



Seattle City Light

2018 INTEGRATED RESOURCE PLAN

Stakeholder Meeting # 6

IRP Team | April 11, 2018

AGENDA

- 4:00 Welcome and Safety Moment
- 4:05 Integrated Resource Planning process (where we are and next steps)
- 4:10 Highlights of the process, findings & recommendations
- 4:30 Stakeholder discussion time –comments, observations, recommendations
- 5:00 Break
- 5:10 Review and confirm action items generated
- 5:30 Develop stakeholder letter themes and process to deliver to City Council
- 6:15 Adjourn

WHERE WE ARE AND NEXT STEPS

- Identify recommendations from 2018 progress report and update
- Suggest action items to City Light
- IRP team will present identified recommendations and action items to City Light Risk Oversight Committee
- Enter 2018 Integrated Resource Plan resolution into legislation
- Present to Housing, Health, Energy & Workers' Rights Committee



MAJOR REGULATORY REQUIREMENTS, POLICIES, INCENTIVES- IRP CONSIDERATIONS

Seattle (Resolutions)

- Carbon neutral utility (greenhouse gas offsets)
- Meet load growth with conservation and renewable energy / no new nuclear (Resource choices)
- Net metering (load forecast)

Washington

- IRP rule (evaluation requirements for IRP)
- Energy Independence Act (conservation and renewable generation and Renewable Energy Credit requirements)

Federal

- Production tax credits/ renewable energy bonds (resource choices)
- Hydro license (hydro operations)

Regional

- Operating reserves (Reliability)
- Frequency response (Reliability)



CITY LIGHT'S TWO YEAR PATH FROM THE 2016 IRP

- Continue high achievement of cost-effective energy efficiency
 - (Achieved over 29 Average Megawatts)
- Continue strong environmental leadership
 - (Working to reduce building carbon emissions, joining the Western Energy Imbalance Market to support renewable generation development in the west, managing hydroelectric generation for habitat protection, continuing glacier monitoring program)
- Pursue market opportunities to optimize hydro generation portfolio
 - (City Light plans to enter the Western Energy Imbalance Market in 2020, started selling frequency response service)
- Engage Bonneville Power Administration to limit rising contract costs
 - (City Light actively participates in Bonneville Power Administration customer processes in transmission and power– FY 2018-2019 rate increases were moderated)

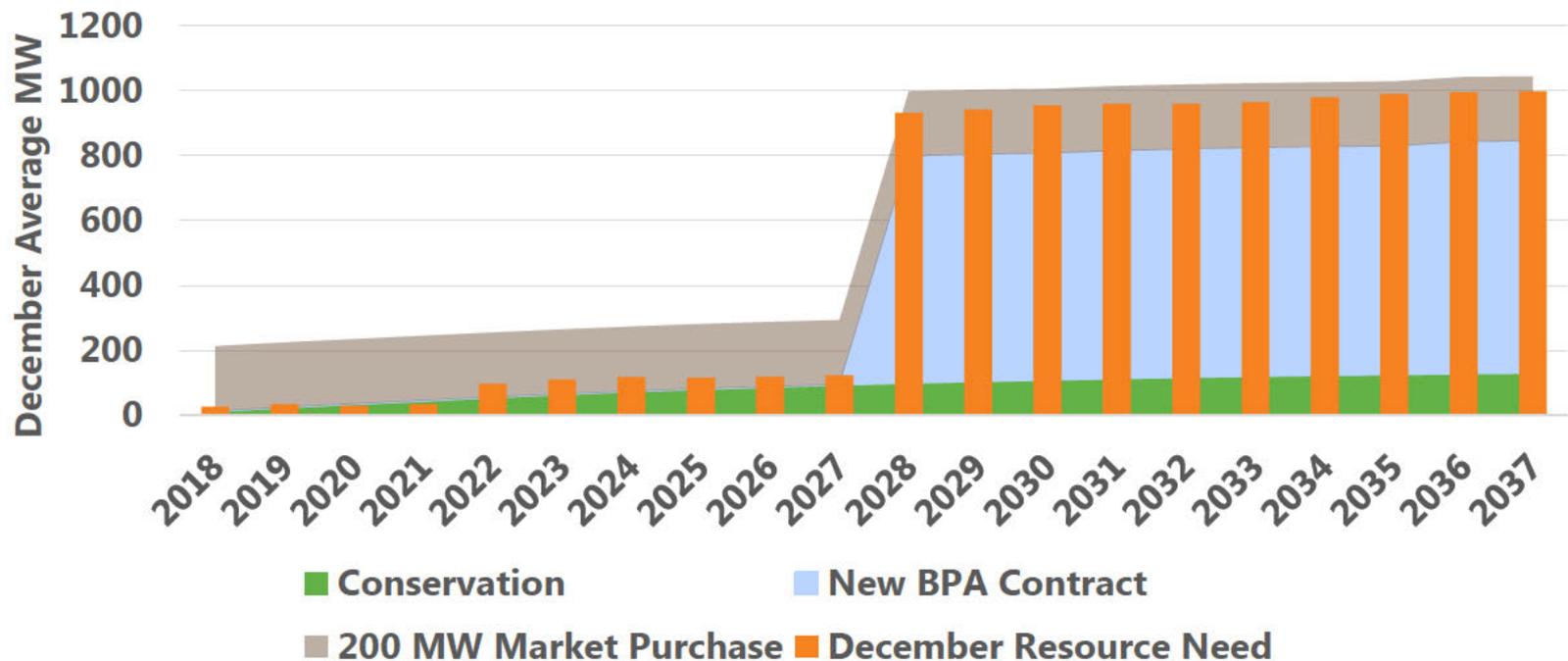
CITY LIGHT'S TWO YEAR PATH FROM THE 2016 IRP

- Monitor new resource options
 - (Resource costs lower than 2016 IRP ; however not low enough to compete with market power so still no big influx of new generation ahead of need)
 - Evaluate changing usage and customer preference needs
 - (New load forecast methodology being implemented in three stages, first phase complete)
 - Extend analysis of climate change as more data emerges
 - (Monitoring RMJOC 2 process--waiting for Columbia river regulation climate change scenario datasets before updating climate analysis from 2016 IRP)
- * RMJOC – River Management Joint Operating Committee, is a forum of federal water managers, hydrologists and power schedules from the Bureau of Reclamation, Army Corps of Engineers, and Bonneville Power Administration tasked with understanding how climate change could impact hydrology and water supplies in the Columbia River Basin.



CITY LIGHT'S RESOURCE NEED MET BY STATUS QUO RESOURCE MIX

- Market reliance ranges from 0 to 161 Megawatts
- Over 40 average megawatts annual reduction in BPA contract energy from 2028- 2037



CITY LIGHT'S RENEWABLE PORTFOLIO STANDARDS-ELIGIBLE PORTFOLIO

- If load is growing, 2020 target is 15% of retail load
 - Stateline wind purchase expires end of 2021
 - RECs purchase continues 2022 to 2026
 - Renewable Portfolio Standard-eligible RECs from BPA expire 2020 to 2027
 - New RECs-only purchases begin in 2019 and 2024
 - Need for additional RECs in 2021 - 2024 (dependent on load, REC banking, and compliance requirement)

* RECs – Renewable Energy Certificates

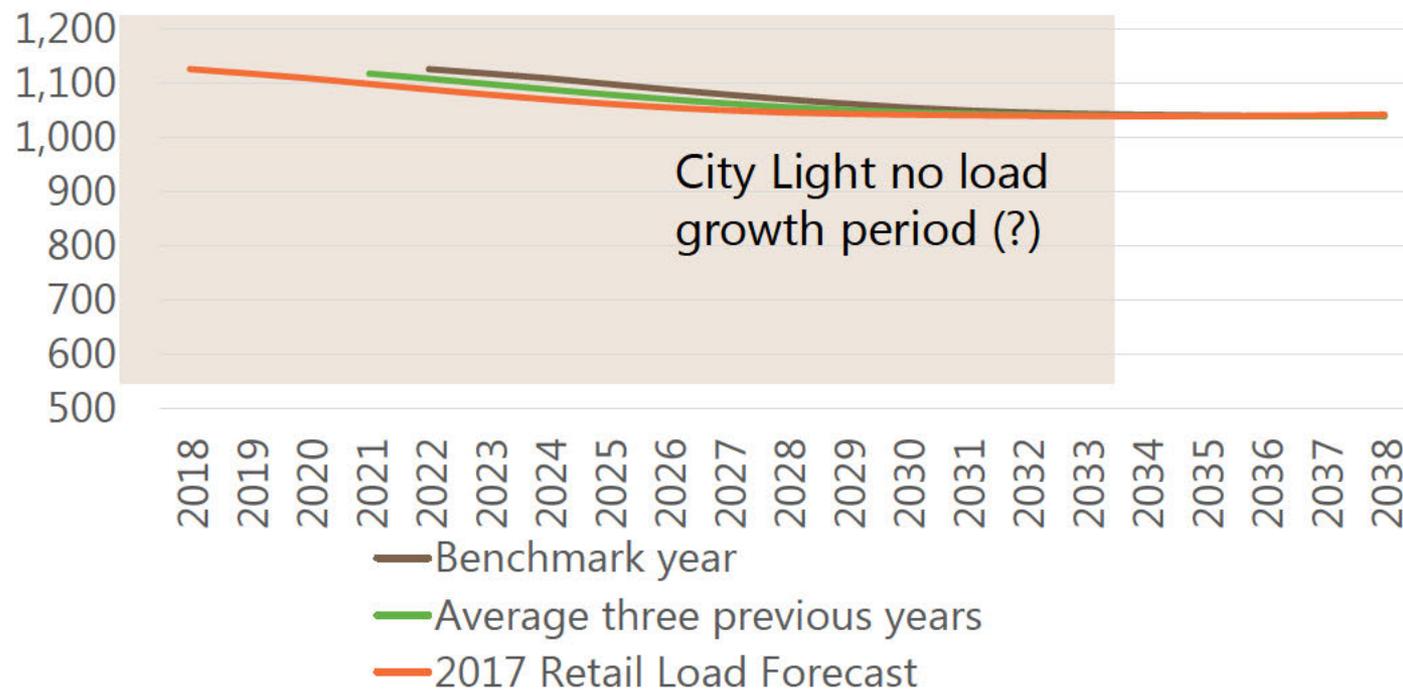
CITY LIGHT RENEWABLE PORTFOLIO STANDARD

- If retail load declines over a 3 year period, we would be eligible for a different compliance option
 - Spend 1% of retail revenue on eligible resources and/or RECs
 - Use additional RECs to offset non-renewable resource purchases made after 2007
 - May be lower cost option compared to 15% target
- * RECs – Renewable Energy Certificates



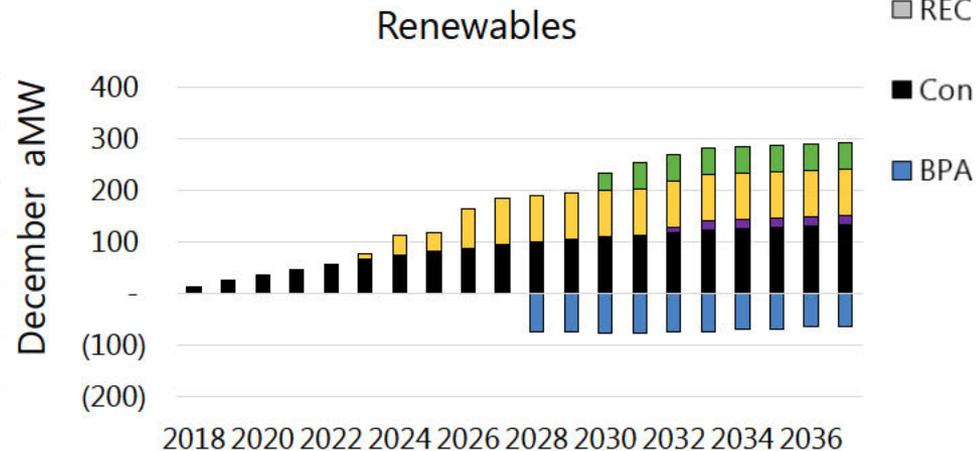
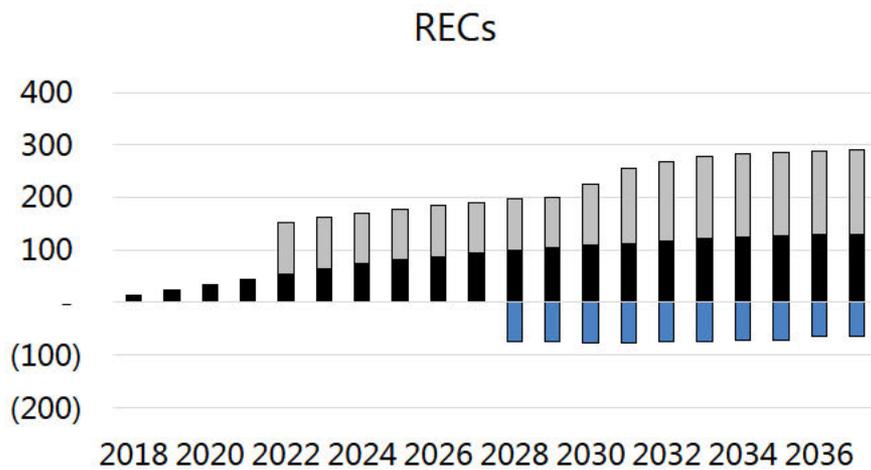
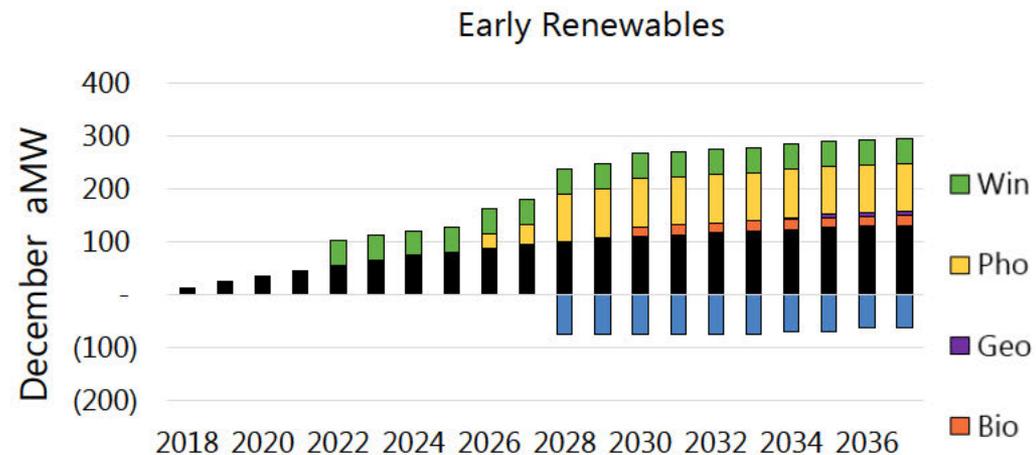
I-937 RENEWABLE RESOURCE COMPLIANCE UNDER NO LOAD GROWTH

- City Light's weather-normal retail load is forecast to decline until the 2030s
- Until approximately 2036, City Light could meet I-937 using no load growth option (Benchmark year less than or equal to average of three previous years—weather normal)



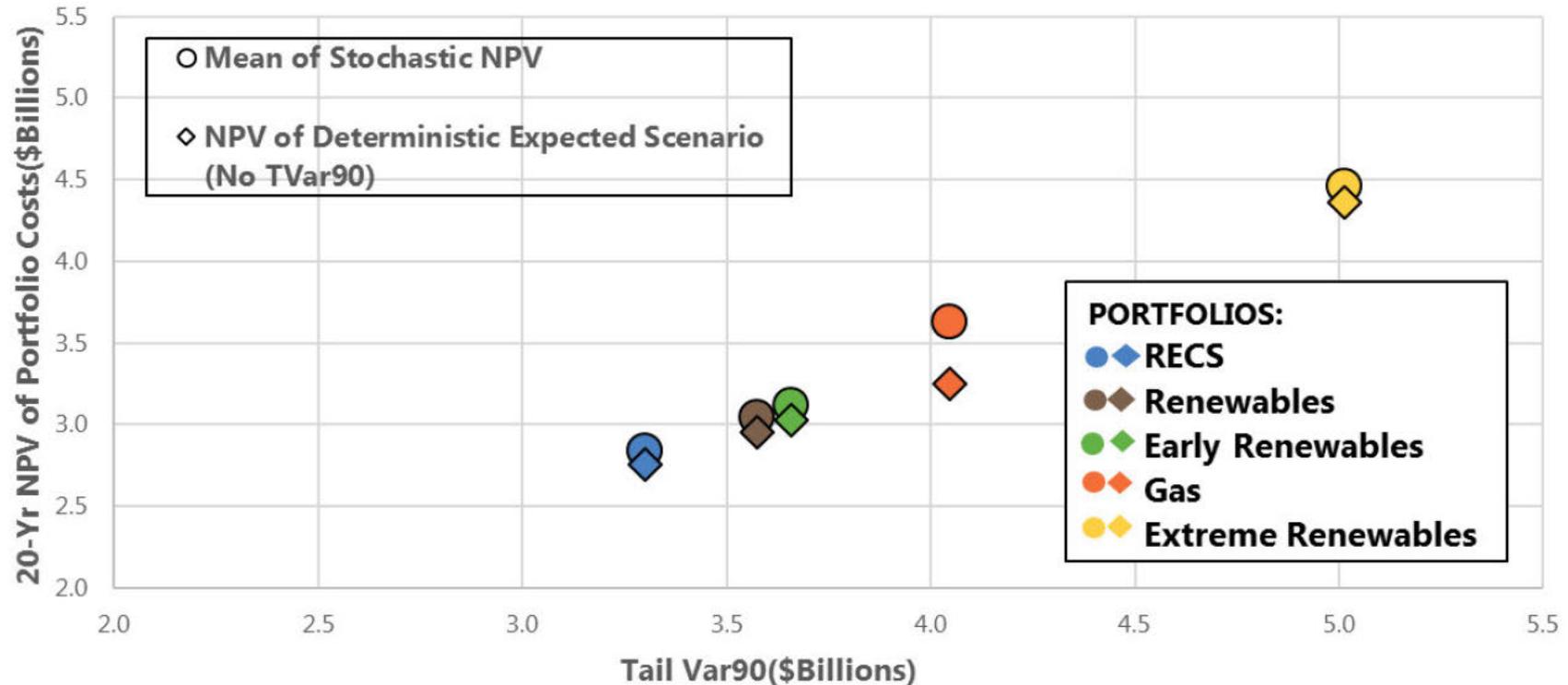
TOP THREE PORTFOLIOS (ZOOMING IN RESOURCE ADDITIONS & REDUCTIONS)

- RECs
- Renewables
- Early Renewables



EXPECTED PORTFOLIO COSTS VERSUS TAIL RISKS OF PORTFOLIOS

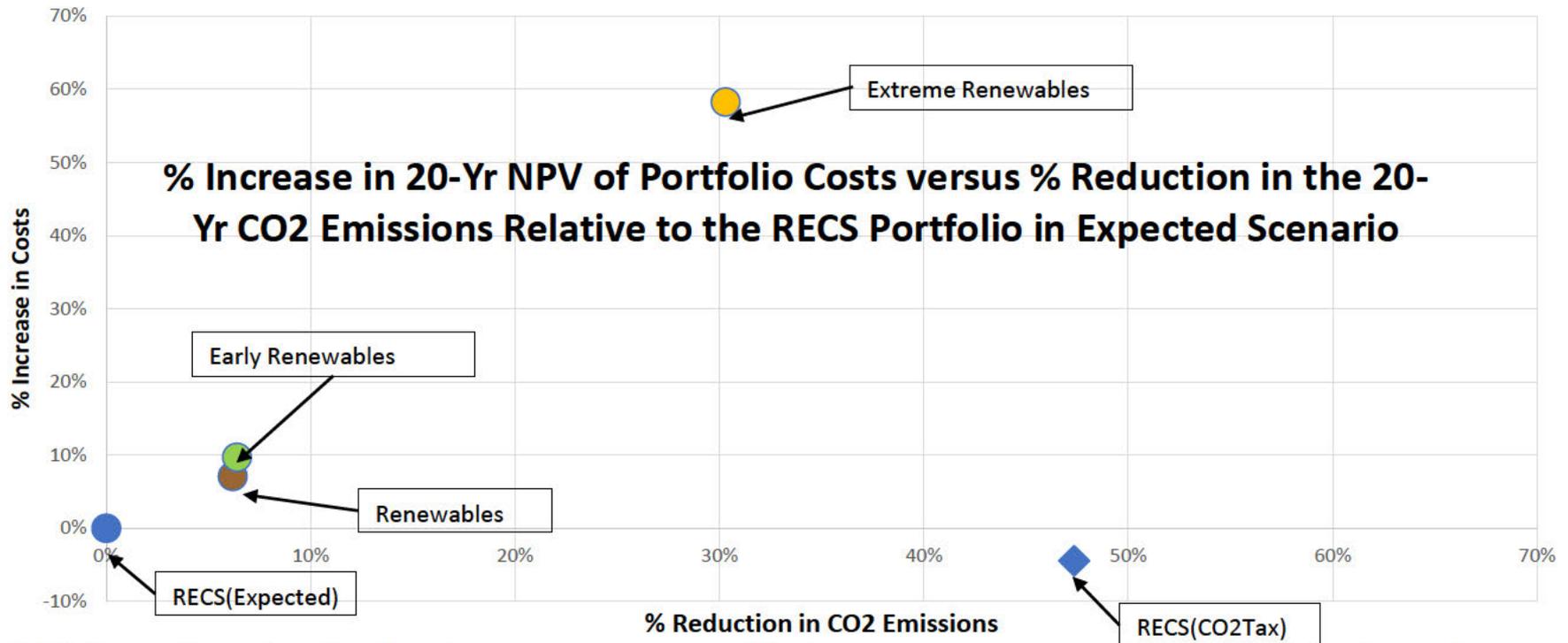
Costs versus Risks of Portfolios



* NPV – Net Present Value, sum of future annual portfolio costs discounted to the present

* TailVar90 – a standard measure of risk, this is the average of the 10% worst case outcomes of the net present value of costs

INCREMENTAL CHANGE IN COSTS AND EMISSIONS FROM RECS PORTFOLIO: EXPECTED/REGIONAL CO2 TAX SCENARIOS



With technological advancements will the cost to get to zero emissions be reduced?

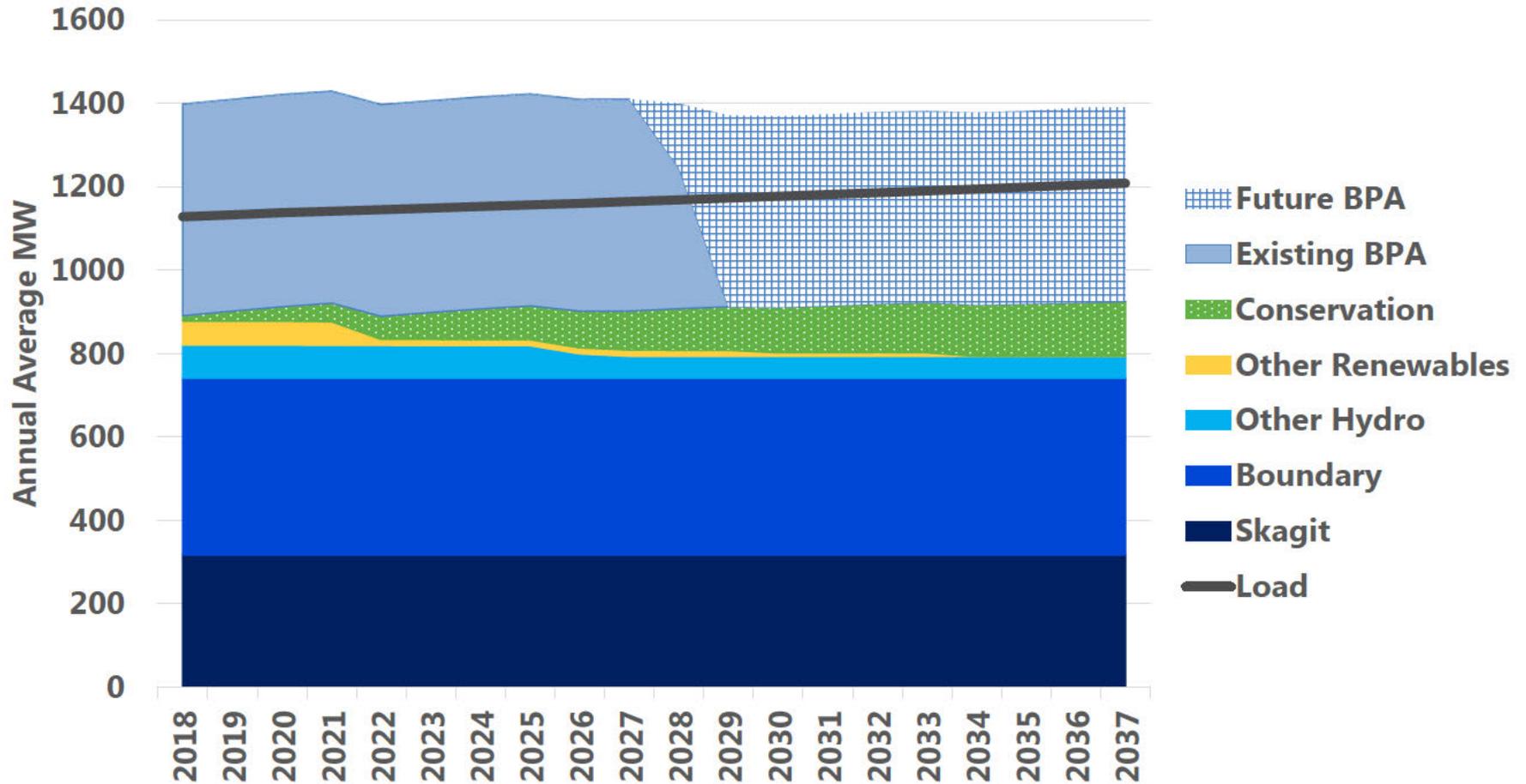
Are there other ways to get more environmental benefit from the same money?

CITY LIGHT'S 2018 RECOMMENDATION

- Conservation should continue to be City Light's first resource choice
- Invest in all cost-effective energy efficiency (two year target ~ 24 average megawatts)
- Continue to use up to 200 Megawatts of day-ahead market purchases as needed
- Conduct an acquisition process to replace canceled renewable energy contracts with delivery of Renewable Energy Certificates starting as early as 2021 and likely no later than 2024, while considering different compliance options available in the near-term
- Continue to support and promote equitable clean energy policies and environmental stewardship
- Maintain affordability and focus on equitable outcomes

TOP PERFORMING PORTFOLIO

Annual Load Resource Balance for RECs Portfolio



IRP STAKEHOLDERS' COMMENTS

- Continue to reduce greenhouse gas emissions
- Review long planning time horizon to ensure that long-term benefits of early investment in renewable generation is recognized
- Be prepared to take quick action if the tides turn

IRP STAKEHOLDERS' COMMENTS

- Look for benefits that distributed resources have on the distribution system
- Make investments to increase City Light's hydro flexibility
- Identify load forecast risks

TWO-YEAR ACTION PLAN DISCUSSION

A short-term plan identifying the specific actions to be taken by the utility consistent with the long-range integrated resource plan

Areas of importance :

- Ensure City Light's analysis keeps up with increasing electric market complexity to provide value to our customers
- Pursue cost-effective conservation and greenhouse gas reductions/mitigation
- Ensure cost-effective compliance with I-937 now and in the future
- Support environmental responsibility

STAKEHOLDER LETTER THEMES

- Appreciate the opportunity to participate and support City Light's Integrated Resource Plan (IRP) process
- Recognize that a significant amount of effort went into the updates provided
- Support City Light's mission
- The 2018 IRP Renewable Energy Certificate portfolio is the same in the first 10 years as the 2016 IRP preferred portfolio (both are part of the current strategic plan– meeting I-937 conservation and 15% of load Renewable target)
- Conservation has been a successful strategy for City Light to keep costs low and reduce Greenhouse Gas emissions and should continue to be City Light's first resource choice

STAKEHOLDER LETTER THEMES

- City Light should continue to support local, state and regional policies to equitably reduce greenhouse gas emissions and promote environmental stewardship
- Stakeholders would like City Light to focus on the action items identified recognizing that the work identified could take more than two years. The following are the highest priority...

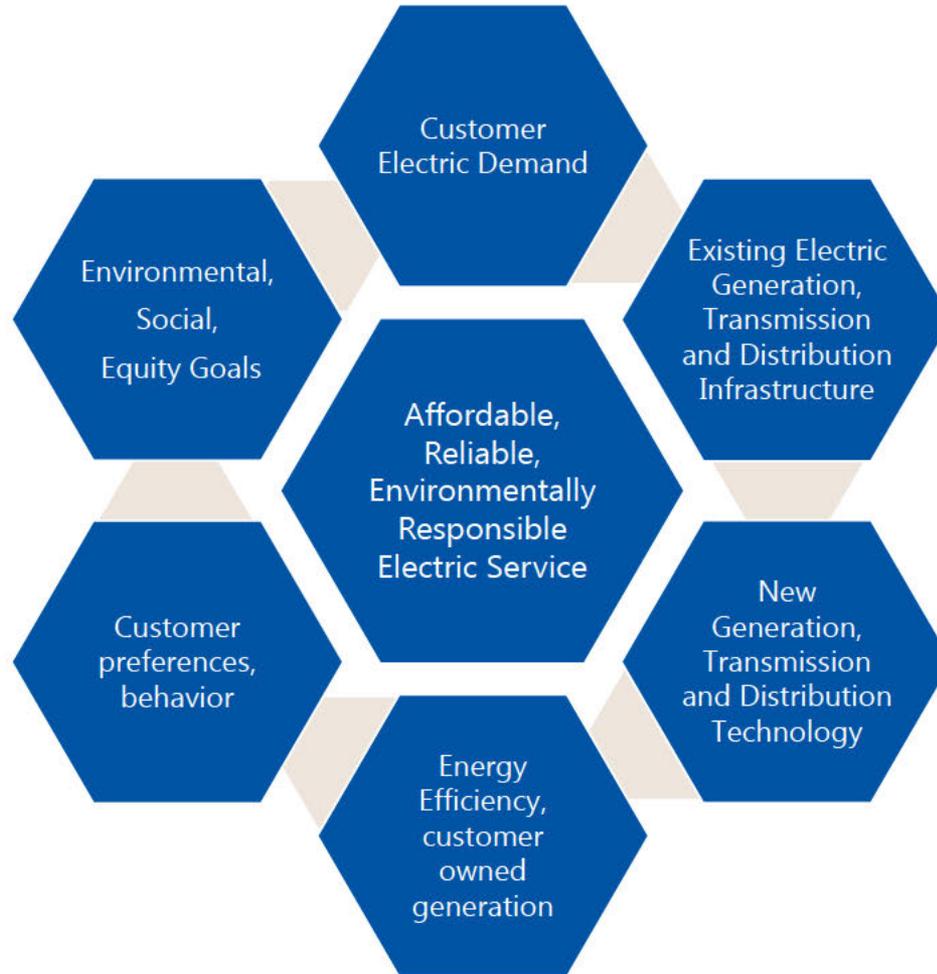
STAKEHOLDER NEXT STEPS

- Recommendations for the Stakeholder process
 - Topics
 - Number and frequency of meetings
 - Other
- Complete and sign 2018 IRP Stakeholder letter to City Council
- Attend Housing, Health, Energy & Workers' Rights Committee Resolution briefing to support City Light's IRP process

INTEGRATED RESOURCE PLANNING NOW AND INTO THE FUTURE

Customer

Infrastructure



CITY LIGHT

OUR MISSION

Seattle City Light is dedicated to delivering customers affordable, reliable and environmentally responsible electricity services.

OUR VISION

We resolve to provide a positive, fulfilling and engaging experience for our employees. We will expect and reinforce leadership behaviors that contribute to that culture. Our workforce is the foundation upon which we achieve our public service goals and will reflect the diversity of the community we serve.

We strive to improve quality of life by understanding and answering the needs of our customers. We aim to provide more opportunities to those with fewer resources and will protect the well-being and safety of the public.

We aspire to be the nation's greenest utility by fulfilling our mission in an environmentally and socially responsible manner.

OUR VALUES

Safety, Environmental Stewardship, Innovation, Excellence, Customer Care



Seattle City Light