

Decarbonizing Seattle through Electrification

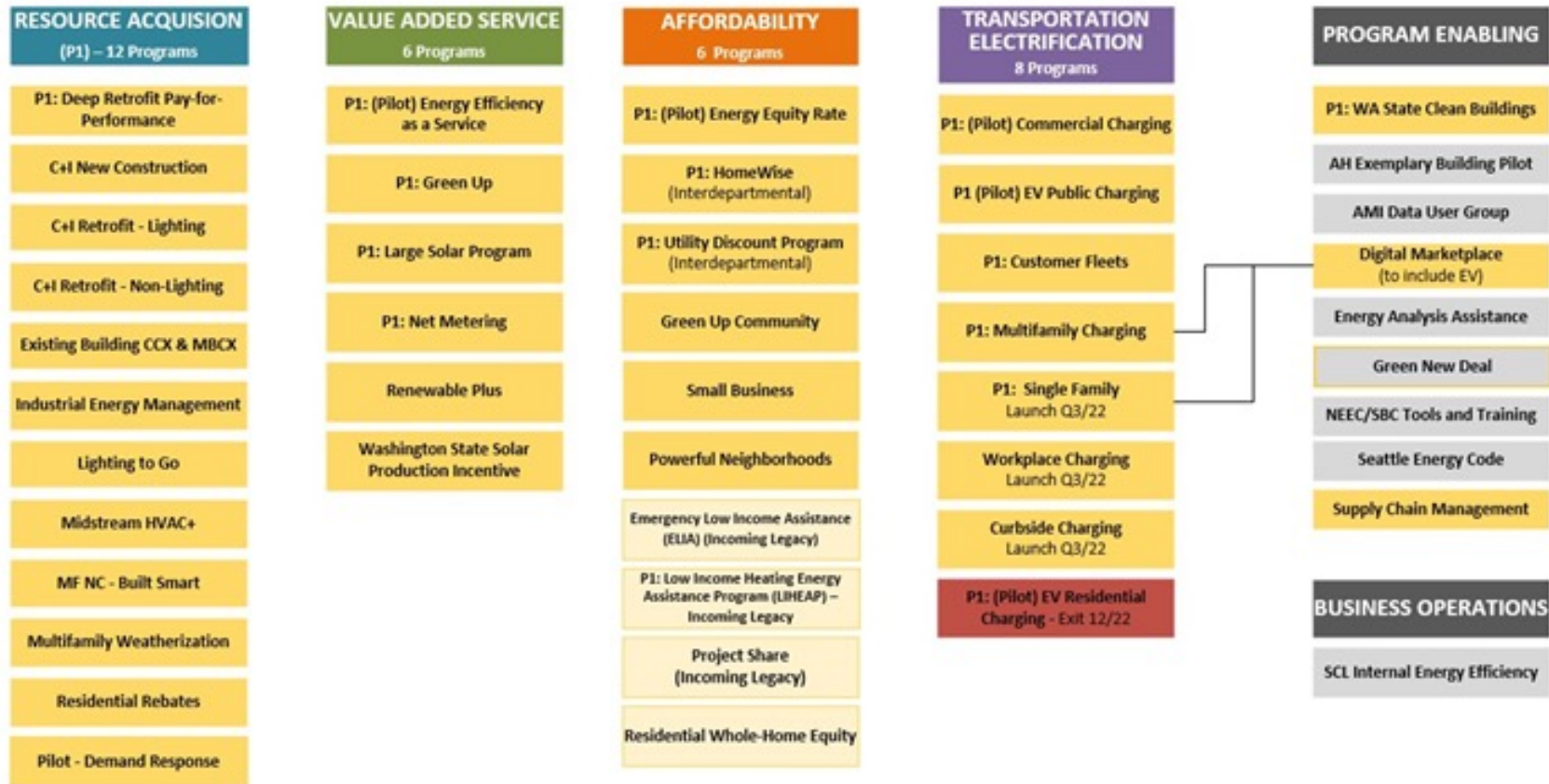
The role of Demand Side resources for Seattle City Light

Emeka Anyanwu
Energy Innovation & Resources Officer, SCL
June 1, 2022

SCL's legacy: A diverse portfolio of EE

CCES Portfolio by Segment

May 01, 2022

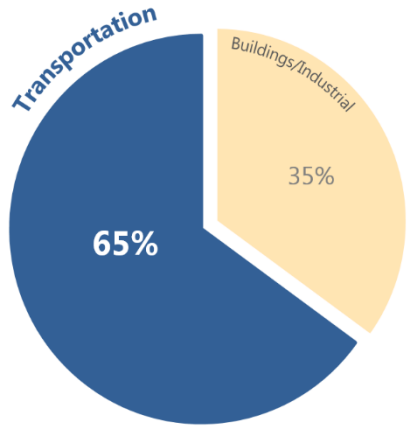


Electrification Impacts for Seattle

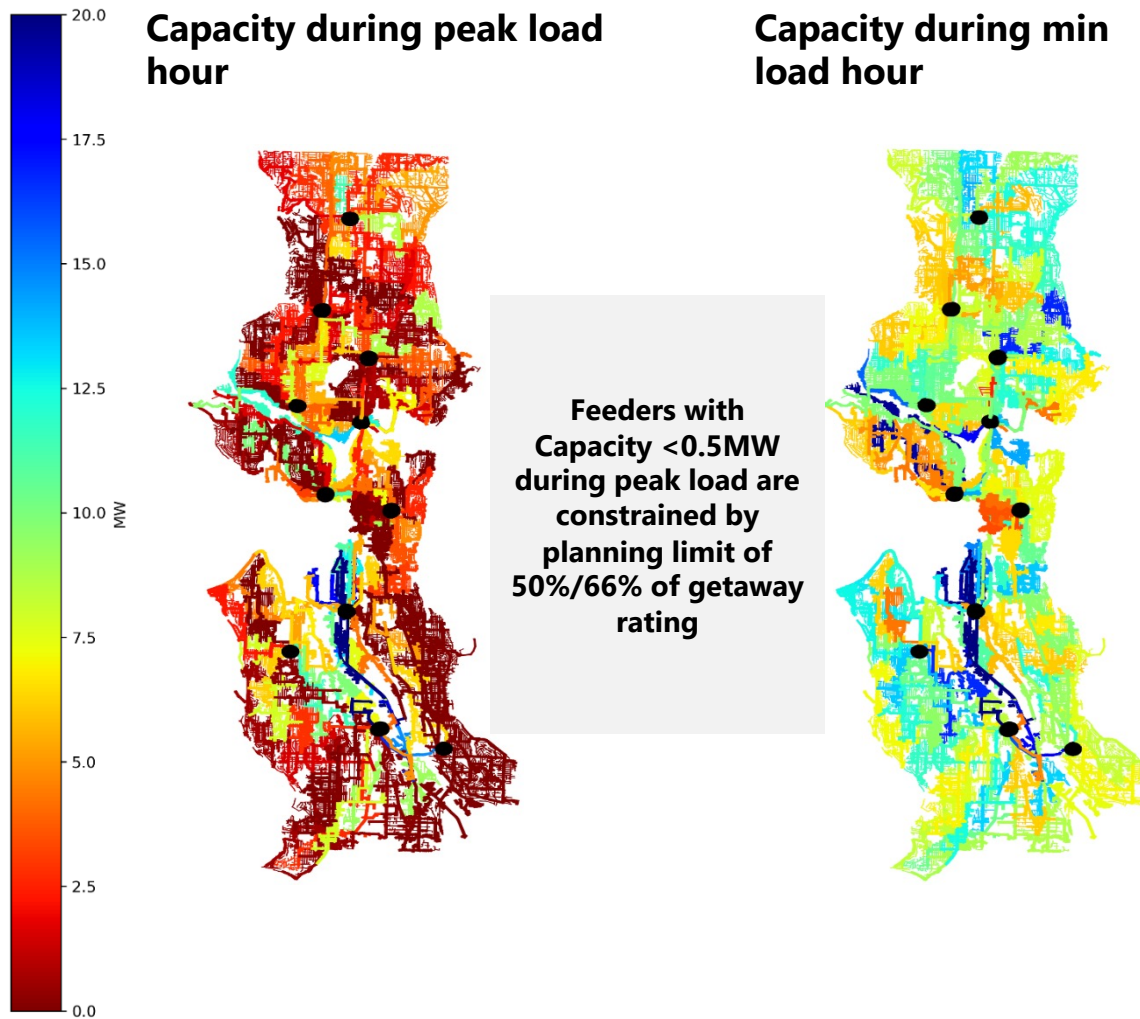
What are the high-level impacts of electrification to SCL's service territory?



City of Seattle Policies:	Targets		
	2030	2040	2050
2018 Climate Action Plan	58% below 2008 emissions	N/A	Net Zero GHG emissions
Green New Deal	"Free of climate pollutants...by 2030"	Continued	Continued
Other:			
Washington State Energy Strategy	45% below 1990 emissions	70% below 1990	95% below 1990 with net zero emissions
NWPPC 2021 Power Plan– "Path to Decarbonization"	N/A	50% of 1990	80% of 1990



Capacity for Additional Distributed Load at Peak and Min



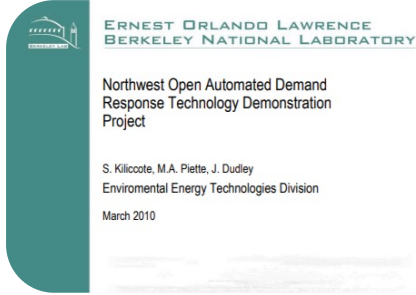
Substation	Capacity during peak Load (MW)	Capacity during min Load (MW)
Broad	51	152
Broad Annex	80	142
Canal	65	129
Creston	179	223
Delridge	120	200
Duwamish	159	257
EastPine	37	131
Massachusetts	29	43
North	125	204
Shoreline	44	129
South	161	264
Union	91	122
University	75	123
Viewland	77	173

SCL's 2022 IRP – Relevant recommendations

- 2022 IRP expected to be first to call for new resources in several years
- Per CETA RCW.19.405.040, utilities must pursue 'all cost-effective, reliable, and feasible conservation and efficiency resources, and demand response'
- Increases Energy Efficiency portfolio
 - Energy Efficiency grows over 100 MW by 2041
- Demand response programs proposed for both Summer & Winter
 - DR is Important tool for reducing climate change and/or electrification load uncertainties for summer and winter
 - Important tool for minimizing financial impacts of wholesale power prices
 - Important option for customer energy solutions/reducing energy burden
 - Important to start demand response programs as soon as possible in order for ramp rates to take effect
- Also proposes investments in utility scale renewables & customer solar program

Relevant Demand Response efforts

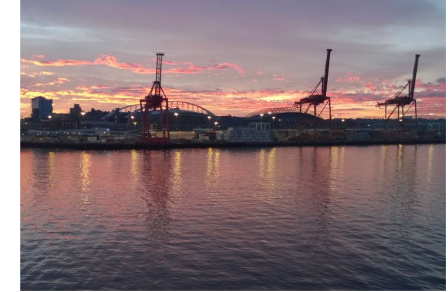
Past Efforts



Demonstration projects and pilots
Northwest Open Automated Demand Response Technology Demonstration Project (2010); Water heater pilot (1990s)



BPA Regional HPWH Pilot
did not pursue (~2017)



C&I curtailment *did not pursue (2019)*

In Flight Efforts



2022 Conservation Potential Assessment—Volume I

DRPA / CPA *DR not used in 2020 IRP; DR not selected in 'optimal portfolio' in the analysis for the CPA; DR selected in the 2022 IRP; new DRPA will be completed in 2023*



TOD Rate Pilots *Ordinance 125957; City Light begins enrollment in the Residential TOD pilot Q4 2020*



Grid Mod Plan *plan to launch DR pilot in 2022; additional DR work in following years (e.g., managing charging)*

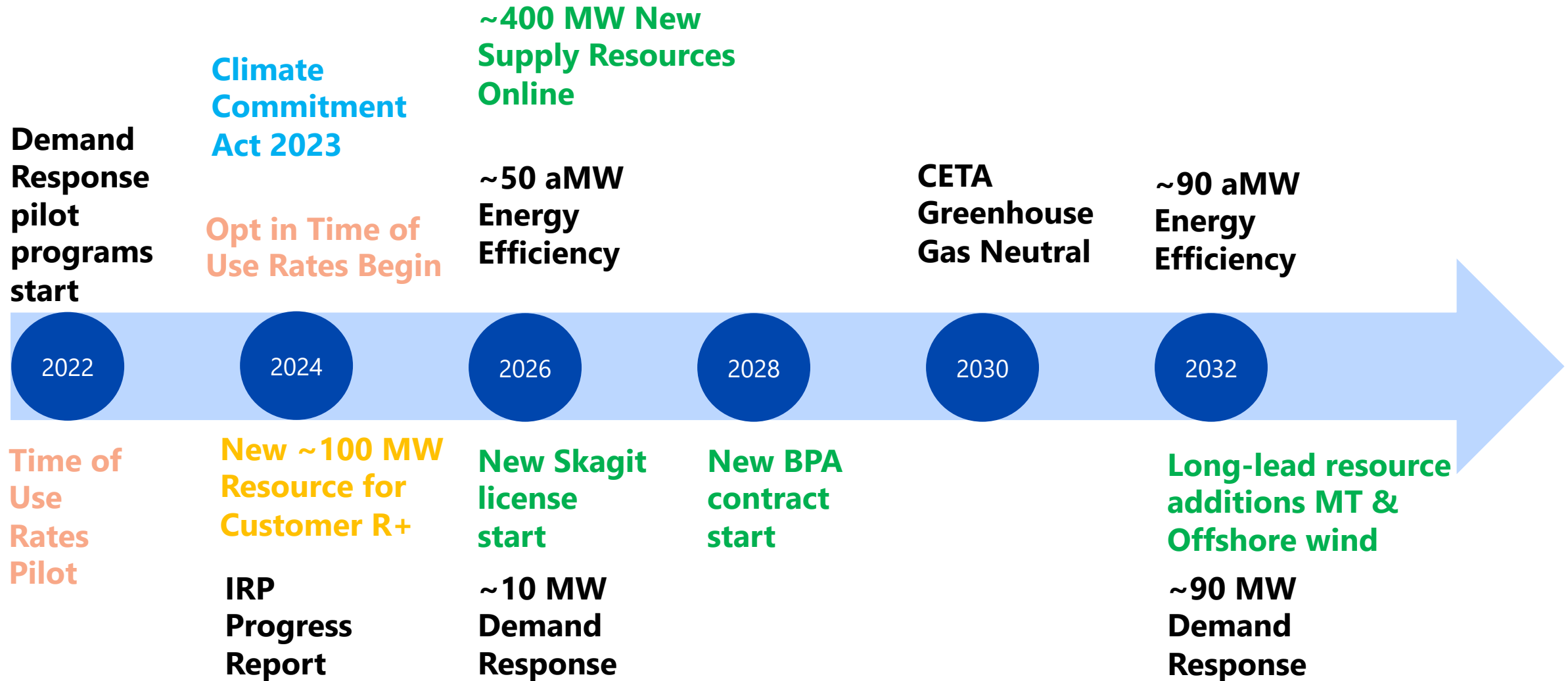


Connected Communities grant *DOE awarded a "Connected Communities" grant in October 2021 to a team of organizations including City Light; this project is still in negotiation and contracting, and the plan is that it will take place over 5 years (focus on water heating).*

Demand Response Pilot *planned for Q4 2022 - Q4 2024*

High-Priority Criteria	Residential Water Heating - GIWH	Residential BYOT	RANKINGS
Retention rates	High, due to low customer impact	Moderate, due to potential fatigue/attrition due to comfort impacts	<div>High</div> <div>Moderate</div> <div>Low</div> <div>Unknown</div>
Customer interest	Low customer interest in water heaters	High customer interest and easier enrollment	
Scalable by 2026	Partially scalable by 2026	Readily scalable by 2026 due to high existing market penetration	
Gives City Light the ability to control/dispatch load	Daily calls through summer/winter	Can only be called up to 5 times per month, or 15 times per season	

10-Year Important Milestones



THANK YOU



Seattle City Light