2022 Integrated Resource Plan

Building the Long-Term Plan: April 11, 2022

SCL Team and IRP Advisory Group

Seattle City Light

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Building the 2022 IRP: Agenda

- Welcome
- Review Additional IRP Portfolio Choices & Metrics Analysis Results
- Final IRP Portfolio Discussion
- Build IRP Action Plans
- Next steps

Baseline Portfolios Continued

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Selecting 2022 IRP Preferred Portfolio metrics
1 is the highest score

Reliability	Climate Change Resource Adequacy Benefits	Maintains a currently acceptable resource adequacy level across climate change models for 2030 and 2040
Equity	Customer Program Opportunity	Expands opportunity for more customer programs across energy efficiency, demand response and service territory located solar
Reliability	Electrification Benefits	Plans for higher December energy surpluses to prepare for uncertain electrification growth timing
Sustainability	Greenhouse Gas Reduction	Examines greenhouse gas emissions path relative to 100% CETA clean energy standard
Affordability	Retail Rate Exposure	Evaluates annual retail rate differences from the strategic plan resource portfolio (2030-2034 average)
Affordability	Surplus energy Exposure	Reduces wholesale energy market revenue losses at a high confidence level
Affordability	Transmission Cost Exposure	Less transmission reliance from new resource additions and associated transmission risk

Additional Portfolio Diversity

Replaced P7 with new portfolio P24

- P7 & P11 similar supply resources
- Wanted to incorporate more portfolio learnings from Electrification scenario

Portfolio	NPV	Wind (MW)	Solar (MW)	EE (aMW)	DR (MW)	Added BTM Solar (MW)	Strategy
P3	*$2.9*	*75*	*325*	*122*	*52*	*0*	*Transmission Availability*
~~P7~~	~~$3.1~~	~~300~~	~~200~~	~~116~~	~~141~~	~~0~~	~~Max Demand Response & Energy Efficiency~~
P11	$3.1	300	200	116	122	52	Balanced Portfolio/ Max Customer Owned Resources
P24	**$3.4**	**675**	**200**	**116**	**122**	**104**	**Influenced by Electrification**

2022 IRP Top Portfolios

Portfolio 2040 Cumulative Additions	NPV	Wind (MW)	Solar (MW)	EE (aMW)	DR (MW)	Added BTM Solar (MW)	Strategy
P3	$2.9	75	325	122	52	0	Transmission Availability
P11	$3.1	300	200	116	122	52	Balanced Portfolio/ Max Customer Owned Resources
P24	$3.4	675	200	116	122	104	Influenced by Electrification /Overbuild

Utility Scale Annual Resource Additions thru 2030 - Nameplate Capacity (MW)

Portfolio	2024	2026	2027	2030	Total Wind	Total Solar
P3	100	275	25		75	325
P11	100	275	25		200	200
P24	100	275	200	300	675	200

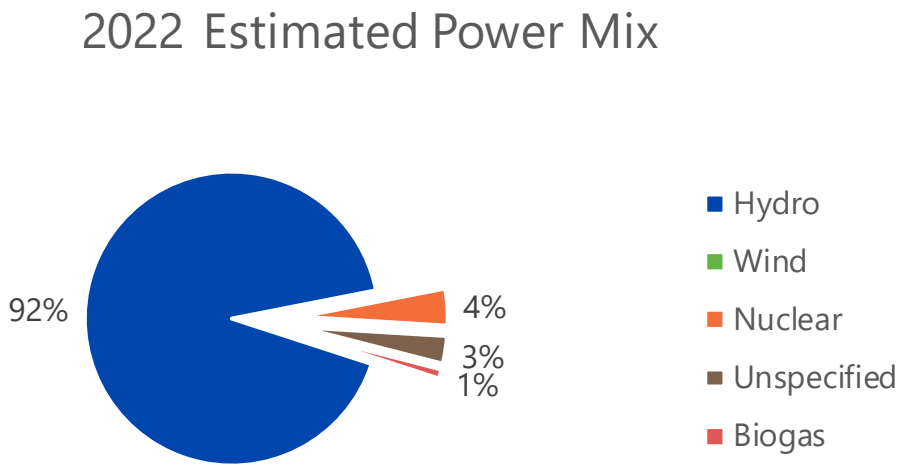
Top Portfolios Fuel Mix in 2030

Resource Type	P3_2030	P11_2030	P24_2030
Hydro	80%	78%	56%
Utility Scale Wind	2%	9%	31%
Utility Scale Solar	12%	6%	6%
Nuclear	4%	4%	4%
Unspecified	1%	1%	1%
Biogas	1%	1%	1%

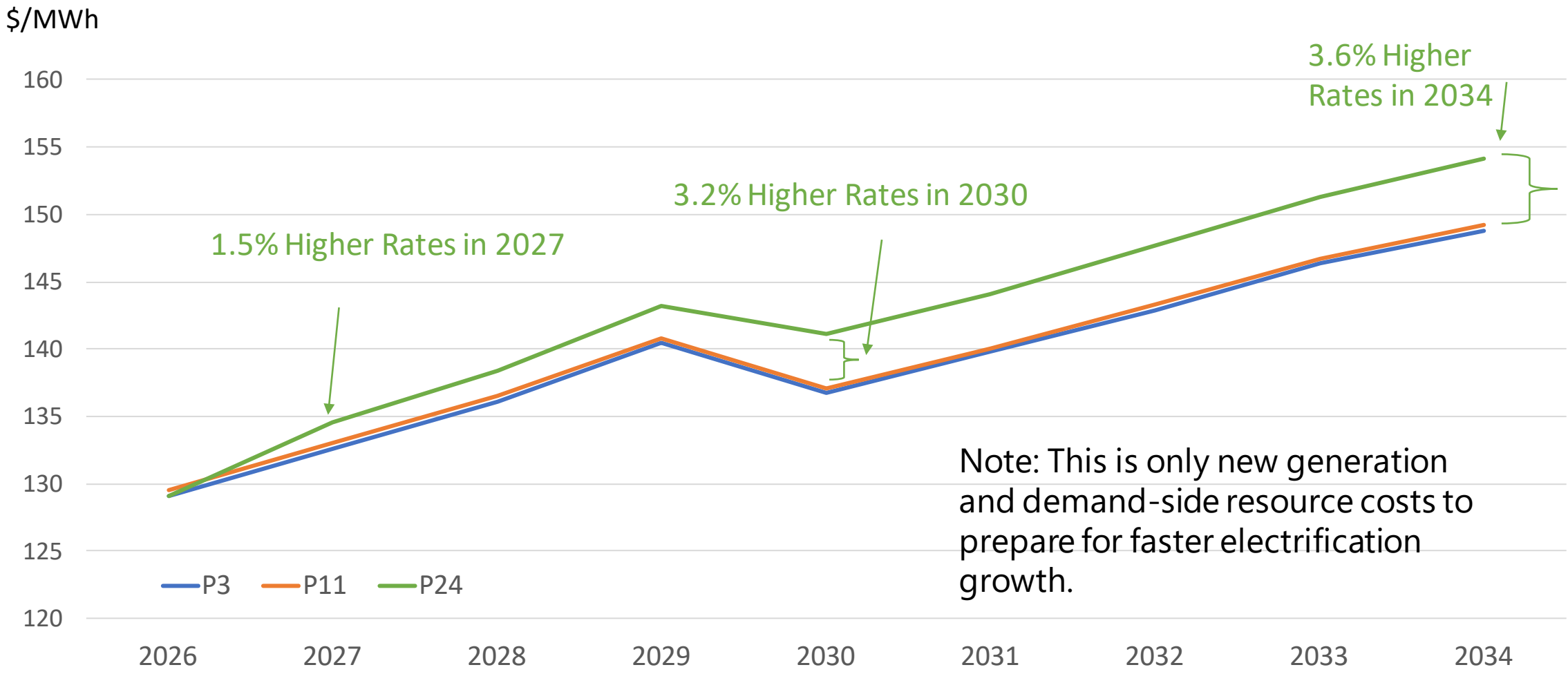
CETA Compliance Top Portfolios - % Clean

Portfolio	2022-2025	2026-2029	2030-2033	2034-2037
P3	97	99	99	99
P11	97	99	99	99
P24	97	99	99	99
Do nothing	97	97	98	98

Median Hydro Conditions and Base Load Assumed



Retail Rate Growth Comparison



Preliminary 2022 IRP Top Portfolios

Note: a score of 1 is the best score

Portfolio	Climate	Customer	Electrification	Greenhouse Gas	Retail Rate	Surplus Energy	Transmission	Average
P3	0.0	0.2	0.1	0.8	1.0	0.4	0.7	0.46
P11	0.2	0.6	0.3	0.8	0.9	0.4	0.7	0.55
P24	0.5	0.7	0.7	0.9	0.0	0.0	0.2	0.43

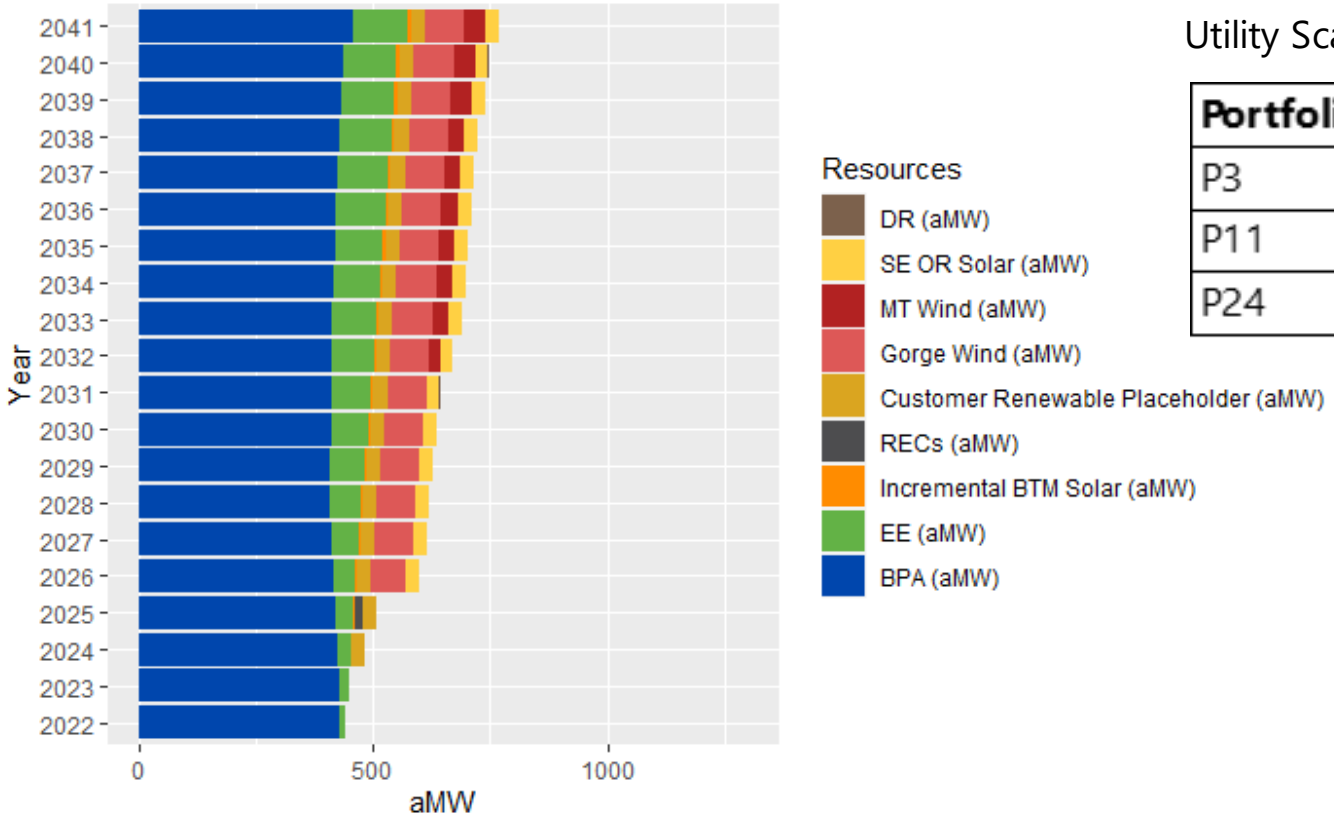
Portfolio	NPV	Wind (MW)	Solar (MW)	EE (aMW)	DR (MW)	Added BTM Solar (MW)	Strategy
P3	$2.9	75	325	122	52	0	Transmission Availability
P11	**$3.1**	**300**	**200**	**116**	**122**	**52**	**Balanced Portfolio/ Maximize Customer Resources**
P24	$3.4	675	200	116	122	104	Overbuild/ Electrification Influenced

Notes:

1. Rankings are relative to the base load 12 base load portfolio strategies or an anchor value.
2. Climate change scores are preliminary based on two climate change models performance in 2030 and 2040. The results are a starting point.

2022 IRP Top Scoring Portfolio – Balanced Portfolio

Portfolio	NPV	Wind (MW)	Solar (MW)	EE (aMW)	DR (MW)	Added BTM Solar (MW)	Strategy
P11	$3.1	300	200	116	122	52	Balanced Portfolio/ Maximize Customer Resources



Utility Scale Annual Resource Additions – Nameplate Capacity (MW)

Portfolio	2024	2026	2027	2030	2032	2033	2039	Total
P3	100	275	25					400
P11	100	275	25		50	25	25	500
P24	100	275	200	300				875

Portfolio Conclusions

- Balanced portfolio investments provide optionality and risk mitigation against today's policy and technology uncertainty
- All portfolios require significant increases in BPA transmission access that may not be available without BPA transmission enhancements
- Solar resources fall short in meeting high winter loads
- Offshore wind and Montana wind show more promise for meeting electrification energy needs and have long lead times to develop
- Overbuild / Electrification influenced portfolio is not realistic but provides insights for retail rate and wholesale market risks if investments are earlier than load growth

IRP Portfolio Decision Discussion

P3 benefits	P11 benefits	P24 benefits
Greenhouse Gas	Customer Program Score	Customer Program Score
Retail Rate	Greenhouse Gas	Electrification
Transmission	Retail Rate	Greenhouse Gas
	Transmission	

Categories where scores are 0.6 or above

IRP Action Plans and Next Steps Discussion

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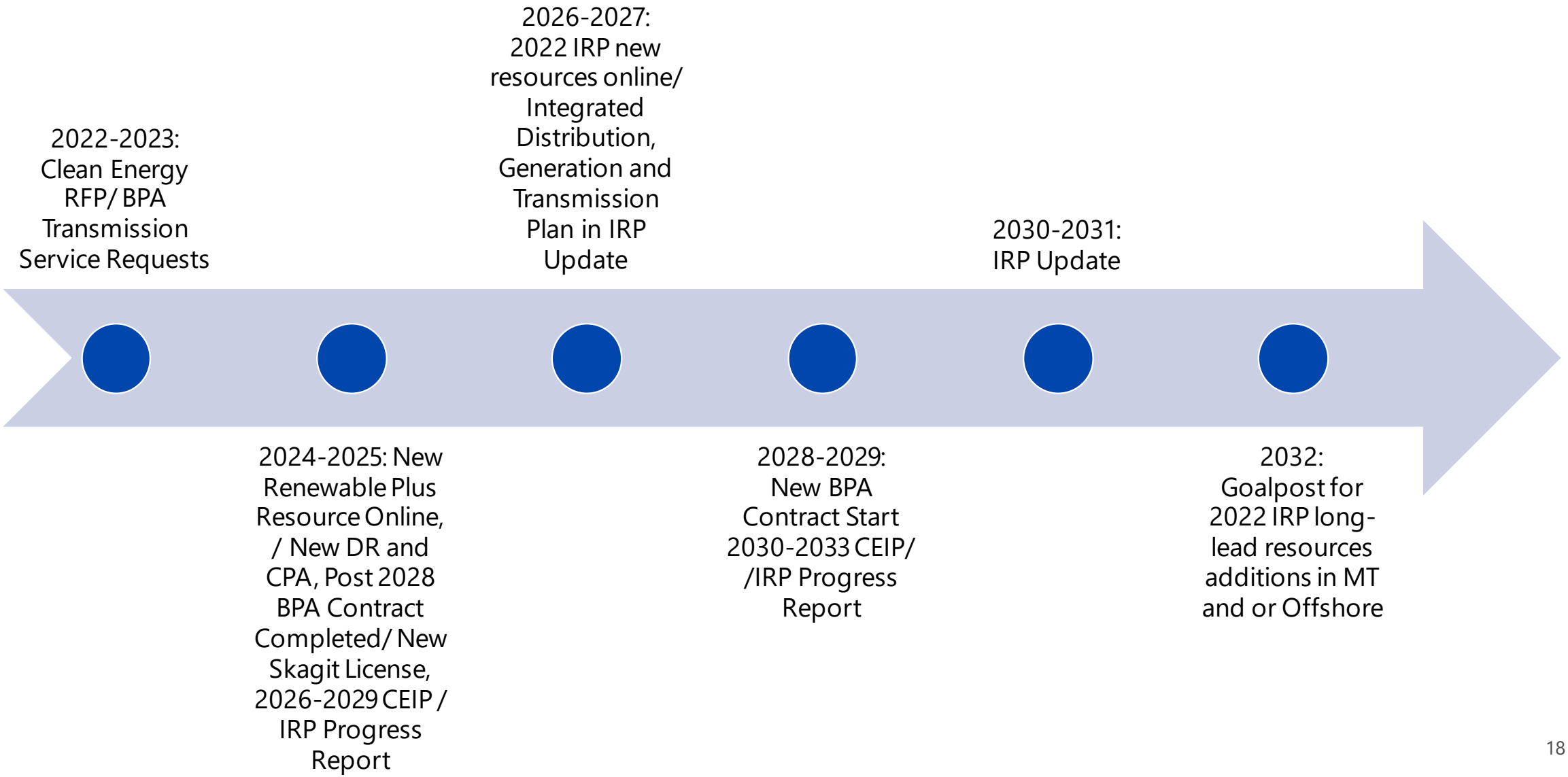
Draft 2-year IRP Clean Energy Actions

- Develop an updated baseline scenario informed by climate change and electrification research to refine long-term resource addition strategy
- Implement IRP Equitable Outreach & Engagement Strategy and review and refine equity metrics with community members
- Update demand response and energy efficiency potential assessment and identify ways to accelerate programs when needed
- Create a pipeline for new supply resource development opportunities through RFP, joint development and transmission service requests (generation and transmission)
- Work with BPA and the public power community on defining a new and durable BPA contract post 2028
- Engage forums to wide access for transmission development supporting regional reliability and clean energy
- Work with other City departments to synchronize a common view of affordable and equitable climate action

Draft 10-year Clean Energy Action Plans

Improve Customer Experience	• Continue climate change leadership to develop a regionally coordinated approach to adapt to and mitigate climate change impacts • Work with customers to build “opt in” programs to support equity and sustainability goals
Create our Energy Future	• Prioritize customer outreach to understand how to design grid and clean energy resource expansion to reverse historical inequities to underserved populations • Continue to partner with customers, policy makers, governing bodies and interest groups to develop strategies for an affordable, equitable and transformational decarbonization pace • Pursue in state rulemaking harmonization of CETA, I-937 and Climate Commitment Act
Ensure Financial Health and Affordability	• Partner with regional utilities and organizations to develop affordable and reliable energy market and transmission solutions • Identify and implement new financial strategies to manage risks related meeting needs under uncertain electrification growth timing • Work with region to develop cost allocation methods that yield most valuable transmission infrastructure by including broader regional benefits in the process

10-year Clean Energy Action Plan Milestones (Draft)



Next Steps

Today:

- ✓ Review Additional IRP Portfolio Choices & Metrics Analysis Results
- ✓ Final IRP Portfolio Discussion
- ✓ Build IRP Action Plans

For IRP completion:

- Double check analysis, continue to refine and review IRP Council document and draft IRP Technical appendices
- High-Level Draft City Council IRP document Advisory Group review timeline
- Finalize 2-year and 10-year clean energy action plans
- Start to implement ongoing IRP outreach and engagement strategy

THE NATION'S GREENEST UTILITY

THANK YOU

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