2020/21 Adequacy Assessment Changes since 2019

SAAC/RAAC Joint Committee Meeting

April 17, 2015

Northwest **Power** and **Conservation** Council

nwcouncil.org

1

Major Changes from 2019 Assessment

- 2020 load 310 aMW lower than 2019 load
  - 2019 forecast = 22,030 aMW
  - 2020 forecast = 21,720 aMW

- Big Hanaford (250 MW) removed

- Hydro operating constraints updated for current BiOp

- GENESYS enhancement
  - Improved purchase-ahead simulation
  - INC/DEC part of sustained-peak optimization
  - Streamlined logic, removed dead code

Northwest **Power** and **Conservation** Council

nwcouncil.org

Major Assumptions

- **Hourly Loads**
  - Include <u>projected</u> EE savings
  - 2020-21 projected savings ≈ 6th Plan Targets
- **SW Spot Market**
  - Winter: 2,500 MW all hours
  - Summer: 1,000 MW light-load hours only
- **Purchase Ahead Market**
  - Light load hours only, year round
  - 3000 MW
- **S-to-N Intertie Limit: 3,400 MW**

Northwest **Power** and
Conservation Council

nwcouncil.org

Energy Efficiency is Accounted for in the Hourly Load Forecast[1]

Embedded EE savings equal 6th Plan EE Targets in 2020-21

Legend:
- Actual/Estimated
- Embedded
- 6th Plan Targets
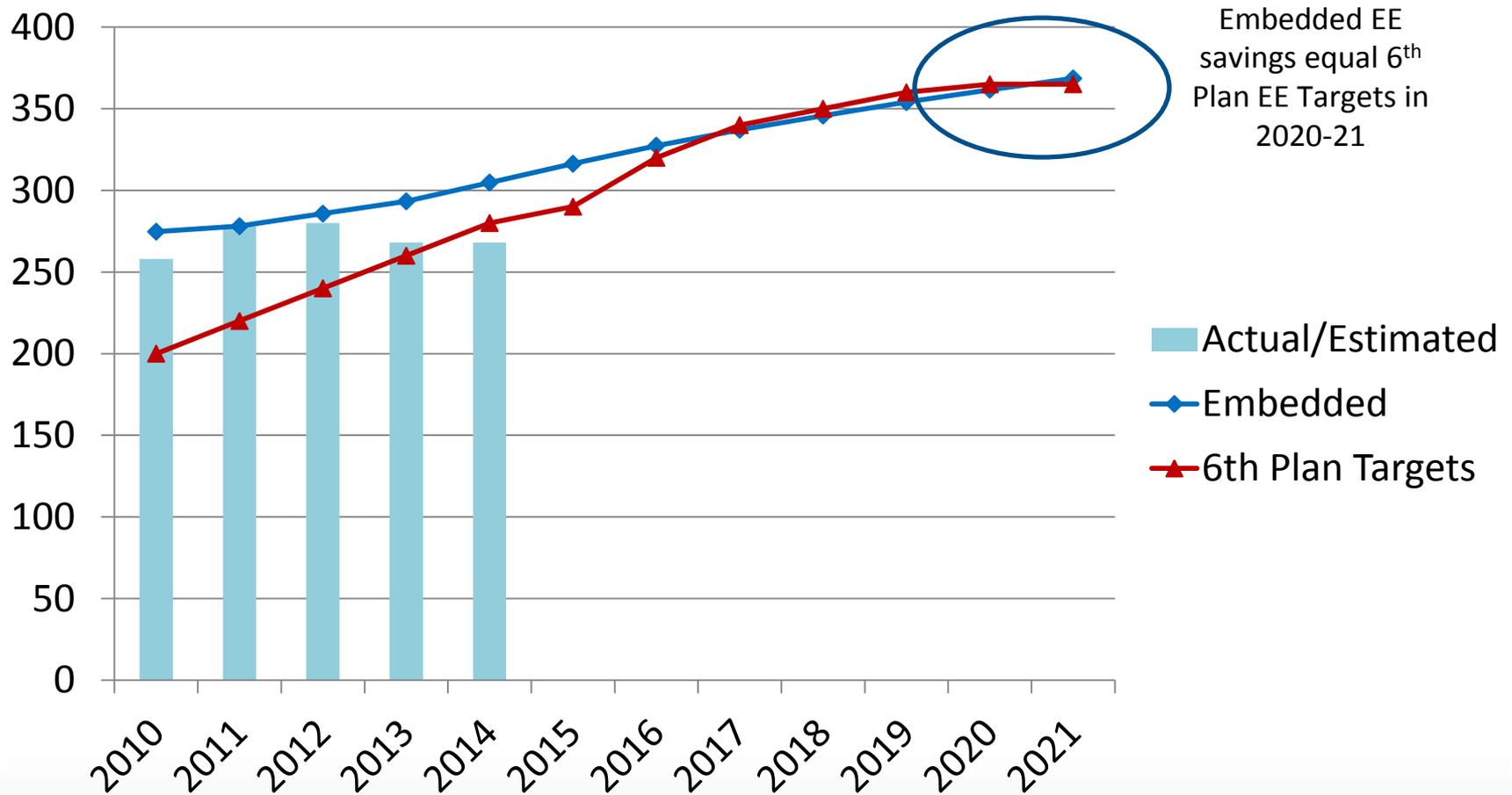
[1]Embedded Conservation equation was Last updated: 06/28/13

Historic S-to-N Intertie Limit

Percent Limit is Equal to or Less Than - February
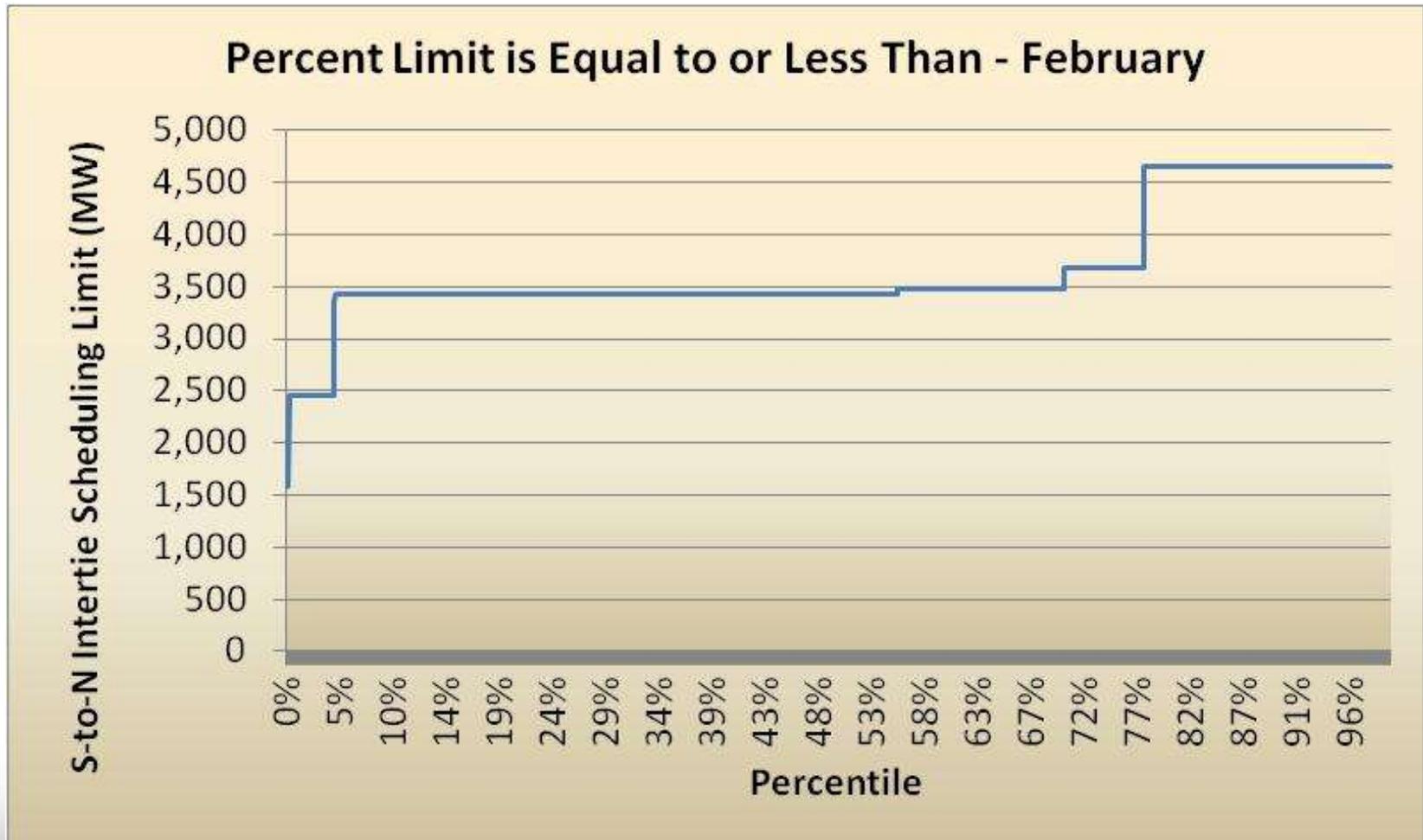
New and Standby Resources

Assumptions	2019	2020
Thermal	Sited and licensed	Sited and licensed
Wind	Sited and licensed (e.g. not RPS)	Sited and licensed (e.g. not RPS)
Existing demand response	In load forecast	In load forecast
New demand response	In standby resources	In standby resources
Standby resources energy	40,800 MW-hours	40,800 MW-hours
Standby resources capacity	623/833 winter/summer where winter = Oct-Mar, summer = Apr-Sep	623/833 winter/summer where winter = Oct-Mar, summer = Apr-Sep
Energy Efficiency magnitude	Council 6th plan targets	Projected Trend ≈ 6th Plan
Energy Efficiency shape	Same as load	Same as load

Northwest **Power** and **Conservation** Council

nwcouncil.org

Market Supplies

Assumptions	2019	2020
NW market winter, where winter = Nov-May	3,467 MW (full IPP)	3,021 MW (full IPP)
NW market summer, where summer = Jun-Oct	1,000 MW	1,000 MW
BC market	0 MW	0 MW
Southern Idaho market	0 MW	0 MW
SW winter spot market	2,500 MW (on peak only)	2,500 MW (all hours)
SW winter purchase ahead	3,000 MW (off peak)	3,000 MW (off peak)
SW summer spot market	0 MW	1000 MW (off peak only)
SW summer purchase ahead	3,000 MW (off peak)	3,000 MW (off peak)
Maximum SW import limit	3,400 MW	3,400 MW

Northwest **Power** and **Conservation** Council

nwcouncil.org

Within-hour Balancing Reserves

Assumptions	2019	2020
Fed Hydro balancing reserves	900/1100 MW INC/DEC	900/1100 MW INC/DEC Added to peak optimization
Non-Fed Hydro reserves	Not modeled	Not modeled
Non-hydro balancing reserves	Not modeled	Not modeled
New balancing reserves	Not modeled	Not modeled
Energy Imbalance Market	Not modeled	Not modeled
Borrowed hydro	1000 MW-periods	1000 MW-periods

Future Considerations

(if time permits)

Northwest **Power** and
Conservation Council

nwcouncil.org

Adequacy Metrics

- Review adequacy standard because LOLP may be too "lumpy"

- Consider using NERC's metrics
  - Expected Unserved Energy (EUE)
  - Loss of Load Hours (LOLH)

- Will need to develop new thresholds for EUE, LOLH or any other metric chosen

Modeling Issues

- 3-Node Configuration
  - Split off southern Idaho
  - Code in place but problem with hydro correlation due to 1-dam model representation
  - Will consider using multi-dam logic for future

- Capacity Assessment
  - Aggregating hydro (1-dam) for hourly dispatch may be too blunt
  - Consider developing multi-dam logic for future

Northwest **Power** and **Conservation** Council

nwcouncil.org

Gas Supply Limitations

- Current Assumption: no gas limitation

- Options
  - Reduce gas availability (gas-fired generation) by fixed amount when NW temperatures are extreme
  - Make gas-fired generation availability a function of NW temperature

Capacity/Energy Values for Wind and Solar

- ELCC values for wind/solar are not used in GENESYS (it models wind/solar explicitly)

- Current Assumptions for use in the Adequacy Reserve Margin (ARM)
  - Wind Energy = 30%
  - Wind Capacity = 5%

- Options
  - Calculate Energy/Capacity ELCC for wind/solar
  - Use these values for the ARM calculation

Northwest **Power** and **Conservation** Council

nwcouncil.org

Market Friction

- Current Assumption – not modeled

- Options
  - <u>Out-of-region imports</u>: apply more severe limits to max available
  - <u>In-region</u>: Reduce availability of IPPs
  - Apply reduction as a function of severity of potential shortfall

Northwest **Power** and **Conservation** Council

nwcouncil.org