Decarbonizing Seattle through Electrification The role of Demand Side resources for Seattle City Light

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## SCL's legacy: A diverse portfolio of EE

#### TRANSPORTATION RESOURCE ACQUISION VALUE ADDED SERVICE AFFORDABILITY PROGRAM ENABLING ELECTRIFICATION (P1) - 12 Programs **6** Programs 6 Programs 8 Programs P1: Deep Retrofit Pay-for-P1: (Pilot) Energy Efficiency P1: WA State Clean Buildings P1: (Pilot) Energy Equity Rate Performance P1: (Pilot) Commercial Charging as a Service **AH Exemplary Building Pilot** C+I New Construction P1: HomeWise P1: Green Up P1 (Pilot) EV Public Charging (Interdepartmental) AMI Data User Group C+I Retrofit - Lighting P1: Utility Discount Program P1: Large Solar Program **Digital Marketplace** (Interdepartmental) P1: Customer Fleets (to include EV) C+I Retrofit - Non-Lighting **Energy Analysis Assistance** P1: Net Metering Green Up Community P1: Multifamily Charging Existing Building CCX & MBCX Green New Deal **Renewable Plus** P1: Single Family Small Business Industrial Energy Management Launch Q3/22 **NEEC/SBC Tools and Training** Washington State Solar **Powerful Neighborhoods** Workplace Charging Seattle Energy Code Lighting to Go **Production Incentive** Launch Q3/22 Supply Chain Management **Emergency Low Income Assistance** Midstream HVAC+ **Curbside Charging** (ELIA) (Incoming Legacy) Launch Q3/22 P1: Low Income Heating Energy MF NC - Built Smart Assistance Program (LIHEAP) -P1: (Pilot) EV Residential BUSINESS OPERATIONS Incoming Legacy Charging - Exit 12/22 **Multifamily Weatherization Project Share** SCL Internal Energy Efficiency (Incoming Legacy) **Residential Rebates Residential Whole-Home Equity** Pilot - Demand Response

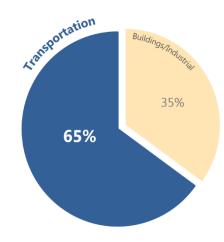
### **CCES Portfolio by Segment**

May 01, 2022

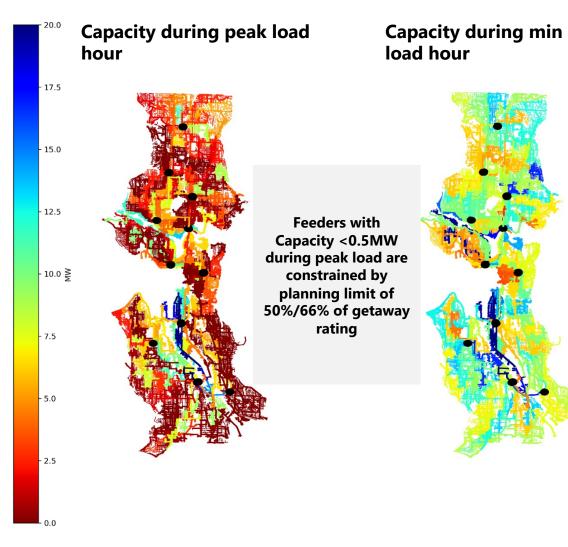
### **Electrification Impacts for Seattle**

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

City of Coattle Policies	Targets		
City of Seattle Policies:	2030	2040	2050
2018 Climate Action Plan	58% below 2008 emissions	N/A	Net Zero GHG emissions
Green New Deal	"Free of climate pollutantsby 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**



ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY

> Northwest Open Automated Demand Response Technology Demonstration Project

S. Kiliccote, M.A. Piette, J. Dudlev Enviromental Energy Technologies Division March 2010

**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)

Seattle City Light

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

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#### **Time-of-Day Rate Pilot Program**

City Light is looking for up to 200 customers to participate in a new Time-of-Day Rate pilot program. Eligible cust have an advanced meter, use more than 750 kWh per month on average, and are not a solar customer of participating in the Utility Discount Program. Benefits of participating include

- . More control and choice armed with more information, you choose when and how much electricity to us
- . No risk if your bill goes up on the pilot rate, we will charge you using the normal rate · Help shape our energy future - your input will help us design future programs that save customers mone the environment

Enrollment will be open September 24 through October 8, 2020, after which time City Light staff will verify custo eligibility and select 200 qualified applicants at random to enroll in the program in October 2020. Read our frequ asked questions to learn more

\* indicates required field

#### **TOD Rate Pilots** Ordinance 125957:

*City Light begins enrollment in the* Residential TOD pilot Q4 2020

2021 Grid Modernization Plan and Roadmap



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*

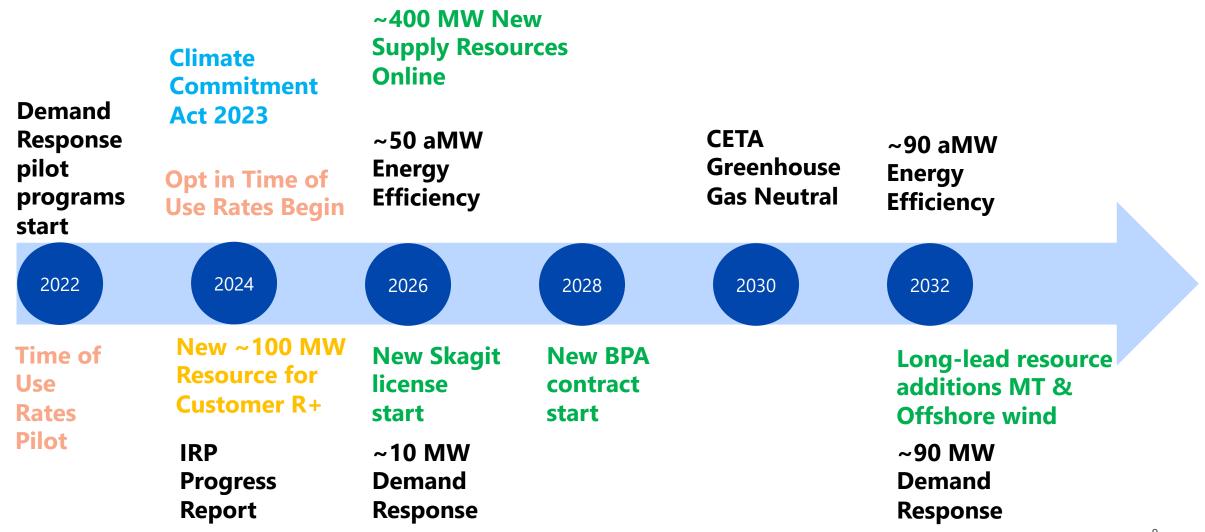
a "Connected Communities" grant in October 2021 to a team of organizations including City *Light; this project is still in negotiation and* contracting, and the plan is that it will take place over 5 years (focus on water heating).

6

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

	Residential Water Heating -		RANKINGS	
High-Priority Criteria	GIWH	Residential BYOT	High	
		Moderate, due to potential	Moderate	
Retention rates	High, due to low customer impact	fatigue/attrition due to comfort	Low	
		impacts	Unknown	
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

