2019 Integrated Resource Plan (IRP) Public Input Meeting September 5-6, 2019




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Agenda

September 5 – Day One

- 9:00am-11:15am pacific – Portfolio Analysis Results
- 11:15am-12:00pm pacific – Lunch Break
- 12:00pm-2:00pm pacific – Portfolio Analysis Results
- 2:00pm-2:15pm – Break
- 2:15pm-4:00pm pacific – Portfolio Analysis Results

September 6 – Day Two

- 8:30am-11:15am pacific – Portfolio Analysis Results
- 11:15am-12:00pm pacific – Lunch Break
- 12:00pm-2:00pm pacific – Portfolio Analysis Results
- 2:00pm-2:20pm pacific – Stakeholder Feedback Form Recap
- 2:20pm-2:30pm pacific – Wrap-Up / Next Steps

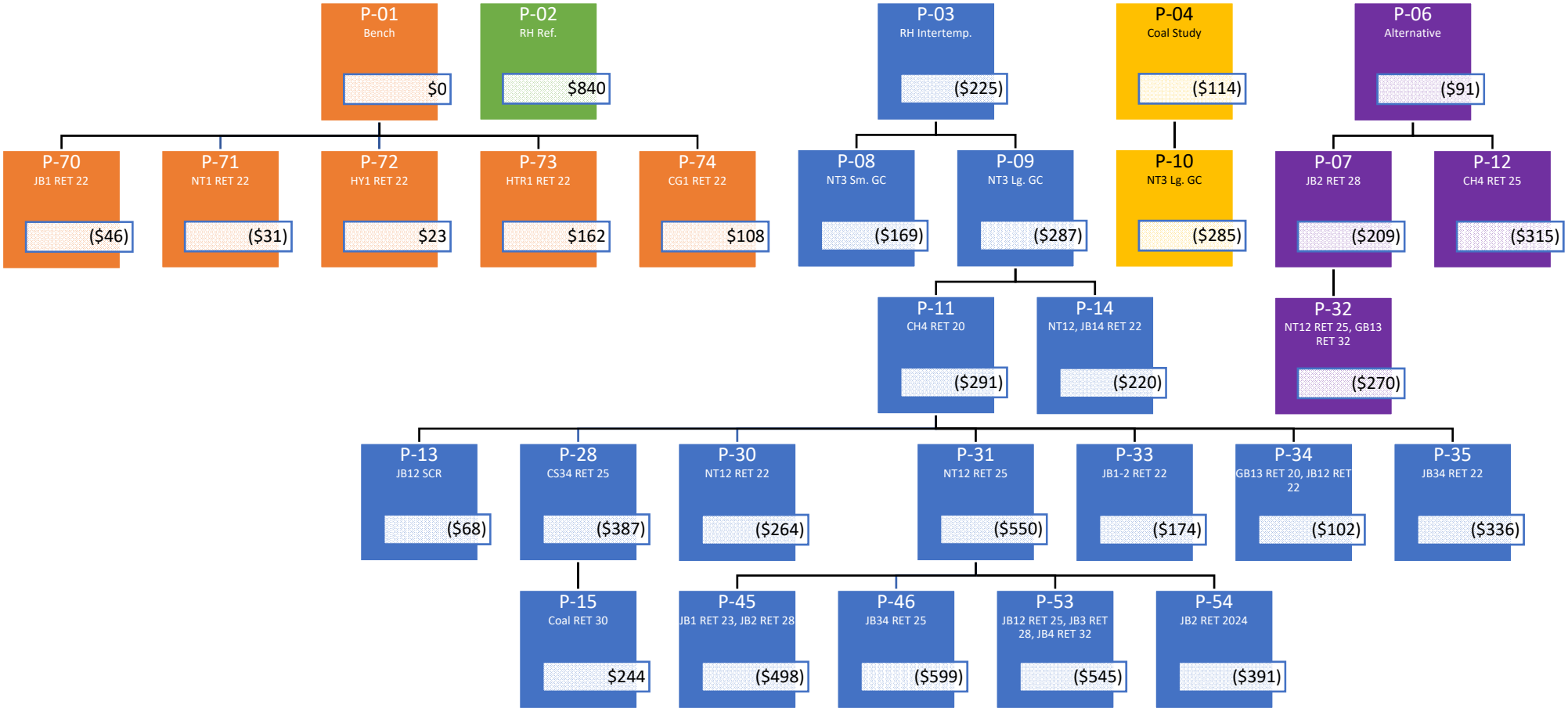
Overview

- Since the July 18, 2019 conference call, PacifiCorp has been working to update its portfolio modeling to reflect the following:
  - Corrected mine reclamation costs that were impacting Jim Bridger units.
  - Optimized Gateway South transmission availability for model to select as early as 2024 as a proxy for year-end 2023.
  - Enabled the availability of proxy solar resources in northern Utah.
- Additionally, updated modeling reflects the following corrections:
  - Corrected battery capital recovery factor in Southern Oregon which had inadvertently not been updated to match the supply-side table.
  - Corrected solar investment tax credit to accurately reflect construction timing for eligibility of the credit.
- Thirty cases have been updated, including additional cases requested by stakeholders—additional cases will be developed this month (Energy Gateway cases, price-policy cases, FOT risk analysis, alternative DSM analysis, sensitivity cases) before the 2019 IRP preferred portfolio can be identified.
  - For the five cases having the lowest system PVRR, PacifiCorp has performed more granular reliability analysis (“B” series) and incremental analysis to evaluate solar+battery resource options (“C” series).
  - Price-policy scenario studies have also been completed for these cases.

Portfolios Developed in Response to Stakeholder Requests

- P-15a = a variant of P-28, alternative timing for assumed retirement dates in the case (P-15) that assumes all coal is retired by 2030.
- P-45 = a variant of P-31, alternative timing for assumed retirement dates for Jim Bridger Units 1 and 2 to 2023 and 2028, respectively.
- P-46 = a variant of P-31, alternative timing for assumed retirement dates for Jim Bridger Units 3 and 4, both to 2025.
- P-53 = a variant of P-31, alternative timing for assumed retirement dates for Jim Bridger Units 1 and 2, both to 2025, and Units 3 and 4 to 2028 and 2032, respectively.
- P-54 = a variant of P-31, alternative timing for assumed retirement dated for Jim Bridger Unit 2 in 2024.
- P-70 = a variant of P-01, assumes Jim Bridger Unit 1 retirement in 2022.
- P-71 = a variant of P-01, assumes Naughton Unit 1 retirement in 2022.
- P-72 = a variant of P-01, assumes Hayden Unit 1 retirement in 2022.
- P-73 = a variant of P-01, assumes Hunter Unit 1 retirement in 2022.
- P-74 = a variant of P-01, assumes Craig Unit 1 retirement in 2022.

Portfolio Development Case Family Tree



- The dollar values for each case represent the increase/(decrease) in system PVRR relative to Case P-01 with medium gas, medium CO_2 price-policy assumptions.
- Cases P-70 through P-74 reaffirm that potential early coal unit retirements should be focused on Naughton and Jim Bridger units.
- Cases P-31, P-45, P-46, P-53 and P-54 yield portfolios that produce the lowest system PVRRs—each assumes Naughton Units 1-2 retire at the end of 2025 and have a range of retirement assumptions for Jim Bridger units.
- Early coal retirement assumptions for each of these cases is set forth in the following slides.

Early Retirement Assumptions

Coal Unit (PAC Share MW)	P-01 (Benchmark)	P-02 (Reg. Haze Ref.)	P-03 (Reg. Haze. Intertemp.)	P-04 (Coal Study)	P-06 (Alternative)
Cholla 4 (387)	**RET 2020**	**RET 2025**	**RET 2025**	**RET 2020**	**RET 2020**
Colstrip 3 (74)	RET 2046	RET 2027	RET 2027	RET 2046	RET 2027
Colstrip 4 (74)	RET 2046	RET 2027	RET 2027	RET 2046	RET 2027
Craig 1 (82)	**RET 2025**	**RET 2025**	**RET 2025**	**RET 2025**	**RET 2025**
Craig 2 (82)	RET 2034	**RET 2026**	**RET 2026**	RET 2034	**RET 2025**
Dave Johnston 1 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 2 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 3 (220)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 4 (330)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Hayden 1 (44)	RET 2030	RET 2030	RET 2030	RET 2030	RET 2030
Hayden 2 (33)	RET 2030	RET 2030	RET 2030	RET 2030	RET 2030
Hunter 1 (418)	RET 2042	SCR 2022 RET 2042	RET 2042	RET 2042	RET 2042
Hunter 2 (269)	RET 2042	SCR 2023 RET 2042	RET 2042	RET 2042	RET 2042
Hunter 3 (471)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Huntington 1 (459)	RET 2036	SCR 2022 RET 2036	RET 2036	RET 2036	RET 2036
Huntington 2 (450)	RET 2036	SCR 2023 RET 2036	RET 2036	RET 2036	RET 2036
Jim Bridger 1 (354)	SCR 2022 RET 2037	SCR 2022 RET 2037	**No SCR RET 2028**	**No SCR RET 2022**	**No SCR RET 2022**
Jim Bridger 2 (359)	SCR 2021 RET 2037	SCR 2021 RET 2037	**No SCR RET 2032**	**No SCR RET 2022**	**No SCR RET 2032**
Jim Bridger 3 (349)	RET 2037	RET 2037	RET 2037	RET 2037	RET 2037
Jim Bridger 4 (353)	RET 2037	RET 2037	RET 2037	RET 2037	RET 2037
Naughton 1 (156)	RET 2029	RET 2029	RET 2029	**RET 2022**	RET 2029
Naughton 2 (201)	RET 2029	RET 2029	RET 2029	**RET 2022**	RET 2029
Naughton 3 (280)	**RET 2019**	**RET 2019**	**RET 2019**	**RET 2019**	**Lg. GC 2020 RET 2029**
Wyodak (268)	RET 2039	SCR 2024 RET 2039	RET 2039	RET 2039	RET 2039
Gadsby 1-3 Gas (238)	RET 2032	RET 2032	RET 2032	RET 2032	**RET 2020**

Red text identifies early retirement relative to current non-Oregon depreciable lives.

Early Retirement Assumptions

Coal Unit (PAC Share MW)	P-07 (P-06, JB2 RET 28)	P-08 (P-03, NT3 Small GC)	P-09 (P-03, NT3 Large GC)	P-10 (P-04, NT3 Large GC)	P-11 (P-09, CH4 RET 2020)
Cholla 4 (387)	**RET 2020**	**RET 2025**	**RET 2025**	**RET 2020**	**RET 2020**
Colstrip 3 (74)	RET 2027	RET 2027	RET 2027	RET 2046	RET 2027
Colstrip 4 (74)	RET 2027	RET 2027	RET 2027	RET 2046	RET 2027
Craig 1 (82)	**RET 2025**	**RET 2025**	**RET 2025**	**RET 2025**	**RET 2025**
Craig 2 (82)	**RET 2025**	**RET 2026**	**RET 2026**	RET 2034	**RET 2026**
Dave Johnston 1 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 2 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 3 (220)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 4 (330)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Hayden 1 (44)	RET 2030	RET 2030	RET 2030	RET 2030	RET 2030
Hayden 2 (33)	RET 2030	RET 2030	RET 2030	RET 2030	RET 2030
Hunter 1 (418)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Hunter 2 (269)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Hunter 3 (471)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Huntington 1 (459)	RET 2036	RET 2036	RET 2036	RET 2036	RET 2036
Huntington 2 (450)	RET 2036	RET 2036	RET 2036	RET 2036	RET 2036
Jim Bridger 1 (354)	**No SCR RET 2022**	**No SCR RET 2028**	**No SCR RET 2028**	**No SCR RET 2022**	**No SCR RET 2028**
Jim Bridger 2 (359)	**No SCR RET 2028**	**No SCR RET 2032**	**No SCR RET 2032**	**No SCR RET 2022**	**No SCR RET 2032**
Jim Bridger 3 (349)	RET 2037	RET 2037	RET 2037	RET 2037	RET 2037
Jim Bridger 4 (353)	RET 2037	RET 2037	RET 2037	RET 2037	RET 2037
Naughton 1 (156)	RET 2029	RET 2029	RET 2029	**RET 2022**	RET 2029
Naughton 2 (201)	RET 2029	RET 2029	RET 2029	**RET 2022**	RET 2029
Naughton 3 (280)	**Lg. GC 2020 RET 2029**	**Sm. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**
Wyodak (268)	RET 2039	RET 2039	RET 2039	RET 2039	RET 2039
Gadsby 1-3 Gas (238)	**RET 2020**	RET 2032	RET 2032	RET 2032	RET 2032

Red text identifies early retirement relative to current non-Oregon depreciable lives.

Early Retirement Assumptions

Coal Unit (PAC Share MW)	P-12 (P-06, CH4 RET 25)	P-13 (P-11, JB12 SCRs)	P-14 (P-09, NT12, JB14 RET 22)	P-15 (P-28, Coal RET 30)	P-28 (P-11, CS34 RET 2025)
Cholla 4 (387)	**RET 2025**	**RET 2020**	**RET 2020**	**RET 2020**	**RET 2020**
Colstrip 3 (74)	RET 2027	RET 2027	RET 2027	**RET 2026**	**RET 2025**
Colstrip 4 (74)	RET 2027	RET 2027	RET 2027	**RET 2026**	**RET 2025**
Craig 1 (82)	**RET 2025**	**RET 2025**	**RET 2025**	**RET 2023**	**RET 2025**
Craig 2 (82)	**RET 2025**	**RET 2026**	**RET 2026**	**RET 2023**	**RET 2026**
Dave Johnston 1 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 2 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 3 (220)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 4 (330)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Hayden 1 (44)	RET 2030	RET 2030	RET 2030	**RET 2025**	RET 2030
Hayden 2 (33)	RET 2030	RET 2030	RET 2030	**RET 2024**	RET 2030
Hunter 1 (418)	RET 2042	RET 2042	RET 2042	**RET 2028**	RET 2042
Hunter 2 (269)	RET 2042	RET 2042	RET 2042	**RET 2029**	RET 2042
Hunter 3 (471)	RET 2042	RET 2042	RET 2042	**RET 2030**	RET 2042
Huntington 1 (459)	RET 2036	RET 2036	RET 2036	**RET 2028**	RET 2036
Huntington 2 (450)	RET 2036	RET 2036	RET 2036	**RET 2029**	RET 2036
Jim Bridger 1 (354)	**No SCR RET 2022**	**SCR RET 2037**	**No SCR RET 2022**	**No SCR RET 2026**	**No SCR RET 2028**
Jim Bridger 2 (359)	**No SCR RET 2032**	**SCR RET 2037**	**No SCR RET 2032**	**No SCR RET 2025**	**No SCR RET 2032**
Jim Bridger 3 (349)	RET 2037	RET 2037	**RET 2022**	**RET 2023**	RET 2037
Jim Bridger 4 (353)	RET 2037	RET 2037	**RET 2022**	**RET 2024**	RET 2037
Naughton 1 (156)	RET 2029	RET 2029	**RET 2022**	**RET 2023**	RET 2029
Naughton 2 (201)	RET 2029	RET 2029	**RET 2022**	**RET 2022**	RET 2029
Naughton 3 (280)	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**
Wyodak (268)	RET 2039	RET 2039	RET 2039	**RET 2030**	RET 2039
Gadsby 1-3 Gas (238)	**RET 2020**	RET 2032	RET 2032	RET 2032	RET 2032

Red text identifies early retirement relative to current non-Oregon depreciable lives.

Early Retirement Assumptions

Coal Unit (PAC Share MW)	P-30 (P-11, NT12 RET 22)	P-31 (P-11, NT12 RET 25)	P-32 (P-07, NT12 RET 25, GB 32)	P-33 (P-11, JB12 RET 22)	P-34 (P-11, GB RET 20, JB12 RET 22)
Cholla 4 (387)	**RET 2020**	**RET 2020**	**RET 2020**	**RET 2020**	**RET 2020**
Colstrip 3 (74)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Colstrip 4 (74)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Craig 1 (82)	**RET 2025**	**RET 2025**	**RET 2025**	**RET 2025**	**RET 2025**
Craig 2 (82)	**RET 2026**	**RET 2026**	**RET 2025**	**RET 2026**	**RET 2026**
Dave Johnston 1 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 2 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 3 (220)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 4 (330)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Hayden 1 (44)	RET 2030	RET 2030	RET 2030	RET 2030	RET 2030
Hayden 2 (33)	RET 2030	RET 2030	RET 2030	RET 2030	RET 2030
Hunter 1 (418)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Hunter 2 (269)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Hunter 3 (471)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Huntington 1 (459)	RET 2036	RET 2036	RET 2036	RET 2036	RET 2036
Huntington 2 (450)	RET 2036	RET 2036	RET 2036	RET 2036	RET 2036
Jim Bridger 1 (354)	**No SCR RET 2028**	**No SCR RET 2028**	**No SCR RET 2022**	**No SCR RET 2022**	**No SCR RET 2022**
Jim Bridger 2 (359)	**No SCR RET 2032**	**No SCR RET 2032**	**No SCR RET 2028**	**No SCR RET 2022**	**No SCR RET 2022**
Jim Bridger 3 (349)	RET 2037	RET 2037	RET 2037	RET 2037	RET 2037
Jim Bridger 4 (353)	RET 2037	RET 2037	RET 2037	RET 2037	RET 2037
Naughton 1 (156)	**RET 2022**	**RET 2025**	**RET 2025**	RET 2029	RET 2029
Naughton 2 (201)	**RET 2022**	**RET 2025**	**RET 2025**	RET 2029	RET 2029
Naughton 3 (280)	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**
Wyodak (268)	RET 2039	RET 2039	RET 2039	RET 2039	RET 2039
Gadsby 1-3 Gas (238)	RET 2032	RET 2032	RET 2032	RET 2032	**RET 2020**

Red text identifies early retirement relative to current non-Oregon depreciable lives.

Early Retirement Assumptions

Coal Unit (PAC Share MW)	P-35 (P-11, JB34 RET 22)	P-45 (P-31, JB1 RET 23, JB2 RET 28)	P-46 (P-31, JB34 RET 25)	P-53 (P-31, JB12 RET 25, JB3 RET 28, JB4 RET 32)	P-54 (P-31, JB2 RET 24)
Cholla 4 (387)	**RET 2020**	**RET 2020**	**RET 2020**	**RET 2020**	**RET 2020**
Colstrip 3 (74)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Colstrip 4 (74)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Craig 1 (82)	**RET 2025**	**RET 2025**	**RET 2025**	**RET 2025**	**RET 2025**
Craig 2 (82)	**RET 2026**	**RET 2026**	**RET 2026**	**RET 2026**	**RET 2026**
Dave Johnston 1 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 2 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 3 (220)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 4 (330)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Hayden 1 (44)	RET 2030	RET 2030	RET 2030	RET 2030	RET 2030
Hayden 2 (33)	RET 2030	RET 2030	RET 2030	RET 2030	RET 2030
Hunter 1 (418)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Hunter 2 (269)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Hunter 3 (471)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Huntington 1 (459)	RET 2036	RET 2036	RET 2036	RET 2036	RET 2036
Huntington 2 (450)	RET 2036	RET 2036	RET 2036	RET 2036	RET 2036
Jim Bridger 1 (354)	**No SCR RET 2028**	**No SCR RET 2023**	**No SCR RET 2028**	**No SCR RET 2025**	**No SCR RET 2028**
Jim Bridger 2 (359)	**No SCR RET 2032**	**No SCR RET 2028**	**No SCR RET 2032**	**No SCR RET 2025**	**No SCR RET 2024**
Jim Bridger 3 (349)	**RET 2022**	RET 2037	**RET 2025**	**RET 2028**	RET 2037
Jim Bridger 4 (353)	**RET 2022**	RET 2037	**RET 2025**	**RET 2032**	RET 2037
Naughton 1 (156)	RET 2029	**RET 2025**	**RET 2025**	**RET 2025**	RET 2029
Naughton 2 (201)	RET 2029	**RET 2025**	**RET 2025**	**RET 2025**	RET 2029
Naughton 3 (280)	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**	**Lg. GC 2020 RET 2029**
Wyodak (268)	RET 2039	RET 2039	RET 2039	RET 2039	RET 2039
Gadsby 1-3 Gas (238)	RET 2032	RET 2032	RET 2032	RET 2032	RET 2032

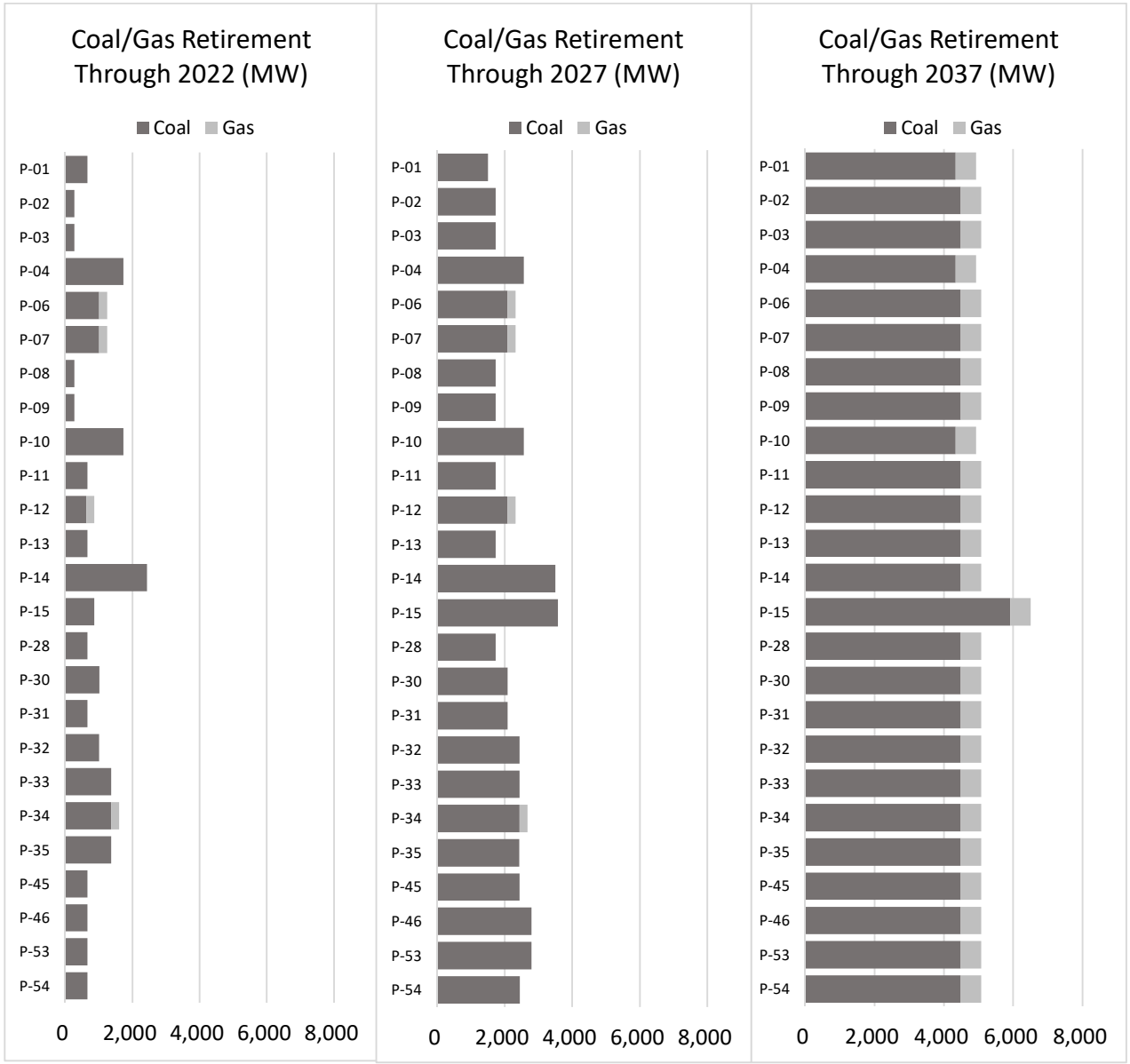
Red text identifies early retirement relative to current non-Oregon depreciable lives.

Early Retirement Assumptions

Coal Unit (PAC Share MW)	P-70 (P-01, JB1 RET 22)	P-71 (P-01, NT1 RET 22)	P-72 (P-01, HY1 RET 22)	P-73 (P-01, HTR1 RET 22)	P-74 (P-01, CG1 RET 22)
Cholla 4 (387)	**RET 2020**	**RET 2020**	**RET 2020**	**RET 2020**	**RET 2020**
Colstrip 3 (74)	RET 2046	RET 2046	RET 2046	RET 2046	RET 2046
Colstrip 4 (74)	RET 2046	RET 2046	RET 2046	RET 2046	RET 2046
Craig 1 (82)	**RET 2025**	**RET 2025**	**RET 2025**	**RET 2025**	**RET 2022**
Craig 2 (82)	RET 2034	RET 2034	RET 2034	RET 2034	RET 2034
Dave Johnston 1 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 2 (106)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 3 (220)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Dave Johnston 4 (330)	RET 2027	RET 2027	RET 2027	RET 2027	RET 2027
Hayden 1 (44)	RET 2030	RET 2030	**RET 2022**	RET 2030	RET 2030
Hayden 2 (33)	RET 2030	RET 2030	RET 2030	RET 2030	RET 2030
Hunter 1 (418)	RET 2042	RET 2042	RET 2042	**RET 2022**	RET 2042
Hunter 2 (269)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Hunter 3 (471)	RET 2042	RET 2042	RET 2042	RET 2042	RET 2042
Huntington 1 (459)	RET 2036	RET 2036	RET 2036	RET 2036	RET 2036
Huntington 2 (450)	RET 2036	RET 2036	RET 2036	RET 2036	RET 2036
Jim Bridger 1 (354)	**No SCR 2022 RET 2022**	SCR 2022 RET 2037	SCR 2022 RET 2037	SCR 2022 RET 2037	SCR 2022 RET 2037
Jim Bridger 2 (359)	SCR 2021 RET 2037	SCR 2021 RET 2037	SCR 2021 RET 2037	SCR 2021 RET 2037	SCR 2021 RET 2037
Jim Bridger 3 (349)	RET 2037	RET 2037	RET 2037	RET 2037	RET 2037
Jim Bridger 4 (353)	RET 2037	RET 2037	RET 2037	RET 2037	RET 2037
Naughton 1 (156)	RET 2029	**RET 2022**	RET 2029	RET 2029	RET 2029
Naughton 2 (201)	RET 2029	RET 2029	RET 2029	RET 2029	RET 2029
Naughton 3 (280)	**RET 2019**	**RET 2019**	**RET 2019**	**RET 2019**	**RET 2019**
Wyodak (268)	RET 2039	RET 2039	RET 2039	RET 2039	RET 2039
Gadsby 1-3 Gas (238)	RET 2032	RET 2032	RET 2032	RET 2032	RET 2032

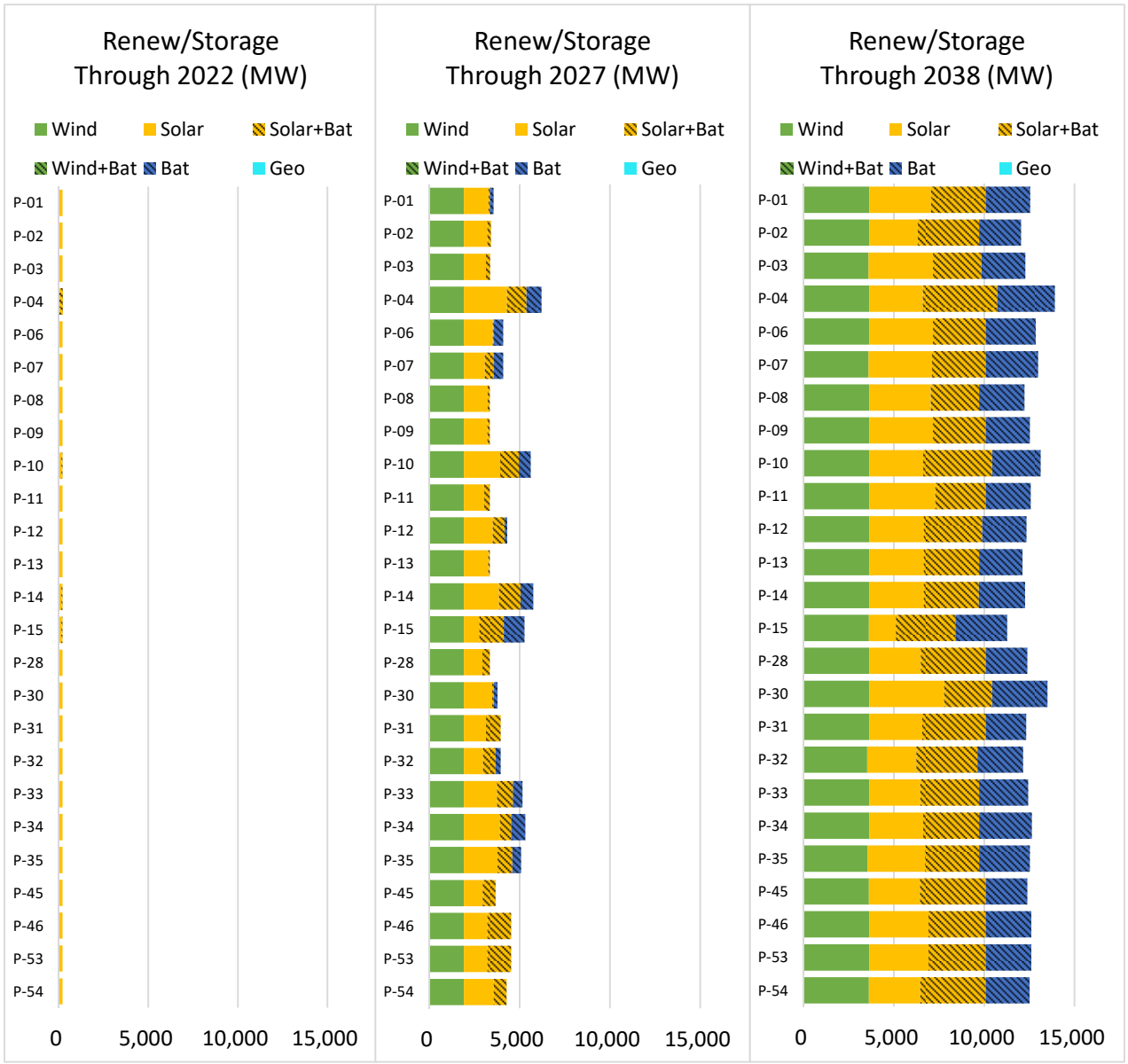
Red text identifies early retirement relative to current non-Oregon depreciable lives.

Coal/Gas Resource Retirements



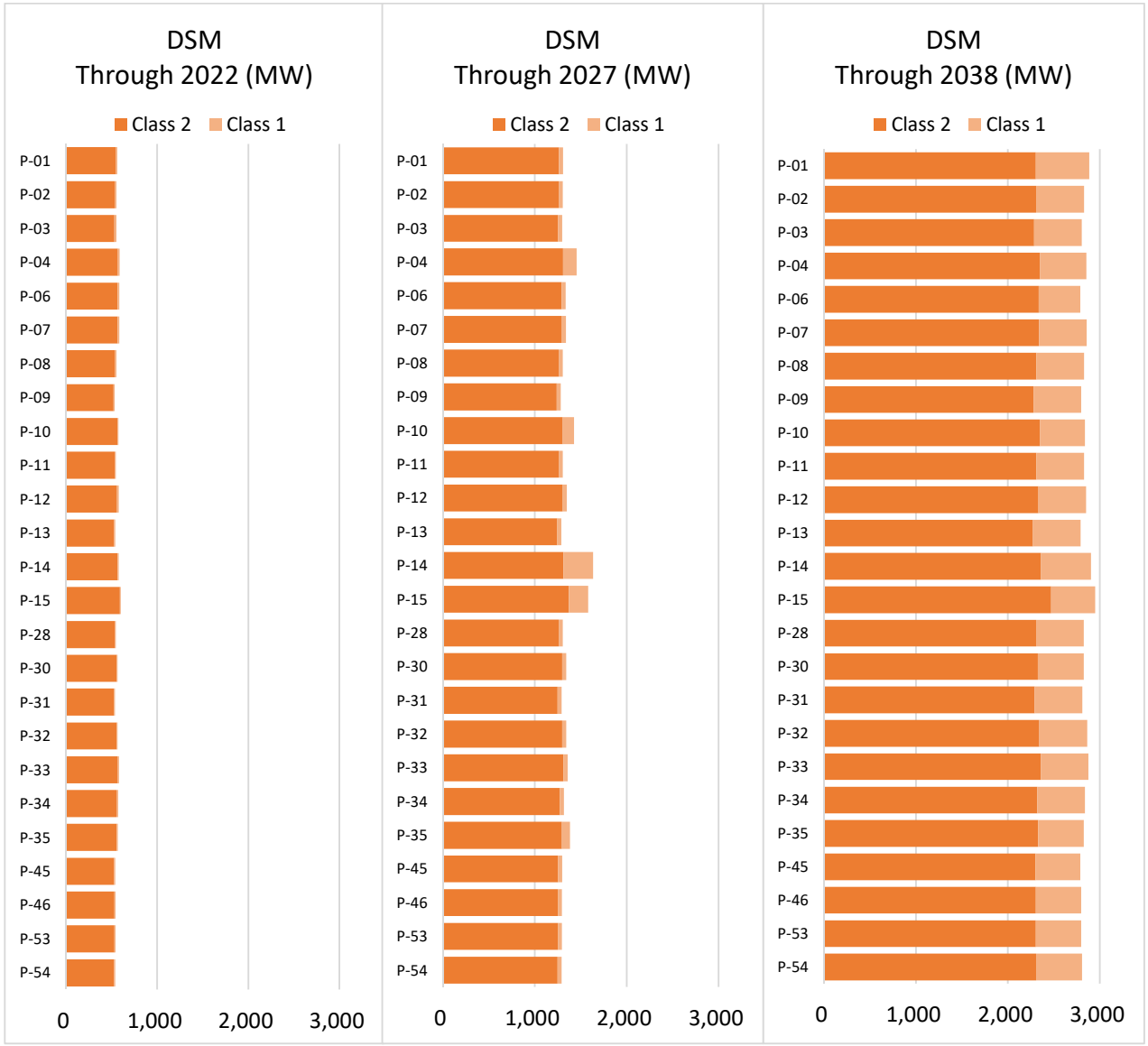
- By the end of the study period, coal retirements are similar among nearly all cases (P-15 is an exception), with slight variations dependent upon timing for Colstrip 3-4, and gas retirements are the same among all cases. P-15 assumes all coal units are retired by the end of 2030.
- Among the five cases with the lowest PVRR (P-31, P-45, P-46, P-53, and P-54), coal unit retirements total 667 MW through 2022 and range between 2,091 MW and 2,797 MW through the end of 2027.

New Renewable and Storage Resources



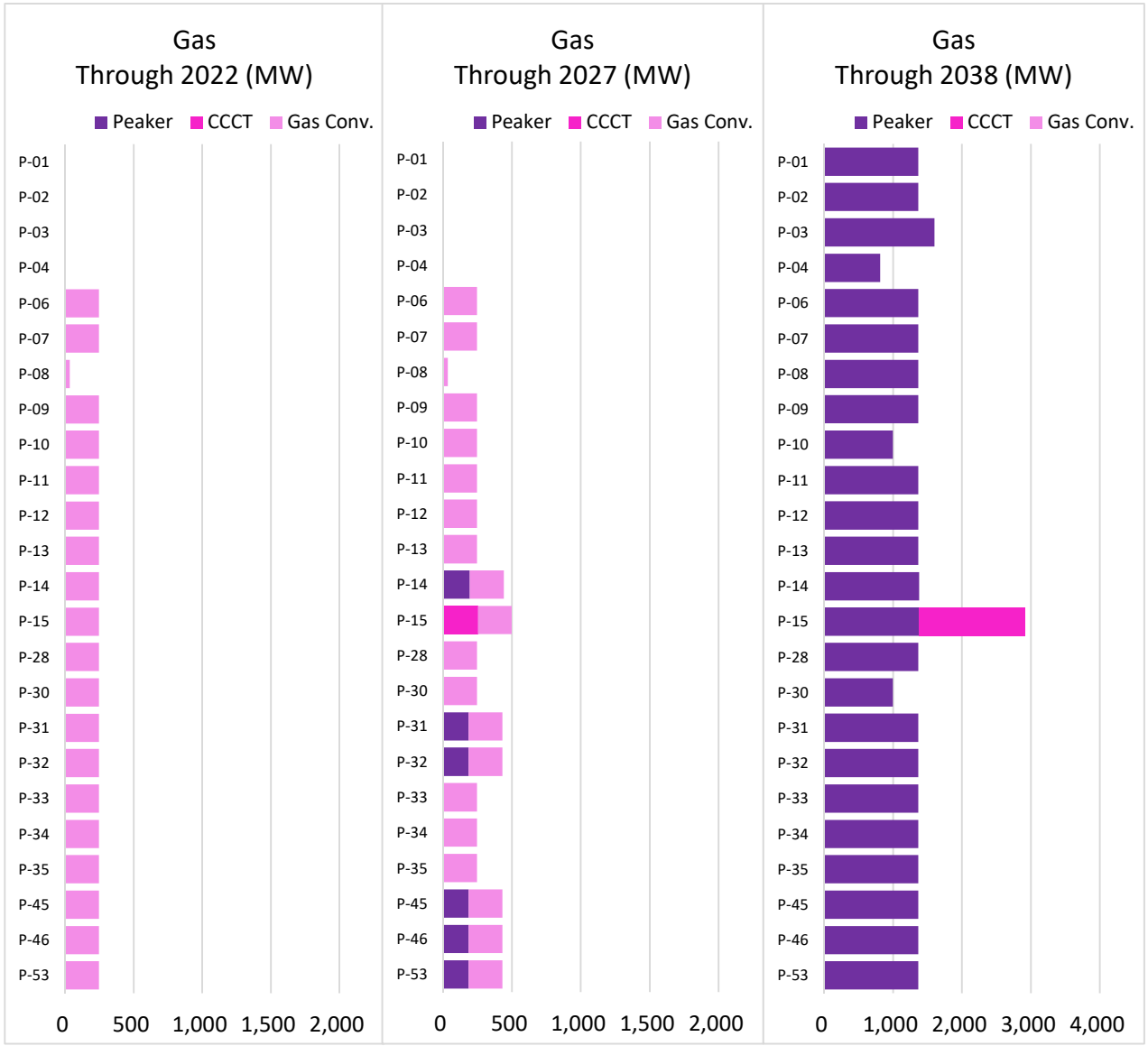
- The addition of new renewable resources picks up beyond 2022.
- All cases select Gateway South in 2024 along with 1,920 MW of new wind in eastern Wyoming.
- Through 2027, solar resource additions range between 1,440 MW and 3,555 MW—cases with more early coal retirements end up with more solar.
- Through 2038, total new renewable capacity ranges between 8,411 MW and 10,711 MW and new battery capacity ranges between 3,099 MW and 4,558 MW.
- Among the five cases with the lowest PVRR (P-31, P-45, P-46, P-53, and P-54), total new renewable capacity ranges between 3,674 MW and 4,536 MW through 2027 and over 10,000 MW through 2038.

Incremental Demand-Side Management



- Demand-side management (DSM) selections continue to be relatively stable among all cases.
- Through 2022, Class 2 DSM selections range between 521 MW (Case P-09) and 589 MW (Case P-15); Class 1 DSM ranges between 11 MW and 19 MW.
- Through 2027, Class 2 DSM selections range between 1,237 MW (Case P-09) and 1,370 MW (Case P-15); Class 1 DSM ranges between 45 MW and 322 MW.
- More Class 1 DSM resources are accelerated into the mid term among those cases that have higher levels of accelerated coal and gas retirements (Cases P-04, P-10, P-14, and P-15).
- Through 2038, Class 2 DSM selections range between 2,272 MW (Case P-13) and 2,471 MW (Case P-15); Class 1 DSM ranges between 452 MW and 581 MW.

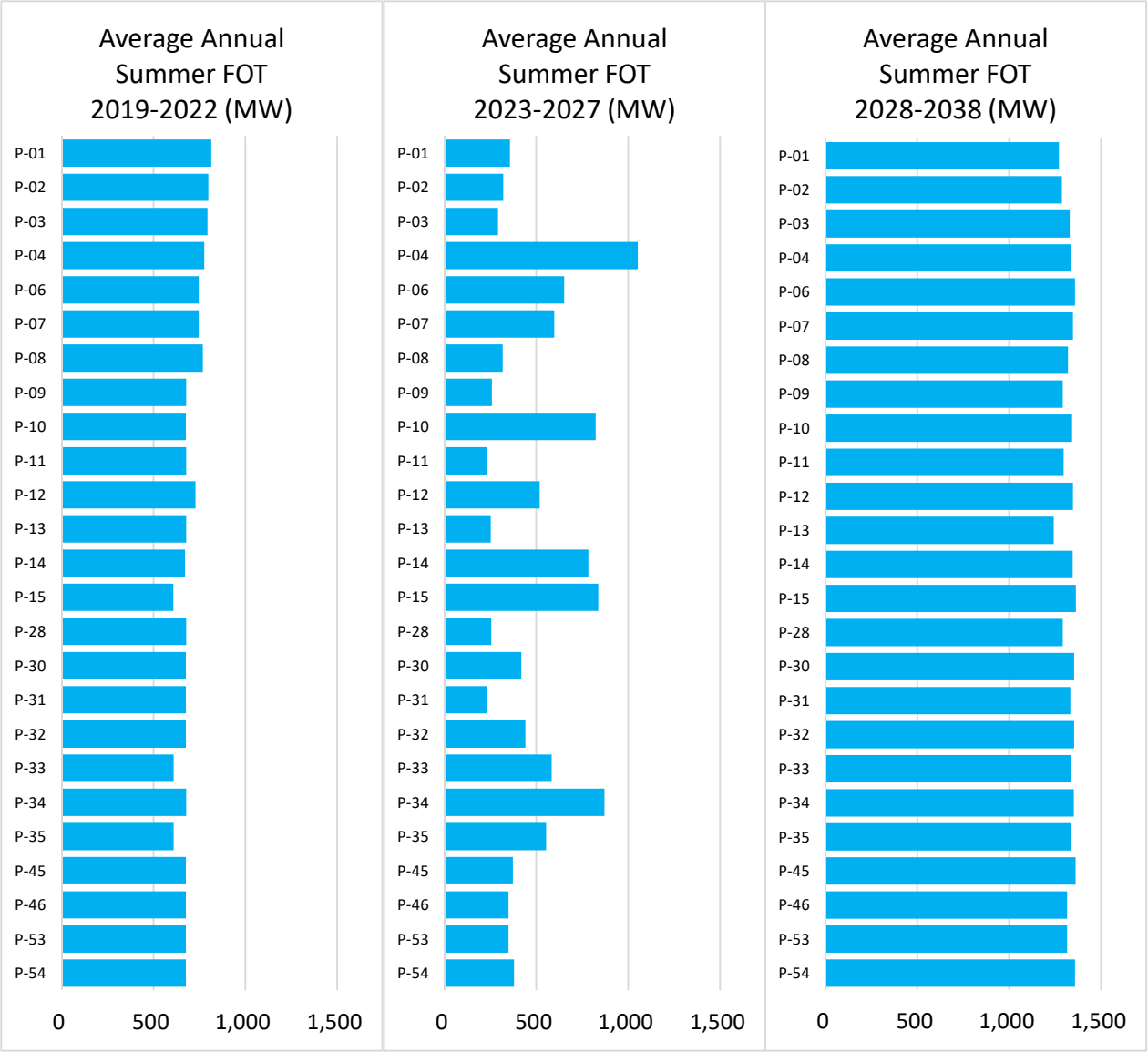
New Natural Gas Resources



Note: Scale change in the 'through 2038' column due to P15's addition of CCCT resources.

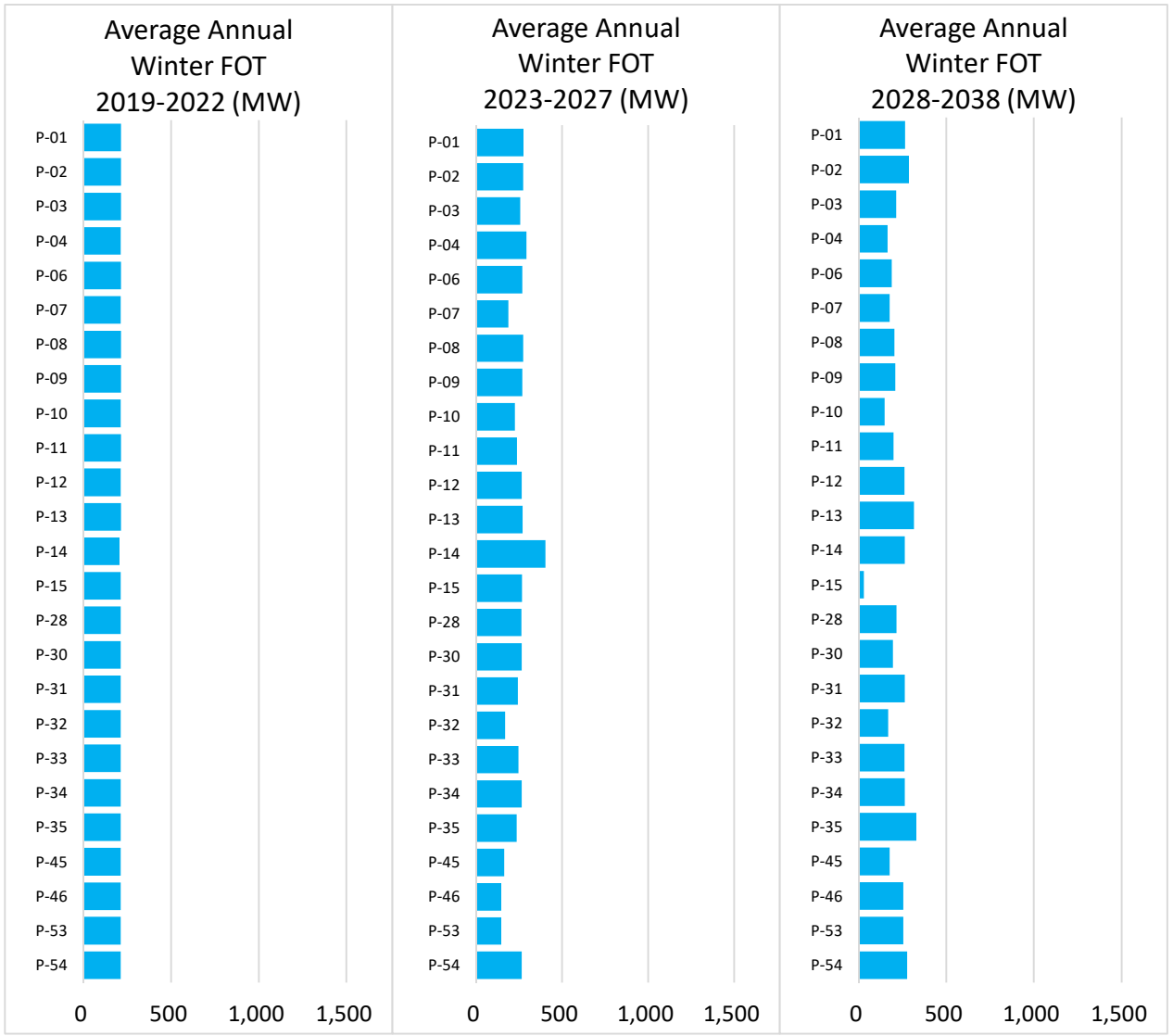
- In cases where Naughton 3 converts to natural gas, it is assumed to retire at the end of 2029, so it does not show up in the results through 2038.
- In all but two cases (Cases P-14 and P-15), conversion of Naughton 3 to natural gas defers new natural gas capacity into 2028 or beyond.
- Through 2038, new peaking gas capacity ranges between 813 MW and 1,600 MW.
- P-15 includes new CCCT gas capacity beginning 2027—through 2038, new CCCT capacity in this case totals 1,541 MW.
- Among the five cases with the lowest PVRR (P-31, P-45, P-46, P-53, and P-54), new peaking gas capacity is added in 2026 (185 MW)—by 2038, new gas peaking capacity totals 1,367 MW.

Summer Front Office Transactions



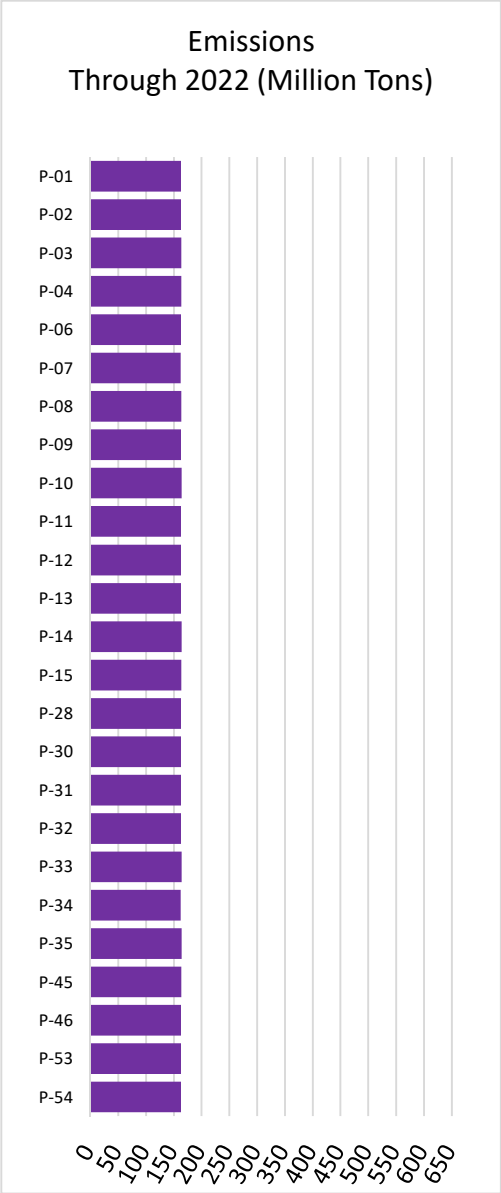
- The summer FOT limit assumed for the 2019 IRP is 1,425 MW.
- Through the near term, average annual summer FOT purchases range between 608 MW (Case P-15) and 799 MW (Case P-02).
- In the 2023-2027 timeframe, a period where there are resource-adequacy concerns in the region, summer average annual FOT purchases range between 231 MW (Case P-31) and 1,053 MW (Case P-04)—reliance on the market grows in cases with more accelerated coal retirements.
- Over the long term, the level of summer FOTs is relatively stable among all cases, ranging between 1,241 MW (Case P-13) and 1,362 MW (Case P-15).

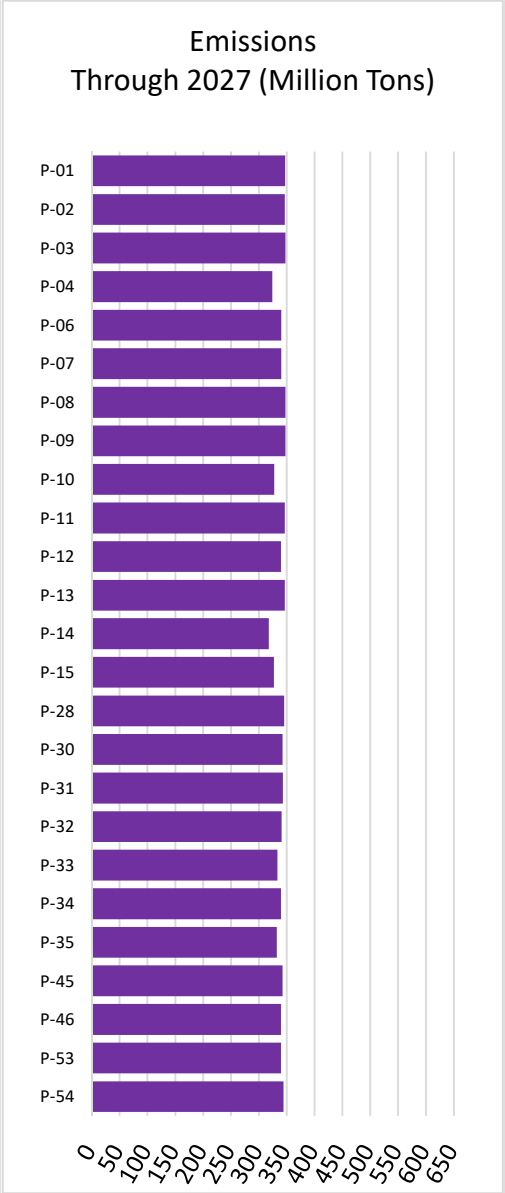
Winter Front Office Transactions

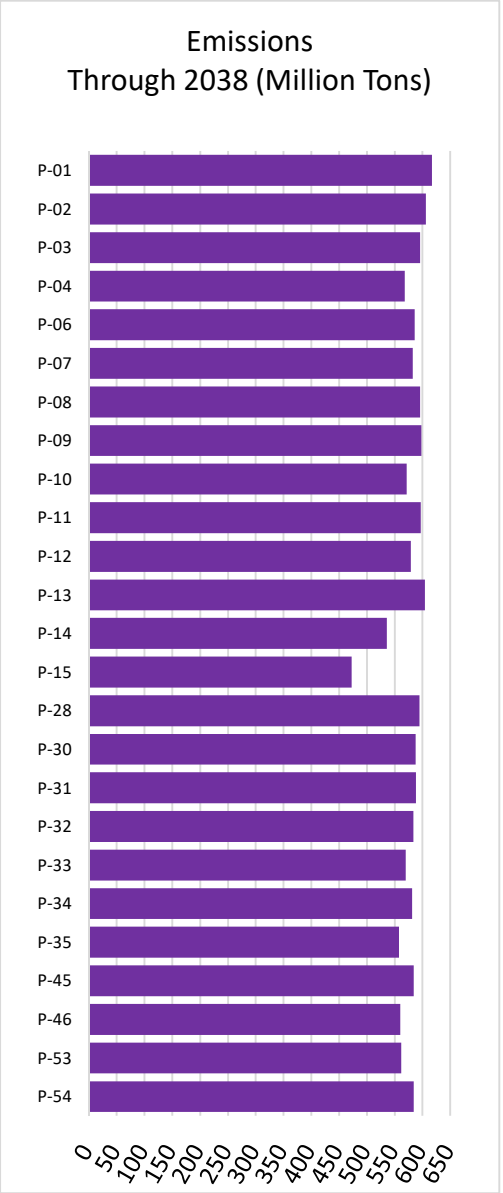


- Relative to the summer period, winter FOTs are much smaller among all cases and timeframes.
- Winter FOT purchases are relatively stable among most cases through both the short and mid term.
- Over the long term, winter FOT purchases are reduced when incremental capacity is added to the system—CCCT additions in P-15 reduce winter FOT purchases.

CO_2 Emissions



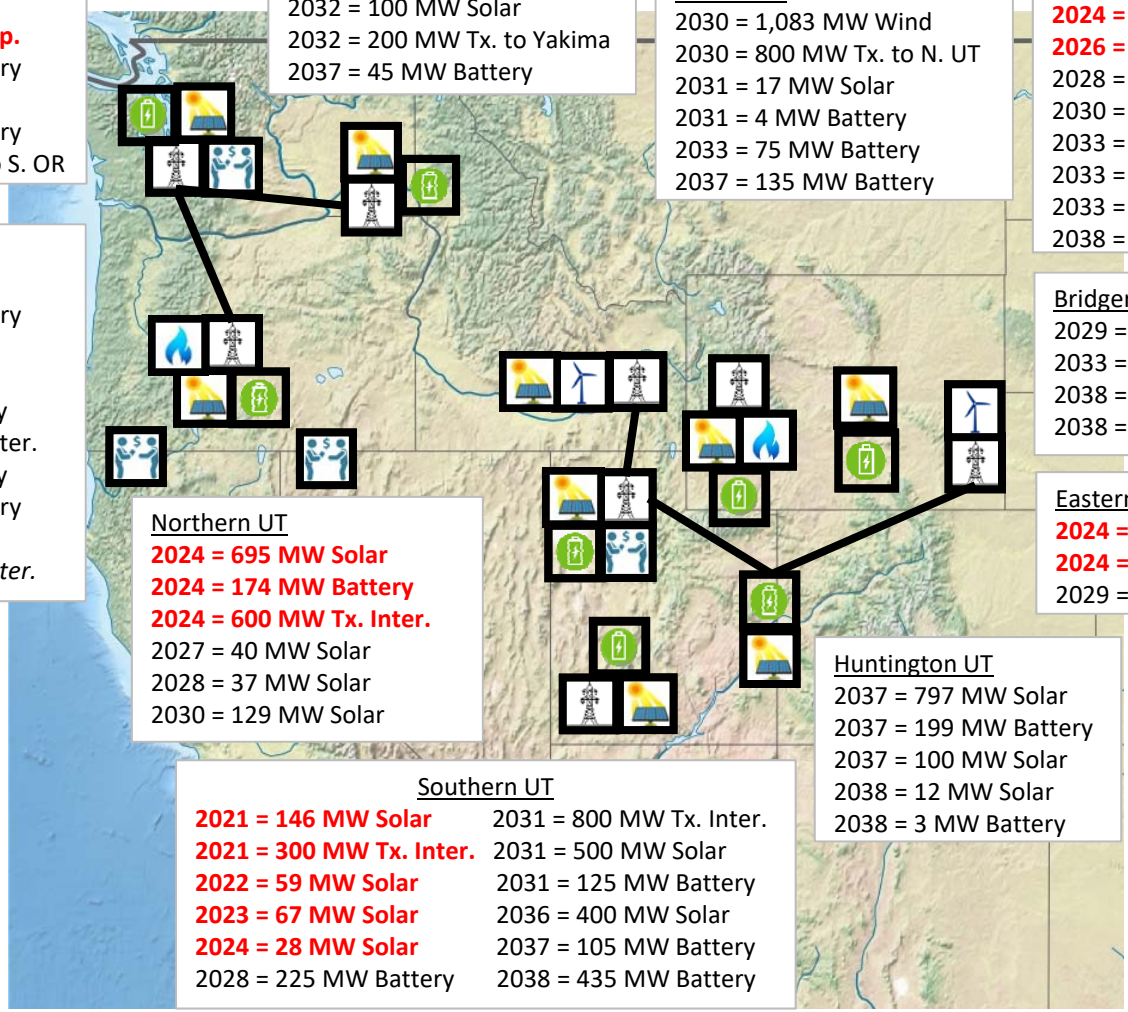




- Total CO_2 emissions through 2022 are very stable, ranging between 162 and 164 million tons.
- Through 2027, total CO_2 emissions range between 318 and 354 million tons.
- Through 2038, total CO_2 emissions range between 473 and 640 million tons.
- Among the five cases with the lowest PVRR (P-31, P-45, P-46, P-53, and P-54), total CO_2 emissions through 2038 range between 560 and 588 million tons.

Case P-31

(P-11 with Naughton 1-2 Accelerated to 2025)



Yakima WA
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 120 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 45 MW Battery

Goshen ID
2030 = 1,083 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 17 MW Solar
2031 = 4 MW Battery
2033 = 75 MW Battery
2037 = 135 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2026 = 185 MW Gas
2028 = 105 MW Battery
2030 = 185 MW Gas
2033 = 185 MW Gas
2033 = 370 MW Gas
2033 = 500 MW Tx. Inter.
2038 = 165 MW Battery

Southern OR
2024 = 500 MW Solar
2028 = 120 MW Battery
2032 = 239 MW Solar
2032 = 236 MW Solar
2032 = 59 MW Battery
2032 = 475 MW Tx. Inter.
2033 = 90 MW Battery
2037 = 360 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.

WillamValcc in Southern OR box in italics.

Bridger WY
2029 = 354 MW Solar
2033 = 359 MW Solar
2038 = 702 MW Solar
2038 = 176 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Northern UT
2024 = 695 MW Solar
2024 = 174 MW Battery
2024 = 600 MW Tx. Inter.
2027 = 40 MW Solar
2028 = 37 MW Solar
2030 = 129 MW Solar

Huntington UT
2037 = 797 MW Solar
2037 = 199 MW Battery
2037 = 100 MW Solar
2038 = 12 MW Solar
2038 = 3 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = NT1-2 (357 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT

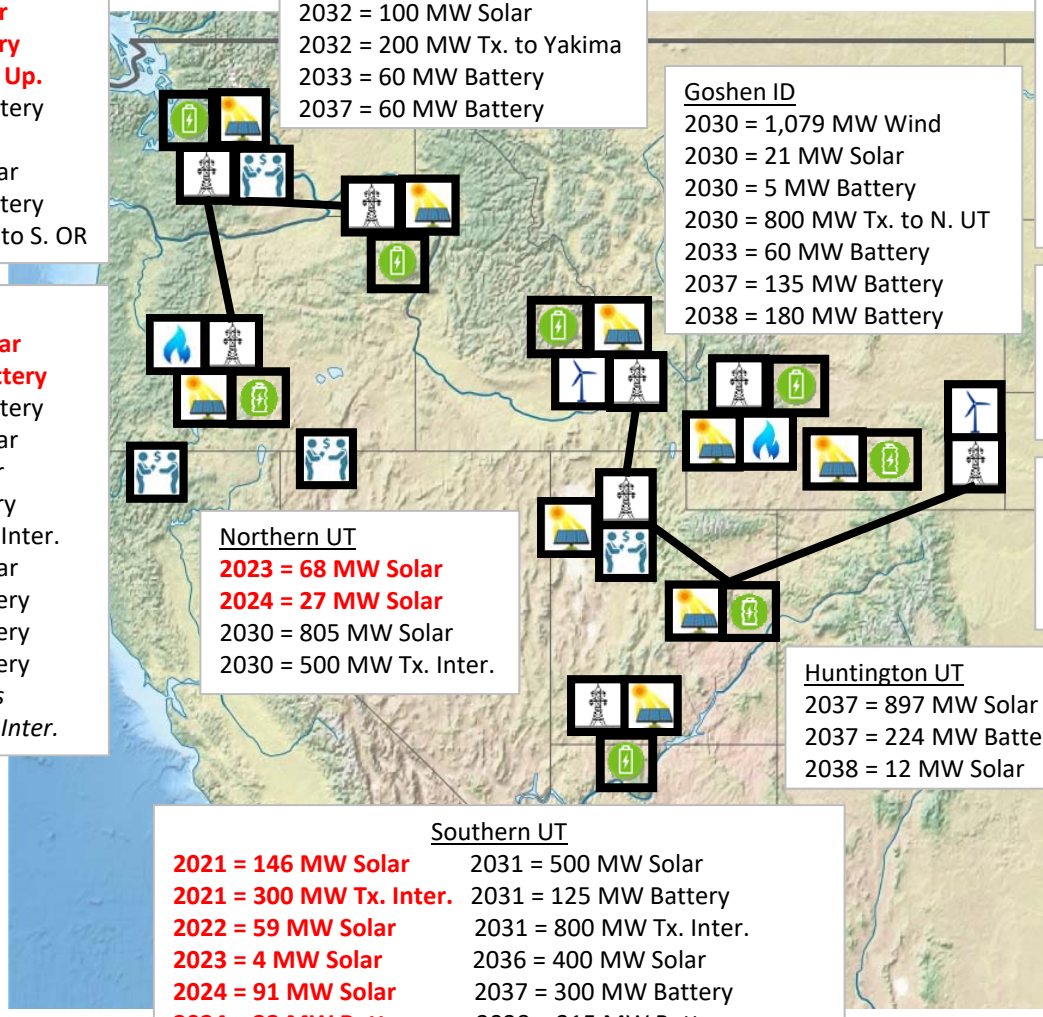
2021 = 146 MW Solar	2031 = 800 MW Tx. Inter.
2021 = 300 MW Tx. Inter.	2031 = 500 MW Solar
2022 = 59 MW Solar	2031 = 125 MW Battery
2023 = 67 MW Solar	2036 = 400 MW Solar
2024 = 28 MW Solar	2037 = 105 MW Battery
2028 = 225 MW Battery	2038 = 435 MW Battery

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-45

(P-31 with Jim Bridger 1-2 Retirement)



Yakima WA
2024 = 376 MW Solar
2024 = 29 MW Solar
2024 = 7 MW Battery
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2037 = 7 MW Solar
2037 = 423 MW Solar
2037 = 106 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 60 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2033 = 60 MW Battery
2037 = 60 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2026 = 185 MW Gas
2028 = 285 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 185 MW Gas
2033 = 185 MW Gas
2038 = 120 MW Battery

Goshen ID
2030 = 1,079 MW Wind
2030 = 21 MW Solar
2030 = 5 MW Battery
2030 = 800 MW Tx. to N. UT
2033 = 60 MW Battery
2037 = 135 MW Battery
2038 = 180 MW Battery

Bridger WY
2024 = 354 MW Solar
2029 = 359 MW Solar
2038 = 702 MW Solar
2038 = 175 MW Battery

Southern OR
2024 = 500 MW Solar
2024 = 125 MW Battery
2028 = 150 MW Battery
2031 = 116 MW Solar
2031 = 36 MW Solar
2031 = 9 MW Battery
2031 = 475 MW Tx. Inter.
2032 = 323 MW Solar
2032 = 81 MW Battery
2033 = 60 MW Battery
2037 = 30 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 102 MW Wind
2029 = 518 MW Wind

Northern UT
2023 = 68 MW Solar
2024 = 27 MW Solar
2030 = 805 MW Solar
2030 = 500 MW Tx. Inter.

Huntington UT
2037 = 897 MW Solar
2037 = 224 MW Battery
2038 = 12 MW Solar

Coal/Early Gas Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2023– JB1 (351 MW)
2025 = CG1 (82 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB2 (356 MW)
2030 = HY1-2 (77 MW)
2032 = GDB1-3 (238 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT

2021 = 146 MW Solar	2031 = 500 MW Solar
2021 = 300 MW Tx. Inter.	2031 = 125 MW Battery
2022 = 59 MW Solar	2031 = 800 MW Tx. Inter.
2023 = 4 MW Solar	2036 = 400 MW Solar
2024 = 91 MW Solar	2037 = 300 MW Battery
2024 = 23 MW Battery	2038 = 315 MW Battery
2028 = 195 MW Battery	

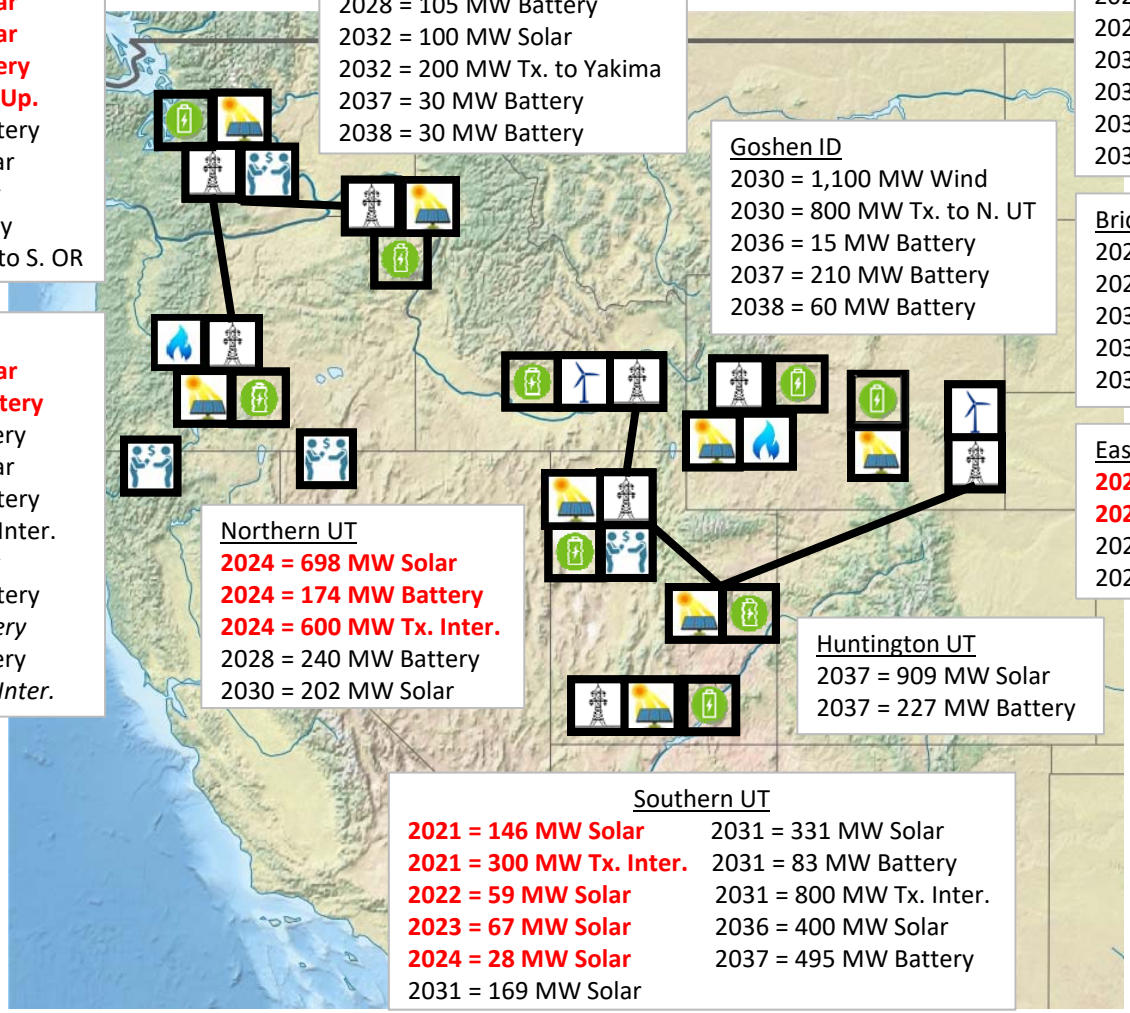
WillamValcc in Southern OR box in italics.

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-46

(P-31 with Jim Bridger 3-4 Retirement)



Yakima WA
2024 = 289 MW Solar
2024 = 116 MW Solar
2024 = 29 MW Battery
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2038 = 407 MW Solar
2038 = 23 MW Solar
2038 = 6 MW Battery
2038 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 105 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 30 MW Battery
2038 = 30 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2026 = 185 MW Gas
2028 = 240 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 370 MW Gas
2031 = 100 MW Solar
2031 = 100 MW Tx. Inter.
2037 = 225 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT
2036 = 15 MW Battery
2037 = 210 MW Battery
2038 = 60 MW Battery

Bridger WY
2026 = 713 MW Solar
2029 = 349 MW Solar
2033 = 251 MW Solar
2033 = 102 MW Solar
2033 = 25 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 544 MW Wind
2029 = 76 MW Wind

Southern OR
2024 = 500 MW Solar
2024 = 125 MW Battery
2028 = 45 MW Battery
2032 = 475 MW Solar
2032 = 119 MW Battery
2032 = 475 MW Tx. Inter.
2033 = 443 MW Gas
2037 = 555 MW Battery
2037 = 90 MW Battery
2038 = 30 MW Battery
2033 = 615 MW Tx. Inter.

WillamValcc in Southern OR box in italics.

Northern UT
2024 = 698 MW Solar
2024 = 174 MW Battery
2024 = 600 MW Tx. Inter.
2028 = 240 MW Battery
2030 = 202 MW Solar

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2031 = 169 MW Solar
2031 = 331 MW Solar
2031 = 83 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2037 = 495 MW Battery

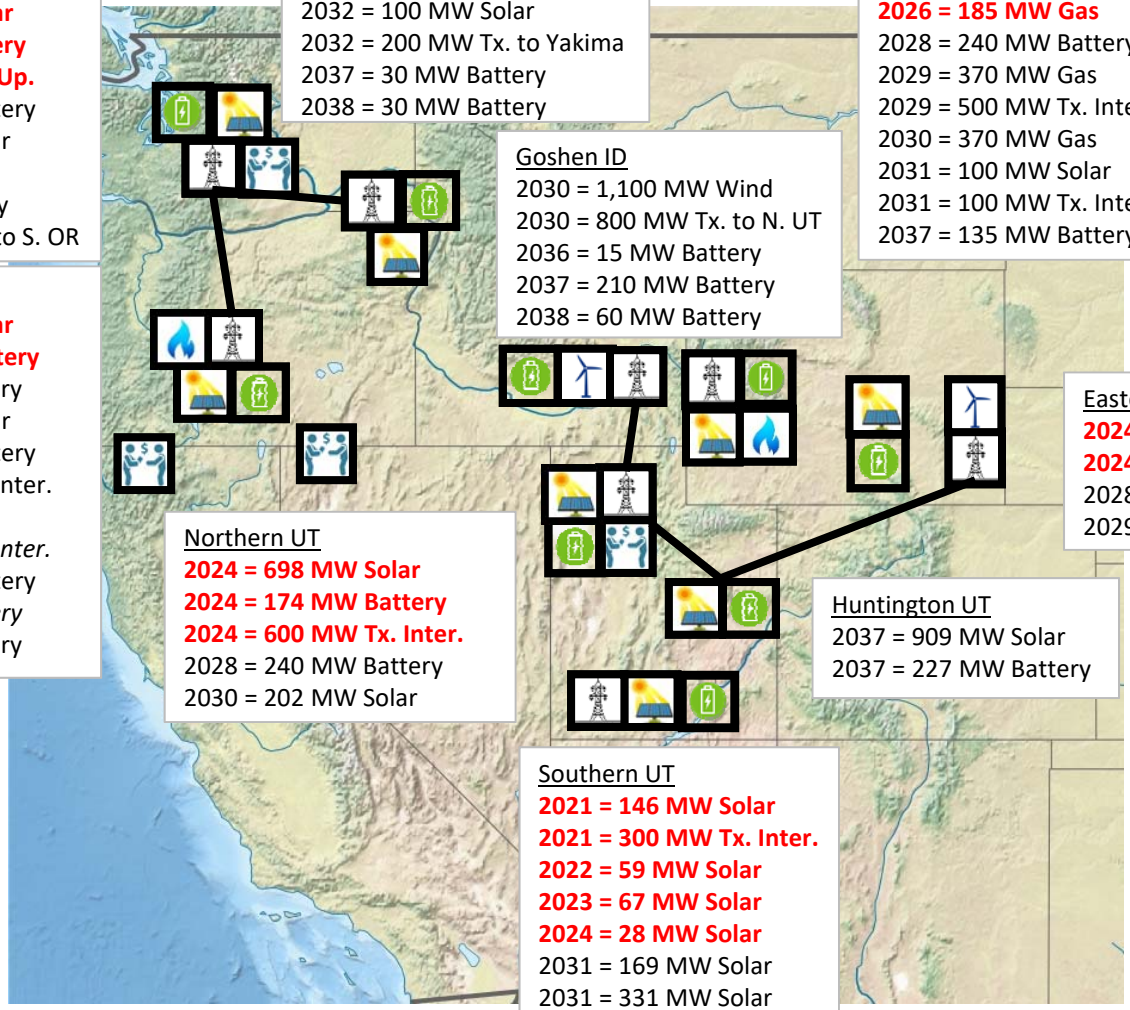
Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = CG1 (82 MW)
2025 = JB3-4 (702 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-53

(P-46 Jim Bridger 1-2 Retirement 2025)



Yakima WA
2024 = 289 MW Solar
2024 = 116 MW Solar
2024 = 29 MW Battery
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2038 = 407 MW Solar
2038 = 23 MW Solar
2038 = 6 MW Battery
2038 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 105 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 30 MW Battery
2038 = 30 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2026 = 185 MW Gas
2028 = 240 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 370 MW Gas
2031 = 100 MW Solar
2031 = 100 MW Tx. Inter.
2037 = 135 MW Battery

Bridger WY
2026 = 713 MW Solar
2029 = 349 MW Solar
2033 = 251 MW Solar
2033 = 102 MW Solar
2033 = 25 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT
2036 = 15 MW Battery
2037 = 210 MW Battery
2038 = 60 MW Battery

Southern OR
2024 = 500 MW Solar
2024 = 125 MW Battery
2028 = 45 MW Battery
2032 = 475 MW Solar
2032 = 119 MW Battery
2032 = 475 MW Tx. Inter.
2033 = 443 MW Gas
2033 = 615 MW Tx. Inter.
2037 = 555 MW Battery
2037 = 90 MW Battery
2038 = 30 MW Battery

WillamValcc in Southern OR box in italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 544 MW Wind
2029 = 76 MW Wind

Northern UT
2024 = 698 MW Solar
2024 = 174 MW Battery
2024 = 600 MW Tx. Inter.
2028 = 240 MW Battery
2030 = 202 MW Solar

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = CG1 (82 MW)
2025 = JB1 (351 MW)
2025 = JB2 (356 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB3 (351 MW)
2030 = HY1-2 (77 MW)
2032 = JB4 (351 MW)
2036 = HTG1-2 (909 MW)

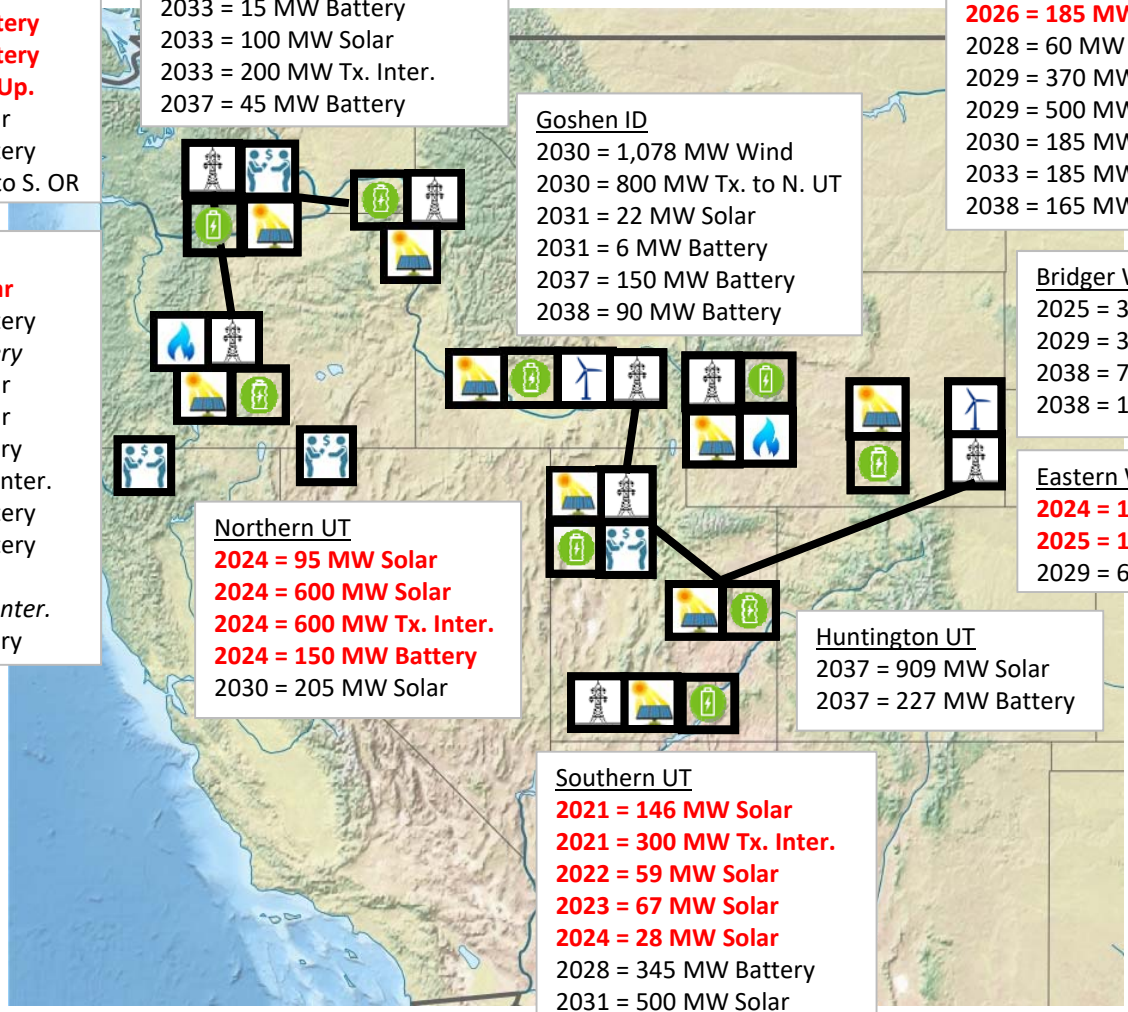
Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2031 = 169 MW Solar
2031 = 331 MW Solar
2031 = 83 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2037 = 495 MW Battery

Solar
Wind
Battery
Pumped Hydro
Gas
Market
Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-54

(P-31 Jim Bridger 2 Retirement 2024)



Yakima WA
2024 = 405 MW Solar
2024 = 101 MW Battery
2026 = 105 MW Battery
2024 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 135 MW Battery
2033 = 15 MW Battery
2033 = 100 MW Solar
2033 = 200 MW Tx. Inter.
2037 = 45 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2026 = 185 MW Gas
2028 = 60 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 185 MW Gas
2033 = 185 MW Gas
2038 = 165 MW Battery

Goshen ID
2030 = 1,078 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 22 MW Solar
2031 = 6 MW Battery
2037 = 150 MW Battery
2038 = 90 MW Battery

Bridger WY
2025 = 359 MW Solar
2029 = 354 MW Solar
2038 = 702 MW Solar
2038 = 175 MW Battery

Southern OR
2024 = 500 MW Solar
2028 = 120 MW Battery
2028 = 15 MW Battery
2032 = 142 MW Solar
2032 = 333 MW Solar
2032 = 83 MW Battery
2032 = 475 MW Tx. Inter.
2033 = 105 MW Battery
2037 = 420 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.
2038 = 45 MW Battery

WillamValcc in Southern OR box in italics.

Eastern WY
2024 = 1,920 MW Wind
2025 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Northern UT
2024 = 95 MW Solar
2024 = 600 MW Solar
2024 = 600 MW Tx. Inter.
2024 = 150 MW Battery
2030 = 205 MW Solar

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2024 = JB2 (356 MW)
2025 = CG1 (82 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2030 = HY1-2 (77 MW)
2037 = JB3-4 (702 MW)
2036 = HTG1-2 (909 MW)

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2028 = 345 MW Battery
2031 = 500 MW Solar
2031 = 125 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2038 = 375 MW Battery

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Portfolio Cost and Risk Summary (1 of 2)

Case	Stochastic Mean			Risk Adjusted			ENS Average Percent of Load			CO2 Emissions		
	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	Average Annual ENS, 2019-2038 % of Average Load	Change from Lowest ENS Portfolio	Rank	Total CO2 Emissions, 2019-2038 (Thousand Tons)	Change from Lowest Emission Portfolio	Rank
P46	23,661	0	1	24,853	0	1	0.012%	0.006%	23	560,199	87,630	4
P31	23,710	49	2	24,904	52	2	0.009%	0.002%	16	588,421	115,852	17
P53	23,715	54	3	24,910	57	3	0.012%	0.006%	24	562,025	89,456	5
P45	23,762	101	4	24,959	106	4	0.008%	0.001%	7	583,981	111,412	13
P54	23,868	208	5	25,071	218	5	0.009%	0.002%	14	584,377	111,808	14
P28	23,872	212	6	25,075	222	6	0.008%	0.002%	11	594,322	121,752	18
P35	23,924	263	7	25,129	276	7	0.010%	0.004%	20	557,489	84,919	3
P12	23,944	284	8	25,153	300	8	0.008%	0.002%	10	579,167	106,598	10
P11	23,969	308	9	25,176	323	9	0.008%	0.001%	6	596,911	124,342	21
P09	23,972	311	10	25,183	330	10	0.009%	0.002%	17	597,855	125,286	22
P10	23,975	314	11	25,185	332	11	0.009%	0.003%	18	571,707	99,138	9
P32	23,989	329	12	25,198	345	12	0.008%	0.002%	12	583,565	110,995	12
P30	23,996	335	13	25,204	352	13	0.010%	0.003%	19	587,905	115,336	16
P03	24,035	374	14	25,245	393	14	0.008%	0.002%	9	595,728	123,159	19

Portfolio Cost and Risk Summary (2 of 2)

Case	Stochastic Mean			Risk Adjusted			ENS Average Percent of Load			CO2 Emissions		
	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	Average Annual ENS, 2019-2038 % of Average Load	Change from Lowest ENS Portfolio	Rank	Total CO2 Emissions, 2019-2038 (Thousand Tons)	Change from Lowest Emission Portfolio	Rank
P14	24,040	379	15	25,254	401	15	0.015%	0.009%	25	535,774	63,205	2
P07	24,051	390	16	25,265	412	16	0.007%	0.000%	2	581,583	109,014	11
P33	24,085	425	17	25,301	448	17	0.007%	0.001%	4	569,586	97,017	8
P08	24,091	430	18	25,307	454	18	0.009%	0.002%	15	595,956	123,386	20
P04	24,146	485	19	25,363	510	19	0.011%	0.004%	21	567,901	95,332	6
P34	24,158	497	20	25,377	524	20	0.008%	0.001%	5	568,422	95,853	7
P06	24,169	508	21	25,388	535	21	0.007%	0.001%	3	585,907	113,338	15
P13	24,192	531	22	25,410	557	22	0.008%	0.001%	8	604,396	131,827	23
P01	24,260	599	23	25,480	627	23	0.006%	0.000%	1	616,896	144,327	25
P15	24,494	834	24	25,726	873	24	0.012%	0.005%	22	472,569	0	1
P02	25,099	1,439	25	26,363	1,510	25	0.009%	0.002%	13	605,872	133,303	24

Additional Reliability Analysis

- Incremental reliability resources have been added to each portfolio based on deterministic hourly studies in three test years (2023, 2030, and 2038).
- Incremental reliability requirements derived from these studies have been applied to other years as follows:
  - 2023 – applied to 2023-2027
  - 2030 – applied to 2028-2036
  - 2038 – applied to 2037-2038
- The timing of assumed coal unit retirements varies by case, and the above mapping has the potential to overstate or understate reliability requirements for specific years within the range of years over which those requirements have been applied.
- For the five cases with the lowest system PVRR, PacifiCorp produced additional deterministic hourly studies to ensure that each year is analyzed through 2030 (i.e., adding test years for 2024-2029).
- This improves the granularity at which reliability resources are applied and provides for a better comparison of cost and risk metrics between these cases (depicted as the “B” series of cases in the following slides).

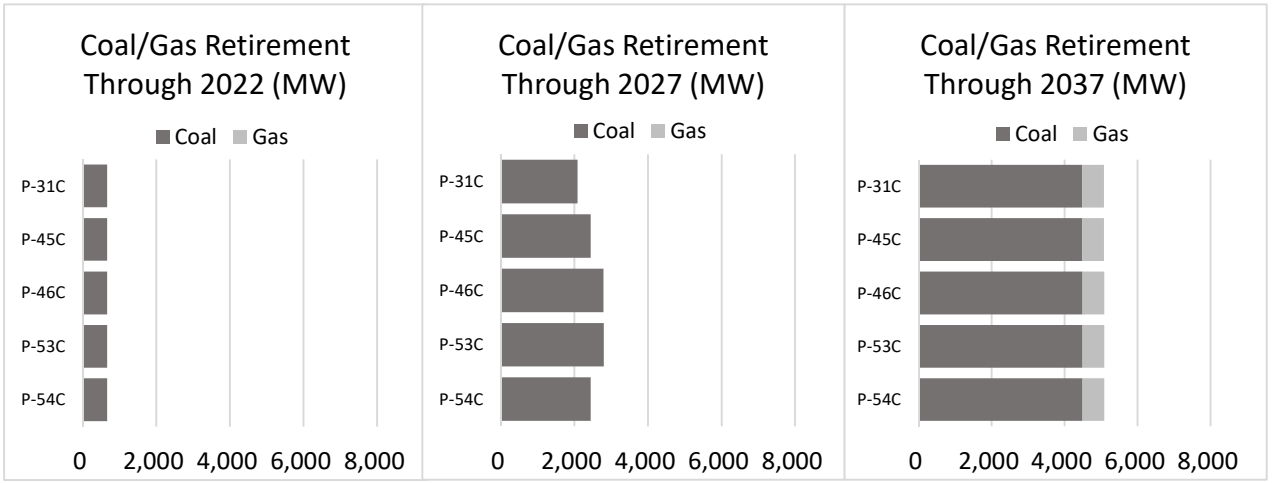
Portfolio Cost and Risk Summary
"B" Cases

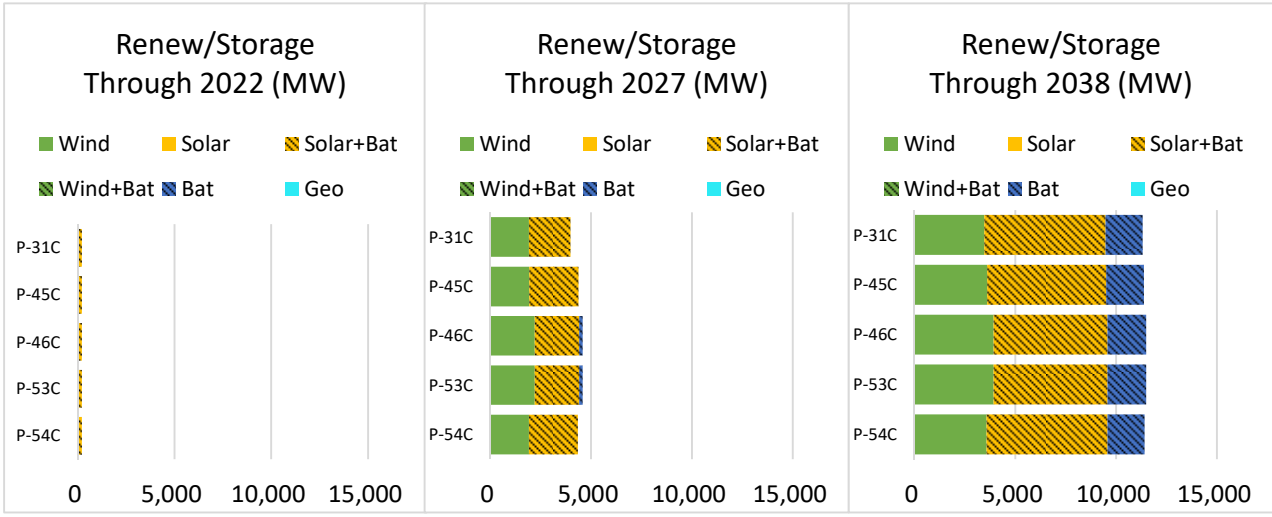
Case	Stochastic Mean			Risk Adjusted			ENS Average Percent of Load			CO2 Emissions		
	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	Average Annual ENS, 2019-2038 % of Average Load	Change from Lowest ENS Portfolio	Rank	Total CO2 Emissions, 2019-2038 (Thousand Tons)	Change from Lowest Emission Portfolio	Rank
P31B	23,671	$0	1	24,863	$0	1	0.008%	0.000%	1	588,307	28,319	5
P46B	23,700	$29	2	24,894	$31	2	0.012%	0.004%	4	559,988	0	1
P53B	23,766	$95	3	24,963	$100	3	0.012%	0.004%	5	562,842	2,854	2
P54B	23,821	$150	4	25,021	$158	4	0.009%	0.001%	2	581,442	21,454	3
P45B	23,859	$188	5	25,061	$198	5	0.010%	0.003%	3	588,274	28,286	4

Additional Solar+Battery Analysis

- When reliability resources are added in the two-step portfolio development process adopted for this IRP cycle, incremental battery resources are routinely added to remedy initial reliability shortfalls in each case.
- This indicates that if the SO model were able to assess the incremental reliability requirement in its *initial* resource portfolio, it would likely pair batteries with any of the new solar resources it initially added to take advantage of cost savings for this combined resource alternative.
- Test runs performed by the IRP modeling team confirmed that if stand alone solar resources were not allowed in the initial portfolio development case, that the SO model selected solar+battery resource options, and that when these portfolios were analyzed for reliability (using the additional test years as described in the previous slides) and run through PaR, that the overall system PVRR was lower.
- Consequently, for the same five cases with the lowest system PVRR, PacifiCorp produced additional studies that disabled stand alone solar resources—in each case (depicted as the "C" series of cases in the following slides), solar+battery was added to the portfolio and system costs were reduced.
- PacifiCorp was further able to complete alternative price-policy scenario studies for these five cases.

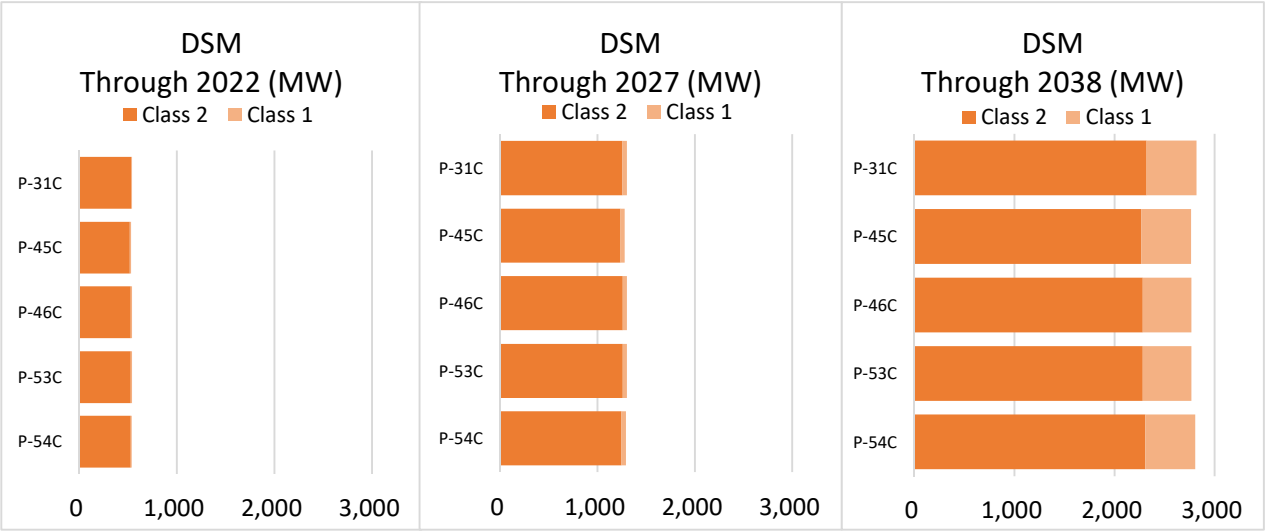
Retirements, New Renewable and Storage "C" Cases

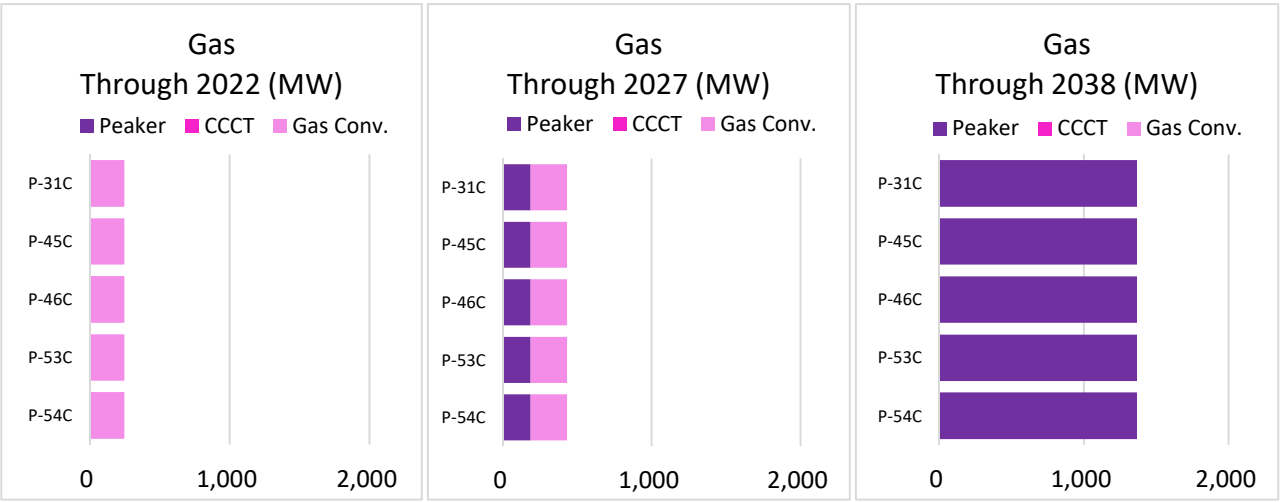




- Coal retirement assumptions are unchanged from the original studies (i.e., they are identical in the "B" and "C" cases as assumed in the original cases).
- Through 2027, total coal retirements range between 2,091 MW (Case P-31) and 2,797 MW (Case P-53).
- Through the end of 2037, total coal retirements exceed 4,485 MW in each case.
- Through 2027, new renewable capacity ranges between 3,992 MW (Case P-31) and 4,409 MW (Cases P-46 and P-53)—all cases included Gateway South and 1,920 MW of eastern Wyoming wind in 2024 (as a proxy for year-end 2023).
- By the end of 2038, new renewable capacity ranges between 9,474 MW (Case P-31) and 9,574 MW (Cases P-46, P-53, and P-54).
- New battery capacity ranges between 518 MW and 729 MW through 2027 and over 3,300 MW by the end of 2038.

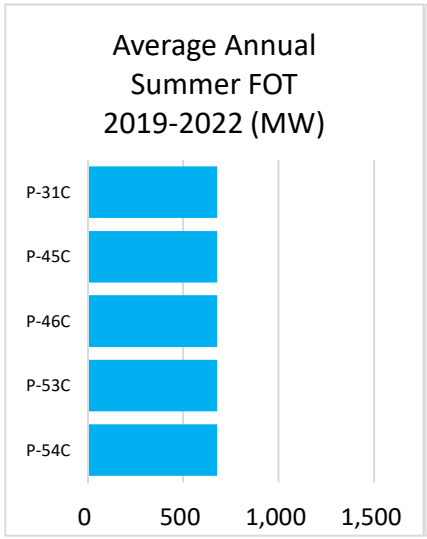
Incremental Demand-Side Management and New Natural Gas Resources, "C" Cases

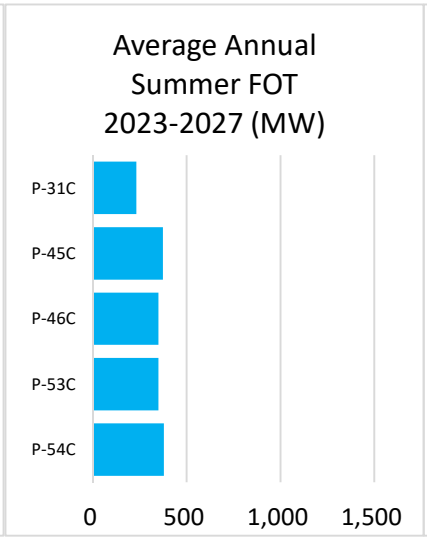


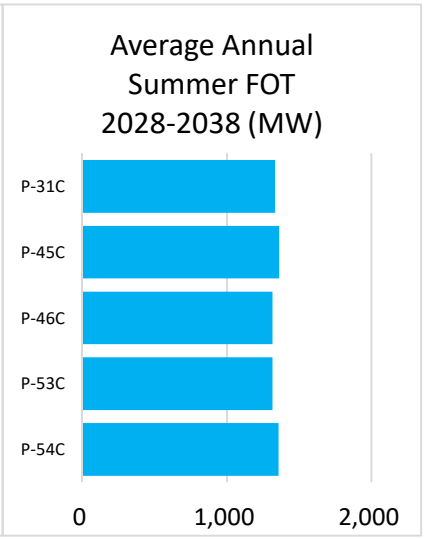


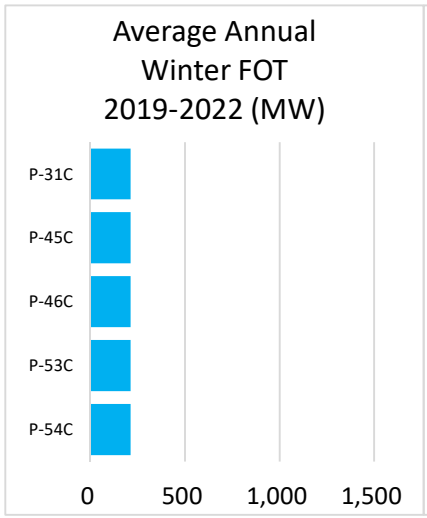
- Demand-side management (DSM) selections continue to be relatively stable among each of these cases.
- On average, Class 2 DSM capacity totals 527 MW through 2022, 1,251 MW through 2027, and 2,292 MW through 2038.
- On average, Class 1 DSM capacity totals 11 MW through 2022, 45 MW through 2027, and 494 MW through 2038.
- Each case includes the large gas conversion of Naughton 3 in 2020, includes 185 MW of new peaking gas capacity in 2026 and 1,367 MW of new gas peaking gas capacity through the end of 2038.

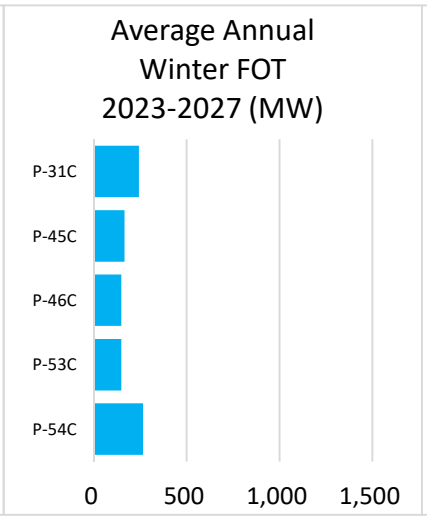
Summer and Winter Front Office Transactions "C" Cases

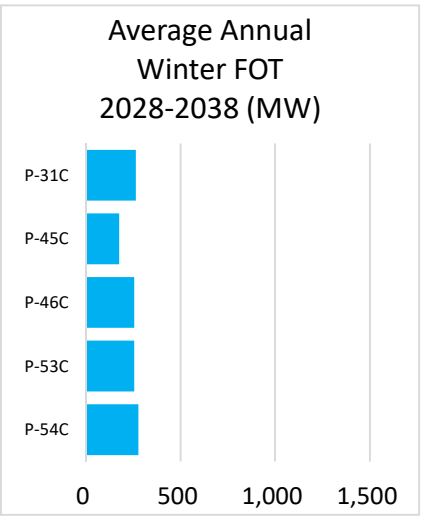






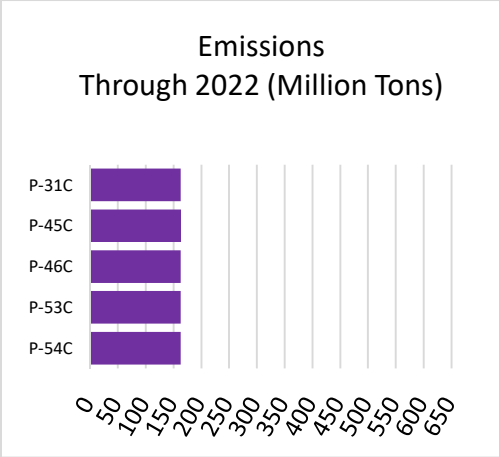


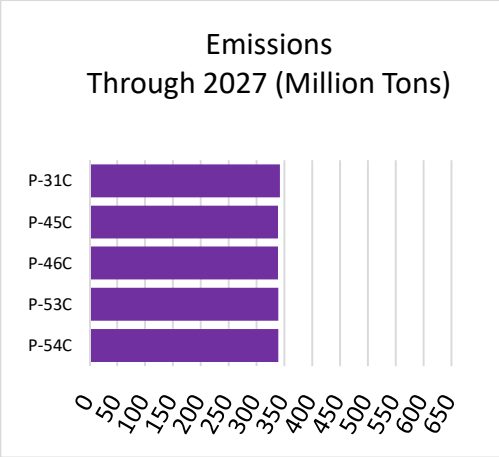


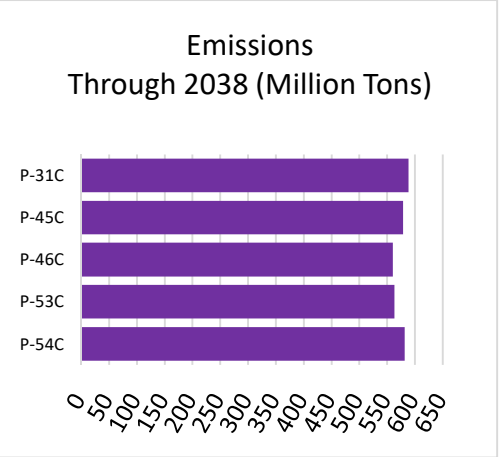


- The summer FOT limit assumed for the 2019 IRP is 1,425 MW.
- Market reliance is reduced in the 2023 to 2027 timeframe, coinciding with the addition of new transmission, new wind, and new solar+battery resources—on average, summer FOT purchases are 336 MW per year over this period.
- Longer-term, summer FOTs increase similarly among these cases, on average ranging between 1,315 MW and 1,361 MW each year from 2028-2038.

Emissions, “C” Cases



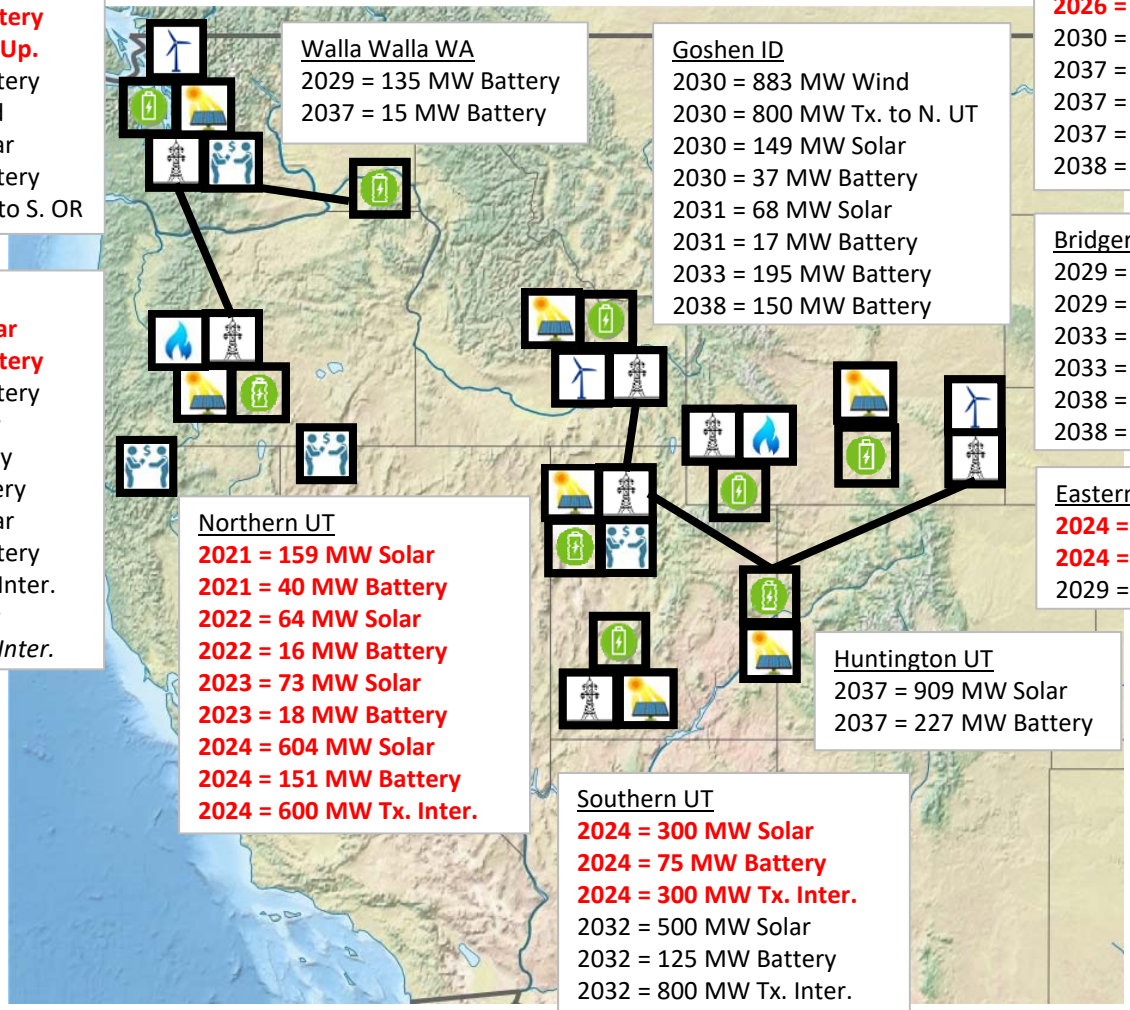




- Total CO_2 emissions is similar among these cases through 2027.
- Through 2038, total CO_2 emissions range between 560 million tons (Case P-46) and 588 million tons (Case P-31).

Case P-31C

(P-11 with Naughton 1-2 Accelerated to 2025)



Yakima WA
2024 = 405 MW Solar
2024 = 101 MW Battery
2024 = 405 MW Tx. Up.
2029 = 105 MW Battery
2038 = 30 MW Wind
2038 = 400 MW Solar
2038 = 100 MW Battery
2038 = 450 MW Tx. to S. OR

Walla Walla WA
2029 = 135 MW Battery
2037 = 15 MW Battery

Goshen ID
2030 = 883 MW Wind
2030 = 800 MW Tx. to N. UT
2030 = 149 MW Solar
2030 = 37 MW Battery
2031 = 68 MW Solar
2031 = 17 MW Battery
2033 = 195 MW Battery
2038 = 150 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2023 = 90 MW Battery
2026 = 185 MW Gas
2030 = 370 MW Gas
2037 = 75 MW Battery
2037 = 370 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 165 MW Battery

Bridger WY
2029 = 354 MW Solar
2029 = 88 MW Battery
2033 = 359 MW Solar
2033 = 90 MW Battery
2038 = 702 MW Solar
2038 = 715 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

WillamValcc in Southern OR box in italics.

Southern OR
2024 = 467 MW Solar
2024 = 117 MW Battery
2029 = 195 MW Battery
2031 = 33 MW Solar
2031 = 8 MW Battery
2033 = 90 MW Battery
2033 = 475 MW Solar
2033 = 119 MW Battery
2033 = 475 MW Tx. Inter.
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.

Northern UT
2021 = 159 MW Solar
2021 = 40 MW Battery
2022 = 64 MW Solar
2022 = 16 MW Battery
2023 = 73 MW Solar
2023 = 18 MW Battery
2024 = 604 MW Solar
2024 = 151 MW Battery
2024 = 600 MW Tx. Inter.

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Southern UT
2024 = 300 MW Solar
2024 = 75 MW Battery
2024 = 300 MW Tx. Inter.
2032 = 500 MW Solar
2032 = 125 MW Battery
2032 = 800 MW Tx. Inter.
2033 = 105 MW Battery
2037 = 165 MW Battery
2038 = 300 MW Battery

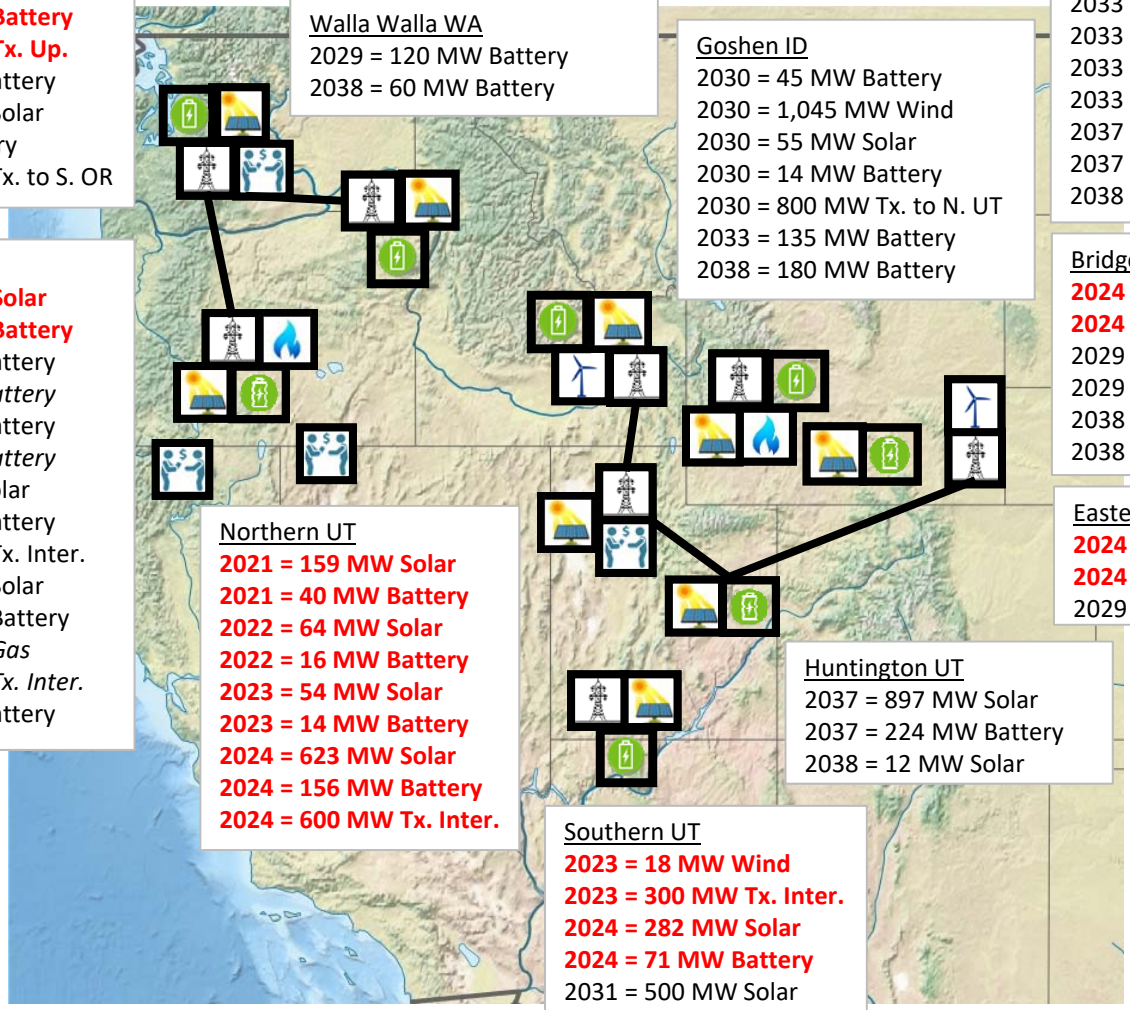
Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = NT1-2 (357 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-45C

(P-31 with Jim Bridger 1-2 Retirement)



Yakima WA
2024 = 405 MW Solar
2024 = 101 MW Battery
2024 = 405 MW Tx. Up.
2028 = 90 MW Battery
2036 = 430 MW Solar
2036 = 108 Battery
2036 = 450 MW Tx. to S. OR

Walla Walla WA
2029 = 120 MW Battery
2038 = 60 MW Battery

Goshen ID
2030 = 45 MW Battery
2030 = 1,045 MW Wind
2030 = 55 MW Solar
2030 = 14 MW Battery
2030 = 800 MW Tx. to N. UT
2033 = 135 MW Battery
2038 = 180 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2026 = 185 MW Gas
2029 = 240 MW Battery
2030 = 185 MW Gas
2033 = 185 MW Gas
2033 = 38 MW Solar
2033 = 10 MW Battery
2033 = 100 MW Tx. Inter.
2037 = 370 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 90 MW Battery

Southern OR
2024 = 500 MW Solar
2024 = 125 MW Battery
2028 = 75 MW Battery
2028 = 15 MW Battery
2029 = 30 MW Battery
2029 = 75 MW Battery
2031 = 66 MW Solar
2031 = 17 MW Battery
2031 = 475 MW Tx. Inter.
2032 = 409 MW Solar
2032 = 102 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.
2038 = 45 MW Battery

Bridger WY
2024 = 354 MW Solar
2024 = 89 MW Battery
2029 = 359 MW Solar
2029 = 90 MW Battery
2038 = 702 MW Solar
2038 = 175 MW Battery

WillamValcc in Southern OR box in italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 622 MW Wind

Northern UT
2021 = 159 MW Solar
2021 = 40 MW Battery
2022 = 64 MW Solar
2022 = 16 MW Battery
2023 = 54 MW Solar
2023 = 14 MW Battery
2024 = 623 MW Solar
2024 = 156 MW Battery
2024 = 600 MW Tx. Inter.

Huntington UT
2037 = 897 MW Solar
2037 = 224 MW Battery
2038 = 12 MW Solar

Coal/Early Gas Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2023– JB1 (351 MW)
2025 = CG1 (82 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB2 (356 MW)
2030 = HY1-2 (77 MW)
2032 = GDB1-3 (238 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

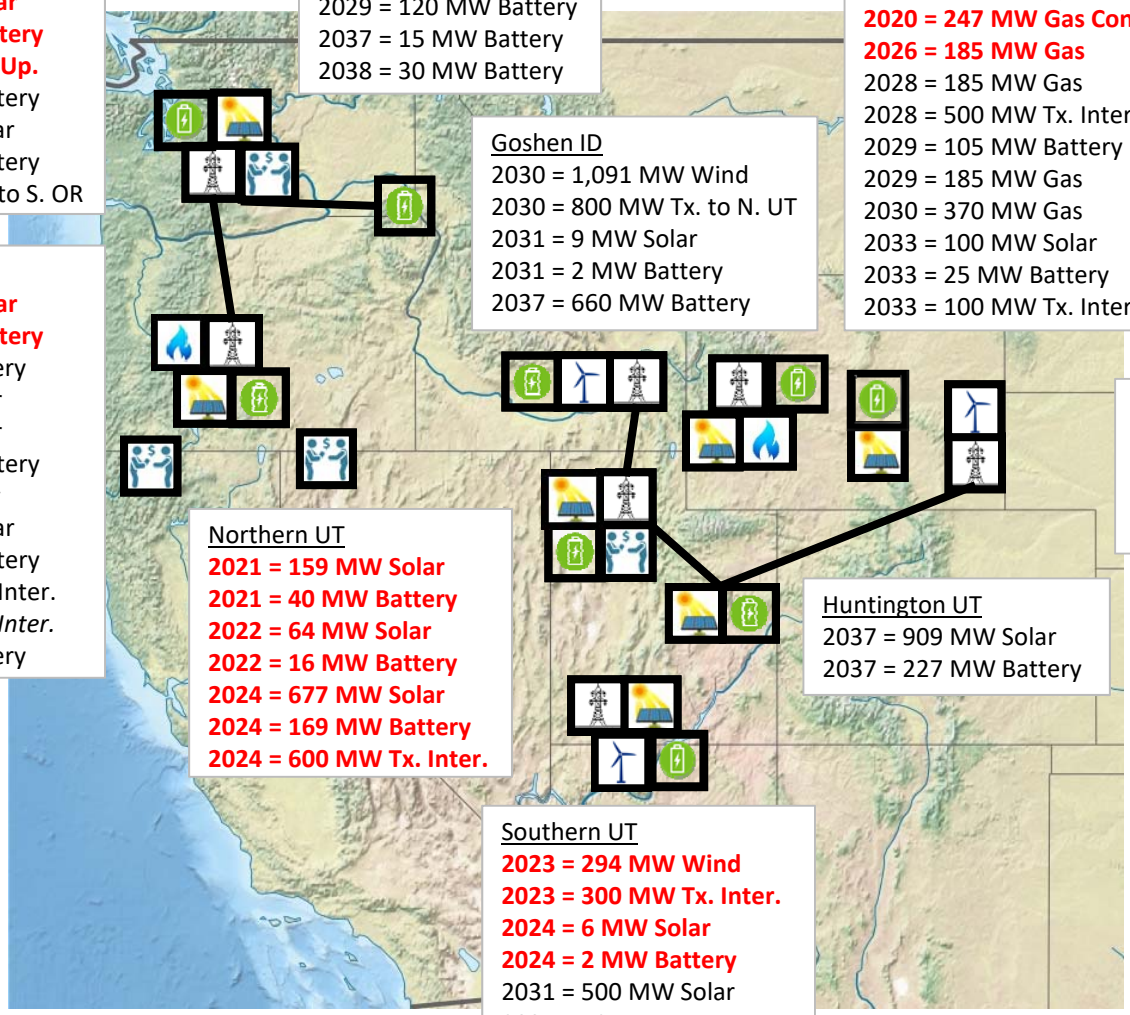
Southern UT
2023 = 18 MW Wind
2023 = 300 MW Tx. Inter.
2024 = 282 MW Solar
2024 = 71 MW Battery
2031 = 500 MW Solar
2031 = 125 MW Battery
2031 = 800 MW Tx. Inter
2033 = 30 MW Battery
2037 = 225 MW Battery
2038 = 330 MW Battery

Solar
Wind
Battery
Pumped Hydro
Gas
Market
Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-46C

(P-31 with Jim Bridger 3-4 Retirement 2025)



Yakima WA
2024 = 405 MW Solar
2024 = 101 MW Battery
2024 = 405 MW Tx. Up.
2026 = 105 MW Battery
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2029 = 120 MW Battery
2037 = 15 MW Battery
2038 = 30 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2026 = 185 MW Gas
2028 = 185 MW Gas
2028 = 500 MW Tx. Inter.
2029 = 105 MW Battery
2029 = 185 MW Gas
2030 = 370 MW Gas
2033 = 100 MW Solar
2033 = 25 MW Battery
2033 = 100 MW Tx. Inter.

Bridger WY
2026 = 384 MW Solar
2026 = 96 MW Battery
2029 = 349 MW Solar
2029 = 87 MW Battery
2033 = 682 MW Solar
2033 = 171 MW Battery

Goshen ID
2030 = 1,091 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 9 MW Solar
2031 = 2 MW Battery
2037 = 660 MW Battery

Southern OR
2024 = 500 MW Solar
2024 = 125 MW Battery
2026 = 15 MW Battery
2026 = 30 MW Solar
2027 = 30 MW Solar
2029 = 150 MW Battery
2033 = 443 MW Gas
2033 = 475 MW Solar
2033 = 119 MW Battery
2033 = 475 MW Tx. Inter.
2033 = 615 MW Tx. Inter.
2038 = 60 MW Battery

WillamValcc in Southern OR box in italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 127 MW Wind
2029 = 493 MW Wind

Northern UT
2021 = 159 MW Solar
2021 = 40 MW Battery
2022 = 64 MW Solar
2022 = 16 MW Battery
2024 = 677 MW Solar
2024 = 169 MW Battery
2024 = 600 MW Tx. Inter.

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = CG1 (82 MW)
2025 = JB3-4 (702 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)

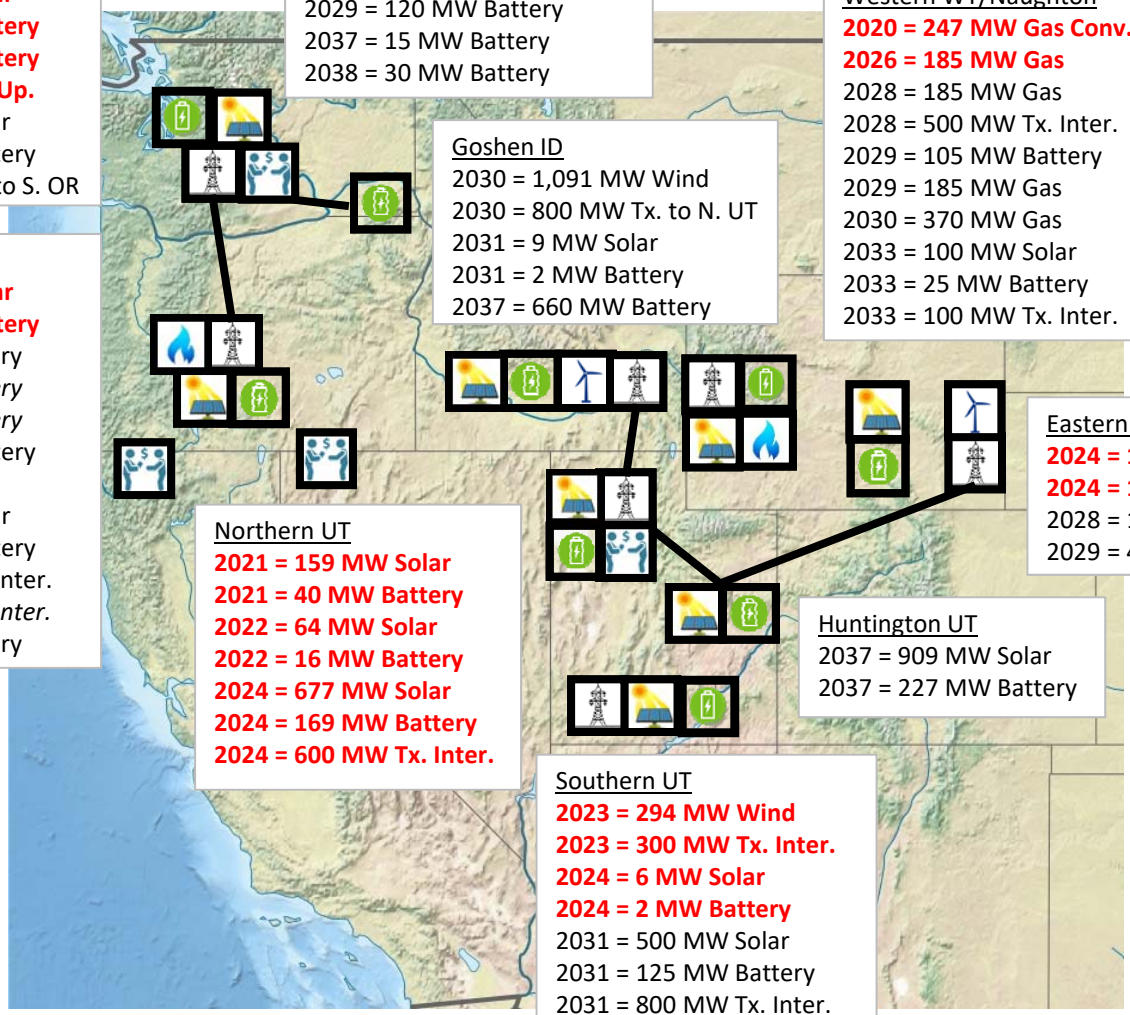
Southern UT
2023 = 294 MW Wind
2023 = 300 MW Tx. Inter.
2024 = 6 MW Solar
2024 = 2 MW Battery
2031 = 500 MW Solar
2031 = 125 MW Battery
2031 = 800 MW Tx. Inter.
2037 = 435 MW Battery
2038 = 60 MW Battery

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-53C

(P-46 Jim Bridger 1-2 Retirement 2025)



Yakima WA
2024 = 405 MW Solar
2024 = 101 MW Battery
2026 = 105 MW Battery
2024 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2029 = 120 MW Battery
2037 = 15 MW Battery
2038 = 30 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2026 = 185 MW Gas
2028 = 185 MW Gas
2028 = 500 MW Tx. Inter.
2029 = 105 MW Battery
2029 = 185 MW Gas
2030 = 370 MW Gas
2033 = 100 MW Solar
2033 = 25 MW Battery
2033 = 100 MW Tx. Inter.

Goshen ID
2030 = 1,091 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 9 MW Solar
2031 = 2 MW Battery
2037 = 660 MW Battery

Bridger WY
2026 = 384 MW Solar
2026 = 96 MW Battery
2029 = 349 MW Solar
2029 = 87 MW Battery
2033 = 682 MW Solar
2033 = 171 MW Battery

Southern OR
2024 = 500 MW Solar
2024 = 125 MW Battery
2026 = 15 MW Battery
2026 = 30 MW Battery
2027 = 30 MW Battery
2029 = 150 MW Battery
2033 = 443 MW Gas
2033 = 475 MW Solar
2033 = 119 MW Battery
2033 = 475 MW Tx. Inter.
2033 = 615 MW Tx. Inter.
2038 = 60 MW Battery

WillamValcc in Southern OR box in italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 127 MW Wind
2029 = 493 MW Wind

Northern UT
2021 = 159 MW Solar
2021 = 40 MW Battery
2022 = 64 MW Solar
2022 = 16 MW Battery
2024 = 677 MW Solar
2024 = 169 MW Battery
2024 = 600 MW Tx. Inter.

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Southern UT
2023 = 294 MW Wind
2023 = 300 MW Tx. Inter.
2024 = 6 MW Solar
2024 = 2 MW Battery
2031 = 500 MW Solar
2031 = 125 MW Battery
2031 = 800 MW Tx. Inter.
2037 = 435 MW Battery
2038 = 60 MW Battery

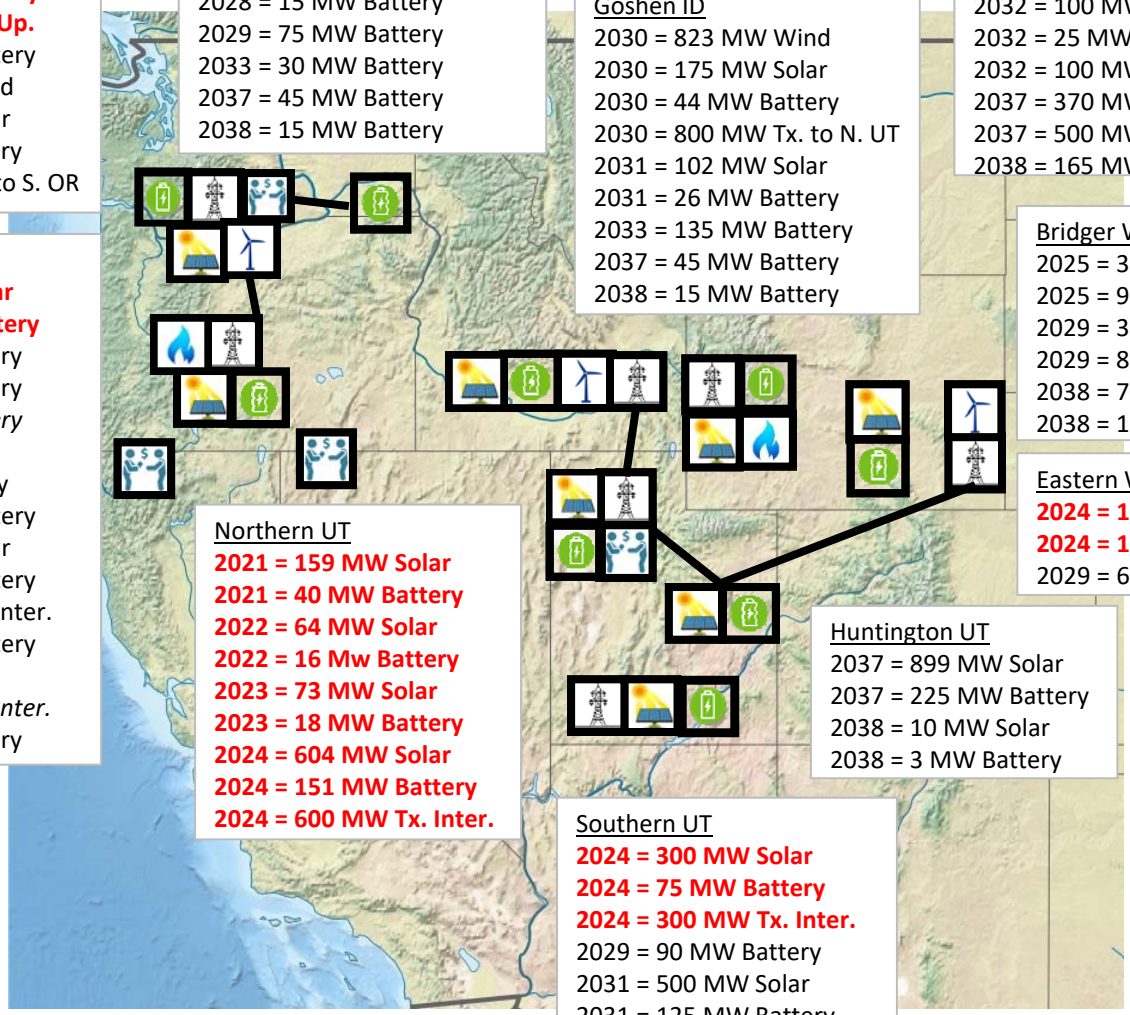
Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = CG1 (82 MW)
2025 = JB1 (351 MW)
2025 = JB2 (356 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB3 (351 MW)
2030 = HY1-2 (77 MW)
2032 = JB4 (351 MW)
2036 = HTG1-2 (909 MW)

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-54C

(P-31 Jim Bridger 2 Retirement 2024)



Yakima WA
2024 = 405 MW Solar
2024 = 101 MW Battery
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2037 = 214 MW Wind
2037 = 216 MW Solar
2037 = 54 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 15 MW Battery
2029 = 75 MW Battery
2033 = 30 MW Battery
2037 = 45 MW Battery
2038 = 15 MW Battery

Goshen ID
2030 = 823 MW Wind
2030 = 175 MW Solar
2030 = 44 MW Battery
2030 = 800 MW Tx. to N. UT
2031 = 102 MW Solar
2031 = 26 MW Battery
2033 = 135 MW Battery
2037 = 45 MW Battery
2038 = 15 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2026 = 185 MW Gas
2029 = 90 MW Battery
2030 = 370 MW Gas
2032 = 100 MW Solar
2032 = 25 MW Battery
2032 = 100 MW Tx. Inter.
2037 = 370 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 165 MW Battery

Bridger WY
2025 = 359 MW Solar
2025 = 90 MW Battery
2029 = 354 MW Solar
2029 = 89 MW Battery
2038 = 702 MW Solar
2038 = 175 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Southern OR
2024 = 467 MW Solar
2024 = 117 MW Battery
2028 = 60 MW Battery
2029 = 30 MW Battery
2029 = 75 MW Battery
2032 = 33 MW Solar
2032 = 8 MW Battery
2033 = 105 MW Battery
2033 = 475 MW Solar
2033 = 119 MW Battery
2033 = 475 MW Tx. Inter.
2037 = 135 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.
2038 = 60 MW Battery

WillamValcc in Southern OR box in italics.

Northern UT
2021 = 159 MW Solar
2021 = 40 MW Battery
2022 = 64 MW Solar
2022 = 16 Mw Battery
2023 = 73 MW Solar
2023 = 18 MW Battery
2024 = 604 MW Solar
2024 = 151 MW Battery
2024 = 600 MW Tx. Inter.

Huntington UT
2037 = 899 MW Solar
2037 = 225 MW Battery
2038 = 10 MW Solar
2038 = 3 MW Battery

Southern UT
2024 = 300 MW Solar
2024 = 75 MW Battery
2024 = 300 MW Tx. Inter.
2029 = 90 MW Battery
2031 = 500 MW Solar
2031 = 125 MW Battery
2031 = 800 MW Tx. Inter.
2038 = 450 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2024 = JB2 (356 MW)
2025 = CG1 (82 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2030 = HY1-2 (77 MW)
2037 = JB3-4 (702 MW)
2036 = HTG1-2 (909 MW)

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Portfolio Cost and Risk Summary "C" Cases

Medium Gas, Medium CO_2 Price-Policy Scenario

	Stochastic Mean			Risk Adjusted			ENS Average Percent of Load			CO2 Emissions		
Case	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	Average Annual ENS, 2019-2038 % of Average Load	Change from Lowest ENS Portfolio	Rank	Total CO2 Emissions, 2019-2038 (Thousand Tons)	Change from Lowest Emission Portfolio	Rank
P46C	23,510	$0	1	24,694	$0	1	0.011%	0.001%	3	560,210	0	1
P45C	23,528	$18	2	24,713	$18	2	0.010%	0.000%	1	578,607	18,397	3
P53C	23,572	$62	3	24,759	$65	3	0.011%	0.001%	4	562,972	2,762	2
P31C	23,601	$91	4	24,789	$95	4	0.010%	0.000%	2	588,334	28,123	5
P54C	23,621	$111	5	24,811	$116	5	0.012%	0.002%	5	581,465	21,255	4

Low Gas, Zero CO_2 Price-Policy Scenario

	Stochastic Mean			Risk Adjusted			ENS Average Percent of Load			CO2 Emissions		
Case	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	Average Annual ENS, 2019-2038 % of Average Load	Change from Lowest ENS Portfolio	Rank	Total CO2 Emissions, 2019-2038 (Thousand Tons)	Change from Lowest Emission Portfolio	Rank
P53C	20,287	$0	1	21,308	$0	1	0.011%	0.001%	4	560,383	2,928	2
P31C	20,389	$103	2	21,415	$107	2	0.010%	0.000%	2	587,173	29,717	5
P45C	20,407	$120	3	21,433	$126	3	0.010%	0.000%	1	578,598	21,142	3
P54C	20,456	$170	4	21,485	$177	4	0.012%	0.002%	5	580,572	23,116	4
P46C	20,474	$188	5	21,505	$197	5	0.011%	0.001%	3	557,456	0	1

Portfolio Cost and Risk Summary
"C" Cases

High Gas, High CO_2 Price-Policy Scenario

	Stochastic Mean			Risk Adjusted			ENS Average Percent of Load			CO2 Emissions		
Case	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	Average Annual ENS, 2019-2038 % of Average Load	Change from Lowest ENS Portfolio	Rank	Total CO2 Emissions, 2019-2038 (Thousand Tons)	Change from Lowest Emission Portfolio	Rank
P46C	28,068	$0	1	29,484	$0	1	0.011%	0.001%	3	555,968	0	1
P45C	28,145	$77	2	29,564	$80	2	0.010%	0.000%	1	573,172	17,204	3
P53C	28,151	$84	3	29,572	$88	3	0.011%	0.001%	4	558,616	2,648	2
P54C	28,279	$211	4	29,706	$222	4	0.012%	0.002%	5	576,293	20,325	4
P31C	28,301	$233	5	29,728	$244	5	0.010%	0.000%	2	582,714	26,746	5

Social Cost of Carbon Price-Policy Scenario

	Stochastic Mean			Risk Adjusted			ENS Average Percent of Load			CO2 Emissions		
Case	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	Average Annual ENS, 2019-2038 % of Average Load	Change from Lowest ENS Portfolio	Rank	Total CO2 Emissions, 2019-2038 (Thousand Tons)	Change from Lowest Emission Portfolio	Rank
P46C	36,938	$0	1	38,796	$0	1	0.011%	0.001%	3	416,321	0	1
P53C	37,073	$135	2	38,938	$141	2	0.011%	0.001%	4	420,320	3,999	2
P45C	37,299	$360	3	39,174	$378	3	0.010%	0.000%	1	434,212	17,891	3
P54C	37,471	$532	4	39,355	$559	4	0.012%	0.002%	5	436,322	20,001	4
P31C	37,615	$676	5	39,506	$710	5	0.010%	0.000%	2	440,420	24,099	5

Next Steps for October 2019 Public-Input Meeting

- Complete outstanding portfolio development cases
  - Energy Gateway
  - Price-policy cases
- Complete additional portfolio screening on top portfolios:
  - Limited FOT and market reliance risk
  - Demand-side management bundling
- Complete sensitivity cases
- Identify preferred portfolio
- Review action plan

Stakeholder Feedback Form Recap

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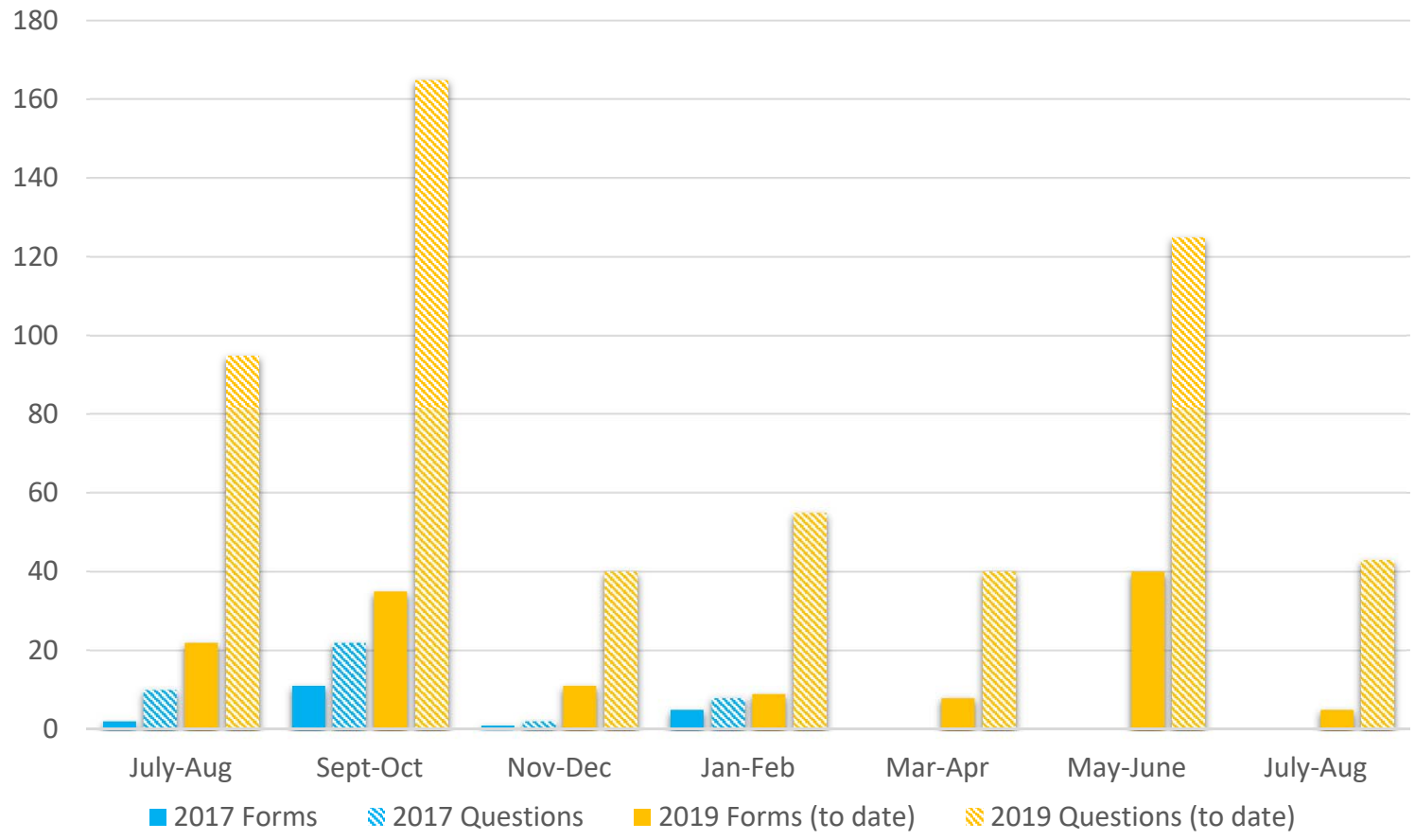
2019 IRP vs. 2017 IRP Stakeholder Feedback Form Activity to Date



Stakeholder Feedback Forms

- 131 stakeholder feedback forms submitted to date.
- Stakeholder feedback forms and responses can be located at: www.pacificorp.com/es/irp/irpcomments.html.
- Depending on the type and complexity of the stakeholder feedback received responses may be provided in a variety of ways including, but not limited to, a written response, a follow-up conversation, or incorporation into subsequent public input meeting material.
- Stakeholder feedback following the most recent public input meeting is summarized on the following slides for reference.

Summary - Recent Stakeholder Feedback Forms

Stakeholder	Date	Topic	Brief Summary (complete form available online)	Response (posted online when available)
OPUC Staff	July 23	Overall Analysis	OPUC Staff submitted questions related to coal studies analysis, transmission analysis, and energy storage.	PacifiCorp provided detailed data and descriptions of analysis.
Powder River Basin Resource Council, WRA, Idaho Conservation League	Aug 12	Coal Supply Contracts	Questions regarding data inputs and the modeling of coal supply contracts and coal combustion residuals.	PacifiCorp provided details on inputs for coal supply contracts and CCR treatment.

Additional Information and Next Steps

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Draft Topics for Upcoming PIMs*

October 3-4, 2019*

- Portfolio Modeling Results
- Sensitivity Results
- Preferred Portfolio
- Action Plan
- Stakeholder Feedback Form Recap

** Topics and timing are tentative and subject to change*

Additional Information and Next Steps

- Public Input Meeting Presentation and Materials:
  - pacificorp.com/energy/integrated-resource-plan/public-input-process.html
- 2019 IRP Stakeholder Feedback Forms:
  - pacificorp.com/energy/integrated-resource-plan/comments.html
- IRP Email / Distribution List Contact Information:
  - IRP@PacifiCorp.com
- Upcoming Public Input Meeting Dates:
  - October 3-4, 2019
  - October 18, 2019 – 2019 IRP File Date

Appendix
Additional Resource Portfolio Maps




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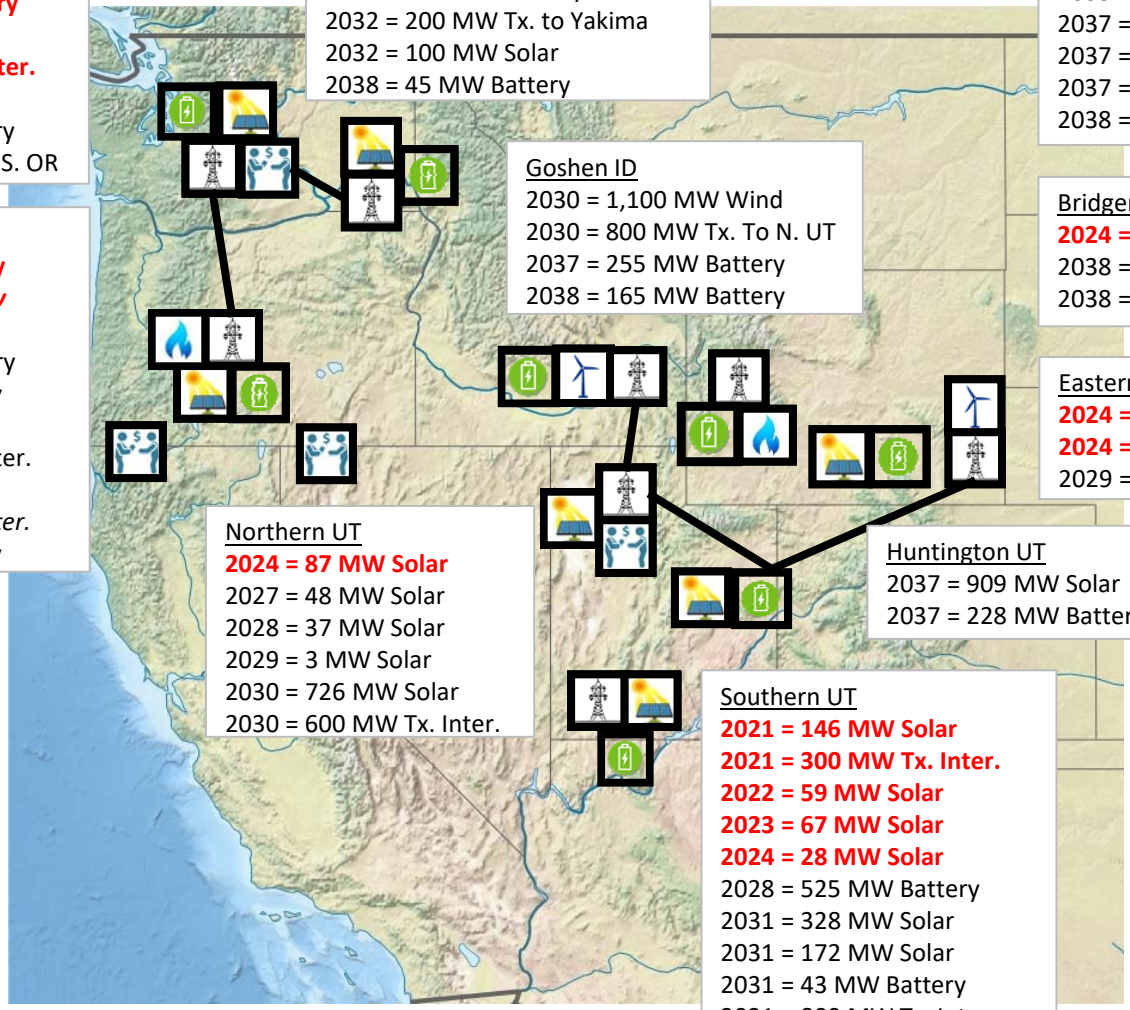
Case P-01

(Coal Study Benchmark)



Yakima WA
2023 = 105 MW Battery
2024 = 405 MW Solar
2024 = 405 MW Tx. Inter.
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 120 MW Battery
2032 = 200 MW Tx. to Yakima
2032 = 100 MW Solar
2038 = 45 MW Battery

Western WY/Naughton
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 90 MW Battery
2033 = 370 MW Gas
2037 = 370 MW Gas
2037 = 185 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 300 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. To N. UT
2037 = 255 MW Battery
2038 = 165 MW Battery

Bridger WY
2024 = 100 MW Solar
2038 = 1,408 MW Solar
2038 = 352 MW Battery

Southern OR
2023 = 15 MW Battery
2023 = 75 MW Battery
2024 = 500 MW Solar
2028 = 135 MW Battery
2028 = 15 MW Battery
2032 = 475 MW Solar
2032 = 475 MW Tx. Inter.
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.
2038 = 90 MW Battery

WillamValcc in Southern OR box in italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to S. UT
2029 = 620 MW Wind

Northern UT
2024 = 87 MW Solar
2027 = 48 MW Solar
2028 = 37 MW Solar
2029 = 3 MW Solar
2030 = 726 MW Solar
2030 = 600 MW Tx. Inter.

Huntington UT
2037 = 909 MW Solar
2037 = 228 MW Battery

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2028 = 525 MW Battery
2031 = 328 MW Solar
2031 = 172 MW Solar
2031 = 43 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2038 = 495 MW Battery

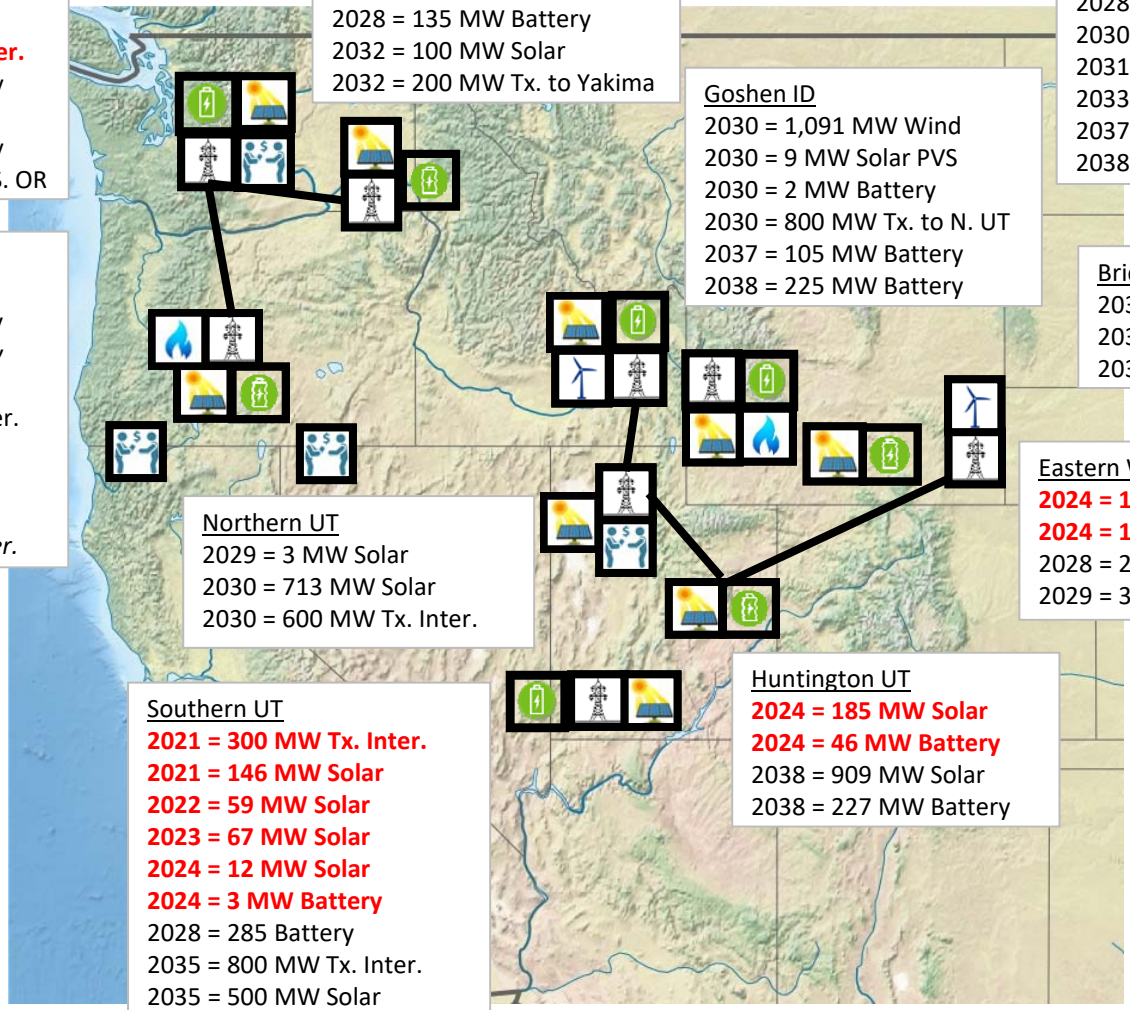
Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = CG1 (82 MW)
2027 = DJ1-4 (755 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2034 = CG2 (82 MW)
2036 = HTG1-2 (909 MW)
2037 = JB1-4 (1,408 MW)

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-02

(Regional Haze Reference)



Yakima WA
2024 = 405 MW Solar
2024 = 405 MW Tx. Inter.
2028 = 105 MW Battery
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 135 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima

Western WY/Naughton
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 105 MW Battery
2030 = 185 MW Gas NTN
2031 = 185 MW Gas
2033 = 370 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 285 MW Gas

Goshen ID
2030 = 1,091 MW Wind
2030 = 9 MW Solar PVS
2030 = 2 MW Battery
2030 = 800 MW Tx. to N. UT
2037 = 105 MW Battery
2038 = 225 MW Battery

Bridger WY
2038 = 1,056 MW Solar
2038 = 264 MW Battery
2038 = 253 MW Battery

Southern OR
2024 = 500 MW Solar
2028 = 345 MW Battery
2028 = 135 MW Battery
2031 = 182 MW Solar
2031 = 475 MW Tx. Inter.
2032 = 293 MW Solar
2032 = 73 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.

WillamValcc in Southern OR box in italics.

Northern UT
2029 = 3 MW Solar
2030 = 713 MW Solar
2030 = 600 MW Tx. Inter.

Eastern WY
2024 = 1920 MW Wind
2024 = 1,700 MW Tx. to S. UT
2028 = 295 MW Wind
2029 = 326 MW Wind

Coal Retirements
2019 = NT3 (280 MW)
2025 = CH4 (387 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2036 = HTG1-2 (909 MW)
2037 = JB1-4 (1,408 MW)

Southern UT
2021 = 300 MW Tx. Inter.
2021 = 146 MW Solar
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 12 MW Solar
2024 = 3 MW Battery
2028 = 285 Battery
2035 = 800 MW Tx. Inter.
2035 = 500 MW Solar
2035 = 125 MW Battery
2036 = 400 MW Solar
2038 = 495 MW Battery

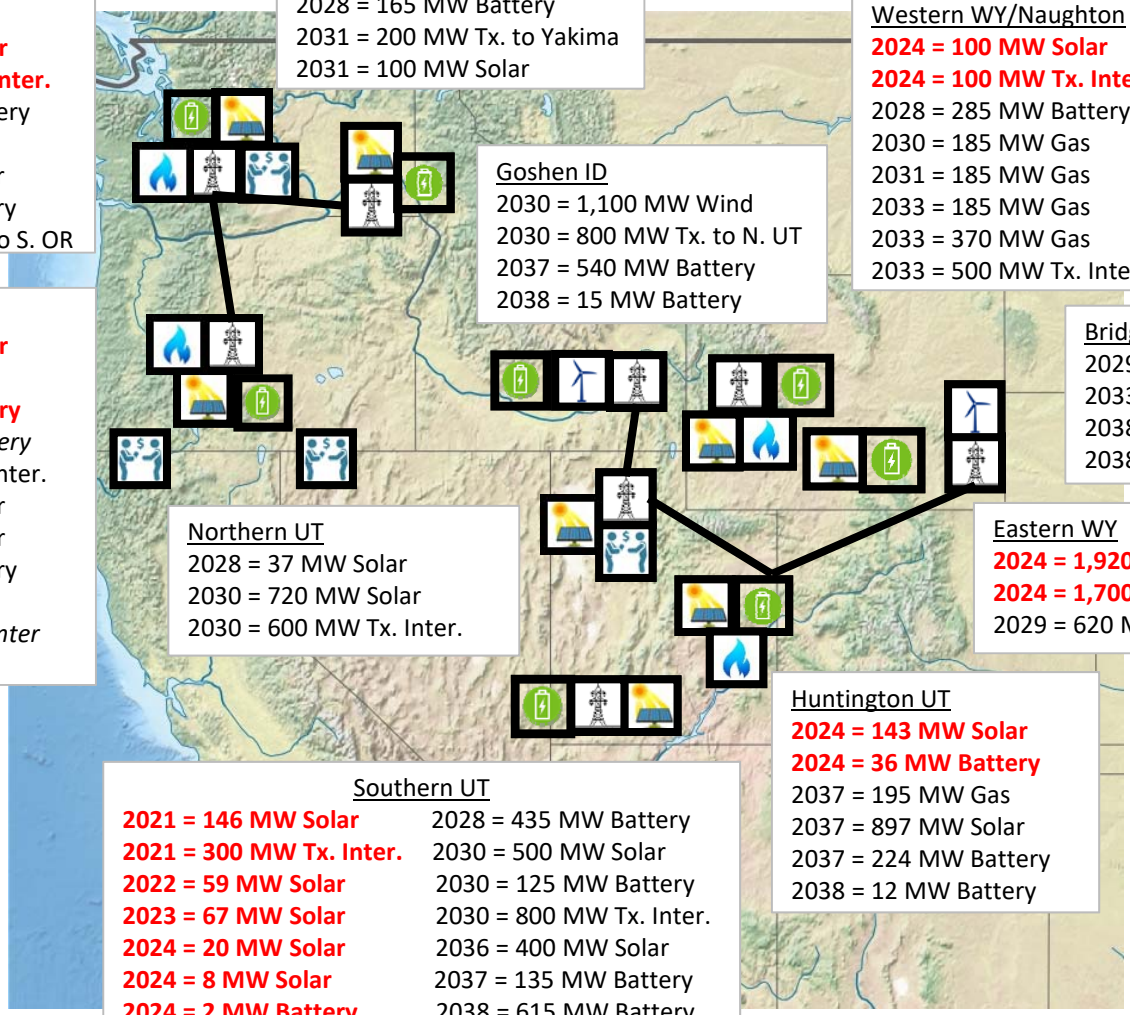
Huntington UT
2024 = 185 MW Solar
2024 = 46 MW Battery
2038 = 909 MW Solar
2038 = 227 MW Battery

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-03

(Regional Haze Intertemporal)



Yakima WA
2024 = 405 MW Solar
2024 = 405 MW Tx. Inter.
2028 = 105 MW Battery
2037 = 233 MW Gas
2037 = 197 MW Solar
2037 = 49 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 165 MW Battery
2031 = 200 MW Tx. to Yakima
2031 = 100 MW Solar

Western WY/Naughton
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 285 MW Battery
2030 = 185 MW Gas
2031 = 185 MW Gas
2033 = 185 MW Gas
2033 = 370 MW Gas
2033 = 500 MW Tx. Inter

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT
2037 = 540 MW Battery
2038 = 15 MW Battery

Bridger WY
2029 = 354 MW Solar
2033 = 360 MW Solar
2038 = 702 MW Solar
2038 = 176 MW Battery

Southern OR
2024 = 421 MW Solar
2024 = 79 MW Solar
2024 = 20 MW Battery
2028 = 120 MW Battery
2032 = 475 MW Tx. Inter.
2032 = 375 MW Solar
2032 = 100 MW Solar
2032 = 25 MW Battery
2033 = 221 MW Gas
2033 = 615 MW Tx. Inter
2037 = 221 MW Gas

WillamValcc in Southern OR box in italics.

Northern UT
2028 = 37 MW Solar
2030 = 720 MW Solar
2030 = 600 MW Tx. Inter.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Huntington UT
2024 = 143 MW Solar
2024 = 36 MW Battery
2037 = 195 MW Gas
2037 = 897 MW Solar
2037 = 224 MW Battery
2038 = 12 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2025 = CH4 (387 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT

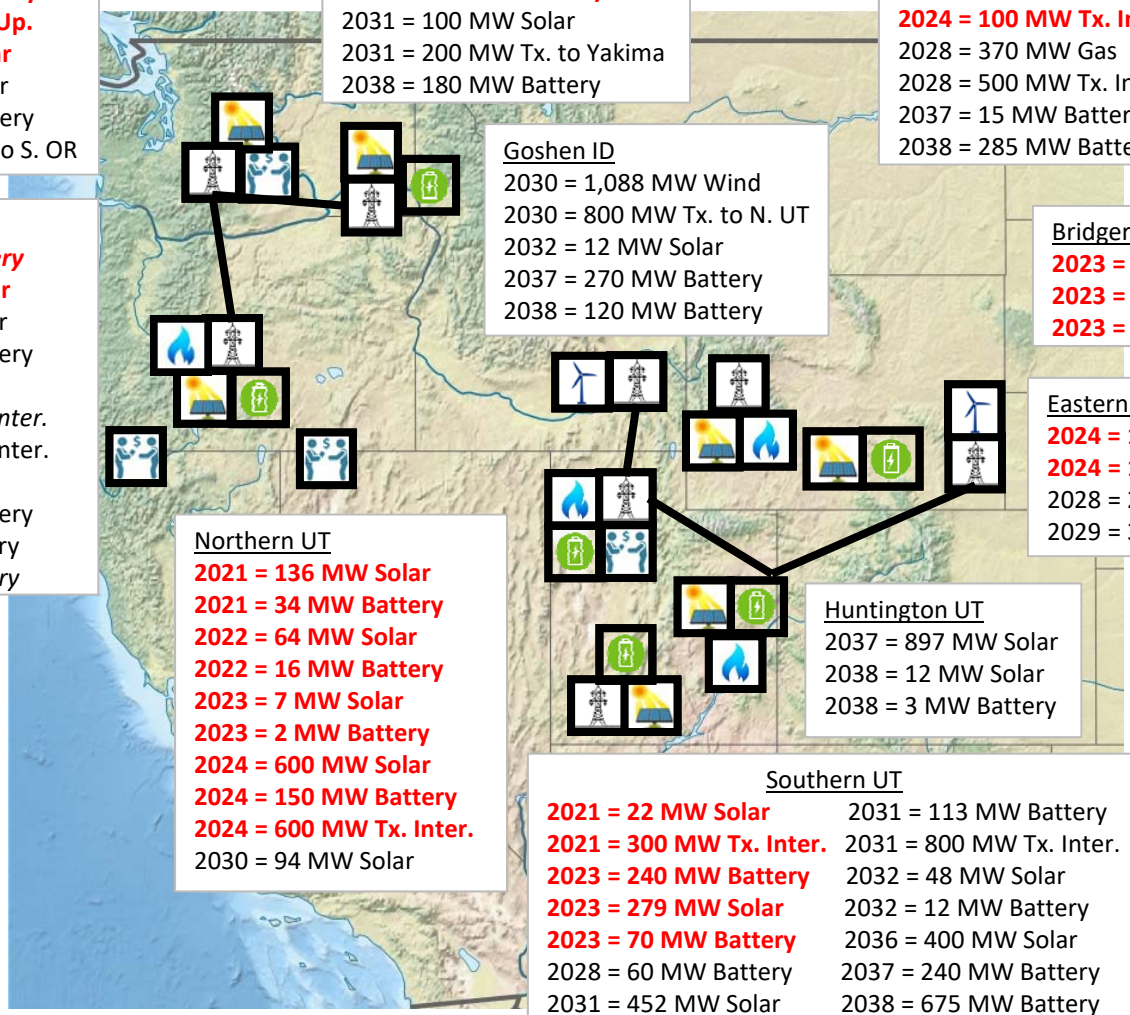
2021 = 146 MW Solar	2028 = 435 MW Battery
2021 = 300 MW Tx. Inter.	2030 = 500 MW Solar
2022 = 59 MW Solar	2030 = 125 MW Battery
2023 = 67 MW Solar	2030 = 800 MW Tx. Inter.
2024 = 20 MW Solar	2036 = 400 MW Solar
2024 = 8 MW Solar	2037 = 135 MW Battery
2024 = 2 MW Battery	2038 = 615 MW Battery

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-04

(Coal Study Stacked Case C-42)



Yakima WA
2023 = 105 MW Battery
2024 = 405 MW Tx. Up.
2024 = 405 MW Solar
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2023 = 195 MW Battery
2031 = 100 MW Solar
2031 = 200 MW Tx. to Yakima
2038 = 180 MW Battery

Western WY/Naughton
2023 = 210 MW Battery
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 370 MW Gas
2028 = 500 MW Tx. Inter.
2037 = 15 MW Battery
2038 = 285 MW Battery

Goshen ID
2030 = 1,088 MW Wind
2030 = 800 MW Tx. to N. UT
2032 = 12 MW Solar
2037 = 270 MW Battery
2038 = 120 MW Battery

Bridger WY
2023 = 713 MW Solar
2023 = 702 MW Solar
2023 = 176 MW Battery

Southern OR
2023 = 60 MW Battery
2024 = 500 MW Solar
2033 = 475 MW Solar
2033 = 119 MW Battery
2033 = 221 MW Gas
2033 = 615 MW Tx. Inter.
2033 = 475 MW Tx. Inter.
2035 = 221 MW Gas
2037 = 450 MW Battery
2038 = 60 MW Battery
2038 = 60 MW Battery

WillamValcc in Southern OR box in italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 232 MW Wind
2029 = 388 MW Wind

Northern UT
2021 = 136 MW Solar
2021 = 34 MW Battery
2022 = 64 MW Solar
2022 = 16 MW Battery
2023 = 7 MW Solar
2023 = 2 MW Battery
2024 = 600 MW Solar
2024 = 150 MW Battery
2024 = 600 MW Tx. Inter.
2030 = 94 MW Solar

Huntington UT
2037 = 897 MW Solar
2038 = 12 MW Solar
2038 = 3 MW Battery

Southern UT

2021 = 22 MW Solar	2031 = 113 MW Battery
2021 = 300 MW Tx. Inter.	2031 = 800 MW Tx. Inter.
2023 = 240 MW Battery	2032 = 48 MW Solar
2023 = 279 MW Solar	2032 = 12 MW Battery
2023 = 70 MW Battery	2036 = 400 MW Solar
2028 = 60 MW Battery	2037 = 240 MW Battery
2031 = 452 MW Solar	2038 = 675 MW Battery

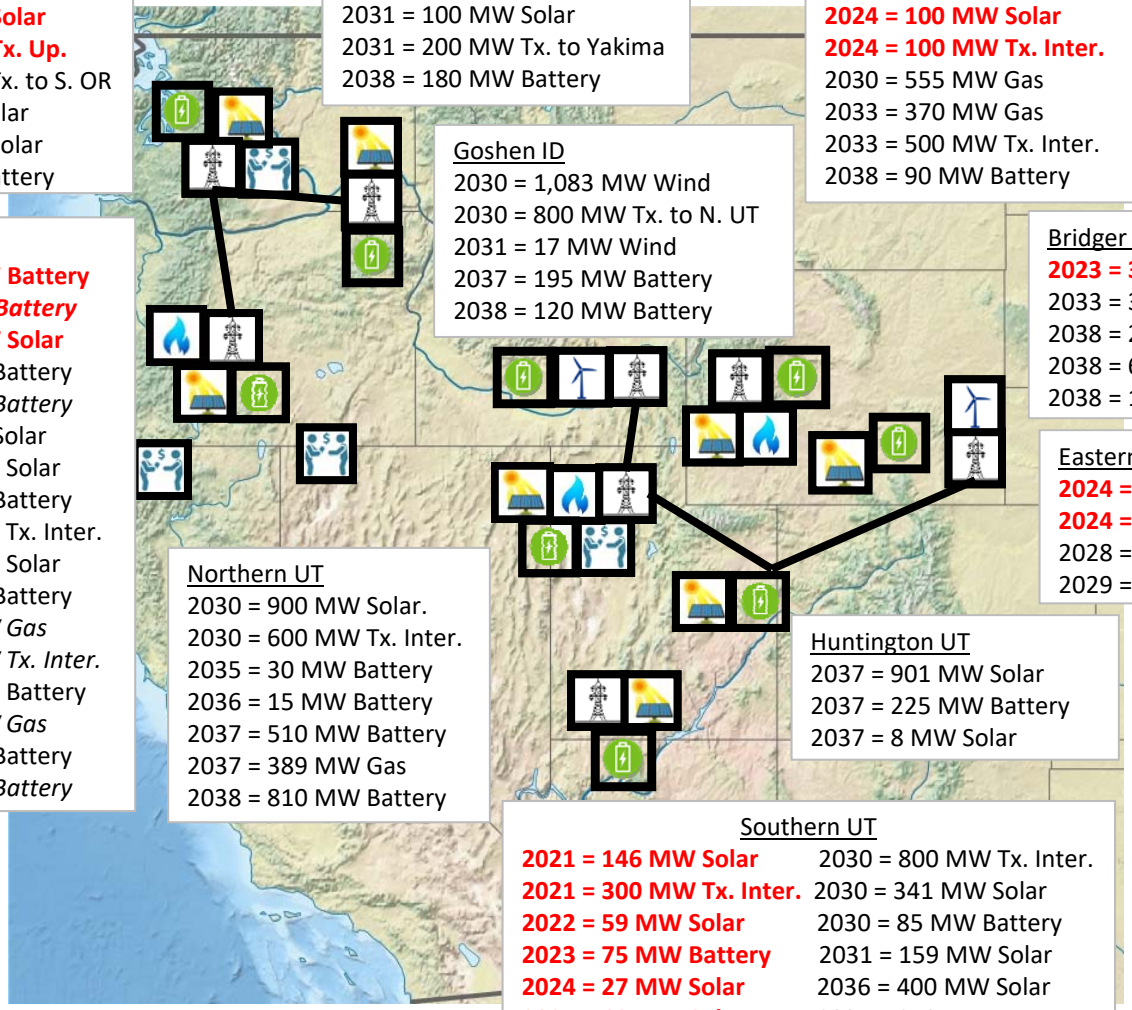
Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2022 = NT1-2 (357 MW)
2022 = JB1-2 (706 MW)
2025 = CG1 (82 MW)
2027 = DJ1-4 (755 MW)
2030 = HY1-2 (77 MW)
2034 = CG2 (82 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-06

(Alternative Retirements/Transition Case C-44a)



Yakima WA
2023 = 105 MW Battery
2024 = 430 MW Solar
2024 = 405 MW Tx. Up.
2038 = 450 MW Tx. to S. OR
2038 = 50 MW Solar
2038 = 381 MW Solar
2038 = 95 MW Battery

Walla Walla WA
2023 = 135 MW Battery
2031 = 100 MW Solar
2031 = 200 MW Tx. to Yakima
2038 = 180 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2030 = 555 MW Gas
2033 = 370 MW Gas
2033 = 500 MW Tx. Inter.
2038 = 90 MW Battery

Goshen ID
2030 = 1,083 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 17 MW Wind
2037 = 195 MW Battery
2038 = 120 MW Battery

Bridger WY
2023 = 354 MW Solar
2033 = 359 MW Solar
2038 = 26 MW Solar
2038 = 676 MW Solar
2038 = 169 MW Battery

Eastern WY
2024 = 1920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 345 MW Wind
2029 = 275 MW Wind

Southern OR
2023 = 120 MW Battery
2023 = 60 MW Battery
2024 = 500 MW Solar
2028 = 90 MW Battery
2028 = 45 MW Battery
2031 = 33 MW Solar
2031 = 224 MW Solar
2031 = 56 MW Battery
2031 = 475 MW Tx. Inter.
2032 = 218 MW Solar
2032 = 55 MW Battery
2033 = 221 MW Gas
2033 = 615 MW Tx. Inter.
2037 = 315 MW Battery
2037 = 221 MW Gas
2038 = 45 MW Battery
2038 = 60 MW Battery

WillamValcc in Southern OR box in Italics.

Northern UT
2030 = 900 MW Solar.
2030 = 600 MW Tx. Inter.
2035 = 30 MW Battery
2036 = 15 MW Battery
2037 = 510 MW Battery
2037 = 389 MW Gas
2038 = 810 MW Battery

Huntington UT
2037 = 901 MW Solar
2037 = 225 MW Battery
2037 = 8 MW Solar

Southern UT

2021 = 146 MW Solar	2030 = 800 MW Tx. Inter.
2021 = 300 MW Tx. Inter.	2030 = 341 MW Solar
2022 = 59 MW Solar	2030 = 85 MW Battery
2023 = 75 MW Battery	2031 = 159 MW Solar
2024 = 27 MW Solar	2036 = 400 MW Solar
2024 = 69 MW Solar	2037 = 270 MW Battery
2024 = 17 MW Battery	2038 = 510 MW Battery
2028 = 90 MW Battery	

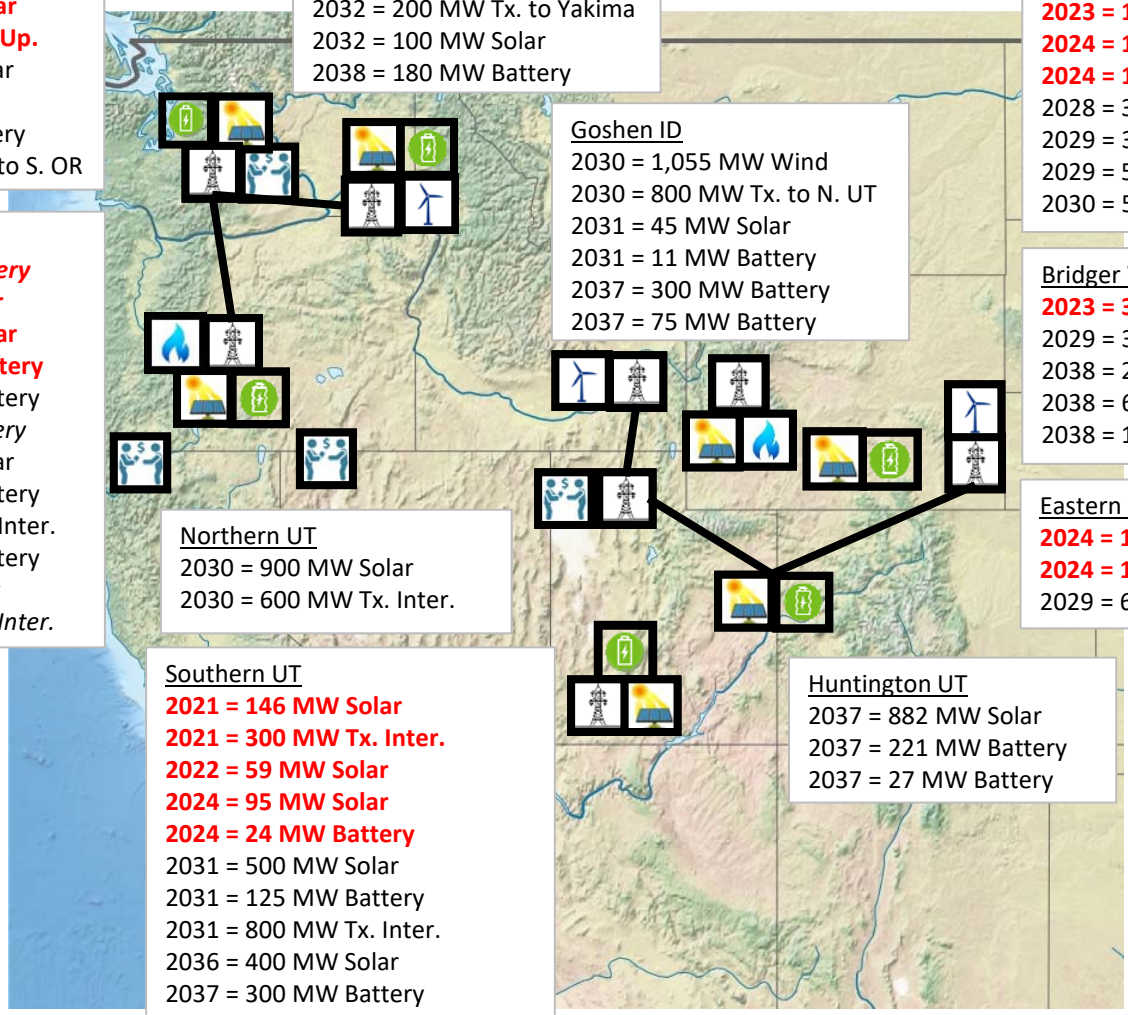
Coal/Early Gas Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2020 = GDB1-3 (238 MW)
2022 = JB1 (351 MW)
2025 = CG1-2 (164 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-07

(Transition Case C-44b)



Yakima WA
2023 = 105 MW Battery
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2038 = 375 MW Solar
2038 = 58 MW Solar
2038 = 15 MW Battery
2038 = 450 MW Tx. to S. OR

Walla Walla WA
2023 = 180 MW Battery
2032 = 200 MW Tx. to Yakima
2032 = 100 MW Solar
2038 = 180 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2023 = 150 MW Solar
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 300 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 555 MW Gas

Goshen ID
2030 = 1,055 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 45 MW Solar
2031 = 11 MW Battery
2037 = 300 MW Battery
2037 = 75 MW Battery

Bridger WY
2023 = 354 MW Solar
2029 = 359 MW Solar
2038 = 24 MW Solar
2038 = 678 MW Solar
2038 = 169 MW Battery

Southern OR
2023 = 75 MW Battery
2024 = 89 MW Solar
2024 = 410 MW Solar
2024 = 103 MW Battery
2028 = 105 MW Battery
2028 = 30 MW Battery
2032 = 475 MW Solar
2032 = 119 MW Battery
2032 = 475 MW Tx. Inter.
2037 = 225 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.

WillamValcc in Southern OR box in italics.

Northern UT
2030 = 900 MW Solar
2030 = 600 MW Tx. Inter.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2024 = 95 MW Solar
2024 = 24 MW Battery
2031 = 500 MW Solar
2031 = 125 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2037 = 300 MW Battery
2038 = 615 MW Battery

Huntington UT
2037 = 882 MW Solar
2037 = 221 MW Battery
2037 = 27 MW Battery

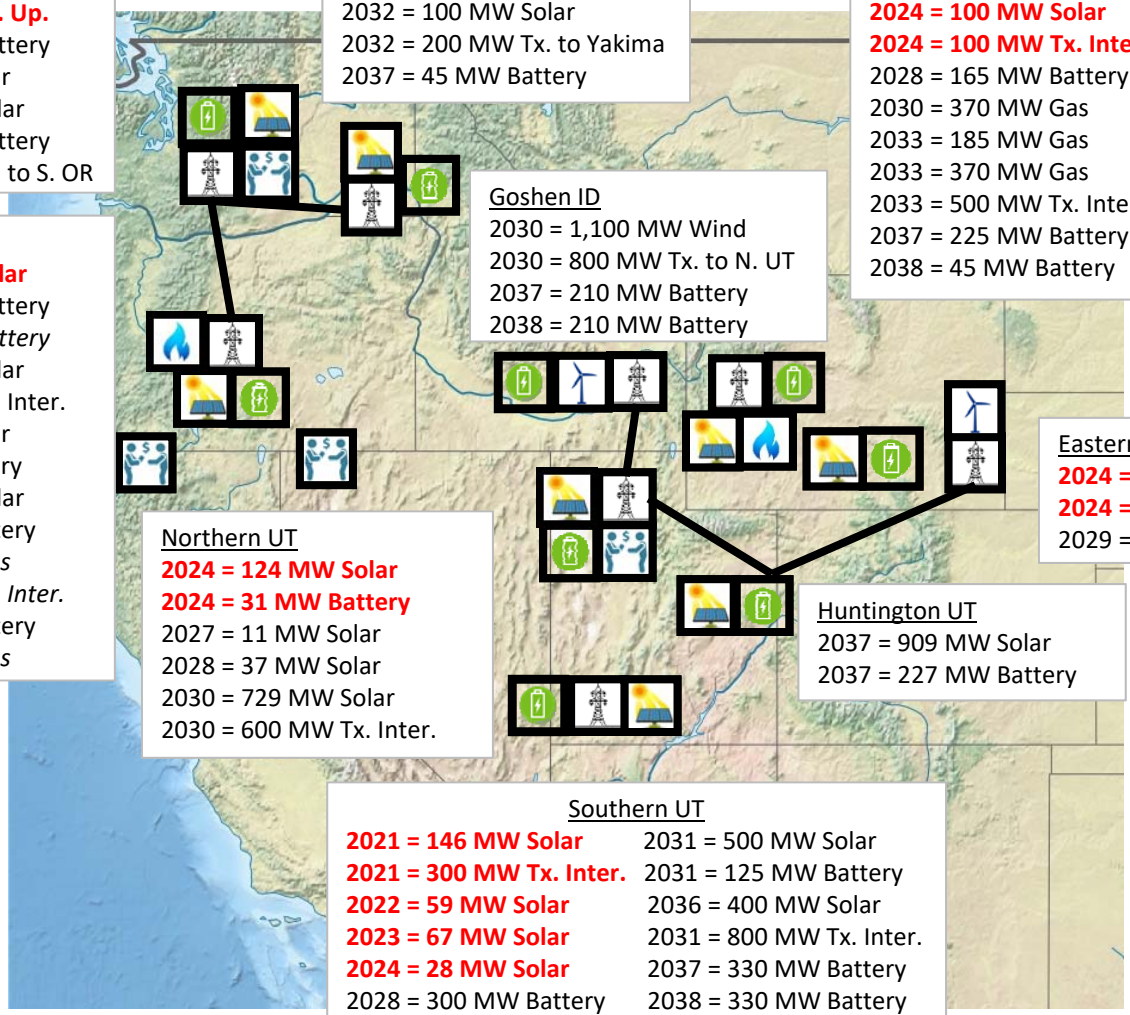
Coal/Early Gas Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2020 = GDB1-3 (238 MW)
2022 = JB1 (351 MW)
2025 = CG1-2 (164 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB2 (356 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-08

(P-03 with Naughton 3 Small Gas Conversion)



Yakima WA
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2038 = 31 MW Solar
2038 = 399 MW Solar
2038 = 100 MW Battery
2038 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 120 MW Solar
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 45 MW Battery

Western WY/Naughton
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 165 MW Battery
2030 = 370 MW Gas
2033 = 185 MW Gas
2033 = 370 MW Gas
2033 = 500 MW Tx. Inter.
2037 = 225 MW Battery
2038 = 45 MW Battery

Bridger WY
2029 = 354 MW Solar
2033 = 298 MW Solar
2033 = 61 MW Solar
2033 = 15 MW Battery
2038 = 343 MW Solar
2038 = 86 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT
2037 = 210 MW Battery
2038 = 210 MW Battery

Southern OR
2024 = 500 MW Solar
2028 = 210 MW Battery
2028 = 120 MW Battery
2030 = 115 MW Solar
2030 = 475 MW Tx. Inter.
2031 = 14 MW Solar
2031 = 4 MW Battery
2032 = 346 MW Solar
2032 = 87 MW Battery
2033 = 221 MW Gas
2033 = 615 MW Tx. Inter.
2037 = 30 MW Battery
2037 = 221 MW Gas

WillamValcc in Southern OR box in Italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Northern UT
2024 = 124 MW Solar
2024 = 31 MW Battery
2027 = 11 MW Solar
2028 = 37 MW Solar
2030 = 729 MW Solar
2030 = 600 MW Tx. Inter.

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2025 = CH4 (387 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT

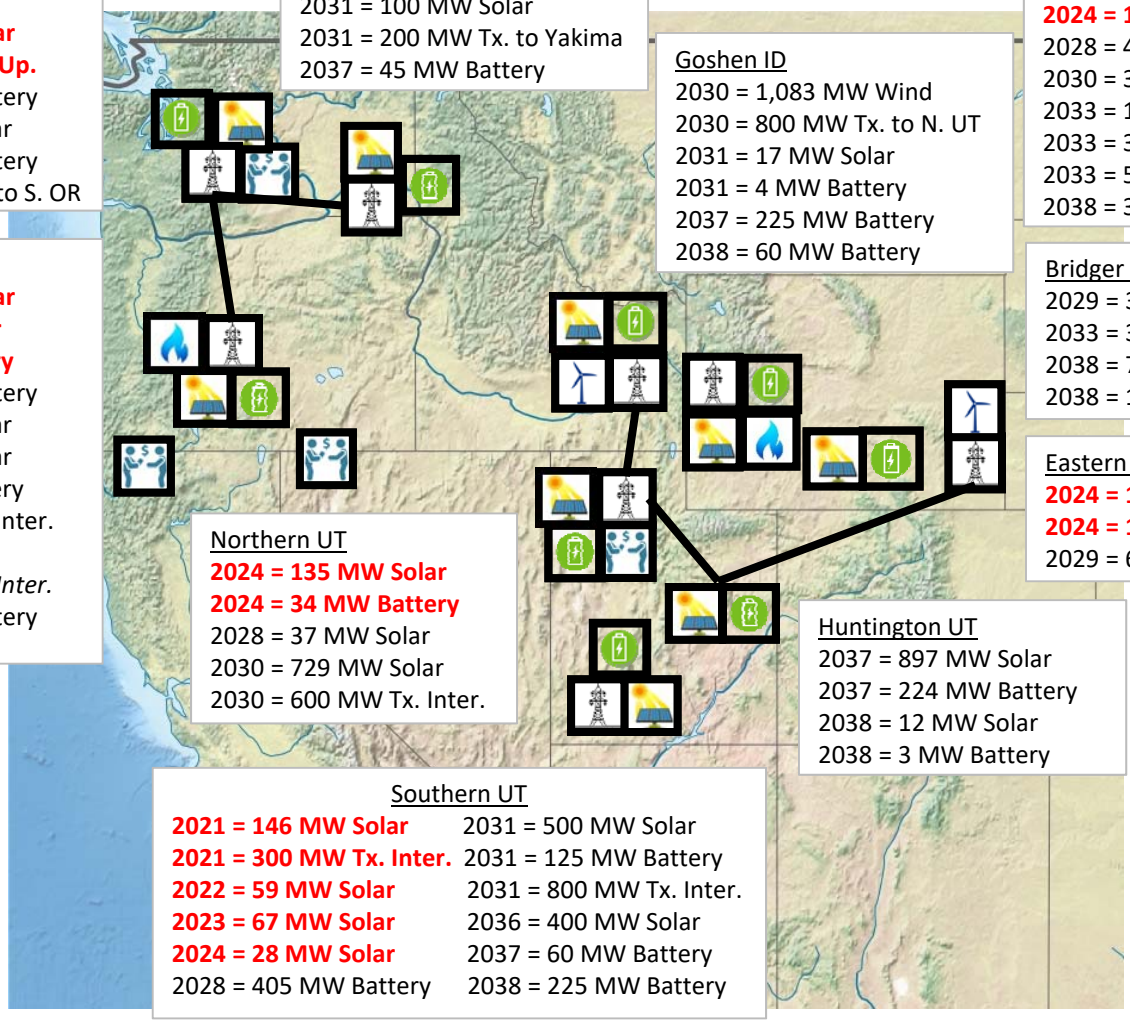
2021 = 146 MW Solar	2031 = 500 MW Solar
2021 = 300 MW Tx. Inter.	2031 = 125 MW Battery
2022 = 59 MW Solar	2036 = 400 MW Solar
2023 = 67 MW Solar	2031 = 800 MW Tx. Inter.
2024 = 28 MW Solar	2037 = 330 MW Battery
2028 = 300 MW Battery	2038 = 330 MW Battery

Solar
Wind
Battery
Pumped Hydro
Gas
Market
Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-09

(P-03 with Naughton 3 Large Gas Conversion)



Yakima WA
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2036 = 430 MW Solar
2036 = 108 MW Battery
2036 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 135 MW Battery
2031 = 100 MW Solar
2031 = 200 MW Tx. to Yakima
2037 = 45 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 45 MW Battery
2030 = 370 MW Gas
2033 = 185 MW Gas
2033 = 370 MW Gas
2033 = 500 MW Tx. Inter.
2038 = 300 MW Battery

Goshen ID
2030 = 1,083 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 17 MW Solar
2031 = 4 MW Battery
2037 = 225 MW Battery
2038 = 60 MW Battery

Bridger WY
2029 = 354 MW Solar
2033 = 360 MW Solar
2038 = 702 MW Solar
2038 = 175 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Southern OR
2024 = 482 MW Solar
2024 = 18 MW Solar
2024 = 4 MW Battery
2028 = 210 MW Battery
2032 = 276 MW Solar
2032 = 199 MW Solar
2032 = 50 MW Battery
2032 = 475 MW Tx. Inter.
2033 = 221 MW Gas
2033 = 615 MW Tx. Inter.
2037 = 435 MW Battery
2037 = 221 MW Gas

WillamValcc in Southern OR box in italics.

Northern UT
2024 = 135 MW Solar
2024 = 34 MW Battery
2028 = 37 MW Solar
2030 = 729 MW Solar
2030 = 600 MW Tx. Inter.

Huntington UT
2037 = 897 MW Solar
2037 = 224 MW Battery
2038 = 12 MW Solar
2038 = 3 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2025 = CH4 (387 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT

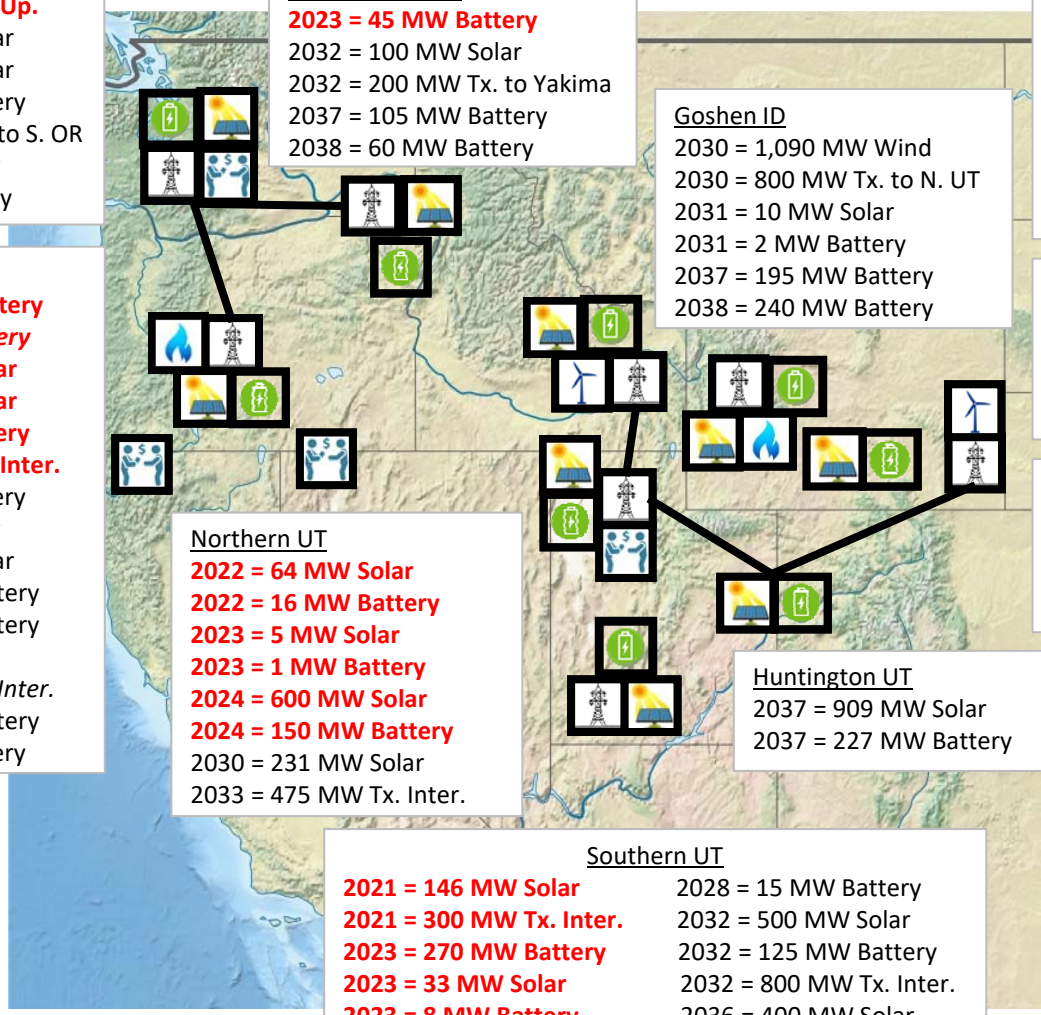
2021 = 146 MW Solar	2031 = 500 MW Solar
2021 = 300 MW Tx. Inter.	2031 = 125 MW Battery
2022 = 59 MW Solar	2031 = 800 MW Tx. Inter.
2023 = 67 MW Solar	2036 = 400 MW Solar
2024 = 28 MW Solar	2037 = 60 MW Battery
2028 = 405 MW Battery	2038 = 225 MW Battery

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-10

(P-04 with Naughton 3 Large Gas Conversion)



Yakima WA
2023 = 105 MW Battery
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2035 = 141 MW Solar
2035 = 267 MW Solar
2035 = 67 MW Battery
2035 = 450 MW Tx. to S. OR
2036 = 22 MW Solar
2036 = 5 MW Battery

Walla Walla WA
2023 = 45 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 105 MW Battery
2038 = 60 MW Battery

Goshen ID
2030 = 1,090 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 10 MW Solar
2031 = 2 MW Battery
2037 = 195 MW Battery
2038 = 240 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2023 = 357 MW Solar
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 210 MW Battery
2029 = 500 MW Tx. Inter.
2029 = 185 MW Gas
2030 = 185 MW Gas
2033 = 185 MW Gas
2037 = 195 MW Battery

Bridger WY
2023 = 713 MW Solar
2038 = 48 MW Solar
2038 = 654 MW Solar
2038 = 164 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 536 MW Wind
2029 = 84 MW Wind

Southern OR
2023 = 165 MW Battery
2023 = 30 MW Battery
2024 = 288 MW Solar
2024 = 212 MW Solar
2024 = 53 MW Battery
2025 = 975 MW Tx. Inter.
2028 = 45 MW Battery
2033 = 62 MW Solar
2033 = 413 MW Solar
2033 = 103 MW Battery
2037 = 105 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.
2038 = 180 MW Battery
2038 = 30 MW Battery

Northern UT
2022 = 64 MW Solar
2022 = 16 MW Battery
2023 = 5 MW Solar
2023 = 1 MW Battery
2024 = 600 MW Solar
2024 = 150 MW Battery
2030 = 231 MW Solar
2033 = 475 MW Tx. Inter.

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2022 = NT1-2 (357 MW)
2022 = JB1-2 (706 MW)
2025 = CG1 (82 MW)
2027 = DJ1-4 (755 MW)
2030 = HY1-2 (77 MW)
2034 = CG2 (82 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT

2021 = 146 MW Solar	2028 = 15 MW Battery
2021 = 300 MW Tx. Inter.	2032 = 500 MW Solar
2023 = 270 MW Battery	2032 = 125 MW Battery
2023 = 33 MW Solar	2032 = 800 MW Tx. Inter.
2023 = 8 MW Battery	2036 = 400 MW Solar
2024 = 121 MW Solar	2037 = 255 MW Battery
2024 = 30 MW Battery	2038 = 675 MW Battery

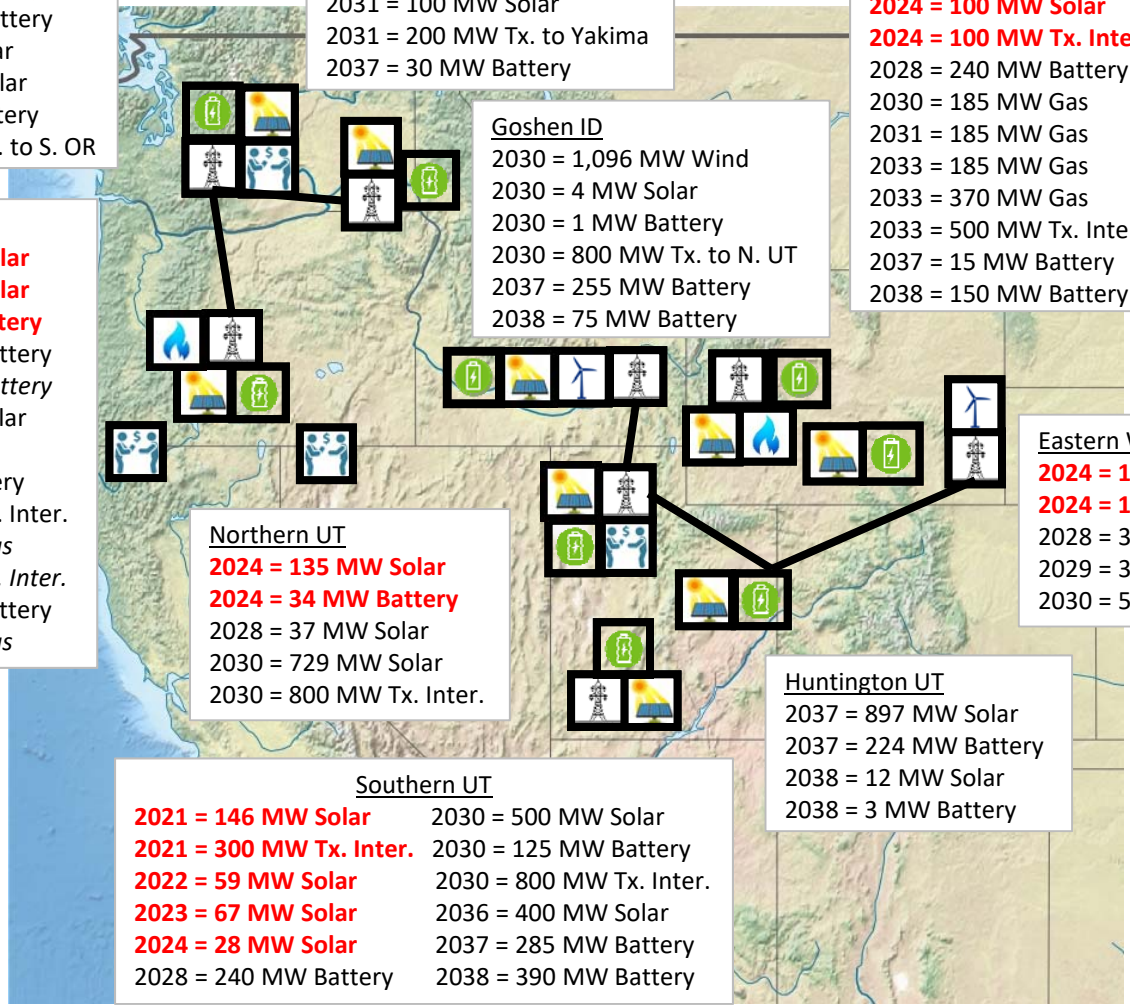
WillamValcc in Southern OR box in italics.

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-11

(P-09 with Cholla 4 Accelerated to 2020)



Yakima WA
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2036 = 81 MW Solar
2036 = 349 MW Solar
2036 = 87 MW Battery
2036 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 135 MW Battery
2031 = 100 MW Solar
2031 = 200 MW Tx. to Yakima
2037 = 30 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 240 MW Battery
2030 = 185 MW Gas
2031 = 185 MW Gas
2033 = 185 MW Gas
2033 = 370 MW Gas
2033 = 500 MW Tx. Inter.
2037 = 15 MW Battery
2038 = 150 MW Battery

Goshen ID
2030 = 1,096 MW Wind
2030 = 4 MW Solar
2030 = 1 MW Battery
2030 = 800 MW Tx. to N. UT
2037 = 255 MW Battery
2038 = 75 MW Battery

Bridger WY
2029 = 354 MW Solar
2033 = 359 MW Solar
2038 = 702 MW Solar
2038 = 176 MW Battery

Southern OR
2024 = 325 MW Solar
2024 = 175 MW Solar
2024 = 44 MW Battery
2028 = 210 MW Battery
2028 = 120 MW Battery
2032 = 469 MW Solar
2032 = 6 MW Solar
2032 = 2 MW Battery
2032 = 475 MW Tx. Inter.
2033 = 221 MW Gas
2033 = 615 MW Tx. Inter.
2037 = 165 MW Battery
2037 = 221 MW Gas

WillamValcc in Southern OR box in italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 33 MW Wind
2029 = 33 MW Wind
2030 = 554 MW Wind

Northern UT
2024 = 135 MW Solar
2024 = 34 MW Battery
2028 = 37 MW Solar
2030 = 729 MW Solar
2030 = 800 MW Tx. Inter.

Huntington UT
2037 = 897 MW Solar
2037 = 224 MW Battery
2038 = 12 MW Solar
2038 = 3 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

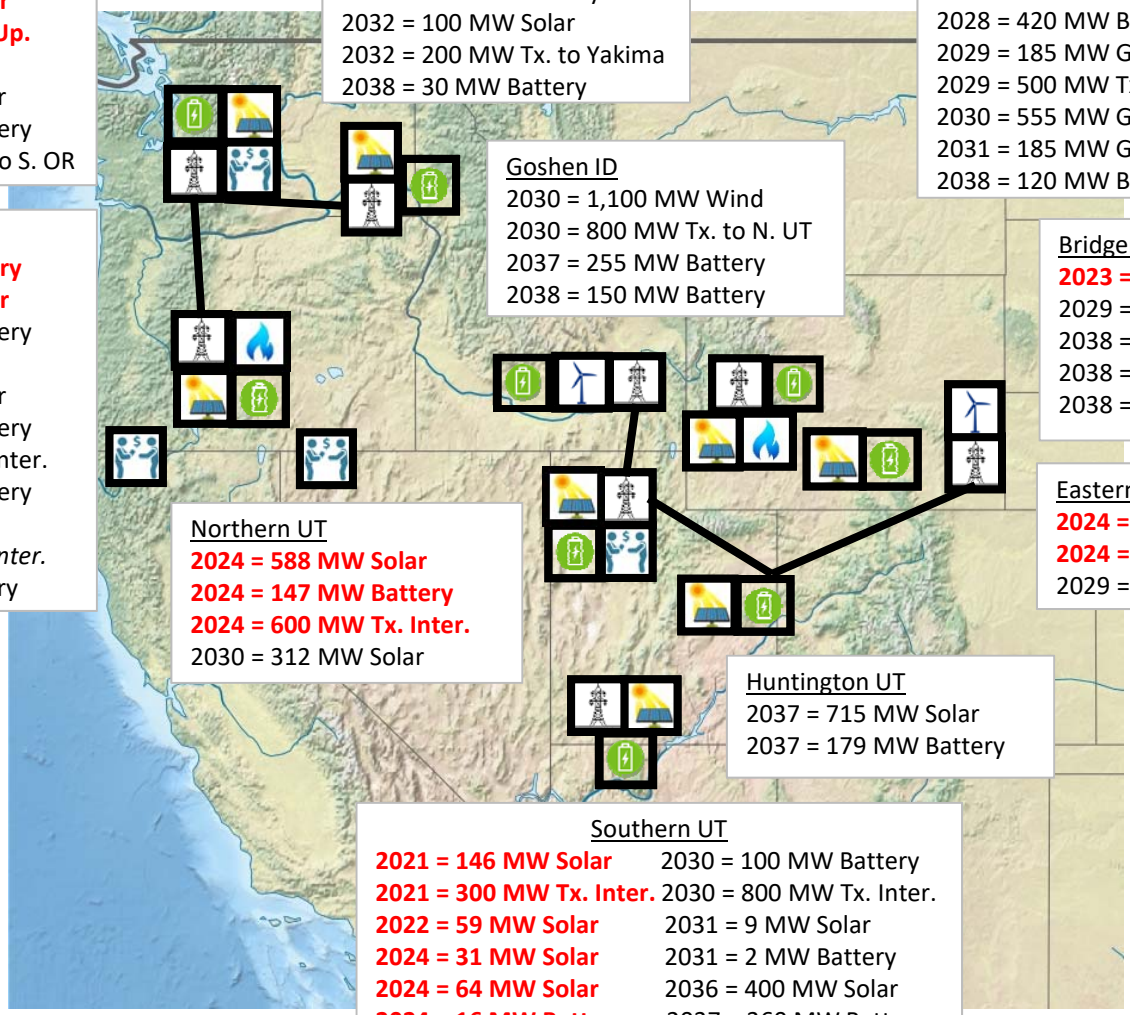
Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2028 = 240 MW Battery
2030 = 500 MW Solar
2030 = 125 MW Battery
2030 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2037 = 285 MW Battery
2038 = 390 MW Battery

Solar
Wind
Battery
Pumped Hydro
Gas
Market
Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-12

(P-06 with Cholla 4 Retired 2025)



Yakima WA
2023 = 105 MW Battery
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2037 = 10 MW Solar
2037 = 420 MW Solar
2037 = 105 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 135 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2038 = 30 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 420 MW Battery
2029 = 185 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 555 MW Gas
2031 = 185 MW Gas
2038 = 120 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT
2037 = 255 MW Battery
2038 = 150 MW Battery

Southern OR
2023 = 45 MW Battery
2024 = 500 MW Solar
2028 = 105 MW Battery
2032 = 10 MW Solar
2032 = 465 MW Solar
2032 = 116 MW Battery
2032 = 475 MW Tx. Inter.
2037 = 120 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.
2038 = 90 MW Battery

Bridger WY
2023 = 354 MW Solar
2029 = 359 MW Solar
2038 = 48 MW Solar
2038 = 654 MW Solar
2038 = 164 MW Battery

WillamValcc in Southern OR box in Italics.

Northern UT
2024 = 588 MW Solar
2024 = 147 MW Battery
2024 = 600 MW Tx. Inter.
2030 = 312 MW Solar

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Solar
Wind
Battery
Pumped Hydro
Gas
Market
Transmission

Huntington UT
2037 = 715 MW Solar
2037 = 179 MW Battery

Coal/Early Gas Retirements
2019 = NT3 (280 MW)
2020 = GDB1-3 (238 MW)
2022 = JB1 (351 MW)
2025 = CH4 (387 MW)
2025 = CG1-2 (164 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB2 (356 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

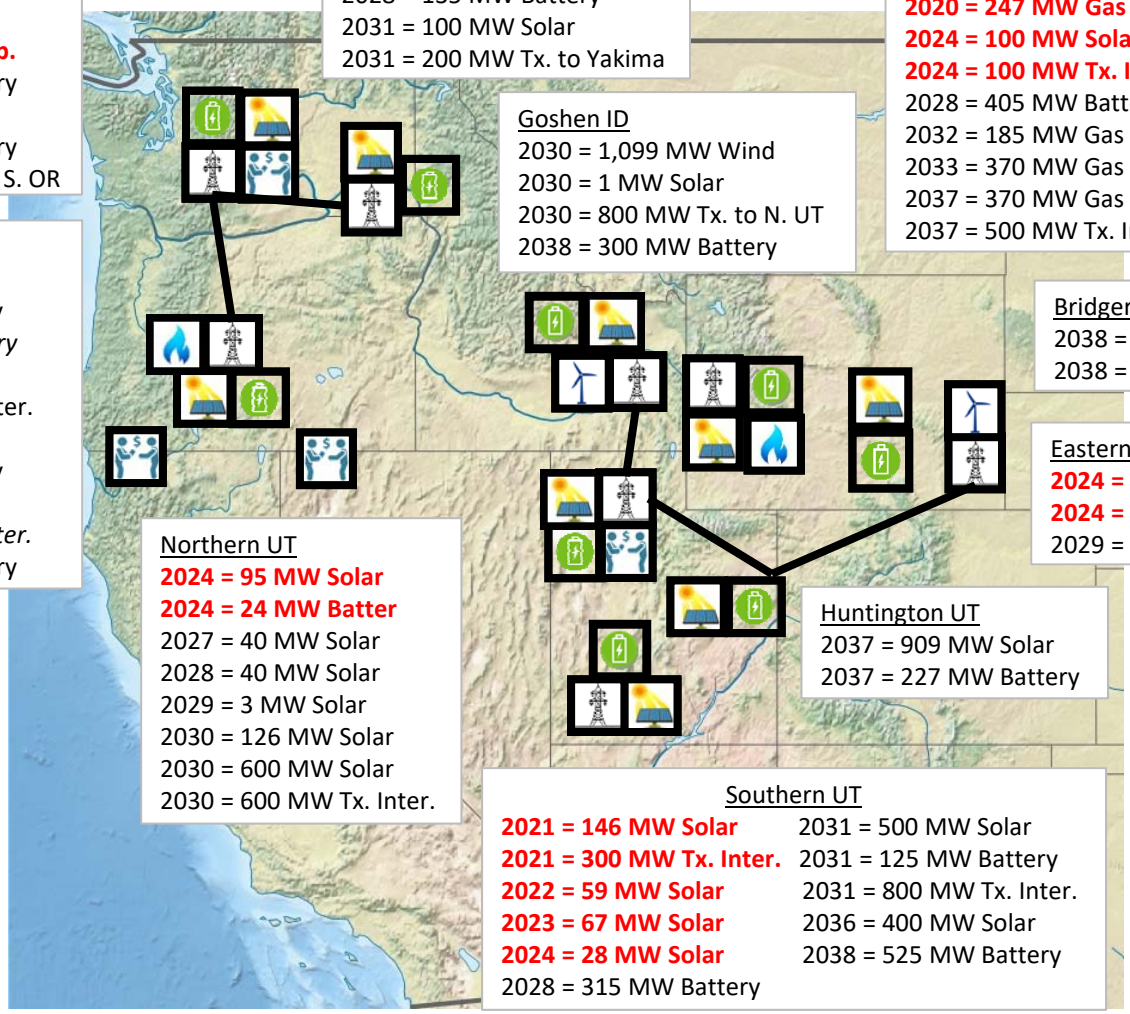
Southern UT

2021 = 146 MW Solar	2030 = 100 MW Battery
2021 = 300 MW Tx. Inter.	2030 = 800 MW Tx. Inter.
2022 = 59 MW Solar	2031 = 9 MW Solar
2024 = 31 MW Solar	2031 = 2 MW Battery
2024 = 64 MW Solar	2036 = 400 MW Solar
2024 = 16 MW Battery	2037 = 360 MW Battery
2030 = 91 MW Solar	2038 = 375 MW Battery
2030 = 400 MW Solar	

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-13

(P-11 with Jim Bridger 1-2 SCRs)



Yakima WA
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 135 MW Battery
2031 = 100 MW Solar
2031 = 200 MW Tx. to Yakima

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 405 MW Battery
2032 = 185 MW Gas
2033 = 370 MW Gas
2037 = 370 MW Gas
2037 = 500 MW Tx. Inter.

Goshen ID
2030 = 1,099 MW Wind
2030 = 1 MW Solar
2030 = 800 MW Tx. to N. UT
2038 = 300 MW Battery

Bridger WY
2038 = 1,056 MW Solar
2038 = 264 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Southern OR
2024 = 500 MW Solar
2028 = 15 MW Battery
2028 = 120 MW Battery
2031 = 403 MW Solar
2031 = 475 MW Tx. Inter.
2032 = 72 MW Solar
2032 = 18 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.
2038 = 345 MW Battery

WillamValcc in Southern OR box in italics.

Northern UT
2024 = 95 MW Solar
2024 = 24 MW Batter
2027 = 40 MW Solar
2028 = 40 MW Solar
2029 = 3 MW Solar
2030 = 126 MW Solar
2030 = 600 MW Solar
2030 = 600 MW Tx. Inter.

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2028 = 315 MW Battery
2031 = 500 MW Solar
2031 = 125 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2038 = 525 MW Battery

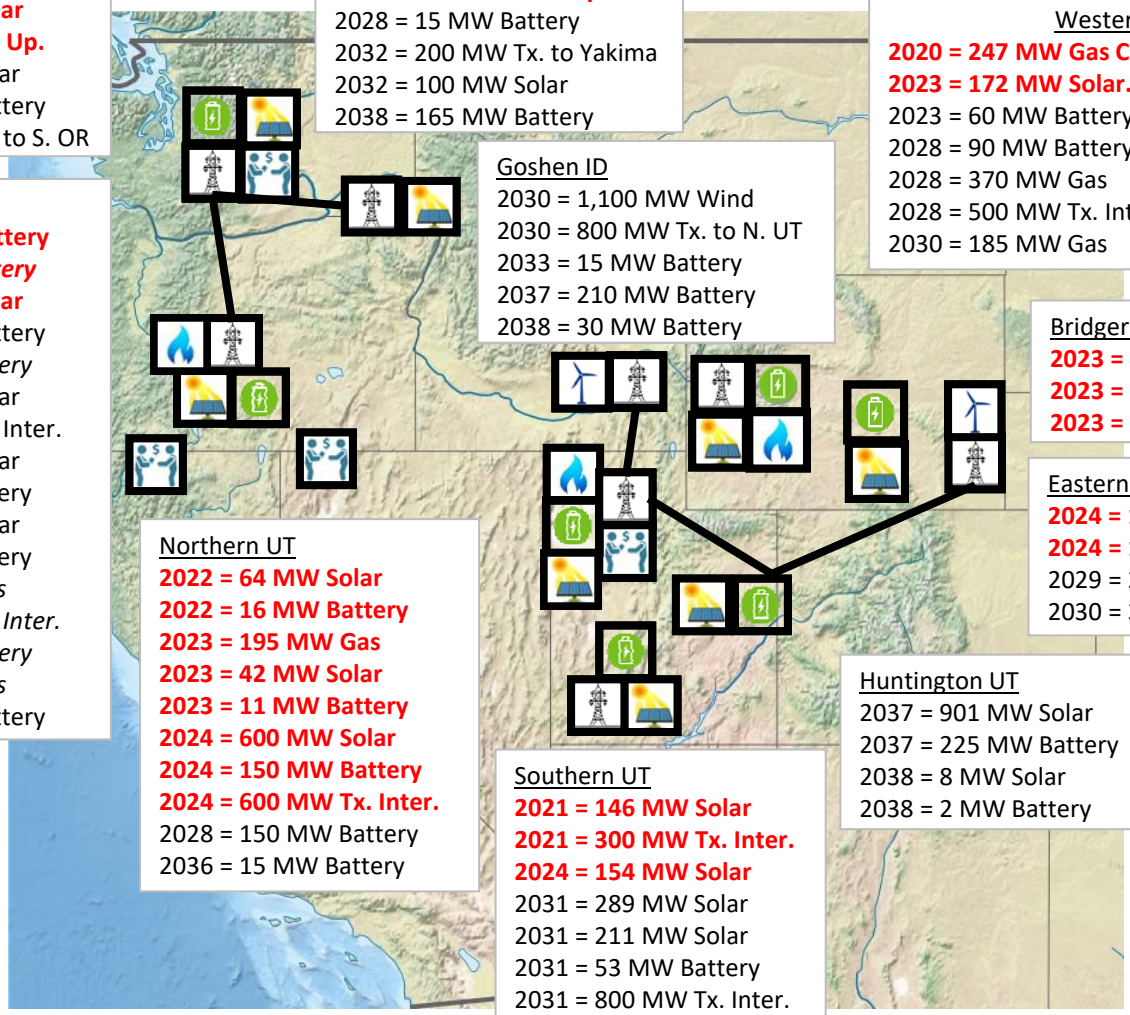
Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2036 = HTG1-2 (909 MW)
2037 = JB1-4 (1,408 MW)

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-14

(P-09 with Naughton 1-2 and Jim Bridger 1-4 Retired 2022)



Yakima WA
2023 = 105 MW Battery
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2038 = 430 MW Solar
2038 = 108 MW Battery
2038 = 450 MW Tx. to S. OR

Walla Walla WA
2023 = 120 MW Battery
2028 = 15 MW Battery
2032 = 200 MW Tx. to Yakima
2032 = 100 MW Solar
2038 = 165 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2023 = 172 MW Solar.
2023 = 60 MW Battery
2028 = 90 MW Battery
2028 = 370 MW Gas
2028 = 500 MW Tx. Inter.
2030 = 185 MW Gas
2033 = 15 MW Battery
2033 = 185 MW Gas
2034 = 100 MW Solar
2034 = 100 MW Tx. Inter.
2037 = 300 MW Battery
2038 = 15 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT
2033 = 15 MW Battery
2037 = 210 MW Battery
2038 = 30 MW Battery

Bridger WY
2023 = 495 MW Solar
2023 = 124 MW Battery
2023 = 561 MW Solar

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 222 MW Wind
2030 = 398 MW Wind

Southern OR
2023 = 300 MW Battery
2023 = 45 MW Battery
2024 = 500 MW Solar
2028 = 180 MW Battery
2028 = 60 MW Battery
2031 = 185 MW Solar
2031 = 475 MW Tx. Inter.
2031 = 145 MW Solar
2031 = 36 MW Battery
2032 = 145 MW Solar
2032 = 36 MW Battery
2033 = 221 MW Gas
2033 = 615 MW Tx. Inter.
2037 = 15 MW Battery
2037 = 221 MW Gas
2038 = 225 MW Battery

WillamValcc in Southern OR box in italics.

Northern UT
2022 = 64 MW Solar
2022 = 16 MW Battery
2023 = 195 MW Gas
2023 = 42 MW Solar
2023 = 11 MW Battery
2024 = 600 MW Solar
2024 = 150 MW Battery
2024 = 600 MW Tx. Inter.
2028 = 150 MW Battery
2036 = 15 MW Battery

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2024 = 154 MW Solar
2031 = 289 MW Solar
2031 = 211 MW Solar
2031 = 53 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2037 = 480 MW Battery
2038 = 45 MW Battery

Huntington UT
2037 = 901 MW Solar
2037 = 225 MW Battery
2038 = 8 MW Solar
2038 = 2 MW Battery

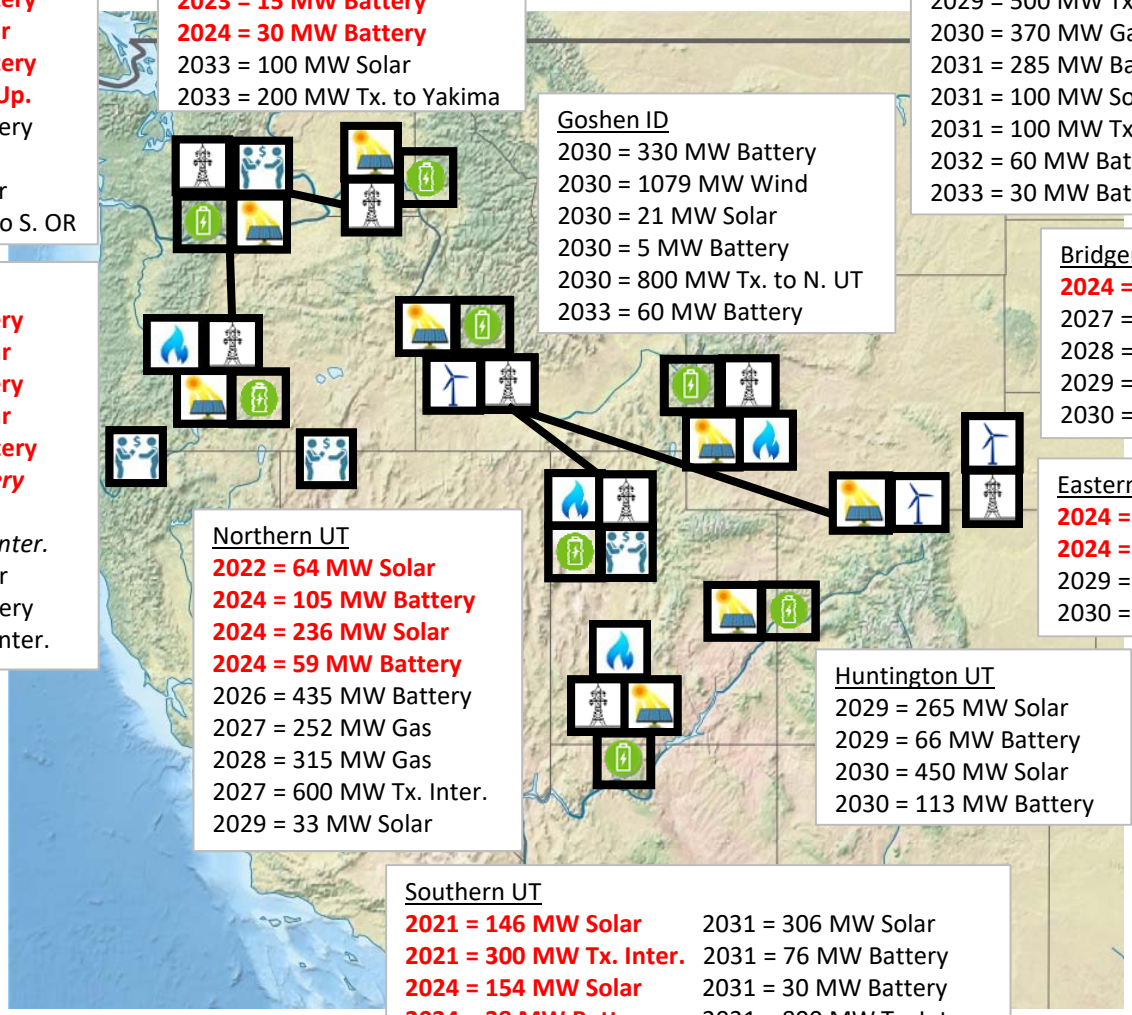
Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2022 = NT1-2 (357 MW)
2022 = JB1-4 (1,408 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2030 = HY1-2 (77 MW)
2036 = HTG1-2 (909 MW)

Solar
Wind
Battery
Pumped Hydro
Gas
Market
Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-15

(Retire all coal by 2030)



Yakima WA
2024 = 105 MW Battery
2024 = 405 MW Solar
2024 = 101 MW Battery
2024 = 405 MW Tx. Up.
2033 = 107 MW Battery
2037 = 2 MW Solar
2037 = 428 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2023 = 15 MW Battery
2024 = 30 MW Battery
2033 = 100 MW Solar
2033 = 200 MW Tx. to Yakima

Western WY/Naughton
2023 = 112 MW Solar.
2024 = 156 MW Solar
2027 = 180 MW Battery
2029 = 150 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 370 MW Gas
2031 = 285 MW Battery
2031 = 100 MW Solar
2031 = 100 MW Tx. Inter.
2032 = 60 MW Battery
2033 = 30 MW Battery

Goshen ID
2030 = 330 MW Battery
2030 = 1079 MW Wind
2030 = 21 MW Solar
2030 = 5 MW Battery
2030 = 800 MW Tx. to N. UT
2033 = 60 MW Battery

Bridger WY
2024 = 349 MW Solar
2027 = 87 MW Solar
2028 = 487 MW Gas
2029 = 6 MW Solar
2030 = 487 MW Gas

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. Inter.
2029 = 337 MW Wind
2030 = 283 MW Wind

Southern OR
2023 = 45 MW Battery
2024 = 500 MW Solar
2024 = 75 MW Battery
2024 = 500 MW Solar
2024 = 125 MW Battery
2024 = 45 MW Battery
2029 = 443 MW Gas
2029 = 615 MW Tx. Inter.
2031 = 474 MW Solar
2031 = 119 MW Battery
2031 = 475 MW Tx. Inter.

WillamValcc in Southern OR box in italics.

Northern UT
2022 = 64 MW Solar
2024 = 105 MW Battery
2024 = 236 MW Solar
2024 = 59 MW Battery
2026 = 435 MW Battery
2027 = 252 MW Gas
2028 = 315 MW Gas
2027 = 600 MW Tx. Inter.
2029 = 33 MW Solar

Huntington UT
2029 = 265 MW Solar
2029 = 66 MW Battery
2030 = 450 MW Solar
2030 = 113 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2022 = NT2 (179 MW)
2023 = CG1-2 (164 MW)
2023 = JB3 (351 MW)
2023 = NT1 (179 MW)
2024 = HY2 (39 MW)
2024 = JB4 (351 MW)
2025 = HY1 (39 MW)
2025 = JB2 (356 MW)
2026 = CS3-4 (148 MW)
2026 = JB1 (351 MW)
2027 = DJ1-4 (755 MW)
2028 = HTG1 (455 MW)
2029 = HTG2 (455 MW)

Southern UT

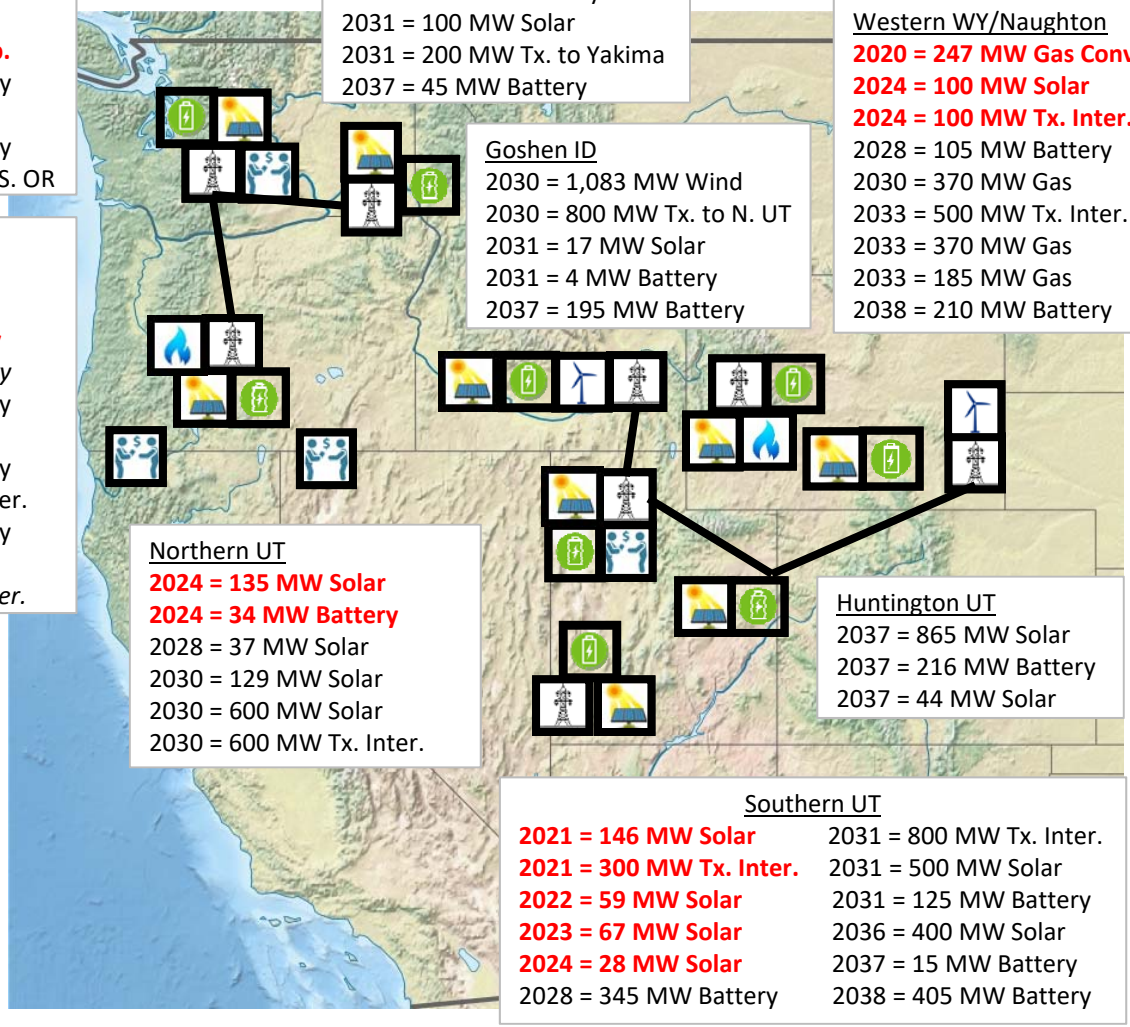
2021 = 146 MW Solar	2031 = 306 MW Solar
2021 = 300 MW Tx. Inter.	2031 = 76 MW Battery
2024 = 154 MW Solar	2031 = 30 MW Battery
2024 = 38 MW Battery	2031 = 800 MW Tx. Inter.
2029 = 360 MW Battery	2033 = 330 MW Battery
2030 = 120 MW Battery	2033 = 330 MW Battery
2031 = 195 MW Gas	2036 = 400 MW Solar

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-28

(P-11 with Colstrip 3-4 Accelerated to 2025)



Yakima WA
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 120 MW Battery
2031 = 100 MW Solar
2031 = 200 MW Tx. to Yakima
2037 = 45 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 105 MW Battery
2030 = 370 MW Gas
2033 = 500 MW Tx. Inter.
2033 = 370 MW Gas
2033 = 185 MW Gas
2038 = 210 MW Battery

Bridger WY
2029 = 354 MW Solar
2033 = 123 MW Solar
2033 = 236 MW Solar
2033 = 59 MW Battery
2038 = 48 MW Solar
2038 = 654 MW Solar
2038 = 164 MW Battery

Goshen ID
2030 = 1,083 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 17 MW Solar
2031 = 4 MW Battery
2037 = 195 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Southern OR
2024 = 228 MW Solar
2024 = 272 MW Solar
2024 = 68 MW Battery
2028 = 120 MW Battery
2028 = 165 MW Battery
2033 = 475 MW Solar
2033 = 119 MW Battery
2033 = 475 MW Tx. Inter.
2037 = 375 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.

WillamValcc in Southern OR box in italics.

Northern UT
2024 = 135 MW Solar
2024 = 34 MW Battery
2028 = 37 MW Solar
2030 = 129 MW Solar
2030 = 600 MW Solar
2030 = 600 MW Tx. Inter.

Huntington UT
2037 = 865 MW Solar
2037 = 216 MW Battery
2037 = 44 MW Solar

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = CS3-4 (148 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

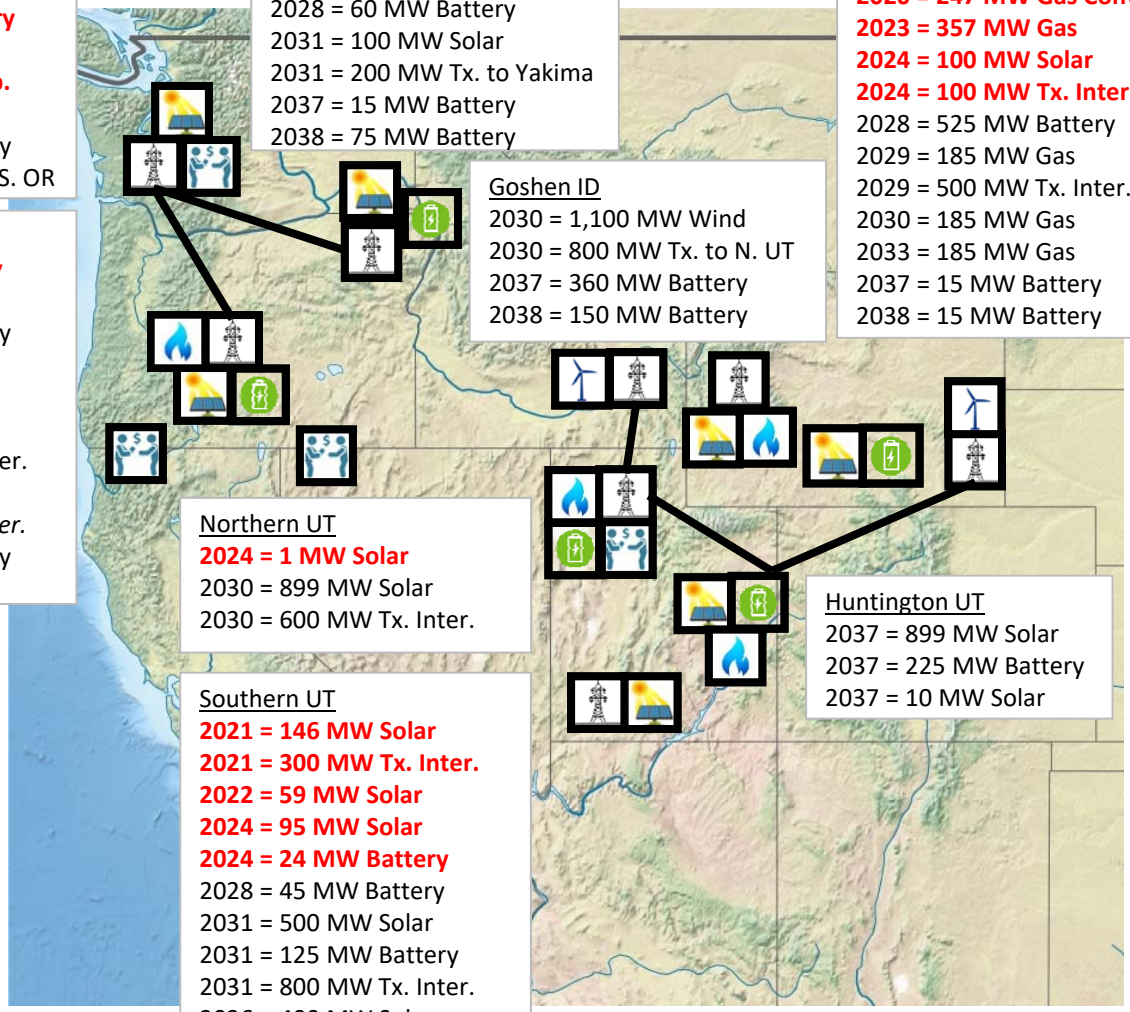
Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2028 = 345 MW Battery
2031 = 800 MW Tx. Inter.
2031 = 500 MW Solar
2031 = 125 MW Battery
2036 = 400 MW Solar
2037 = 15 MW Battery
2038 = 405 MW Battery

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-30

(P-11 with Naughton 1-2 Accelerated to 2022)



Yakima WA
2023 = 105 MW Battery
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2023 = 75 MW Battery
2028 = 60 MW Battery
2031 = 100 MW Solar
2031 = 200 MW Tx. to Yakima
2037 = 15 MW Battery
2038 = 75 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2023 = 357 MW Gas
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 525 MW Battery
2029 = 185 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 185 MW Gas
2033 = 185 MW Gas
2037 = 15 MW Battery
2038 = 15 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT
2037 = 360 MW Battery
2038 = 150 MW Battery

Bridger WY
2029 = 354 MW Solar
2033 = 359 MW Solar
2038 = 48 MW Solar
2038 = 654 MW Solar
2038 = 164 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Southern OR
2023 = 15 MW Battery
2024 = 500 MW Solar
2028 = 120 MW Battery
2028 = 75 MW Battery
2032 = 405 MW Solar
2032 = 70 MW Solar
2032 = 475 MW Tx. Inter.
2033 = 443 MW Gas
2033 = 615 MW Tx. Inter.
2037 = 120 MW Battery
2038 = 75 MW Battery

WillamValcc in Southern OR box in italics.

Northern UT
2024 = 1 MW Solar
2030 = 899 MW Solar
2030 = 600 MW Tx. Inter.

Huntington UT
2037 = 899 MW Solar
2037 = 225 MW Battery
2037 = 10 MW Solar

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2024 = 95 MW Solar
2024 = 24 MW Battery
2028 = 45 MW Battery
2031 = 500 MW Solar
2031 = 125 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2037 = 615 MW Battery
2038 = 465 MW Battery

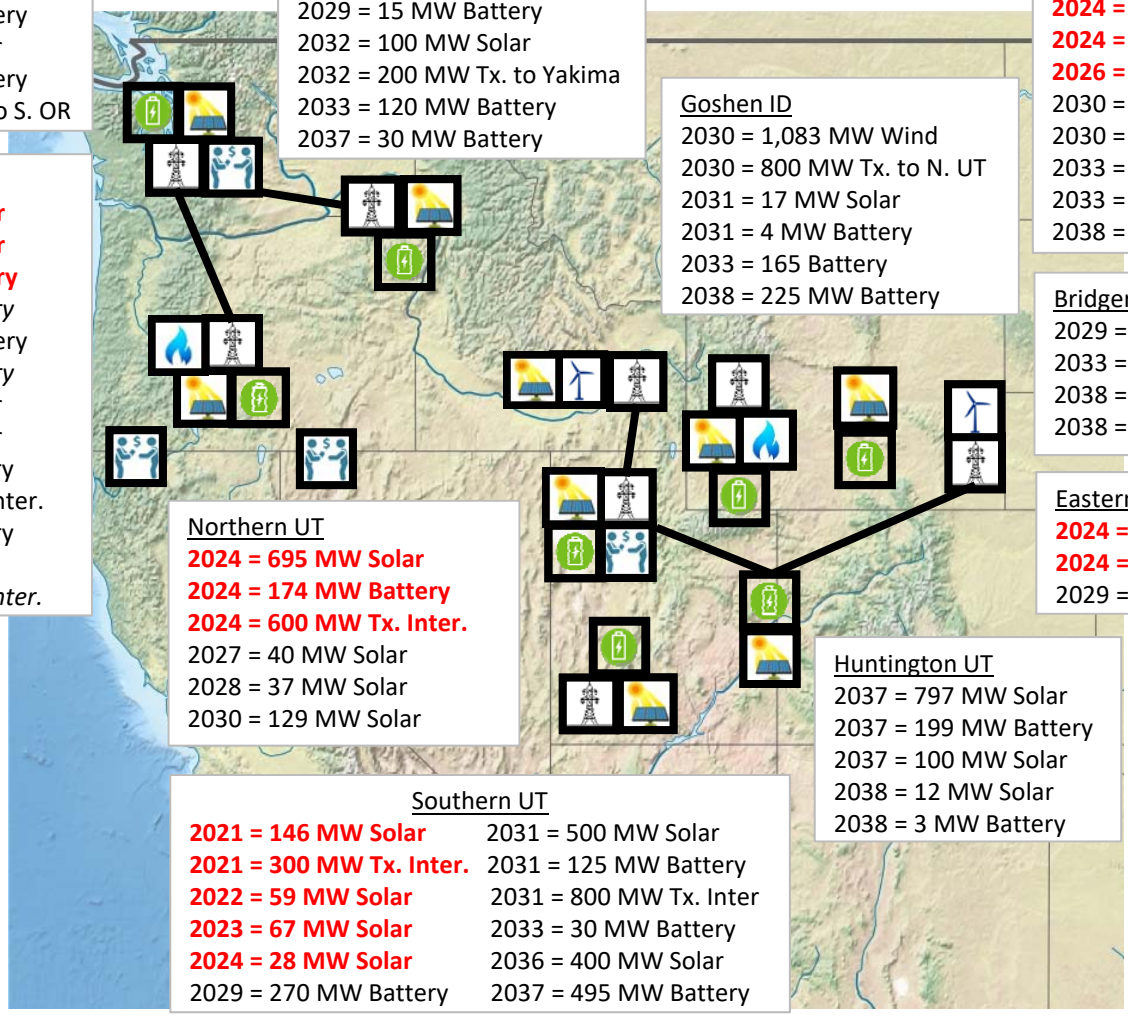
Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2022 = NT1-2 (357 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-31B

(P-11 with Naughton 1-2 Accelerated to 2025)



Yakima WA
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2029 = 15 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2033 = 120 MW Battery
2037 = 30 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2026 = 185 MW Gas
2030 = 185 MW Gas
2030 = 370 MW Gas
2033 = 370 MW Gas
2033 = 500 MW Tx. Inter.
2038 = 390 MW Battery

Goshen ID
2030 = 1,083 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 17 MW Solar
2031 = 4 MW Battery
2033 = 165 Battery
2038 = 225 MW Battery

Southern OR
2024 = 374 MW Solar
2024 = 126 MW Solar
2024 = 31 MW Battery
2028 = 75 MW Battery
2029 = 210 MW Battery
2029 = 30 MW Battery
2032 = 239 MW Solar
2032 = 236 MW Solar
2032 = 59 MW Battery
2032 = 475 MW Tx. Inter.
2037 = 75 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.

Bridger WY
2029 = 354 MW Solar
2033 = 359 MW Solar
2038 = 702 MW Solar
2038 = 176 MW Battery

WillamValcc in Southern OR box in italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Northern UT
2024 = 695 MW Solar
2024 = 174 MW Battery
2024 = 600 MW Tx. Inter.
2027 = 40 MW Solar
2028 = 37 MW Solar
2030 = 129 MW Solar

Huntington UT
2037 = 797 MW Solar
2037 = 199 MW Battery
2037 = 100 MW Solar
2038 = 12 MW Solar
2038 = 3 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = NT1-2 (357 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT

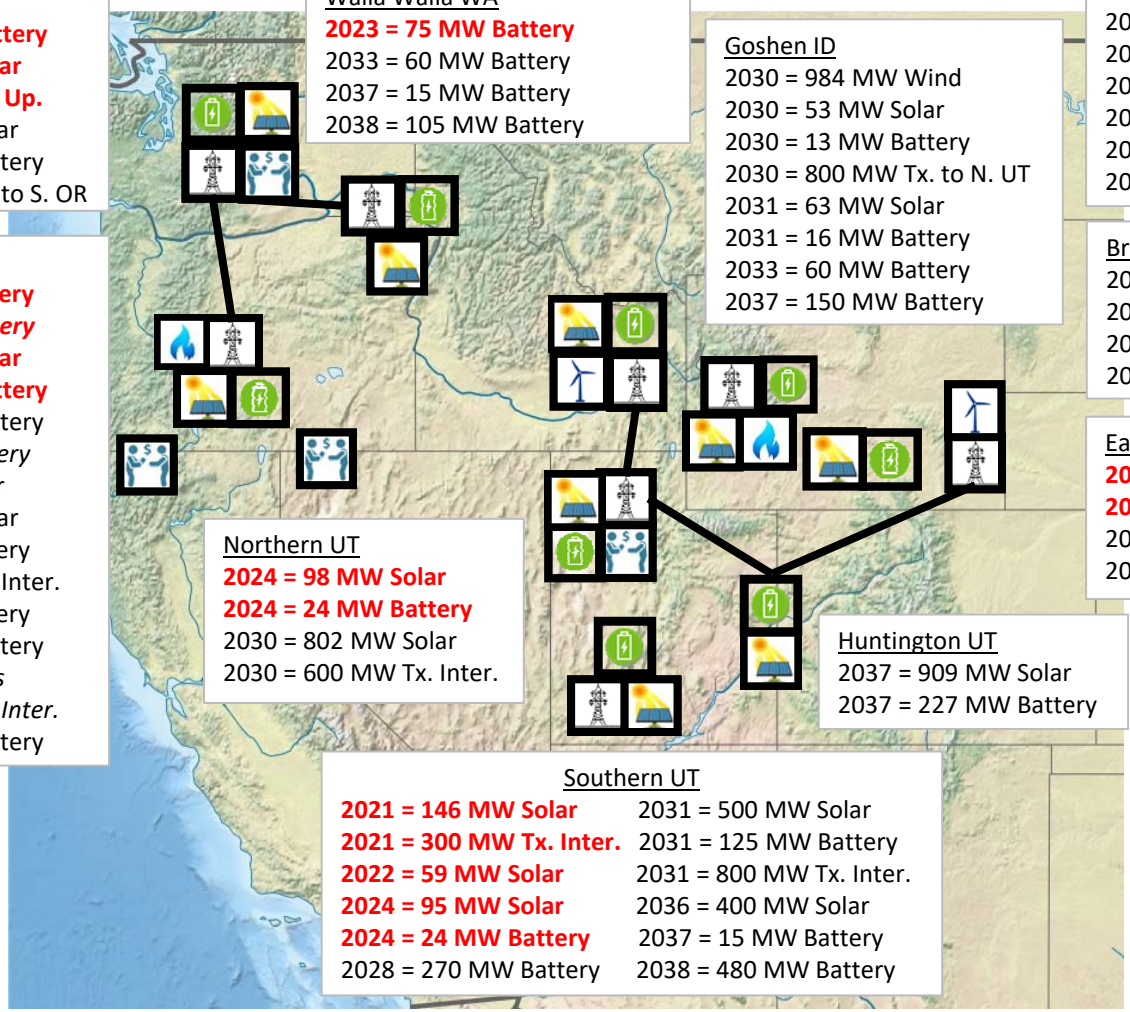
2021 = 146 MW Solar	2031 = 500 MW Solar
2021 = 300 MW Tx. Inter.	2031 = 125 MW Battery
2022 = 59 MW Solar	2031 = 800 MW Tx. Inter
2023 = 67 MW Solar	2033 = 30 MW Battery
2024 = 28 MW Solar	2036 = 400 MW Solar
2029 = 270 MW Battery	2037 = 495 MW Battery

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-32

(P-07 with Naughton 1-2 Accelerated to 2025 and Gadsby 1-3 Retired 2032)



Yakima WA
2023 = 105 MW Battery
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Southern OR
2023 = 60 MW Battery
2023 = 30 MW Battery
2024 = 500 MW Solar
2024 = 125 MW Battery
2028 = 120 MW Battery
2028 = 75 MW Battery
2032 = 92 MW Solar
2032 = 383 MW Solar
2032 = 96 MW Battery
2032 = 475 MW Tx. Inter.
2033 = 15 MW Battery
2037 = 315 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.
2038 = 105 MW Battery

WillamValcc in Southern OR box in italics.

Solar
Wind
Battery
Pumped Hydro
Gas
Market
Transmission

Walla Walla WA
2023 = 75 MW Battery
2033 = 60 MW Battery
2037 = 15 MW Battery
2038 = 105 MW Battery

Goshen ID
2030 = 984 MW Wind
2030 = 53 MW Solar
2030 = 13 MW Battery
2030 = 800 MW Tx. to N. UT
2031 = 63 MW Solar
2031 = 16 MW Battery
2033 = 60 MW Battery
2037 = 150 MW Battery

Northern UT
2024 = 98 MW Solar
2024 = 24 MW Battery
2030 = 802 MW Solar
2030 = 600 MW Tx. Inter.

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2024 = 95 MW Solar
2024 = 24 MW Battery
2028 = 270 MW Battery
2031 = 500 MW Solar
2031 = 125 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2037 = 15 MW Battery
2038 = 480 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2026 = 185 MW Gas
2028 = 150 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 185 MW Gas
2033 = 185 MW Gas
2038 = 240 MW Battery

Bridger WY
2023 = 354 MW Solar
2029 = 359 MW Solar
2038 = 343 MW Solar
2038 = 86 MW Battery

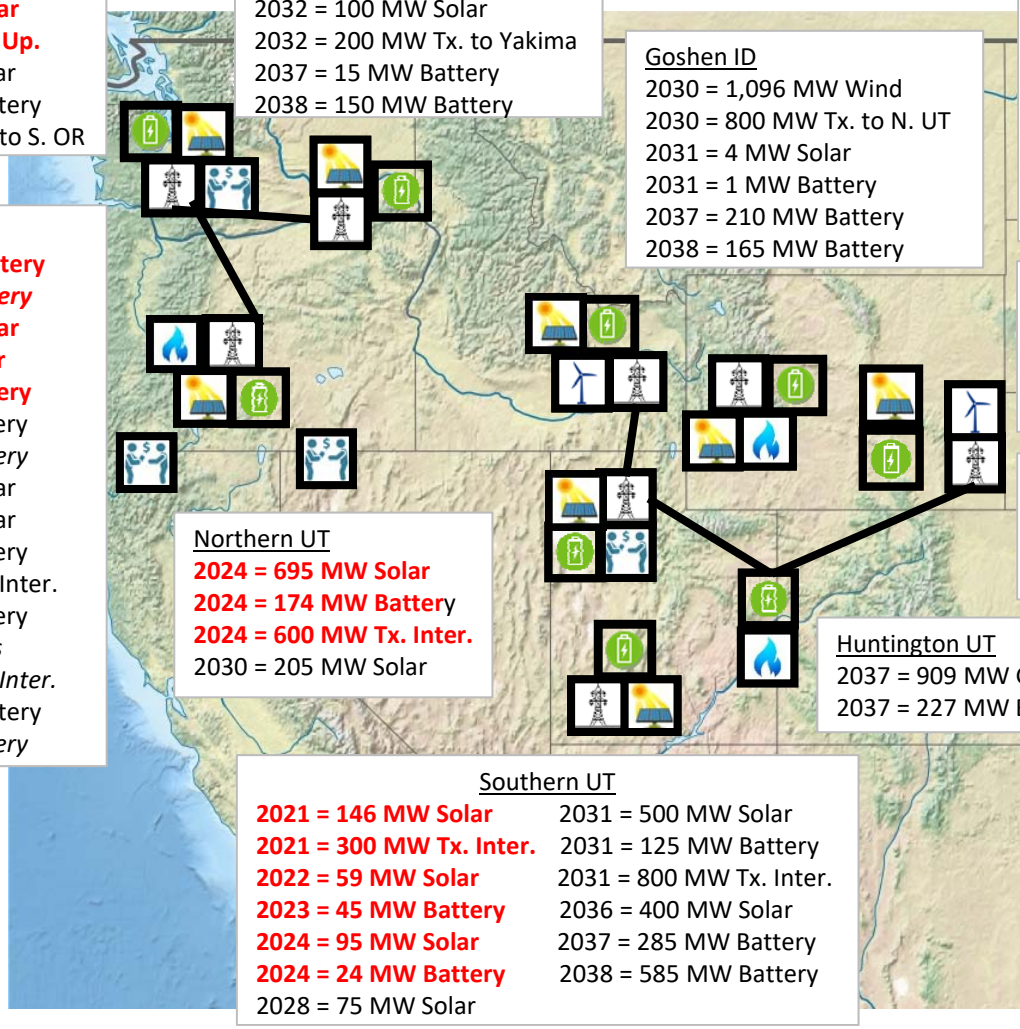
Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 126 MW Wind
2029 = 494 MW Wind

Coal/Early Gas Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2022 = JB1 (351 MW)
2025 = NT1-2 (357 MW)
2025 = CG1-2 (164 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB2 (356 MW)
2030 = HY1-2 (77 MW)
2032 = GDB1-3 (238 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-33

(P-11 with Jim Bridger 1-2 Accelerated to 2022)



Yakima WA
2023 = 105 MW Battery
2024 = 405 MW Solar
2024 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 108 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2023 = 120 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 15 MW Battery
2038 = 150 MW Battery

Goshen ID
2030 = 1,096 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 4 MW Solar
2031 = 1 MW Battery
2037 = 210 MW Battery
2038 = 165 MW Battery

Western WY/Naughton
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 345 MW Battery
2030 = 555 MW Gas
2033 = 370 MW Gas
2033 = 500 MW Tx. Inter.
2038 = 60 MW Battery

Bridger WY
2023 = 713 MW Solar
2038 = 128 MW Solar
2038 = 215 MW Solar
2038 = 54 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2029 = 620 MW Wind

Southern OR
2023 = 105 MW Battery
2023 = 90 MW Battery
2024 = 407 MW Solar
2024 = 93 MW Solar
2024 = 23 MW Battery
2028 = 45 MW Battery
2028 = 30 MW Battery
2032 = 165 MW Solar
2032 = 310 MW Solar
2032 = 77 MW Battery
2032 = 475 MW Tx. Inter.
2037 = 75 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.
2038 = 150 MW Battery
2038 = 15 MW Battery

WillamValcc in Southern OR box in italics.

Northern UT
2024 = 695 MW Solar
2024 = 174 MW Battery
2024 = 600 MW Tx. Inter.
2030 = 205 MW Solar

Huntington UT
2037 = 909 MW Gas
2037 = 227 MW Battery

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 45 MW Battery
2024 = 95 MW Solar
2024 = 24 MW Battery
2028 = 75 MW Solar
2031 = 500 MW Solar
2031 = 125 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2037 = 285 MW Battery
2038 = 585 MW Battery

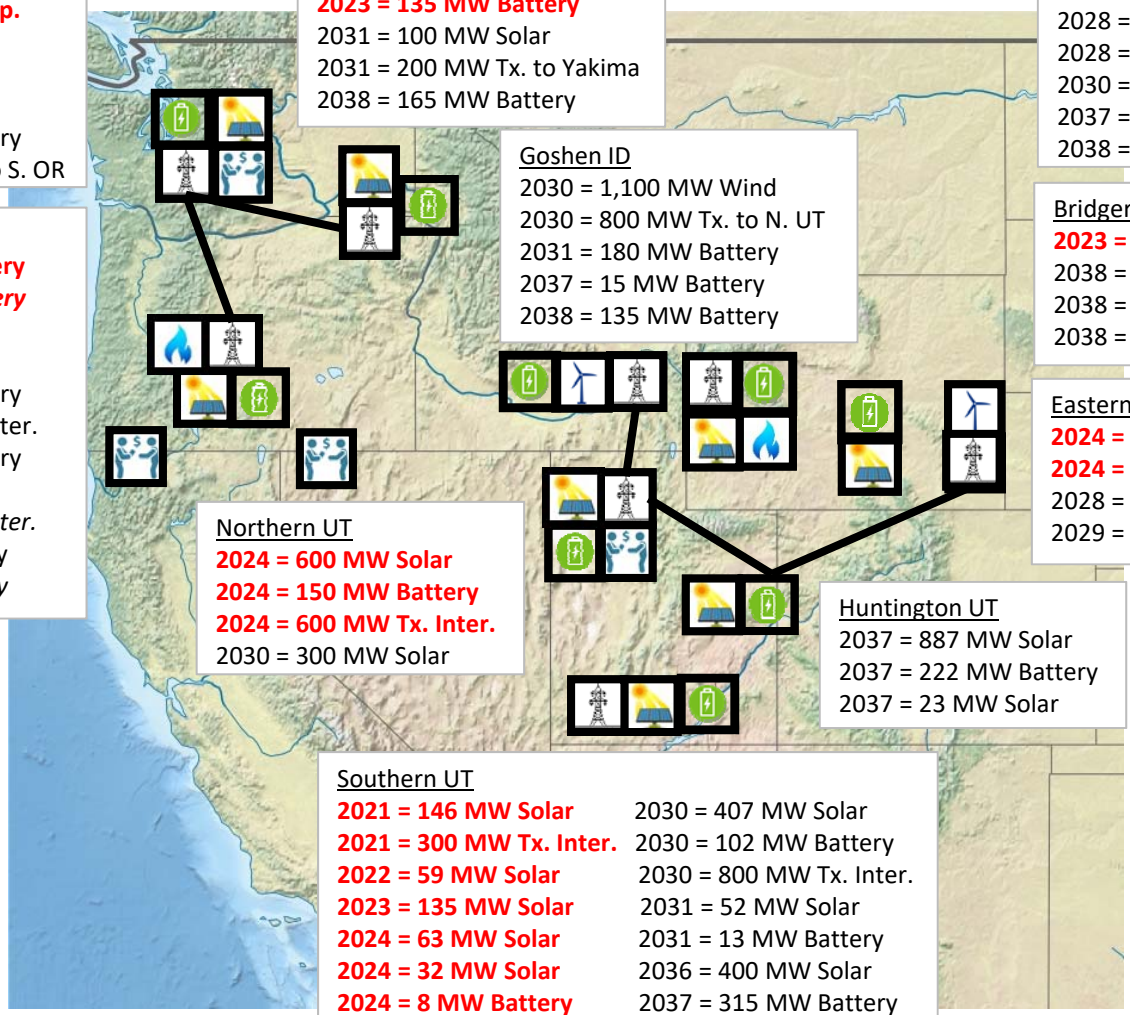
Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2022 = JB1-2 (706 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2032 = GDB1-3 (238 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-34

(P-11 with Gadsby 1-3 Accelerated to 2020 and Jim Bridger 1-2 Accelerated to 2022)



Yakima WA
2023 = 105 MW Battery
2024 = 405 MW Tx. Up.
2024 = 405 MW Solar
2038 = 19 MW Solar
2038 = 411 MW Solar
2038 = 103 MW Battery
2038 = 450 MW Tx. to S. OR

Walla Walla WA
2023 = 135 MW Battery
2031 = 100 MW Solar
2031 = 200 MW Tx. to Yakima
2038 = 165 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv
2023 = 120 MW Battery
2024 = 100 MW Tx. Inter.
2024 = 100 MW Solar
2028 = 500 MW Tx. Inter.
2028 = 370 MW Gas
2030 = 555 MW Gas
2037 = 105 MW Battery
2038 = 315 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT
2031 = 180 MW Battery
2037 = 15 MW Battery
2038 = 135 MW Battery

Bridger WY
2023 = 713 MW Solar
2038 = 12 MW Solar
2038 = 331 MW Solar
2038 = 83 MW Battery

Southern OR
2023 = 120 MW Battery
2023 = 105 MW Battery
2024 = 500 MW Solar
2032 = 475 MW Solar
2032 = 119 MW Battery
2032 = 475 MW Tx. Inter.
2037 = 300 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.
2038 = 45 MW Battery
2038 = 90 MW Battery

WillamValcc in Southern OR box in Italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 345 MW Wind
2029 = 275 MW Wind

Northern UT
2024 = 600 MW Solar
2024 = 150 MW Battery
2024 = 600 MW Tx. Inter.
2030 = 300 MW Solar

Huntington UT
2037 = 887 MW Solar
2037 = 222 MW Battery
2037 = 23 MW Solar

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2020 = GDB1-3 (238 MW)
2022 = JB1-2 (706 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

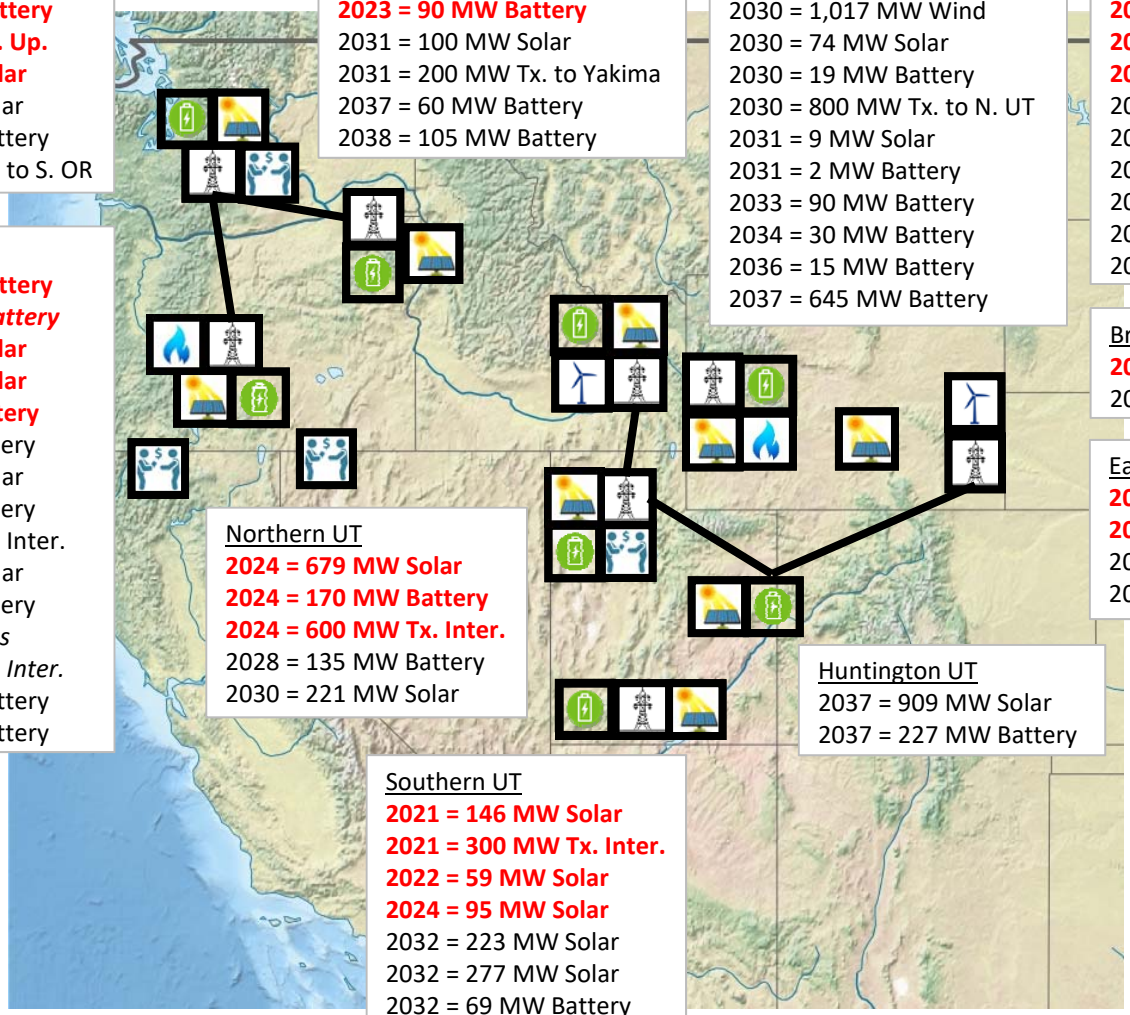
Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 135 MW Solar
2024 = 63 MW Solar
2024 = 32 MW Solar
2024 = 8 MW Battery
2028 = 45 MW Battery
2030 = 41 MW Solar
2030 = 407 MW Solar
2030 = 102 MW Battery
2030 = 800 MW Tx. Inter.
2031 = 52 MW Solar
2031 = 13 MW Battery
2036 = 400 MW Solar
2037 = 315 MW Battery
2036 = 400 MW Solar
2038 = 540 MW Battery

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-35

(P-11 with Jim Bridger 3-4 Accelerated to 2022)



Yakima WA
2023 = 105 MW Battery
2024 = 405 MW Tx. Up.
2024 = 405 MW Solar
2033 = 430 MW Solar
2033 = 108 MW Battery
2033 = 450 MW Tx. to S. OR

Walla Walla WA
2023 = 90 MW Battery
2031 = 100 MW Solar
2031 = 200 MW Tx. to Yakima
2037 = 60 MW Battery
2038 = 105 MW Battery

Goshen ID
2030 = 1,017 MW Wind
2030 = 74 MW Solar
2030 = 19 MW Battery
2030 = 800 MW Tx. to N. UT
2031 = 9 MW Solar
2031 = 2 MW Battery
2033 = 90 MW Battery
2034 = 30 MW Battery
2036 = 15 MW Battery
2037 = 645 MW Battery

Western WY/Naughton
2023 = 105 MW Battery
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2028 = 210 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 555 MW Gas
2037 = 360 MW Battery
2038 = 30 MW Battery

Bridger WY
2023 = 702 MW Solar
2029 = 354 MW solar

Eastern WY
2024 = 1.920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 141 MW Wind
2029 = 479 MW Wind

Southern OR
2023 = 105 MW Battery
2023 = 75 = MW Battery
2024 = 349 MW Solar
2024 = 151 MW Solar
2024 = 38 MW Battery
2028 = 30 MW Battery
2031 = 304 MW Solar
2031 = 76 MW Battery
2031 = 475 MW Tx. Inter.
2032 = 171 MW Solar
2032 = 43 MW Battery
2033 = 443 MW Gas
2033 = 615 MW Tx. Inter.
2037 = 255 MW Battery
2038 = 165 MW Battery

Northern UT
2024 = 679 MW Solar
2024 = 170 MW Battery
2024 = 600 MW Tx. Inter.
2028 = 135 MW Battery
2030 = 221 MW Solar

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2024 = 95 MW Solar
2032 = 223 MW Solar
2032 = 277 MW Solar
2032 = 69 MW Battery
2032 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2038 = 135 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2022 = JB3-4 (702 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)

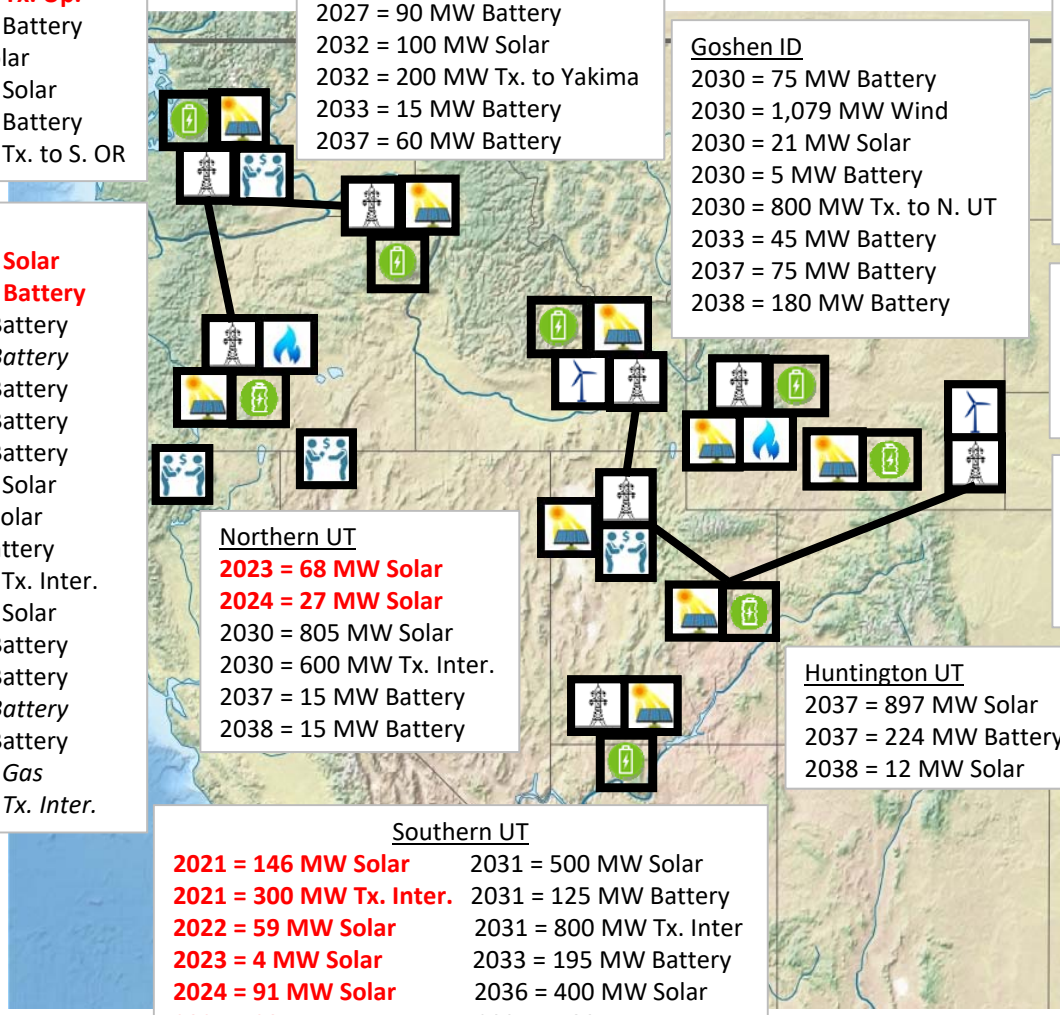
WillamValcc in Southern OR box in italics.

Solar
Wind
Battery
Pumped Hydro
Gas
Market
Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-45B

(P-31 with Jim Bridger 1-2 Retirement)



Yakima WA
2024 = 376 MW Solar
2024 = 29 MW Solar
2024 = 7 MW Battery
2024 = 405 MW Tx. Up.
2028 = 105 MW Battery
2037 = 7 MW Solar
2037 = 423 MW Solar
2037 = 106 MW Battery
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2026 = 15 MW Battery
2027 = 90 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2033 = 15 MW Battery
2037 = 60 MW Battery

Goshen ID
2030 = 75 MW Battery
2030 = 1,079 MW Wind
2030 = 21 MW Solar
2030 = 5 MW Battery
2030 = 800 MW Tx. to N. UT
2033 = 45 MW Battery
2037 = 75 MW Battery
2038 = 180 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2026 = 185 MW Gas
2028 = 15 MW Battery
2029 = 195 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 370 MW Gas
2037 = 165 MW Battery
2038 = 150 MW Battery

Bridger WY
2024 = 354 MW Solar
2029 = 359 MW Solar
2038 = 702 MW Solar
2038 = 175 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 102 MW Wind
2029 = 518 MW Wind

Southern OR
2024 = 500 MW Solar
2024 = 125 MW Battery
2026 = 15 MW Battery
2026 = 30 MW Battery
2028 = 90 MW Battery
2028 = 45 MW Battery
2029 = 15 MW Battery
2031 = 116 MW Solar
2031 = 36 MW Solar
2031 = 9 MW Battery
2031 = 475 MW Tx. Inter.
2032 = 323 MW Solar
2032 = 81 MW Battery
2033 = 90 MW Battery
2033 = 15 MW Battery
2037 = 15 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.

Northern UT
2023 = 68 MW Solar
2024 = 27 MW Solar
2030 = 805 MW Solar
2030 = 600 MW Tx. Inter.
2037 = 15 MW Battery
2038 = 15 MW Battery

Huntington UT
2037 = 897 MW Solar
2037 = 224 MW Battery
2038 = 12 MW Solar

Coal/Early Gas Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2023– JB1 (351 MW)
2025 = CG1 (82 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB2 (356 MW)
2030 = HY1-2 (77 MW)
2032 = GDB1-3 (238 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT

2021 = 146 MW Solar	2031 = 500 MW Solar
2021 = 300 MW Tx. Inter.	2031 = 125 MW Battery
2022 = 59 MW Solar	2031 = 800 MW Tx. Inter
2023 = 4 MW Solar	2033 = 195 MW Battery
2024 = 91 MW Solar	2036 = 400 MW Solar
2024 = 23 MW Battery	2037 = 180 MW Battery
2029 = 30 MW Battery	2038 = 255 MW Battery

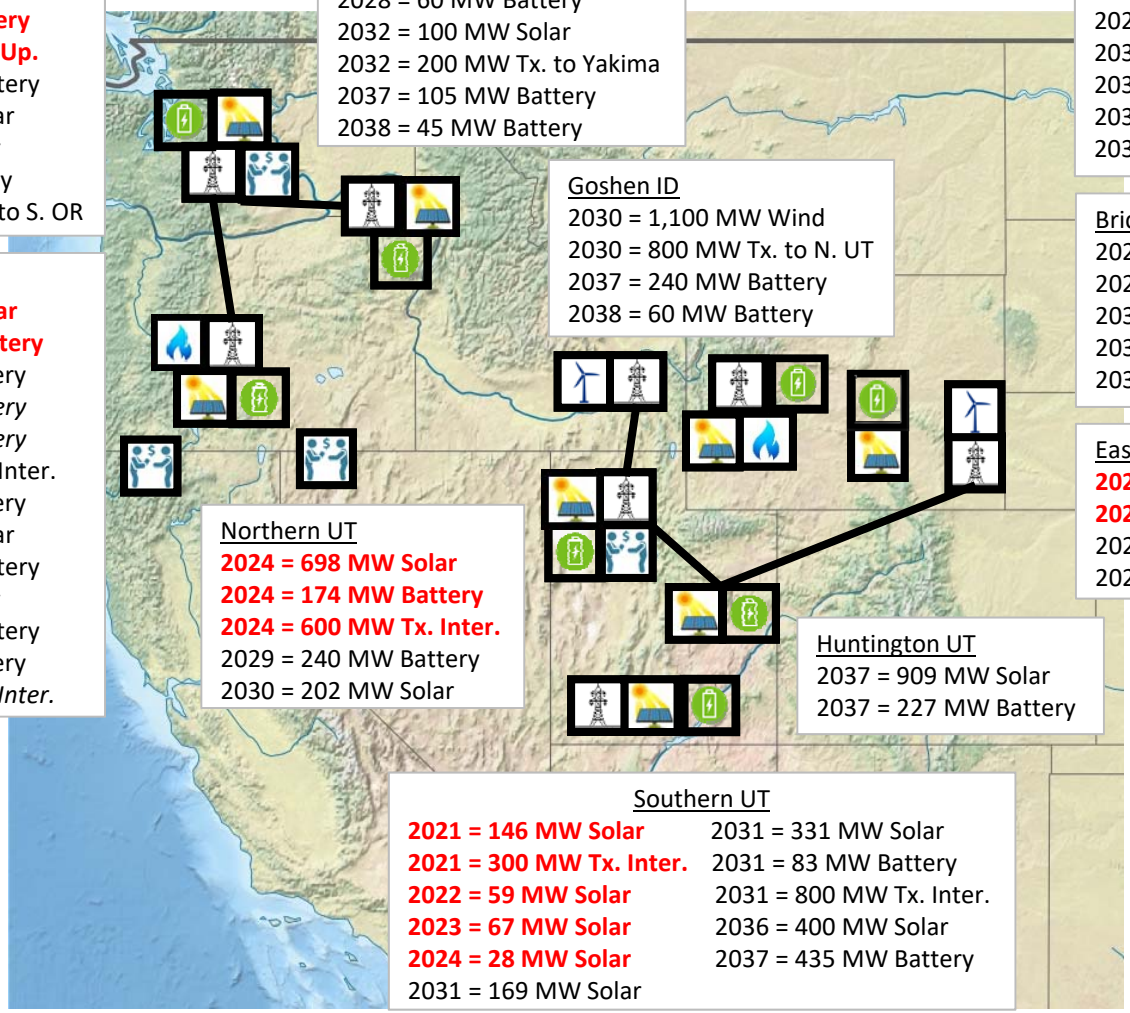
WillamValcc in Southern OR box in italics.

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-46B

(P-31 with Jim Bridger 3-4 Retirement 2025)



Yakima WA
2024 = 289 MW Solar
2024 = 116 MW Solar
2024 = 29 MW Battery
2024 = 405 MW Tx. Up.
2026 = 105 MW Battery
2038 = 407 MW Solar
2038 = 23 MW Solar
2038 = 6 MW Battery
2038 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 60 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 105 MW Battery
2038 = 45 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2026 = 185 MW Gas
2028 = 180 MW Battery
2029 = 60 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 370 MW Gas
2031 = 100 MW Solar
2031 = 100 MW Tx. Inter.
2037 = 165 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT
2037 = 240 MW Battery
2038 = 60 MW Battery

Bridger WY
2026 = 713 MW Solar
2029 = 349 MW Solar
2033 = 251 MW Solar
2033 = 102 MW Solar
2033 = 25 MW Battery

Southern OR
2024 = 500 MW Solar
2024 = 125 MW Battery
2026 = 60 MW Battery
2026 = 30 MW Battery
2027 = 30 MW Battery
2032 = 475 MW Tx. Inter.
2028 = 45 MW Battery
2032 = 475 MW Solar
2032 = 119 MW Battery
2033 = 443 MW Gas
2037 = 495 MW Battery
2038 = 15 MW Battery
2033 = 615 MW Tx. Inter.

WillamValcc in Southern OR box in italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 544 MW Wind
2029 = 76 MW Wind

Northern UT
2024 = 698 MW Solar
2024 = 174 MW Battery
2024 = 600 MW Tx. Inter.
2029 = 240 MW Battery
2030 = 202 MW Solar

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = CG1 (82 MW)
2025 = JB3-4 (702 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)

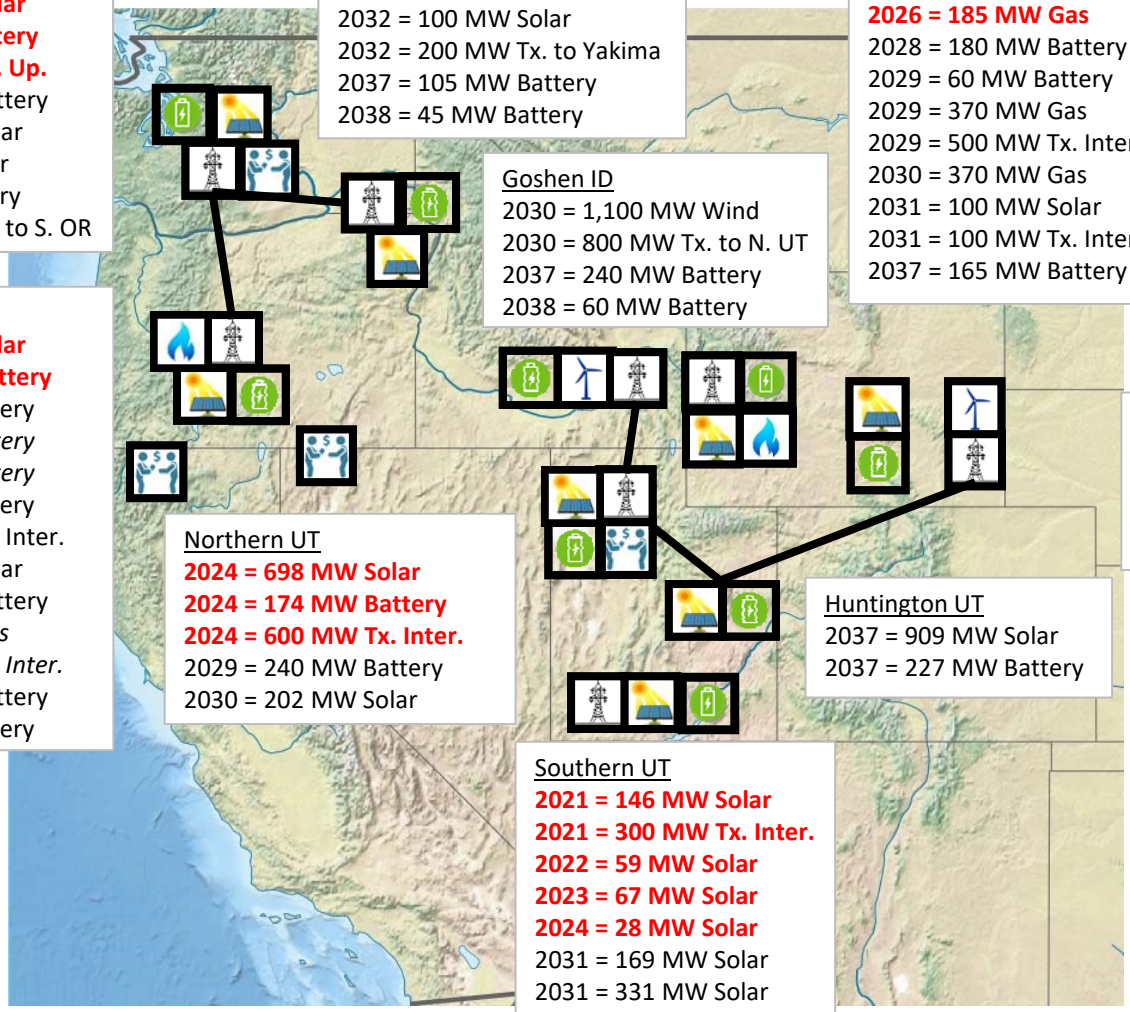
Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2031 = 169 MW Solar
2031 = 331 MW Solar
2031 = 83 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2037 = 435 MW Battery

Solar
Wind
Battery
Pumped Hydro
Gas
Market
Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-53B

(P-46 Jim Bridger 1-2 Retirement 2025)



Yakima WA
2024 = 289 MW Solar
2024 = 116 MW Solar
2024 = 29 MW Battery
2024 = 405 MW Tx. Up.
2026 = 105 MW Battery
2038 = 407 MW Solar
2038 = 23 MW Solar
2038 = 6 MW Battery
2038 = 450 MW Tx. to S. OR

Walla Walla WA
2028 = 60 MW Battery
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 105 MW Battery
2038 = 45 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2026 = 185 MW Gas
2028 = 180 MW Battery
2029 = 60 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 370 MW Gas
2031 = 100 MW Solar
2031 = 100 MW Tx. Inter.
2037 = 165 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT
2037 = 240 MW Battery
2038 = 60 MW Battery

Bridger WY
2026 = 713 MW Solar
2029 = 349 MW Solar
2033 = 251 MW Solar
2033 = 102 MW Solar
2033 = 20 MW Battery

Southern OR
2024 = 500 MW Solar
2024 = 125 MW Battery
2026 = 60 MW Battery
2026 = 30 MW Battery
2027 = 30 MW Battery
2028 = 45 MW Battery
2032 = 475 MW Tx. Inter.
2032 = 475 MW Solar
2032 = 119 MW Battery
2033 = 443 MW Gas
2033 = 615 MW Tx. Inter.
2037 = 495 MW Battery
2038 = 15 MW Battery

WillamValcc in Southern OR box in italics.

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 544 MW Wind
2029 = 76 MW Wind

Northern UT
2024 = 698 MW Solar
2024 = 174 MW Battery
2024 = 600 MW Tx. Inter.
2029 = 240 MW Battery
2030 = 202 MW Solar

Huntington UT
2037 = 909 MW Solar
2037 = 227 MW Battery

Solar
Wind
Battery
Pumped Hydro
Gas
Market
Transmission

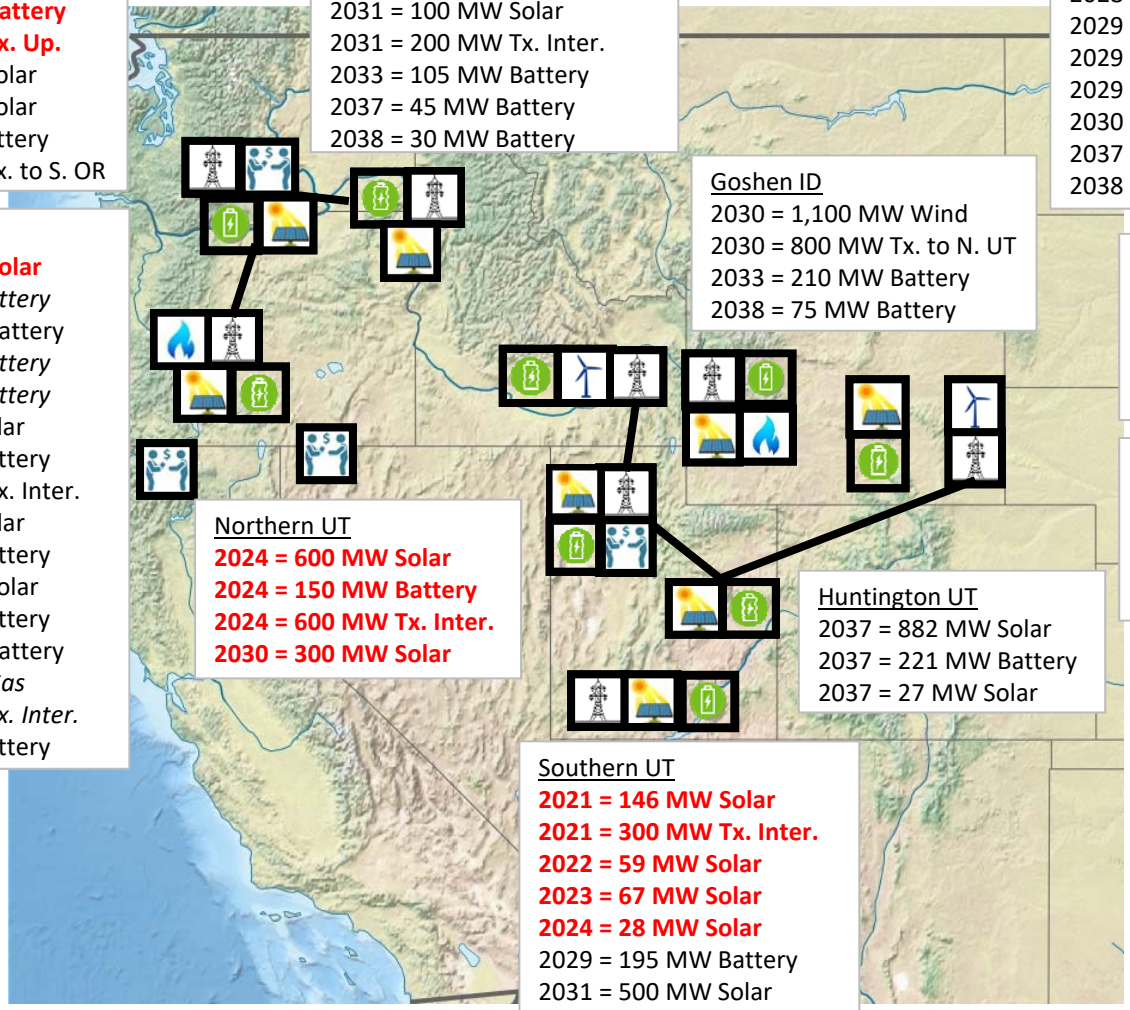
Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2031 = 169 MW Solar
2031 = 331 MW Solar
2031 = 83 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2037 = 435 MW Battery

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = CG1 (82 MW)
2025 = JB1 (351 MW)
2025 = JB2 (356 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB3 (351 MW)
2030 = HY1-2 (77 MW)
2032 = JB4 (351 MW)
2036 = HTG1-2 (909 MW)

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.

Case P-54B

(P-31 Jim Bridger 2 Retirement 2024)



Yakima WA
2024 = 405 MW Solar
2026 = 105 MW Battery
2024 = 405 MW Tx. Up.
2038 = 132 MW Solar
2038 = 298 MW Solar
2038 = 75 MW Battery
2038 = 450 MW Tx. to S. OR

Walla Walla WA
2026 = 15 MW Battery
2031 = 100 MW Solar
2031 = 200 MW Tx. Inter.
2033 = 105 MW Battery
2037 = 45 MW Battery
2038 = 30 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2024 = 100 MW Solar
2024 = 100 MW Tx. Inter.
2026 = 185 MW Gas
2028 = 45 MW Battery
2029 = 30 MW Battery
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 370 MW Gas
2037 = 30 MW Battery
2038 = 180 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT
2033 = 210 MW Battery
2038 = 75 MW Battery

Bridger WY
2025 = 359 MW Solar
2029 = 354 MW Solar
2038 = 702 MW Solar
2038 = 174 MW Battery

Southern OR
2024 = 500 MW Solar
2026 = 30 MW Battery
2028 = 225 MW Battery
2028 = 45 MW Battery
2029 = 30 MW Battery
2030 = 80 MW Solar
2030 = 20 MW Battery
2030 = 475 MW Tx. Inter.
2031 = 38 MW Solar
2031 = 10 MW Battery
2032 = 343 MW Solar
2032 = 86 MW Battery
2037 = 435 MW Battery
2037 = 443 MW Gas
2037 = 615 MW Tx. Inter.
2038 = 15 MW Battery

Eastern WY
2024 = 1,920 MW Wind
2024 = 1,700 MW Tx. to N. UT
2028 = 233 MW Wind
2029 = 620 MW Wind

Northern UT
2024 = 600 MW Solar
2024 = 150 MW Battery
2024 = 600 MW Tx. Inter.
2030 = 300 MW Solar

Huntington UT
2037 = 882 MW Solar
2037 = 221 MW Battery
2037 = 27 MW Solar

Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2024 = JB2 (356 MW)
2025 = CG1 (82 MW)
2025 = NT1-2 (357 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2030 = HY1-2 (77 MW)
2037 = JB3-4 (702 MW)
2036 = HTG1-2 (909 MW)

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2029 = 195 MW Battery
2031 = 500 MW Solar
2031 = 125 MW Battery
2031 = 800 MW Tx. Inter.
2036 = 400 MW Solar
2037 = 165 MW Battery
2038 = 330 MW Battery

WillamValcc in Southern OR box in italics.

- Solar
- Wind
- Battery
- Pumped Hydro
- Gas
- Market
- Transmission

Note: Resources highlighted in red text would require some type of action item in the 2019 IRP action plan if this case were selected as the preferred portfolio.