2019 Integrated Resource Plan (IRP) Public Input Meeting May 20-21, 2019




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Agenda

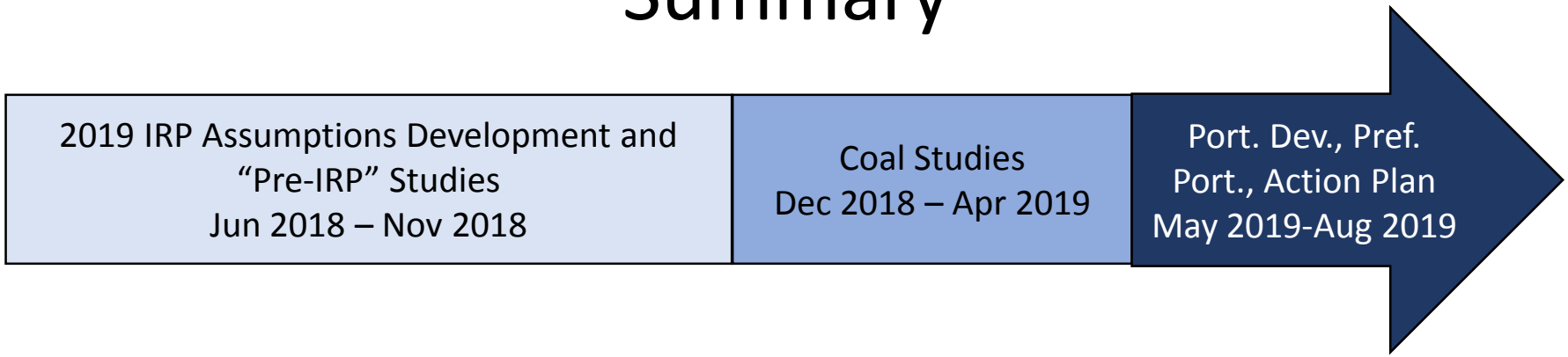
May 20 - Day One

- 9:00am-9:30am pacific – Conservation Potential Assessment Cost Correction
- 9:30am-10:15am pacific – DSM Bundling Portfolio Methodology
- 10:15am-11:15am pacific – Updated Portfolio Matrix
- 11:00am-11:45am pacific – Lunch Break
- 11:45am-2:00pm pacific – Portfolio Analysis Results Discussion
- 2:00pm-2:15pm pacific – Break
- 2:15pm-4:00pm pacific – Portfolio Analysis Results Discussion (continued)

May 21 - Day Two

- 8:30am-11:30am pacific – Portfolio Analysis Results Discussion (continued)
- 11:30am-12:15pm pacific – Lunch Break
- 12:15pm-1:30pm pacific – Portfolio Analysis Results Discussion (continued)
- 1:30pm-1:50pm pacific – Stakeholder Feedback Form Recap
- 1:50pm-2:00pm pacific – Wrap-Up/Next Steps

Summary



- Results from the coal studies have been used to begin the portfolio-development phase of the 2019 IRP, which will be used to evaluate cost and risk metrics before selecting a preferred portfolio in advance of filing August 1, 2019.
- PacifiCorp has developed 13 unique resource portfolios to date (more portfolios will be developed, summarized and reviewed at the June 2019 public-input meeting).
  - The coal study Benchmark Case and the C-42 Stacked Retirement Case have been carried forward into the portfolio-development phase—these cases have been updated to reflect and update to Class 2 DSM supply curves.
  - The other portfolios assess Regional Haze compliance alternatives for Naughton 3, Cholla 4, and Bridger 1-2 along with alternative economic retirement scenarios that include cases assuming an early retirement of Gadsby 1-3 (steam units) in 2020.
- Portfolios that capture Regional Haze compliance scenarios and alternative economic retirement assumptions relative to those assumed in Case C-42 from the coal studies may provide greater benefits for PacifiCorp's customers.

Summary (Continued)

- These alternative portfolios may also mitigate key risks.
  - Less reliance on market purchases over a period when there are growing regional resource adequacy concerns.
  - Deferral of potential new natural gas resources beyond the action plan window.
  - Reduced need for large-scale deployment of new technologies, such as battery storage resources, over a short period of time.
- PacifiCorp will continue to develop and evaluate costs and risks of different resource portfolios before finalizing its least-cost, least-risk plan, which will be filed with state regulatory commissions by August 1, 2019.

Conservation Potential Assessment (CPA) Cost Correction

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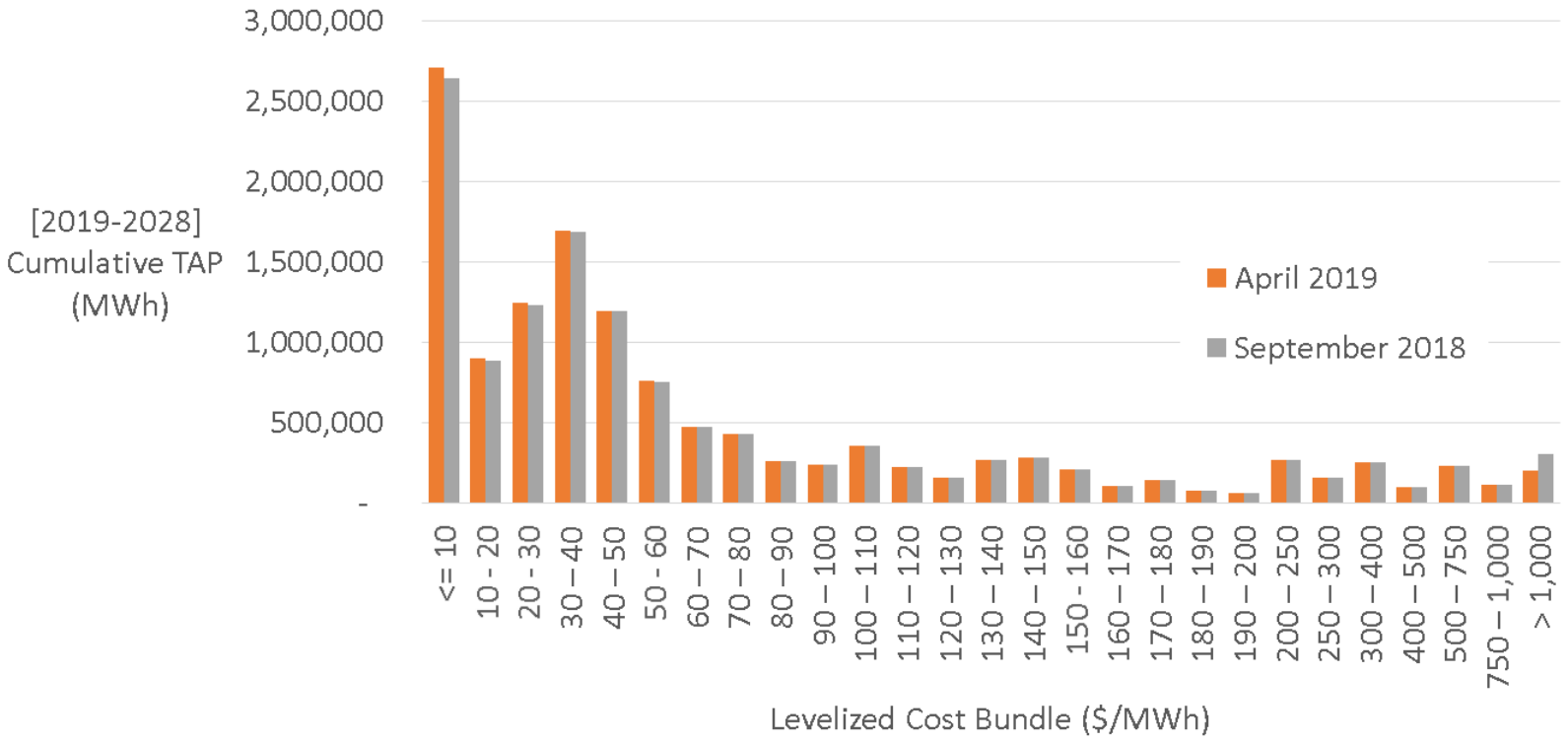
2019 CPA Cost Correction

- In April, 2019 PacifiCorp identified an issue that assigned potential for a commercial ventilation measure to a higher cost bundle than expected.
- AEG investigated and found that this was isolated to a handful of commercial HVAC measures:
  - Commercial Ventilation Upgrades
  - Commercial PTACs and PTHPs
  - Commercial Evaporative Central ACs
- This affected costs but not savings, therefore the total Technical Achievable Potential was not affected nor the Conservation Potential Assessment report.

2019 CPA Cost Correction

- AEG corrected the cost calculations and provided PacifiCorp with updated supply curves for the IRP.
- This update shifted roughly 0.8% of the savings from high-cost bundles to lower-cost ones (approx. 110 GWh by 2038) as shown in the chart below.



2019 CPA Cost Correction

- The following table reflects the energy efficiency potential impact by bundle for each state (no impact to Oregon potential).
- This correction results in a slight increase (1% overall) in energy efficiency selections.

Bundle	California	Idaho	Oregon	Utah	Washington	Wyoming
<= 10	1	3	0	44	8	8
10 - 20	0	1	0	12	3	3
20 - 30	0	1	0	11	2	0
30 – 40	0	0	0	1	1	1
40 – 50	0	0	0	2	0	0
50 - 60	0	2	0	8	1	0
60 – 70	0	(2)	0	(4)	0	0
70 – 80	0	(0)	0	(1)	0	0
80 – 90	0	(0)	0	2	0	1
90 – 100	0	0	0	(1)	0	0
100 – 110	0	0	0	1	0	(0)
110 – 120	0	(0)	0	0	0	0
120 – 130	0	(0)	0	(0)	0	0
130 – 140	0	0	0	(0)	0	0
140 – 150	0	0	0	2	(0)	(0)
150 - 160	0	(0)	0	(1)	0	0
160 – 170	(0)	0	0	(0)	(0)	(0)
170 – 180	0	0	0	0	(0)	(0)
180 – 190	0	(0)	0	(0)	(0)	0
190 – 200	0	(0)	0	0	0	(0)
200 – 250	0	0	0	0	0	(0)
250 – 300	0	0	0	(1)	(0)	0
300 – 400	(0)	(0)	0	(1)	(0)	0
400 – 500	(0)	(0)	0	(0)	0	(0)
500 – 750	0	(0)	0	(0)	(0)	(0)
750 – 1,000	(0)	(0)	0	(0)	(0)	(0)
> 1,000	(2)	(5)	0	(74)	(14)	(13)
Total Change	**0**	**0**	**0**	**0**	**0**	**0**
Total TAP in 2038	**211**	**517**	**3,544**	**6,041**	**1,111**	**1,739**

Redistribution of Technical Achievable Potential by Cost Bundle in 2038 (GWh)

DSM Bundling Portfolio Methodology

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DSM Bundling Portfolio Methodology

- The conservation potential assessment contains thousands of energy efficiency measures, with a variety of costs and load shapes. To simplify the inputs for modeling purposes, measures are grouped into 27 bundles for each state.
- The current methodology groups measures that have a similar levelized cost of energy (LCOE) on a $ per MWh basis.
- In the September 27-28, 2018 public-input meeting PacifiCorp identified "DSM bundling" as a case to be considered in its portfolio development process.
- PacifiCorp is proposing an alternative bundling methodology based on the net cost of capacity ($/kw-yr)
  - The method accounts for hourly load shape, capacity contribution, and seasonal differences among measures.
  - There are still 27 bundles for each state.
  - Cost inputs for each measure are unchanged and adjustments for stochastic risk reduction, the Northwest Power Act, and T&D deferral continue to apply. These inputs will be updated consistent with the measures in each proposed bundle.
- The goal of this case is to see how a portfolio with alternative DSM bundling performs relative to the current methodology and is included as a specific portfolio development case.

Current Methodology

- Consider the measures in the current Utah $60-$70/MWh bundle:
  - Summer capacity contribution ranges from 0% to 86%, average 46%
  - Winter capacity contribution ranges from 0% to 84%, average 40%
  - Load factor ranges from 4% to 84%, average 39%
  - Shaped energy value ranges from $40 to $55/MWh, average $47/MWh
- The characteristics of a sample of measures are shown below:

Type	$/MWh LCOE	% CC Summer	% CC Winter	% Load Factor	$/MWh Energy Value
Microwave	62.39	40%	44%	19%	54.17
Strategic Energy Management	60.17	47%	27%	35%	47.06
Exterior Lighting - Bi-Level Parking Garage Fixture	65.80	48%	32%	46%	46.11
Advanced New Construction Designs	67.11	34%	30%	38%	43.61
Office Equipment - Advanced Power Strips	68.40	48%	48%	63%	43.17
Exterior Lighting - Enhanced Controls	60.74	36%	38%	48%	42.75
Insulation - Wall Cavity Installation	63.25	17%	32%	13%	50.30
Linear Lighting	63.56	35%	68%	40%	50.00
Doors - Storm and Thermal	62.44	0%	47%	15%	45.24
Space Heating - Heat Recovery Ventilator	62.95	0%	9%	4%	39.82

Note the range of energy and capacity contribution values

- Some $60-$70/MWh measures could be economic even if the entire bundle is not.

Proposed Methodology

- PacifiCorp is proposing bundling based on the net cost of capacity.
- Resources with winter capacity contribution more than 1.5x summer capacity contribution are bundled separately based on net cost per kW of winter capacity.

Net cost of capacity per kW-yr = (LCOE - Energy Value) * (Load Factor * Hrs/yr) / Cap. Contrib. / (kW/MW)

Column reference: [h *or* i] = (a - e) * (d * 8760) / [b *or* c] / 1000

- The proposed bundle assignments shown in column j are intended to distinguish measures based on their economics.

	a	b	c	d	e	f	g	h	i	j
	$/MWh	%	%	%	$/MWh	%		$/kW-yr	$/kW-yr	$/kW-yr
Type	LCOE	CC Summer	CC Winter	Load Factor	Energy Value	Winter Ratio	Season	Net Cost Summer	Net Cost Winter	Bundle
Microwave	62.39	40%	44%	19%	54.17	1.1	Summer	50	50	SD. $25-50
Strategic Energy Management	60.17	47%	27%	35%	47.06	0.6	Summer	150	500	SH. $125-150
Exterior Lighting - Bi-Level Parking Garage Fixture	65.80	48%	32%	46%	46.11	0.7	Summer	175	275	SI. $150-175
Advanced New Construction Designs	67.11	34%	30%	38%	43.61	0.9	Summer	325	375	SM. $300-400
Office Equipment - Advanced Power Strips	68.40	48%	48%	63%	43.17	1	Summer	300	300	SL. $250-300
Exterior Lighting - Enhanced Controls	60.74	36%	38%	48%	42.75	1	Summer	225	200	SK. $200-250
Insulation - Wall Cavity Installation	63.25	17%	32%	13%	50.30	1.9	Winter	700	375	WZ. $300-1000
Linear Lighting	63.56	35%	68%	40%	50.00	1.9	Winter	150	75	WV. $50-100
Doors - Storm and Thermal	62.44	0%	47%	15%	45.24	>10	Winter	>1000	50	WU. $25-50
Space Heating - Heat Recovery Ventilator	62.95	0%	9%	4%	39.82	>10	Winter	>1000	100	WV. $50-100

Proposed Bundles vs Current Bundles

- The figure shows how much of each current bundle is in each proposed bundle.
  - Each column sums to 100% of the current bundle volume.
  - Measures in the green box are relatively economic and could now be selected before other bundles.
  - Measures in the red box are relatively uneconomic and could now be selected after other bundles.

2038 Achievable Technical Potential Savings (MWh) % by Original Bundle

Current Selection: Mostly Left to Right →→→

Expected Selection: Top to Bottom, for each season ↓↓↓

Proposed $/kW-yr	Current LCOE $/MWh <10	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	250	300	400	500	750	>1k
SA. up to -$50	86%	86%	66%	71%	20%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB. -$50-0	0%	0%	-	0%	34%	1%	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SC. $0-25	0%	0%	0%	0%	27%	4%	0%	1%	1%	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD. $25-50	0%	0%	0%	3%	3%	6%	4%	0%	0%	0%	0%	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SE. $50-75	0%	-	0%	0%	1%	14%	1%	0%	0%	0%	0%	0%	0%	-	0%	-	-	-	-	-	-	-	-	-	-	-	-
SF. $75-100	0%	-	-	2%	0%	32%	0%	3%	0%	0%	-	0%	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SG. $100-125	0%	-	0%	0%	0%	3%	8%	1%	1%	2%	0%	0%	-	0%	-	-	0%	0%	-	-	-	-	-	-	-	-	-
SH. $125-150	0%	-	-	0%	0%	1%	5%	0%	1%	2%	0%	0%	0%	0%	-	-	-	-	-	-	-	-	-	-	-	-	-
SI. $150-175	0%	-	-	-	0%	2%	17%	2%	0%	1%	0%	1%	-	0%	-	0%	0%	-	-	0%	-	-	-	-	-	-	-
SJ. $175-200	0%	-	0%	0%	0%	13%	2%	3%	0%	1%	3%	1%	0%	0%	0%	-	-	0%	0%	-	-	0%	-	-	-	-	-
SK. $200-250	0%	-	-	0%	0%	5%	14%	9%	4%	0%	1%	5%	1%	1%	0%	0%	4%	-	0%	0%	9%	-	-	-	-	-	-
SL. $250-300	0%	-	-	-	0%	1%	14%	27%	18%	1%	0%	0%	0%	5%	2%	1%	0%	0%	0%	-	10%	-	0%	-	-	-	-
SM. $300-400	0%	-	-	-	0%	5%	7%	26%	26%	27%	2%	1%	3%	26%	62%	1%	16%	7%	1%	2%	0%	0%	0%	1%	-	-	-
SN. $400-500	0%	-	0%	0%	1%	0%	0%	2%	28%	29%	10%	5%	1%	1%	1%	8%	15%	3%	31%	26%	5%	4%	15%	1%	0%	-	-
SO. $500-750	0%	-	0%	0%	2%	1%	0%	0%	3%	22%	44%	19%	18%	23%	5%	5%	4%	22%	7%	16%	15%	23%	3%	4%	6%	3%	-
SP. $750-1000	-	-	-	-	-	-	0%	0%	0%	-	3%	15%	32%	17%	6%	39%	7%	10%	4%	12%	7%	16%	11%	14%	17%	9%	0%
SQ. $1000-9999	-	-	-	-	-	-	-	-	-	-	-	-	4%	1%	1%	0%	11%	19%	19%	20%	19%	30%	13%	50%	43%	51%	85%
WR. up to -$50	14%	14%	33%	23%	1%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WS. -$50-0	-	-	-	0%	6%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WT. $0-25	-	-	-	0%	2%	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WU. $25-50	-	-	-	-	1%	7%	5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WV. $50-100	-	-	-	-	0%	2%	15%	10%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WW. $100-150	-	-	-	-	-	0%	1%	2%	7%	1%	-	3%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WX. $150-200	-	-	-	-	-	1%	0%	1%	5%	6%	1%	1%	-	5%	-	-	-	-	-	-	-	-	-	-	-	-	-
WY. $200-300	-	-	-	-	-	1%	2%	5%	3%	1%	28%	10%	17%	1%	2%	9%	2%	-	-	-	-	-	-	-	-	-	-
WZ. $300-1000	-	-	-	-	0%	0%	3%	8%	2%	7%	8%	38%	25%	20%	21%	34%	38%	37%	38%	22%	35%	22%	47%	0%	-	-	-
WZZ. $1000-9999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3%	2%	3%	0%	1%	1%	4%	11%	28%	34%	36%	15%

DSM Bundling Next Steps

- These draft data may not fully account for interactions between certain energy efficiency measures that must be selected together. PacifiCorp is continuing to evaluate how to coordinate linked measures.
- Net capacity cost is only used to assign measures to bundles. IRP inputs change only due to the mix of measures.
- After modified DSM bundles are finalized, the associated inputs for each bundle will be updated in the IRP modeling:
  - Load shape
  - LCOE
  - Capacity contribution for summer and winter
  - Credits for stochastic risk reduction, the Northwest Power Act, T&D deferral, and the SO Cost-Driver Adjustment
- PacifiCorp anticipates results will be presented at the June 20-21, 2019 Public Input Meeting.
- Depending on the results, modified DSM bundling could influence selection of the preferred portfolio.

Portfolio Development Cases




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Case P-01 Coal Study Benchmark
(Coal Retirement and SCR Requirements)

Coal Unit	PacifiCorp Share (MW)	PacifiCorp Percentage Share	State	Retirement Year and SCR Requirements
Cholla 4	387	100%	AZ	2020
Colstrip 3	74	10%	MT	2046
Colstrip 4	74	10%	MT	2046
Craig 1	82	19%	CO	2025
Craig 2	82	19%	CO	2034
Dave Johnston 1	106	100%	WY	2027
Dave Johnston 2	106	100%	WY	2027
Dave Johnston 3	220	100%	WY	2027
Dave Johnston 4	330	100%	WY	2027
Hayden 1	44	24%	CO	2030
Hayden 2	33	13%	CO	2030
Hunter 1	418	94%	UT	2042
Hunter 2	269	60%	UT	2042
Hunter 3	471	100%	UT	2042
Huntington 1	459	100%	UT	2036
Huntington 2	450	100%	UT	2036
Jim Bridger 1	354	67%	WY	SCR 2022 & Retire 2037
Jim Bridger 2	359	67%	WY	SCR 2021 & Retire 2037
Jim Bridger 3	349	67%	WY	2037
Jim Bridger 4	353	67%	WY	2037
Naughton 1	156	100%	WY	2029
Naughton 2	201	100%	WY	2029
Naughton 3	280	100%	WY	2019
Wyodak	268	80%	WY	2039

Case P-01 Coal Study Benchmark
(Gas Retirements)

Coal Unit	PacifiCorp Share Capacity Contribution (MW)	PacifiCorp Percentage Share	State	Retirement Year
Chehalis	512	100%	WA	2043
Currant Creek	564	100%	UT	2045
Gadsby 1	64	100%	UT	2032
Gadsby 2	69	100%	UT	2032
Gadsby 3	105	100%	UT	2032
Gadsby 4	40	100%	UT	2032
Gadsby 5	40	100%	UT	2032
Gadsby 6	40	100%	UT	2032
Hermiston	241	50%	OR	2036
Lake Side 1	569	100%	UT	2047
Lake Side 2	667	100%	UT	2054

Portfolio Development Cases

	P-01	P-02	P-03	P-04	P-05	P-06
Long Name	Coal Study Benchmark	Regional Haze Reference	Regional Haze Intertemporal (Depreciation Study)	Coal Study Stacked Case C-42	Economic Retirement Alternative 1	Economic Retirement Alternative 2
Market	Base	Base	Base	Base	Base	Base
CO2	Base	Base	Base	Base	Base	Base
FOT	Base	Base	Base	Base	Base	Base
Transmission	Base	Base	Base	Base	Base	Base
Energy Efficiency	Base	Base	Base	Base	Base	Base
Allow New Gas	Yes	Yes	Yes	Yes	Yes	Yes
Coal/Gas Retirements and Regional Haze SCR Obligations	Benchmark	Change from P-01: CH4 RET 2025 CS3-4 RET 2027 CG2 RET 2026 HTR1 SCR 2022 HTR2 SCR 2023 HTG1 SCR 2022 HTG2 SCR 2023 WYD SCR 2024	Change from P-01: CH4 RET 2025 CS3-4 RET 2027 CG2 RET 2026 JB1 No SCR RET 2028 JB2 No SCR RET 2032	Change from P-01: JB1-2 No SCR RET 2022 NT1-2 RET 2022	Change from P-01: JB1-2 No SCR RET 2022 NT1-2 RET 2022 GBY1-3 RET 2020	Change from P-01: CS3-4 RET 2027 CG2 RET 2025 GBY1-3 RET 2020 JB1 No SCR RET 2022 JB2 No SCR RET 2032 NT3 Lg. GC 2020 RET 2029

Case#	P-07	P-08	P-09	P-10	P-11	P-12
Long Name	Economic Retirement Alternative 3	Naughton 3 Small Gas Conversion	Naughton 3 Large Gas Conversion	Economic Retirement Alternative 4	Cholla 4 Early Retirement	Economic Retirement Alternative 5
Market	Base	Base	Base	Base	Base	Base
CO2	Base	Base	Base	Base	Base	Base
FOT	Base	Base	Base	Base	Base	Base
Transmission	Base	Base	Base	Base	Base	Base
Energy Efficiency	Base	Base	Base	Base	Base	Base
Allow New Gas	Yes	Yes	Yes	Yes	Yes	Yes
Coal/Gas Retirements and Regional Haze SCR Obligations	Change from P-01: CS3-4 RET 2027 CG2 RET 2025 GBY1-3 RET 2020 JB1 No SCR RET 2022 JB2 No SCR RET 2028 NT3 Lg. GC 2020 RET 2029	Change from P-01: CH4 RET 2025 CS3-4 RET 2027 CG2 RET 2026 JB1 No SCR RET 2028 JB2 No SCR RET 2032 NT3 Sm. GC 2020 RET 2029	Change from P-01: CH4 RET 2025 CS3-4 RET 2027 CG2 RET 2026 JB1 No SCR RET 2028 JB2 No SCR RET 2032 NT3 Lg. GC 2020 RET 2029	Change from P-01: JB1-2 No SCR RET 2022 NT1-2 RET 2022 NT3 Lg. GC 2020 RET 2029	Change from P-01: CH4 RET 2020 CS3-4 RET 2027 CG2 RET 2026 JB1 No SCR RET 2028 JB2 No SCR RET 2032 NT3 Lg. GC 2020 RET 2029	Change from P-01: CH4 RET 2025 CS3-4 RET 2027 CG2 RET 2025 GBY1-3 RET 2020 JB1 No SCR RET 2022 JB2 No SCR RET 2028 NT3 Lg. GC 2020 RET 2029

Portfolio Development Cases

Case#	P-13	P-14	P-15	P-16	P-17	P-18
Long Name	Bridger 1-2 SCRs	Economic Retirement Alternative 6	Retire All Coal by 2030	No CO2 Price	High CO2 Price	Social Cost of Carbon
Market	Base	Base	Base	Base	Base	Base
CO2	Base	Base	Base	None	High	SCC
FOT	Base	Base	Base	Base	Base	Base
Transmission	Base	Base	Base	Base	Base	Base
Energy Efficiency	Base	Base	Base	Base	Base	Base
Allow New Gas	Yes	Yes	Yes	Yes	Yes	Yes
Coal/Gas Retirements and Regional Haze SCR Obligations	Change from P-01: CH4 RET 2025 CS3-4 RET 2027 CG2 RET 2026 JB1 SCR 2022 RET 2037 JB2 SCR 2021 RET 2037 NT3 GC 2020 RET 2029	Only needed if P-13 has a lower PVRR than P-09. If needed, replicate assumptions from the case among cases P-01 through P-12 having the lowest PVRR.	Sarting with assumptions from the case among cases P-01 through P-14 having the lowest PVRR, stage coal unit retirements such that all coal is retired by the end of 2030.	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.

Case#	P-19	P-20	P-21	P-22	P-23	P-24
Long Name	Low Gas	High Gas	Restricted FOTs	Energy Gateway West	Energy Gateway South	Energy Gateway West and South
Market	Low	High	Base	Base	Base	Base
CO2	Base	Base	Base	Base	Base	Base
FOT	Base	Base	Restricted	Base	Base	Base
Transmission	Base	Base	Base	Add D.3	Add F and D.1	Add D.1, D.3, F
Energy Efficiency	Base	Base	Base	Base	Base	Base
Allow New Gas	Yes	Yes	Yes	Yes	Yes	Yes
Coal/Gas Retirements and Regional Haze SCR Obligations	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.

Portfolio Development Cases

Case#	P-25	P-26	P-27	P-28	P-29	P-XX
Long Name	Energy Gateway West and Boardman to Hemmingway	Boardman to Hemingway	Alternative Energy Efficiency	Colstrip 3-4 2025 Retirement	No Gas	TBD
Market	Base	Base	Base	Base	Base	TBD
CO2	Base	Base	Base	Base	Base	TBD
FOT	Base	Base	Base	Base	Base	TBD
Transmission	Add D.3, E, H	Add H	P-22 to P-26	P-22 to P-26	P-22 to P-26	TBD
Energy Efficiency	Base	Base	Alternative Bundling	P-22 to P-26 or P-27	P-22 to P-26 or P-27	TBD
Allow New Gas	Yes	Yes	Yes	Yes	No	TBD
Coal/Gas Retirements and Regional Haze SCR Obligations	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 having the lowest PVRR. CS3-4 RET 2025	Adopt assumptions from the case among cases P-01 through P-15 or P-28 having the lowest PVRR.	TBD

Overview of Resource Portfolios




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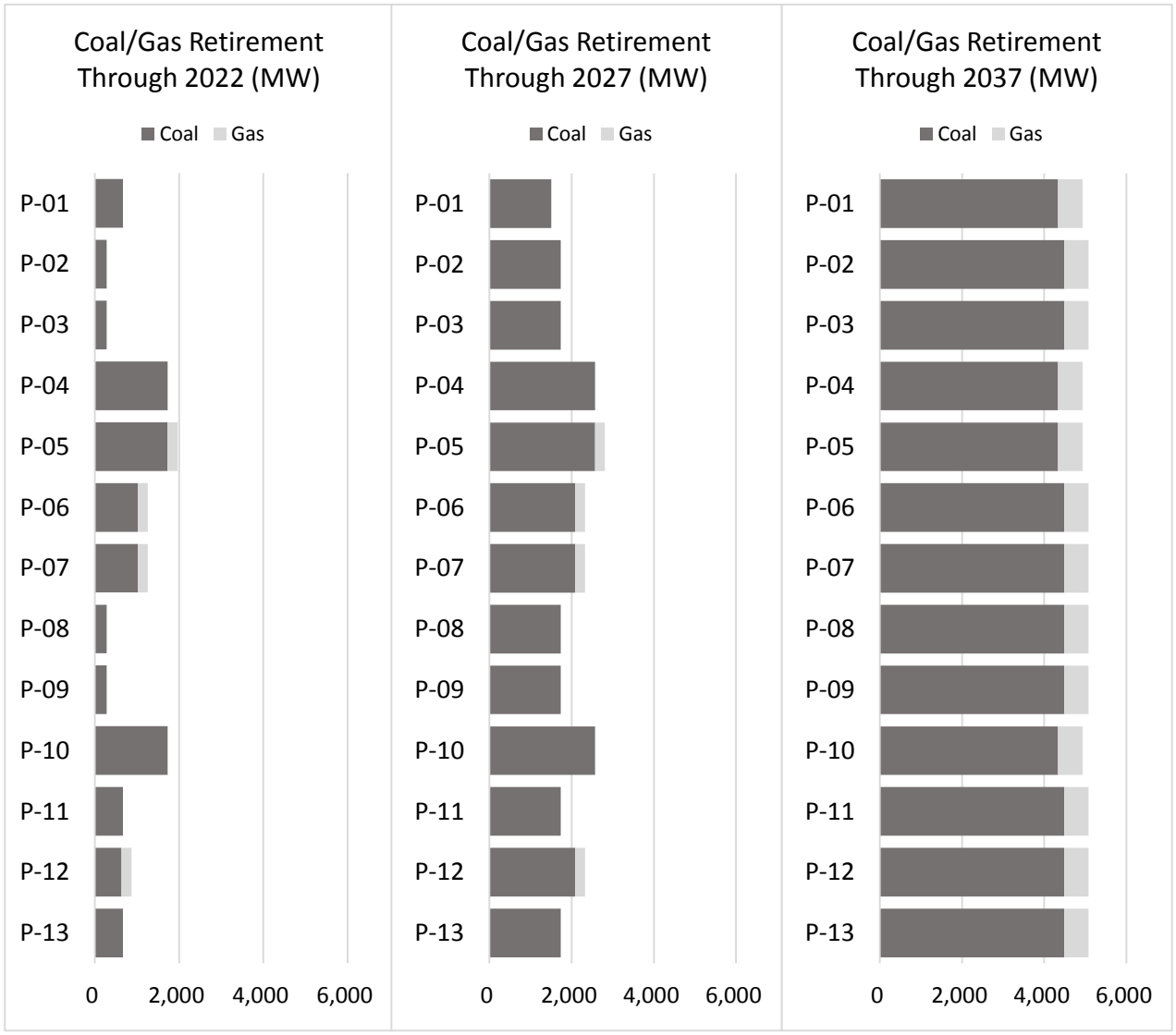
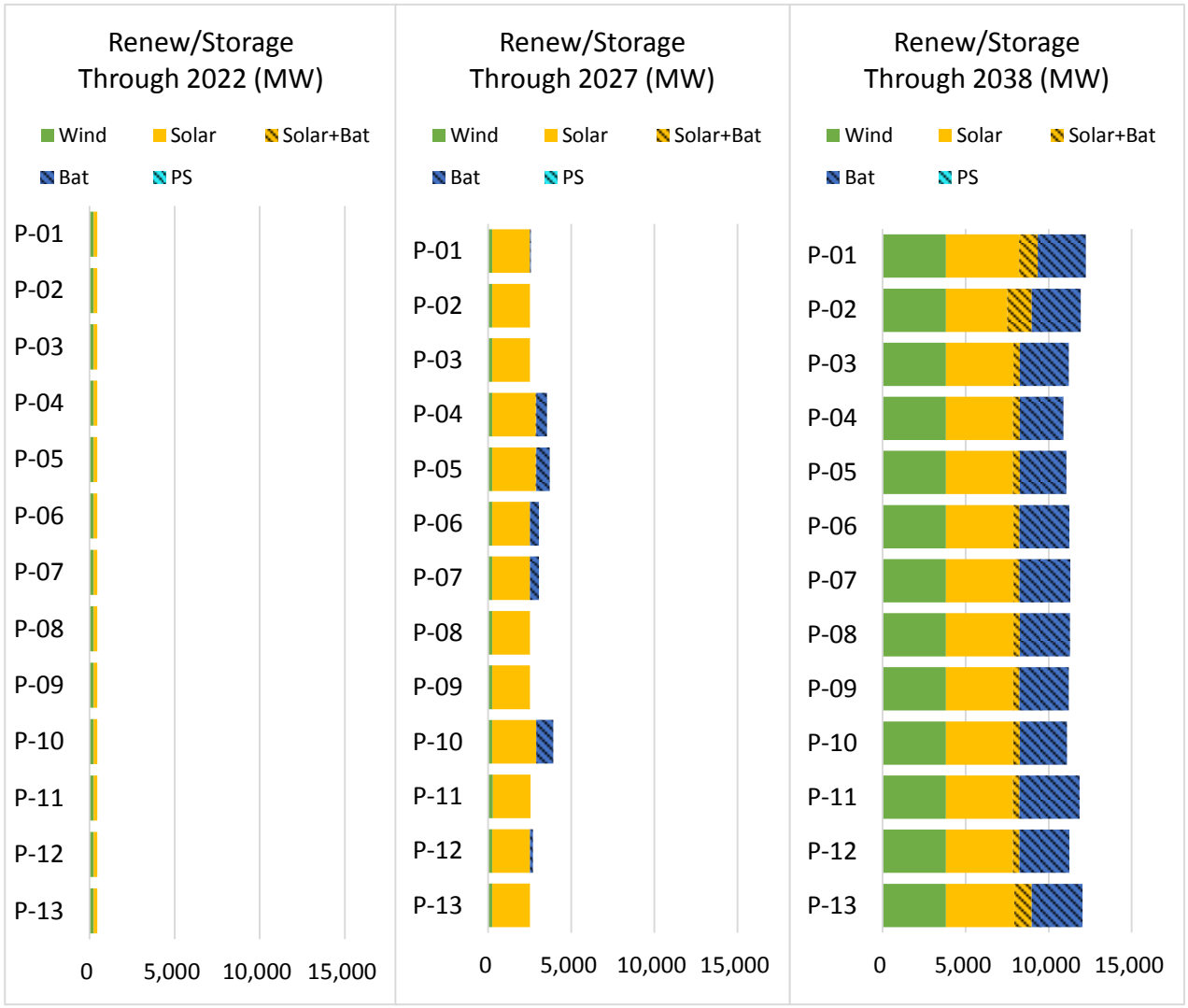
Coal/Gas Resource Retirements



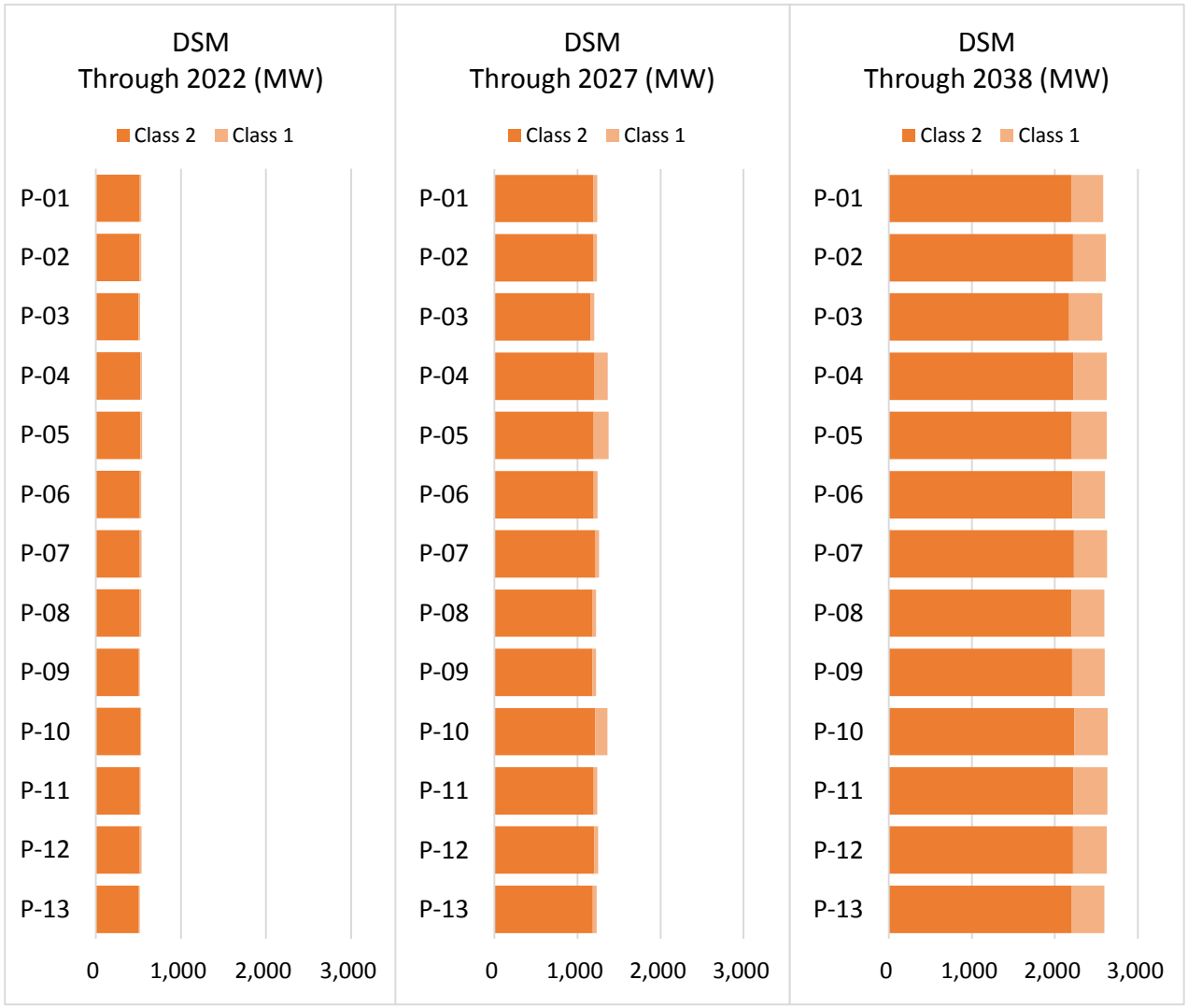
- Cases P-05, P-06, P-07, and P-12 assume Gadsby 1-3 (238 MW) are retired in 2020.
- By the end of 2037, 593 MW of gas-fired capacity is assumed to retire in all cases (Gadsby 1-3 in either 2020 or 2032, Gadsby 4-6 in 2032, and Hermiston in 2036).
- Over the near-term, Cases P-04, P-05, and P-10 assume the highest volume of accelerated coal retirements (1,730 MW), followed by Cases P-06 and P-07 (1,018 MW), Cases P-01, P-11, P-12, and P-13 (631-667 MW), and Cases P-02, P-03, P-08, and P-09 (280 MW).
- Through 2027, coal retirements range between 1,504 MW (Case P-01) and 2,568 MW (Cases P-04, P-05, and P-10).
- By the end of 2037, coal retirements range between 4,337 MW and 4,485 MW--cases at the higher range reflect an accelerated retirement of Colstrip 3 and 4, which is otherwise assumed to retire beyond the 20-year planning horizon.

New Renewable and Storage Resources



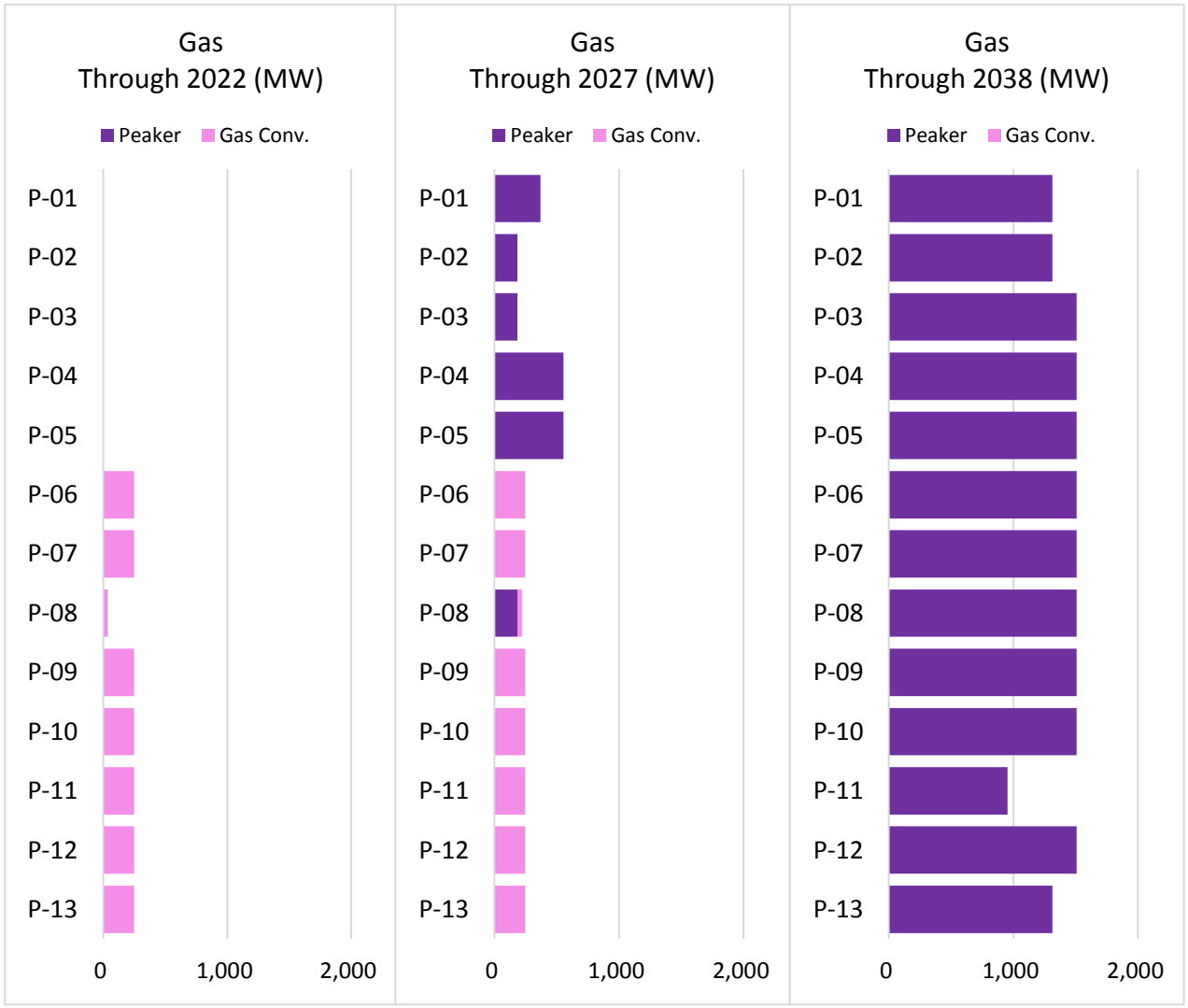
- In the near term, all cases include 240 MW of new Wyoming wind and 205 MW of new Utah solar.
- Over the mid term, solar capacity increases consistently among the cases, ranging between 2,280 MW and 2,6145 MW—cases with higher levels of earlier coal and gas retirements show a need for battery resources (up to 1,035 MW in Case P-10).
- Over the long term, all cases include 3,810 MW of new wind—solar ranges between 4,430 MW and 5,534 MW; battery storage ranges between 2,732 MW and 3,712 MW.

Incremental Demand-Side Management



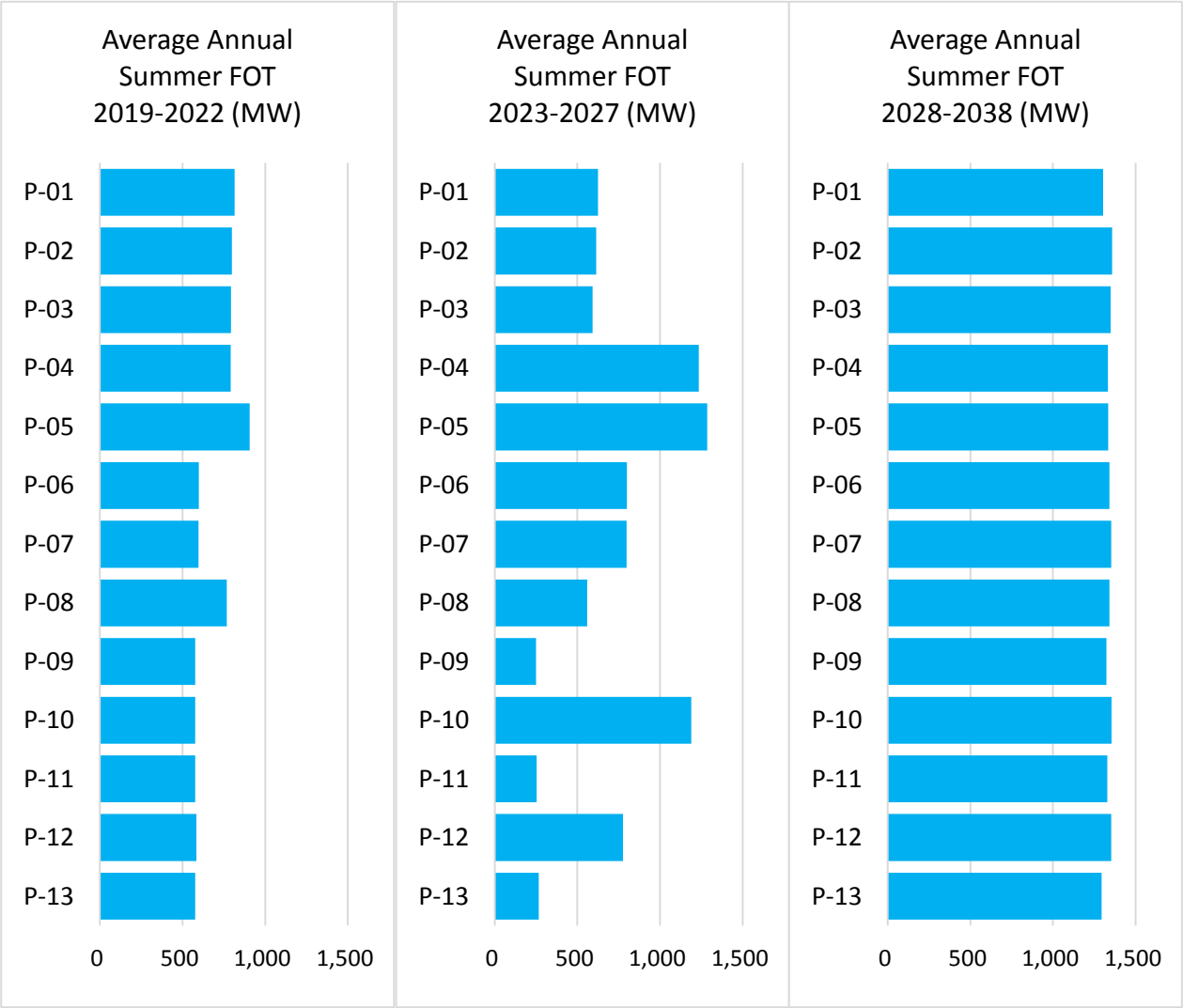
- Demand-side management selections are similar among each case and timeframe.
- Through 2022, Class 2 DSM selections range between 501 MW (Case P-03) and 524 MW (Cases P-10); Class 1 DSM ranges between 11 MW and 19 MW.
- Through 2027, Class 2 DSM selections range between 1,155 MW (Case P-03) and 1,214 MW (Case P-07); Class 1 DSM ranges between 45 MW and 181 MW—more Class 1 DSM is accelerated into the mid term in cases that assume the highest level of accelerated retirements (Cases P-04, P-05, and P-10).
- Through 2038, Class 2 DSM selections range between 2,173 MW (Case P-03) and 2,231 MW (Case P-10); Class 1 DSM ranges between 384 MW and 421 MW.

New/Incremental Natural Gas Resources



- Naughton 3 is assumed to convert to natural gas in eight cases (Cases P-06 through P-13)—the converted unit is assumed to retire at the end of 2029, so it does not show up in the results through 2038.
- The two cases with the highest amount of accelerated retirements without a Naughton 3 gas conversion (Cases C-04 and C-05) show the highest volume of new peaking gas over the mid term (by 2023)—it is likely not possible to procure new natural gas resources in this timeframe.
- Note, that cases assuming a larger conversion of Naughton 3 (247 MW) defer new natural gas resources to years beyond 2027.
- Through 2038, new peaking gas capacity ranges between 953 MW (Case P-11) and 1,508 MW (multiple cases).

Summer Front Office Transactions

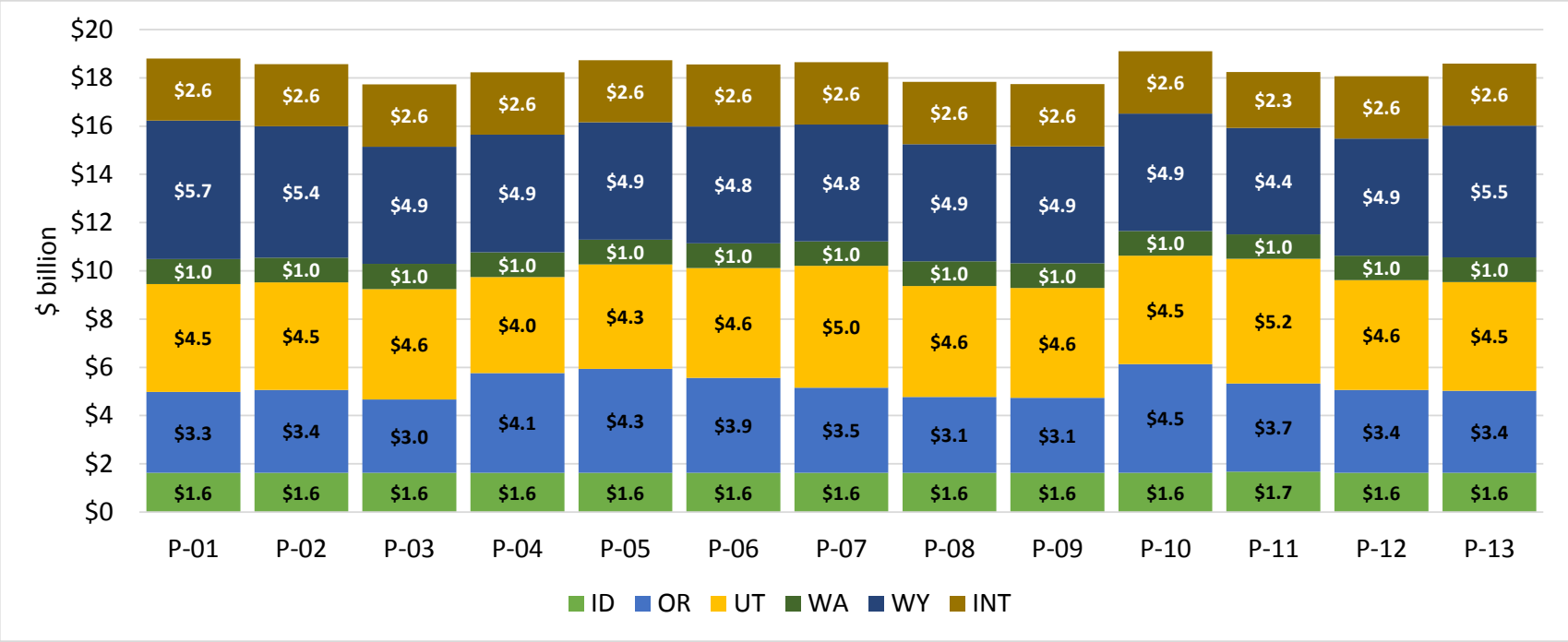


- Cases with the highest volume of coal and gas unit retirements over the near to mid term, results in portfolios with a higher reliance on the market.
- In the 2023-2027 timeframe, a period where there are growing resource-adequacy concerns in the region, summer FOTs in Cases P-04, P-05, and P-10 are approximately 1.6 times higher than in Cases P-06, P-07, and P-12 and significantly higher than in Cases P-09, P-11, and P-13.
- Over the long term, the level of summer FOTs is relatively consistent among the cases—averaging 1,336 MW.

Winter Front Office Transactions

- Relative to the summer period, winter FOTs are much smaller among all cases and timeframes.
- Over the long term, winter FOTs are generally reduced as more flexible capacity is added to the system—the reduction in winter FOTs shown in Case P-05 coincides with the acceleration of battery storage capacity into 2028 in this portfolio.

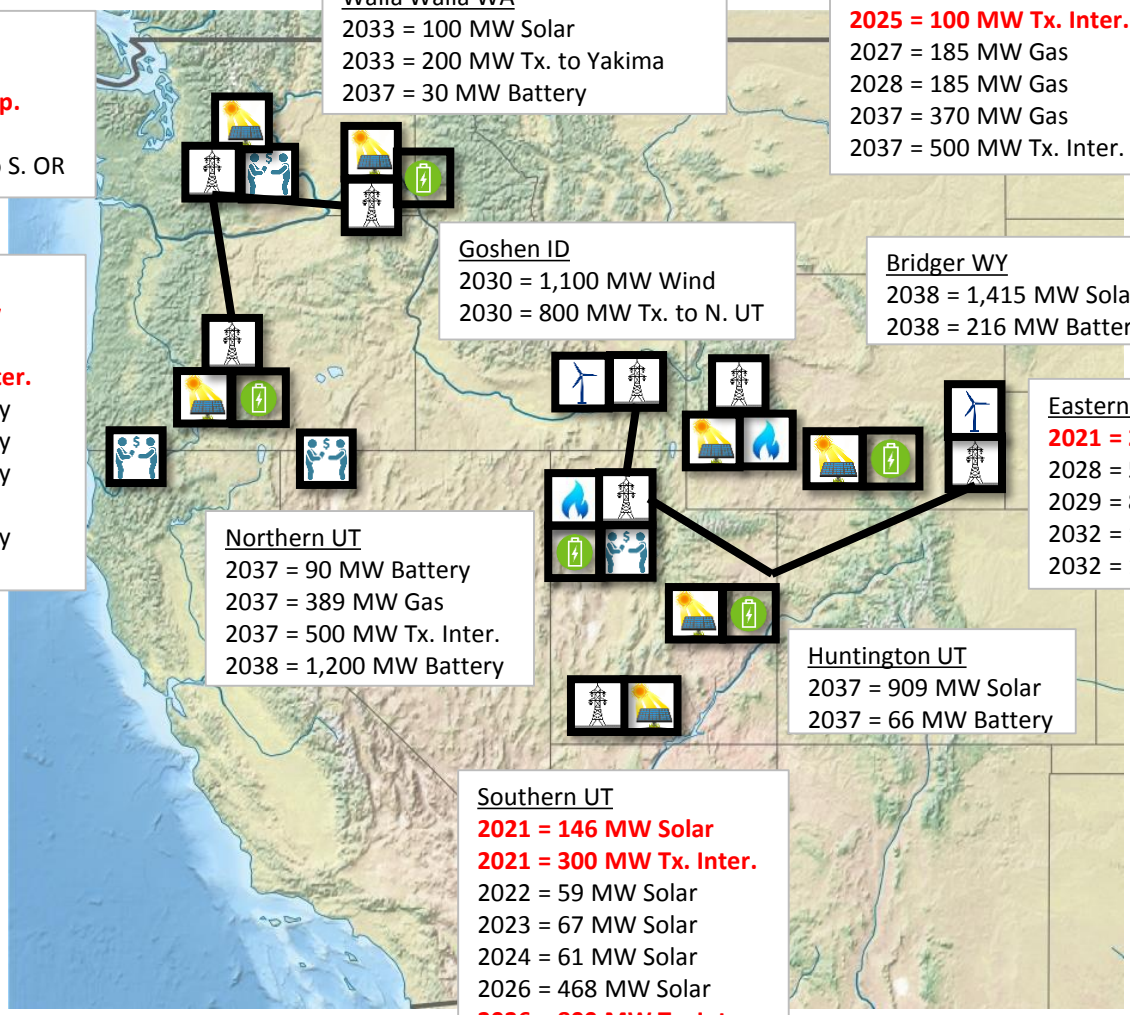
Nominal Initial Capital for New Generation and Transmission (2019-2038)



- These data represent total initial capital, based on resources and transmission upgrades in each case—total capital ranges between $17.7 billion (Cases P-03 and P-09) and $19.1 billion (Case P-10)—costs do not include capital for SCRs.
- These data do not necessarily represent the level of investment required by PacifiCorp—resources procured as a power-purchase agreement would require capital from third-party developers.
- These data are based on assumptions and modeled outcomes established for the 2019 IRP—the resource procurement process that follows this and future IRPs will establish the location, size, and level of investment associated with future generating resources and transmission upgrades.
- The cost of interstate transmission upgrades are not broken out by jurisdiction—these costs are included in the category "INT" in the chart legend—in each case this includes transmission projects that cross Wyoming, Colorado, and Utah and that cross Washington and Oregon.

Case P-01

(Coal Study Benchmark)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2033 = 100 MW Solar
2033 = 200 MW Tx. to Yakima
2037 = 30 MW Battery

Western WY/Naughton
2023 = 185 MW Gas
2025 = 65 MW Solar
2025 = 100 MW Tx. Inter.
2027 = 185 MW Gas
2028 = 185 MW Gas
2037 = 370 MW Gas
2037 = 500 MW Tx. Inter.

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

Bridger WY
2038 = 1,415 MW Solar
2038 = 216 MW Battery

Southern OR
2023 = 45 MW Battery
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 375 MW Battery
2030 = 180 MW Battery
2033 = 375 MW Battery
2035 = 30 MW Battery
2037 = 600 MW Battery
2038 = 15 MW Battery

Eastern WY
2021 = 240 MW Wind
2028 = 536 MW Wind
2029 = 84 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2037 = 90 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 1,200 MW Battery

Huntington UT
2037 = 909 MW Solar
2037 = 66 MW Battery

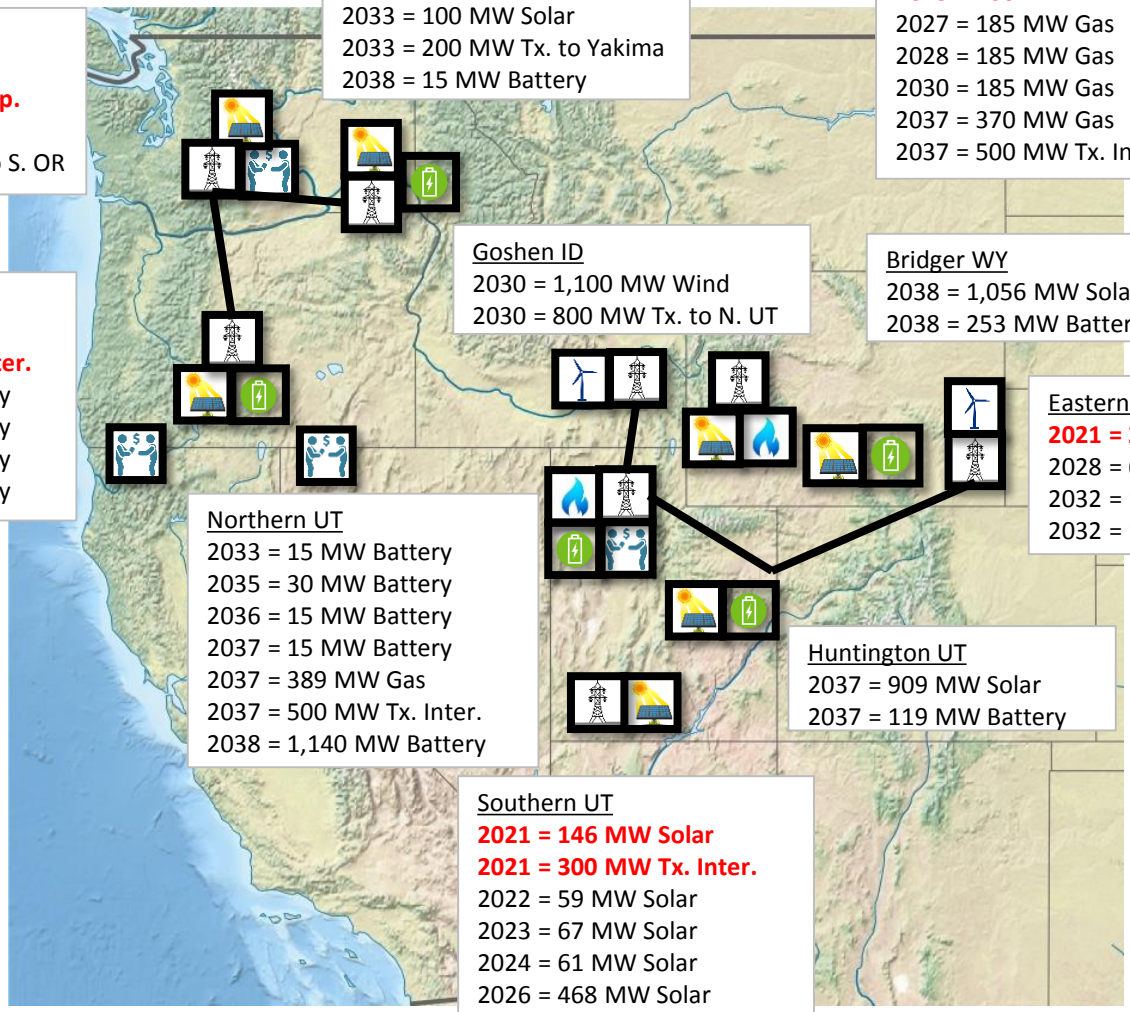
Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2025 = CG1 (82 MW)
2027 = DJ1-4 (755 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2034 = CG2 (82 MW)
2036 = HTG1-2 (909 MW)
2037 = JB1-4 (1,408 MW)

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 61 MW Solar
2026 = 468 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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

Case P-02

(Regional Haze Reference)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2033 = 100 MW Solar
2033 = 200 MW Tx. to Yakima
2038 = 15 MW Battery

Western WY/Naughton
2025 = 100 MW Solar
2025 = 100 MW Tx. Inter.
2027 = 185 MW Gas
2028 = 185 MW Gas
2030 = 185 MW Gas
2037 = 370 MW Gas
2037 = 500 MW Tx. Inter.

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

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

Southern OR
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 750 MW Battery
2031 = 180 MW Battery
2033 = 345 MW Battery
2037 = 375 MW Battery

Eastern WY
2021 = 240 MW Wind
2028 = 620 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2033 = 15 MW Battery
2035 = 30 MW Battery
2036 = 15 MW Battery
2037 = 15 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 1,140 MW Battery

Huntington UT
2037 = 909 MW Solar
2037 = 119 MW Battery

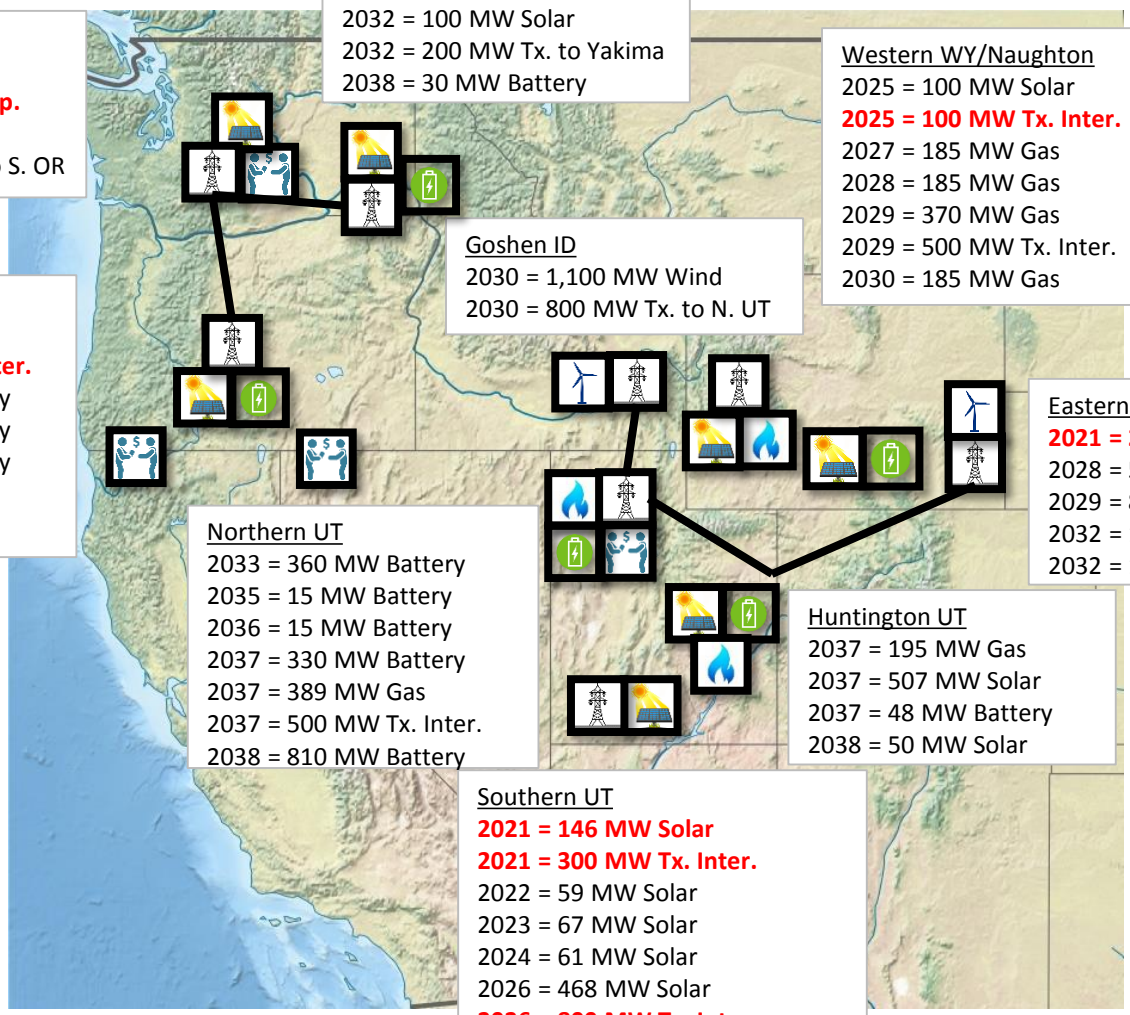
Coal Retirements
2019 = NT3 (280 MW)
2025 = CH4 (387 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2036 = HTG1-2 (909 MW)
2037 = JB1-4 (1,408 MW)

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 61 MW Solar
2026 = 468 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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

Case P-03

(Regional Haze Intertemporal)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

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

Western WY/Naughton
2025 = 100 MW Solar
2025 = 100 MW Tx. Inter.
2027 = 185 MW Gas
2028 = 185 MW Gas
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 185 MW Gas

Bridger WY
2029 = 354 MW Solar
2030 = 45 MW Solar
2031 = 16 MW Solar
2032 = 18 MW Solar
2033 = 55 MW Solar
2034 = 3 MW Solar
2037 = 147 MW Solar
2037 = 37 MW Battery
2038 = 45 MW Solar
2038 = 11 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

Southern OR
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 735 MW Battery
2031 = 195 MW Battery
2033 = 375 MW Battery
2037 = 75 MW Battery
2038 = 15 MW Battery

Eastern WY
2021 = 240 MW Wind
2028 = 536 MW Wind
2029 = 84 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2033 = 360 MW Battery
2035 = 15 MW Battery
2036 = 15 MW Battery
2037 = 330 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 810 MW Battery

Huntington UT
2037 = 195 MW Gas
2037 = 507 MW Solar
2037 = 48 MW Battery
2038 = 50 MW Solar

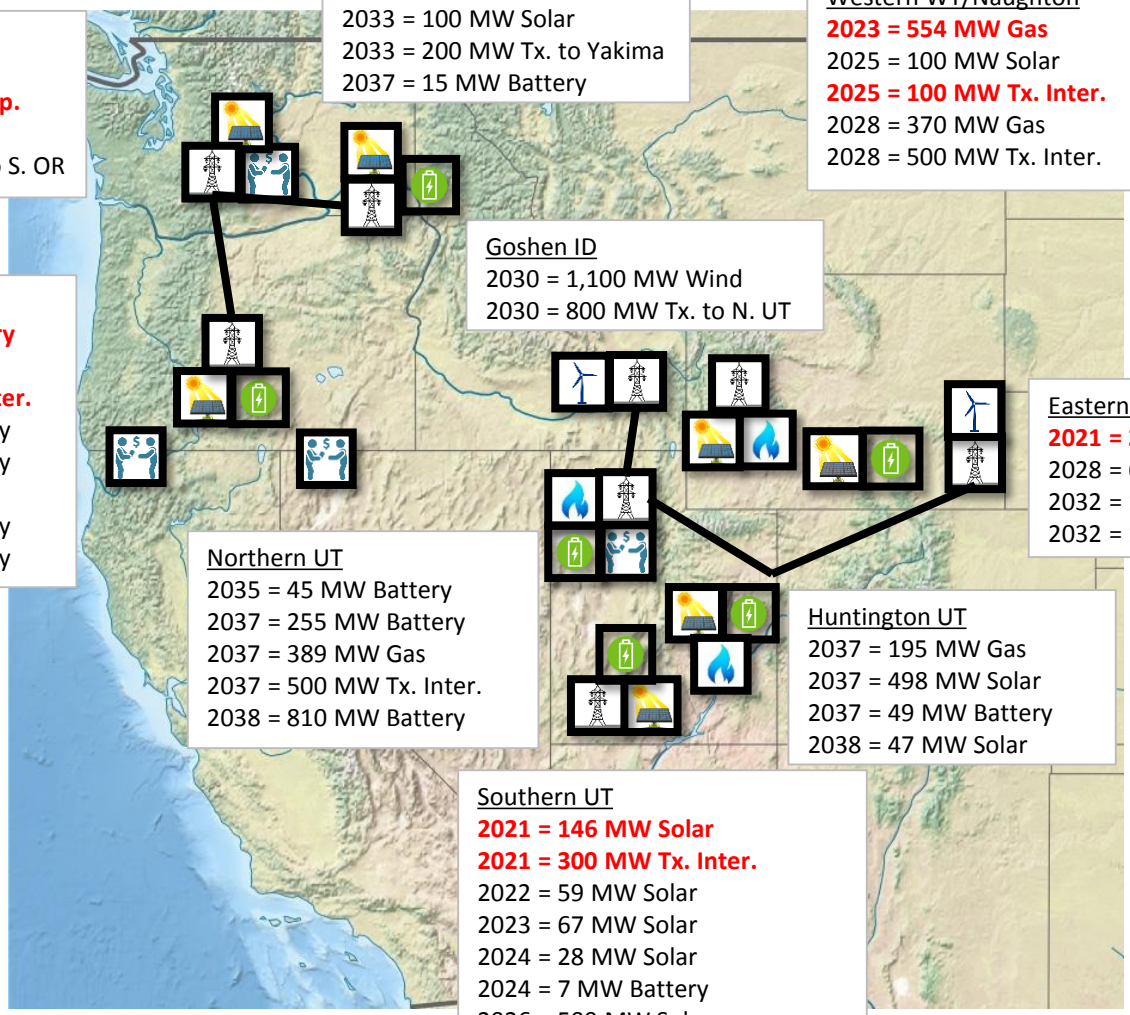
Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 61 MW Solar
2026 = 468 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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)

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

Case P-04

(Coal Study Stacked Case C-42)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2033 = 100 MW Solar
2033 = 200 MW Tx. to Yakima
2037 = 15 MW Battery

Western WY/Naughton
2023 = 554 MW Gas
2025 = 100 MW Solar
2025 = 100 MW Tx. Inter.
2028 = 370 MW Gas
2028 = 500 MW Tx. Inter.

Bridger WY
2024 = 65 MW Solar
2026 = 262 MW Solar
2027 = 38 MW Solar
2028 = 16 MW Solar
2029 = 22 MW Solar
2030 = 4 MW Solar
2031 = 17 MW Solar
2032 = 18 MW Solar
2033 = 27 MW Solar
2034 = 28 MW Solar
2037 = 161 MW Solar
2037 = 40 MW Battery
2038 = 45 MW Solar
2038 = 11 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

Southern OR
2023 = 645 MW Battery
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 105 MW Battery
2033 = 315 MW Battery
2035 = 60 MW Battery
2037 = 360 MW Battery
2038 = 660 MW Battery

Eastern WY
2021 = 240 MW Wind
2028 = 620 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2035 = 45 MW Battery
2037 = 255 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 810 MW Battery

Huntington UT
2037 = 195 MW Gas
2037 = 498 MW Solar
2037 = 49 MW Battery
2038 = 47 MW Solar

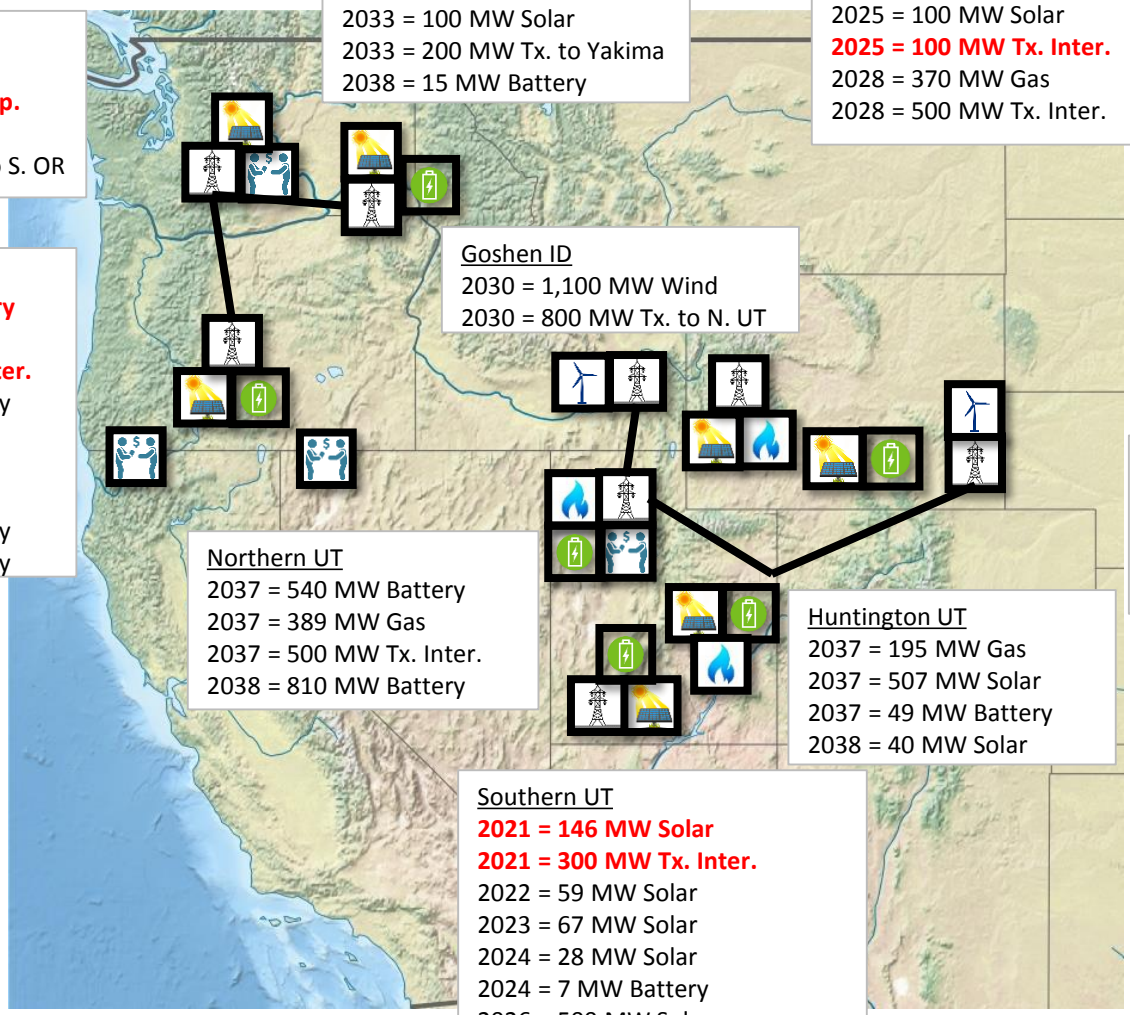
Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2024 = 7 MW Battery
2026 = 500 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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

Case P-05

(Economic Retirement Alternative 1)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2033 = 100 MW Solar
2033 = 200 MW Tx. to Yakima
2038 = 15 MW Battery

Western WY/Naughton
2023 = 554 MW Gas
2025 = 100 MW Solar
2025 = 100 MW Tx. Inter.
2028 = 370 MW Gas
2028 = 500 MW Tx. Inter.

Bridger WY
2024 = 229 MW Solar
2026 = 94 MW Solar
2027 = 43 MW Solar
2028 = 16 MW Solar
2029 = 22 MW Solar
2030 = 4 MW Solar
2031 = 17 MW Solar
2032 = 18 MW Solar
2033 = 52 MW Solar
2033 = 1 MW Battery
2034 = 9 MW Solar
2034 = 2 MW Battery
2037 = 145 MW Solar
2037 = 38 MW Battery
2038 = 38 MW Solar
2038 = 5 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

Southern OR
2023 = 810 MW Battery
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 135 MW Battery
2032 = 15 MW Battery
2033 = 45 MW Battery
2035 = 90 MW Battery
2037 = 405 MW Battery
2038 = 765 MW Battery

Eastern WY
2021 = 240 MW Wind
2028 = 620 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2037 = 540 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 810 MW Battery

Huntington UT
2037 = 195 MW Gas
2037 = 507 MW Solar
2037 = 49 MW Battery
2038 = 40 MW Solar

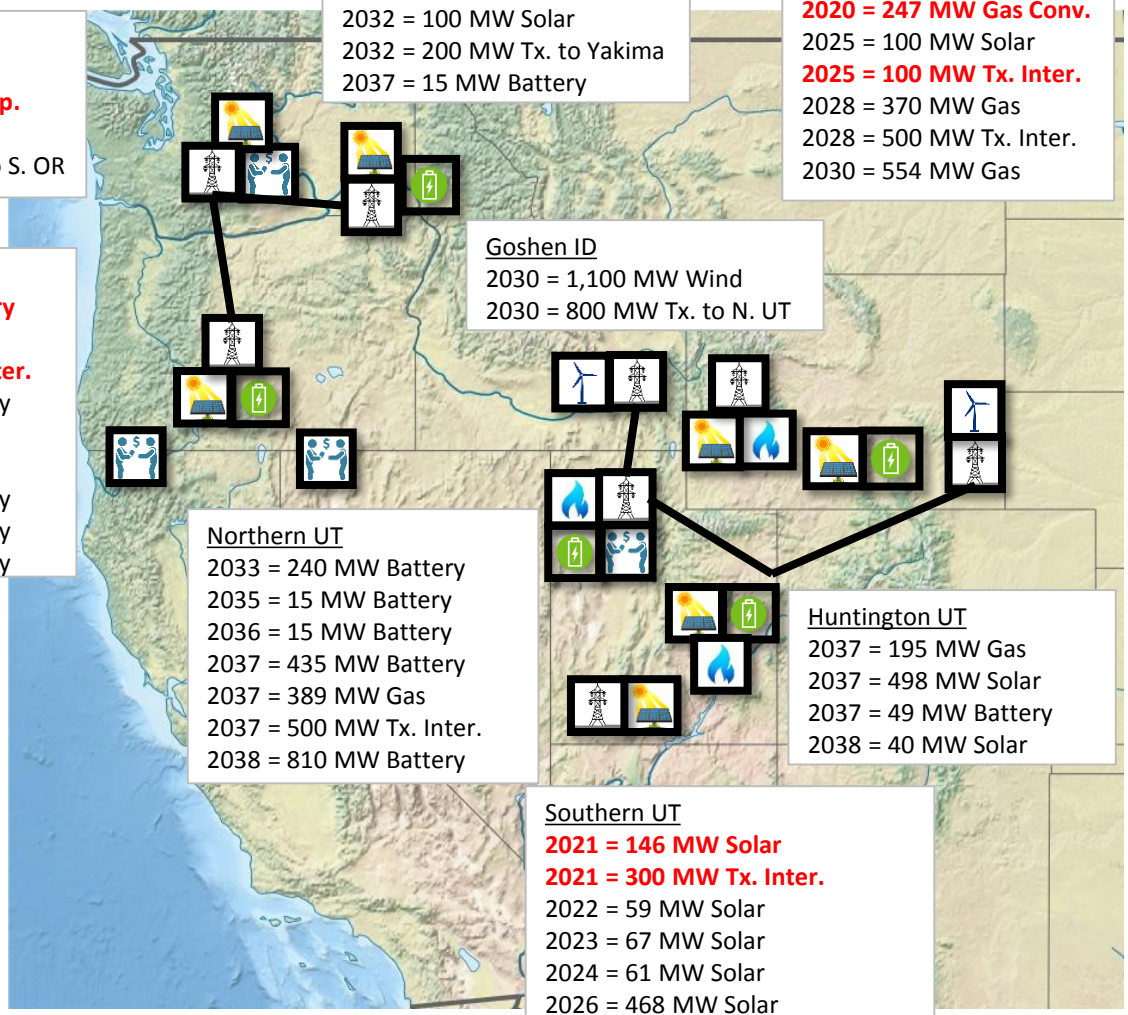
Coal/Early Gas Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2020 = GDB1-3 (238 MW)
2022 = NT1-2 (357 MW)
2022 = JB1-2 (706 MW)
2025 = CG1 (82 MW)
2027 = DJ1-4 (755 MW)
2030 = HY1-2 (77 MW)
2034 = CG2 (82 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2024 = 7 MW Battery
2026 = 500 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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

Case P-06

(Economic Retirement Alternative 2)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 15 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2025 = 100 MW Solar
2025 = 100 MW Tx. Inter.
2028 = 370 MW Gas
2028 = 500 MW Tx. Inter.
2030 = 554 MW Gas

Bridger WY
2029 = 354 MW Solar
2030 = 45 MW Solar
2031 = 54 MW Solar
2033 = 8 MW Solar
2034 = 28 MW Solar
2035 = 2 MW Solar
2037 = 125 MW Solar
2037 = 31 MW Battery
2038 = 58 MW Solar
2038 = 9 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

Southern OR
2023 = 540 MW Battery
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 360 MW Battery
2030 = 15 MW Battery
2031 = 30 MW Battery
2033 = 300 MW Battery
2037 = 225 MW Battery
2038 = 540 MW Battery

Eastern WY
2021 = 240 MW Wind
2028 = 536 MW Wind
2029 = 84 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2033 = 240 MW Battery
2035 = 15 MW Battery
2036 = 15 MW Battery
2037 = 435 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 810 MW Battery

Huntington UT
2037 = 195 MW Gas
2037 = 498 MW Solar
2037 = 49 MW Battery
2038 = 40 MW Solar

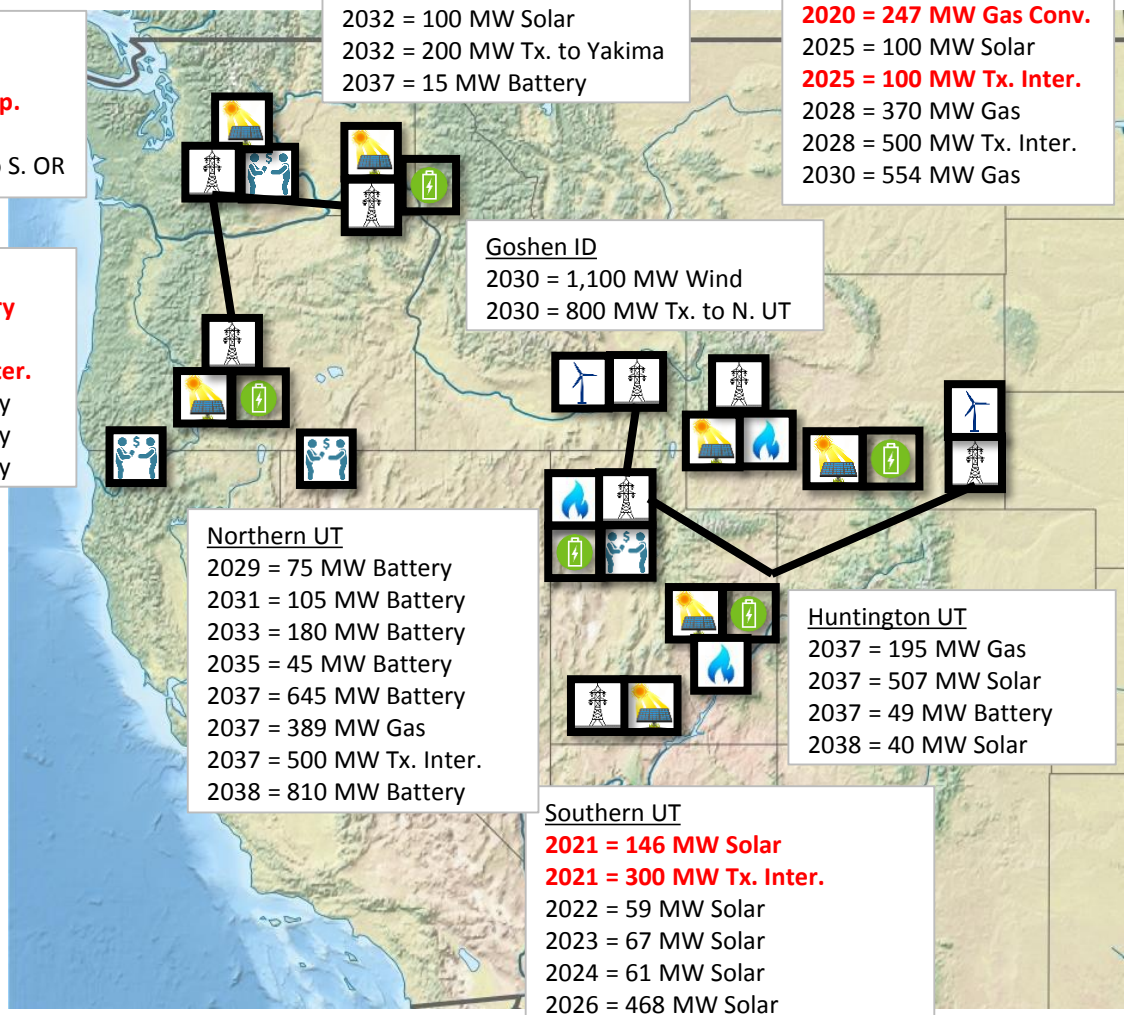
Coal/Early Gas Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2020 = GDB1-3 (238 MW)
2022 = JB1 (351 MW)
2025 = CG1-2 (164 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 61 MW Solar
2026 = 468 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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

Case P-07

(Economic Alternative Retirement 3)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 15 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2025 = 100 MW Solar
2025 = 100 MW Tx. Inter.
2028 = 370 MW Gas
2028 = 500 MW Tx. Inter.
2030 = 554 MW Gas

Bridger WY
2029 = 396 MW Solar
2030 = 3 MW Solar
2031 = 16 MW Solar
2032 = 18 MW Solar
2033 = 27 MW Solar
2034 = 28 MW Solar
2035 = 2 MW Solar
2037 = 137 MW Solar
2037 = 34 MW Battery
2038 = 48 MW Solar
2038 = 6 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

Southern OR
2023 = 540 MW Battery
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 465 MW Battery
2029 = 240 MW Battery
2038 = 480 MW Battery

Eastern WY
2021 = 240 MW Wind
2028 = 536 MW Wind
2029 = 84 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2029 = 75 MW Battery
2031 = 105 MW Battery
2033 = 180 MW Battery
2035 = 45 MW Battery
2037 = 645 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 810 MW Battery

Huntington UT
2037 = 195 MW Gas
2037 = 507 MW Solar
2037 = 49 MW Battery
2038 = 40 MW Solar

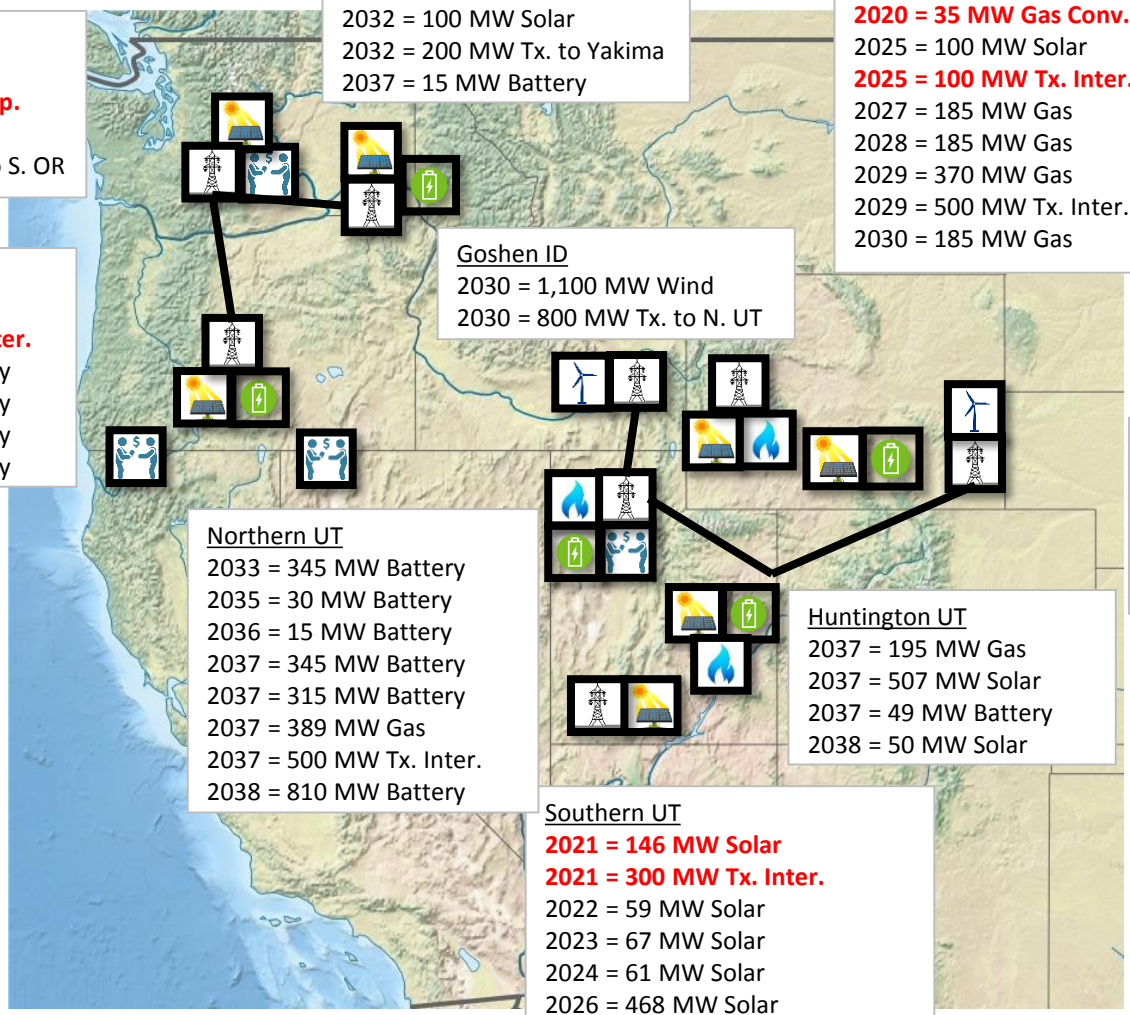
Coal/Early Gas Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2020 = GDB1-3 (238 MW)
2022 = JB1 (351 MW)
2025 = CG1-2 (164 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB2 (356 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 61 MW Solar
2026 = 468 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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

Case P-08

(Naughton 3 Small Gas Conversion)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 15 MW Battery

Western WY/Naughton
2020 = 35 MW Gas Conv.
2025 = 100 MW Solar
2025 = 100 MW Tx. Inter.
2027 = 185 MW Gas
2028 = 185 MW Gas
2029 = 370 MW Gas
2029 = 500 MW Tx. Inter.
2030 = 185 MW Gas

Bridger WY
2029 = 354 MW Solar
2030 = 45 MW Solar
2031 = 16 MW Solar
2032 = 18 MW Solar
2033 = 55 MW Solar
2034 = 3 MW Solar
2037 = 147 MW Solar
2037 = 37 MW Battery
2038 = 45 MW Solar
2038 = 11 MW Battery

Southern OR
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 720 MW Battery
2031 = 195 MW Battery
2033 = 405 MW Battery
2037 = 150 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

Eastern WY
2021 = 240 MW Wind
2028 = 536 MW Wind
2029 = 84 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2033 = 345 MW Battery
2035 = 30 MW Battery
2036 = 15 MW Battery
2037 = 345 MW Battery
2037 = 315 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 810 MW Battery

Huntington UT
2037 = 195 MW Gas
2037 = 507 MW Solar
2037 = 49 MW Battery
2038 = 50 MW Solar

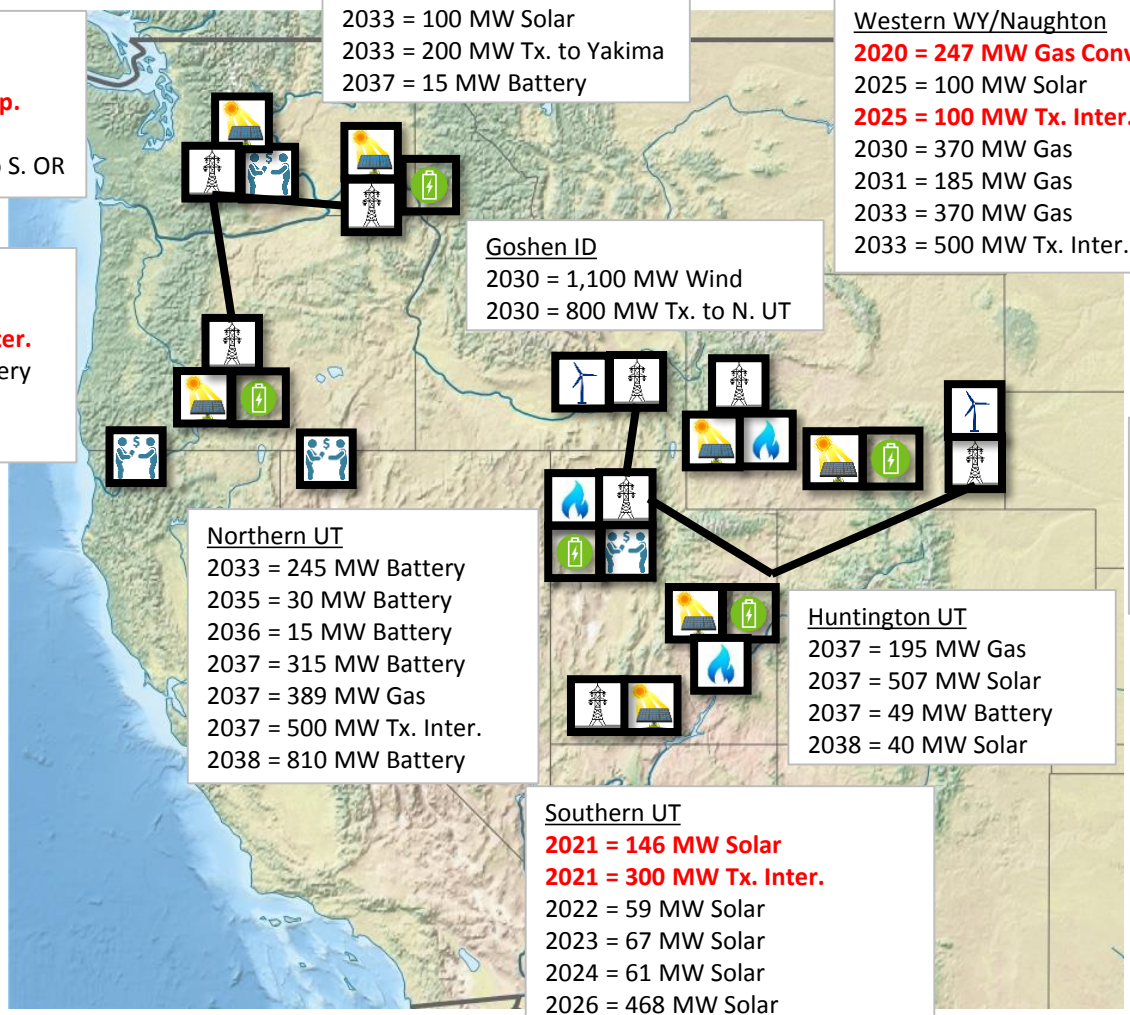
Coal Retirements
2019 = NT3 (280 MW)
2025 = CH4 (387 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 61 MW Solar
2026 = 468 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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

Case P-09

(Naughton 3 Large Gas Conversion)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2033 = 100 MW Solar
2033 = 200 MW Tx. to Yakima
2037 = 15 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2025 = 100 MW Solar
2025 = 100 MW Tx. Inter.
2030 = 370 MW Gas
2031 = 185 MW Gas
2033 = 370 MW Gas
2033 = 500 MW Tx. Inter.

Bridger WY
2029 = 354 MW Solar
2030 = 45 MW Solar
2031 = 16 MW Solar
2032 = 18 MW Solar
2033 = 45 MW Solar
2034 = 10 MW Solar
2037 = 139 MW Solar
2037 = 35 MW Battery
2038 = 46 MW Solar
2038 = 12 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

Southern OR
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 1,365 MW Battery
2033 = 45 MW Battery
2037 = 30 MW Battery

Eastern WY
2021 = 240 MW Wind
2028 = 372 MW Wind
2029 = 248 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2033 = 245 MW Battery
2035 = 30 MW Battery
2036 = 15 MW Battery
2037 = 315 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 810 MW Battery

Huntington UT
2037 = 195 MW Gas
2037 = 507 MW Solar
2037 = 49 MW Battery
2038 = 40 MW Solar

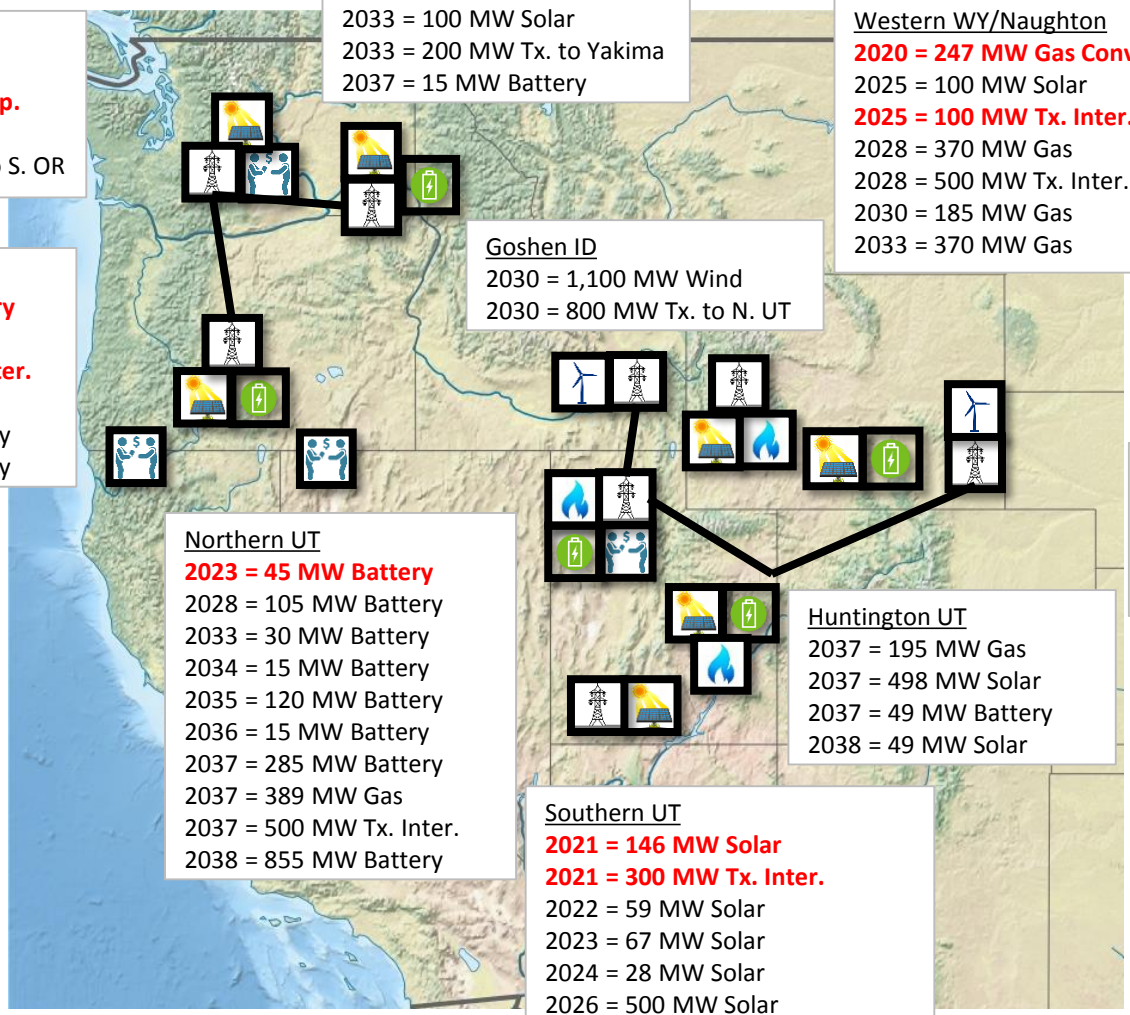
Coal Retirements
2019 = NT3 (280 MW)
2025 = CH4 (387 MW)
2025 = CG1 (82 MW)
2026 = CG2 (82 MW)
2027 = CS3-4 (148 MW)
2027 = DJ1-4 (755 MW)
2028 = JB1 (351 MW)
2029 = NT1-2 (357 MW)
2030 = HY1-2 (77 MW)
2032 = JB2 (356 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 61 MW Solar
2026 = 468 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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

Case P-10

(Economic Retirement Alternative 4)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2033 = 100 MW Solar
2033 = 200 MW Tx. to Yakima
2037 = 15 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2025 = 100 MW Solar
2025 = 100 MW Tx. Inter.
2028 = 370 MW Gas
2028 = 500 MW Tx. Inter.
2030 = 185 MW Gas
2033 = 370 MW Gas

Bridger WY
2024 = 35 MW Solar
2026 = 141 MW Solar
2027 = 190 MW Solar
2028 = 16 MW Solar
2029 = 22 MW Solar
2030 = 4 MW Solar
2031 = 17 MW Solar
2032 = 18 MW Solar
2033 = 27 MW Solar
2034 = 32 MW Solar
2034 = 1 MW Battery
2037 = 139 MW Solar
2037 = 35 MW Battery
2038 = 46 MW Solar
2038 = 11 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

Southern OR
2023 = 990 MW Battery
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 75 MW Battery
2037 = 345 MW Battery
2038 = 990 MW Battery

Eastern WY
2021 = 240 MW Wind
2028 = 620MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2023 = 45 MW Battery
2028 = 105 MW Battery
2033 = 30 MW Battery
2034 = 15 MW Battery
2035 = 120 MW Battery
2036 = 15 MW Battery
2037 = 285 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 855 MW Battery

Huntington UT
2037 = 195 MW Gas
2037 = 498 MW Solar
2037 = 49 MW Battery
2038 = 49 MW Solar

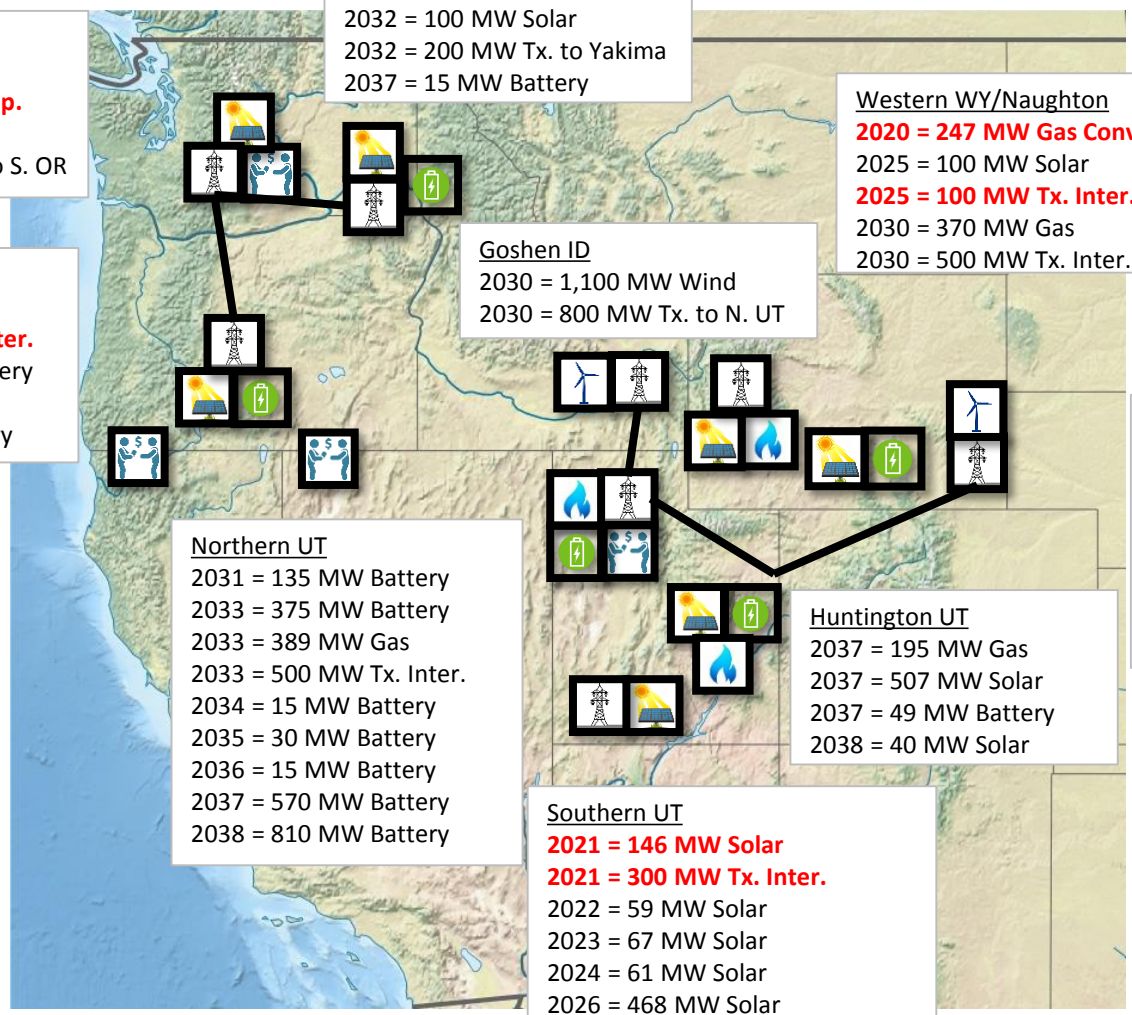
Coal Retirements
2019 = NT3 (280 MW)
2020 = CH4 (387 MW)
2022 = JB1-2 (706 MW)
2022 = NT1-2 (357 MW)
2025 = CG1 (82 MW)
2027 = DJ1-4 (755 MW)
2030 = HY1-2 (77 MW)
2034 = CG2 (82 MW)
2036 = HTG1-2 (909 MW)
2037 = JB3-4 (702 MW)

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 28 MW Solar
2026 = 500 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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

Case P-11

(Cholla 4 Early Retirement)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 15 MW Battery

Bridger WY
2029 = 354 MW Solar
2030 = 45 MW Solar
2031 = 16 MW Solar
2032 = 18 MW Solar
2033 = 52 MW Solar
2033 = 2 MW Battery
2034 = 9 MW Solar
2034 = 2 MW Battery
2037 = 130 MW Solar
2037 = 33 MW Battery
2038 = 50 MW Solar
2038 = 11 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2025 = 100 MW Solar
2025 = 100 MW Tx. Inter.
2030 = 370 MW Gas
2030 = 500 MW Tx. Inter.

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

Southern OR
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 1,230 MW Battery
2031 = 15 MW Battery
2037 = 405 MW Battery

Eastern WY
2021 = 240 MW Wind
2027 = 33 MW Wind
2028 = 33 MW Wind
2029 = 33 MW Wind
2030 = 521 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2031 = 135 MW Battery
2033 = 375 MW Battery
2033 = 389 MW Gas
2033 = 500 MW Tx. Inter.
2034 = 15 MW Battery
2035 = 30 MW Battery
2036 = 15 MW Battery
2037 = 570 MW Battery
2038 = 810 MW Battery

Huntington UT
2037 = 195 MW Gas
2037 = 507 MW Solar
2037 = 49 MW Battery
2038 = 40 MW Solar

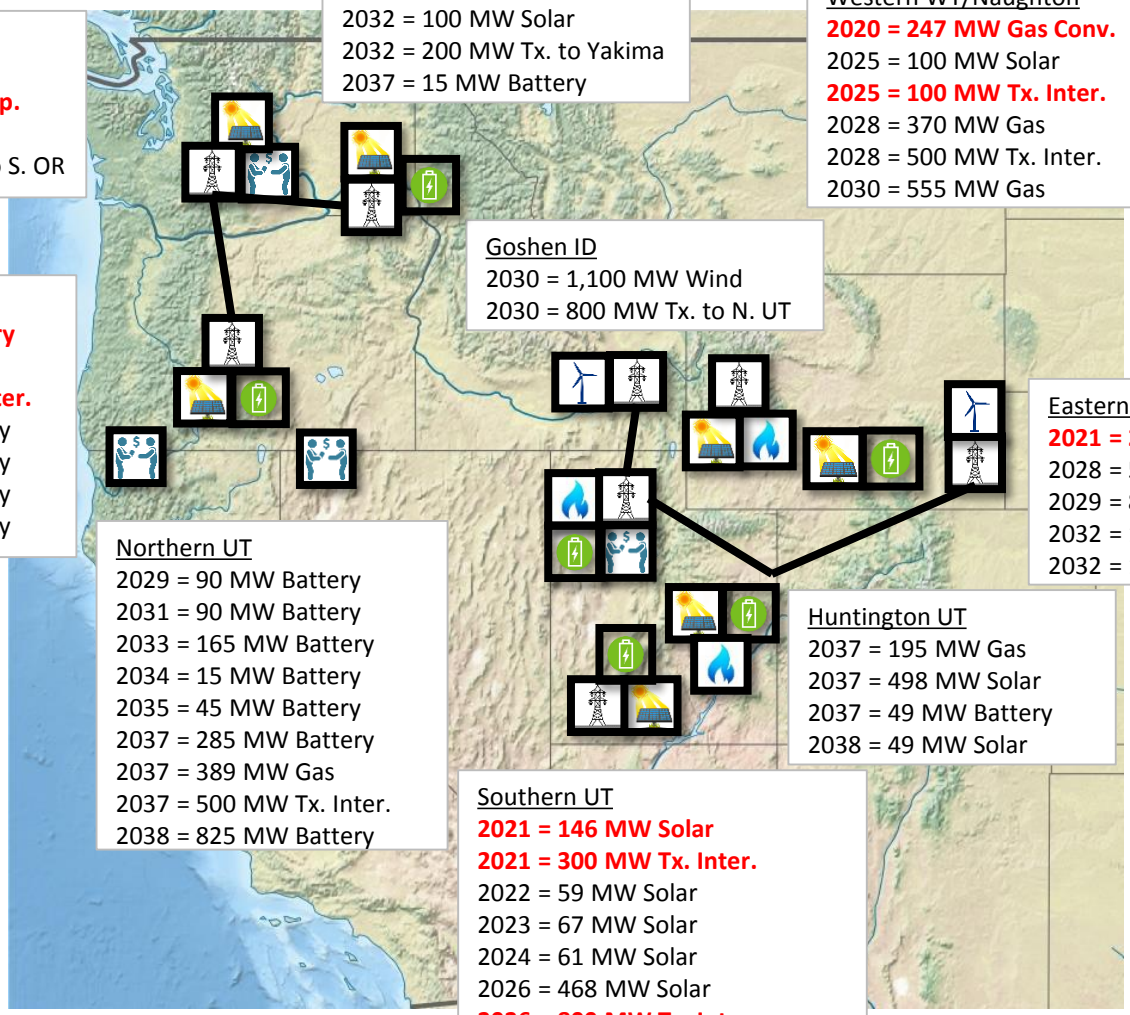
Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 61 MW Solar
2026 = 468 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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)

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

Case P-12

(Economic Retirement Alternative 5)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 15 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2025 = 100 MW Solar
2025 = 100 MW Tx. Inter.
2028 = 370 MW Gas
2028 = 500 MW Tx. Inter.
2030 = 555 MW Gas

Bridger WY
2029 = 380 MW Solar
2030 = 20 MW Solar
2031 = 16 MW Solar
2032 = 18 MW Solar
2033 = 51 MW Solar
2033 = 2 MW Battery
2034 = 9 MW Solar
2034 = 2 MW Battery
2037 = 140 MW Solar
2037 = 35 MW Battery
2038 = 40 MW Solar
2038 = 10 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

Southern OR
2023 = 180 MW Battery
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 840 MW Battery
2029 = 225 MW Battery
2037 = 255 MW Battery
2038 = 165 MW Battery

Eastern WY
2021 = 240 MW Wind
2028 = 536 MW Wind
2029 = 84 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2029 = 90 MW Battery
2031 = 90 MW Battery
2033 = 165 MW Battery
2034 = 15 MW Battery
2035 = 45 MW Battery
2037 = 285 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 825 MW Battery

Huntington UT
2037 = 195 MW Gas
2037 = 498 MW Solar
2037 = 49 MW Battery
2038 = 49 MW Solar

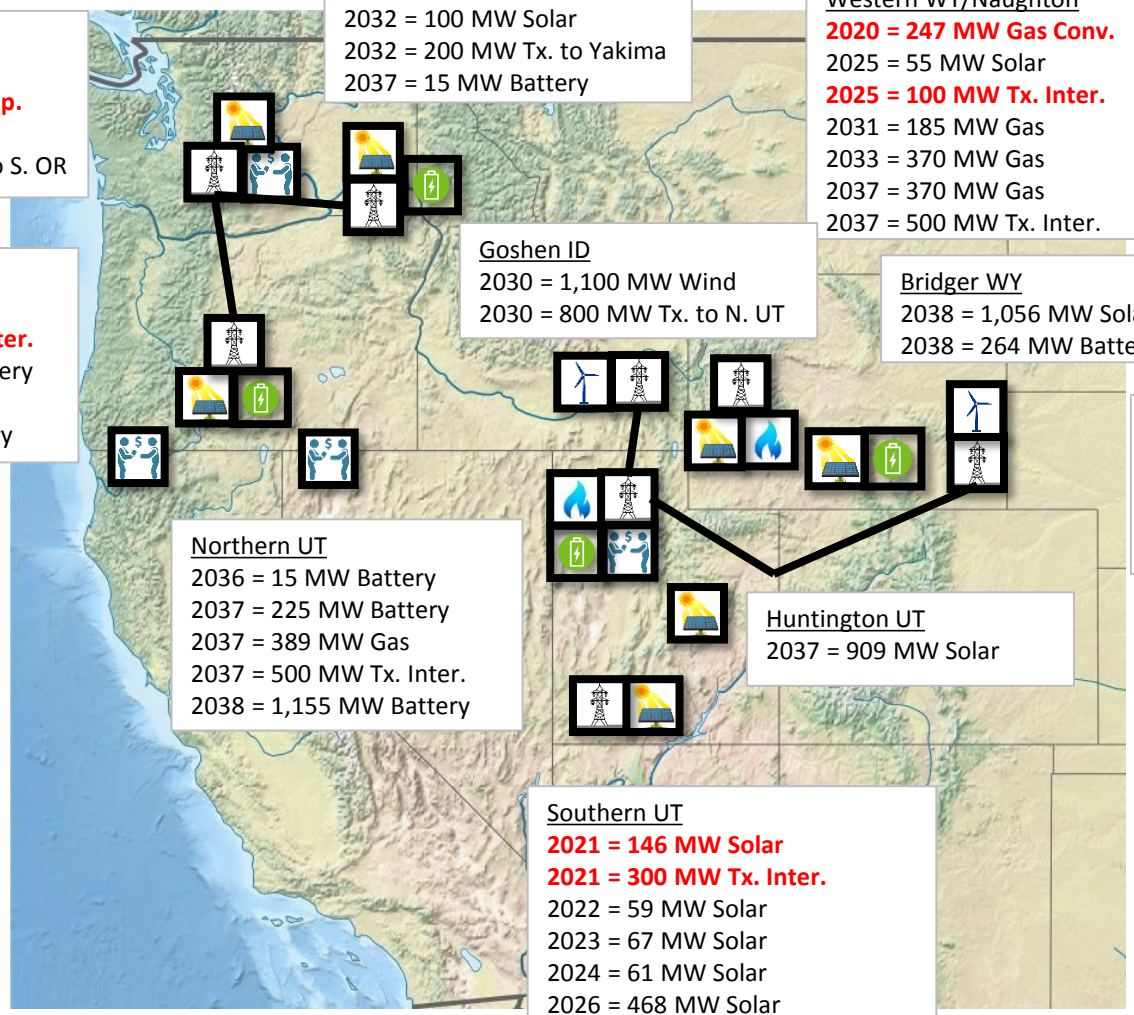
Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 61 MW Solar
2026 = 468 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

Coal Retirements
2019 = NT3 (280 MW)
2020 = GDB1-3 (238 MW)
2022 = JB1 (351 MW)
2020 = 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)

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

Case P-13

(Bridger 1-2 SCRs)



Yakima WA
2025 = 405 MW Solar
2025 = 405 MW Tx. Up.
2037 = 430 MW Solar
2037 = 450 MW Tx. to S. OR

Walla Walla WA
2032 = 100 MW Solar
2032 = 200 MW Tx. to Yakima
2037 = 15 MW Battery

Western WY/Naughton
2020 = 247 MW Gas Conv.
2025 = 55 MW Solar
2025 = 100 MW Tx. Inter.
2031 = 185 MW Gas
2033 = 370 MW Gas
2037 = 370 MW Gas
2037 = 500 MW Tx. Inter.

Southern OR
2025 = 975 MW Solar
2025 = 975 MW Tx. Inter.
2028 = 1,260 MW Battery
2033 = 15 MW Battery
2037 = 375 MW Battery

Goshen ID
2030 = 1,100 MW Wind
2030 = 800 MW Tx. to N. UT

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

Eastern WY
2021 = 240 MW Wind
2028 = 620 MW Wind
2032 = 1,850 MW Wind
2032 = 1,500 MW Tx. to N. UT

Northern UT
2036 = 15 MW Battery
2037 = 225 MW Battery
2037 = 389 MW Gas
2037 = 500 MW Tx. Inter.
2038 = 1,155 MW Battery

Huntington UT
2037 = 909 MW Solar

Southern UT
2021 = 146 MW Solar
2021 = 300 MW Tx. Inter.
2022 = 59 MW Solar
2023 = 67 MW Solar
2024 = 61 MW Solar
2026 = 468 MW Solar
2026 = 800 MW Tx. Inter.
2036 = 400 MW Solar

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

Portfolio Cost and Risk Metrics

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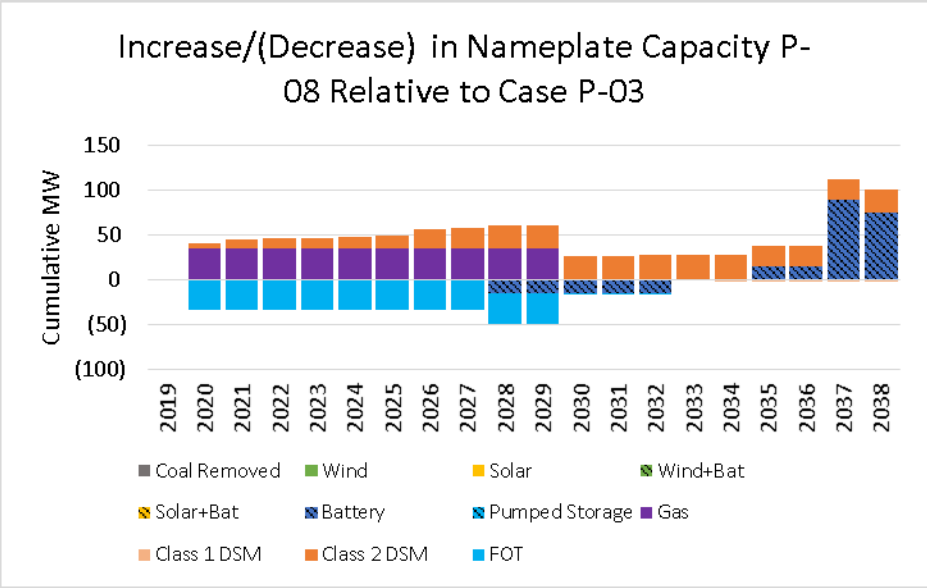
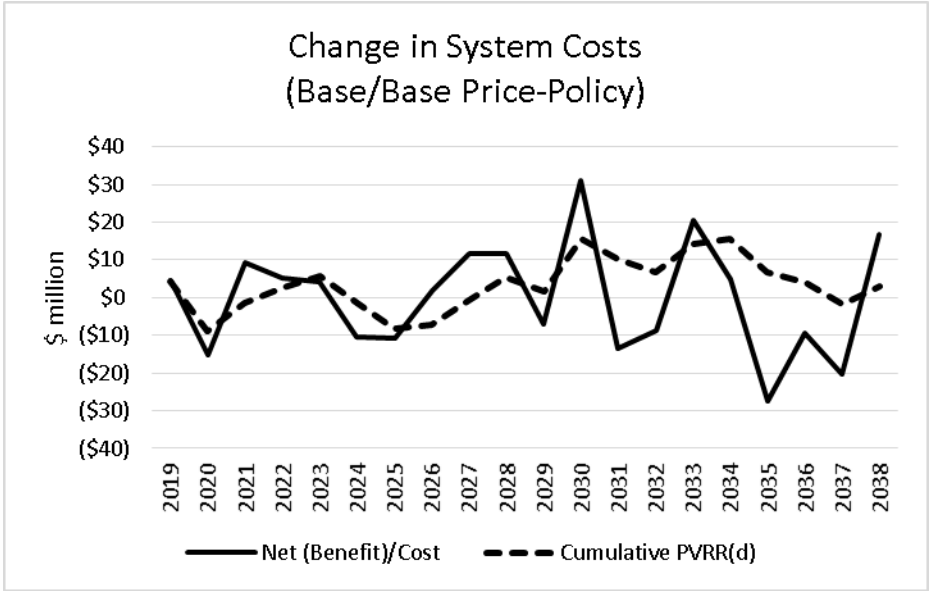
Portfolio Cost and Risk Summary

Case	Stochastic Mean			Risk Adjusted			ENS Scenario Average			CO_2 Emissions		
	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	PVRR ($m)	Change from Lowest Cost Portfolio ($m)	Rank	Average Annual ENS, 2019-2038 (GWh)	Change from Lowest ENS Portfolio	Rank	Total CO2 Emissions, 2019-2038 (Thousand Tons)	Change from Lowest Emission Portfolio	Rank
P01	23,973	435	12	25,180	455	12	4.0	0.2	3	655,382	38,287	13
P02	24,888	1,349	13	26,141	1,416	13	5.1	1.2	10	639,894	22,799	12
P03	23,806	268	7	25,006	281	7	4.5	0.7	8	631,667	14,572	10
P04	23,841	303	9	25,046	321	9	5.8	2.0	11	625,179	8,084	6
P05	23,926	388	10	25,136	411	10	6.3	2.5	13	621,454	4,360	4
P06	23,657	118	4	24,852	128	4	4.1	0.2	4	623,133	6,038	5
P07	23,644	105	2	24,838	114	2	3.8	0.0	1	617,095	0	1
P08	23,809	271	8	25,012	288	8	5.0	1.1	9	631,146	14,051	9
P09	23,671	133	5	24,867	143	5	4.3	0.5	7	628,283	11,188	8
P10	23,799	260	6	25,001	276	6	3.8	0.0	2	618,743	1,648	3
P11	23,539	0	1	24,725	0	1	5.8	2.0	12	626,540	9,446	7
P12	23,655	117	3	24,851	126	3	4.3	0.5	6	618,641	1,547	2
P13	23,936	397	11	25,141	417	11	4.1	0.3	5	639,245	22,150	11

Naughton 3 Small Gas Conversion (Regional Haze Intertemporal)

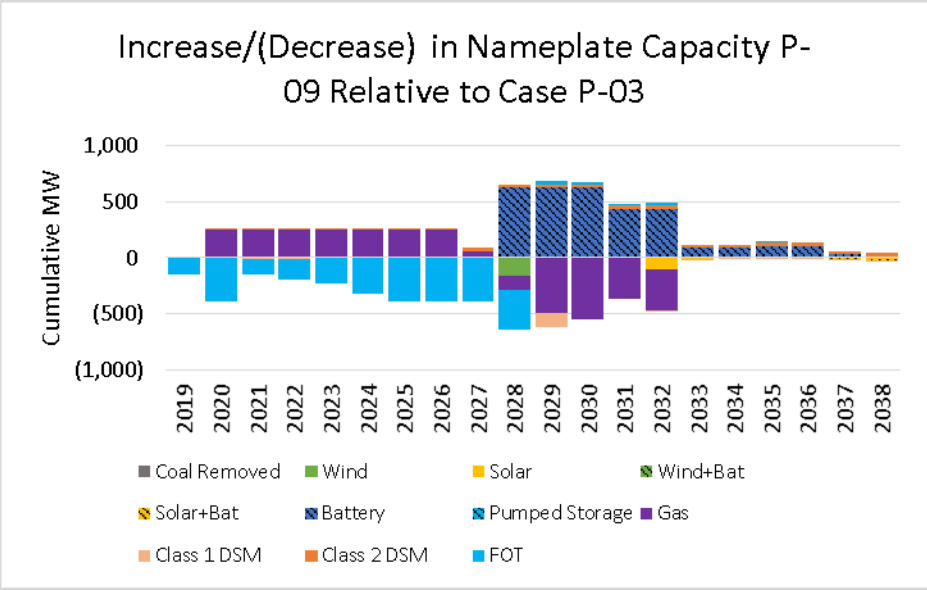


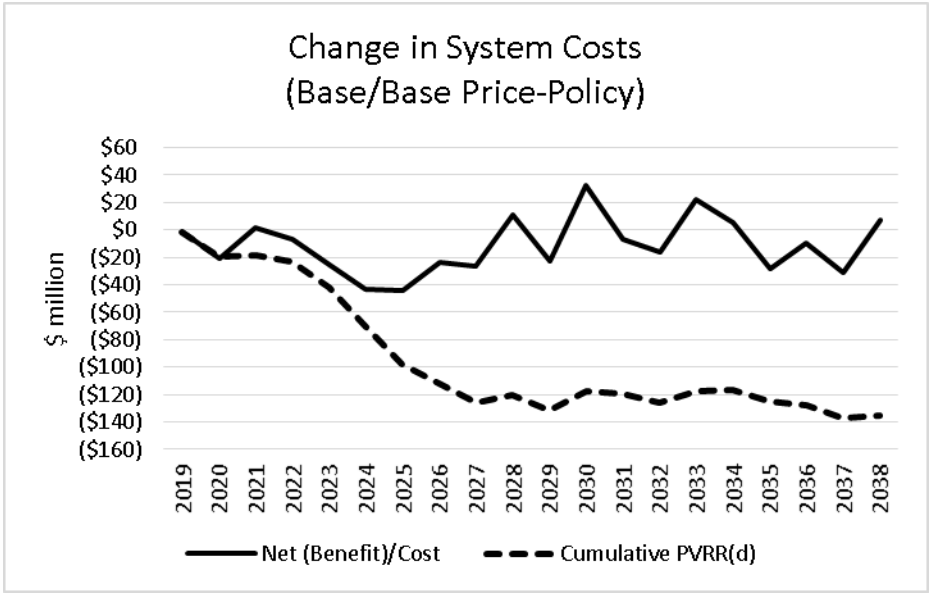


$ million	PaR Stochastic Mean		
	P-08 Naughton 3 Small Gas Conv	P-03 Regional Haze Intertemporal	Cost/(Benefit) of Naughton 3 Small Gas Conversion PVRR(d)
Present Value Revenue Requirement (PVRR)	$23,809	$23,806	$3

- This comparison shows the change in portfolio resources and system costs by year when isolating a Naughton 3 small gas conversion relative to early retirement (P-08 vs. P-03) using Regional Haze Intertemporal assumptions as a baseline.

Naughton 3 Large Gas Conversion (Regional Haze Intertemporal)

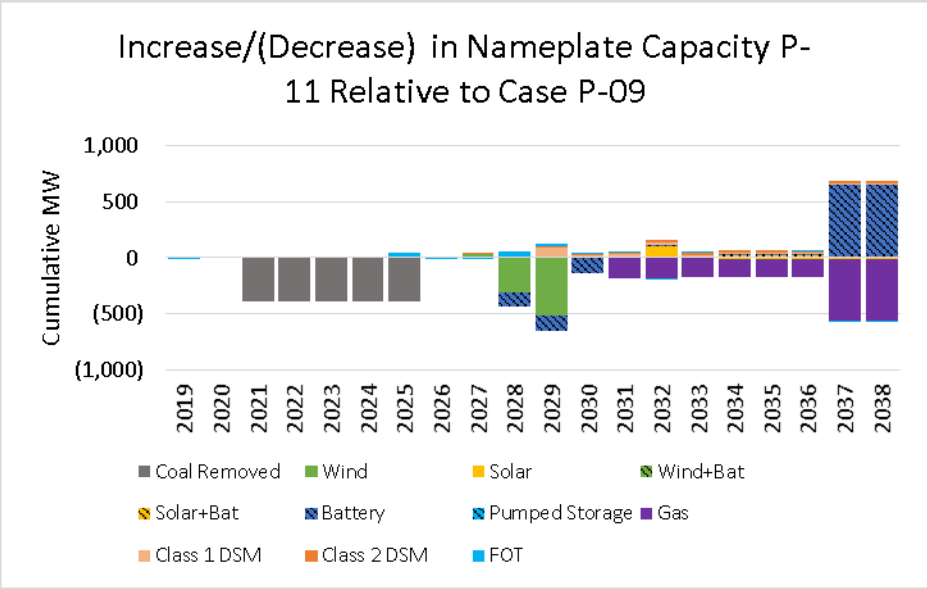


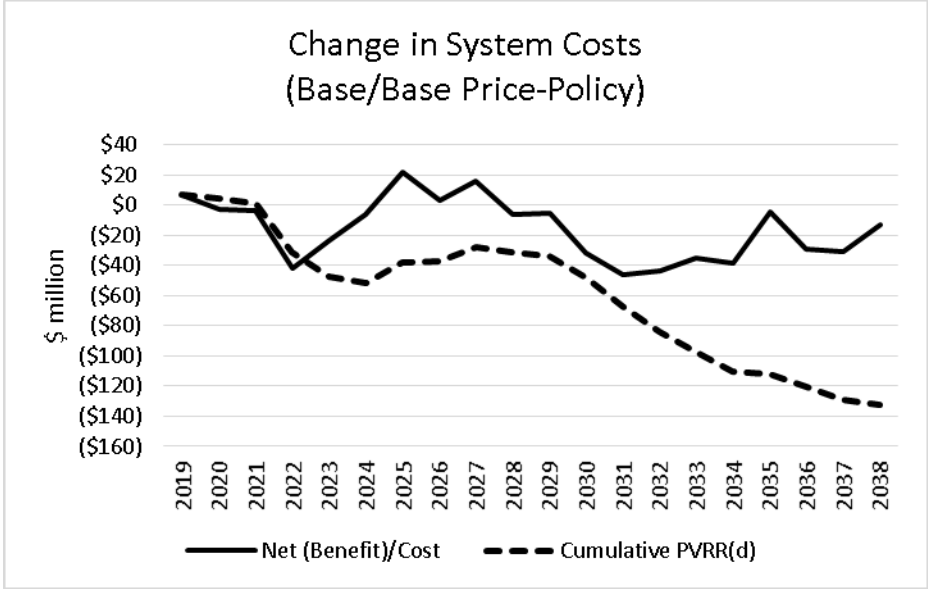


$ million	PaR Stochastic Mean		
	P-09 Naughton 3 Large Gas Conv	P-03 Regional Haze Intertemporal	Cost/(Benefit) of Naughton 3 Large Gas Conversion PVRR(d)
Present Value Revenue Requirement (PVRR)	$23,671	$23,806	($135)

- This comparison shows the change in portfolio resources and system costs by year when isolating a Naughton 3 large gas conversion relative to retirement (P-09 vs. P-03) using Intertemporal Regional Haze assumptions as a baseline.

Cholla 4 Early Retirement (Regional Haze Intertemporal)

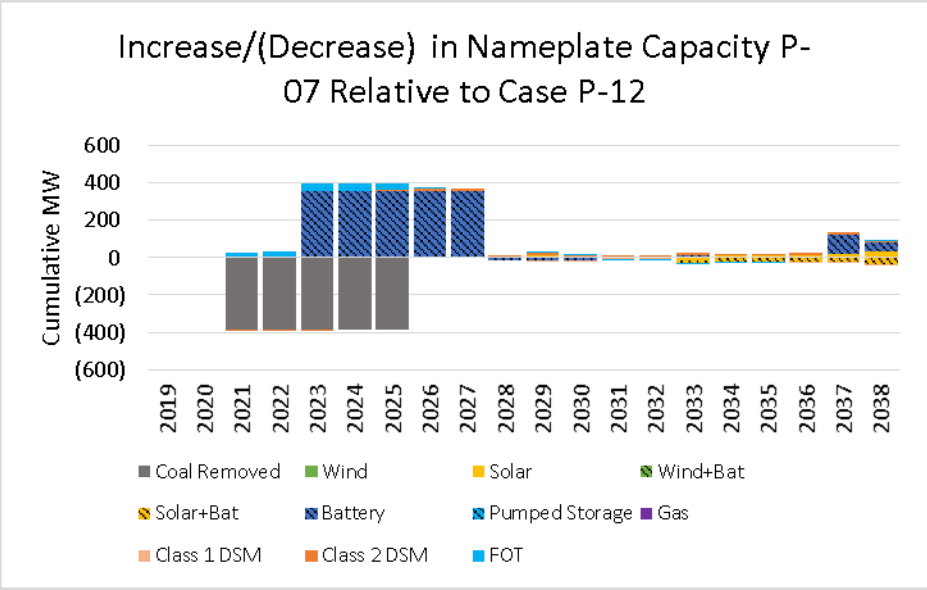


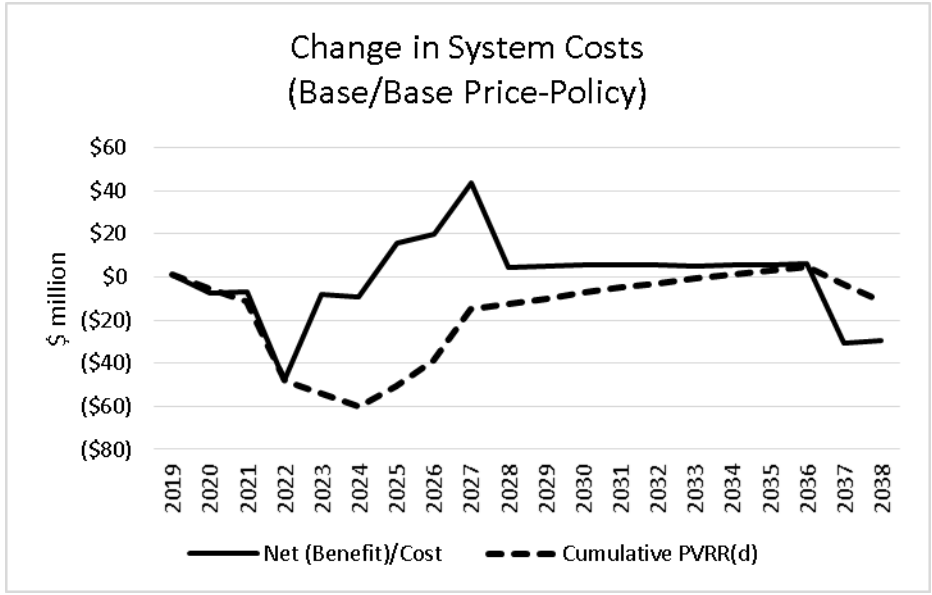


$ million	PaR Stochastic Mean		
	P-11 Reg. Haze Intertemporal with NT3 GC and CH4 RET 2020	P-09 Reg. Haze Intertemporal with NT3 GC and CH4 RET 2025	Cost/(Benefit) of Cholla 4 2020 Retirement PVRR(d)
Present Value Revenue Requirement (PVRR)	$23,539	$23,671	($133)

- This comparison shows the change in portfolio resources and system costs by year assuming an early retirement of Cholla in 2020 relative to retirement in 2025 (P-11 vs. P-09) using Intertemporal Regional Haze assumptions with a large conversion of Naughton 3 as a baseline.

Cholla 4 Early Retirement (Economic Retirement Alternative)

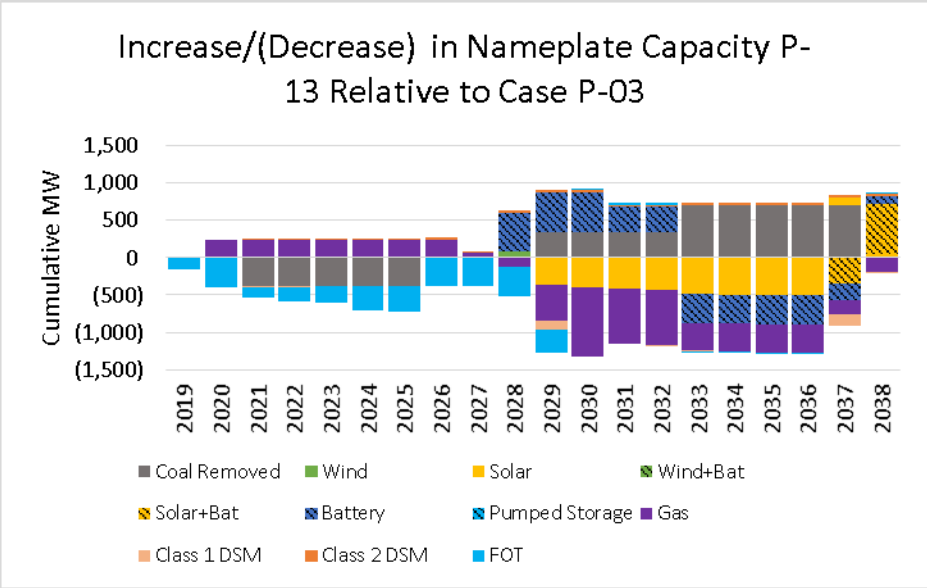


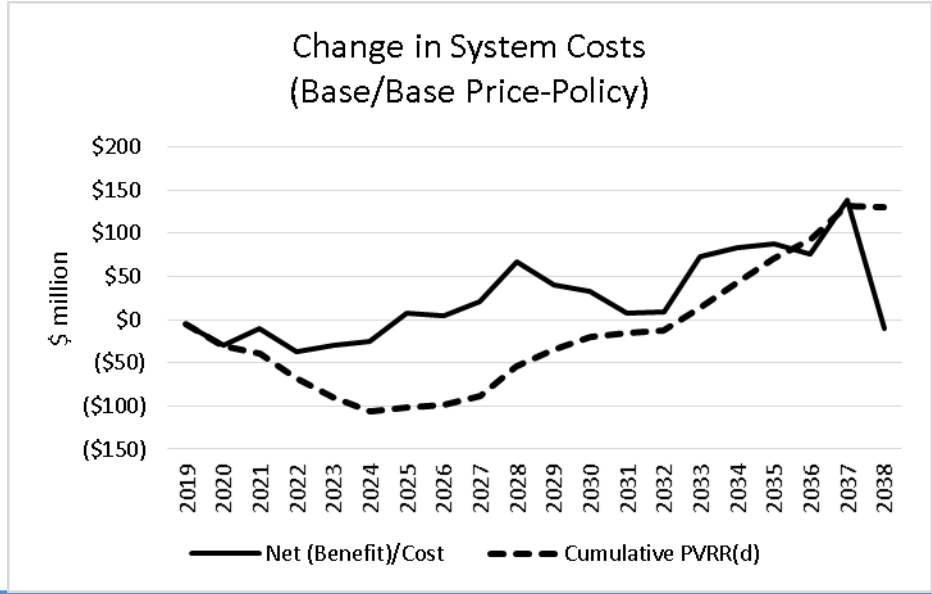


$ million	PaR Stochastic Mean		
	P-07 (Alternative Economic Retirement CH4 RET 2020)	P-12 (Alternative Economic Retirement CH4 RET 2025)	Cost/(Benefit) of Cholla 4 2020 Retirement PVRR(d)
Present Value Revenue Requirement (PVRR)	$23,644	$23,655	($12)

- This comparison shows the change in portfolio resources and system costs by year assuming an early retirement of Cholla 4 in 2020 relative to retirement in 2025 (P-07 vs. P-12) using alternative economic retirement assumptions as a baseline.
- Benefits of the 2020 retirement are lower when other coal retirements are accelerated relative to the Intertemporal Regional Haze set of assumptions.

Jim Bridger 1 and 2 SCR (Economic Retirement Alternative)





$ million	PaR Stochastic Mean		
	P-13 Bridger 1&2 SCRs	P-03 Regional Haze Intertemporal	Cost/(Benefit) of Bridger SCRs PVRR(d)
Present Value Revenue Requirement (PVRR)	$23,936	$23,806	$130

- This comparison shows the change in portfolio resources and system costs by year when assuming installation of SCRs on Bridger 1-2 relative to early retirement without SCRs (P-13 vs. P-03) using Intertemporal Regional Haze assumptions as a baseline.

Sensitivity Cases (June 2019)

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Sensitivity Cases

	S-01	S-02	S-03	S-04	S-05	S-06
Long Name	Low Load	High Load	1 in 20 Load	Low Private Generation	High Private Generation	Business Plan
Market	Base	Base	Base	Base	Base	Base
CO2	Base	Base	Base	Base	Base	Base
Load	Low	High	1 in 20	Base	1 in 20	1 in 20
Private Generation	Base	Base	Base	Low	High	High
Resources	Optimized	Optimized	Optimized	Optimized	Optimized	Align 1st Three Years
Control Area	System	System	System	System	System	System
Customer Preference	Base	Base	Base	Base	Base	Base
QF Capacity	Base	Base	Base	Base	Base	Base
FOT	Base	Base	Base	Base	Base	Base
Transmission	P-22 to P-26	P-22 to P-26	P-22 to P-26	P-22 to P-26	P-22 to P-26	P-22 to P-26
Energy Efficiency	P-22 to P-26 or P-27	P-22 to P-26 or P-27	P-22 to P-26 or P-27	P-22 to P-26 or P-27	P-22 to P-26 or P-27	P-22 to P-26 or P-27
Allow New Gas	Yes	Yes	Yes	Yes	Yes	Yes
Coal/Gas Retirements and Regional Haze SCR Obligations	Adopt assumptions from the case among cases P-01 through P-15 or P-28 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 or P-28 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 or P-28 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 or P-28 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 or P-28 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 or P-28 having the lowest PVRR.

Sensitivity Cases

	S-07	S-08	S-09	S-XX
Long Name	West Control Area	No Customer Preference	High Customer Preference	TBD
Market	Base	Base	Base	TBD
CO2	Base	Base	Base	TBD
Load	Base	Base	Base	TBD
Private Generation	Base	Base	Base	TBD
Resources	Base	Base	Base	TBD
Control Area	WCA	System	System	TBD
Customer Preference	Base	None	High	TBD
QF Capacity	Base	Base	Base	TBD
FOT	Base	Base	Base	TBD
Transmission	P-22 to P-26	P-22 to P-26	P-22 to P-26	TBD
Energy Efficiency	P-22 to P-26 or P-27	P-22 to P-26 or P-27	P-22 to P-26 or P-27	TBD
Allow New Gas	Yes	Yes	Yes	TBD
Coal/Gas Retirements and Regional Haze SCR Obligations	Adopt assumptions from the case among cases P-01 through P-15 or P-28 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 or P-28 having the lowest PVRR.	Adopt assumptions from the case among cases P-01 through P-15 or P-28 having the lowest PVRR.	TBD

Stakeholder Feedback Form Recap




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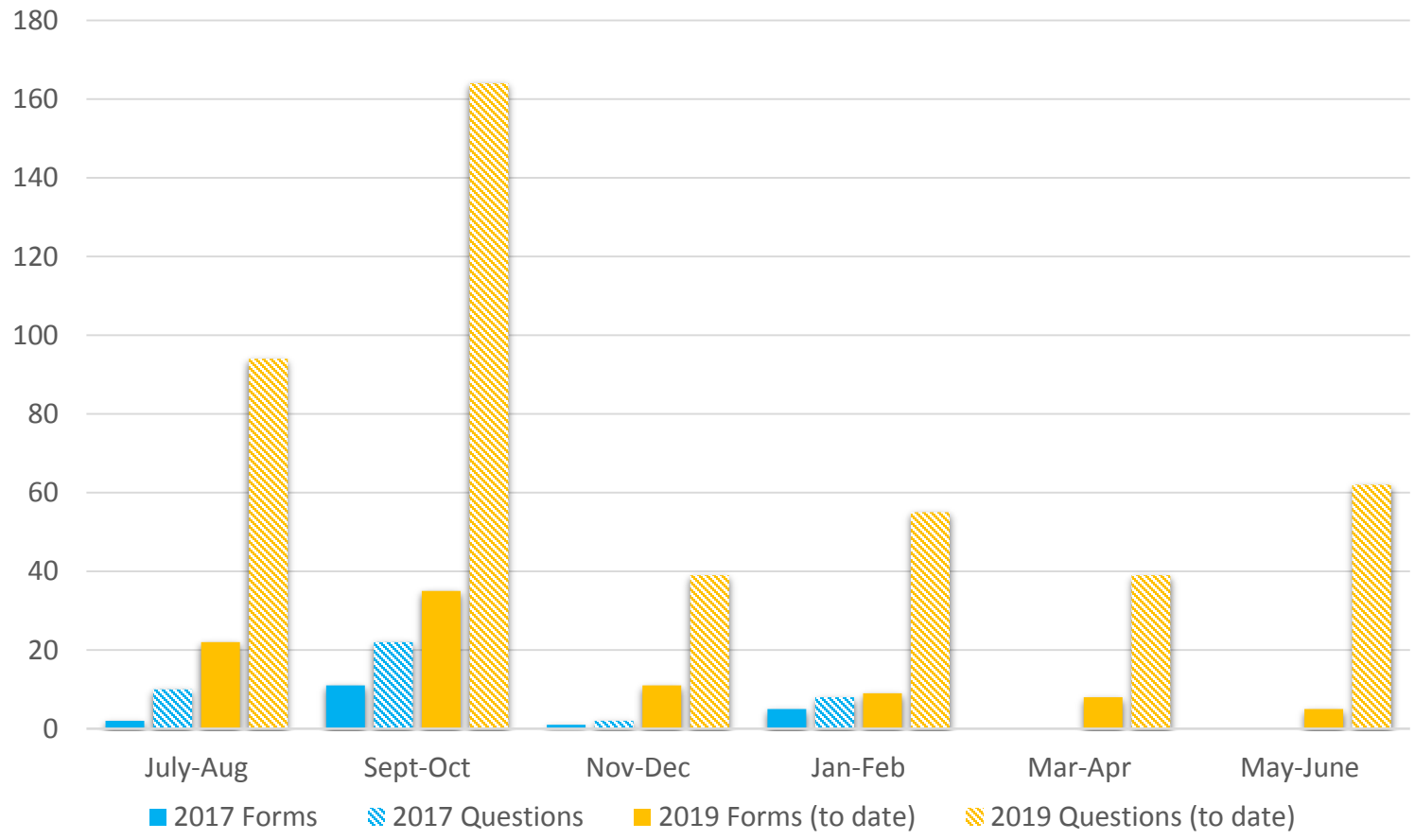
2019 IRP vs. 2017 IRP Stakeholder Feedback Form Activity to Date



Stakeholder Feedback Forms

- 90 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	Apr 24	Coal Studies	Request for explanation of "run-rate," SCR assumptions, regional haze variables, supply-side resource selection criteria, and questions related to coal studies next steps.	Provided explanations and clarifications to coal studies requests.
OPUC	Apr 24	Transmission	Request for clarification on a range of transmission topics, including optional transmission upgrades, supply-side resources associated to transmission upgrades, brownfield locations, timing of Energy Gateway, Transmission presentations, and several FERC related questions.	Provided clarification, links to requested data, and transmission presentation.
National Grid	May 14	Portfolio Analysis	Questions and recommendations regarding benchmark case, reliability assessment, and stacked retirement summary results.	Response targeted for week of May 27, 2019.
Wyoming Coalition of Local Gov'ts & Lincoln County	May 15	Coal Analysis	Range of questions and recommendations related to PacifiCorp coal analysis.	Response targeted for week of May 27, 2019.
Wyoming Business Council	May 17	Coal Analysis	Request PacifiCorp reconsider future of Naughton Power Plant in Kemmerer, Wyoming.	Response targeted for week of May 27, 2019.

Additional Information and Next Steps

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Draft Topics for Upcoming PIMs*

June 20-21, 2019*

- Portfolio Development Cases
- Sensitivity Cases
- Portfolio Selection Process
- Draft Preferred Portfolio
- Draft Action Plan
- Stakeholder Feedback Form Recap

July 18-19, 2019*

- 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/es/irp.html
- 2019 IRP Stakeholder Feedback Forms:
  - pacificorp.com/es/irp/irpcomments.html
- IRP Email / Distribution List Contact Information:
  - IRP@PacifiCorp.com
- Upcoming Public Input Meeting Dates:
  - June 20-21, 2019
  - July 18-19, 2019
  - August 1, 2019 – 2019 IRP File Date