2023 DEMAND RESPONSE POTENTIAL ASSESSMENT

Richland Energy Services

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Introduction

This report summarizes the 2023 Demand Response Potential Assessment (DRPA) conducted by Lighthouse Energy Consulting (Lighthouse) for Richland Energy Services (RES). 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 RES is primarily a winter-peaking utility but also experiences high demand in the summer.

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 alleviate some 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.

Like many utilities in the Northwest, RES does not currently have active customer-facing DR programs. RES does, however, currently make use of voltage reduction during times of peak demand. This is known as demand voltage regulation, or DVR. Regional utilities have been conducting pilots of different DR program types to learn what types of programs would work well in the Northwest. RES has participated in past pilots offered by Bonneville Power Administration (BPA), including a regional pilot conducted from 2013 to 2017. RES also recently began offering an incentive for electric vehicle charging equipment and requires that customers document that the chargers have been set to charge during off-peak hours.

[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 of this DRPA began by identifying the DR products to be included in the assessment and quantifying RES's customer base that could adopt them. With these inputs developed, Lighthouse quantified the DR potential.

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 screening 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 RES's previous 2021 DRPA. The product list was based on narrowing the list of DR products developed for the 2021 Power Plan to those that were most applicable to RES. Based on RES's monthly demand and other discussions with RES staff, Lighthouse included products that target both the summer and winter seasons while excluding the agricultural sector as RES has limited customer load in this area.

DR products that rely on pricing strategies to influence customer behavior typically require advanced metering infrastructure (AMI) to record the time-based impacts. RES plans to complete its deployment of AMI across the service territory by the end of 2023. This schedule allowed for the implementation of DR products requiring AMI earlier within the study time period relative to RES's prior DRPA. For example, in the 2021 DRPA, Lighthouse assumed that 50% of meters would be updated in year one of that study period (2022). This DRPA begins in 2024, after the AMI rollout is scheduled to be completed, so products requiring AMI could begin full implementation immediately.

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 typically 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 strategies to encourage customers to respond to higher energy or demand prices.

Table 1: Demand Response Products

	Residential	Commercial	Industrial	Utility
Direct Load Control	EV Charging Grid-Enabled Water Heater Water Heater Switch Space Heating Switch Smart Thermostat	Space Heating Switch Smart Thermostat		Demand Voltage Reduction
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 the Appendix 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 RES and other publicly available data to develop forecasts of sales and customer counts for each sector. These forecasts are summarized in Figure 1 and Figure 2.

The majority of RES's customers are residential customers but sales to the residential and commercial sectors are approximately equal in the near term. In Figure 2, the lines for the count of commercial and industrial customers overlap.

Figure 1: Sales Forecast by Sector

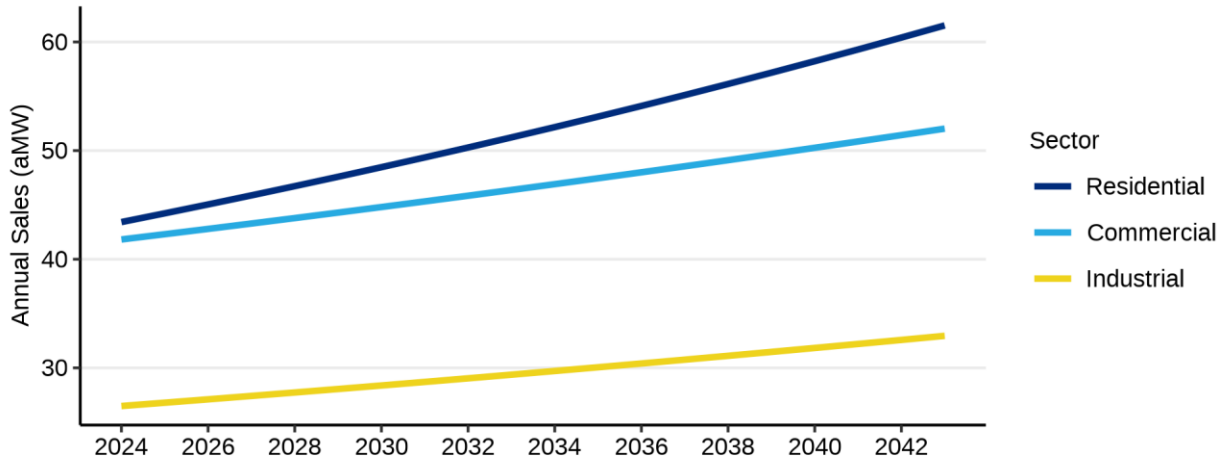
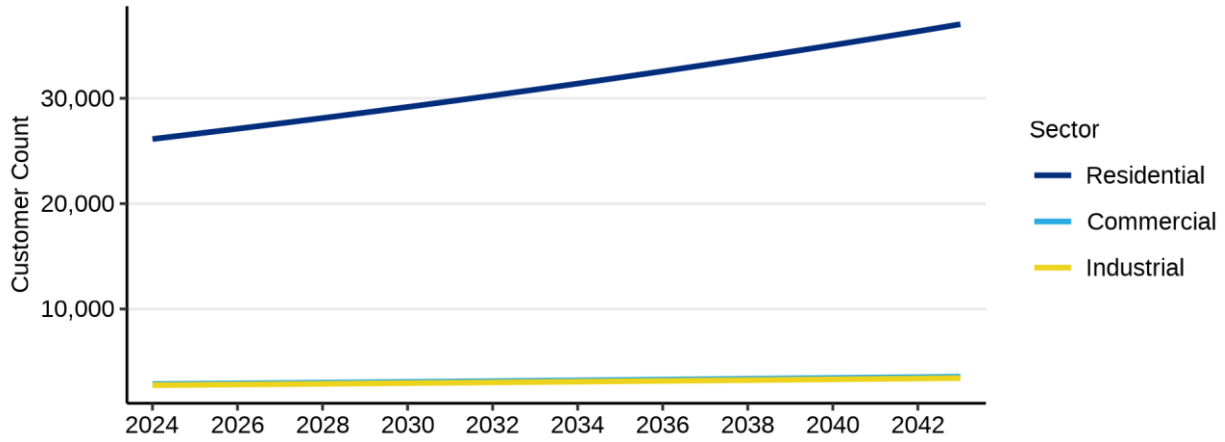


Figure 2: Customer Count Forecast by Sector



Technical Potential

The technical DR potential was quantified by a combination of bottom-up and top-down methodologies. In the bottom-up method, illustrated in Figure 3, Lighthouse multiplied the estimate of demand reduction per-unit of equipment for each product 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 install the DR product or participate in a program. 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 RES's 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 RES and additional public data. Finally, the eligibility factors were determined by a combination of data from RES's 2023 CPA and the 2021 Power Plan. Lighthouse used projections of the future adoption of smart thermostats and heat pump water heaters to inform 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 RES's 2023 Conservation Potential Assessment (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 to the 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 called 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 ramp up 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 cost of capacity avoided through demand response for RES. As part of the CPA, Lighthouse identified the following avoided costs related to 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 RES's customers
- Avoided generation capacity costs associated with reductions in peak demand

As discussed in the CPA, RES's avoided generation capacity costs are currently best reflected in the monthly demand charges paid to BPA. Lighthouse used these charges as well as estimates of the months in which each DR product could be used to estimate the avoided generation capacity costs for each DR product. These avoided generation capacity costs were combined with the avoided transmission and distribution system costs and compared with the costs of each product.

Results

This section describes the results of the DRPA. It begins with the achievable potential available to RES 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 16.2 MW, which is approximately 8% of RES's estimated 2043 winter peak demand. Most of the potential is in the residential sector, which totals 12.9 MW in the last year of the study period. The remaining potential is primarily in the commercial and utility sectors, with a small amount in the industrial sector. Together, the potential in these three sectors totals approximately 3.3 MW in 2043.

The potential grows throughout the study period due to the continued adoption of eligible equipment, like smart thermostats and electric vehicle chargers. This growth overshadows declines in DR potential related to water equipment as homes shift to heat pump water heaters.

Figure 6: Annual Achievable Winter DR Potential by Sector

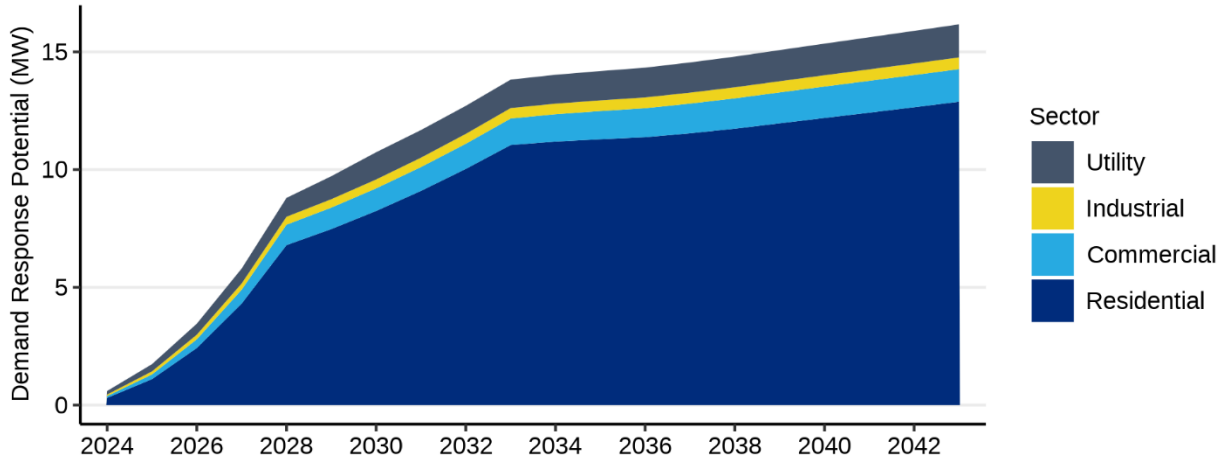


Figure 7 The end use with the largest potential is space heating, while there are smaller amounts in each of the water heating, EV charging, and all end uses. The all end use includes pricing and curtailment products that are assumed to impact all customer end uses. The potential available from EV charging has increased relative to RES's 2021 DRPA due to the adoption of the Advanced Clean Cars II rule in Washington.

In Figure 7, potential for DVR is included in the all end use category.

Figure 7shows how this potential breaks down by end use. The end use with the largest potential is space heating, while there are smaller amounts in each of the water heating, EV charging, and all end uses. The all end use includes pricing and curtailment products that are assumed to impact all customer end uses. The potential available from EV charging has increased relative to RES's 2021 DRPA due to the adoption of the Advanced Clean Cars II rule in Washington.

In Figure 7, potential for DVR is included in the all end use category.

Figure 7: Annual Achievable Winter DR Potential by End Use

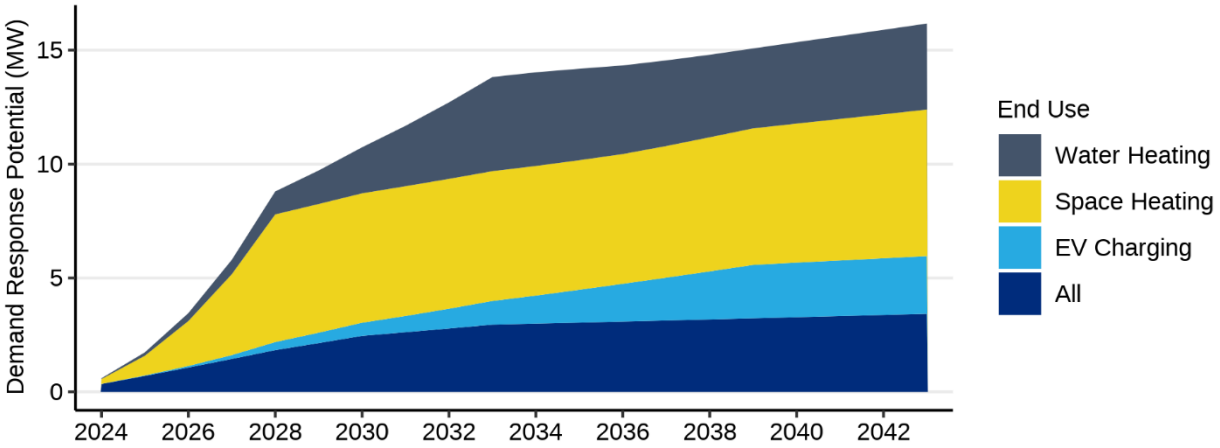
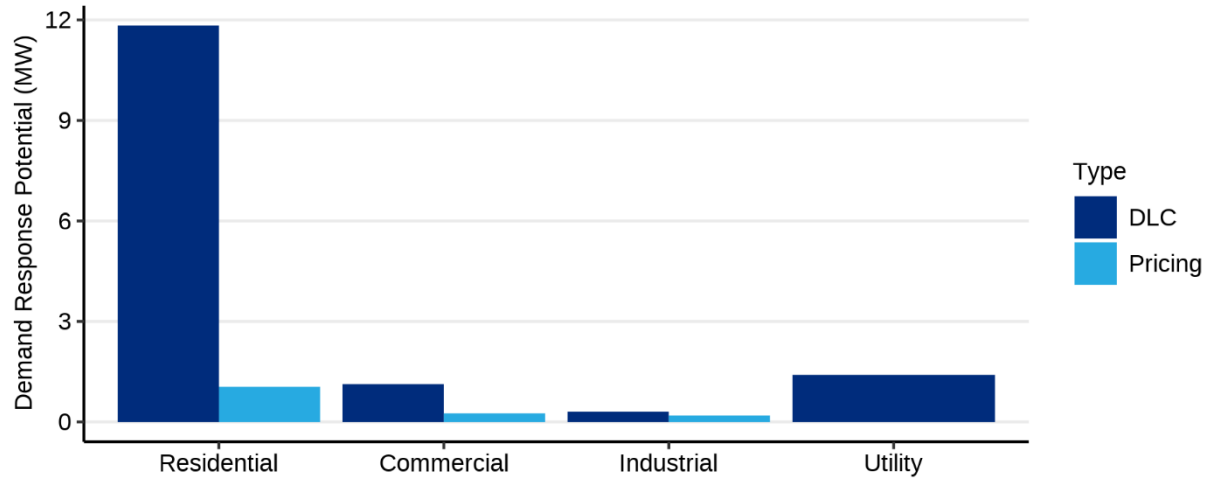


Figure 8 shows how this potential breaks down across the various product types within each sector. In this figure, the commercial and industrial curtailment products are classified as DLC products. Most of the potential is from DLC products, with smaller amounts coming from the pricing strategies that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

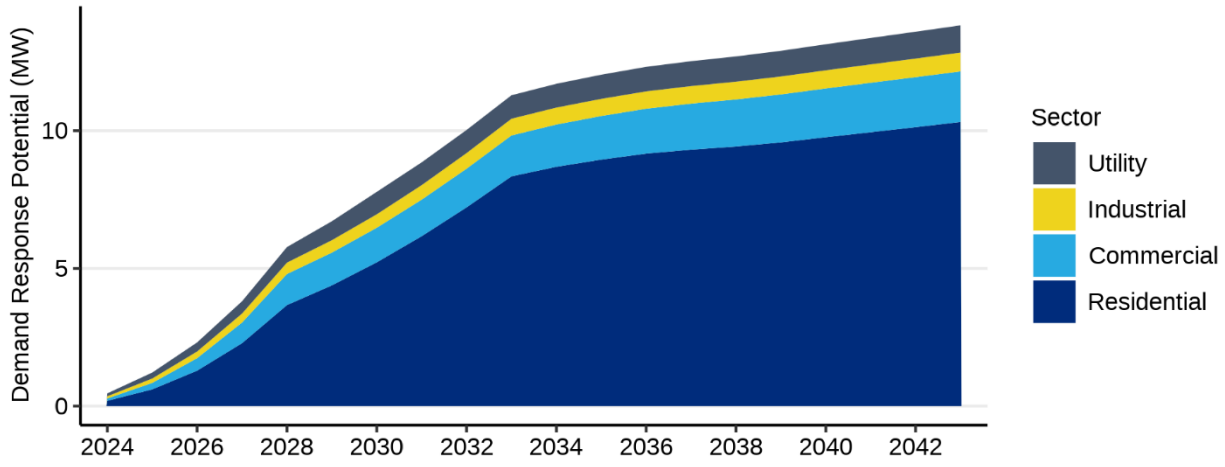
Figure 8: Achievable Winter DR Potential by Sector and Type



Summer Achievable Potential

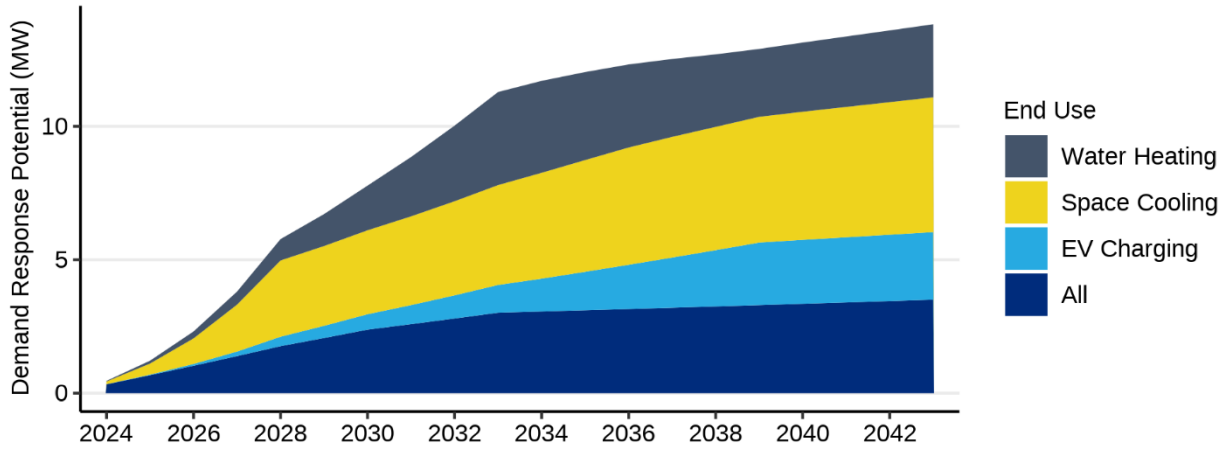
In the summer, RES has approximately 13.8 MW of achievable demand response available. Figure 9, below, shows the annual achievable summer potential by sector. The distribution of summer potential across sectors is similar to the winter potential, with slightly more potential available in the commercial sector due to higher air conditioning loads. Altogether, the achievable summer potential represents approximately 7% of RES's projected peak summer demand.

Figure 9: Annual Achievable Summer DR Potential by Sector



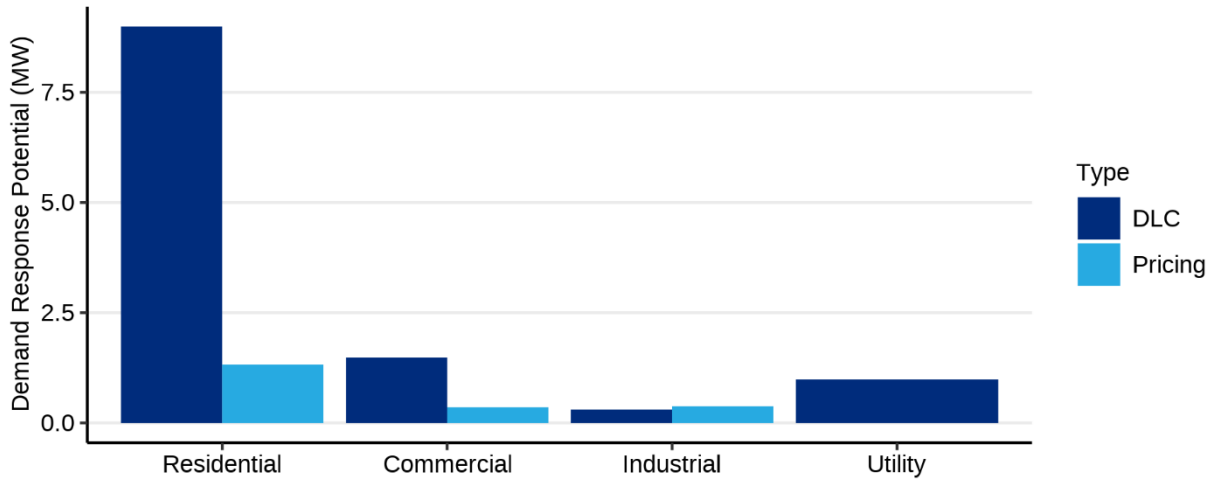
As with the winter potential shown above, Figure 10 identifies seasonal space cooling as the end use with the largest summer potential. As with the winter season, the potential for DVR is included in the all end use, since it impacts all customer end uses.

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 RES's previous DRPA, conducted in 2021. Higher customer counts and loads as well as increasing adoption of eligible equipment resulted in increases across all sectors and seasons.

Table 2: Comparison of 2021 and 2023 Achievable DR Potential

Season/Sector	2021 DRPA	2023 DRPA
Winter	**12.9**	**16.2**
Residential	10.2	12.9
Commercial and Industrial	1.5	1.9
Utility	1.2	1.4
Summer	**10.7**	**13.8**
Residential	7.8	10.3
Commercial and Industrial	2.1	2.5
Utility	0.9	1.0

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. As you move up, the incremental DR potential for each product is shown in dark blue, with the cumulative potential from all previous lower cost products shown in lighter 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. These credits result in a negative cost for DVR. These credits are the same credits that were used in RES's 2023 CPA.

Figure 12 shows that the individual products with the lowest costs include DVR and smart thermostats, both of which have a significant quantity of potential. DR from grid ready water heaters, including both

electric resistance (ERWH) and heat pump (HPWH), as well as EV charging equipment also have high amounts potential, but at higher costs.

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

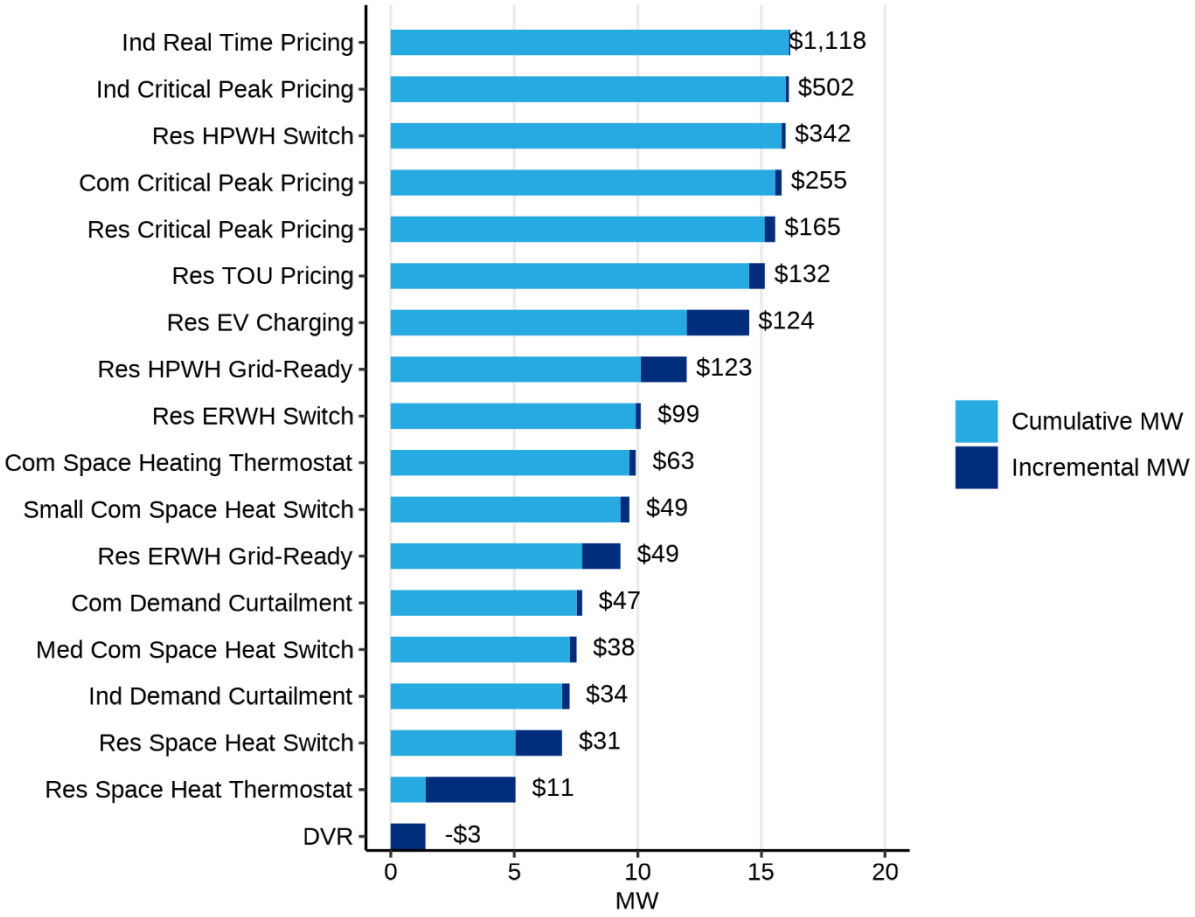
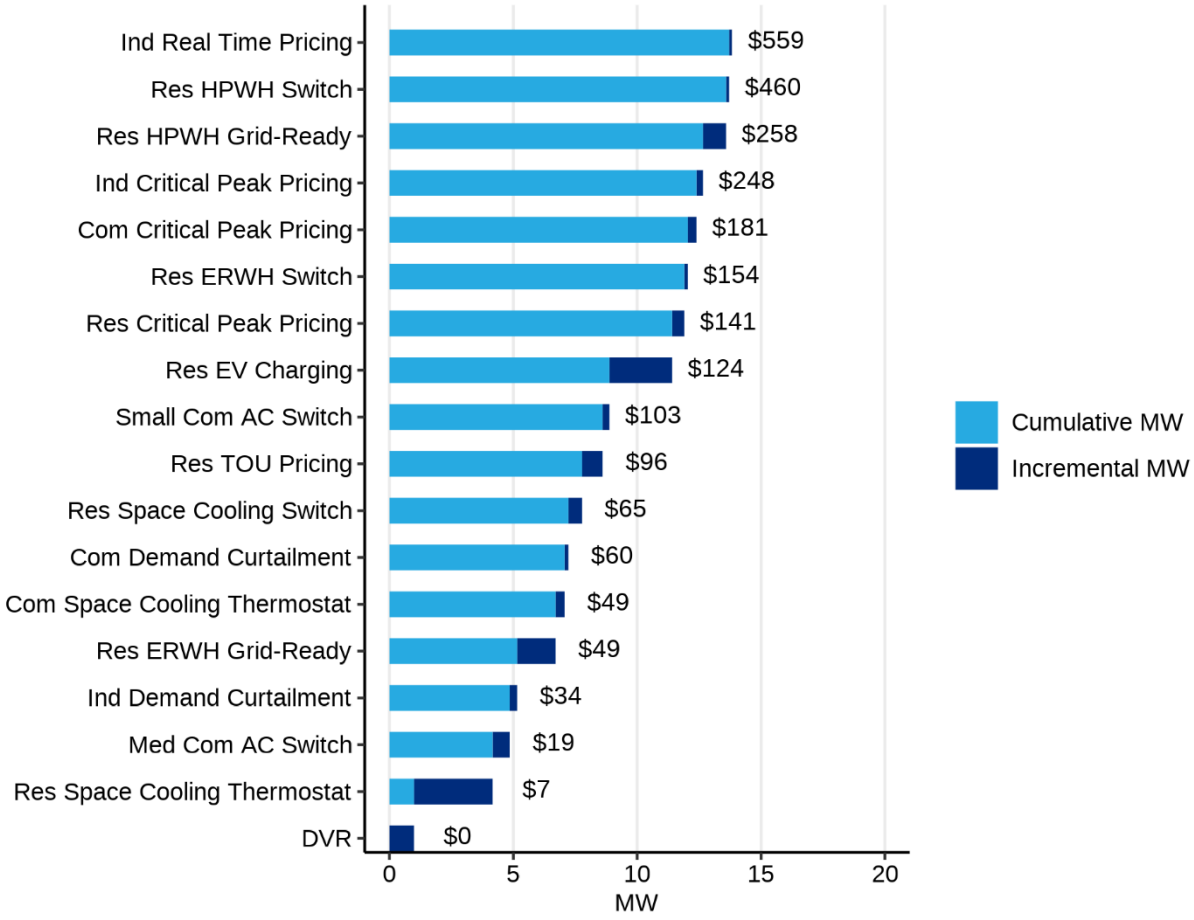


Figure 13 shows a similar supply curve for the summer DR products. The overall characteristics of the summer supply curve are similar to the winter supply curve discussed above. DVR and smart thermostats offer significant amounts of potential at low costs while water heating and EV charging products offer additional potential at higher costs.

Figure 13: Summer DR Supply Curve (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. DVR was the only winter product identified as cost effective, while the residential smart thermostats benefit cost ratio was 0.97, which was rounded to 1.0.

Table 3: Winter Benefit-Cost Ratio Results by Product

Product Name	Benefit-Cost Ratio	Cumulative MW
DVR	2.6	1.4
Res Space Heat Thermostat	1.0	3.6
Res ERWH Grid-Ready	0.8	1.6
Res Space Heat Switch	0.5	1.9
Ind Demand Curtailment	0.5	0.3
Medium Com Space Heating Switch	0.4	0.3
Res ERWH Switch	0.4	0.2
Com Demand Curtailment	0.4	0.2
Small Com Space Heating Switch	0.4	0.4
Res HPWH Grid-Ready	0.3	1.9
Res TOU Pricing	0.3	0.6
Com Space Heating Thermostat	0.3	0.3
Res EV Charging	0.2	2.5
Res HPWH Switch	0.1	0.2
Res Critical Peak Pricing	0.1	0.4
Com Critical Peak Pricing	0.1	0.3
Ind Critical Peak Pricing	0.0	0.1

In the summer season, both DVR and smart thermostats were identified as cost effective, as shown in Table 4 below. When considered across both summer and winter seasons, the smart thermostat product may be a cost-effective resource for RES as some of the same participants could participate across both seasons.

With a relatively small customer base, RES has a limited population to distribute the fixed costs associated with setting up and implementing demand response programs. In addition, RES can purchase capacity only in the months needed through BPA's monthly demand charges instead of procuring physical resources like power plants that are available all year round but may only be needed part of the year. This results in a low avoided generation capacity cost. Both factors make the economics of demand response difficult for RES. Accordingly the cost-effective demand response potential identified in this assessment was limited to two products. RES's 2021 DRPA had similar results.

Table 4: Summer Benefit-Cost Ratio Results by Product

Product Name	Benefit-Cost Ratio	Cumulative MW
DVR	2.5	1.0
Res Space Cooling Thermostat	1.5	3.2
Medium Com Space Cooling Switch	0.9	0.7
Res ERWH Grid-Ready	0.6	1.6
Ind Demand Curtailment	0.6	0.3
Com Space Cooling Thermostat	0.4	0.4
Com Demand Curtailment	0.4	0.2
Res TOU Pricing	0.4	0.8
Res Space Cooling Switch	0.4	0.5
Res ERWH Switch	0.2	0.1
Small Com Space Cooling Switch	0.2	0.3
Res EV Charging	0.2	2.5
Res Critical Peak Pricing	0.2	0.5
Res HPWH Grid-Ready	0.1	0.9
Com Critical Peak Pricing	0.1	0.4
Ind Critical Peak Pricing	0.1	0.3
Res HPWH Switch	0.1	0.1

Summary

This assessment summarizes the results of the 2023 DRPA conducted for RES. The assessment included many of the products and used the same calculation methodology as those used by the Council in the 2021 Power Plan. Lighthouse customized the products and modified other assumptions to better reflect RES's service territory and aligned inputs with the projections of RES's 2023 CPA. It included products applicable to the winter and summer seasons across the residential, commercial, industrial, and utility sectors using a variety of DLC, demand curtailment, and price-based strategies and targeting a variety of end uses.

Overall, the assessment quantified 16.2 MW of achievable winter DR potential and 13.8 MW in the summer. Most of the DR potential identified is in the residential sector, which is consistent with the makeup of RES's customer base. Utility DVR was cost-effective across both seasons and has already been implemented by RES. Smart thermostats used to control residential space heating and cooling equipment was the product with the highest potential across both seasons but was marginally cost-effective in the summer and just below the cost-effectiveness threshold in the winter. Lighthouse recommends that RES evaluate this product further to refine the program participation, cost, and impact assumptions to see if a DR program using this technology across both seasons could be a cost-effective capacity resource.

Appendix I: DR Product List

Sector	End Use	Product	Type	Impact	Methodology
Residential	EV Charging	Res EV Charging - Winter	DLC	Winter	Bottom Up
Residential	EV Charging	Res EV Charging - Summer	DLC	Summer	Bottom Up
Residential	Water Heating	Res ERWH Switch - Winter	DLC	Winter	Bottom Up
Residential	Water Heating	Res ERWH Switch - Summer	DLC	Summer	Bottom Up
Residential	Water Heating	Res ERWH Grid-Ready - Winter	DLC	Winter	Bottom Up
Residential	Water Heating	Res ERWH Grid-Ready - Summer	DLC	Summer	Bottom Up
Residential	Water Heating	Res HPWH Switch - Winter	DLC	Winter	Bottom Up
Residential	Water Heating	Res HPWH Switch - Summer	DLC	Summer	Bottom Up
Residential	Water Heating	Res HPWH Grid-Ready - Winter	DLC	Winter	Bottom Up
Residential	Water Heating	Res HPWH Grid-Ready - Summer	DLC	Summer	Bottom Up
Residential	Space Heating	Res Space Heat Switch - East	DLC	Winter	Bottom Up
Residential	Space Cooling	Res Space Cooling Switch - East	DLC	Summer	Bottom Up
Residential	Space Heating	Res Space Heat Thermostat - East	DLC	Winter	Bottom Up
Residential	Space Cooling	Res Space Cooling Thermostat - East	DLC	Summer	Bottom Up
Commercial	Space Heating	Com Space Heating Switch - Small/East	DLC	Winter	Bottom Up
Commercial	Space Cooling	Com Space Cooling Switch - Small/East	DLC	Summer	Bottom Up
Commercial	Space Heating	Com Space Heating Thermostat - East	DLC	Winter	Bottom Up
Commercial	Space Cooling	Com Space Cooling Thermostat - East	DLC	Summer	Bottom Up
Commercial	Space Heating	Com Space Heating Switch - Medium/East	DLC	Winter	Bottom Up
Commercial	Space Cooling	Com Space Cooling Switch - Medium/East	DLC	Summer	Bottom Up
Commercial	All	Com Demand Curtailment - Winter	DLC	Winter	Top Down
Commercial	All	Com Demand Curtailment - Summer	DLC	Summer	Top Down
Industrial	All	Ind Demand Curtailment - Winter	DLC	Winter	Top Down
Industrial	All	Ind Demand Curtailment - Summer	DLC	Summer	Top Down
Residential	All	Res TOU Pricing - Winter	Pricing	Winter	Top Down
Residential	All	Res TOU Pricing - Summer	Pricing	Summer	Top Down
Residential	All	Res Critical Peak Pricing - Winter	Pricing	Winter	Top Down
Residential	All	Res Critical Peak Pricing - Summer	Pricing	Summer	Top Down
Commercial	All	Com Critical Peak Pricing - Winter	Pricing	Winter	Top Down
Commercial	All	Com Critical Peak Pricing - Summer	Pricing	Summer	Top Down
Industrial	All	Ind Critical Peak Pricing - Winter	Pricing	Winter	Top Down
Industrial	All	Ind Critical Peak Pricing - Summer	Pricing	Summer	Top Down
Industrial	All	Ind Real Time Pricing - Winter	Pricing	Winter	Top Down
Industrial	All	Ind Real Time Pricing - Summer	Pricing	Summer	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	TRC BCR	4-Year MW	10-Year MW	20-Year MW
Res EV Charging - Winter	EV Charging	$124	0.16	0.17	1.04	2.53
Res EV Charging - Summer	EV Charging	$124	0.20	0.17	1.04	2.53
Res ERWH Switch - Winter	Water Heating	$99	0.42	0.39	0.66	0.21
Res ERWH Switch - Summer	Water Heating	$154	0.23	0.26	0.44	0.14
Res ERWH Grid-Ready - Winter	Water Heating	$49	0.78	0.20	2.55	1.55
Res ERWH Grid-Ready - Summer	Water Heating	$49	0.65	0.20	2.55	1.55
Res HPWH Switch - Winter	Water Heating	$342	0.13	0.02	0.14	0.16
Res HPWH Switch - Summer	Water Heating	$460	0.08	0.02	0.10	0.12
Res HPWH Grid-Ready - Winter	Water Heating	$123	0.34	0.02	0.78	1.86
Res HPWH Grid-Ready - Summer	Water Heating	$258	0.14	0.01	0.39	0.93
Res Space Heat Switch - East	Space Heating	$31	0.53	2.78	2.91	1.88
Res Space Cooling Switch - East	Space Cooling	$65	0.35	0.86	0.88	0.55
Res Space Heat Thermostat - East	Space Heating	$11	0.97	0.42	2.09	3.65
Res Space Cooling Thermostat - East	Space Cooling	$7	1.49	0.37	1.83	3.17
Com Space Heating Switch - Small/East	Space Heating	$49	0.37	0.19	0.32	0.36
Com Space Cooling Switch - Small/East	Space Cooling	$103	0.23	0.15	0.25	0.28
Com Space Heating Thermostat - East	Space Heating	$63	0.30	0.01	0.12	0.26
Com Space Cooling Thermostat - East	Space Cooling	$49	0.44	0.02	0.17	0.37
Com Space Heating Switch - Medium/East	Space Heating	$38	0.45	0.15	0.25	0.28
Com Space Cooling Switch - Medium/East	Space Cooling	$19	0.87	0.37	0.61	0.69
Com Demand Curtailment - Winter	All	$47	0.38	0.15	0.20	0.22
Com Demand Curtailment - Summer	All	$60	0.37	0.10	0.14	0.15
Ind Demand Curtailment - Winter	All	$34	0.49	0.20	0.27	0.31
Ind Demand Curtailment - Summer	All	$34	0.59	0.20	0.27	0.30
DVR - Winter	All	-$3	2.56	0.63	1.21	1.40
DVR - Summer	All	$0	2.47	0.44	0.85	0.99
Res TOU Pricing - Winter	All	$132	0.32	0.19	0.52	0.62
Res TOU Pricing - Summer	All	$96	0.36	0.25	0.69	0.83
Res Critical Peak Pricing - Winter	All	$165	0.13	0.13	0.35	0.42
Res Critical Peak Pricing - Summer	All	$141	0.18	0.15	0.41	0.49
Com Critical Peak Pricing - Winter	All	$255	0.08	0.09	0.23	0.26
Com Critical Peak Pricing - Summer	All	$181	0.14	0.12	0.32	0.35
Ind Critical Peak Pricing - Winter	All	$502	0.04	0.04	0.12	0.13
Ind Critical Peak Pricing - Summer	All	$248	0.10	0.09	0.23	0.26
Ind Real Time Pricing - Winter	All	$1,118	0.02	0.02	0.05	0.06
Ind Real Time Pricing - Summer	All	$559	0.05	0.04	0.10	0.12