2023 DEMAND RESPONSE POTENTIAL ASSESSMENT

Clark Public Utilities

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Table of Contents

List of Figures

List of Tables

Introduction

This report summarizes the 2023 Demand Response Potential Assessment (DRPA) conducted by Lighthouse Energy Consulting (Lighthouse) for Clark Public Utilities. The DRPA generally followed the methodology used by the Northwest Power and Conservation Council (Council) for the 2021 Power Plan and included many of the same demand response (DR) products. The DR products included are applicable to the residential, commercial, and industrial sectors and utilize a range of strategies, including direct load control, customer-initiated demand curtailment, and time-varying prices to effect reductions in peak demand. The assessment included DR products addressing both winter and summer demand, as Clark Public Utilities is primarily a winter-peaking utility but faces high costs of capacity in the summer. This assessment updates a similar assessment developed in 2021.

Background

The 2021 Power Plan defines DR as “a non-persistent intentional change in net electricity usage by end-use customers from normal consumptive patterns in response to a request on behalf of, or by, a power and/or distribution/transmission system operator. This change is driven by an agreement, potentially financial, or tariff between two or more participating parties.”[1]

DR has not been widely used in the Northwest but has received increased interest in recent years. Growing capacity constraints associated with the closure of regional coal-fired power plants, increases in policies requiring the use of carbon-neutral or renewable energy, and operational limitations placed on the region’s hydropower system are all driving a need for cost-effective generation capacity. DR offers a solution to reduce peak demands, help integrate renewable resources, and reduce congestion on transmission and distribution systems.

In addition, the State of Washington recently passed the Clean Energy Transformation Act (CETA), which requires utilities to assess the amount of DR resource potential that is cost-effective, reliable, and feasible, and use that assessment to identify a target for DR in each Clean Energy Implementation Plan (CEIP). The first CEIP was due January 1, 2022, and updates are due every subsequent four years.

Clark Public Utilities has provided conservation programs for its customers since 1980 and has nearly 47 average megawatts of savings between 2016 and 2021. Like many utilities in the Northwest, Clark Public Utilities does not currently have any active demand response programs but is currently in the process of planning multiple demand response pilots that will begin in 2024. Regional utilities have been conducting pilots of different demand response program types in an effort to learn what types of programs would work well in the Northwest, and Clark Public Utilities has been an active participant in those programs. In 2017 and 2018, Clark Public Utilities participated in a regional pilot focused on using electric water heaters as a flexible resource to help integrate renewable energy resources. Clark Public Utilities also participated in a commercial demand response pilot program in 2015 and 2016 by facilitating conversations with its large commercial customers and providing metering data. In total, the program included nearly 1.5 MW of load and was successful in providing reduced energy demands when given a 20-minute notice.

[1] Northwest Power and Conservation Council, *2021 Power Plan.* March 10, 2022. https://www.nwcouncil.org/fs/17680/2021powerplan_2022-3.pdf

Methodology

The high-level methodology for this assessment included identifying and quantifying the DR products to be included, estimating how many of Clark Public Utilities' customers could adopt them, and finally modelling that adoption over time.

Like a conservation potential assessment, the DR potential calculation process began with the quantification of technical potential, which is the maximum amount of DR possible without regard to cost or market barriers. The assessment then considered market barriers, program participation rates, and other factors to quantify the achievable potential. Finally, the economic potential is quantified by applying an economic screen to the achievable potential. The methodology used to calculate technical and achievable potential is discussed in further detail below.

Demand Response Products

For this DRPA, Lighthouse used the same products that were included in Clark Public Utilities' prior 2021 DRPA. That product list was based on narrowing the list of DR products developed for the 2021 Power Plan to those that were most applicable to Clark Public Utilities. Based on Clark Public Utilities' seasonal capacity needs and discussions with Clark Public Utilities staff, Lighthouse included products targeting both the summer and winter seasons while excluding the agricultural sector as Clark Public Utilities has limited customer load in this area. Lighthouse also excluded demand voltage reduction (DVR), as Clark Public Utilities prefers to implement conservation voltage reduction across its service territory.

DR products that rely on pricing strategies to influence customer behavior typically require advanced metering infrastructure (AMI) to record the time-based impacts. Clark Public Utilities currently has no plans to deploy AMI across its service territory. This assessment presents the results both with and without these products, as the demand response potential associated with these products would not be available until Clark Public Utilities implements AMI. The results that do include these products are intended to show what might be possible, in terms of both potential and cost, over a long-term basis if Clark Public Utilities were to implement AMI. The cost of these products does not include the AMI necessary for implementation.

The high-level categories of DR products included in this assessment are summarized in Table 1 below, which organizes the products by sector and implementation strategy.

Direct load control (DLC) products are those in which the utility has direct control of the operation of applicable equipment. This category includes switches installed on equipment or other equipment with integrated controls such as smart thermostats or grid-enabled hot water heaters. DLC products typically achieve high event participation rates as participation is only limited by the success of the controlled equipment receiving and implementing any instructions to change its operation. Demand curtailment is like DLC but requires the intervention of customers to implement reductions in load. These products usually involve contracts between the customer and utility that detail the amount, duration, and frequency of load reductions. Time-varying price products rely on a variety of tariff-based strategies to encourage customers to respond to higher energy or demand prices.

Table 1: Demand Response Products

	Residential	Commercial	Industrial
Direct Load Control	EV Charging Grid-Enabled Water Heater Water Heater Switch Space Heating Switch Smart Thermostat	Space Heating Switch Space Cooling Switch Smart Thermostat	
Demand Curtailment		Demand Curtailment	Demand Curtailment
Time-Varying Prices	Time of Use Pricing Critical Peak Pricing	Critical Peak Pricing	Critical Peak Pricing Real Time Pricing

A complete list of the products used in this assessment is included in Appendix I of this report.

Customer and Sales Forecasts

With the products identified, Lighthouse then quantified the customer base over which the products could be adopted. Lighthouse used data provided by Clark Public Utilities and other publicly available data to develop forecasts of sales and customer counts for each sector. These forecasts are shown in Figure 1 and Figure 2. The majority of Clark Public Utilities' customers and sales are in the residential sector.

Figure 1: Sales Forecast by Sector

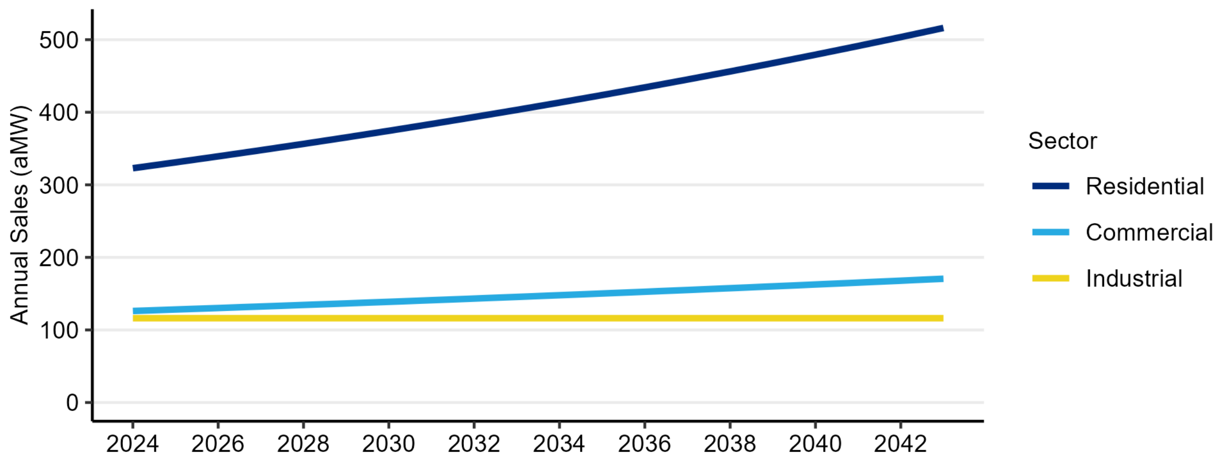
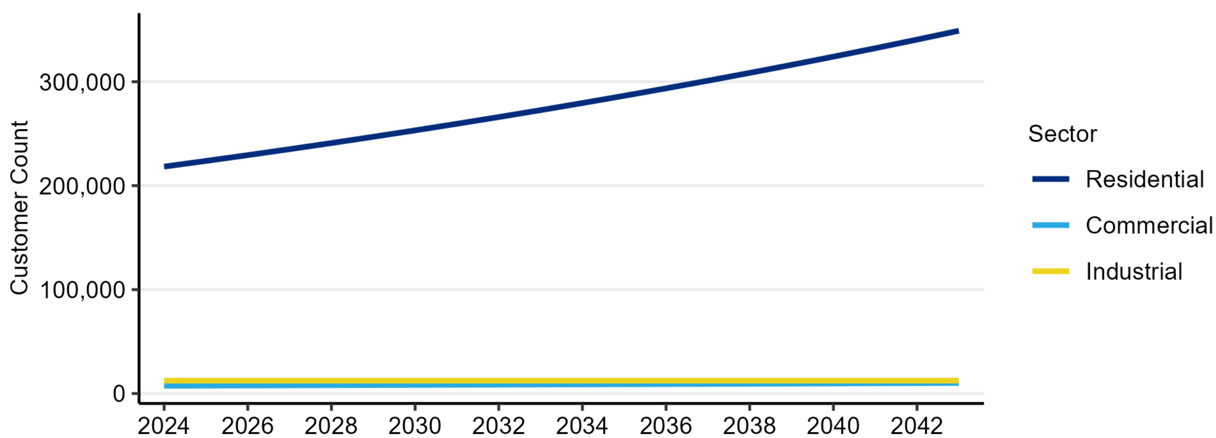


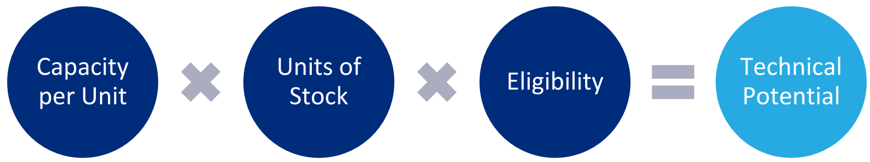
Figure 2: Customer Count Forecast by Sector



Technical Potential

Lighthouse quantified the technical DR potential by a combination of bottom-up and top-down methodologies. In the bottom-up method, illustrated in Figure 3, the per-unit DR capacity reduction of each product was multiplied by the number of technically possible opportunities. The number of opportunities was determined by multiplying the units of stock, such as the number of homes, by an eligibility factor. This factor quantifies the share of units that are eligible to participate in a program, typically by having the appropriate equipment installed. For example, in quantifying the potential associated with a smart thermostat demand response program, the eligibility factor would be the share of homes with a smart thermostat installed in Clark Public Utilities' service territory.

Figure 3: Bottom-Up Technical Potential Calculation



This analysis used the capacity values determined by Council staff in the development of the 2021 Power Plan. Stock unit counts were developed from data provided by Clark Public Utilities and additional public data. Finally, the eligibility factors were determined by a combination of data from Clark Public Utilities' 2023 Conservation Potential Assessment (CPA) and the 2021 Power Plan. Lighthouse used projections of future adoption of smart thermostats and heat pump water heaters developed as part of the 2023 CPA as the basis for the future potential identified this DRPA.

In the top-down method, the technical potential was determined by multiplying an assumption of the DR product's impact on load by an applicable load basis. The impact is the estimated demand reduction, expressed as a percentage, and the load basis is measured in units of demand. The load basis was determined by multiplying the load of a given customer segment by the share of load within the impacted end use. For example, with products controlling HVAC equipment, the customer segment's load used for HVAC was the starting point and was determined by multiplying an annual energy consumption value by an assumption of what percent of the load is consumed by HVAC equipment. Finally, a peak demand factor converted annual energy consumption values into an average peak demand, based on the expected number and duration of DR events. This calculation is shown in Figure 4.

Figure 4: Top-Down Technical Potential Calculation

In this equation, the load impact assumptions and end use shares were taken from the 2021 Power Plan. The segment loads within each sector were developed from updated sector-level forecasts developed as part of Clark Public Utilities' 2023 CPA. Peak demand factors were calculated by Lighthouse based on 2021 Power Plan load shapes.

Achievable Potential

Lighthouse quantified the achievable potential by incorporating additional considerations for program and event participation rates as well as program ramp up periods into the estimate of technical potential. Program participation is the proportion of eligible customers who participate in a DR program while event participation quantifies the share of program participants that participate in any given event. For DR products enabled through DLC, the event participation rate is based on the success of the controlled equipment responding to the control signal and reducing demand while for other types of programs this factor considers the likelihood of human intervention.

The annual buildup of DR programs was determined by ramp rates. Ramp rates consider whether a program is starting from scratch or already has traction in the market and how long it will take to reach its maximum participation levels. This assessment used the ramp rates used in the 2021 Power Plan, where most products were given a ramp rate that reflects a 5- or 10-year ramp up period.

The calculation of achievable potential is the same for both bottom-up and top-down methods and is shown in Figure 5.

Figure 5: Achievable Potential Calculation

Economic Potential

The economic potential was determined by applying a cost-effectiveness screening to the achievable potential described above. To perform this screening, Lighthouse estimated the costs of capacity avoided through demand response for Clark Public Utilities. Lighthouse worked with Clark Public Utilities staff to quantify the following avoided costs associated with reductions in peak demand:

- Avoided capital costs related to the deferral or avoidance of capacity expansions on the transmission and distribution systems that deliver power to Clark Public Utilities' customers
- Avoided generation capacity costs associated with reductions in peak demand

The deferred transmission and distribution capacity costs are based on the values from the 2021 Power Plan and are $3.54 and $7.82 per kW-year (in 2016 dollars), respectively.

Lighthouse and Clark Public Utilities staff collaborated to quantify generation capacity values that would be based on the sum of BPA demand charges across a calendar year, but scaled to reflect a price differential between winter and summer months that Clark Public Utilities was finding for capacity call options. This resulted in winter values of $67/kW-year and summer values of $57/kW-year in current year dollars. These avoided costs were also included as part of the economic screening of energy efficiency measures in Clark Public Utilities' 2023 CPA.

DR products are considered cost effective if the value of the avoided costs is greater than the cost of the product.

Results

This section documents the results of the DRPA. It begins with the winter and summer achievable potential available to Clark Public Utilities and then discusses the costs and results of the economic screening used to identify the cost-effective potential.

Winter Achievable Potential

The estimated achievable winter DR potential is summarized by sector and year in Figure 6. The total winter potential is 100 MW, which is approximately 8.3% of Clark Public Utilities' estimated 2043 winter peak demand. Most of the potential is in the residential sector, which grows throughout the study period.

The potential in the residential sector totals 95 MW in the last year of the study period. The potential in the commercial and industrial sectors totals approximately 5 MW.

Figure 6: Annual Achievable Winter DR Potential by Sector

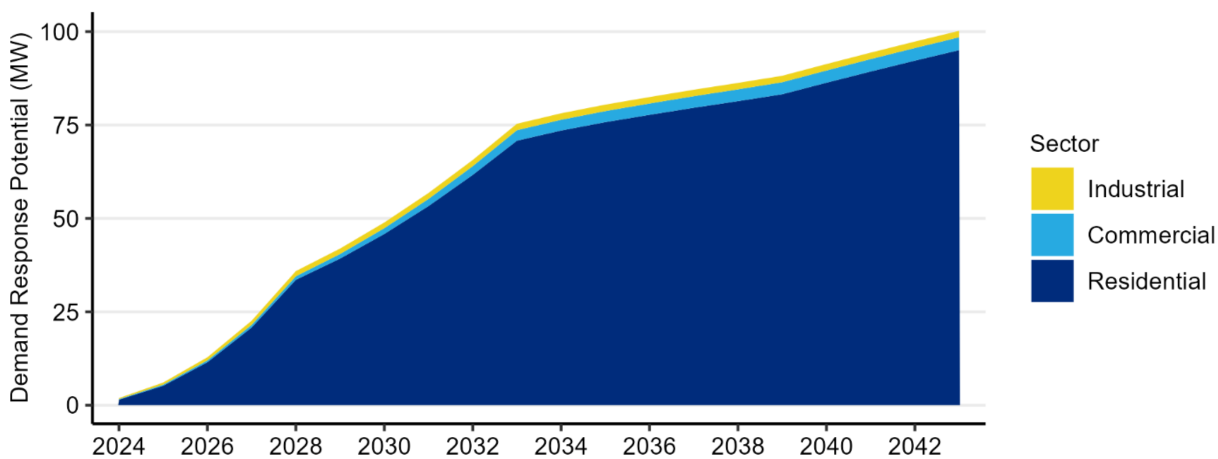


Figure 7 shows how this potential breaks down by end use. Most of the winter potential is spread across the categories of space heating, water heating, and EV charging. The "All" end use includes pricing and curtailment strategies which are assumed to impact all customer end uses. Relative to Clark Public Utilities' 2021 DRPA, the amount of potential from EV charging has increased due to the incorporation of the Advanced Clean Cars rule in Washington. This requires that 100% of new car sales must be EVs by 2035, with intermediate requirements along the way. The DR potential in water heating tapers slightly in the late 2030s due to the forecasted adoption of heat pump water heaters, which provide less load reduction for demand response.

Figure 7: Annual Achievable Winter DR Potential by End Use

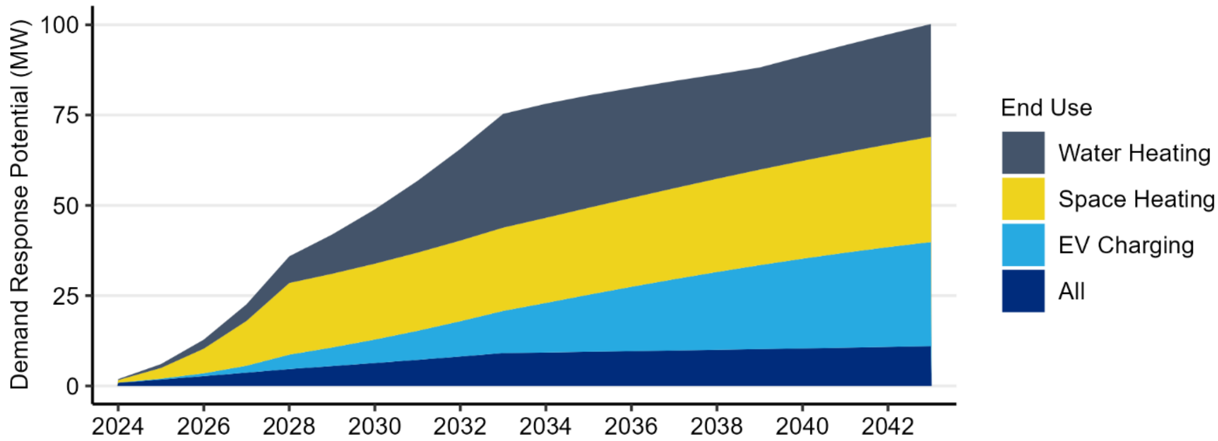
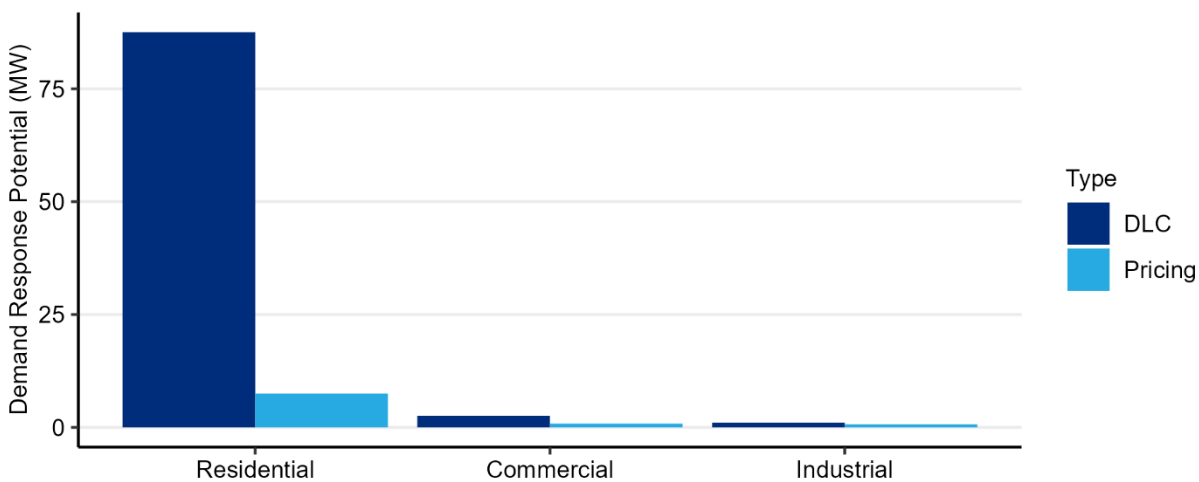


Figure 8 shows how this potential breaks down across the various product types within each sector. In this figure, the commercial and industrial curtailment products are classified as DLC products. Most of the potential is from DLC products, with smaller amounts coming from the pricing strategies that require AMI.

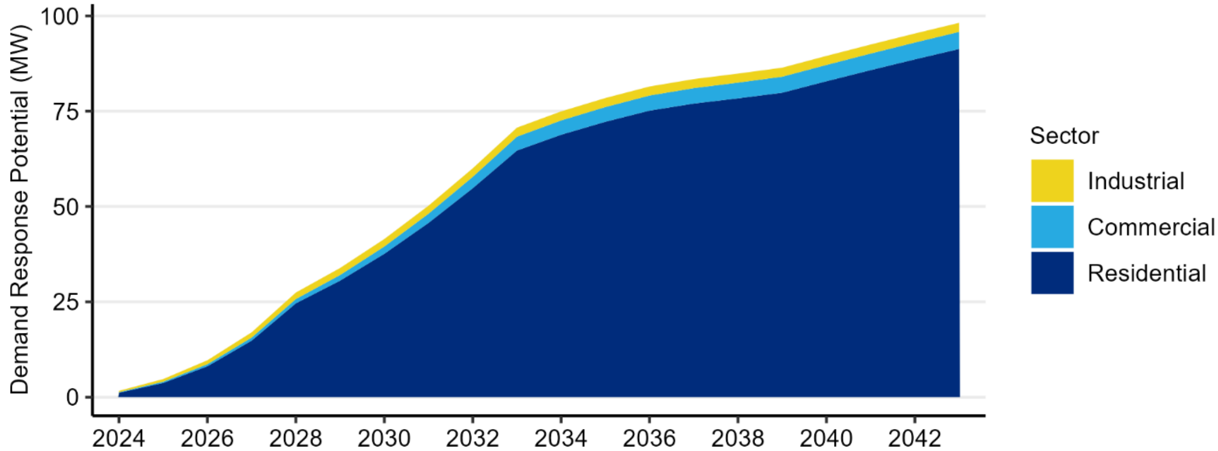
Figure 8: Achievable Winter DR Potential by Sector and Type



Summer Achievable Potential

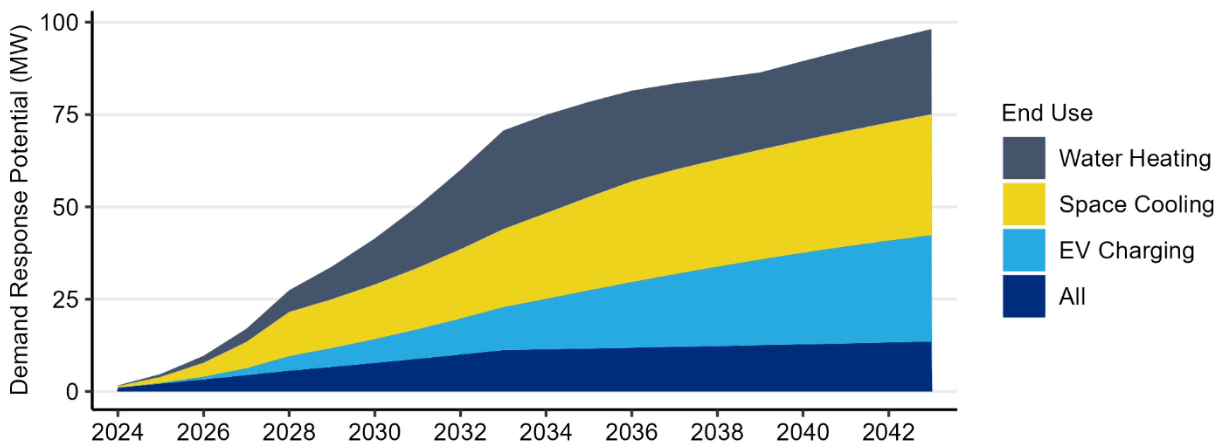
In the summer, Clark Public Utilities has approximately 98 MW of achievable demand response available. Figure 9, below, shows the annual achievable summer potential by sector. The distribution of summer potential across sectors is similar to the winter potential, with slightly more potential available in the commercial sector due to higher air conditioning loads.

Figure 9: Annual Achievable Summer DR Potential by Sector



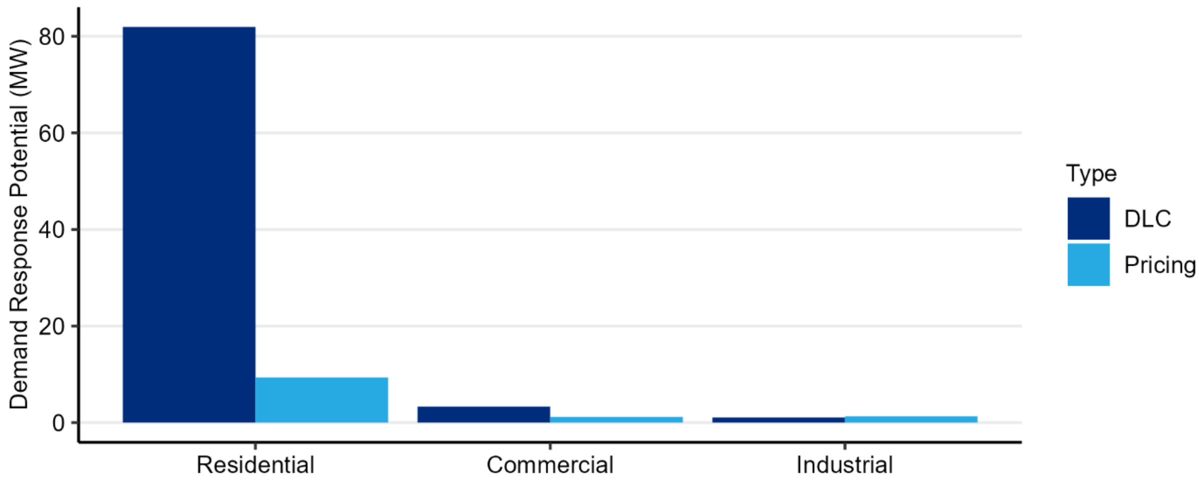
As shown in Figure 10, EV charging, space cooling, and water heating are the end uses with the largest summer potential, similar to the winter season. As before, the "All" end use includes pricing and curtailment strategies which are assumed to impact all customer end uses.

Figure 10: Annual Achievable Summer DR Potential by End Use



The breakdown of the 20-year potential by sector and product type is shown in Figure 11. Similar to the winter season, most of the summer potential is in residential DLC products.

Figure 11: Achievable Summer DR Potential by Sector and Type



Comparison to the 2021 DRPA

Table 2 compares the total cumulative DR potential identified in this study with Clark Public Utilities' previous DRPA, conducted in 2021. The higher residential potential is largely due to increases in the forecasted saturation of EVs, as well as higher overall customer counts.

Table 2: Comparison of 2021 and 2023 Achievable DR Potential

Season/Sector	2021 DRPA	2023 DRPA
Winter	**58**	**100**
Residential	53	95
Commercial and Industrial	5	5
Summer	**56**	**98**
Residential	49	91
Commercial and Industrial	7	7

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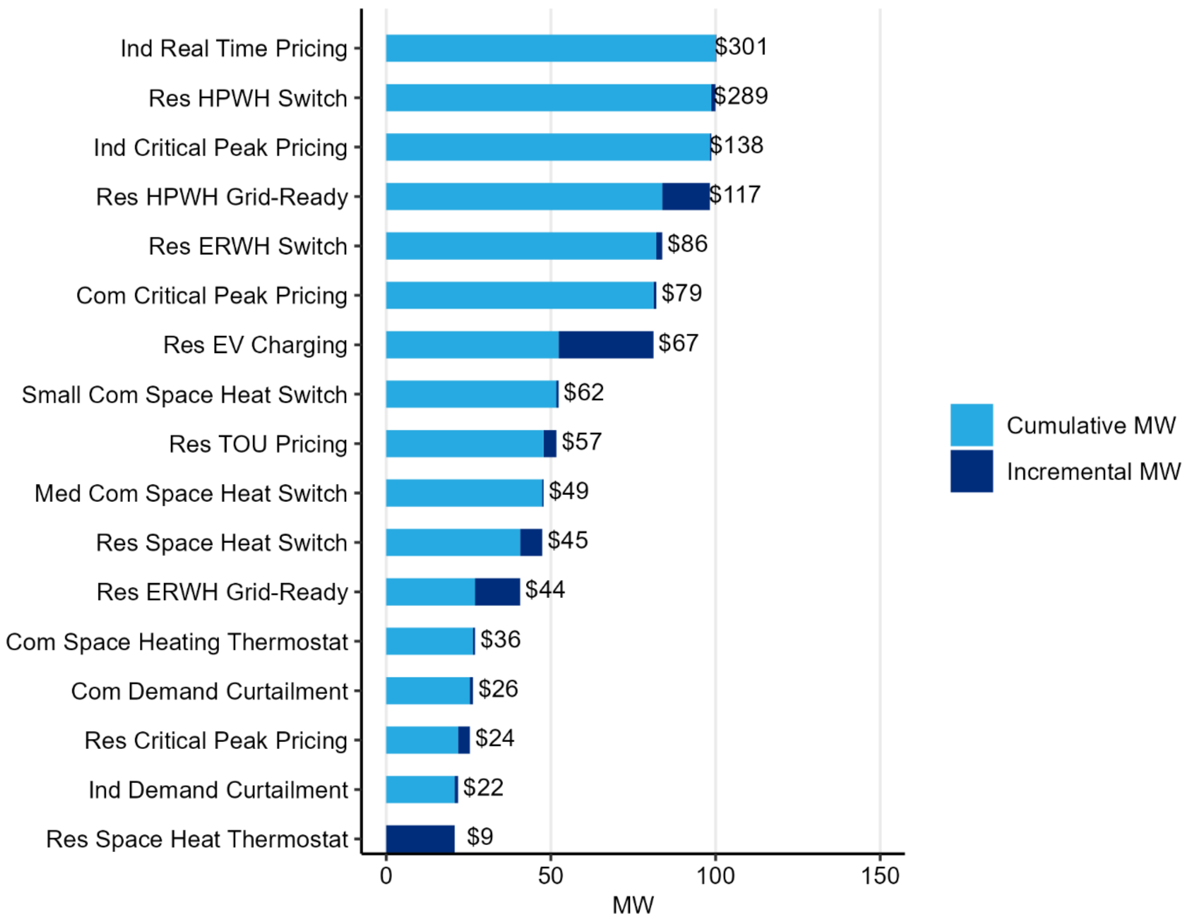
Costs

A supply curve detailing the quantity of capacity and cost for each winter DR product is shown in Figure 12. The products are ranked by levelized cost in $/kW-year, with the lowest cost product at the bottom. Moving up the supply curve, the incremental DR potential for each product is shown in dark blue, with the cumulative potential from all previous products shown in light blue. The horizontal axis reflects the DR capacity available and the value at the end of each bar is the levelized cost of each product. The levelized cost calculations include the credits for deferred distribution and transmission system capacity costs. As discussed above, the same credits were applied to energy efficiency measures in Clark Public Utilities' 2023 CPA.

Figure 12 and Figure 14 include all DR product types. The winter and summer supply curves without products requiring AMI are shown in subsequently, in Figure 13 and Figure 15.

Figure 12 and Figure 14 show that the individual products with the lowest costs include smart thermostats and industrial demand curtailment. Products with the highest amount of potential include DR from EV chargers, smart thermostats, and grid-ready water heaters, including both electric resistance (ERWH) and heat pump (HPWH), although the water heating products have higher costs.

Figure 12: Winter DR Supply Curve - All Product Types (MW and $/kW-year)



In Figure 13, only DLC products are shown as these can be implemented without AMI. Approximately 91 MW of winter DR potential is available from these products.

Figure 13: Winter DR Supply Curve - Excluding AMI Products (MW and $/kW-year)

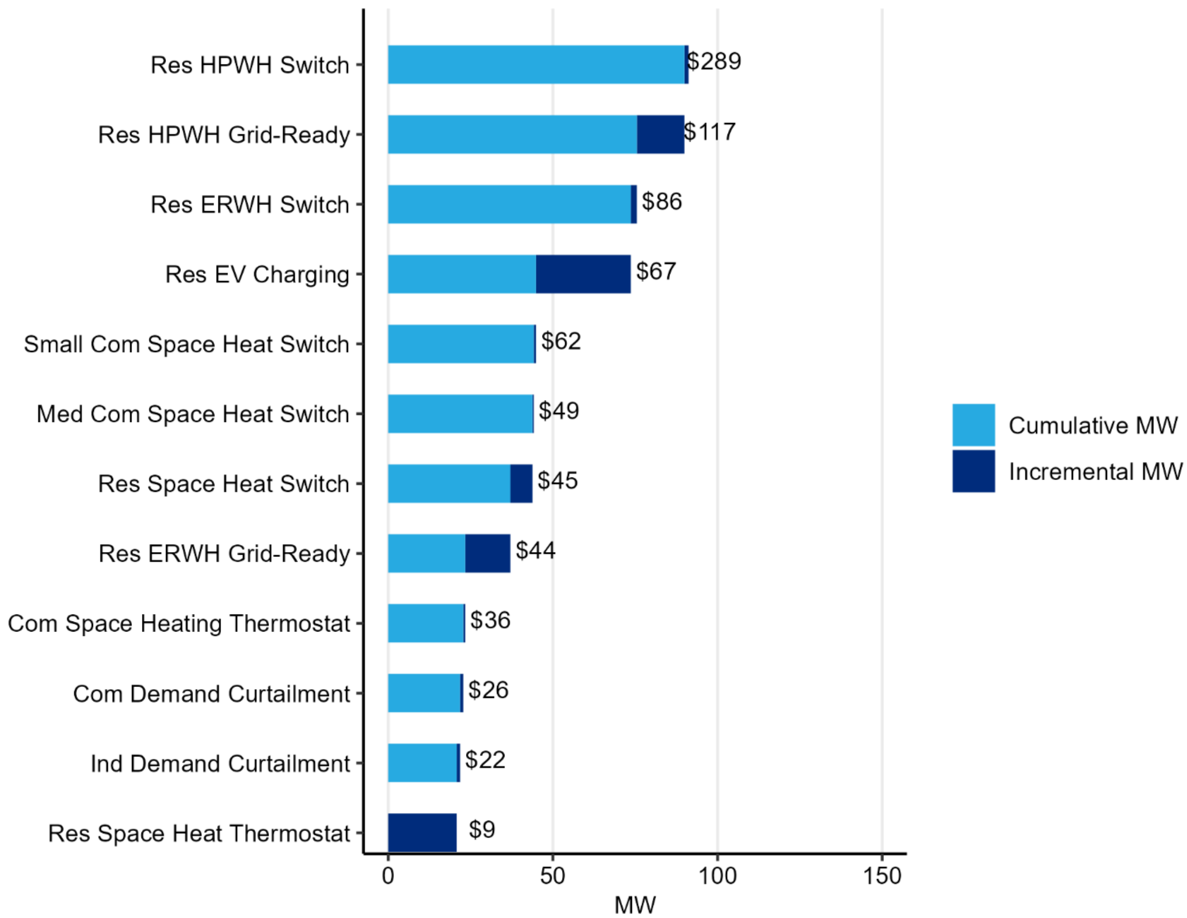


Figure 14 shows a similar supply curve for the summer DR products. The overall characteristics of the summer supply curve are similar to the winter supply curve discussed above. Smart thermostats offer significant amounts of potential at low costs while water heating and EV charging contribute additional potential at higher costs.

Figure 14: Summer DR Supply Curve – All Product Types (MW and $/kW-year)

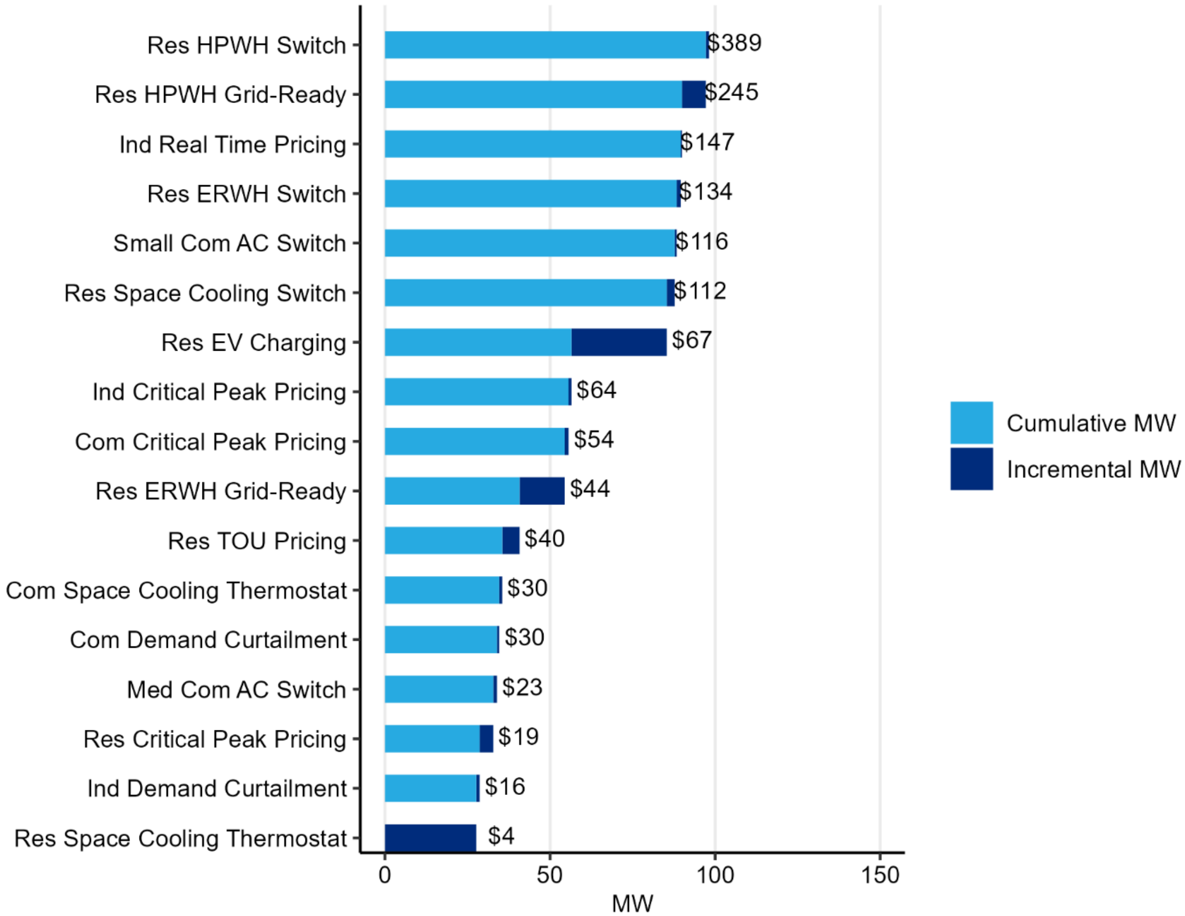
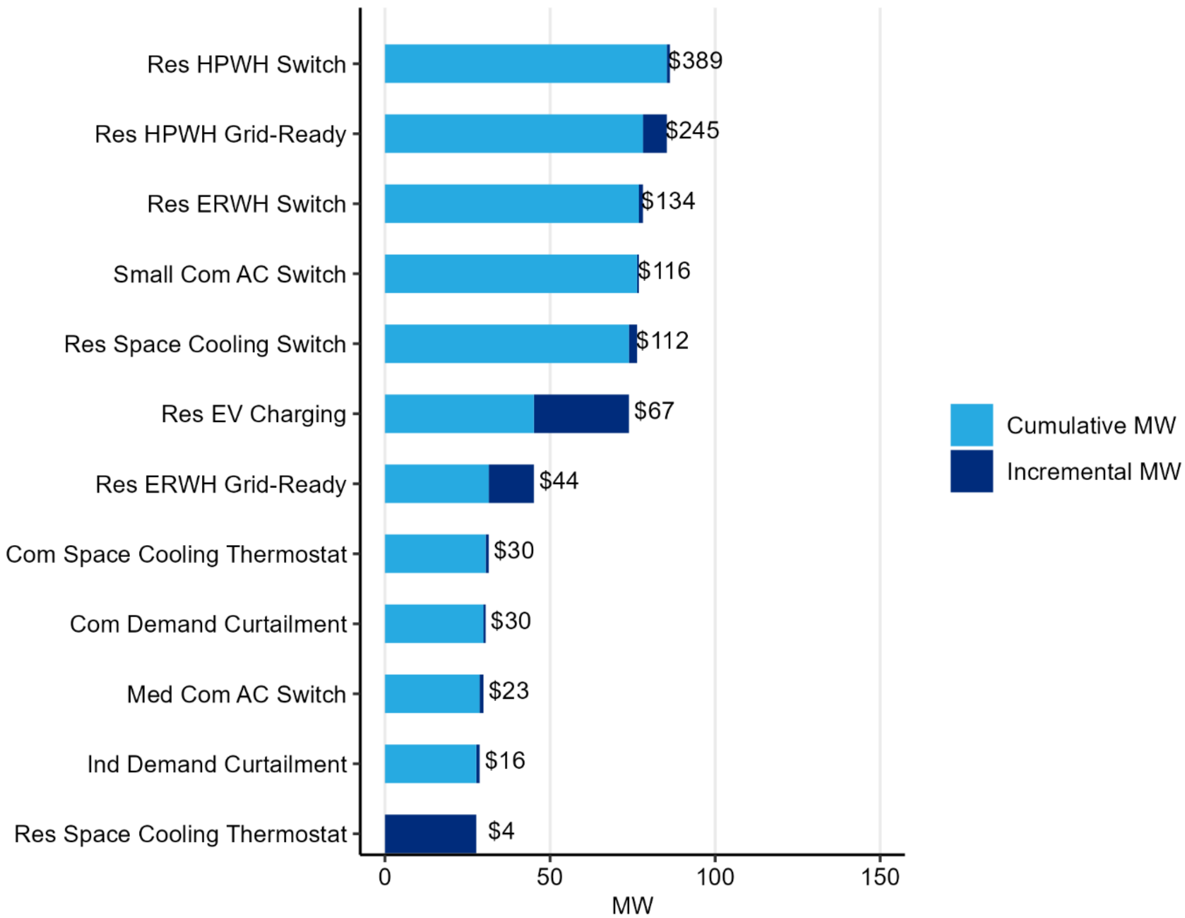


Figure 15 shows the supply curve for DLC products that do not require AMI. Based on this figure, approximately 86 MW of summer DR potential is available.

Figure 15 Summer DR Supply Curve – Excluding AMI Products (MW and $/kW-year)



Cost Effectiveness

Table 3 shows the result of the cost-effectiveness screening for each winter DR product. Products are ranked in descending order by benefit-cost ratio. The 20-year DR potential for each product is also shown. Similar to Clark Public Utilities' 2021 DRPA, residential smart thermostats were the only winter product identified as cost effective, with several other products falling just below the cost-effectiveness threshold of 1.0.

The current saturation of electric vehicles is low, leaving few participants to cover the fixed costs of starting a program in the near term. However, since this is expected to change quickly, EV charging programs may be more cost-effective in the future.

Table 3: Winter Benefit-Cost Ratio Results by Product

lame	Benefit-Cost Ratio	Cumulative MW
Res Space Heat Thermostat	1.1	20.8
Res ERWH Grid-Ready	0.9	13.7
Res TOU Pricing	0.9	3.9
Ind Demand Curtailment	0.7	1.1
Res Critical Peak Pricing	0.7	3.6
Com Demand Curtailment	0.6	1.0
Res ERWH Switch	0.5	1.8
Com Space Heating Thermostat	0.5	0.6
Res Space Heat Switch	0.4	6.7
Res HPWH Grid-Ready	0.4	14.5
Medium Com Space Heating Switch	0.4	0.4
Small Com Space Heating Switch	0.3	0.7
Res EV Charging	0.3	28.8
Com Critical Peak Pricing	0.3	0.8
Res HPWH Switch	0.2	1.3
Ind Critical Peak Pricing	0.2	0.5
Ind Real Time Pricing	0.1	0.2

In the summer season, smart thermostats were again identified as cost effective, along with industrial demand curtailment, as shown in Table 4. The higher value applied to summer capacity through the avoided costs along with higher customer count and load forecasts which spread the fixed costs have made the summer products more cost effective relative to Clark Public Utilities' prior DRPA. Several other products were just below the cost effectiveness threshold.

Table 4: Summer Benefit-Cost Ratio Results by Product

Product Name	Benefit-Cost Ratio	Cumulative MW
Res Space Cooling Thermostat	1.9	27.6
Ind Demand Curtailment	1.1	1.1
Res Critical Peak Pricing	0.9	4.1
Res TOU Pricing	0.9	5.2
Res ERWH Grid-Ready	0.8	13.7
Medium Com Space Cooling Switch	0.8	1.1
Com Demand Curtailment	0.7	0.7
Com Space Cooling Thermostat	0.7	0.9
Com Critical Peak Pricing	0.4	1.2
Ind Critical Peak Pricing	0.4	0.9
Res EV Charging	0.4	28.8
Res ERWH Switch	0.3	1.2
Res Space Cooling Switch	0.2	2.4
Small Com Space Cooling Switch	0.2	0.6
Ind Real Time Pricing	0.2	0.4
Res HPWH Grid-Ready	0.2	7.2
Res HPWH Switch	0.1	1.0

Summary

This report summarizes the results of the 2023 DRPA conducted for Clark Public Utilities. The products included and the methodology used were based on those used by the Council in the 2021 Power Plan, customized to Clark Public Utilities' service territory, and aligned with the projections of Clark Public Utilities' 2023 CPA. It included products applicable to the winter and summer seasons across the residential, commercial, and industrial sectors using a variety of DLC, demand curtailment, and price-based strategies and targeting a variety of end uses.

Overall, the assessment quantified 100 MW of achievable winter DR potential and 98 MW in the summer. Most of the DR potential identified is in the residential sector, which is consistent with the makeup of Clark Public Utilities' customer base. Smart thermostats used to control residential space heating and cooling equipment and EV chargers were the products with the highest potential across both seasons while smart thermostats were the only cost-effective DR product identified in this assessment, although it was only marginally cost-effective in the winter.

Appendix I: DR Product List

Sector	End Use	Product	Type	Methodology
Residential	EV Charging	Res EV Charging - Winter	DLC	Bottom Up
Residential	EV Charging	Res EV Charging - Summer	DLC	Bottom Up
Residential	Water Heating	Res ERWH Switch - Winter	DLC	Bottom Up
Residential	Water Heating	Res ERWH Switch - Summer	DLC	Bottom Up
Residential	Water Heating	Res ERWH Grid-Ready - Winter	DLC	Bottom Up
Residential	Water Heating	Res ERWH Grid-Ready - Summer	DLC	Bottom Up
Residential	Water Heating	Res HPWH Switch - Winter	DLC	Bottom Up
Residential	Water Heating	Res HPWH Switch - Summer	DLC	Bottom Up
Residential	Water Heating	Res HPWH Grid-Ready - Winter	DLC	Bottom Up
Residential	Water Heating	Res HPWH Grid-Ready - Summer	DLC	Bottom Up
Residential	Space Heating	Res Space Heat Switch - West	DLC	Bottom Up
Residential	Space Cooling	Res Space Cooling Switch - West	DLC	Bottom Up
Residential	Space Heating	Res Space Heat Thermostat - West	DLC	Bottom Up
Residential	Space Cooling	Res Space Cooling Thermostat - West	DLC	Bottom Up
Commercial	Space Heating	Com Space Heating Switch - Small/West	DLC	Bottom Up
Commercial	Space Cooling	Com Space Cooling Switch - Small/West	DLC	Bottom Up
Commercial	Space Heating	Com Space Heating Thermostat - West	DLC	Bottom Up
Commercial	Space Cooling	Com Space Cooling Thermostat - West	DLC	Bottom Up
Commercial	Space Heating	Com Space Heating Switch - Medium/West	DLC	Bottom Up
Commercial	Space Cooling	Com Space Cooling Switch - Medium/West	DLC	Bottom Up
Commercial	All	Com Demand Curtailment - Winter	DLC	Top Down
Commercial	All	Com Demand Curtailment - Summer	DLC	Top Down
Industrial	All	Ind Demand Curtailment - Winter	DLC	Top Down
Industrial	All	Ind Demand Curtailment - Summer	DLC	Top Down
Residential	All	Res TOU Pricing - Winter	Pricing	Top Down
Residential	All	Res TOU Pricing - Summer	Pricing	Top Down
Residential	All	Res Critical Peak Pricing - Winter	Pricing	Top Down
Residential	All	Res Critical Peak Pricing - Summer	Pricing	Top Down
Commercial	All	Com Critical Peak Pricing - Winter	Pricing	Top Down
Commercial	All	Com Critical Peak Pricing - Summer	Pricing	Top Down
Industrial	All	Ind Critical Peak Pricing - Winter	Pricing	Top Down
Industrial	All	Ind Critical Peak Pricing - Summer	Pricing	Top Down
Industrial	All	Ind Real Time Pricing - Winter	Pricing	Top Down
Industrial	All	Ind Real Time Pricing - Summer	Pricing	Top Down

Appendix II: Acronyms

AC	Air Conditioning
AMI	Advanced Metering Infrastructure
aMW	Average Megawatt
CEIP	Clean Energy Implementation Plan
CETA	Clean Energy Transformation Act
CPA	Conservation Potential Assessment
CPP	Critical Peak Pricing
CVR	Conservation Voltage Reduction
DLC	Direct Load Control
DR	Demand Response
DRPA	Demand Response Potential Assessment
DVR	Demand Voltage Reduction
ERWH	Electric Resistance Water Heater
EV	Electric Vehicle
HPWH	Heat Pump Water Heater
HVAC	Heating, Ventilation, and Air Conditioning
IRP	Integrated Resources Plan
kW	Kilowatt
MW	Megawatt
TOU	Time of Use

Appendix III: Detailed Results

Product	End Use	Levelized Cost $/kW-year	TRCB CR	4-Year MW	10-Year MW	20-Year MW
Res EV Charging - Winter	EV Charging	$67	0.30	1.91	11.66	28.84
Res EV Charging - Summer	EV Charging	$67	0.36	1.91	11.66	28.84
Res ERWH Switch - Winter	Water Heating	$86	0.52	2.85	5.12	1.81
Res ERWH Switch - Summer	Water Heating	$134	0.32	1.90	3.41	1.21
Res ERWH Grid-Ready - Winter	Water Heating	$44	0.90	1.48	19.65	13.68
Res ERWH Grid-Ready - Summer	Water Heating	$44	0.83	1.48	19.65	13.68
Res HPWH Switch - Winter	Water Heating	$289	0.17	0.15	0.99	1.28
Res HPWH Switch - Summer	Water Heating	$389	0.11	0.11	0.75	0.96
Res HPWH Grid-Ready - Winter	Water Heating	$117	0.39	0.12	5.73	14.45
Res HPWH Grid-Ready - Summer	Water Heating	$245	0.18	0.06	2.87	7.23
Res Space Heat Switch - West	Space Heating	$45	0.41	10.17	10.72	6.73
Res Space Cooling Switch - West	Space Cooling	$112	0.23	3.85	3.93	2.42
Res Space Heat Thermostat - West	Space Heating	$9	1.14	2.09	11.07	20.76
Res Space Cooling Thermostat - West	Space Cooling	$4	1.89	2.99	15.10	27.63
Com Space Heating Switch - Small/West	Space Heating	$62	0.32	0.08	0.56	0.66
Com Space Cooling Switch - Small/West	Space Cooling	$116	0.22	0.07	0.51	0.60
Com Space Heating Thermostat - West	Space Heating	$36	0.49	0.01	0.40	0.62
Com Space Cooling Thermostat - West	Space Cooling	$30	0.69	0.02	0.59	0.92
Com Space Heating Switch - Medium/West	Space Heating	$49	0.39	0.04	0.31	0.36
Com Space Cooling Switch - Medium/West	Space Cooling	$23	0.82	0.14	0.97	1.14
Com Demand Curtailment - Winter	All	$26	0.63	0.30	0.82	0.96
Com Demand Curtailment - Summer	All	$30	0.70	0.21	0.57	0.67
Ind Demand Curtailment - Winter	All	$22	0.70	0.85	1.06	1.06
Ind Demand Curtailment - Summer	All	$16	1.06	0.84	1.05	1.05
Res TOU Pricing - Winter	All	$57	0.88	1.06	3.06	3.92
Res TOU Pricing - Summer	All	$40	0.91	1.41	4.09	5.24
Res Critical Peak Pricing - Winter	All	$24	0.66	0.96	2.79	3.57
Res Critical Peak Pricing - Summer	All	$19	0.94	1.11	3.22	4.12
Com Critical Peak Pricing - Winter	All	$79	0.26	0.26	0.72	0.84
Com Critical Peak Pricing - Summer	All	$54	0.44	0.36	0.99	1.16
Ind Critical Peak Pricing - Winter	All	$139	0.15	0.18	0.46	0.46
Ind Critical Peak Pricing - Summer	All	$64	0.38	0.36	0.91	0.91
Ind Real Time Pricing - Winter	All	$301	0.07	0.08	0.20	0.20
Ind Real Time Pricing - Summer	All	$147	0.18	0.16	0.40	0.40