



Integrated Resource Plan

2021 IRP Public-Input Meeting

August 6, 2021



Agenda



- 9:00am-9:15am Pacific – Introductions
- 9:15am-11:00am Pacific – Portfolio Results (Continued Discussion)
- 11:00am-11:15am Pacific – Stakeholder Feedback Form Update
- 11:15am-11:30am Pacific – Wrap-Up/Next Steps



Portfolio Results



Portfolio Development Cases



Case "Name"	Price-Policy	Existing Coal	Existing Gas	Other Existing Resources	Proxy Resources*
P02-MM	MM	Optimized	End of Life	End of Life	No New Gas
P02-MN	MN	Optimized	End of Life	End of Life	No New Gas
P02-LN	LN	Optimized	End of Life	End of Life	No New Gas
P02-HH	HH	Optimized	End of Life	End of Life	No New Gas
P02-SC-GHG	SC-GHG	Optimized	End of Life	End of Life	No New Gas
P03-MM	MM	Retired by 2030	End of Life	End of Life	No New Gas
P03-MN	MN	Retired by 2030	End of Life	End of Life	No New Gas
P03-LN	LN	Retired by 2030	End of Life	End of Life	No New Gas
P03-HH	HH	Retired by 2030	End of Life	End of Life	No New Gas
P03-SC-GHG	SC-GHG	Retired by 2030	End of Life	End of Life	No New Gas

* Excludes new gas proxy resources not including options for gas conversion of specific existing resources that will be optimized.

Portfolio Development Cases (Cont'd)

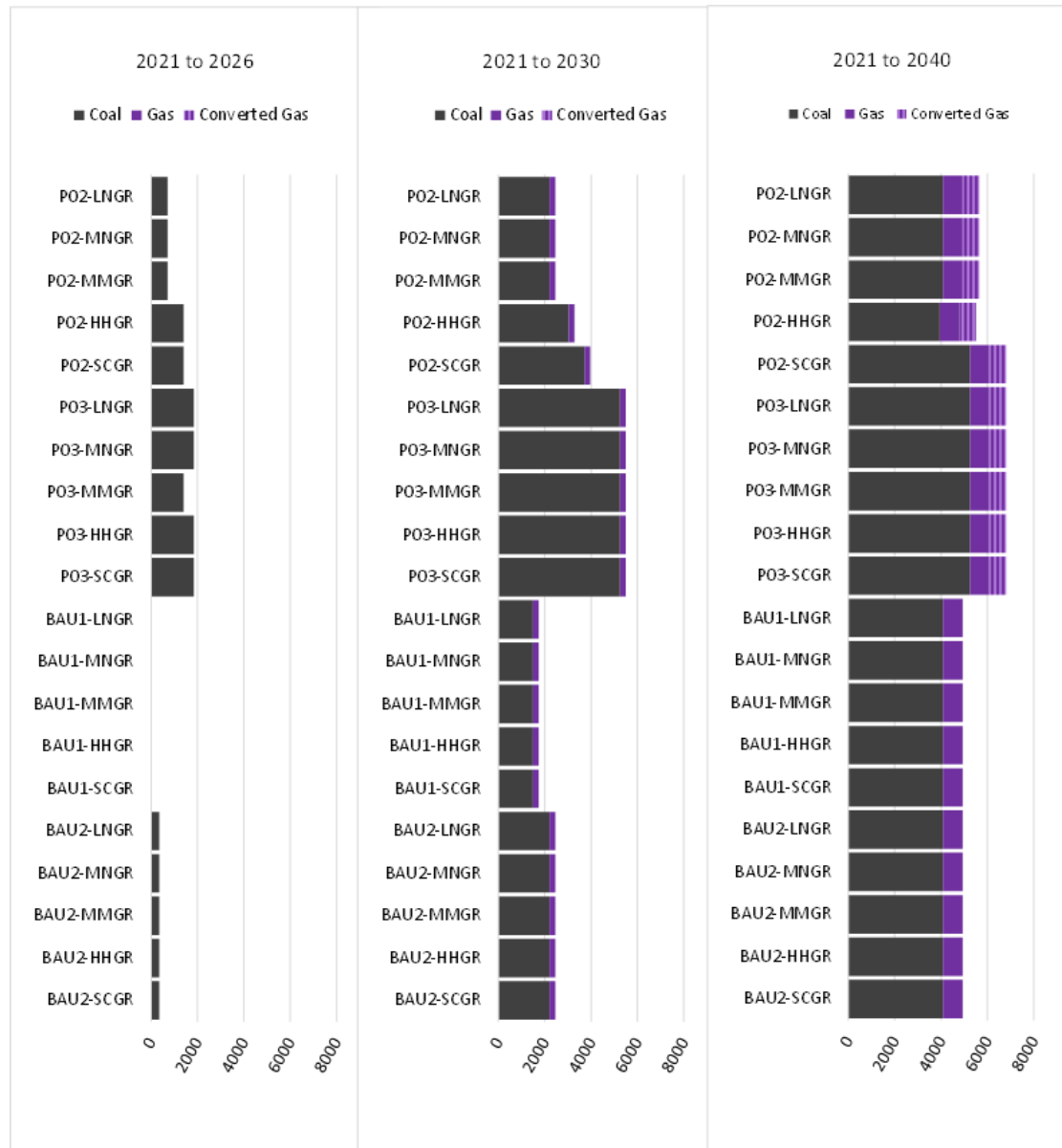


Case "Name"	Price-Policy	Existing Coal	Existing Gas	Other Existing Resources	Proxy Resources*
BAU1-MM	MM	End of Life	End of Life	End of Life	Optimized
BAU1-MN	MN	End of Life	End of Life	End of Life	Optimized
BAU1-LN	LN	End of Life	End of Life	End of Life	Optimized
BAU1-HH	HH	End of Life	End of Life	End of Life	Optimized
BAU1-SC-GHG	SC-GHG	End of Life	End of Life	End of Life	Optimized
BAU2-MM	MM	2019 IRP	2019 IRP	2019 IRP	2019 IRP+
BAU2-MN	MN	2019 IRP	2019 IRP	2019 IRP	2019 IRP+
BAU2-LN	LN	2019 IRP	2019 IRP	2019 IRP	2019 IRP+
BAU2-HH	HH	2019 IRP	2019 IRP	2019 IRP	2019 IRP+
BAU2-SC-GHG	SC-GHG	2019 IRP	2019 IRP	2019 IRP	2019 IRP+

* Excludes new gas proxy resources not including options for gas conversion of specific existing resources that will be optimized.

- Portfolio development cases summarized above produced 20 unique resource portfolios—each will be assessed using the MM, MN, LN, HH, and SC-GHG price-policy assumptions
- Portfolios generated with SC-GHG price-policy assumptions are consistent with RCW19.280.030 in Washington

Thermal Retirements (MW)



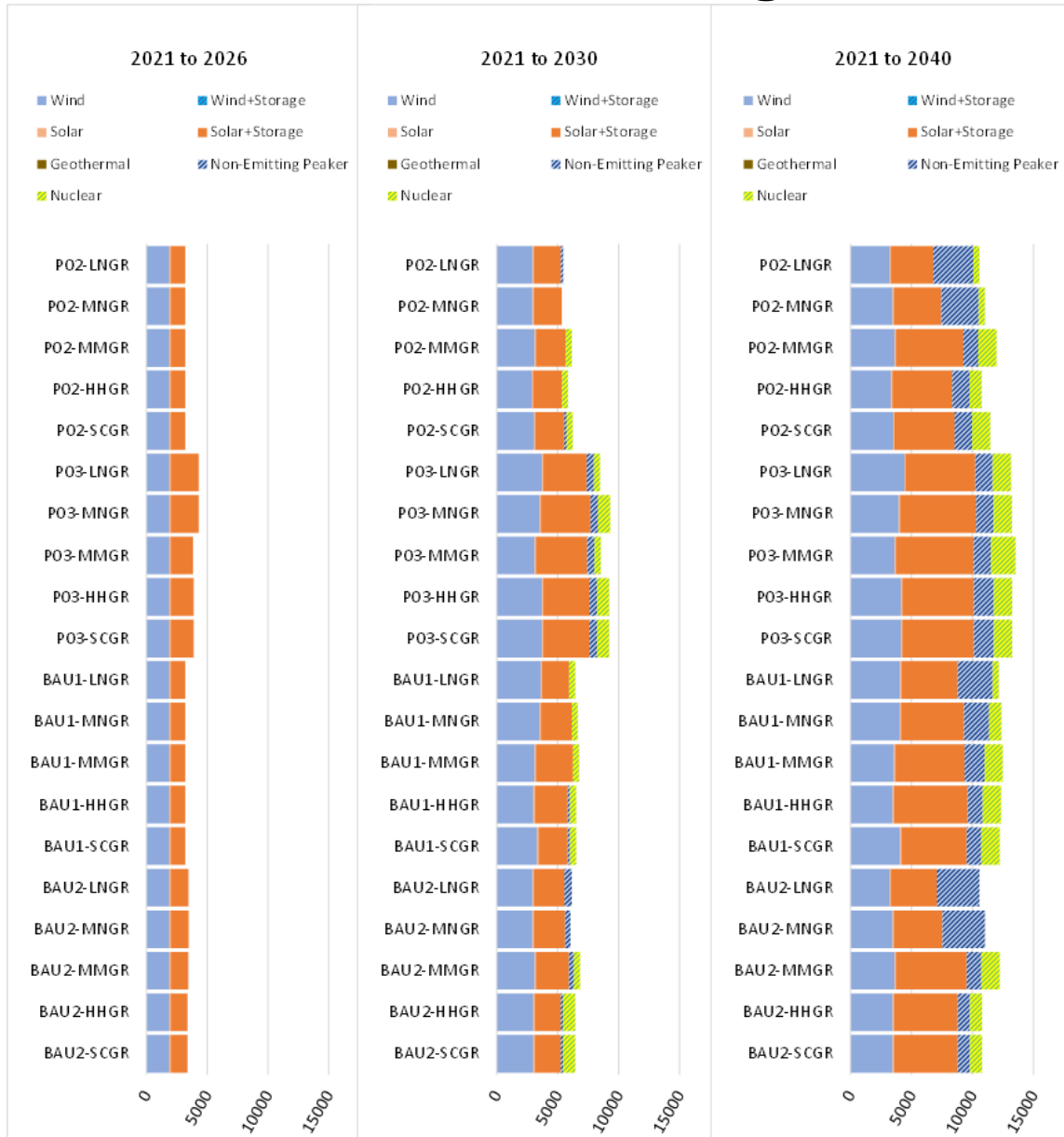


Coal Resources by Portfolio

Resource	Retirement:									
	P-02 LN	P-02 MN	P-02 MM	P-02 HH	P-02 SC	P-03 LN	P-03 MN	P-03 MM	P-03 HH	P-03 SC
JimBridger 1	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024
JimBridger 2	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024	GC 2024
JimBridger 3	2037	2037	2037	CCUS 2026	2025	2029	2029	2025	2029	2029
JimBridger 4	2037	2037	2037	CCUS 2026	2030	2026	2026	2029	2026	2026
DaveJohnston 1	2027	2027	2027	2027	2027	2027	2027	2027	2027	2027
DaveJohnston 2	2027	2027	2027	2027	2027	2027	2027	2027	2027	2027
DaveJohnston 3	2027	2027	2027	2027	2027	2027	2027	2027	2027	2027
DaveJohnston 4	2027	2027	2027	CCUS 2026	2027	2027	2027	2027	2027	2027
Hunter 1	2042	2042	2042	2023	2023	2023	2023	2023	2023	2023
Hunter 2	2042	2042	2042	2024	2024	2024	2024	2024	2024	2024
Hunter 3	2042	2042	2042	2025	2025	2029	2029	2025	2025	2025
Huntington 1	2036	2036	2036	2031	2036	2027	2027	2027	2027	2027
Huntington 2	2036	2036	2036	2032	2036	2024	2024	2028	2024	2024
Naughton 1	2025	2025	2025	2025	2025	2028	2025	2025	2025	2025
Naughton 2	2025	2025	2025	2025	2025	2028	2025	2025	2025	2025
Wyodak	2039	2039	2039	CCUS 2026	2031	2027	2027	2027	2027	2027

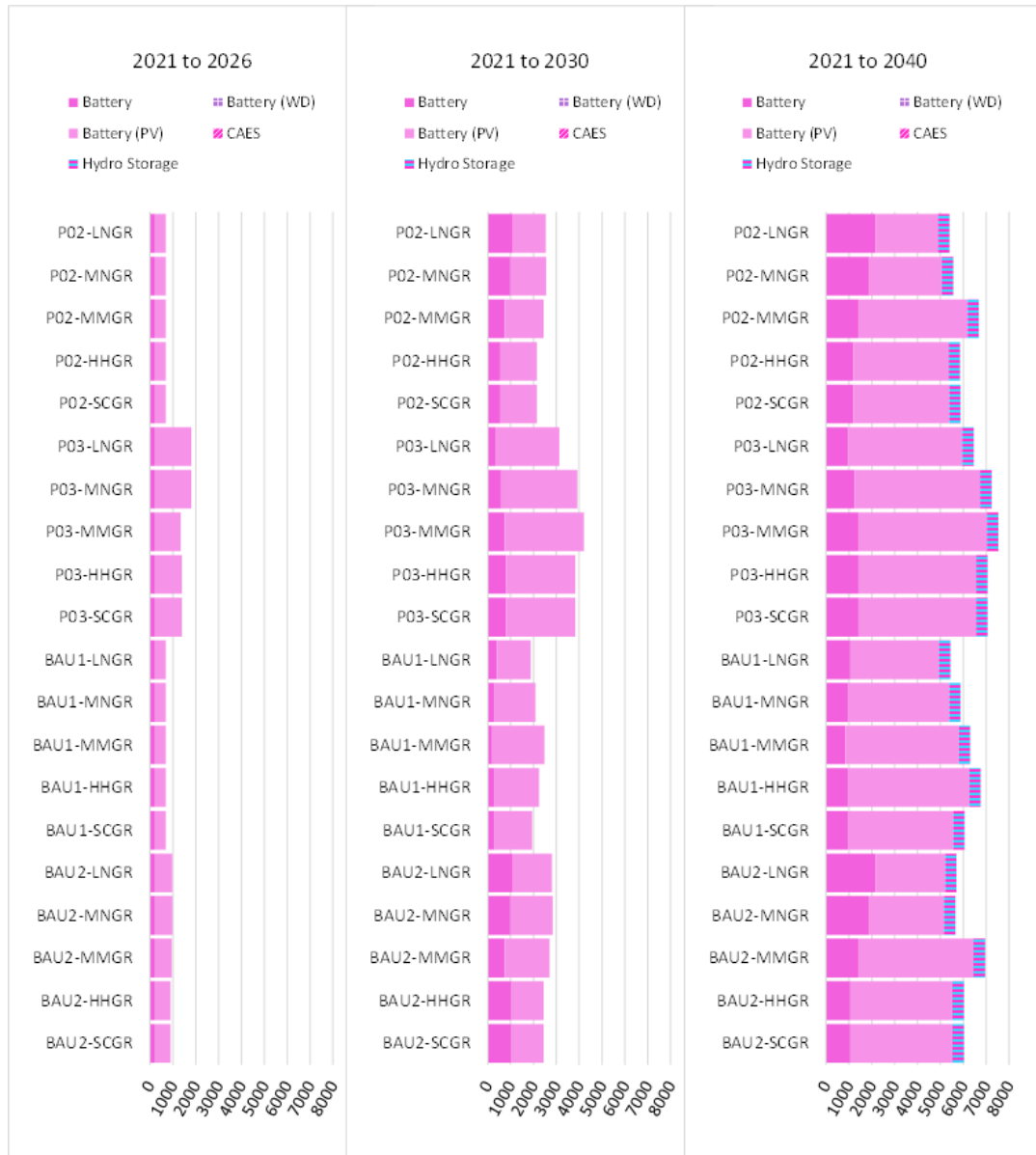
GC: Gas Conversion
 CCUS: Carbon Capture Utilization and Sequestration

Renewables and Non-Emitting Resources (MW)

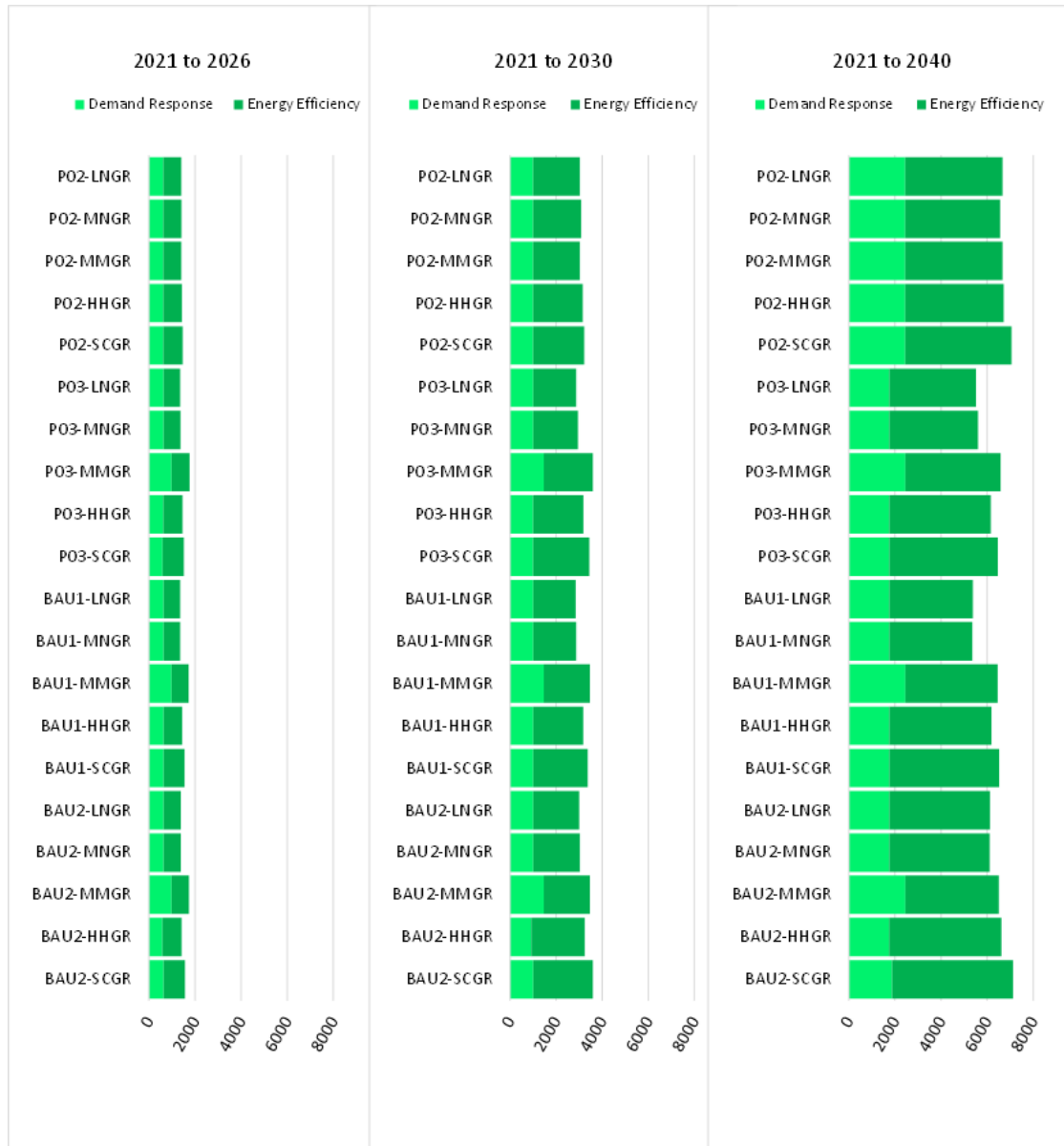




Storage (MW)



Demand Side Management (MW)



Portfolio Initial Cost Summary



Table 1. Portfolios optimized to the specific price-policy scenario

	Portfolio			
Present Value Revenue Requirement (PVRR)(\$m)	P02	BAU2	BAU1	P03
Low Gas, No CO2	22,736	23,765	23,814	26,320
Medium Gas, No CO2	23,063	24,042	24,217	27,743
Medium Gas, Medium CO2	27,115	27,581	27,672	29,101
High Gas, High CO2	28,349	30,613	30,855	30,559
Societal Cost of Carbon	36,800	41,057	40,832	39,813

Table 2. Medium gas/Medium CO₂ portfolios under each price-policy scenario

	Portfolio			
Present Value Revenue Requirement (PVRR)(\$m)	P02 - MM	BAU2 - MM	BAU1 - MM	P03 - MM
Low Gas, No CO2	23,919	24,753	25,334	27,758
Medium Gas, No CO2	23,255	24,760	25,297	28,460
Medium Gas, Medium CO2	27,115	27,581	27,672	29,101
High Gas, High CO2	29,992	30,761	31,398	32,159
Societal Cost of Carbon	39,020	39,650	41,530	41,492

Portfolio Initial Cost Summary



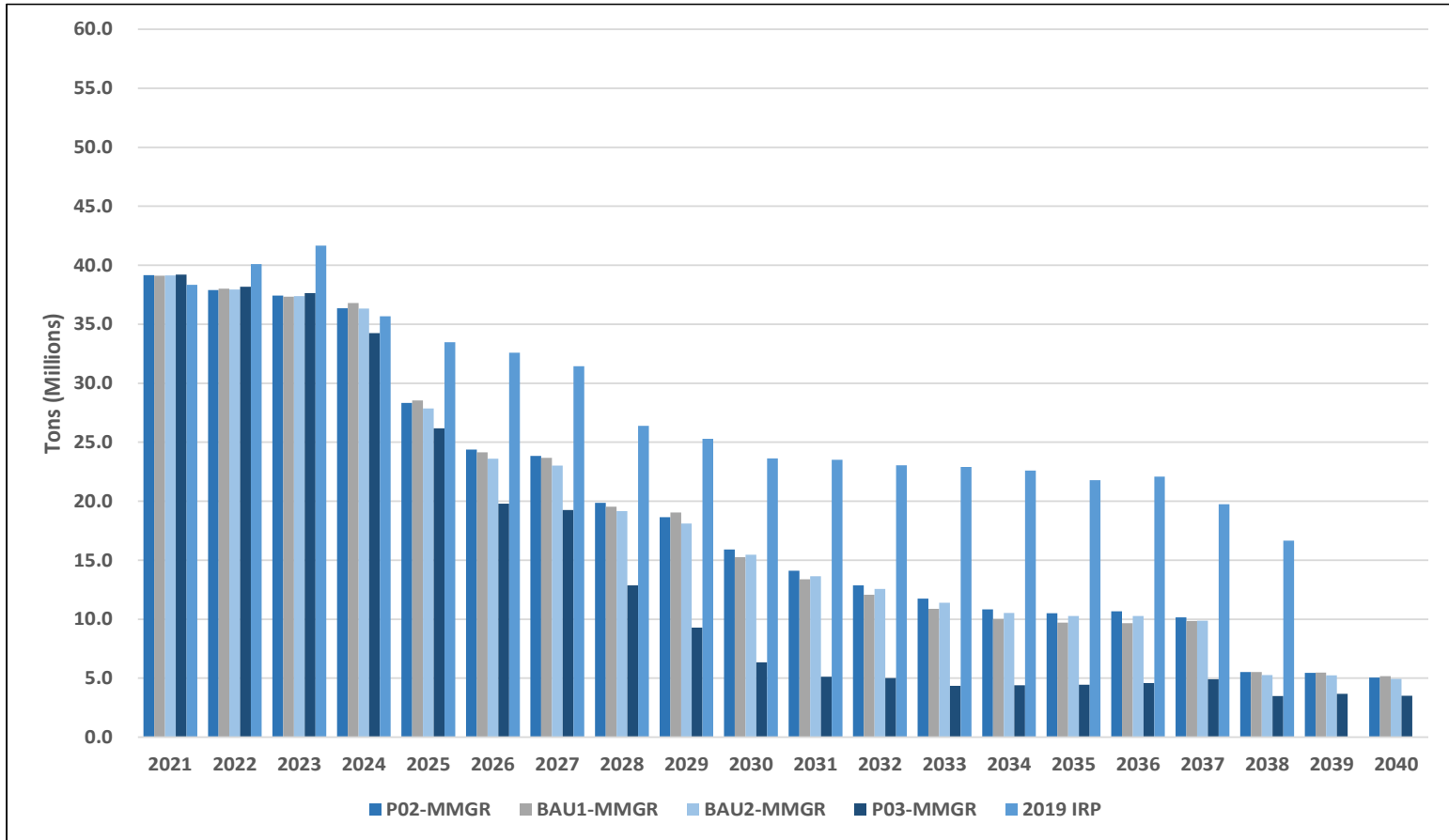
- The PO2 portfolio performs consistently well across all price-policy scenarios.

	Portfolios under LN price-policy conditions							
Present Value Revenue Requirement (PVRR)(\$m)	BAU1 - LN	BAU2 - LN	P02 - LN	P03 - LN	BAU1 MM-LN	BAU2 MM-LN	P02 MM-LN	P03 MM-LN
Low Gas, No CO2	23,814	23,765	22,736	26,320	25,334	24,753	23,919	27,758
Delta from P02 - LN	1,078	1,029	0	3,584	2,598	2,017	1,183	5,022
	Portfolios under MN price-policy conditions							
Present Value Revenue Requirement (PVRR)(\$m)	BAU1 - MN	BAU2 - MN	P02 - MN	P03 - MN	BAU1 MM-MN	BAU2 MM-MN	P02 MM-MN	P03 MM-MN
Medium Gas, No CO2	24,217	24,042	23,063	27,743	25,297	24,760	23,255	28,460
Delta from P02 - MN	1,154	979	0	4,680	2,234	1,697	192	5,397
	Portfolios under HH price-policy conditions							
Present Value Revenue Requirement (PVRR)(\$m)	BAU1 - HH	BAU2 - HH	P02 - HH	P03 - HH	BAU1 MM-HH	BAU2 MM-HH	P02 MM-HH	P03 MM-HH
High Gas, High CO2	30,855	30,613	28,349	30,559	31,398	30,761	29,992	32,159
Delta from P02 - HH	2,506	2,264	0	2,210	3,049	2,412	1,643	3,810
	Portfolios under SC-GHG price-policy conditions							
Present Value Revenue Requirement (PVRR)(\$m)	BAU1 - SC-GHG	BAU2 - SC-GHG	P02 - SC-GHG	P03 - SC-GHG	BAU1 MM-SC-GHG	BAU2 MM-SC-GHG	P02 MM-SC-GHG	P03 MM-SC-GHG
Social Cost of Greenhouse Gas	40,832	41,057	36,800	39,813	41,530	39,650	39,020	41,492
Delta from P02 - SC	4,032	4,257	0	3,013	4,730	2,850	2,220	4,692



Medium Gas, Medium CO₂

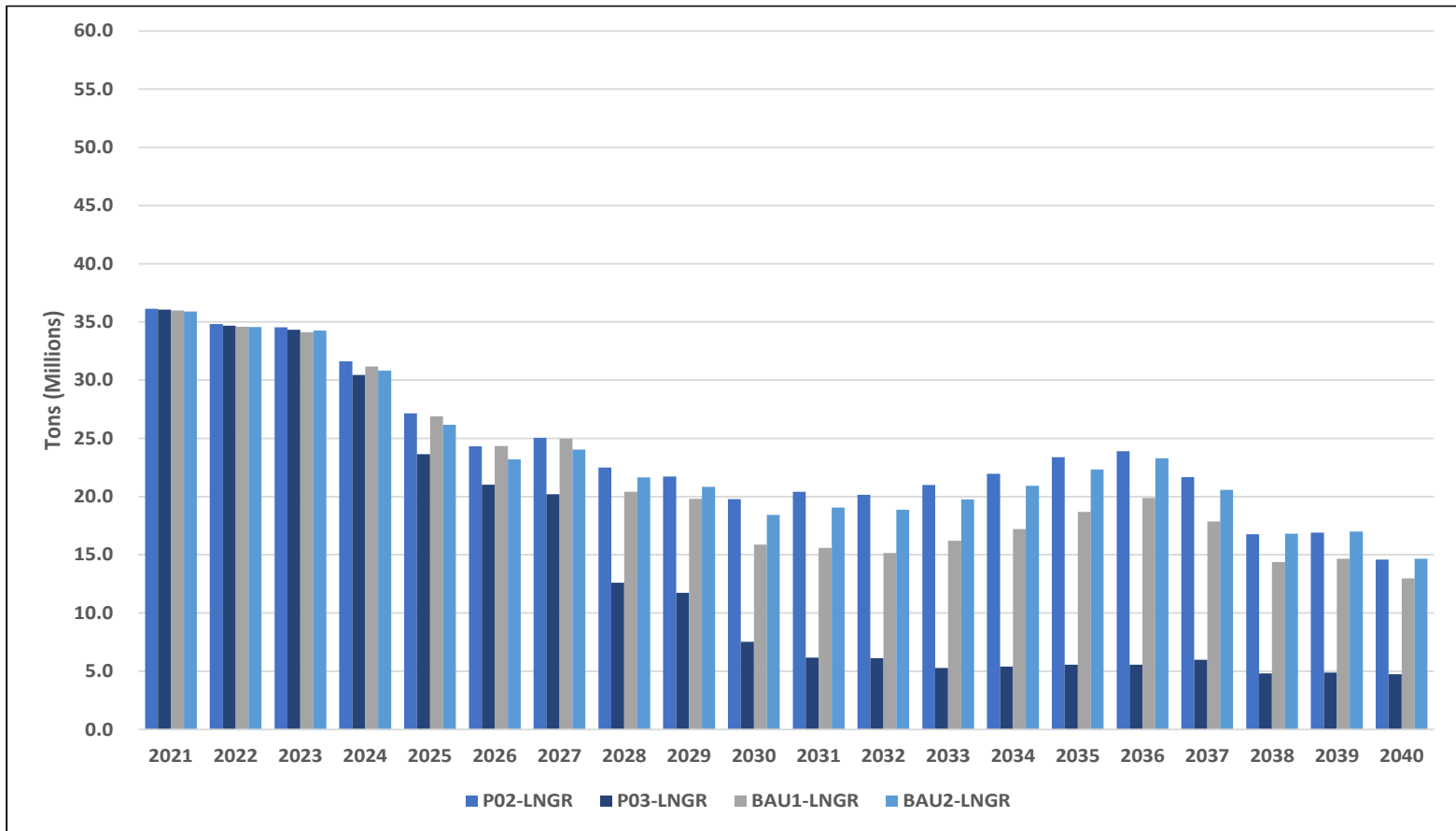
- Significant downward trend in CO₂ emissions across all portfolios





Low Gas, No CO₂

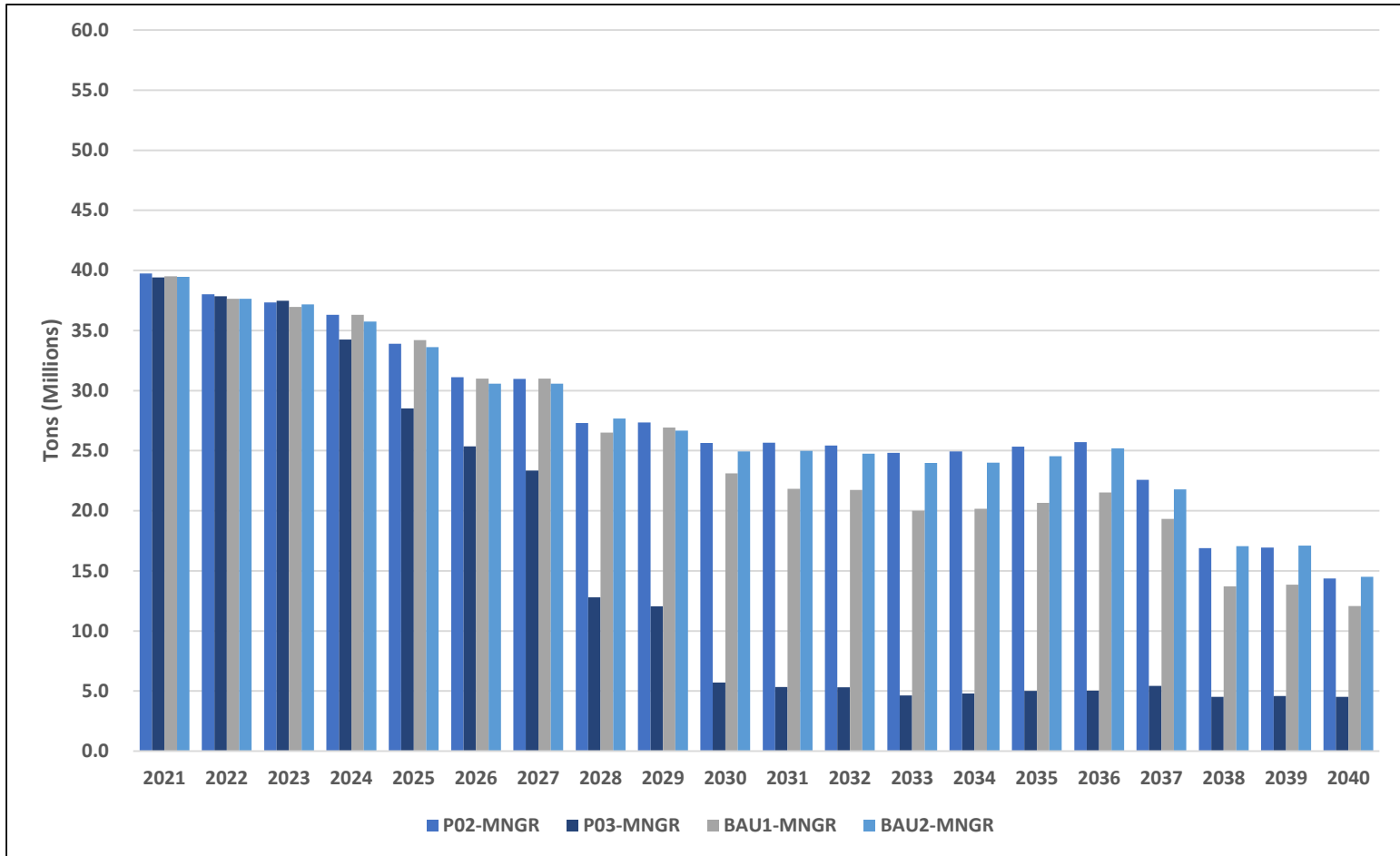
- Emission levels are higher overall relative to the medium gas, medium CO₂ as a result of no CO₂ price, with exception of the P03 Portfolio





Medium Gas, No CO₂

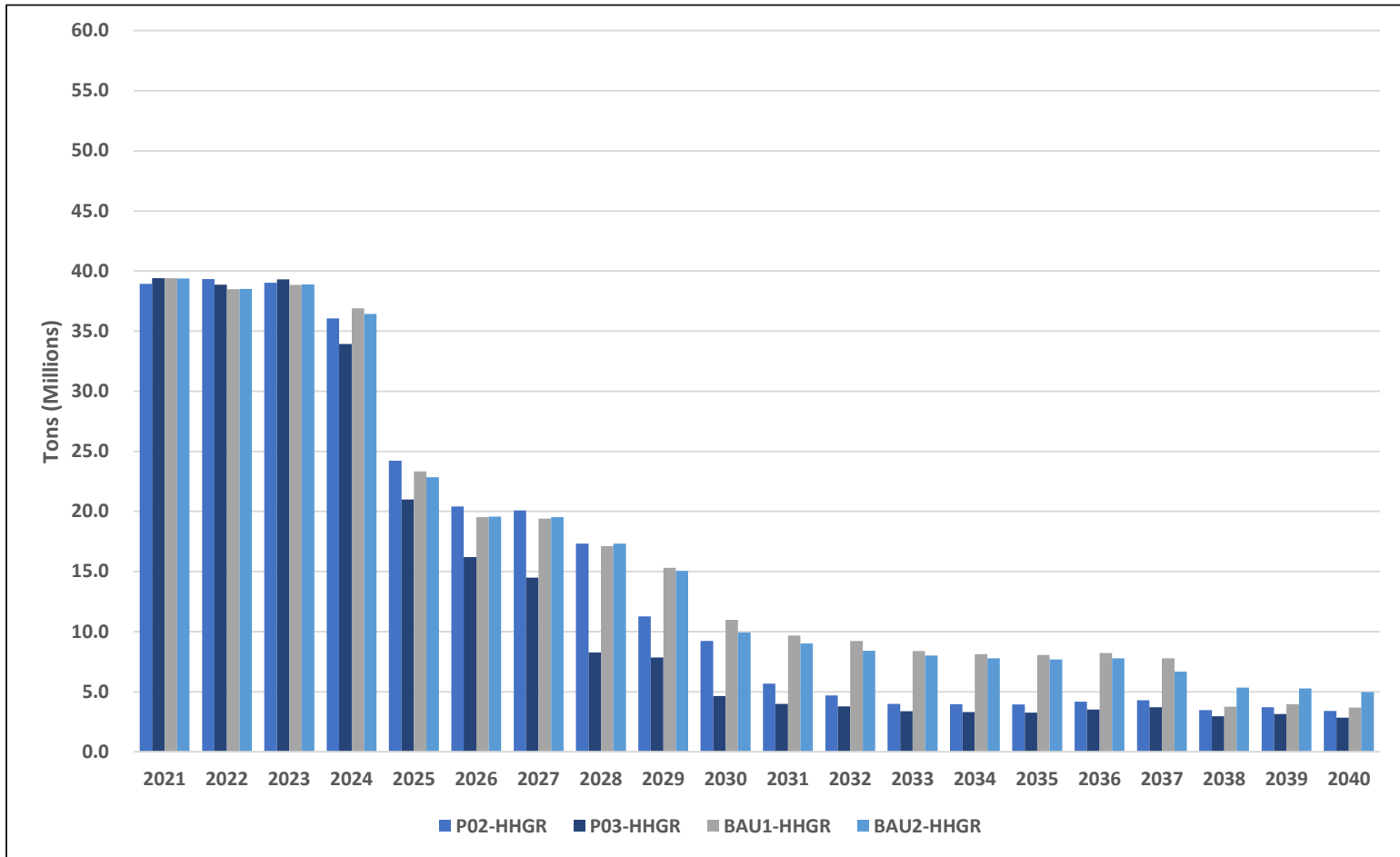
- Emission levels are similar to Low Gas, No CO₂





High Gas, High CO₂

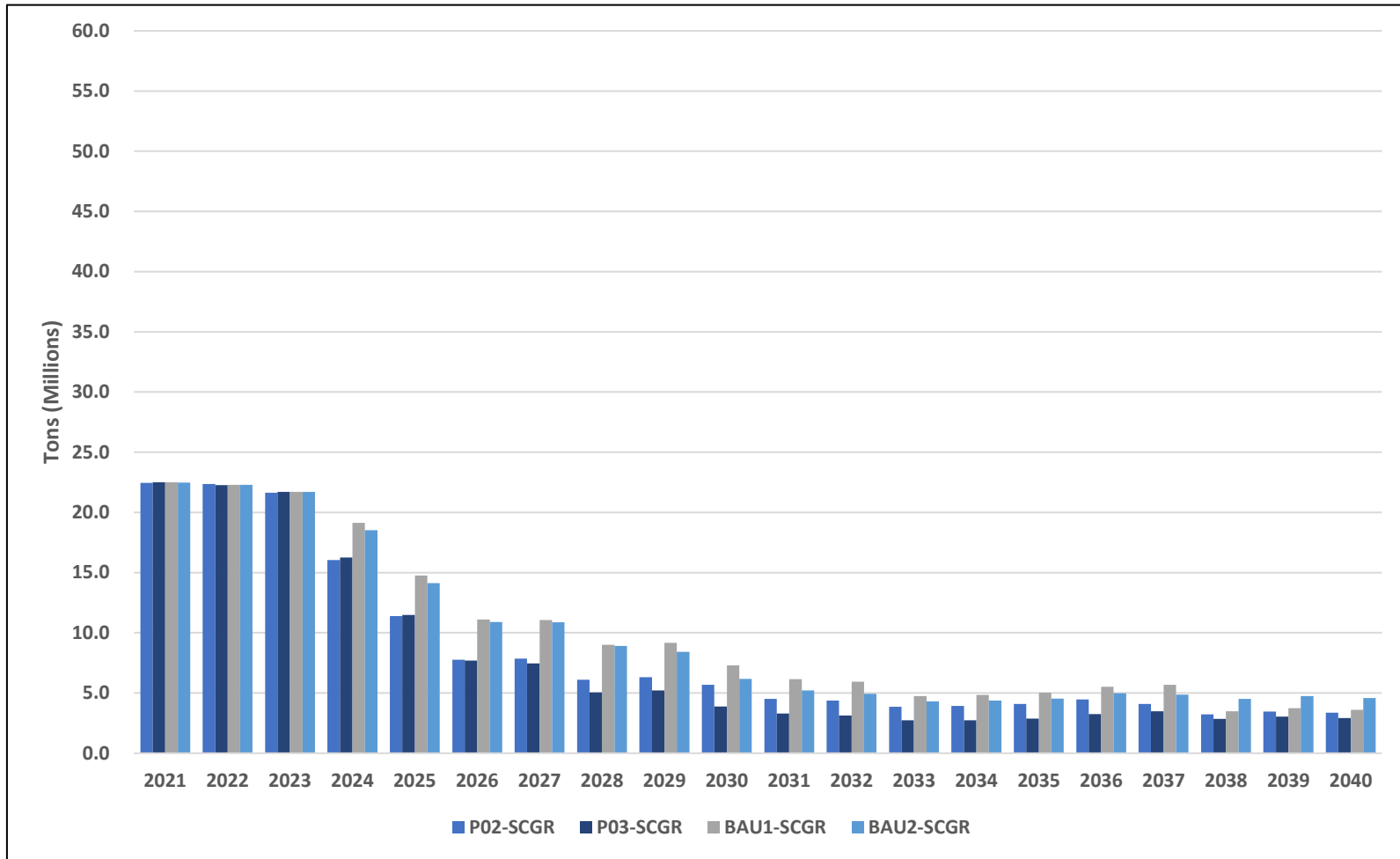
- Significant drop in emissions starting in 2025 when high CO₂ price occurs



Social Cost of Greenhouse Gas



- Emissions start at lowest level then trend downward





Next Steps Modeling and Analysis



Next Steps Modeling and Analysis



- Complete portfolio modeling and analysis necessary to determine the preferred portfolio including, but may not be limited to:
 - Additional P02 resource portfolios and analysis, eligible for preferred portfolio selection:
 - P02a – without gas conversion of Jim Bridger 1-2
 - P02b – without Boardman to Hemingway transmission project
 - P02c – without Gateway South transmission project
 - P02d – without 2020 All-Source Request for Proposals Final Shortlist / Gateway South
 - P02e – without Natrium demonstration project
 - P02f – without 2025 early retirement of Naughton 1-2
- Washington required scenarios under the Clean Energy Transformation Act: future climate change, maximum customer benefit, and alternative lowest reasonable cost
- Sensitivities:
 - High/low load, 1-in-20 load
 - High/low private generation
 - High/no customer preference
 - Market reliance
 - Business plan sensitivity
 - SC-GHG applied as a dispatch adder in operations



Stakeholder Feedback Form Update



Stakeholder Feedback Form Update



- 89 stakeholder feedback forms submitted to date
- Stakeholder feedback forms and responses can be located at pacificorp.com/energy/integrated-resource-plan/comments
- 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 forms received following the previous public-input meeting is summarized on the following slide(s) for reference

Recent Stakeholder Feedback Forms



Stakeholder	Date	Topic	Brief Summary (complete form available online)	Response (posted online when available)
Sierra Club (085)	August 3, 2021	July 30, 2021 Public Input Meeting	Questions included: Natrium demonstration project, IRP portfolio modeling, front-office transactions, and regional haze assumptions.	Anticipated response week of August 16, 2021
Derek Sawaya (086)	August 3, 2021	July 30, 2021 Public Input Meeting	Recommendation to transition to 100% clean energy.	Anticipated response week of August 2, 2021
Utah Division of Public Utilities (087)	August 3, 2021	July 30, 2021 Public Input Meeting	Recommendation to include natural gas as a capacity option.	Anticipated response week of August 2, 2021
Utah Clean Energy (088)	August 3, 2021	July 30, 2021 Public Input Meeting	Recommendation for two additional sensitivities.	Anticipated response week of August 2, 2021
Interwest Energy Alliance (089)	August 4, 2021	July 30, 2021 Public Input Meeting	Questions about proceedings needed for approval of projects/acquisitions, questions about import capacity assumptions and transmission selection.	Anticipated response week of August 16, 2021.



Additional Information/Next Steps



Additional Information



- Public Input Meeting and Workshop Presentation and Materials:
 - pacificorp.com/energy/integrated-resource-plan/public-input-process
- 2021 IRP Stakeholder Feedback Forms:
 - pacificorp.com/energy/integrated-resource-plan/comments
- IRP Email / Distribution List Contact Information:
 - IRP@PacifiCorp.com
- IRP Support and Studies:
 - pacificorp.com/energy/integrated-resource-plan/support
- Information on PacifiCorp's Washington-specific Clean Energy Implementation Plan:
 - pacificorp.com/energy/washington-clean-energy-transformation-act-equity.html

Next Steps



Upcoming Public-Input Meeting Dates:

- August 12, 2021 – Public-Input Meeting
- September 1, 2021 – File 2021 IRP
- October 1, 2021 – Post-IRP Filing Public-Input Meeting (*tentative*)

**meeting dates are subject to change*