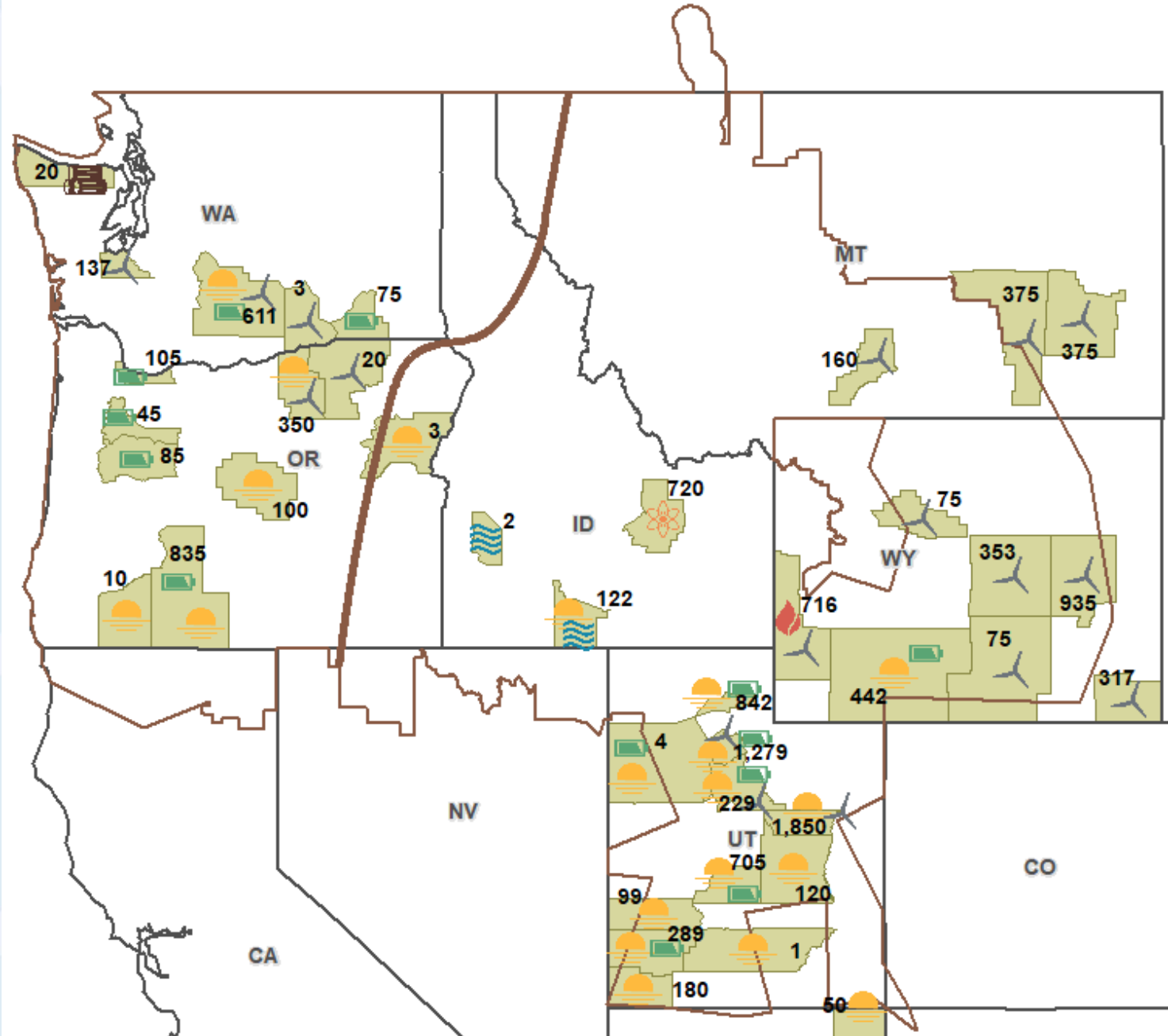
Resource Additions

-  Hydro
-  Natural Gas
-  Nuclear
-  Solar
-  Storage
-  Wind
-  Wood Waste

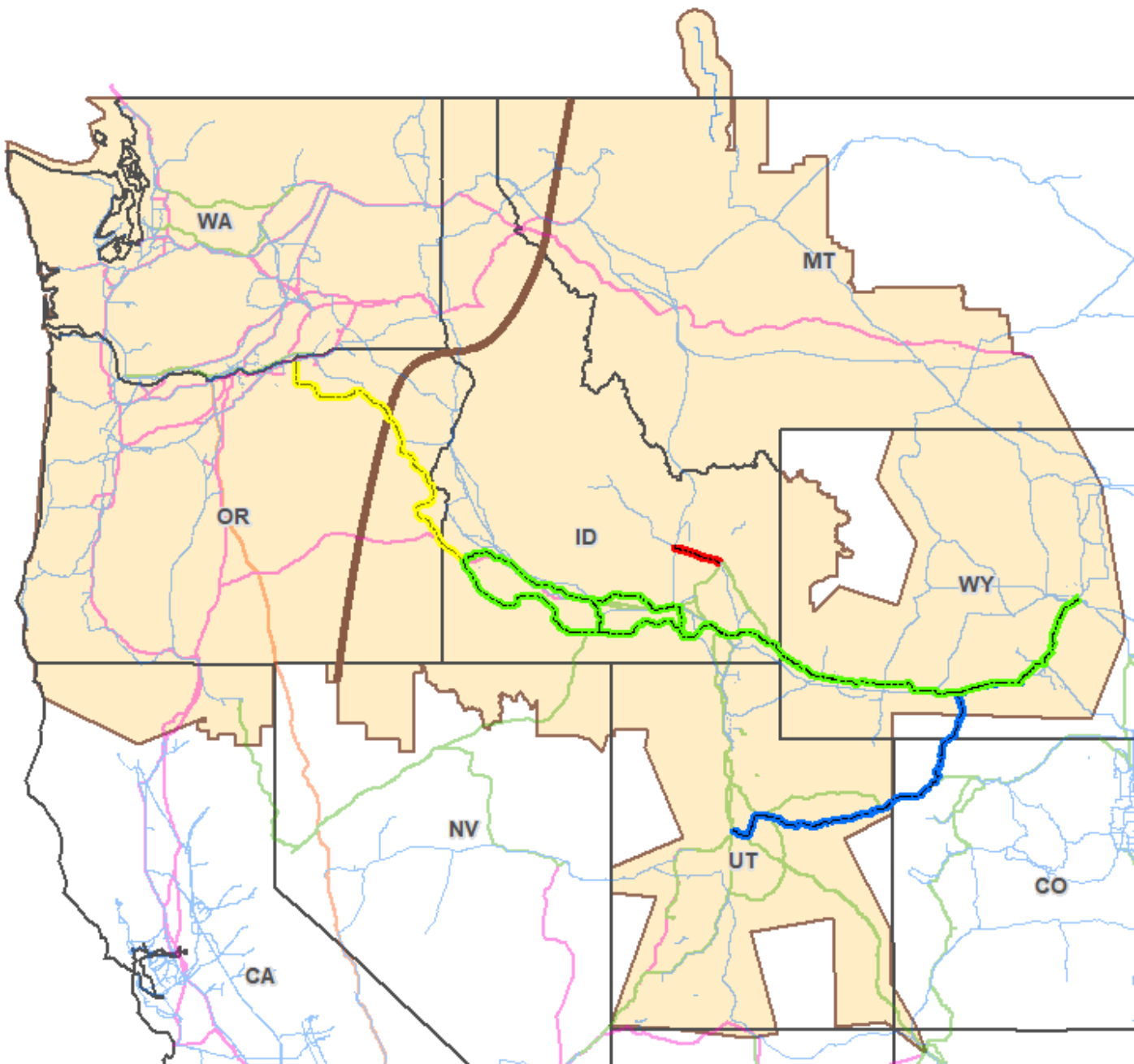
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 County with Resource Addition

Numbers indicate total MW of addition in the county



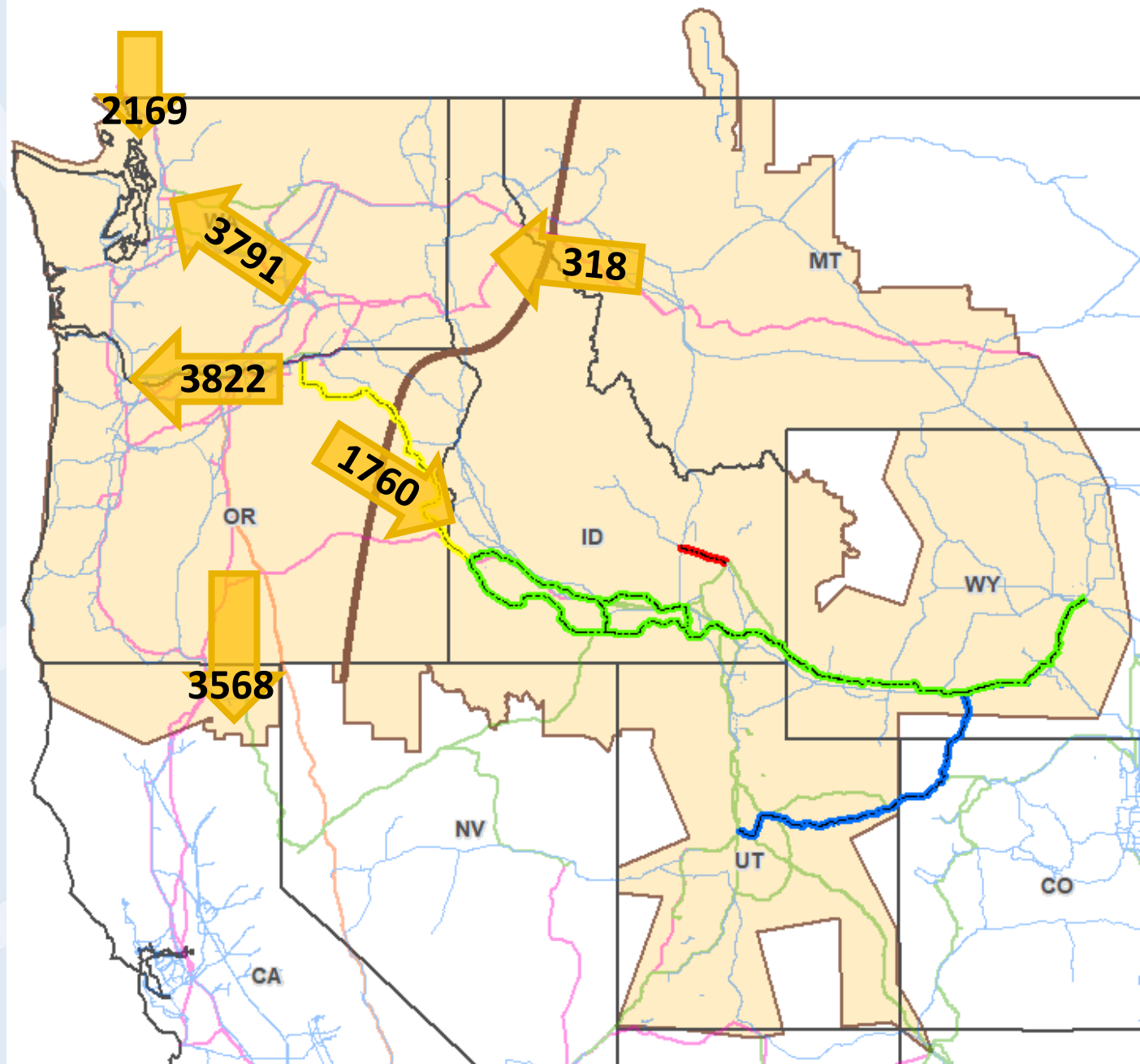
Regional Transmission Additions



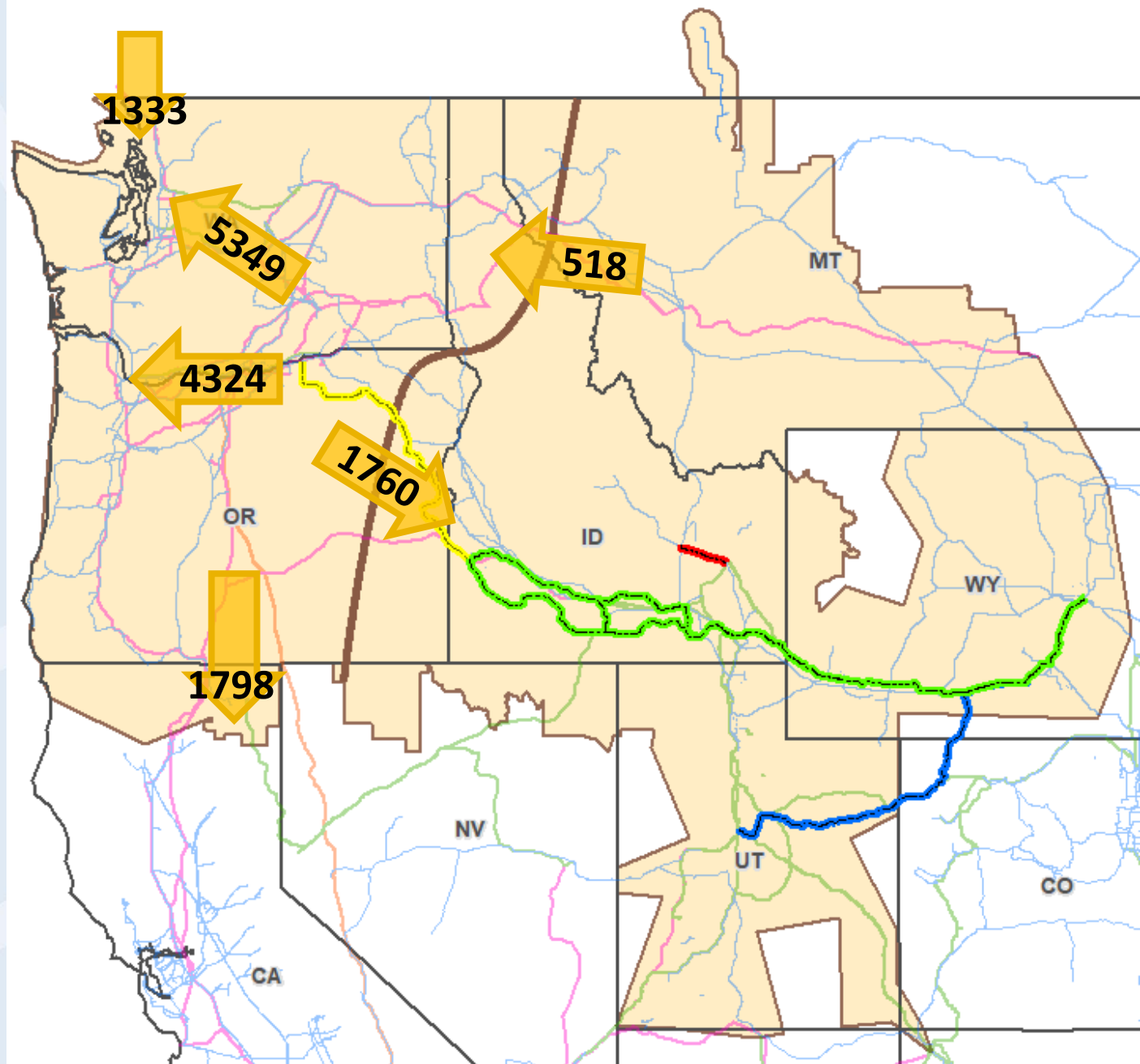
The Cases



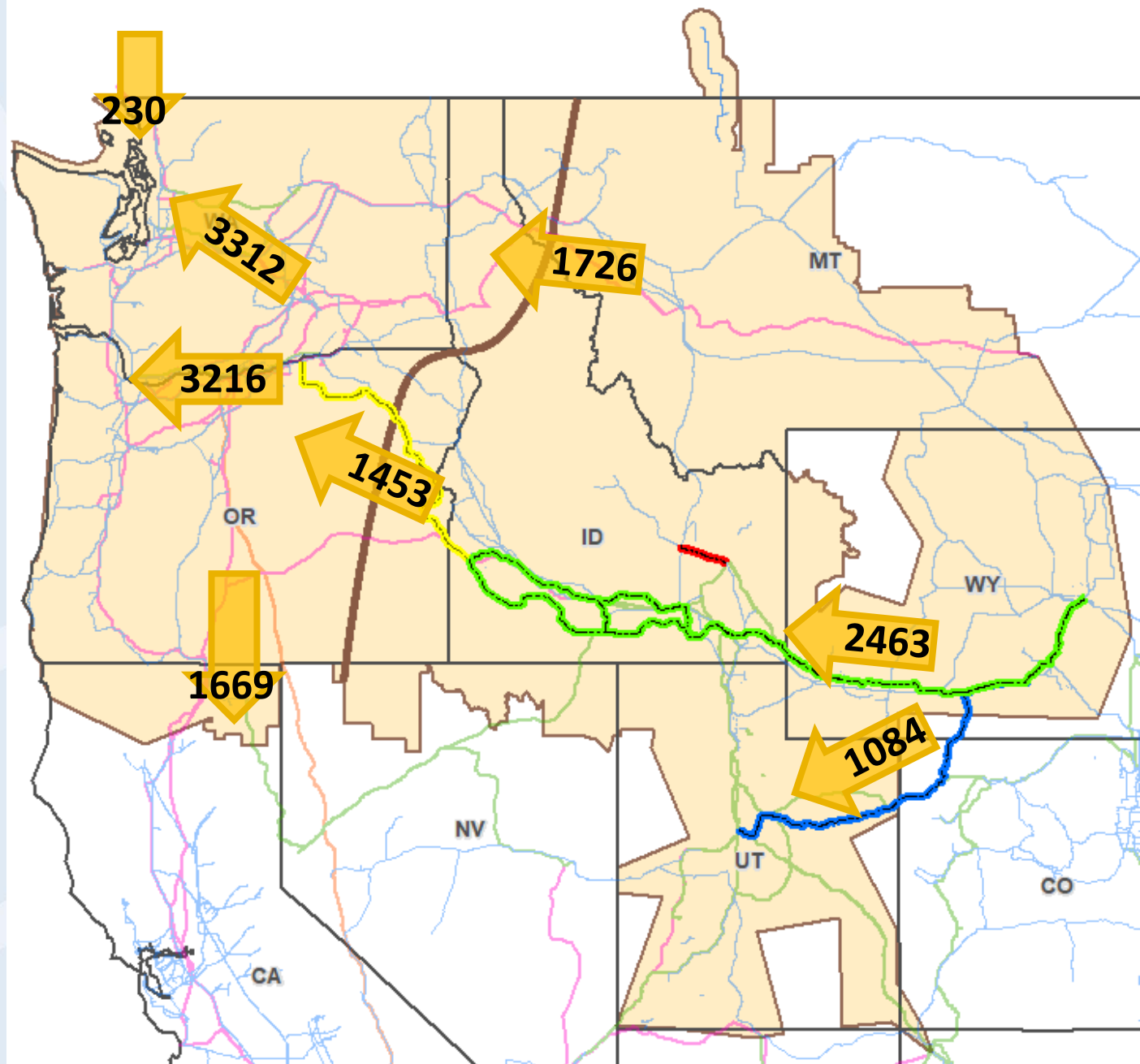
1) Heavy Summer Load



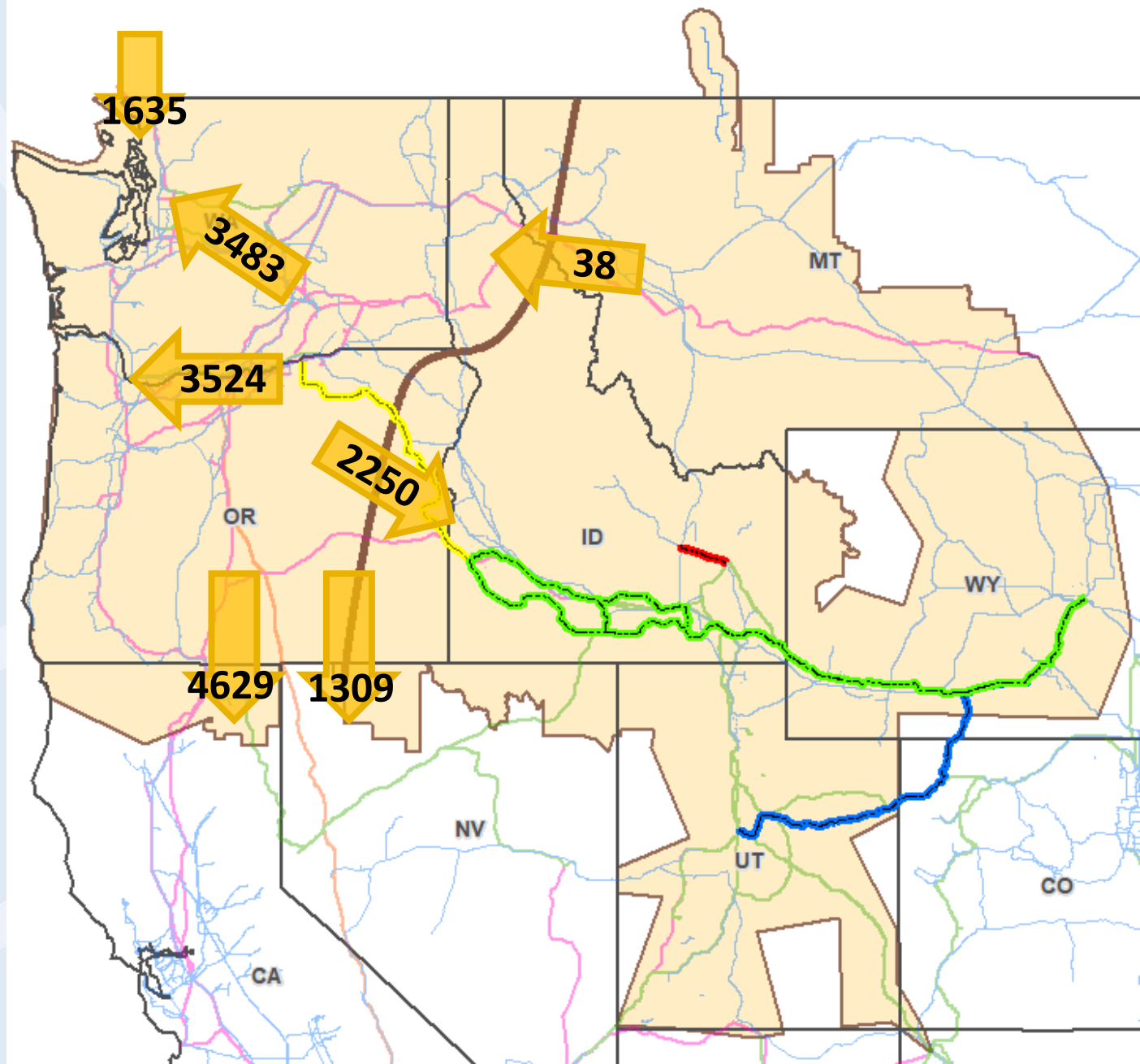
2) Heavy Winter Load



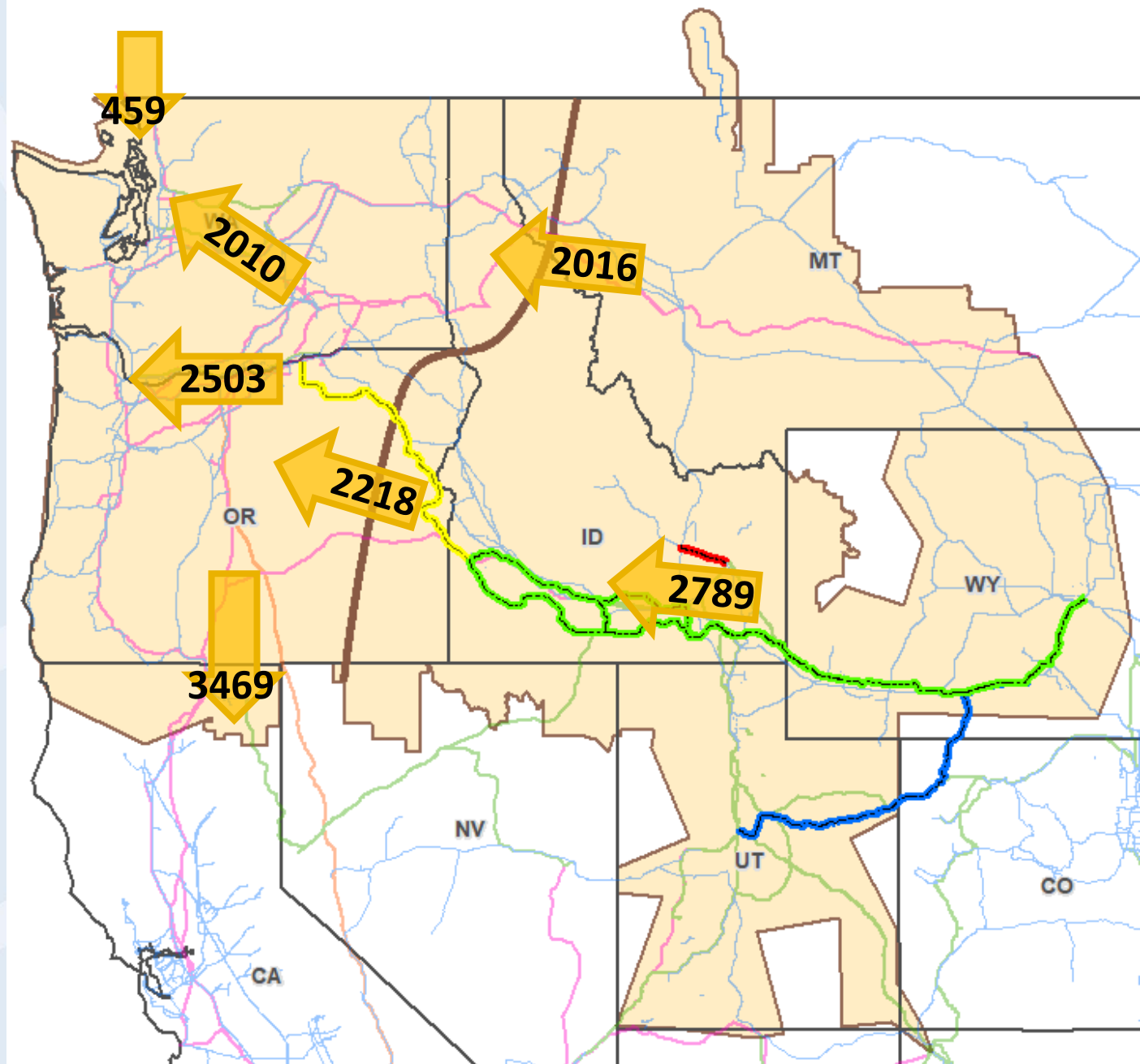
3) High Wyoming Wind Generation Output



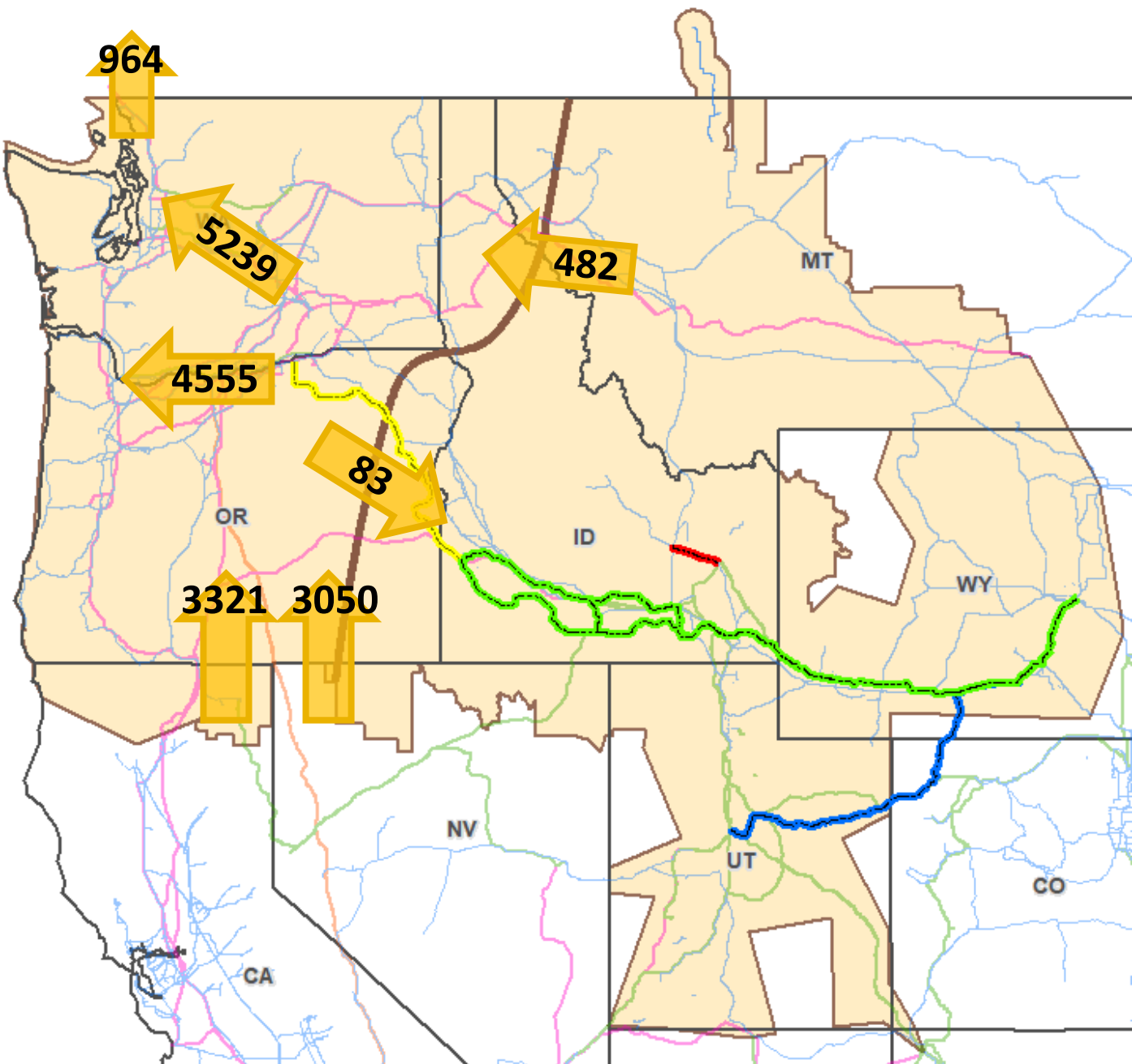
4) High Northwest to Idaho Transfer



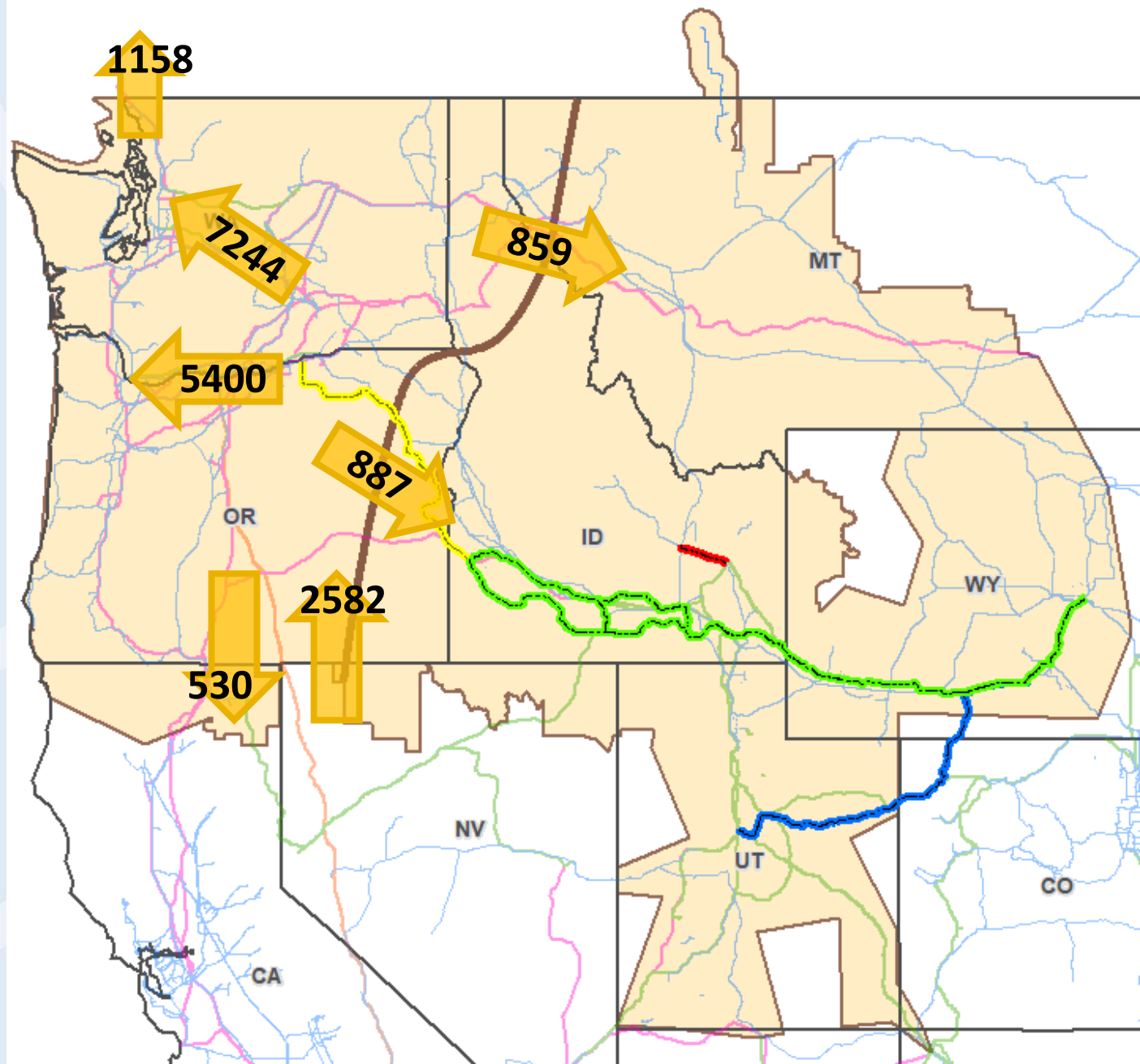
5) High Transfer Across Idaho



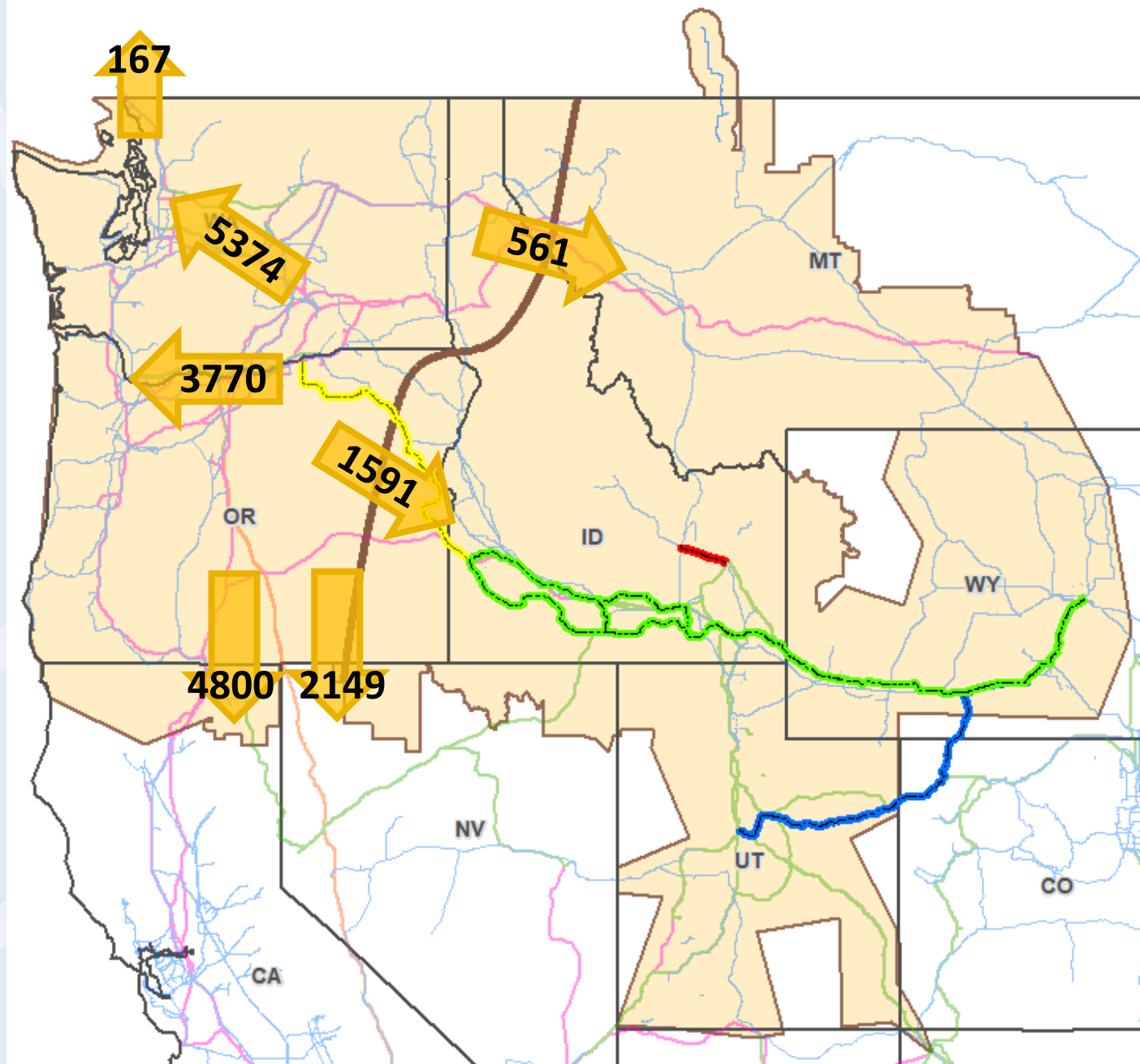
6) High California to Northwest Transfer



7) High West of Cascades Transfer













8) High Northwest Hydro

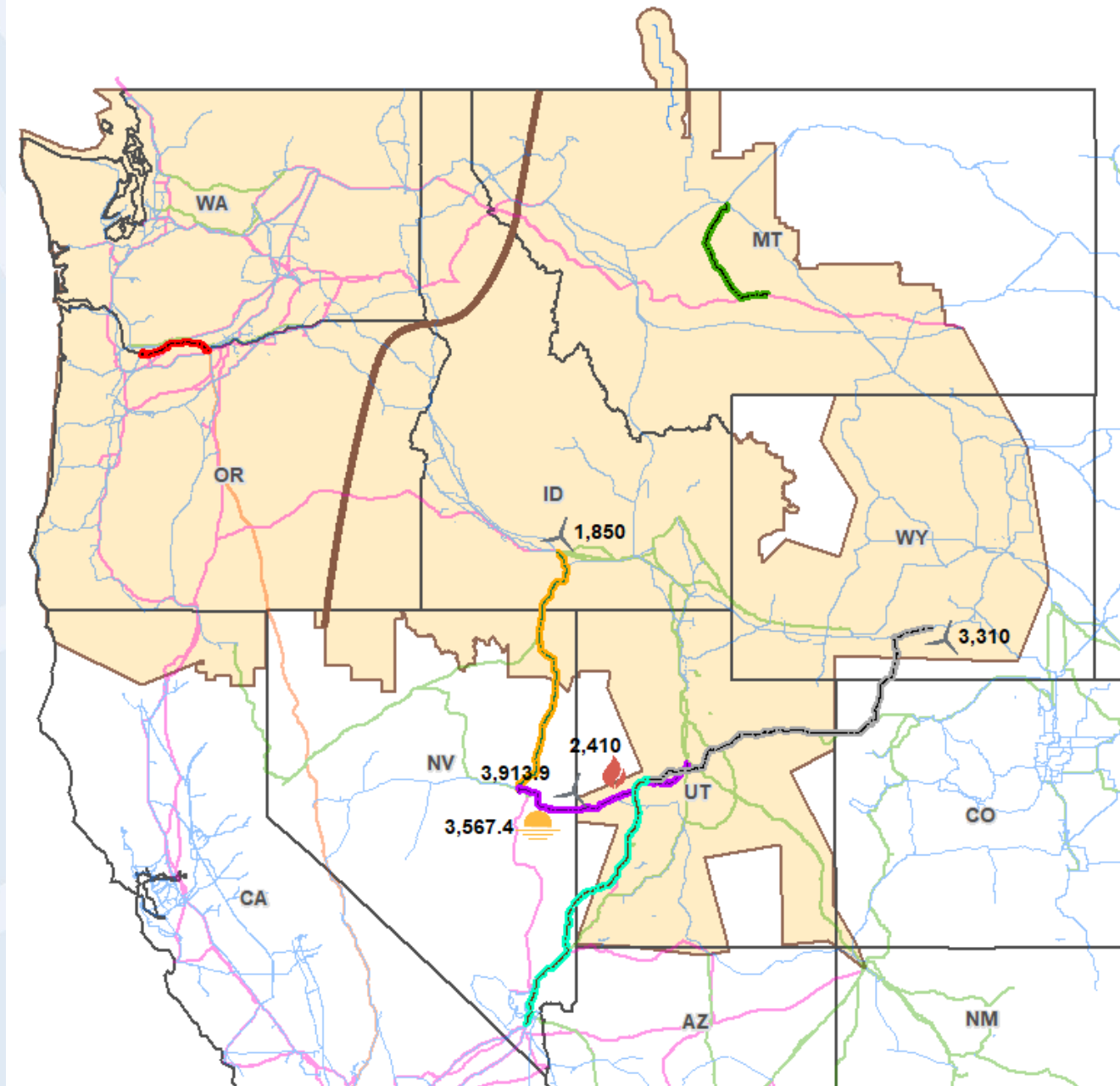


Interregional Projects

Regional Non-Incumbent and Interregional Projects

2020 - 2030

-  Natural Gas
 -  Solar
 -  Wind
 -  Cascade Renewable 400 kV DC
 -  Cross-tie 500 kV AC
 -  Loco Falls 230kV AC
 -  SWP North 500 kV
 -  Transwest Express 500 kV DC
 -  Transwest Express 500 kV AC
 -  NorthernGrid
- Existing Transmission Lines (HIFLD)





Regional Combinations

Modeled Projects	B2H [H]	Gateway West (Pop - Ced - Hem) [E]	Gateway West (Pop - Bor - Mid - Hem) [E]	Gateway West (Mid - Ced)	Gateway West (Ant - Pop) [D.3]	Antelope	Gateway South [F]	SWIP-N	Cross-Tie	TransWest Express DC	TransWest Express DC/AC	Loco Falls Greenline	Cascade Renewable Transmission	Case Stressed Conditions
BLMP**	X	X	X	X	X	X	X							A B C D E F G H
RC17		X			X	X	X	X						C D E
RC18	X	X			X	X		X						C D E
RC19	X					X	X	X						C D E
RC20	X	X				X	X	X						C D E
RC21	X				X	X	X	X						C D E
RC22						X			X					A B C D E F
RC23		X			X	X	X		X					C D E
RC24	X	X			X	X			X					C D E
RC25	X					X	X		X					C D E
RC26	X	X				X	X		X					C D E
RC27	X				X	X	X		X					C D E
RC28						X				G				A B C D E F
RC29	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	G			TBD	A B C D E F

Anchor Data Set Actions

- NorthernGrid Submitted 24 PCM to Power Flow Modeling Issues
- WECC Appointed Bhavana Katyal, 2032 ADS Project Manager
- Issues List Located at
 - <https://www.wecc.org/RAC/Pages/Default.aspx#>

DISCUSSION ITEMS 		
Type	Title	Modified ▼
	Addressing Round-Trip Export Hour Issues ...	2021-03-25

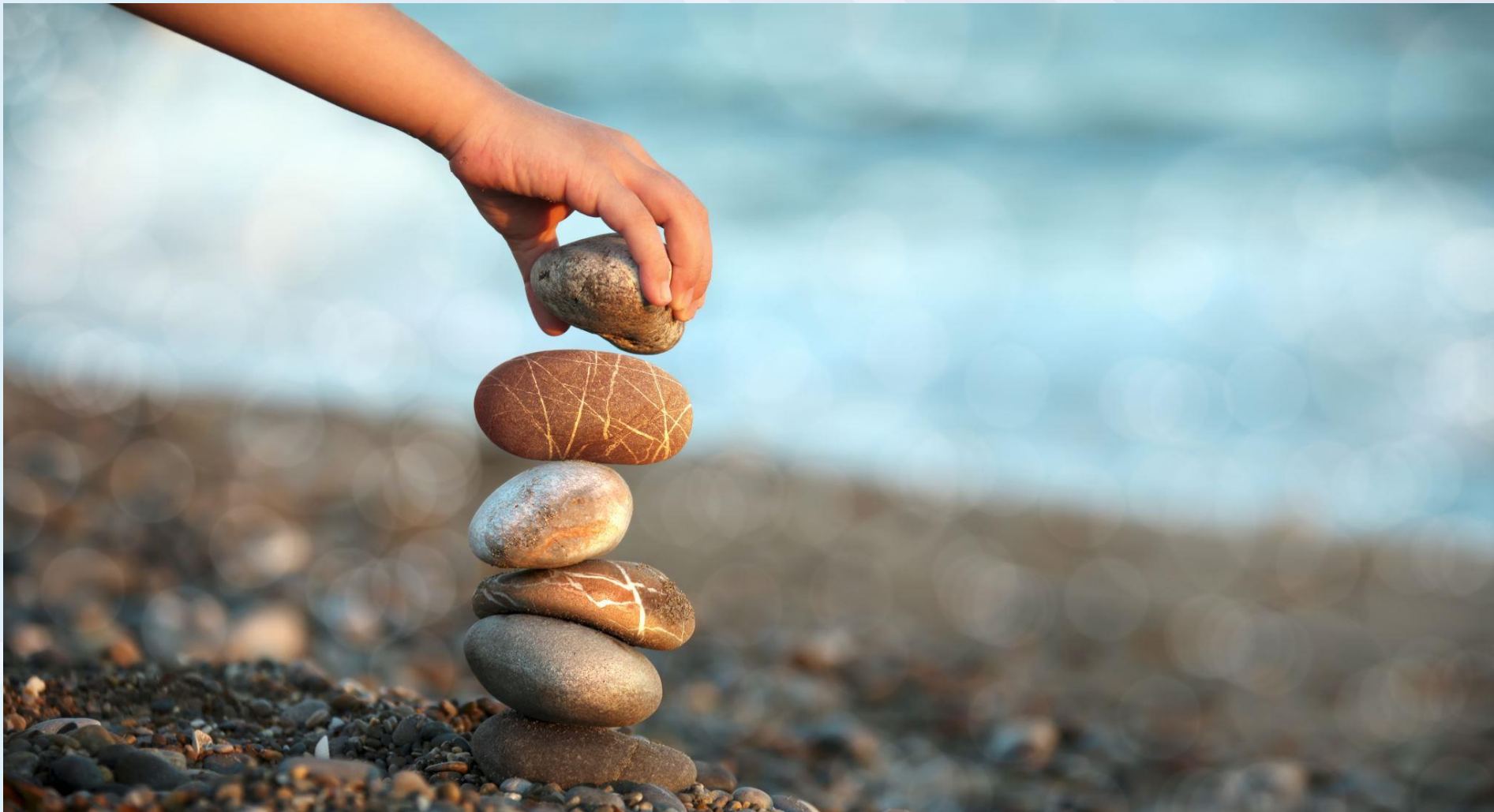
Sample Issues List Items

Many groups involved

PCM to PF Data Quality Issues								
Item	Status Date	Status	Submitted By	Issue	Discussion	Data Issue; Software Solution	Resolution	Responsibility
14			TR	Do not exceed Pmin or Pmax limits of generators	ZZ - as discussed above, there appear to be multiple instances of potential limits between PCM internal and the target powerflow. The most limiting limit should be respected	Data issue – need to coordinate to have consistent Pmin and Pmax * Software solution – check for consistency; use GridView Data sanity check.		PCDS SRS Hitachi-ABB
19			TR	Generator capacities greater than transformer or branch rating	Add L&R resources to PF, making sure that the transformer limits are not exceeded for the location. Rules of thumb (all need to be checked with basic power flow) <ul style="list-style-type: none"> • Do not exceed capacity of POI • 0 to 34.5 kV: 5 MW • 34.5 to 69 kV: 25 MW • 115 kV: 25 to 50 MW • 230 kV: 50 to 125 MW • 500 kV: 250 to 1250 MW 	Data issue in placing L&R generators that were not able to be aligned with the PF.		PCDS WECC staff

Some Recommended Solutions

Thank you!



NorthernGrid