

# NorthernGrid

PNUCC

System Planning Committee

April 16, 2021

# Topics

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Introduction to NorthernGrid

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2030 Data Submission

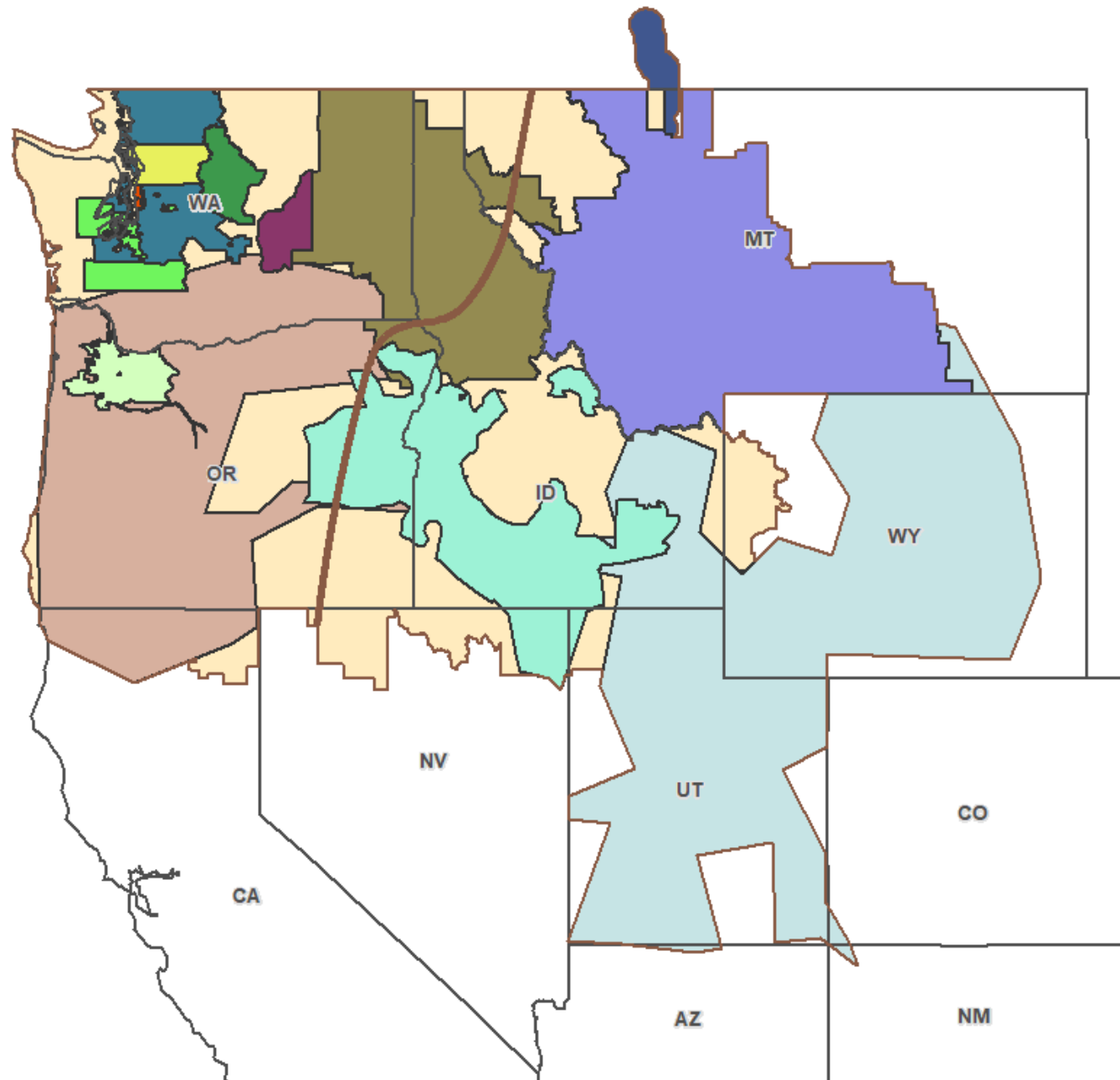
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Regional Transmission Power Flows



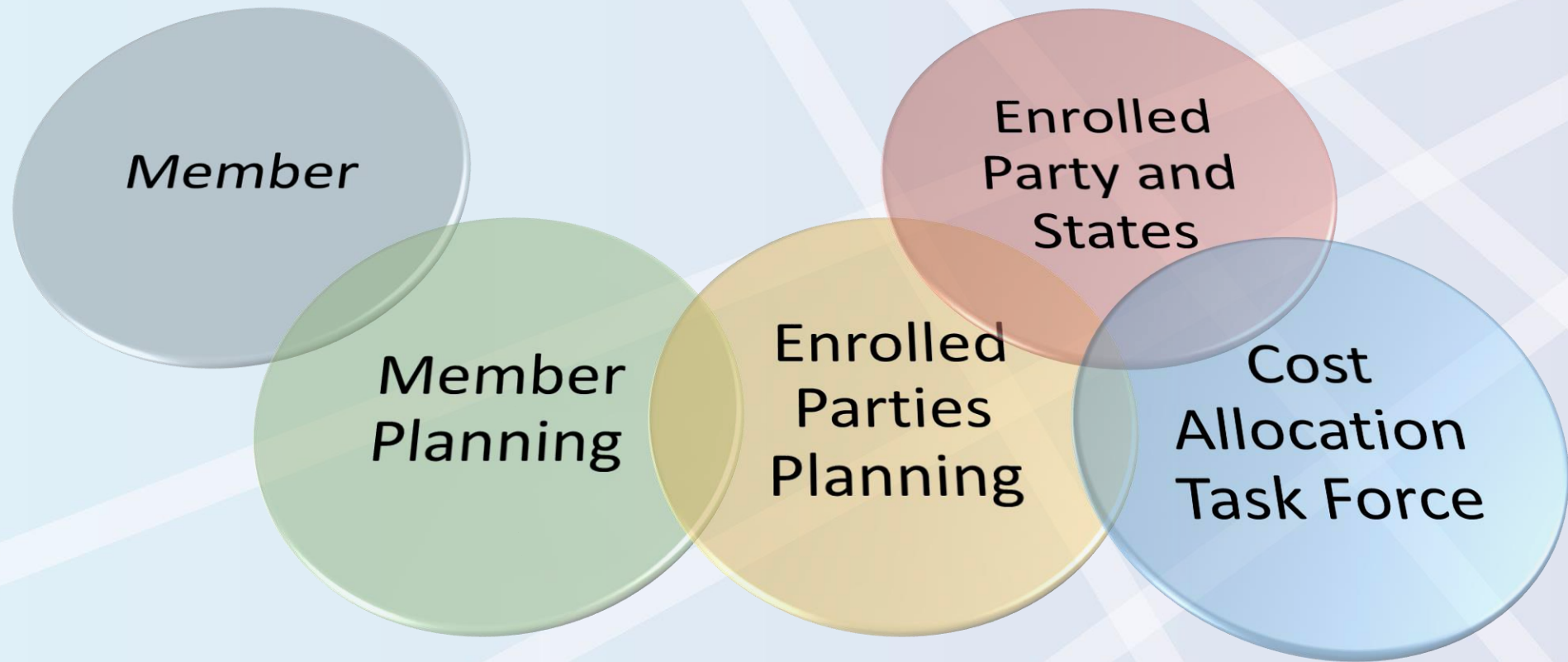
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# Association of Members



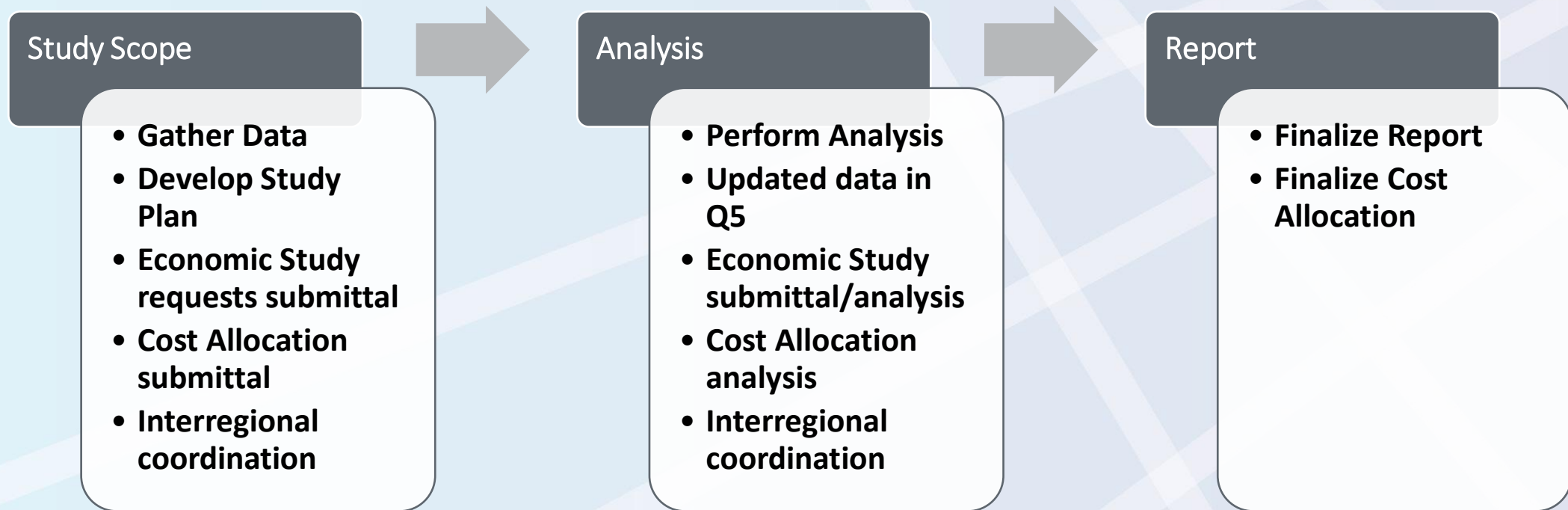
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# Committees



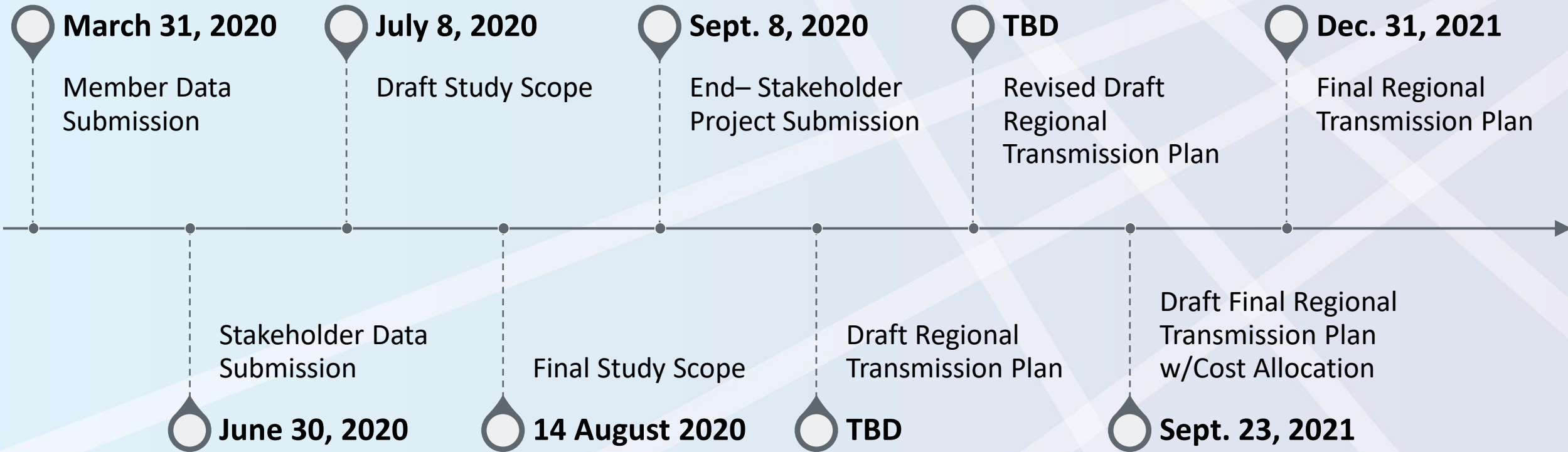
# Regional Transmission Process

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



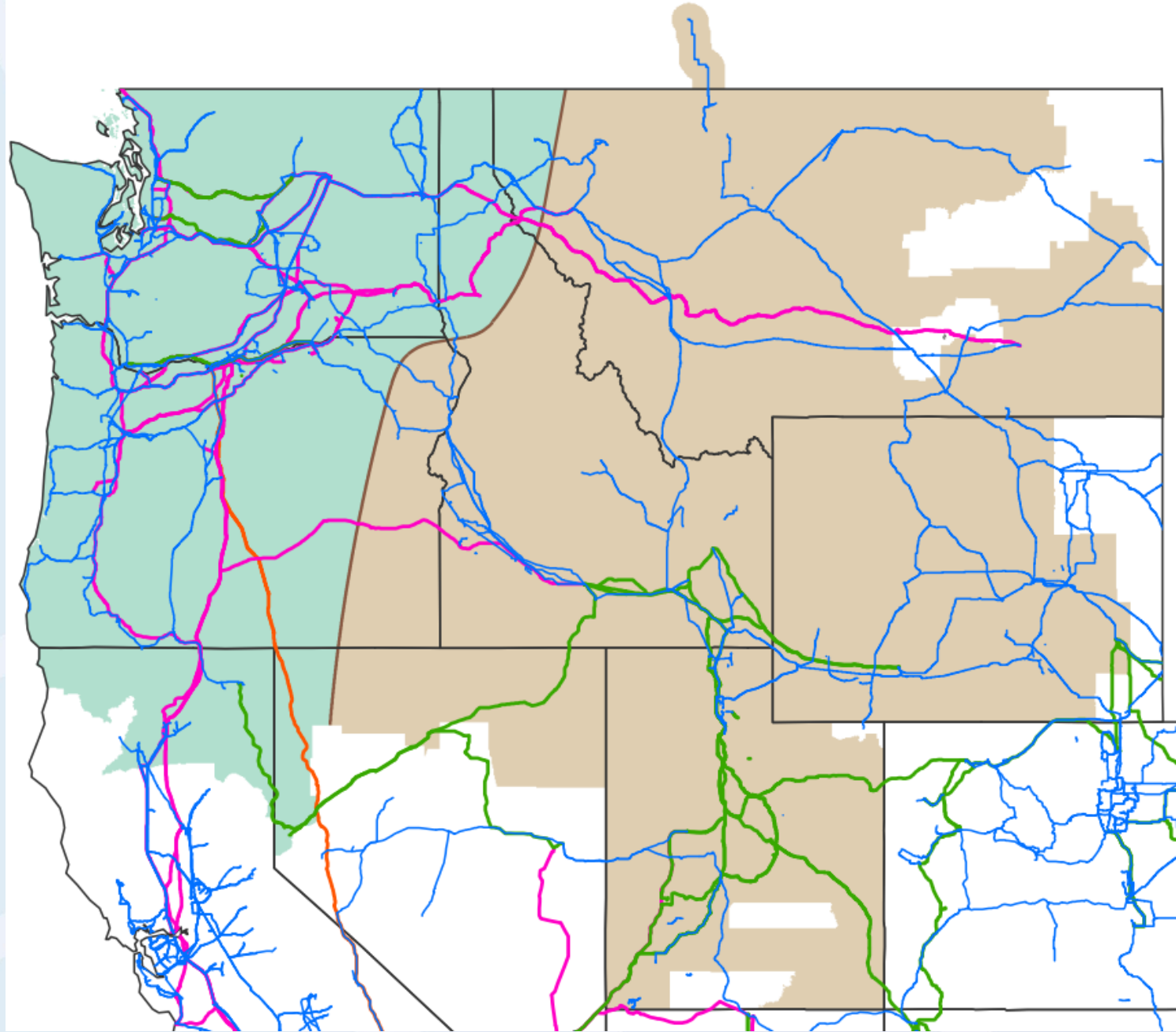
A Regional Transmission Plan is not a Construction Plan

# NorthernGrid Schedule of Deliverables



# NorthernGrid Subregions

- Pacific Northwest
- Intermountain

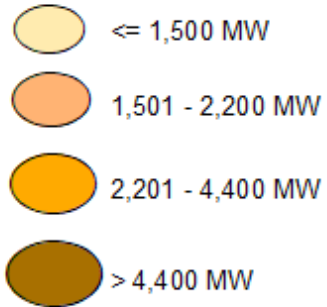


# Summer Load

## Annual Summer Load Growth and Peak Load

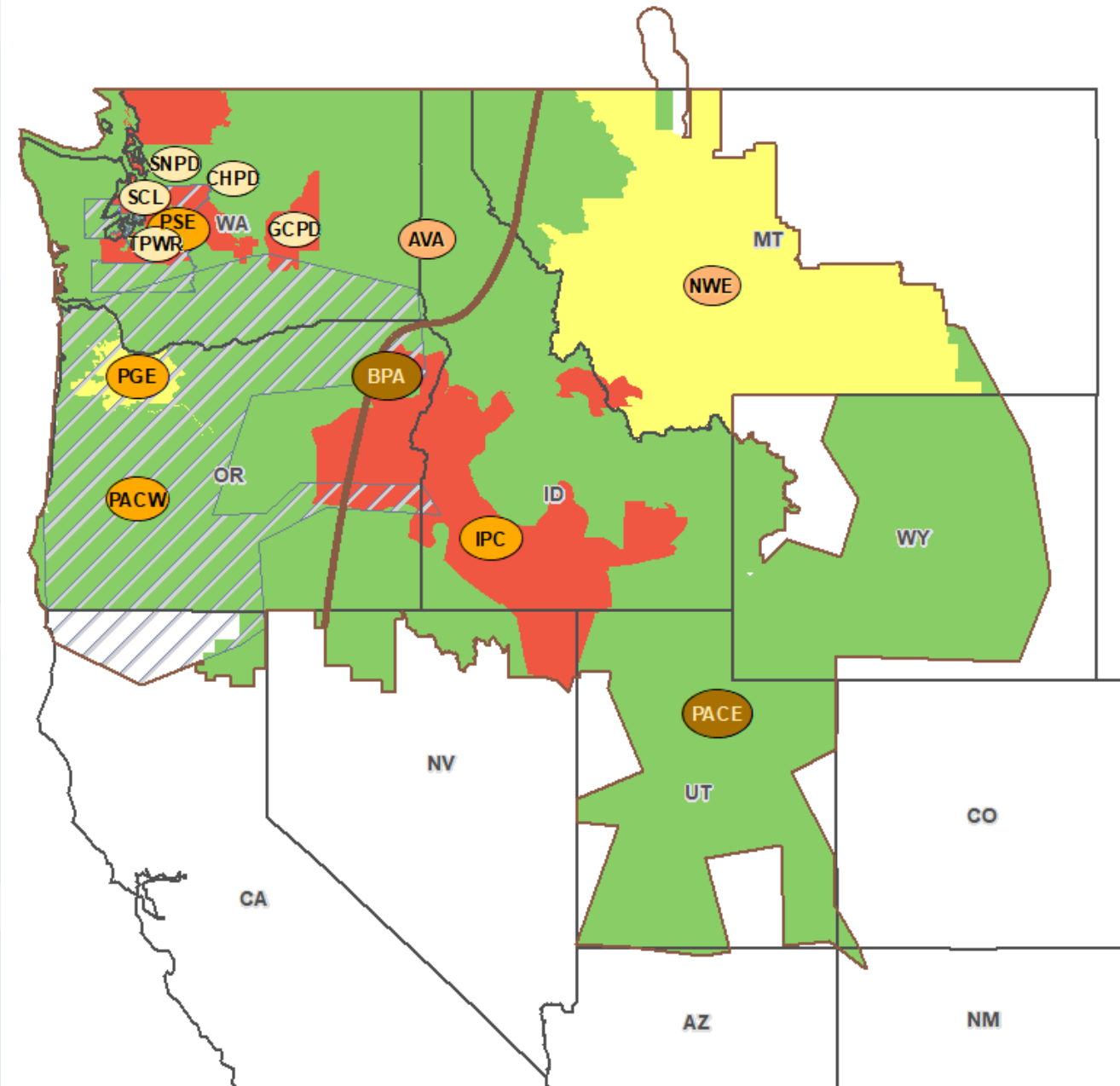
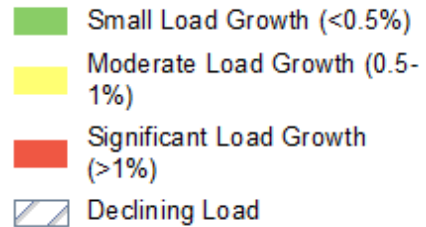
2024 - 2030

### Summer Peak Load



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### Annual Summer Load Growth

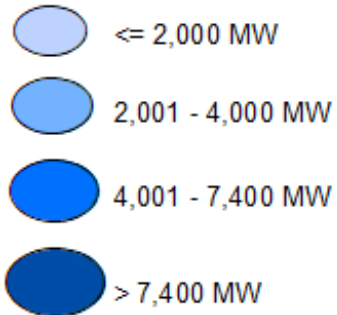


# Winter Load

## Annual Winter Load Growth and Peak Load

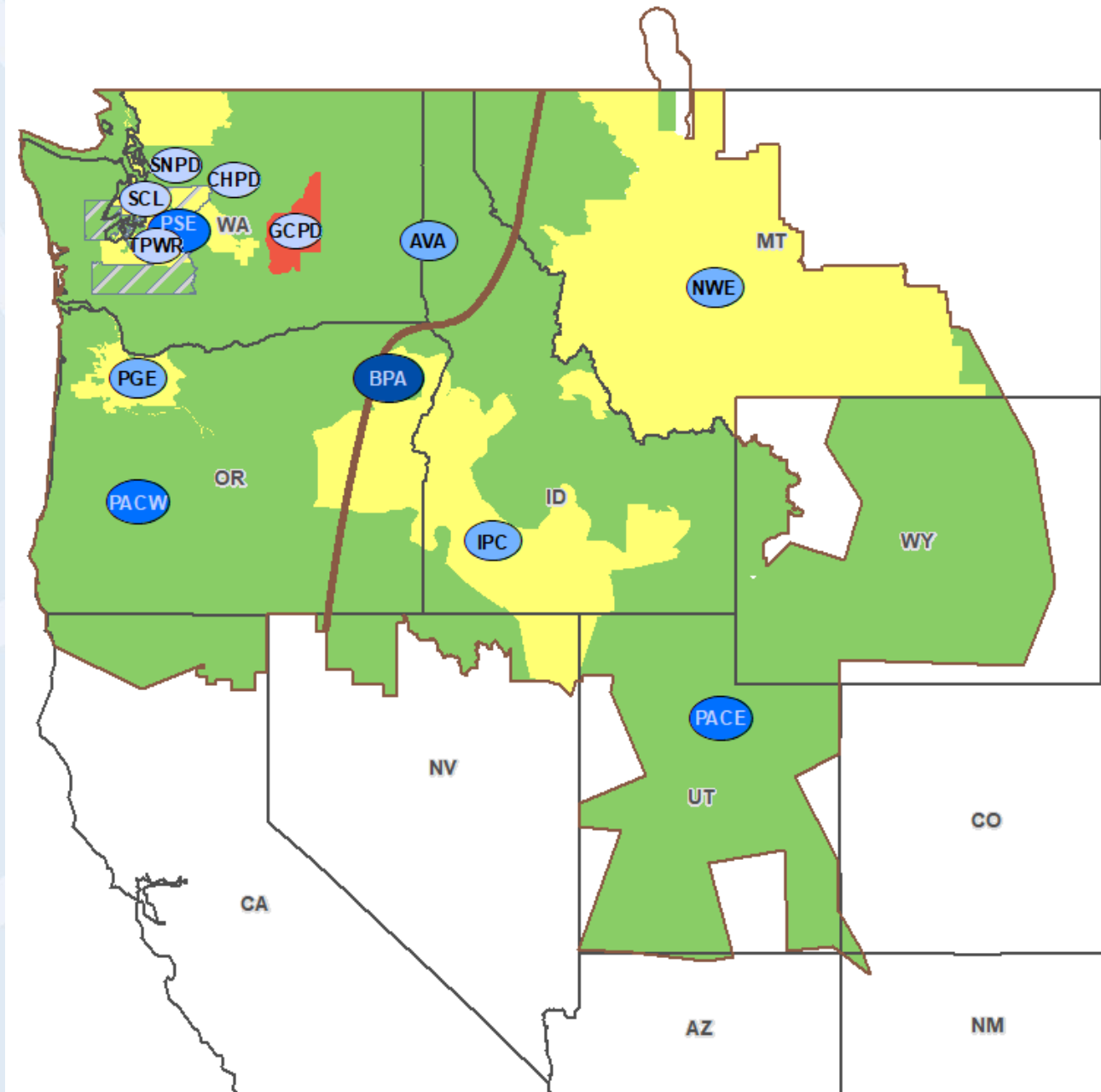
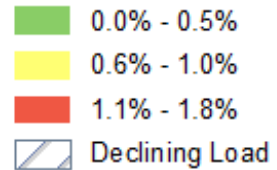
2024 - 2030

### Winter Peak Load



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### Annual Winter Load Growth



# Resource Retirements



Coal



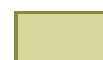
Natural Gas



Wind

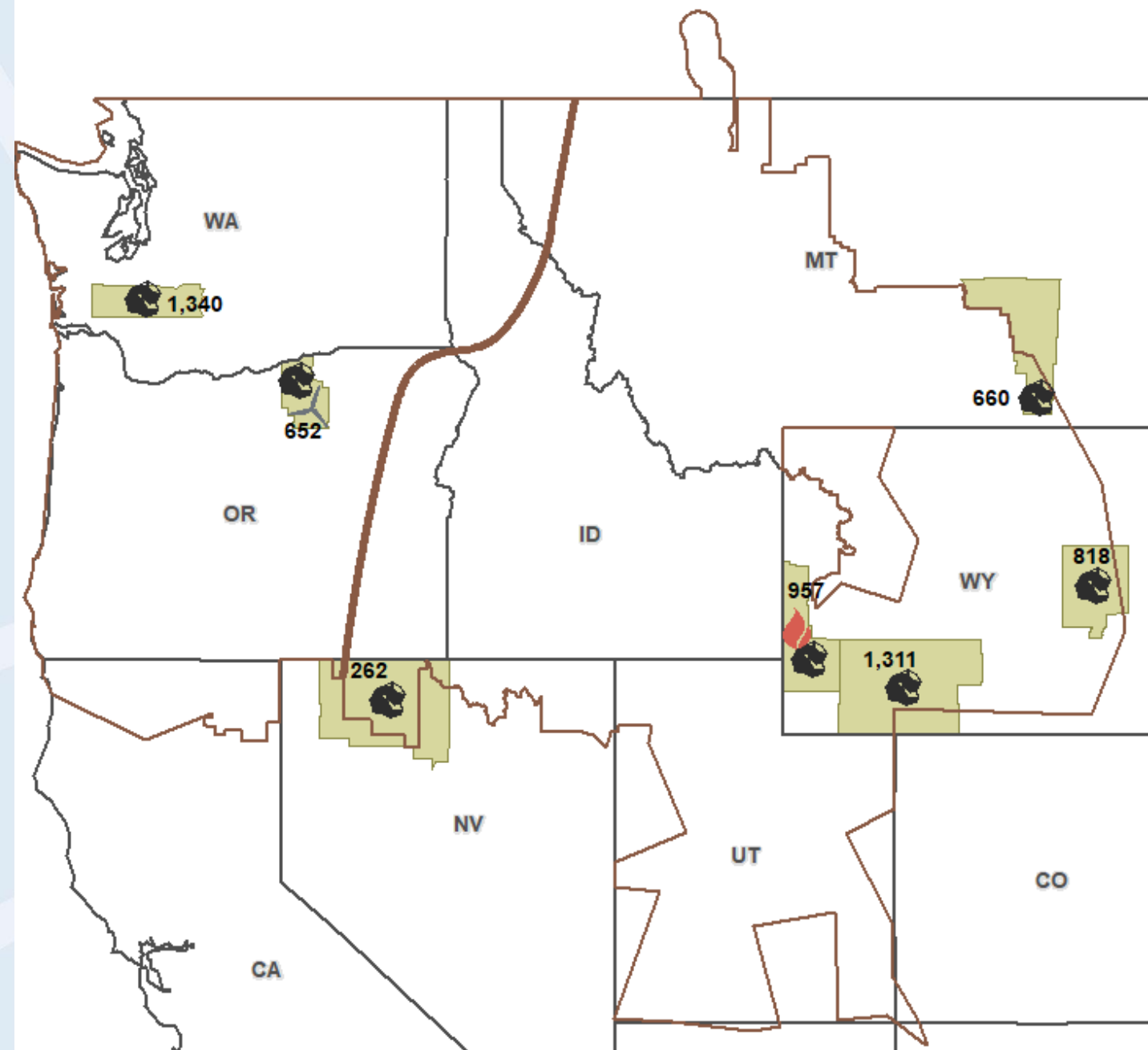


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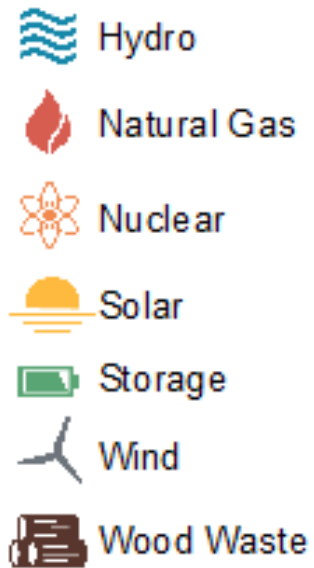


County with Resource Retirement

Numbers indicate total MW of retirement in the county



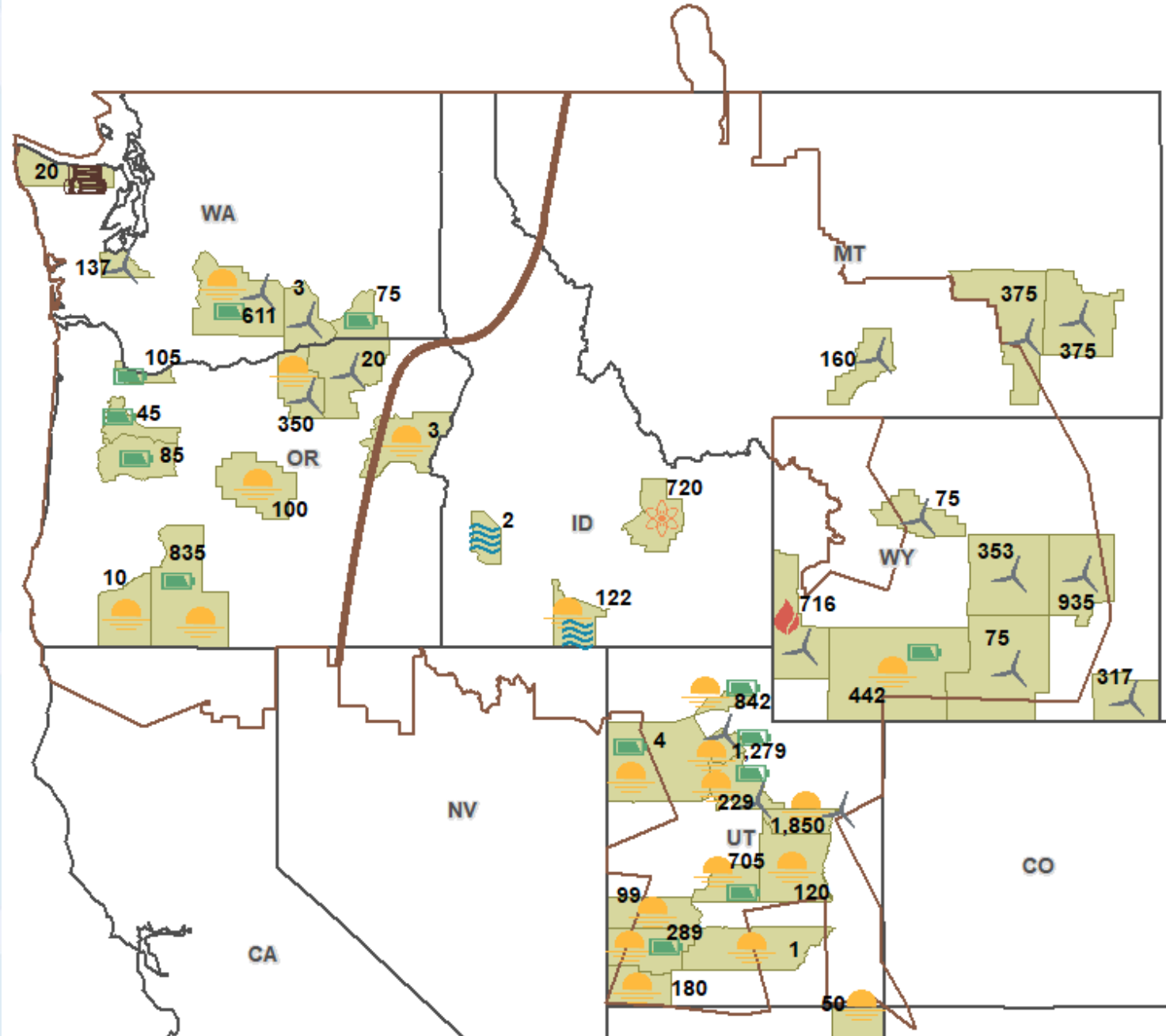
# Resource Additions



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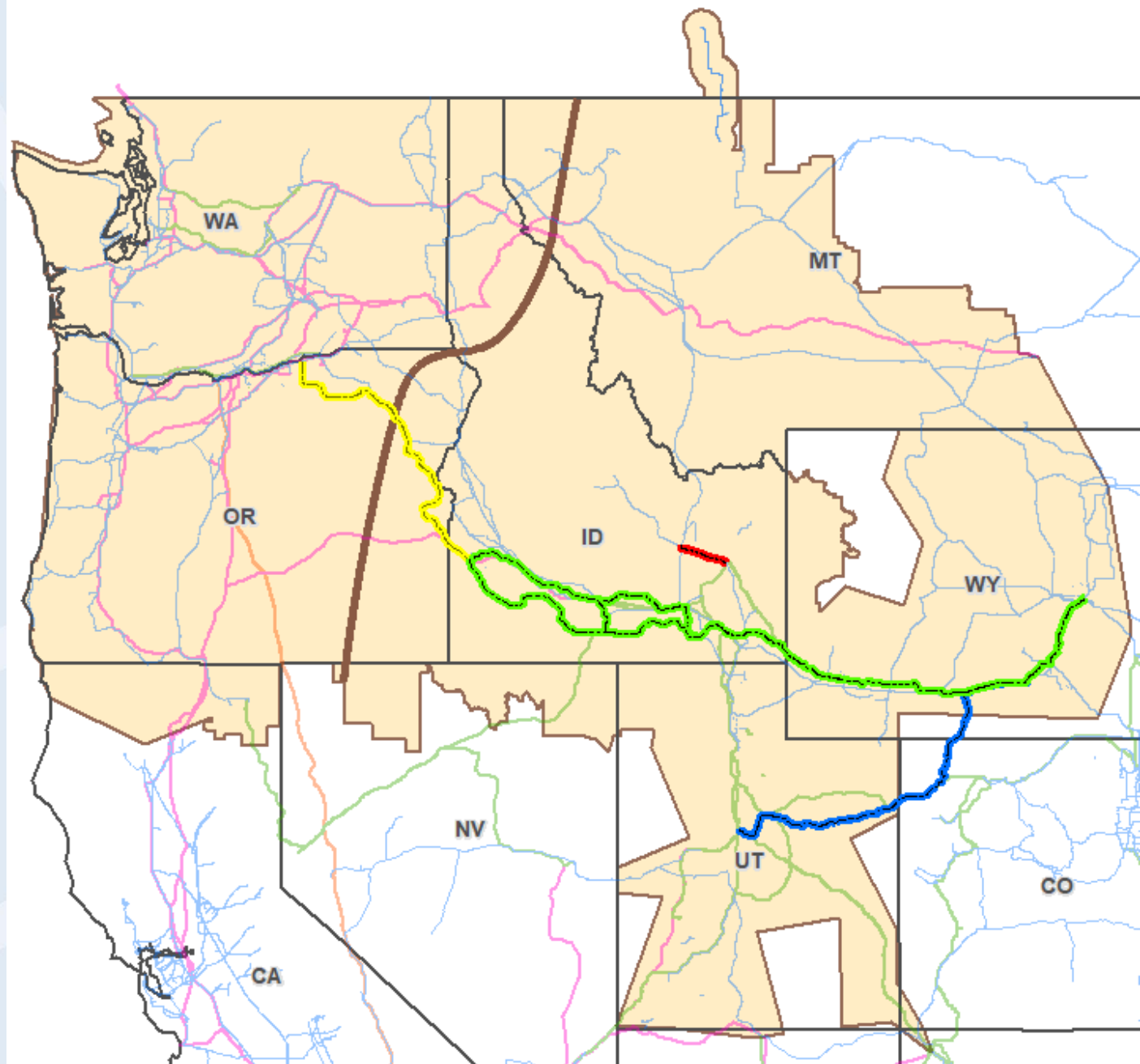
County with Resource Addition

Numbers indicate total MW of addition in the county



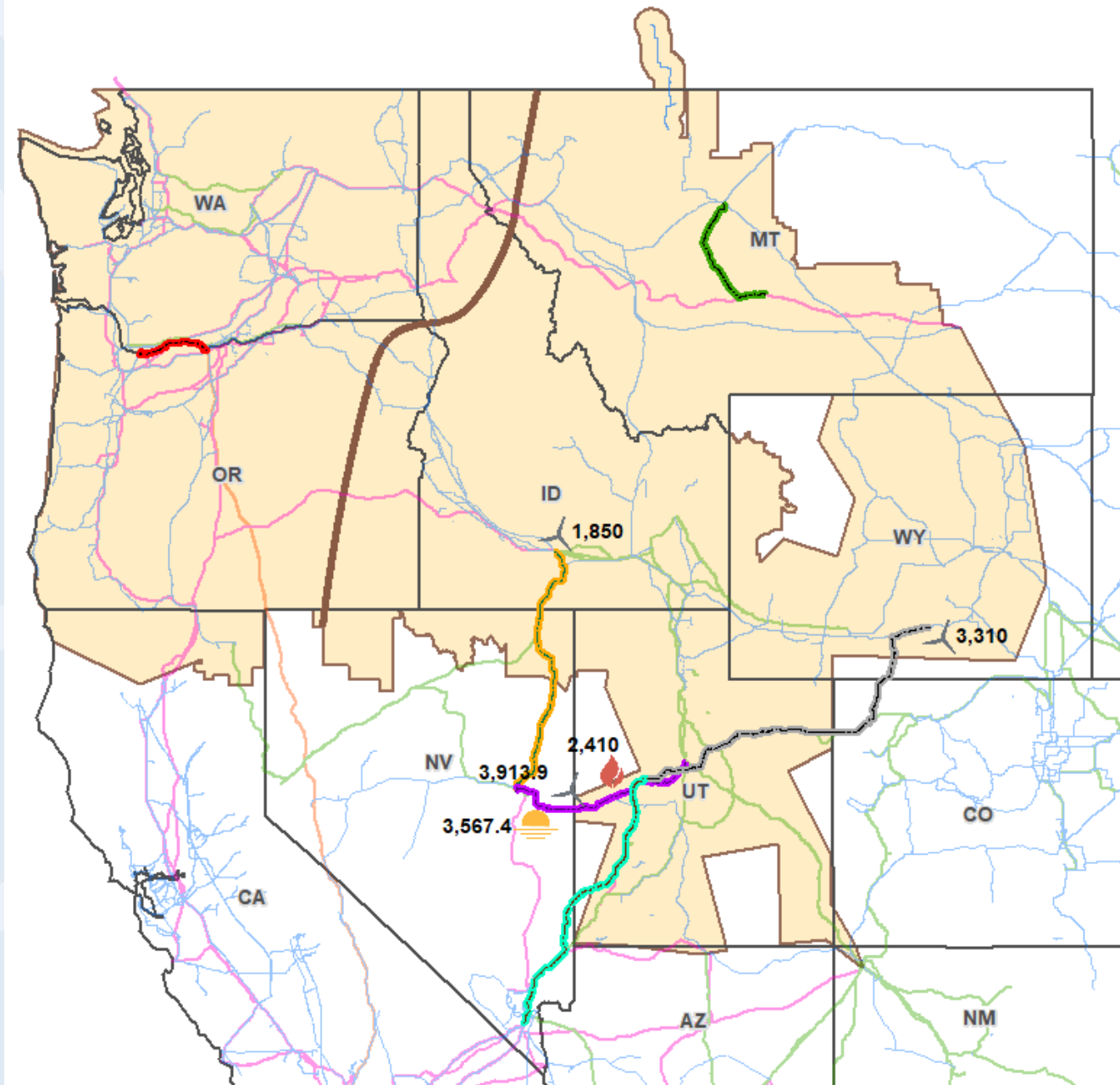
# Member Transmission Projects

- Antelope 345 kV AC\*
- Boardman to Hemingway 500 kV AC
- Gateway South 500 kV AC
- Gateway West 500 kV AC



# Regional and Interregional Projects

-  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



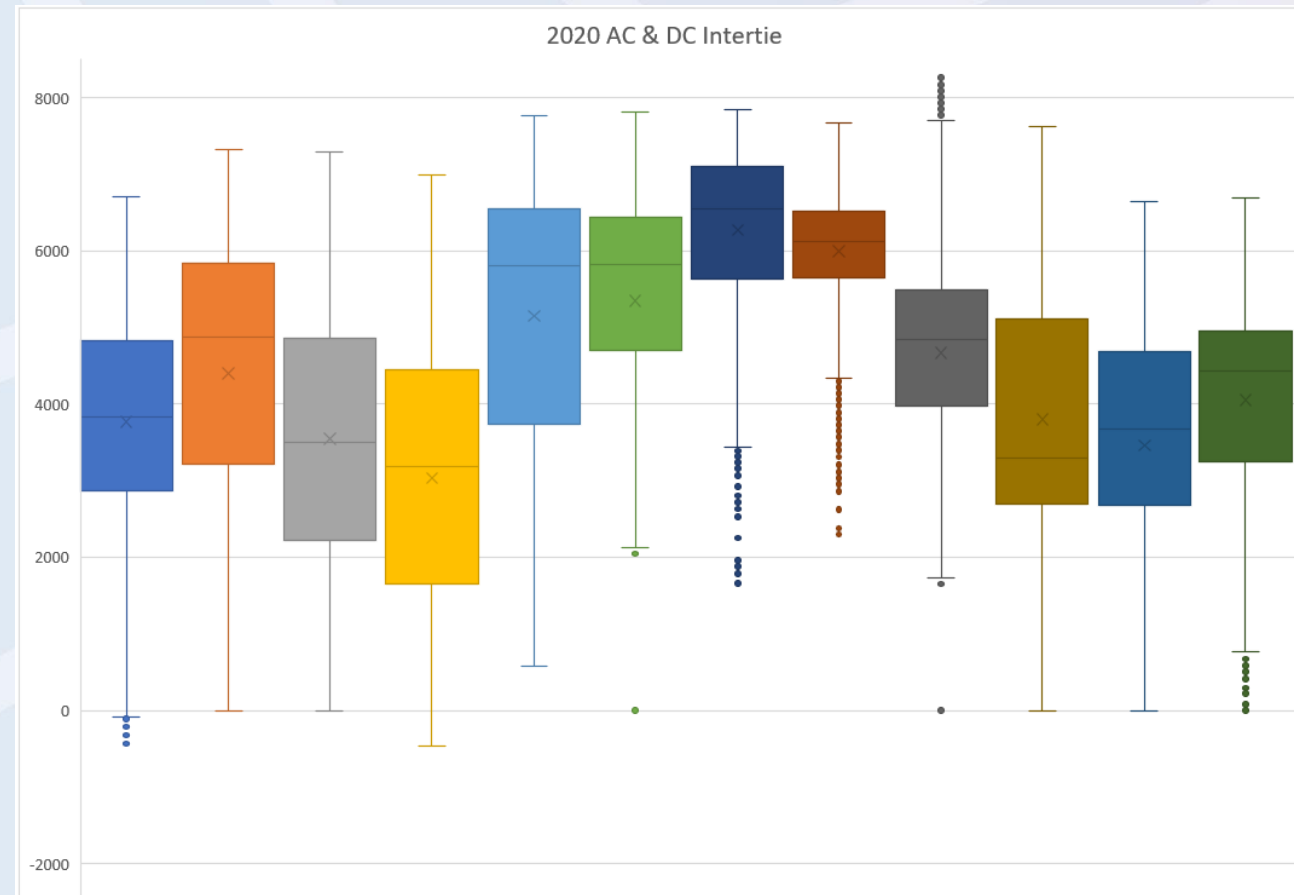
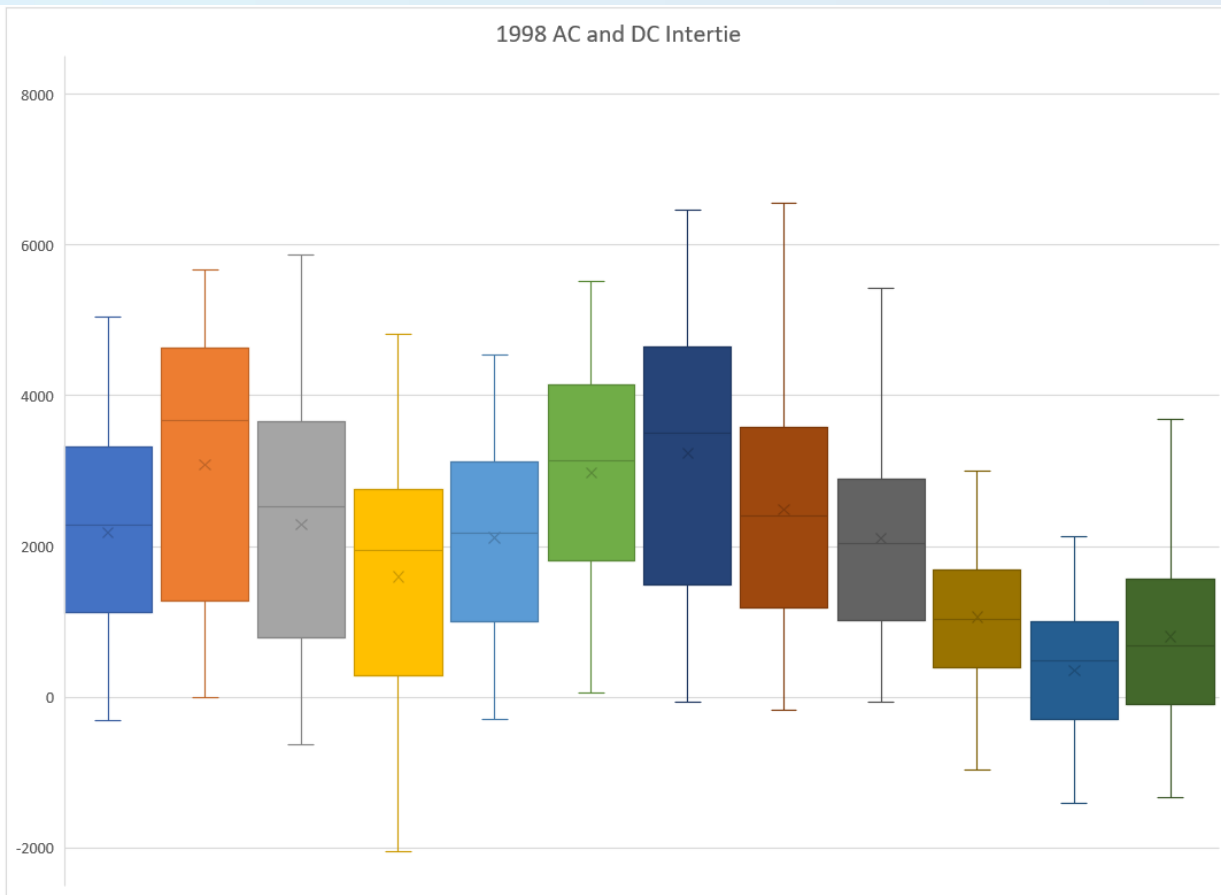
# Past, Present and Potential Future Flows



# AC plus DC Intertie Monthly Transfers

**1998**

**2020**



■ January ■ February ■ March ■ April ■ May ■ June ■ July ■ August ■ September ■ October ■ November ■ December

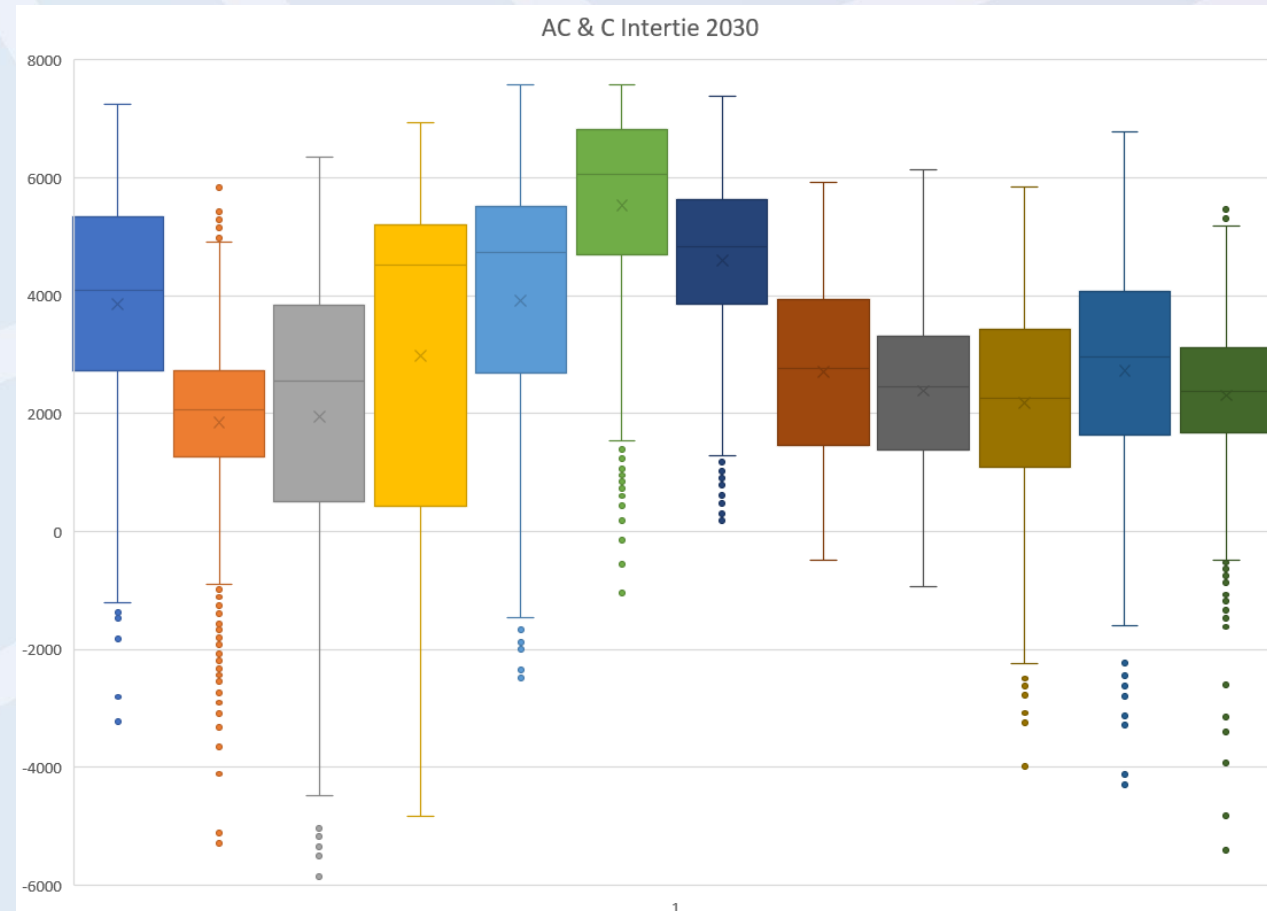
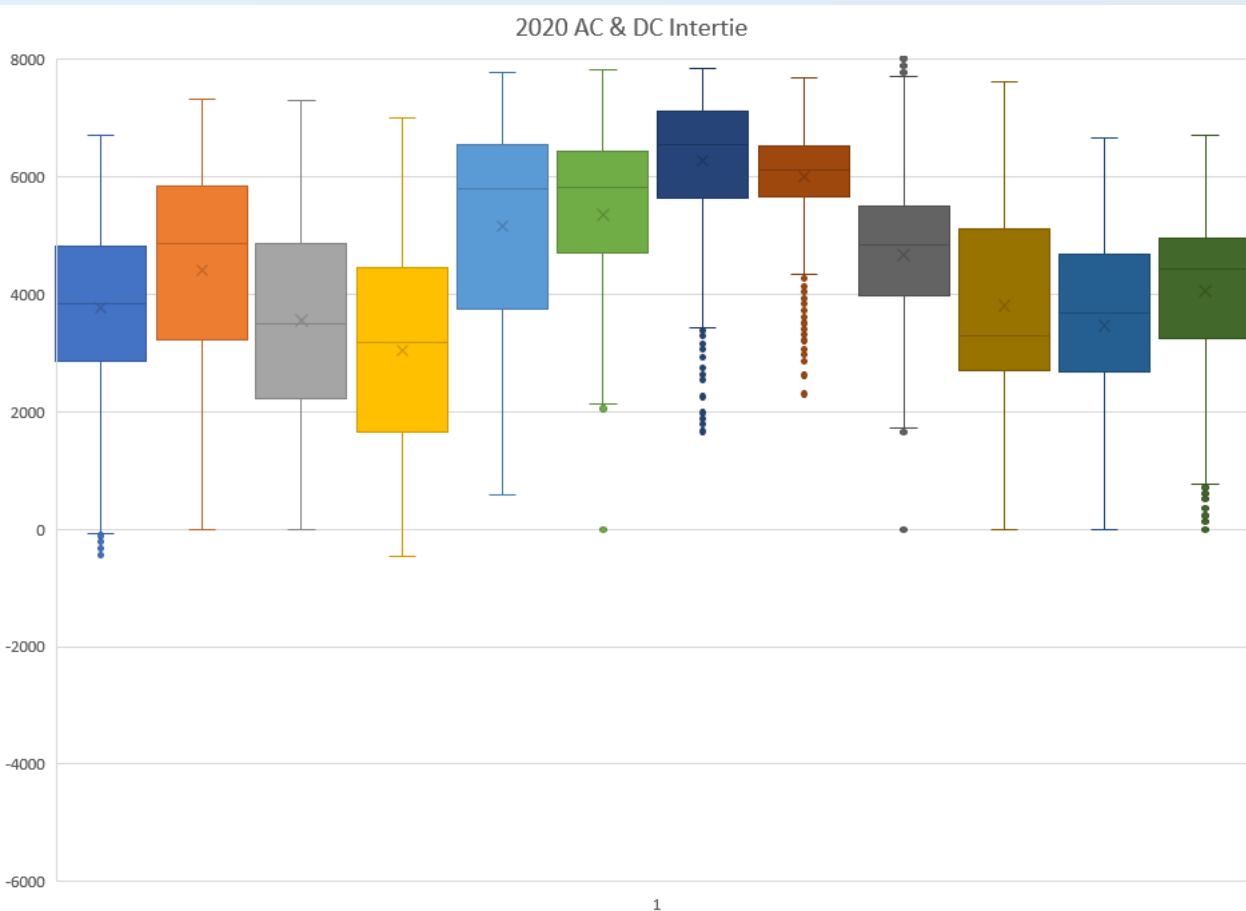


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# AC plus DC Intertie Monthly Transfers

**2020**

**2030**



■ January ■ February ■ March ■ April ■ May ■ June ■ July ■ August ■ September ■ October ■ November ■ December



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# AD plus DC Intertie Daily Transfers

**4/19/1998**



**4/19/2020**



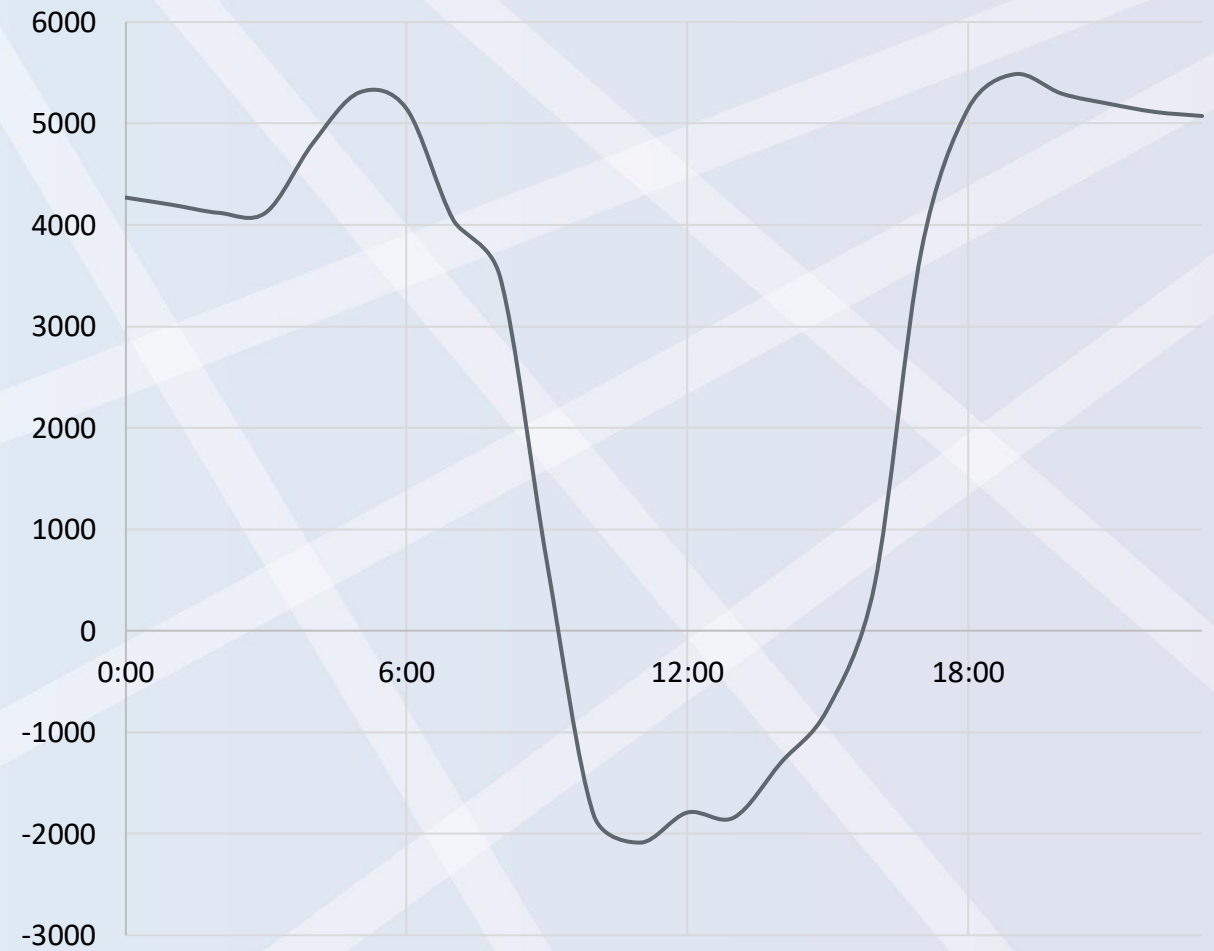
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# AD plus DC Intertie Daily Transfers

4/19/2020



4/19/2030

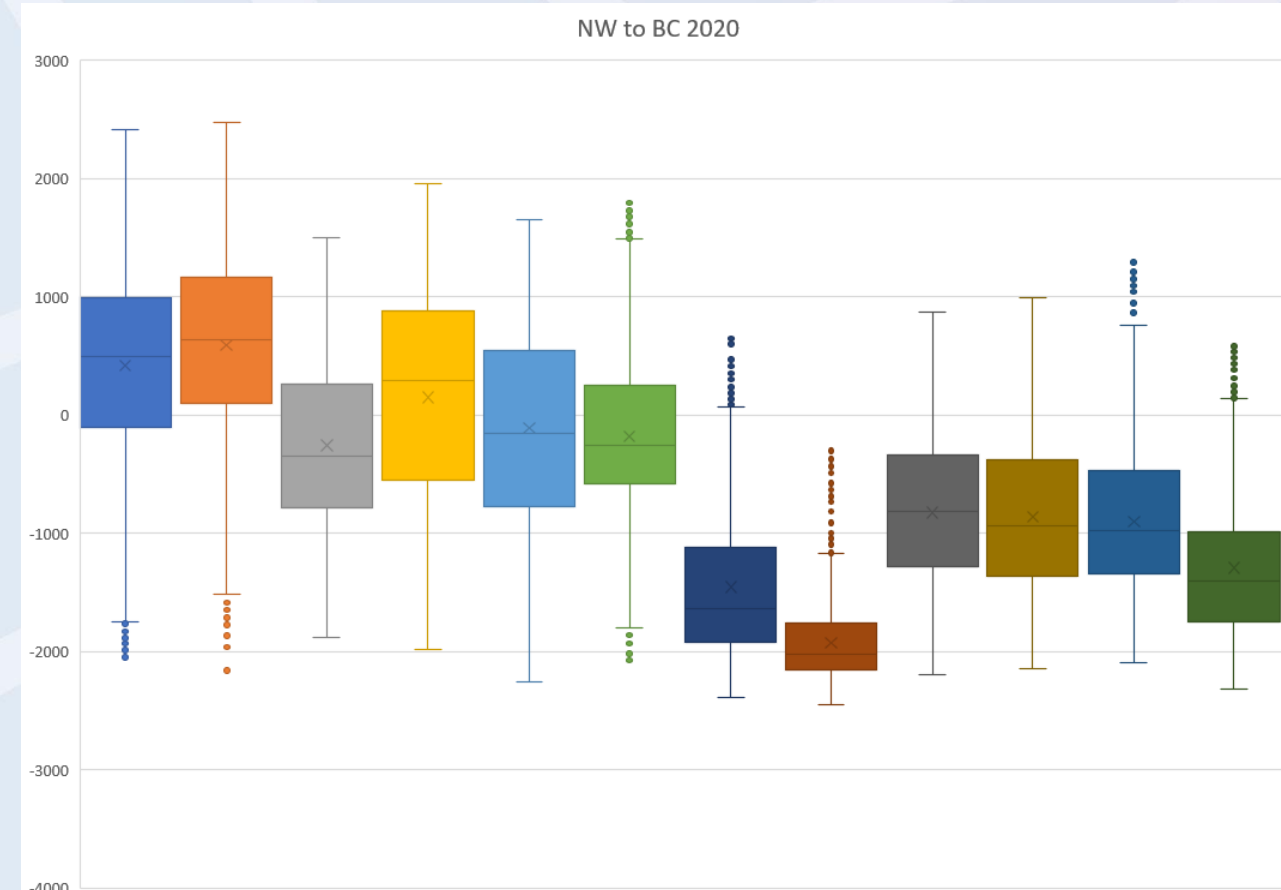
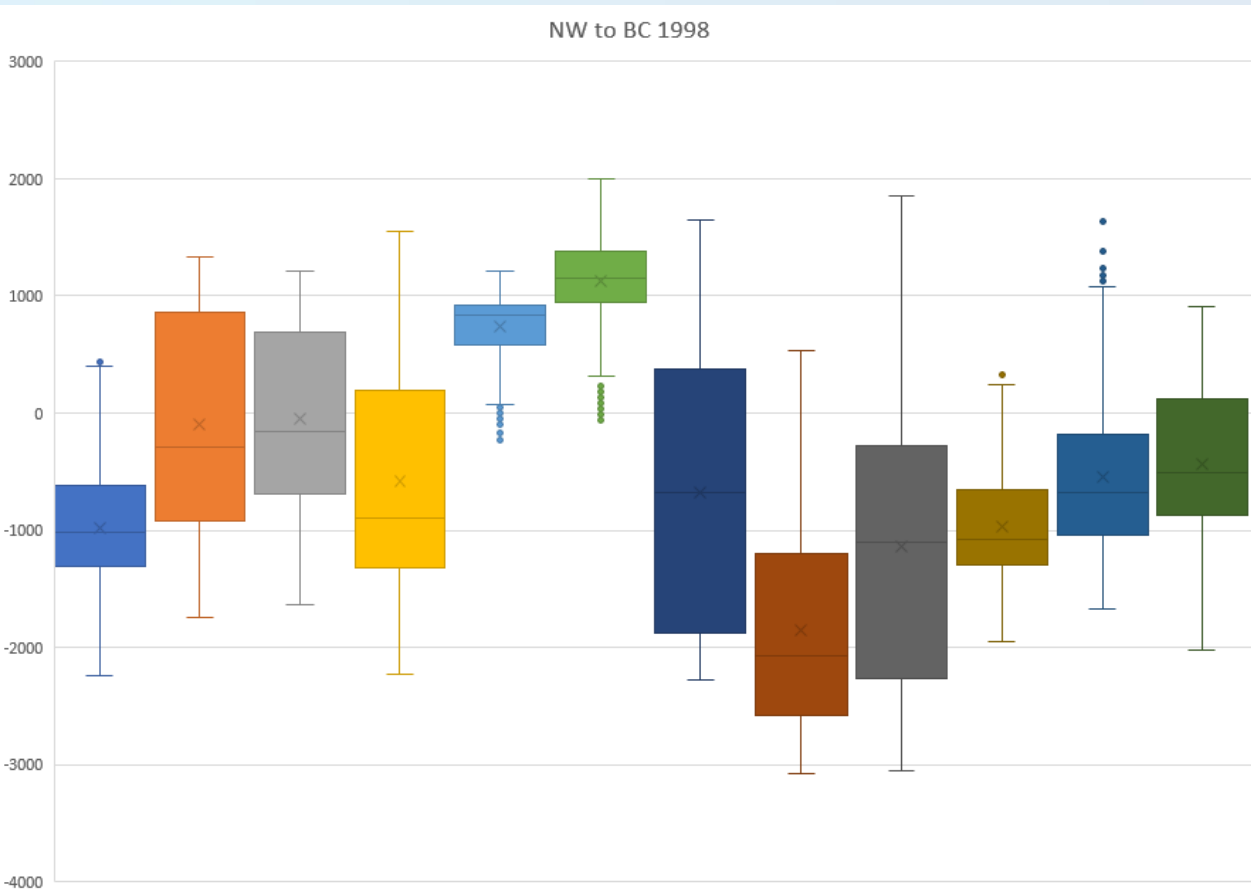


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# Northwest to British Columbia Monthly Transfers

1998

2020



■ January ■ February ■ March ■ April ■ May ■ June ■ July ■ August ■ September ■ October ■ November ■ December

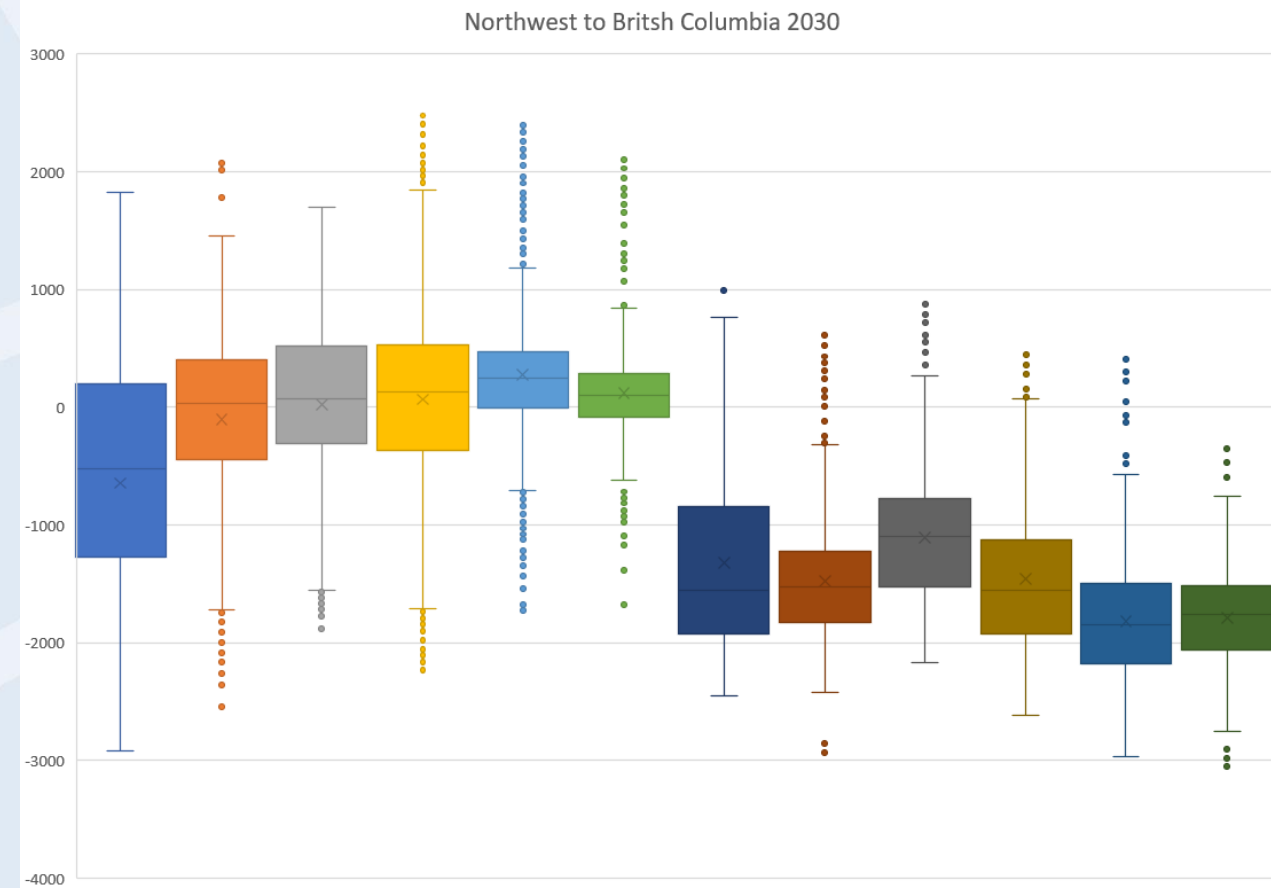
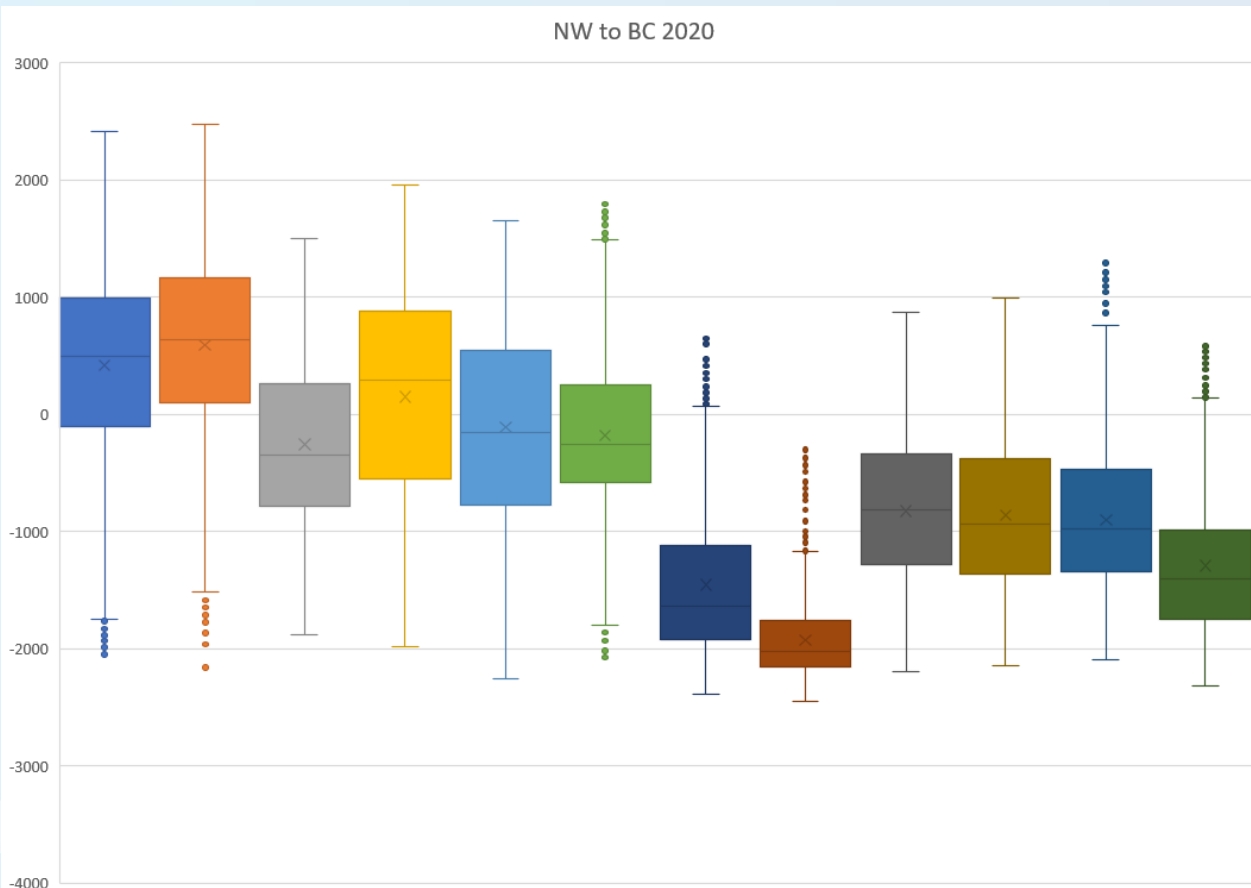


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# Northwest to British Columbia Monthly Transfers

## 2020

## 2030



■ January ■ February ■ March ■ April ■ May ■ June ■ July ■ August ■ September ■ October ■ November ■ December



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# Northwest to British Columbia Daily Transfers

**4/19/1998**



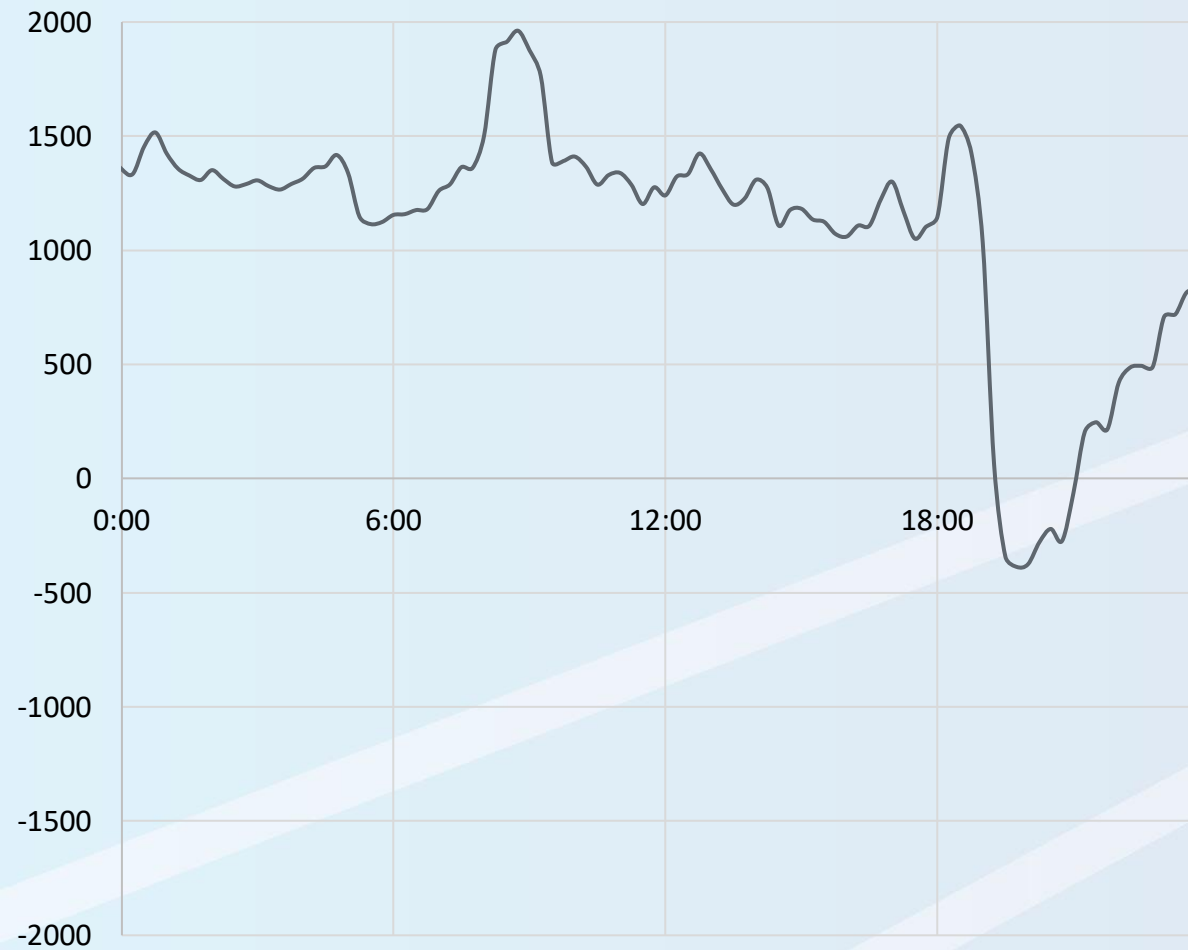
**4/19/2020**



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# Northwest to British Columbia Daily Transfers

4/19/2020



4/19/2030

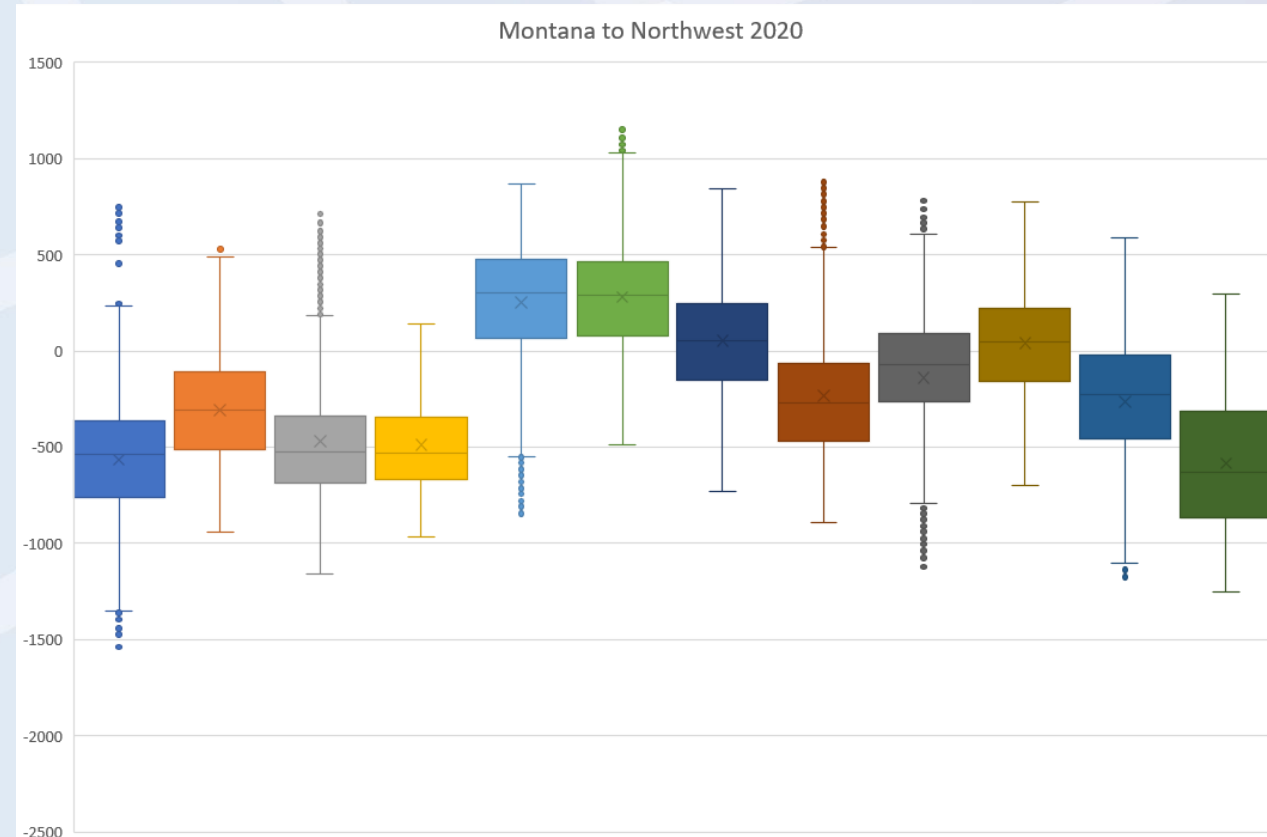
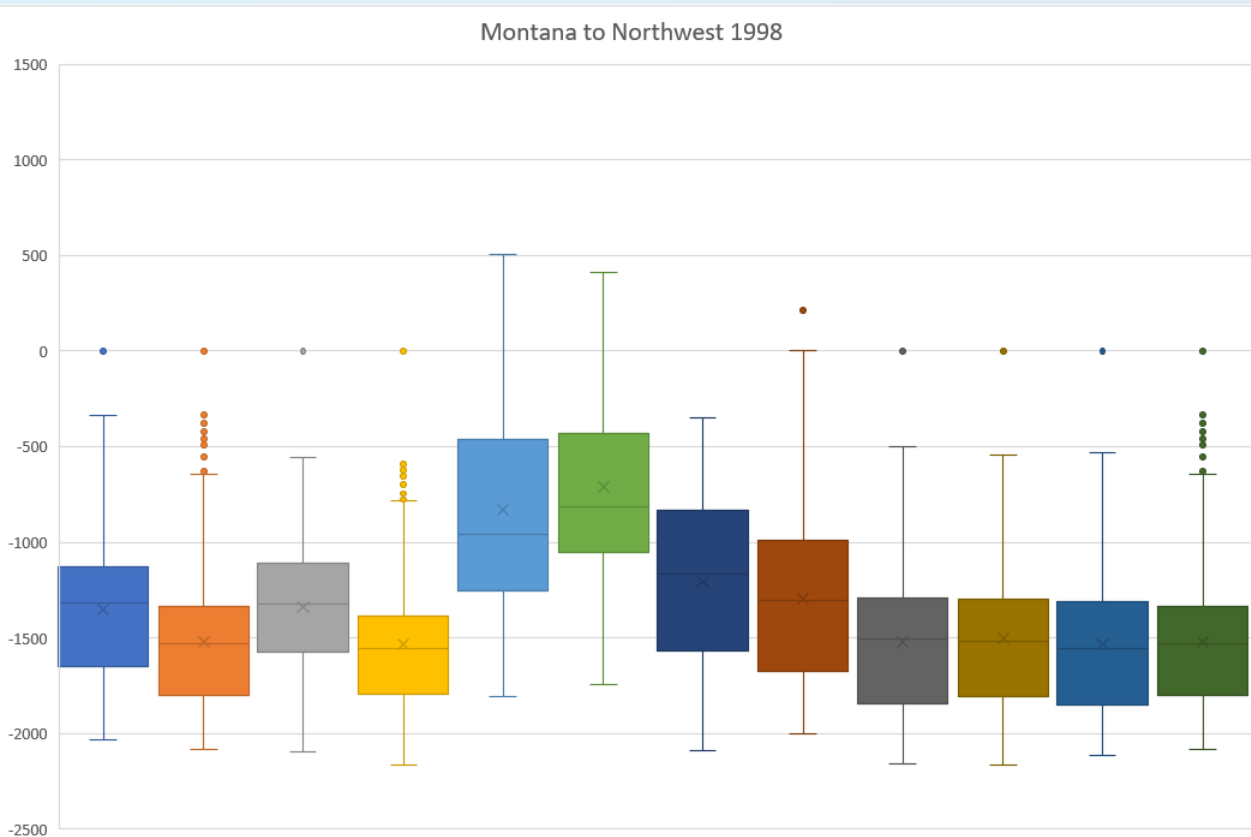


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# Northwest to Montana Monthly Transfer

## 1998

## 2020



■ January ■ February ■ March ■ April ■ May ■ June ■ July ■ August ■ September ■ October ■ November ■ December

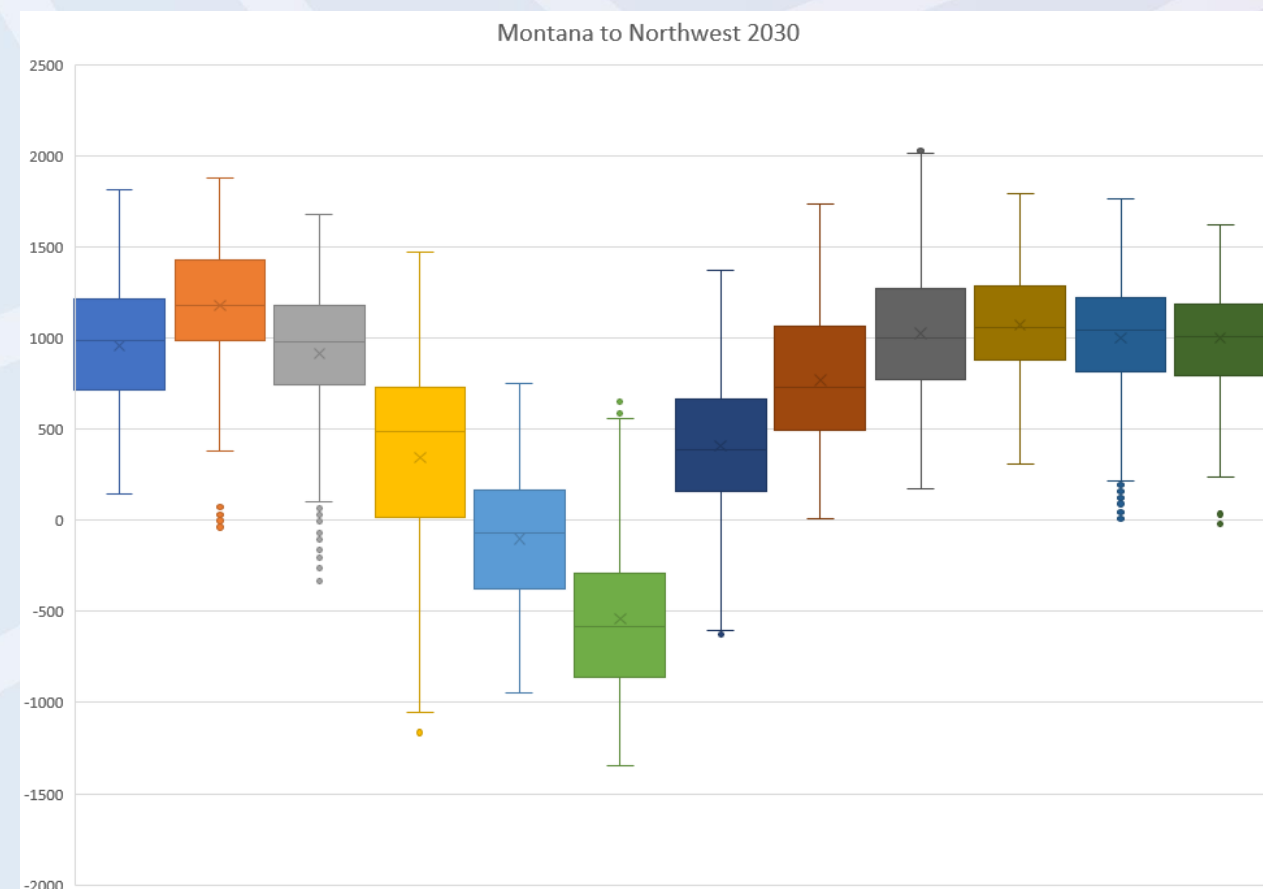
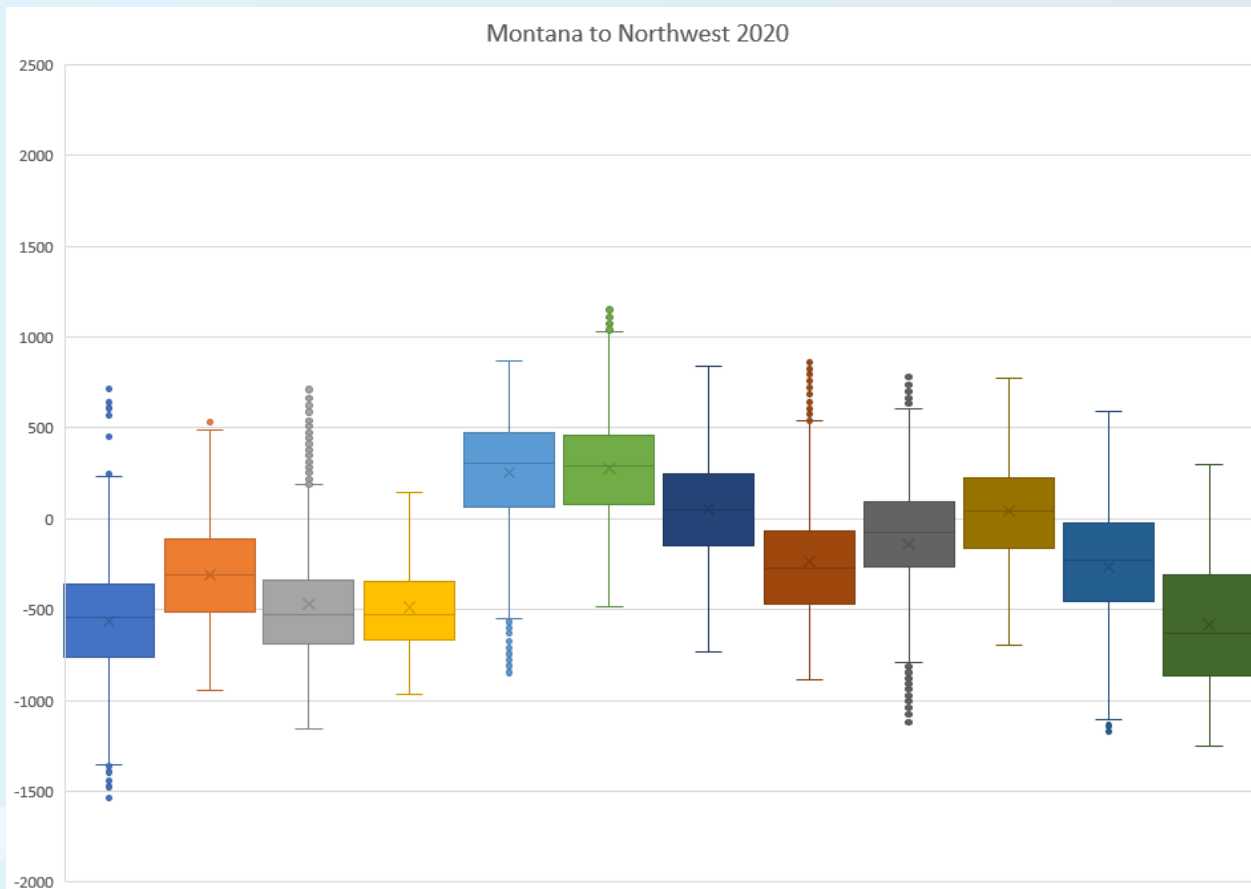


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# Northwest to Montana Monthly Transfer

## 2020

## 2030



■ January ■ February ■ March ■ April ■ May ■ June ■ July ■ August ■ September ■ October ■ November ■ December



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# Northwest to Montana Daily Transfers

4/19/1998



4/19/2020



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# Northwest to Montana Daily Transfers

4/19/2020



4/19/2030

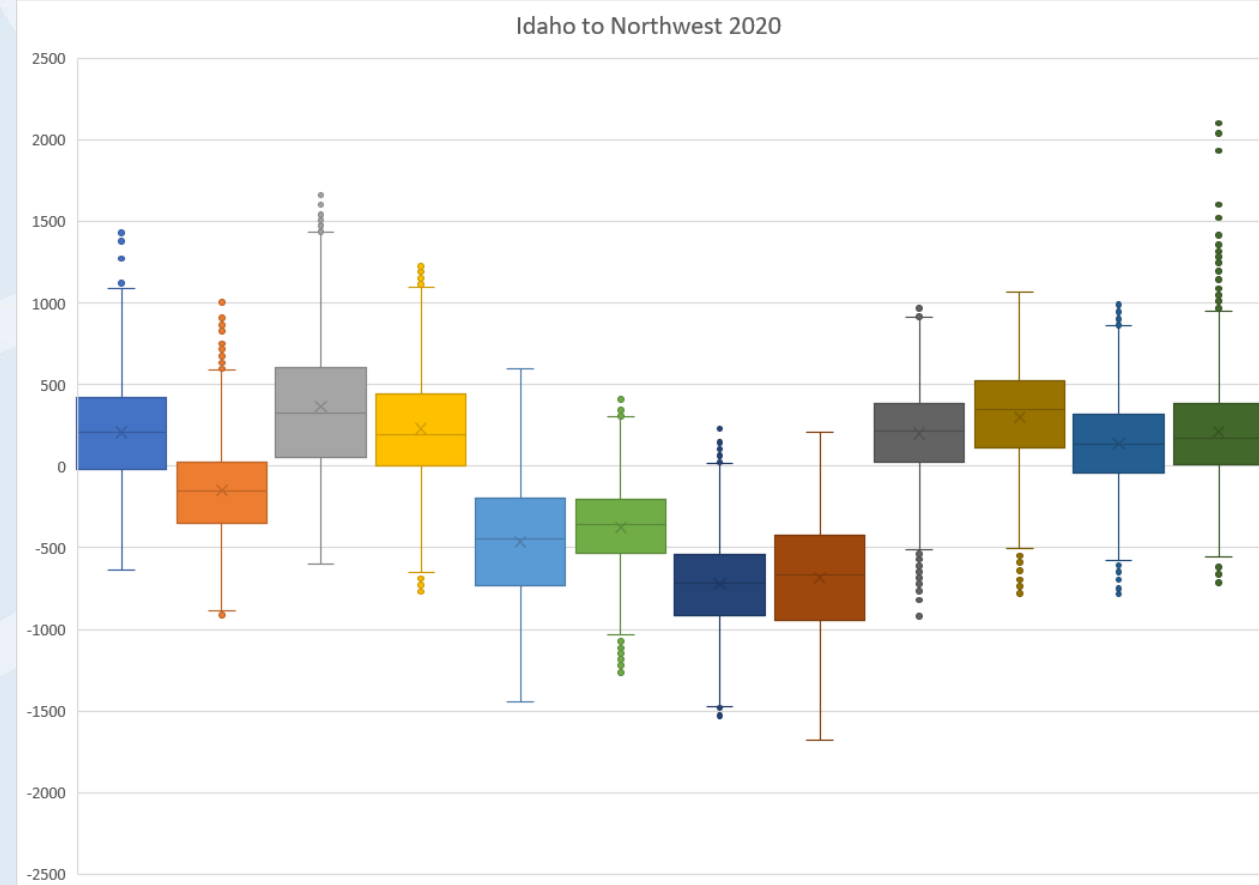
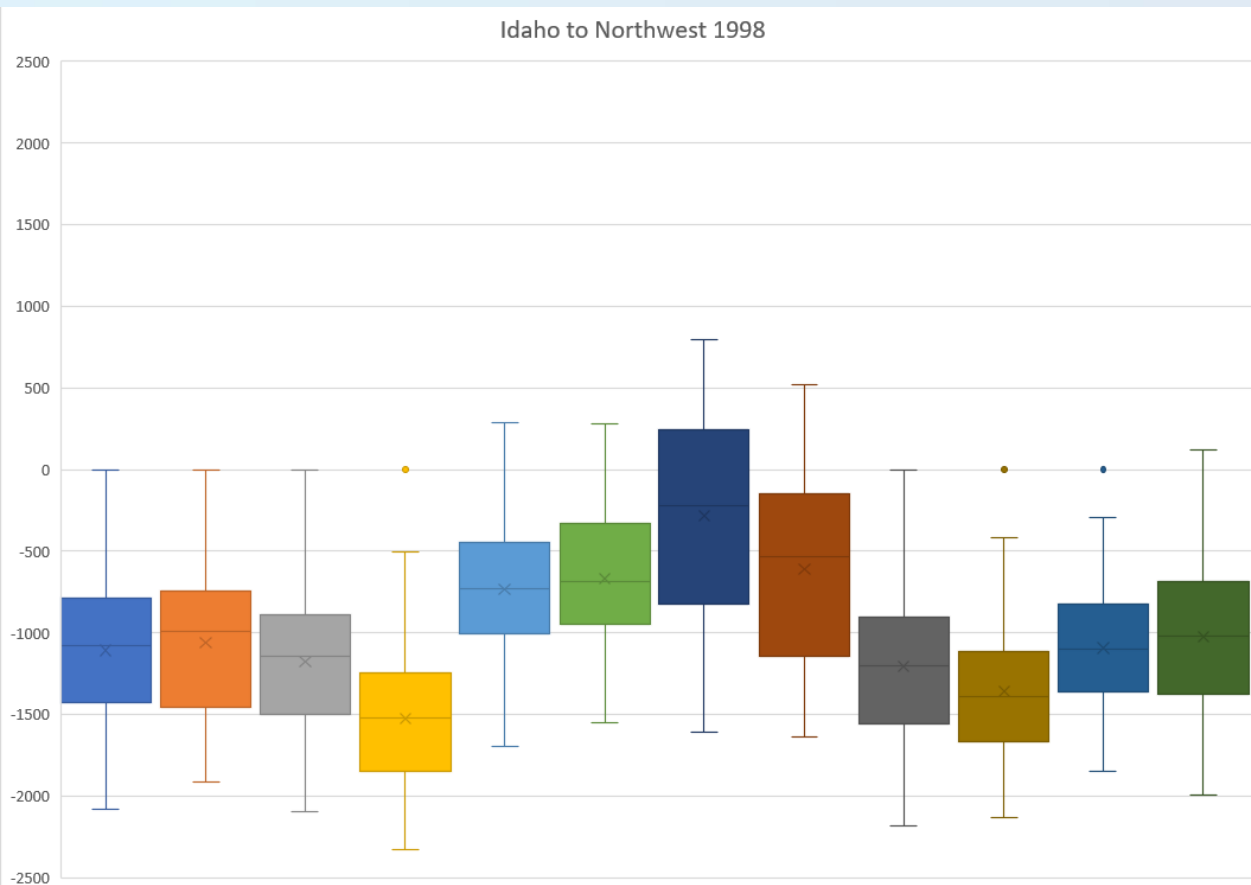


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# Northwest to Idaho Monthly Transfers

## 1998

## 2020



■ January ■ February ■ March ■ April ■ May ■ June ■ July ■ August ■ September ■ October ■ November ■ December

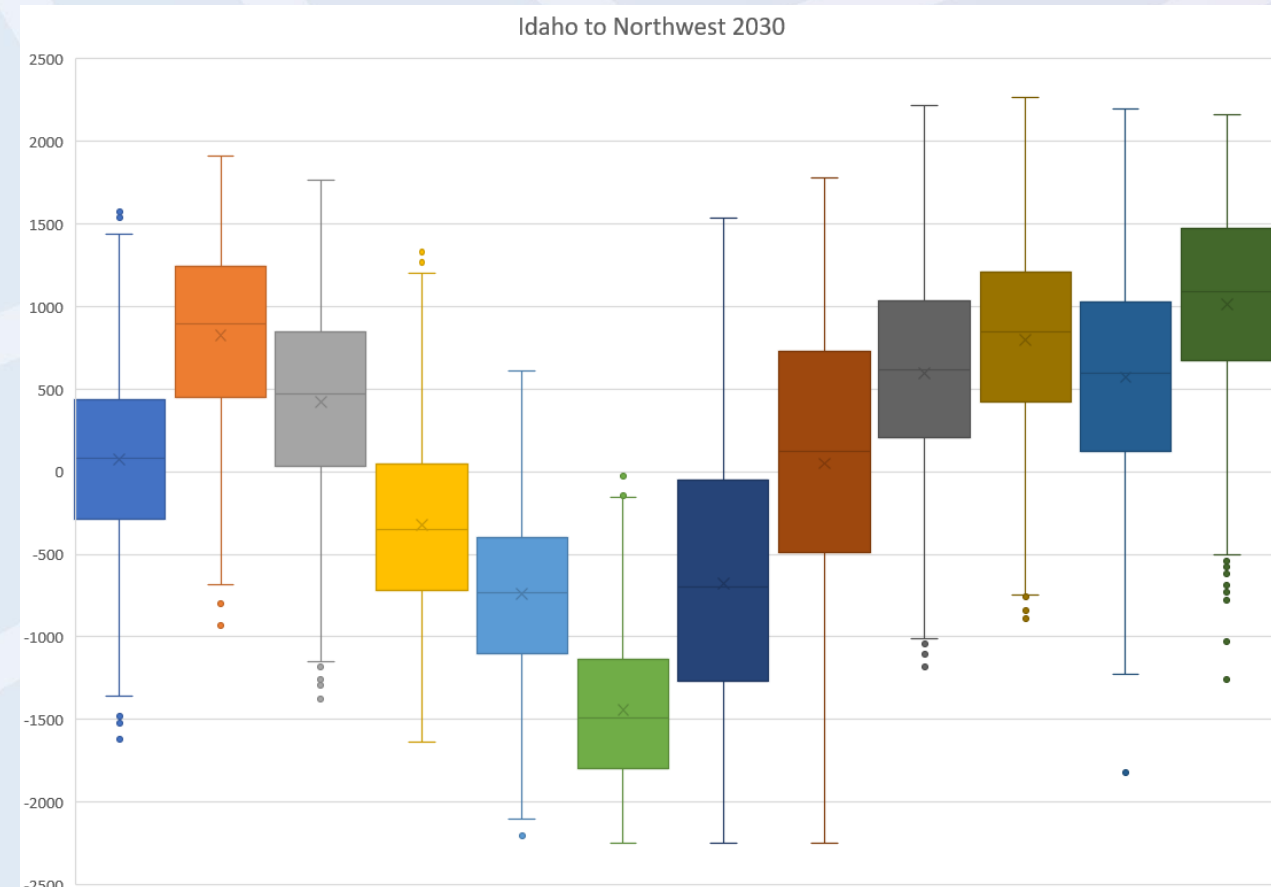
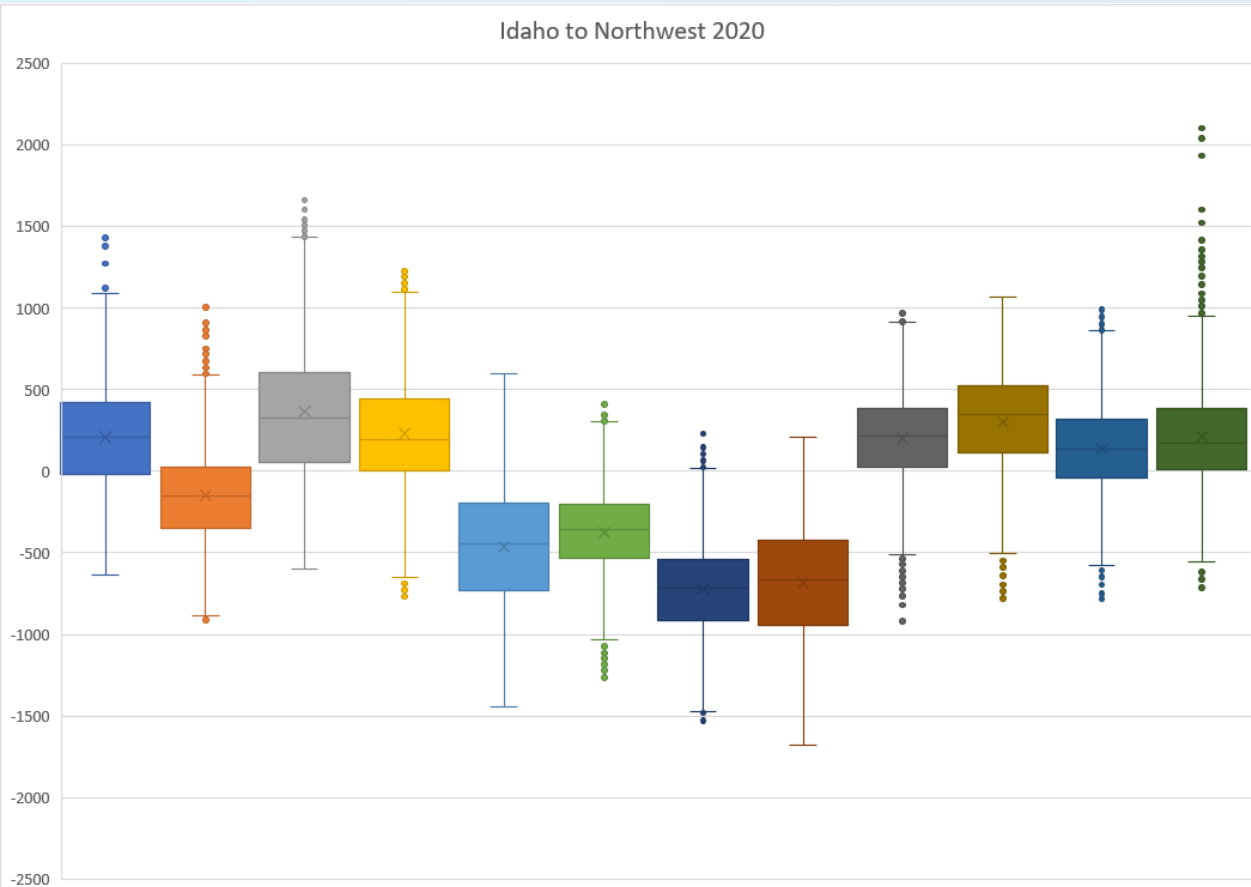


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# Northwest to Idaho Monthly Transfers

## 2020

## 2030



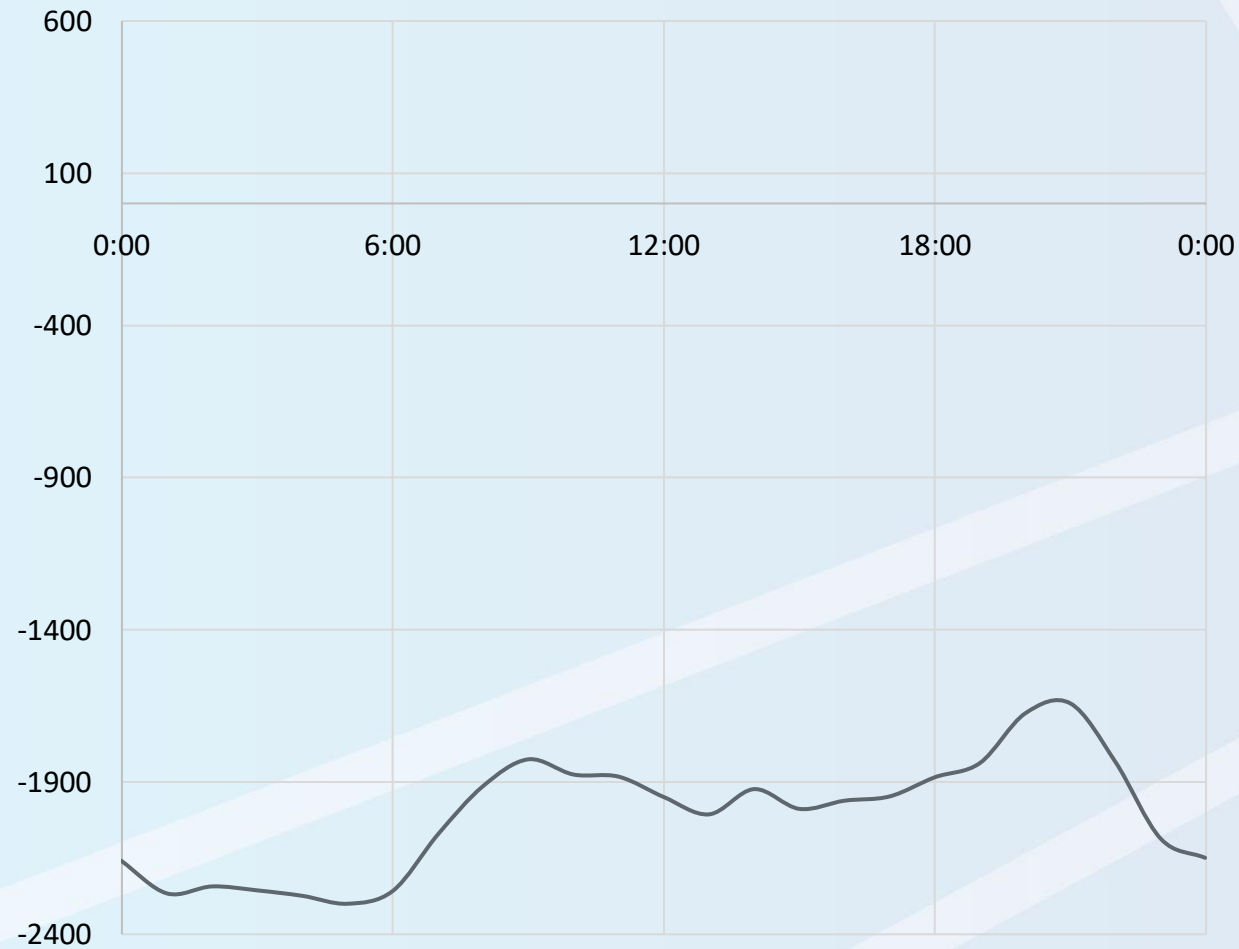
■ January ■ February ■ March ■ April ■ May ■ June ■ July ■ August ■ September ■ October ■ November ■ December



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# Northwest to Idaho Daily Transfers

4/19/1998



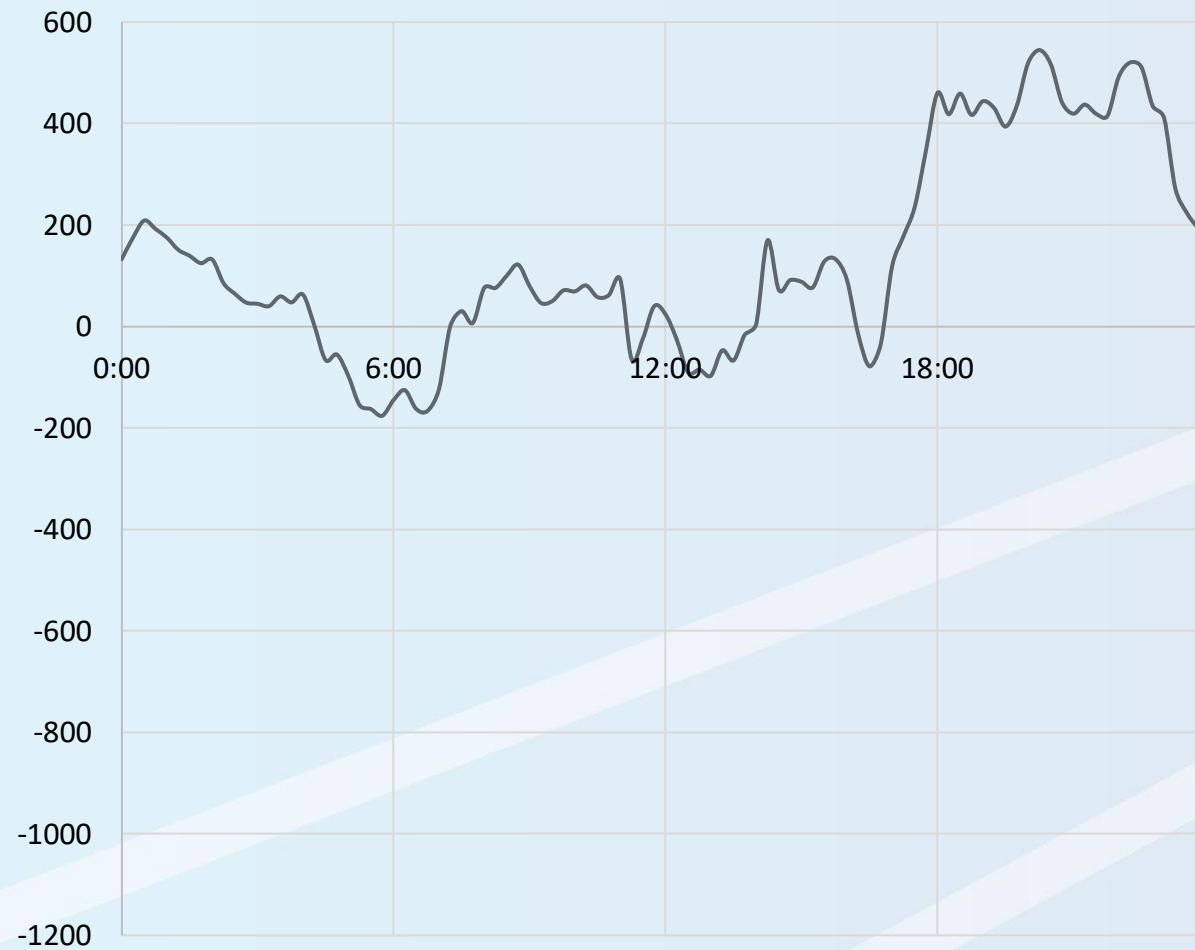
4/19/2020



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# Northwest to Idaho Daily Transfers

4/19/2020



4/19/2030

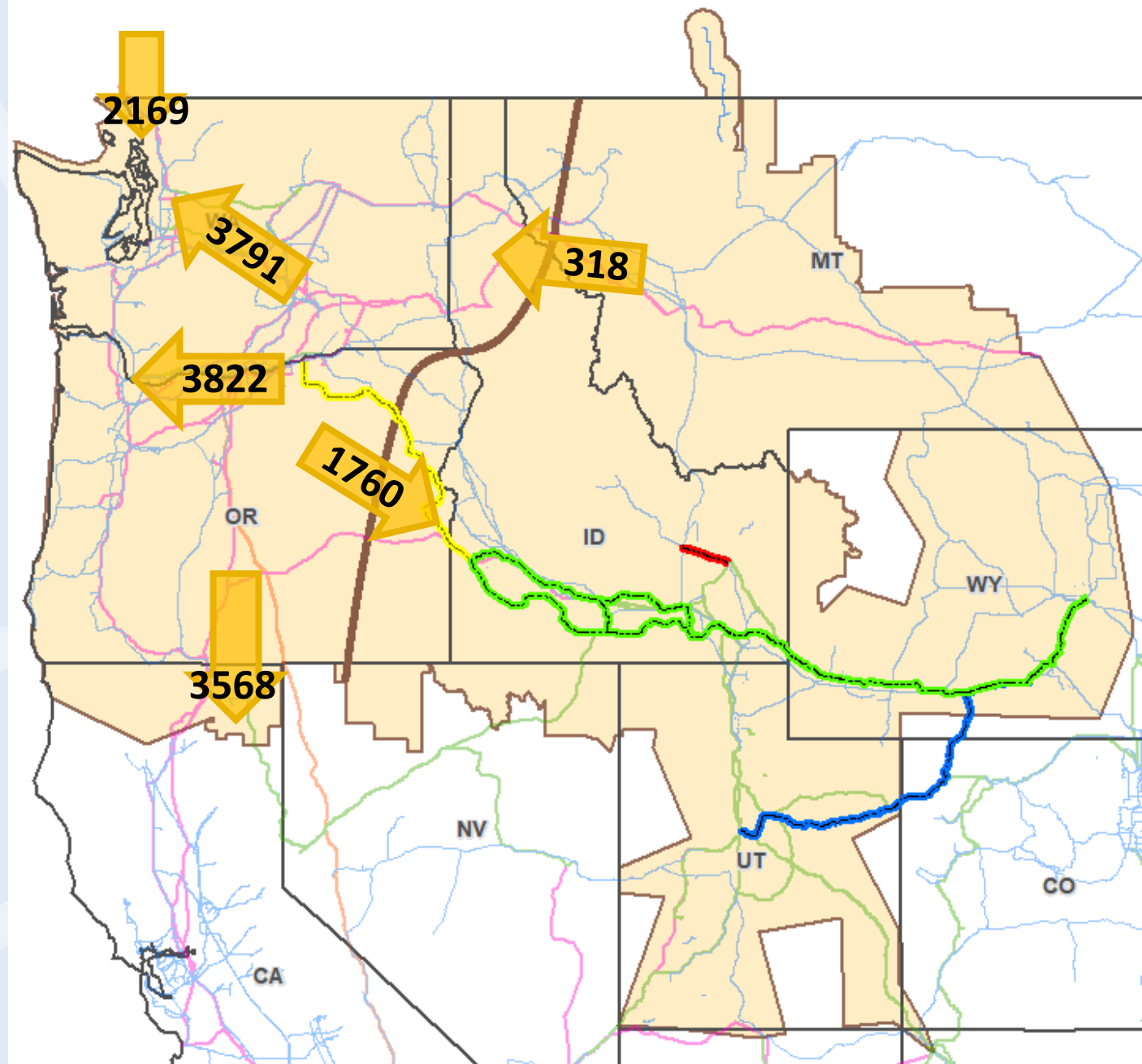


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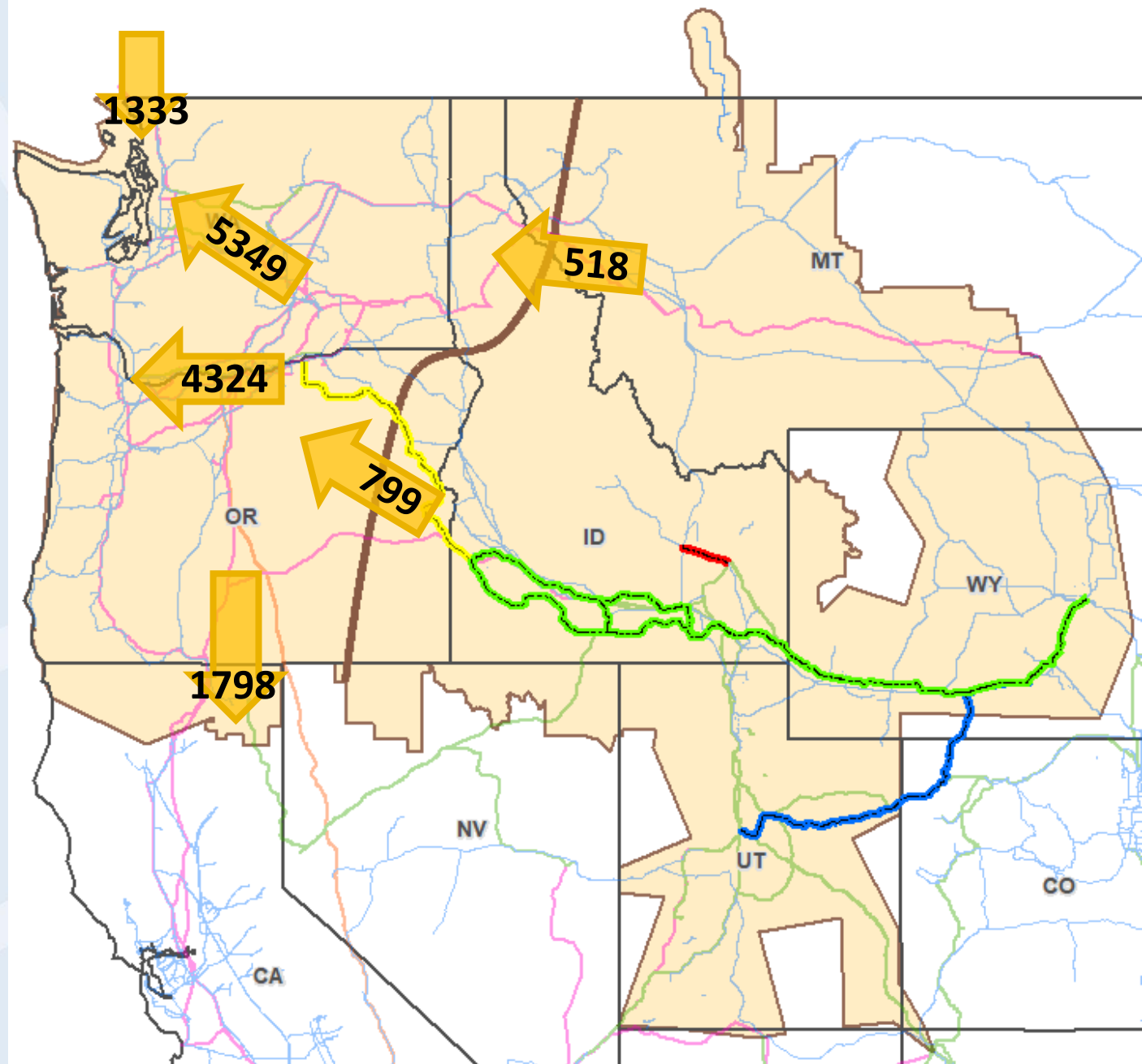
# Unpacking the Flows for Analysis



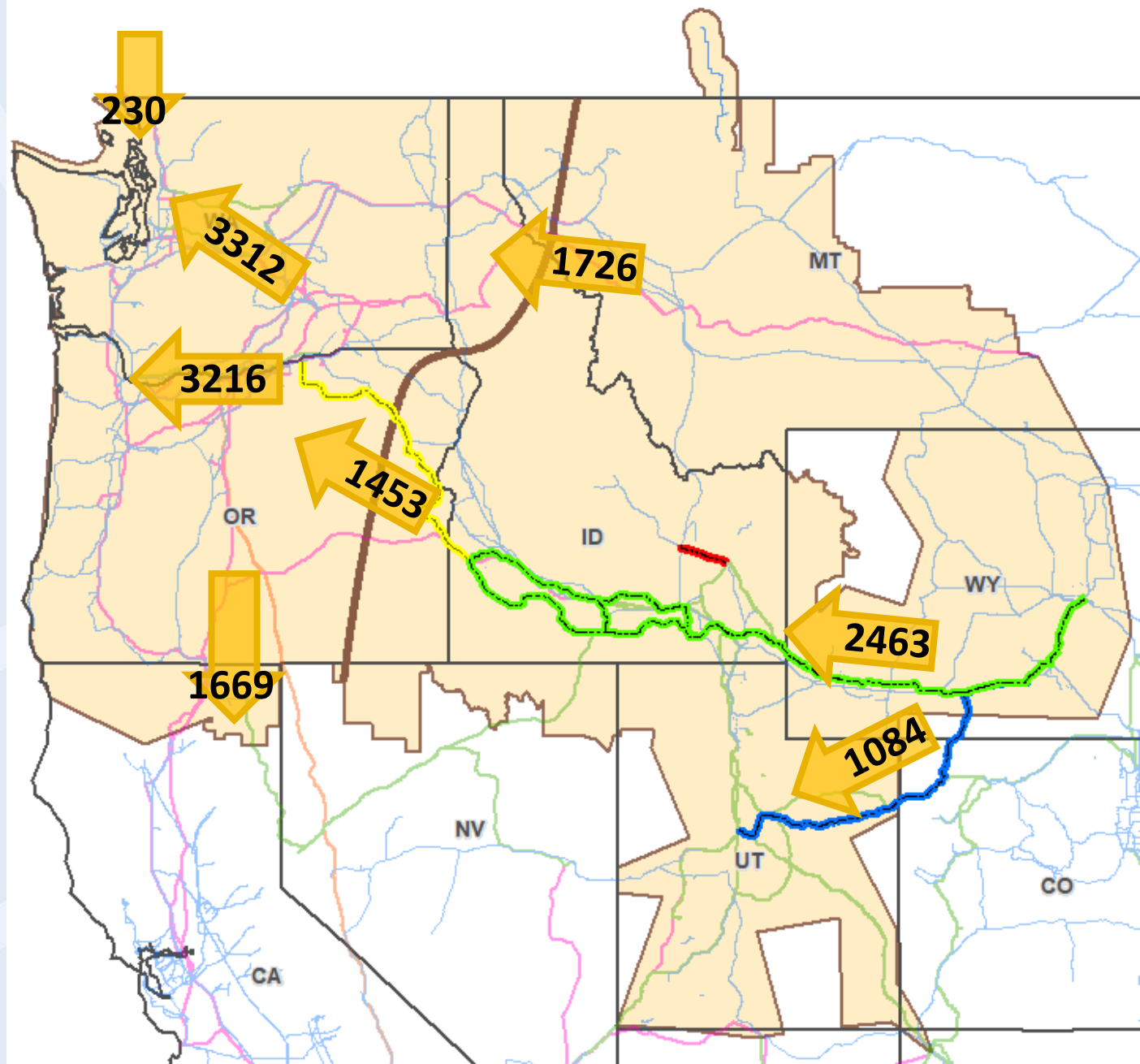
1) Heavy Summer  
Load  
July 30<sup>th</sup>  
Hour ending 16:00



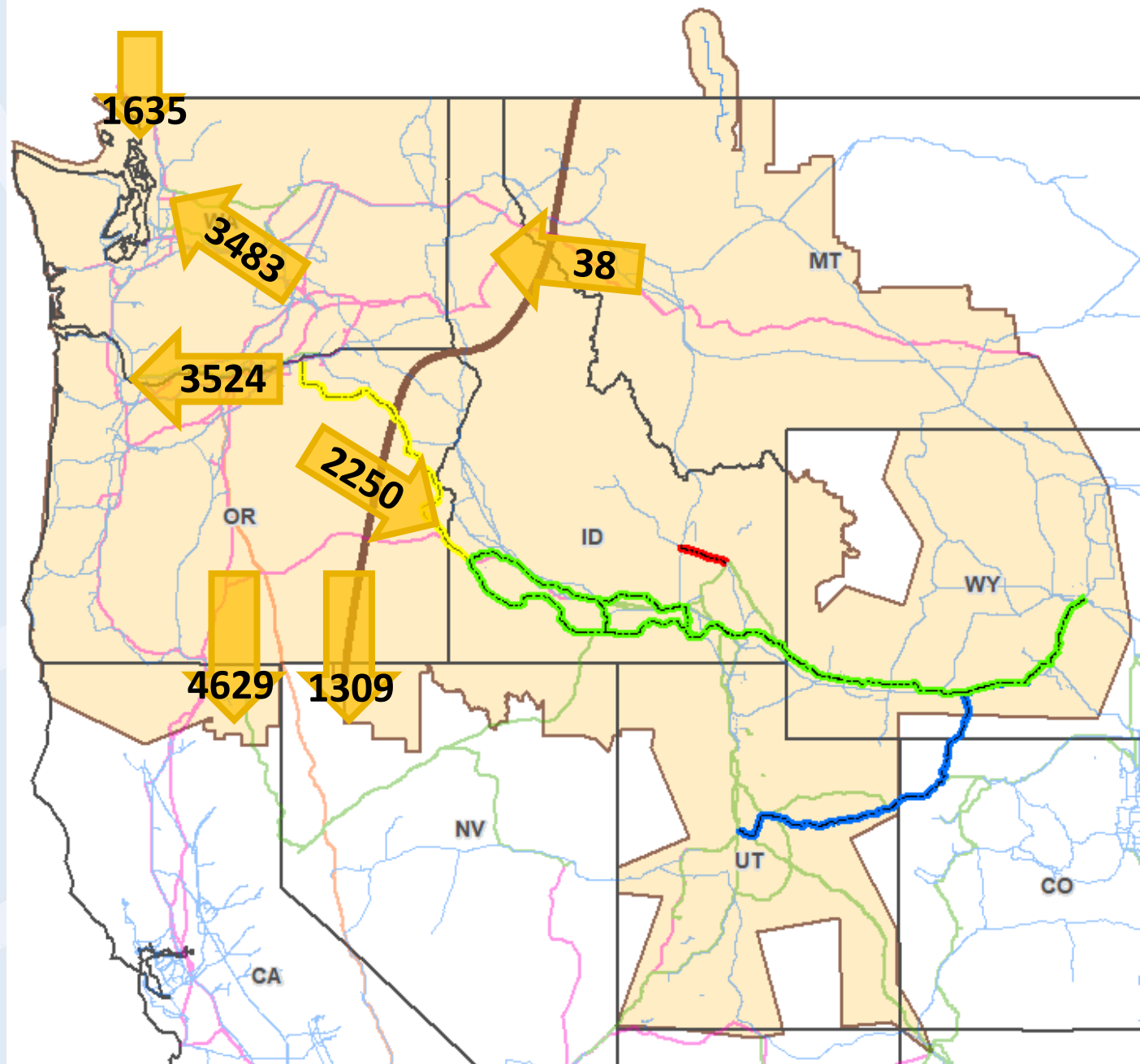
2) Heavy Winter  
Load  
December 19<sup>th</sup>  
Hour ending 12:00



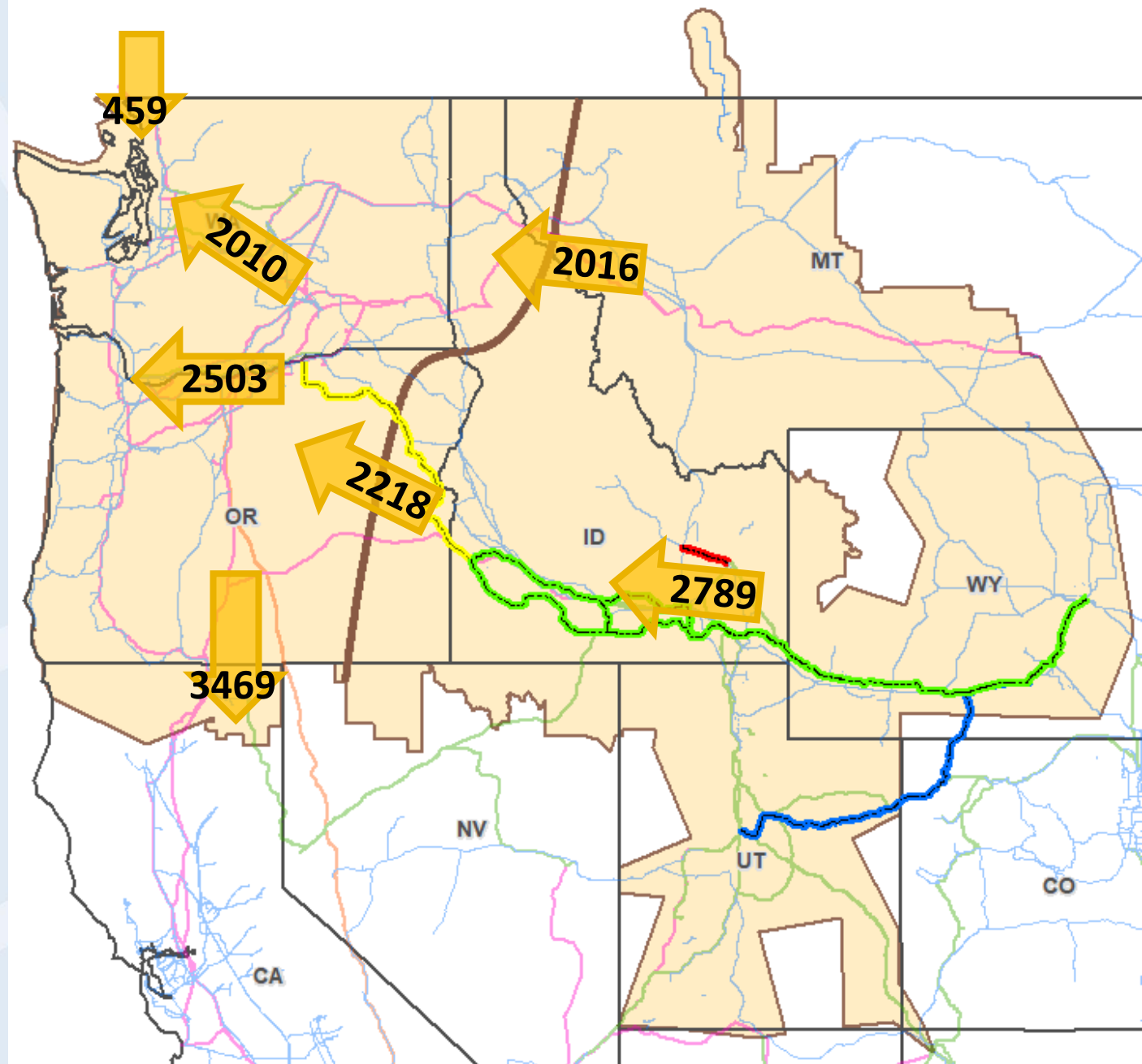
3) High Wyoming  
Wind Generation  
Output  
February 1<sup>st</sup>  
Hour ending 1:00



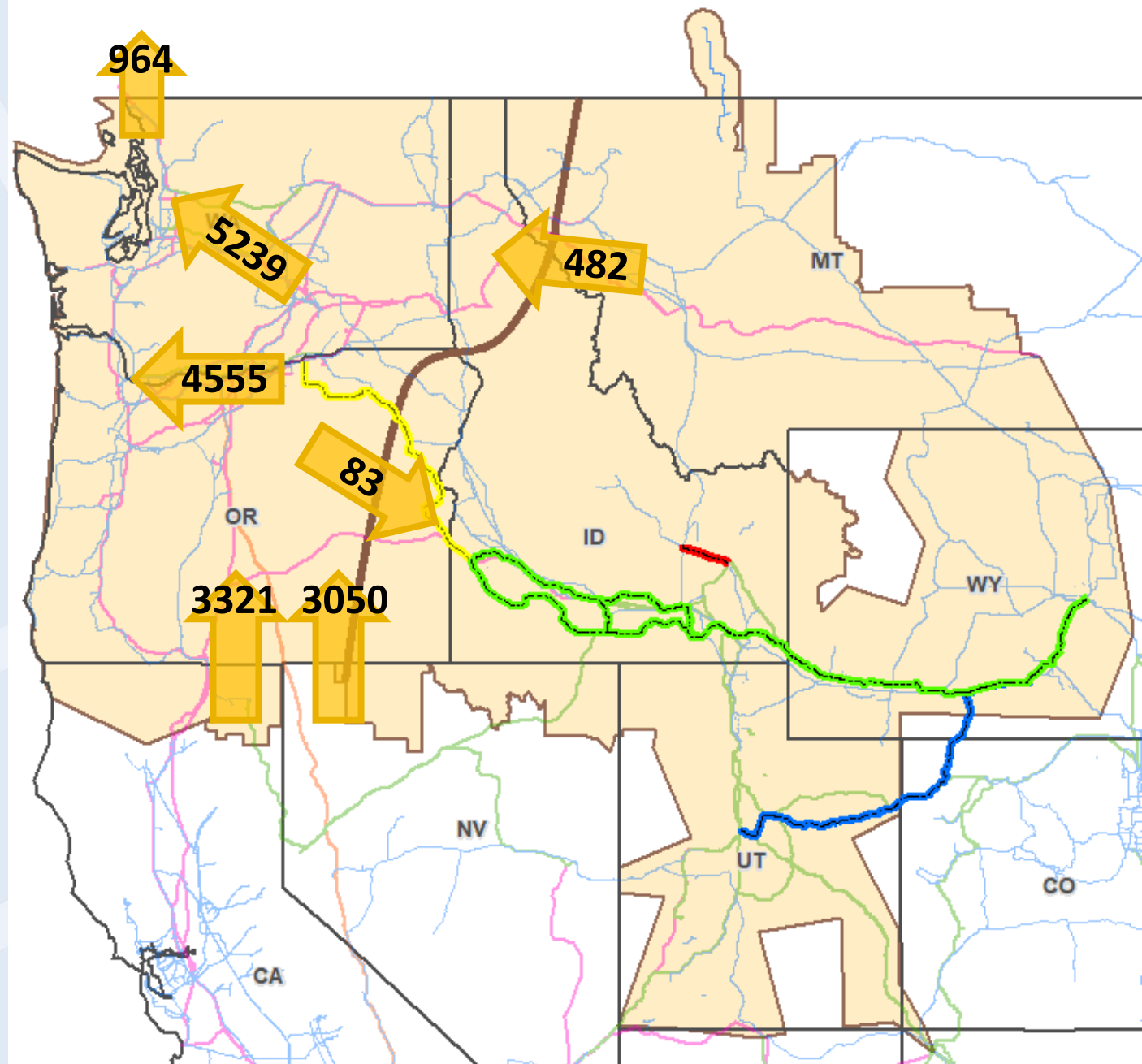
4) High Northwest  
to Idaho Transfer  
July 20th  
Hour ending 17:00



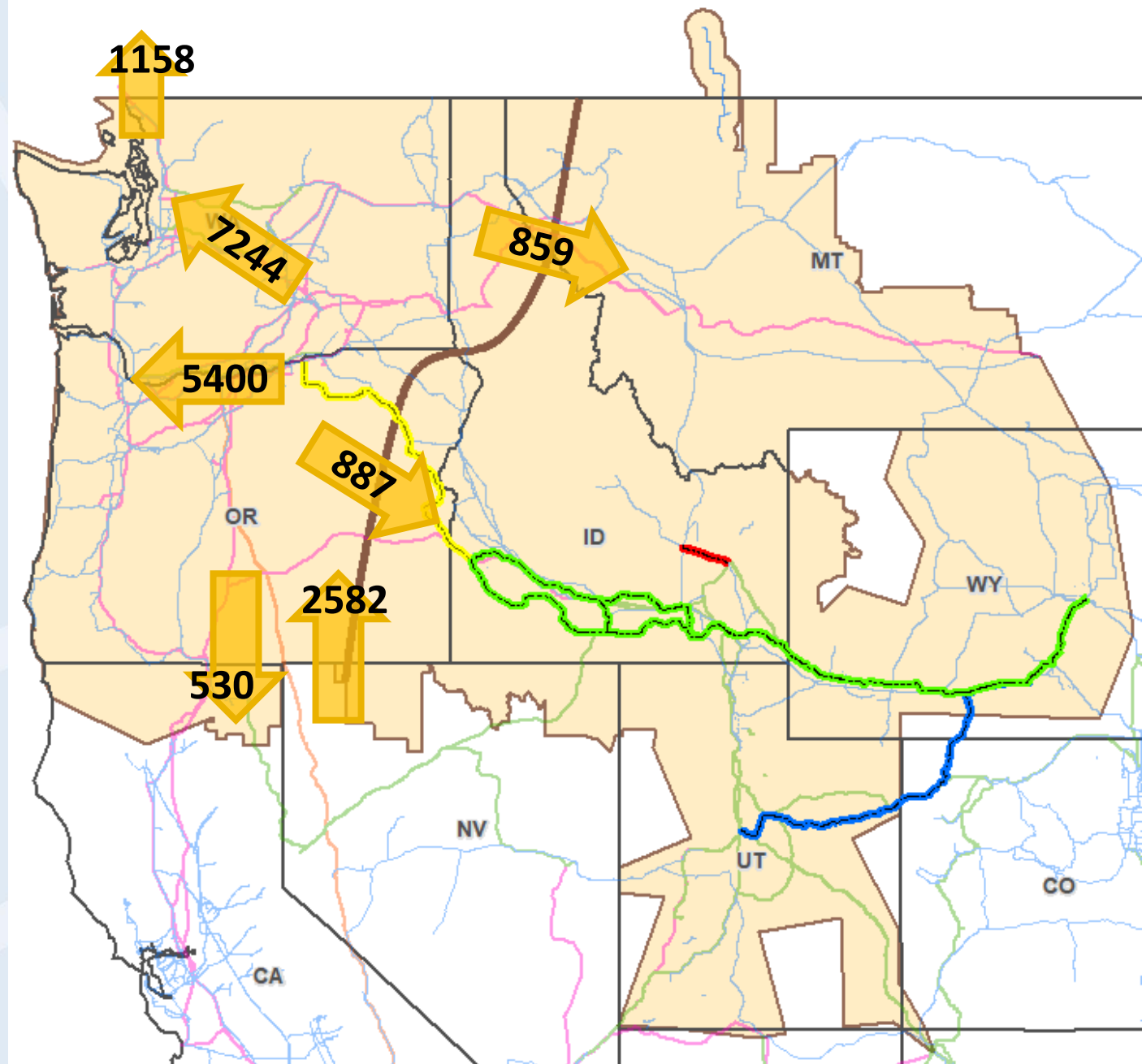
5) High Transfer  
Across Idaho  
September 29<sup>th</sup>  
Hour ending 1:00



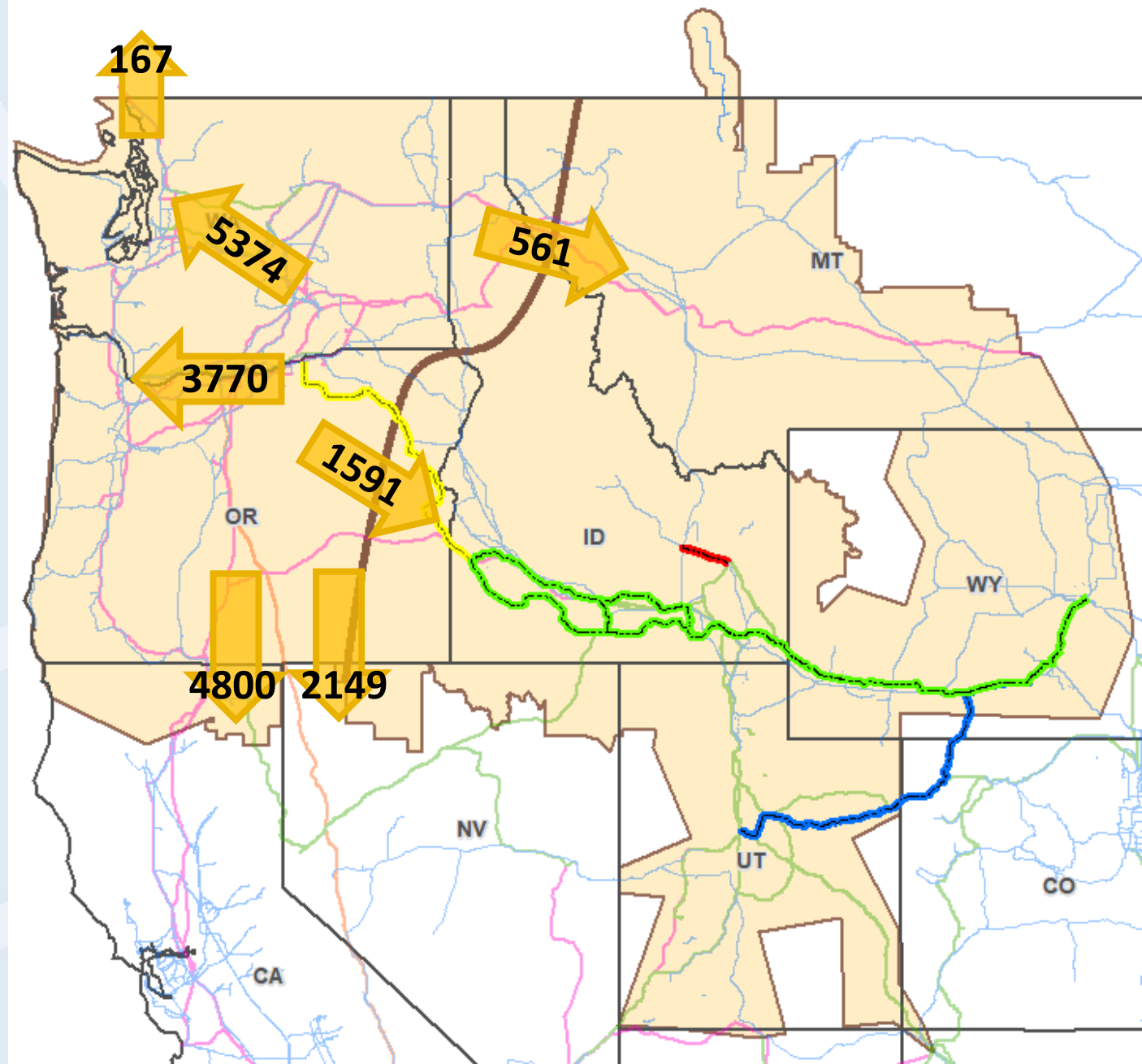
6) High California to  
Northwest Transfer  
March 10<sup>th</sup>  
Hour ending 15:00



7) High West of  
Cascades Transfer  
April 3<sup>rd</sup>  
Hour ending 11:00



8) High Northwest  
Hydro  
June 4<sup>th</sup>  
Hour ending 18:00



# Thank you!

Dave Angell

Vice President

Regional Transmission Activities

[dave.angell@nwpp.org](mailto:dave.angell@nwpp.org)



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