

2027 Electric and Natural Gas Integrated Resource Plans
Technical Advisory Committee Meeting No. 14 Agenda
Wednesday, September 30, 2026
Virtual Meeting – 1:00 pm to 4:00 pm Pacific Time

<u>Topic</u>	<u>State</u>	<u>Audience</u>
• Introduction and Questions from TAC 13 ○ Draft Document Release and Comment Plan ○ Inverter Based Resource Discussion		
• ETO Energy Savings	OR	Gas
• Gas PRS Draft	All	Gas
• Gas Scenario Plan	All	Gas
• Electric PRS ○ Load Forecast ○ L&R Update ○ PRS ○ Resource Adequacy (to be sent out later this week) ○ CBI Forecast	All	Electric
• Portfolio Scenario Analysis	All	Electric
• Action Items	WA/ID	Electric

Microsoft Teams meeting

Join: <https://teams.microsoft.com/meet/263764782387627?p=D2xCZvhTqDPT0RpKDz>

Meeting ID: 263 764 782 387 627

Passcode: MD9TY7FN

[Need help?](#) | [System reference](#)

Dial in by phone

[+1 509-931-1514,,936857649#](#) United States, Spokane

[Find a local number](#)

Phone conference ID: 936 857 649#

For organizers: [Meeting options](#) | [Reset dial-in PIN](#)



Introductions 2027 Electric & Gas Integrated Resource Planning

TAC 14 – September 30, 2026

John Lyons, Ph.D. – Senior Resource Policy Analyst

TAC 14 Agenda

- Introduction and Questions from TAC 13
 - Draft Document Release and Comment Plan
 - Inverter Based Resource Discussion
- ETO Energy Savings
- Gas PRS Draft
- Gas Scenario Plan
- Electric PRS
 - Load Forecast, L&R Update, PRS, Resource Adequacy and CBI Forecast
- Portfolio Scenario Analysis
- Action Items

Meeting Guidelines

- IRP team is in office Monday – Wednesday; also available by email, phone and Teams for questions and comments
- Stakeholder feedback responses shared with TAC at meetings, in Teams and in Appendix
- Working IRP data posted to Teams
- All TAC meetings will be virtual on Teams
- Draft TAC presentations emailed three days before each meeting
- Final TAC presentations, meeting notes and recordings posted on IRP page

Virtual TAC Meeting Reminders

- Please mute mics unless speaking or asking a question
- Raise hand or use the chat box for questions or comments
- Respect the pause
- Please try not to speak over the presenter or a speaker
- Please state your name before commenting for the note taker
- This is a public advisory meeting – presentations and comments will be documented and recorded



2027 IRP Draft Release and Comment Plan

2027 Electric IRP Important Dates

- Oct 20, 2026 (new date) – Draft Electric IRP Released to TAC
- Please provide comments and edits back as early as possible
- Can also provide comments to the Idaho and Washington Commissions – details will be sent to the TAC when available
- December 2, 2026 – Virtual Public Meeting
 - 7:30 - 8:30 am
 - 12:00 pm-1:00 pm
- Jan 1, 2027 – Final Electric IRP Filed



Inverter Based Resources

Iberian Outage 2025-04-28

- Factors leading to the disturbance:
 - High renewables, low synchronous generation
 - Renewables operating on fixed power factor (market rules)
 - No dynamic reactive support
 - Voltage control done by line switching
 - Shunt devices (reactors and capacitors) were manually controlled, no automatic switching
 - Rising voltage led to loss of resources that cascaded very quickly once it got started
 - High voltage high generation became low voltage low frequency
 - Separation from France and Morocco, total collapse

U.S. Operates Differently

- Renewables regulate terminal voltages not power factor
 - IBRs are solar and battery resources
 - Dynamic reactive resource
- Lines are generally not switched for voltage control
- Shunt devices (reactors and capacitors) will generally automatically switch to protect equipment for abnormal conditions
- Risk profile is very different

IBRs in General

- IBRs can be an issue on a weak system
 - Weak - low short circuit ratio
 - Local voltage control problems
- Lower system inertia at high levels of IBRs
 - System inertia is stored kinetic energy
 - High inertia system has slower frequency decline due to generation loss
 - More time for resources to respond automatically
 - Low inertia system has quicker frequency decline to generation loss
 - Less time for resources to respond automatically
- Batteries respond very quickly to frequency disturbances somewhat mitigating low inertia

IBRs in General

- Low inertia has a limit
 - System inertia (stored mechanical energy) allows time for resources to respond to frequency decline
 - Batteries respond almost instantaneously to frequency
 - Conventional resources take seconds to respond
 - Slow response in a low inertia system can lead to collapse
- Western Interconnection
 - Interconnection is changing
 - Inertia issue is under study
- Texas Interconnection
 - Operates to a specific minimum value of inertia

Electric Transmission & Distribution 5-Year Plan – Wed, October 7, 2026 (10:00 – 12:00 PDT)

Topic	State	Audience
Transmission Planning Process Recap	WA/ID	Electric
Transmission Plan – Expansion and Local Reinforcement	WA/ID	Electric
Interconnection Overview – Generation, Load & Distribution Level	WA/ID	Electric
Distribution Plan and Projects	WA/ID	Electric
Planning Collaborations	WA/ID	Electric

TAC 15 – Wednesday, November 18, 2026 (1:00 – 4:00 pm PDT)

Topic	State	Audience
Final Gas PRS	All	Gas
Scenario Analysis	All	Gas
Gas Avoided Cost	All	Gas
Idaho Energy Efficiency Analysis	ID	Gas
2027 Gas IRP Document Outline	All	Gas
Action Items	All	Gas

TAC 16 – If Needed Thursday, January 14, 2027 (1:00 – 4:00 pm PDT)

Topic	State	Audience
TBD If Necessary	TBD	TBD

Other Key 2027 IRP Dates

- Oct 20, 2026 – Draft Electric IRP Released to TAC
- December 2, 2026 – Virtual Public Meeting
 - 7:30 am: <https://us02web.zoom.us/join/sSMILx1XRG6xQQQraWJUEw#/registration>
 - 12:00 pm: <https://us02web.zoom.us/join/AbAOm4vFT8amfzyD-BtBNA#/registration>
- Jan 1, 2027 – Final Electric IRP Filed
- Feb 15, 2027 – Draft Gas IRP Released to TAC
- Apr 1, 2027 – Final Gas IRP Filed



Energy Efficiency Resource Assessment – Draft Results

Avista 2027 IRP

September 30, 2026

Agenda

- About Energy Trust
- Resource Assessment Model Overview
- Draft Avista 2027 Resource Assessment Results and Deployment Forecast

About us

Independent
nonprofit

Serving 2.5 million customers of
Portland General Electric,
Pacific Power, NW Natural,
Cascade Natural Gas and Avista

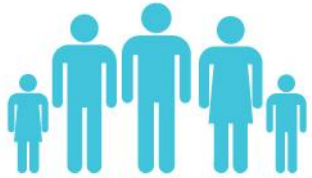
Providing
access to
affordable
energy

Generating
homegrown,
renewable
power

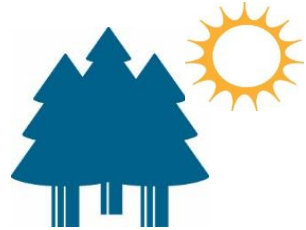
Building a
stronger Oregon
and SW
Washington

Clean and affordable energy since 2002

From Energy Trust's investment of \$3.4 billion in utility customer funds:



856,000 sites transformed into energy efficient, healthy, comfortable and productive homes and businesses



38,000 clean energy systems generating renewable power from the sun, wind, water, geothermal heat and biopower



\$16.9 billion in savings over time on participant utility bills from their energy-efficiency and solar investments



48.7 million metric tons of carbon dioxide equivalent emissions kept out of our air, equal to removing 13.2 million cars from our road for a year

Energy Trust Resource Assessment Model Overview



Resource Assessment Model Background

- Estimate of 20-year energy efficiency potential
- “Bottom-up” modeling approach
 - Measure level inputs are scaled to utility level

Measure Inputs

- Baseline and efficient equipment
- Measure savings
- Incremental cost
- Market data

Utility Inputs

- Load and customer count/building stock forecast
- Customer stock demographics
- Avoided costs



Modeling Updates

- Measure updates
 - Measure savings, incremental cost
 - New measures
 - Emerging technologies
- 2022 Residential Building Stock Assessment (NEEA)
 - Total measure density, technical suitability and baseline initial saturation
 - Heating fuel, water heating fuel splits

Forecasted Potential Types

Not Technically Feasible	Technical Potential				Calculated within RA Model
	Market Barriers	Achievable Potential			
		Not Cost-Effective	Cost-Effective Achievable Potential		
			Program Design & Market Penetration	Final Program Savings Potential	Developed with Programs & Market Information



Cost-Effectiveness Screen

- RA model utilizes the Total Resource Cost (TRC) test to screen measures for cost-effectiveness

$$\text{TRC} = \frac{\text{Measure Benefits}}{\text{Total Measure Cost}}$$

Measure Benefits

- NPV avoided costs per first-year therm
- Quantifiable non-energy benefits

Measure Costs

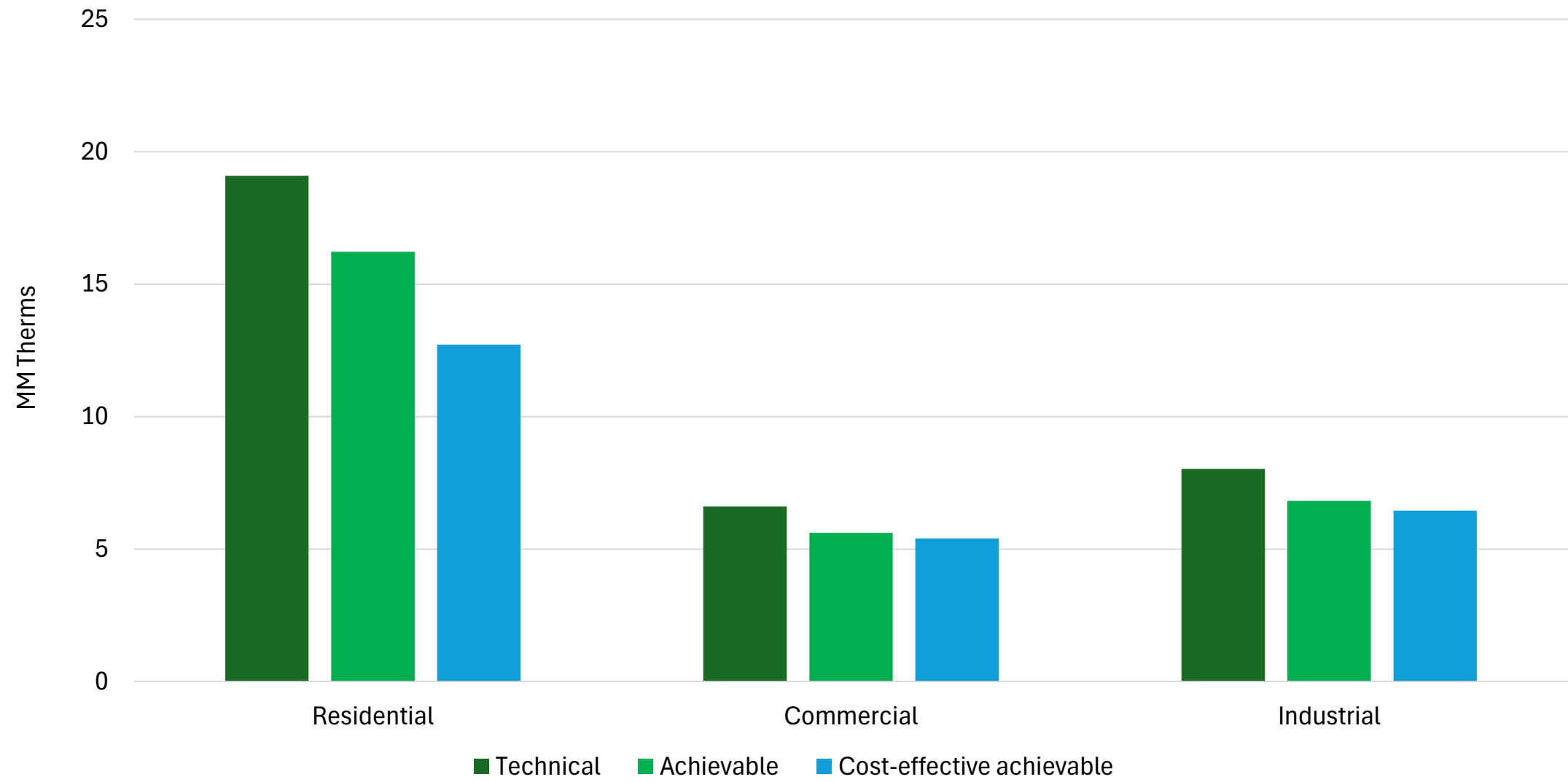
- Customer cost of installing an efficiency measure (*full cost for retrofits, incremental over baseline cost for replacements and new construction*)

- Cost-Effectiveness Override
 - Measures under an OPUC exception

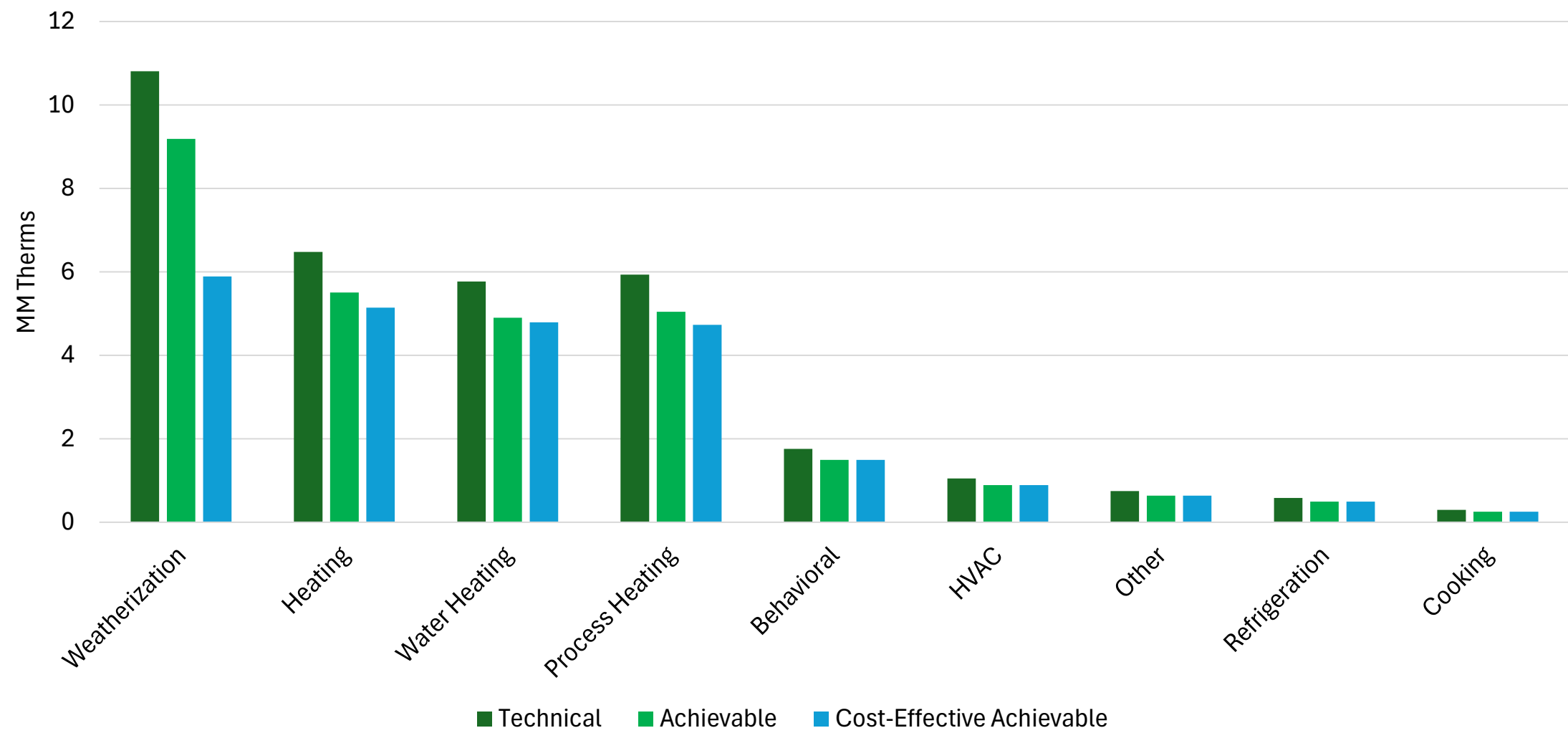
Draft Resource Assessment Results

Avista 2027 IRP

Draft Cumulative Potential by Sector and Type



Draft Cumulative Potential by End Use



**Chart includes major end uses only and may not add up to total potential*

Draft Results and Deployment

20-year Energy Efficiency Potential (Therms)

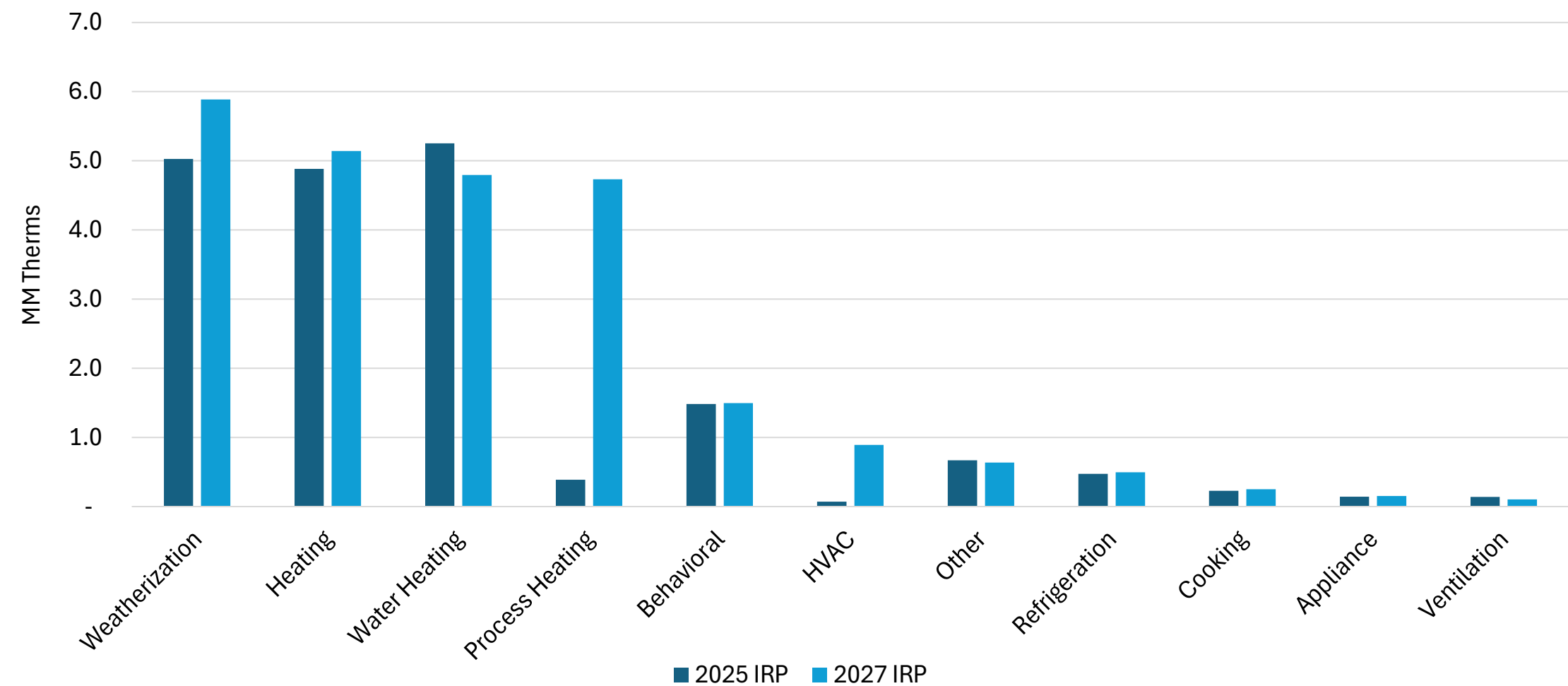
Sector	Technical Potential	Achievable Potential	Cost-Effective Achievable Potential	Draft Savings Projection
Residential	19,091,273	16,227,582	12,721,460	8,329,477
Commercial	6,606,399	5,615,439	5,403,707	5,449,961*
Industrial	8,027,953	6,823,760	6,454,924	4,492,134
Total	33,725,625	28,666,781	24,580,091	18,271,572

Previous IRP – Comparison

2025 IRP Total	22,440,300	19,629,927	19,162,086	13,908,958
% Change	50%	46%	28%	31%

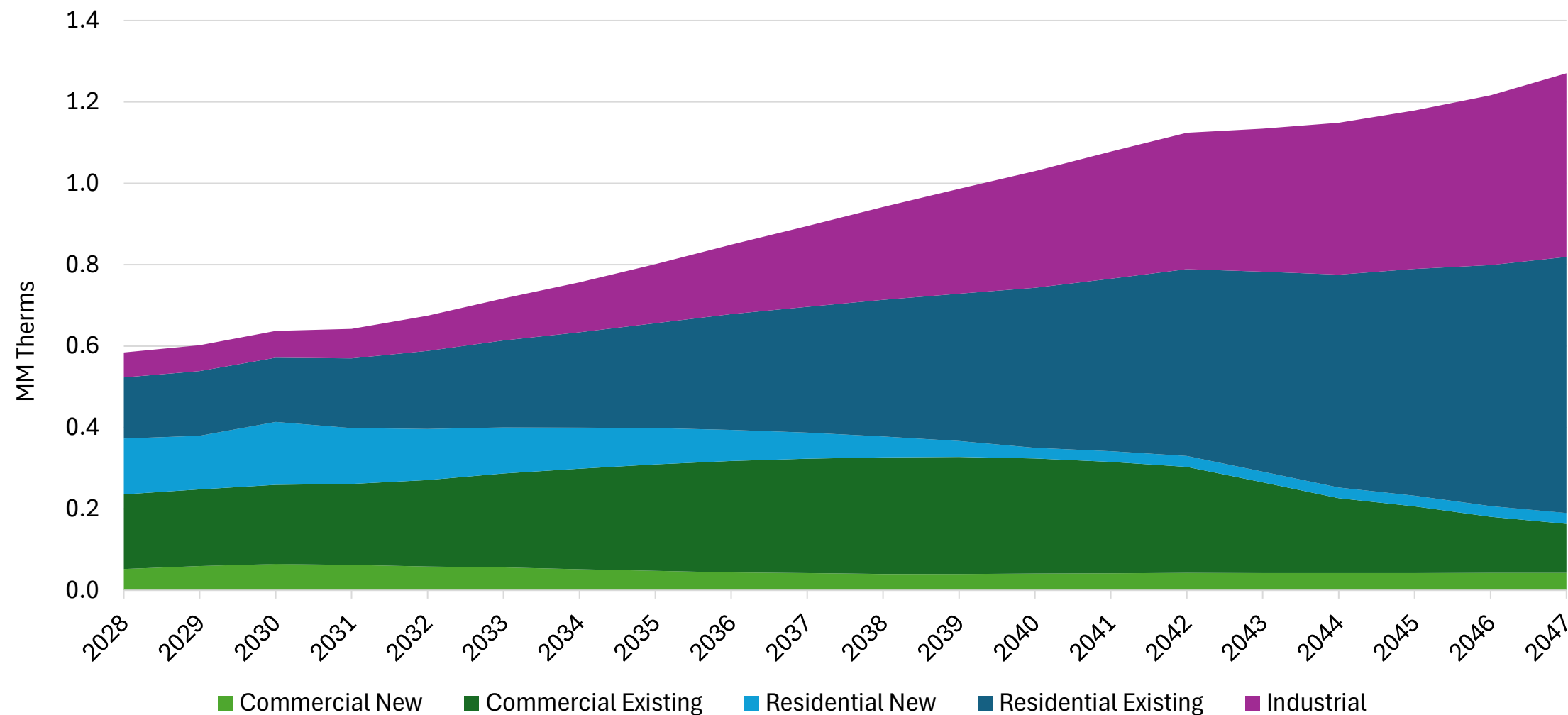
**Draft Projections include exogenous savings. As such, they can exceed the 20-year cost-effective achievable totals*

Draft Cumulative Cost-Effective Achievable Potential by End Use and IRP Vintage



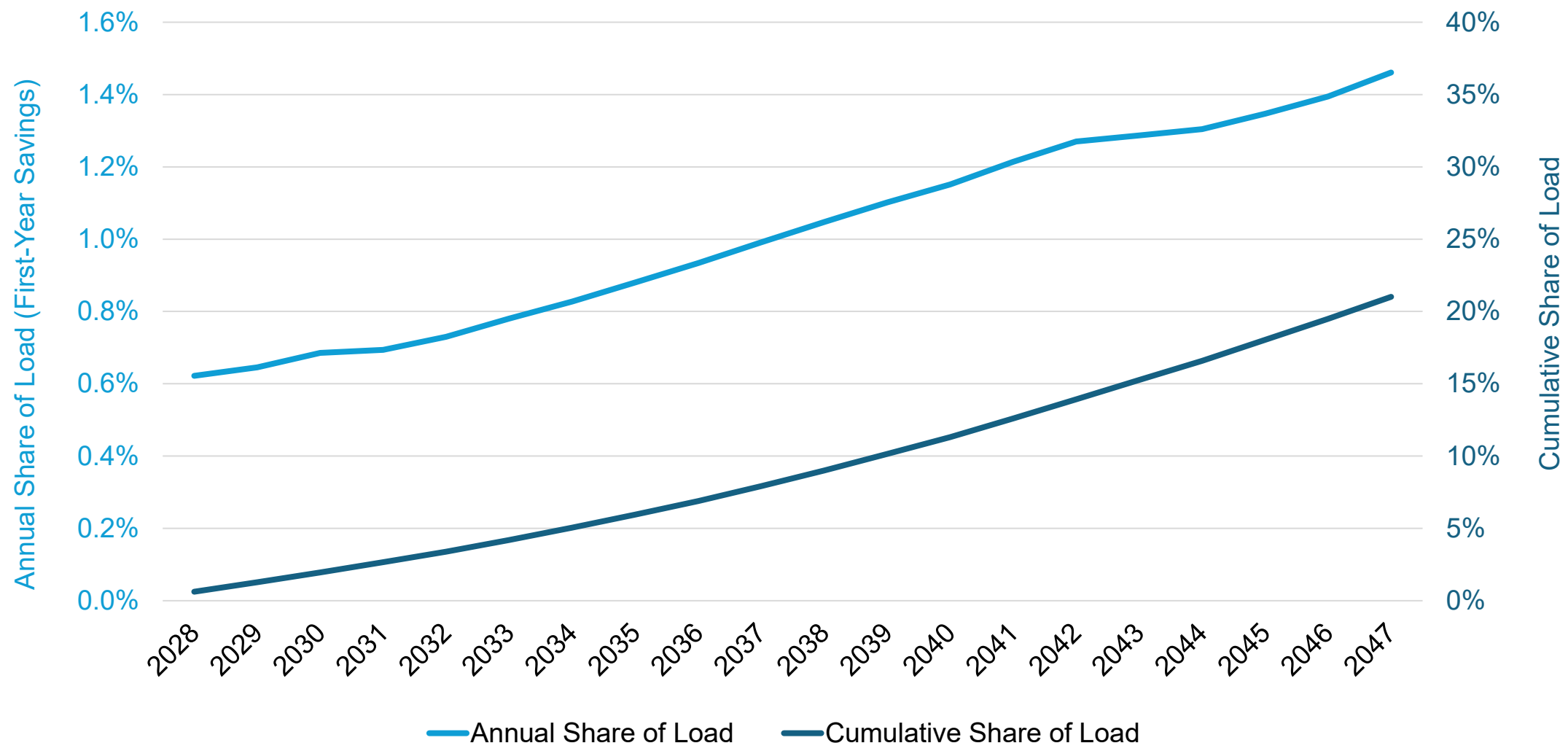
**Chart includes major end uses only and may not add up to total potential*

Draft Deployment, Cost-Effective Achievable Potential



****Chart shows total expected efficiency and includes savings from codes and standards. Energy Trust may not claim the entirety of savings depicted above***

Draft Deployed Savings Compared to Load Forecast



Average Annual Share of Load Saved: 1.02%



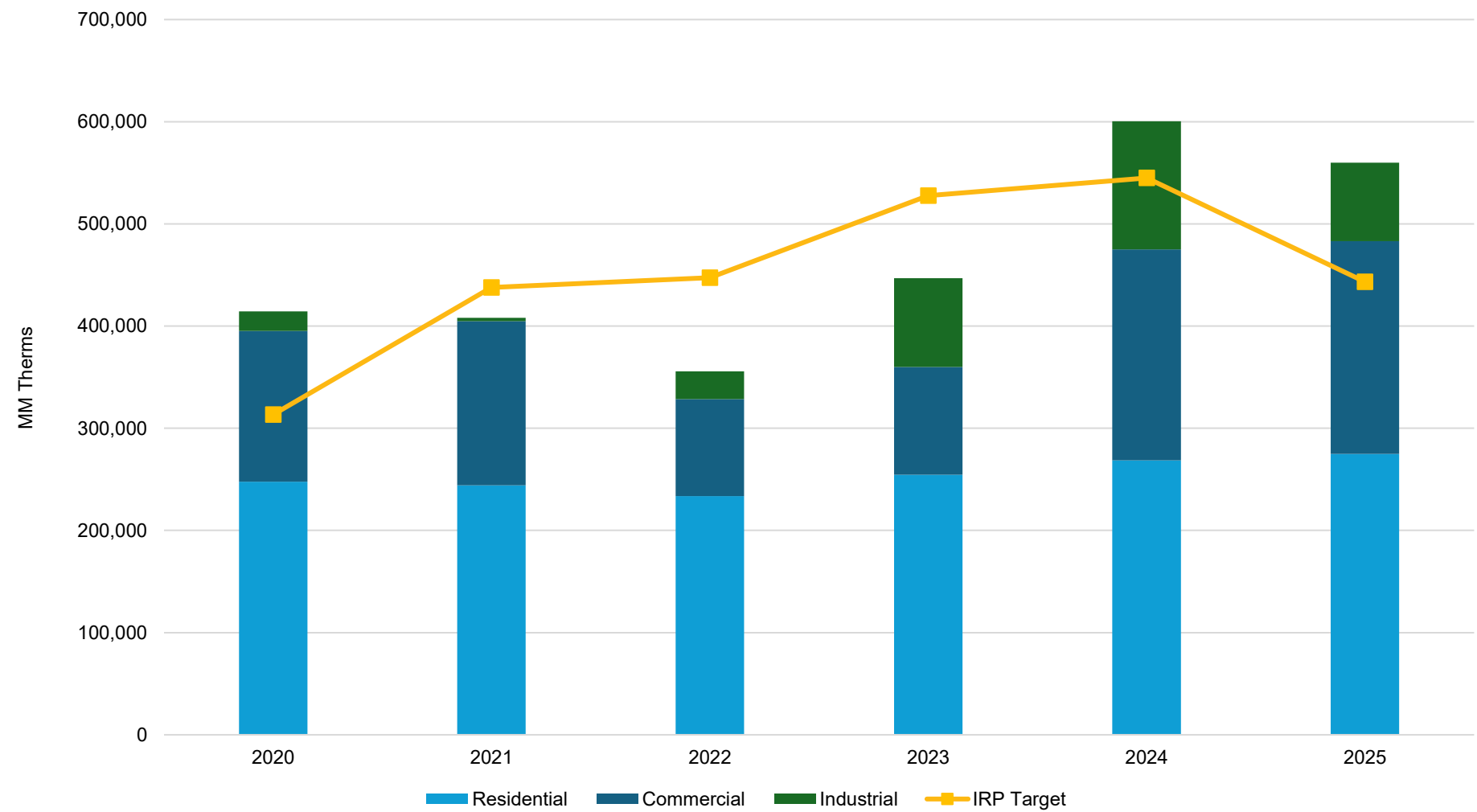
Questions?

Thank you!

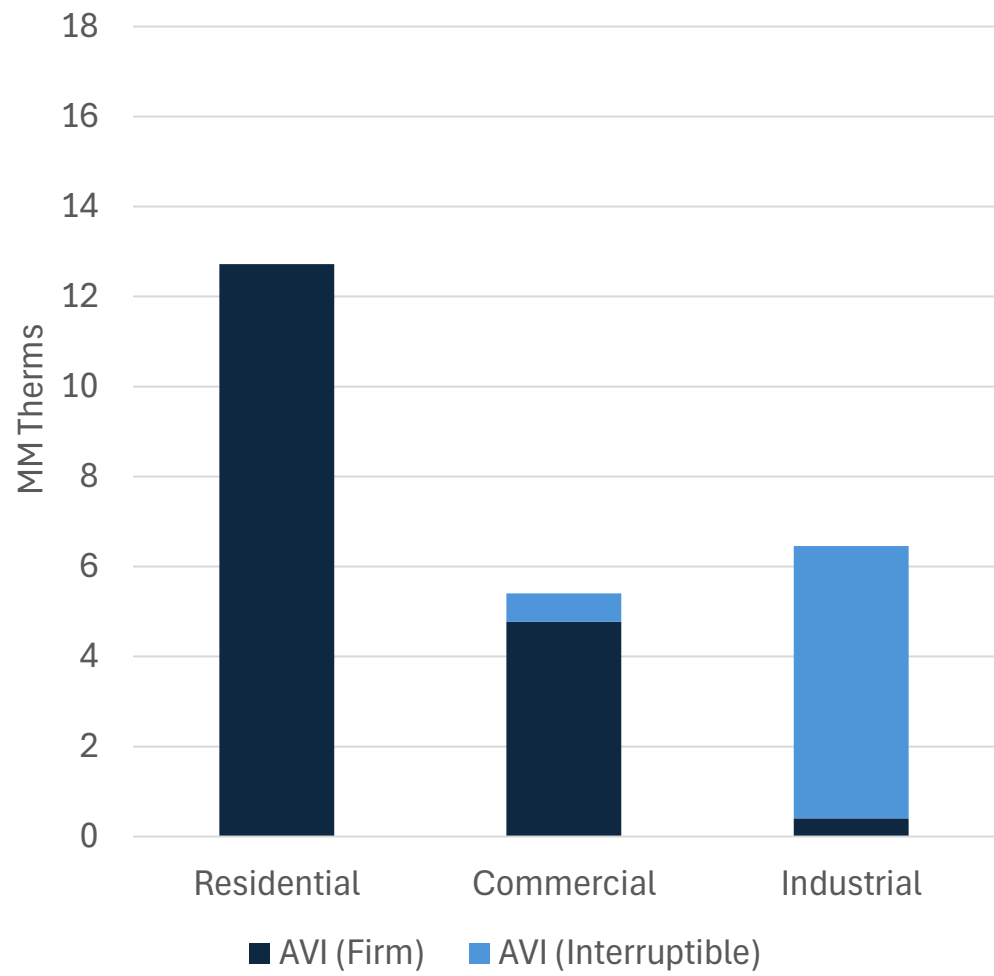
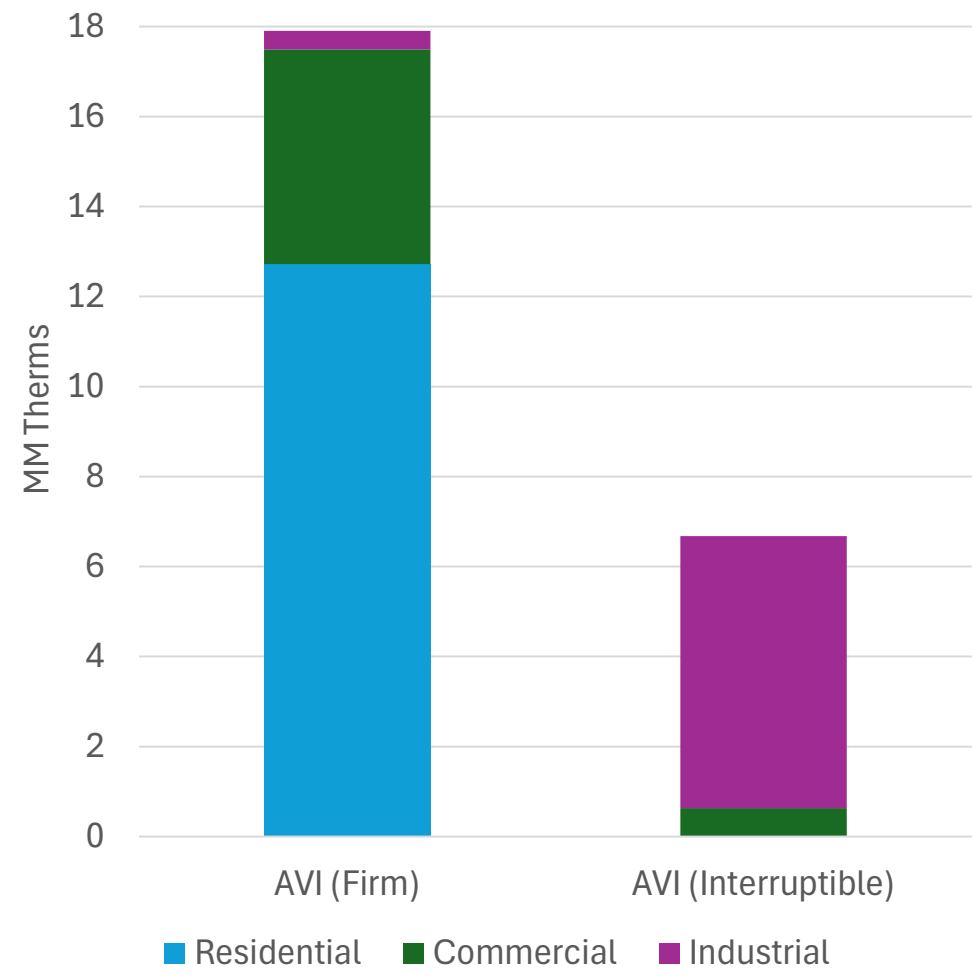
Willa Perlman, Planning Analyst
willa.perlman@energytrust.org

Additional Slides

Historical IRP Targets vs Actuals



Cumulative Cost-Effective Achievable Potential by Customer Class





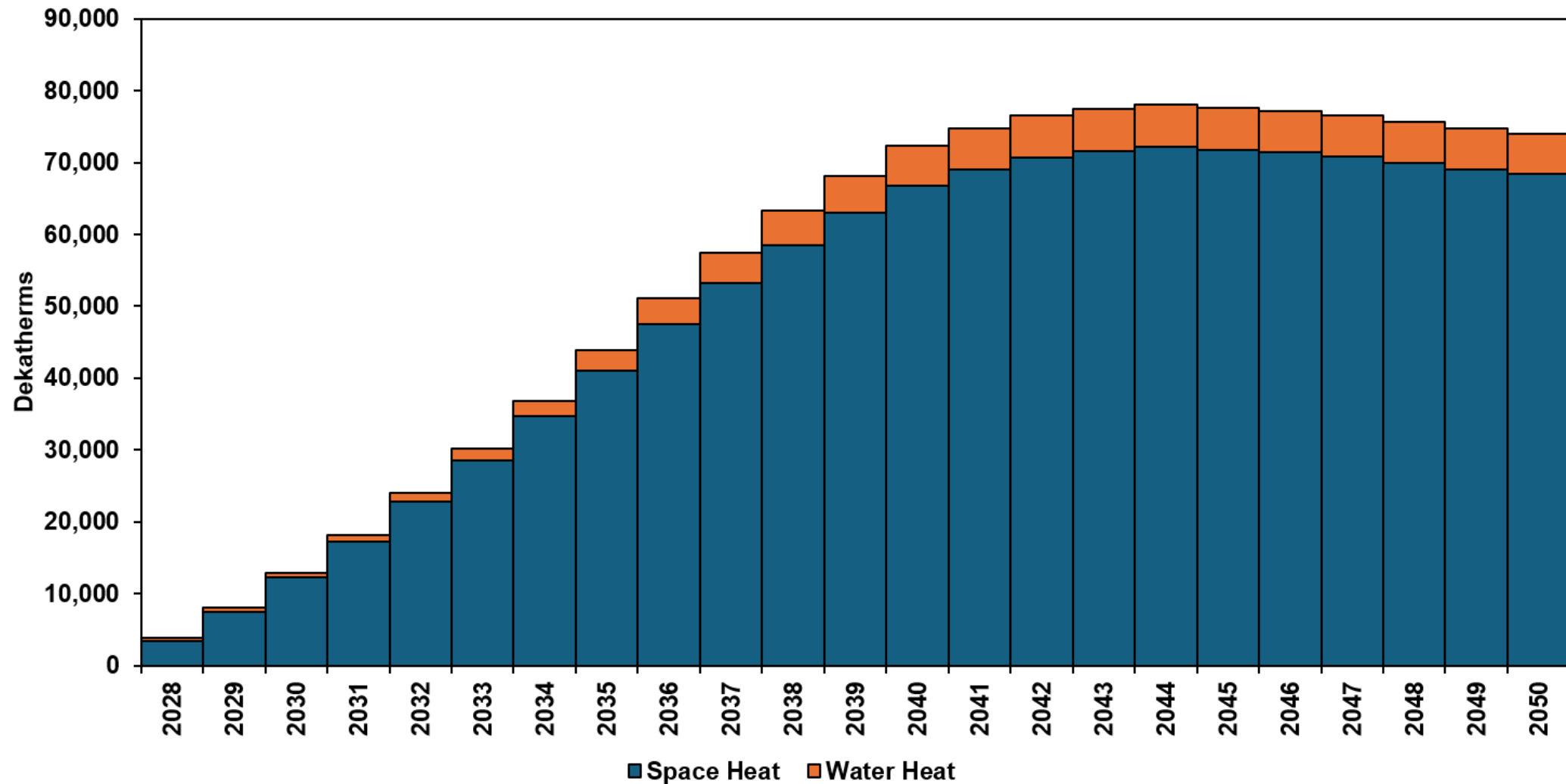
Natural Gas PRS Draft Results

TAC 14 – September 30, 2026

Michael Brutocao, Natural Gas Planning Manager

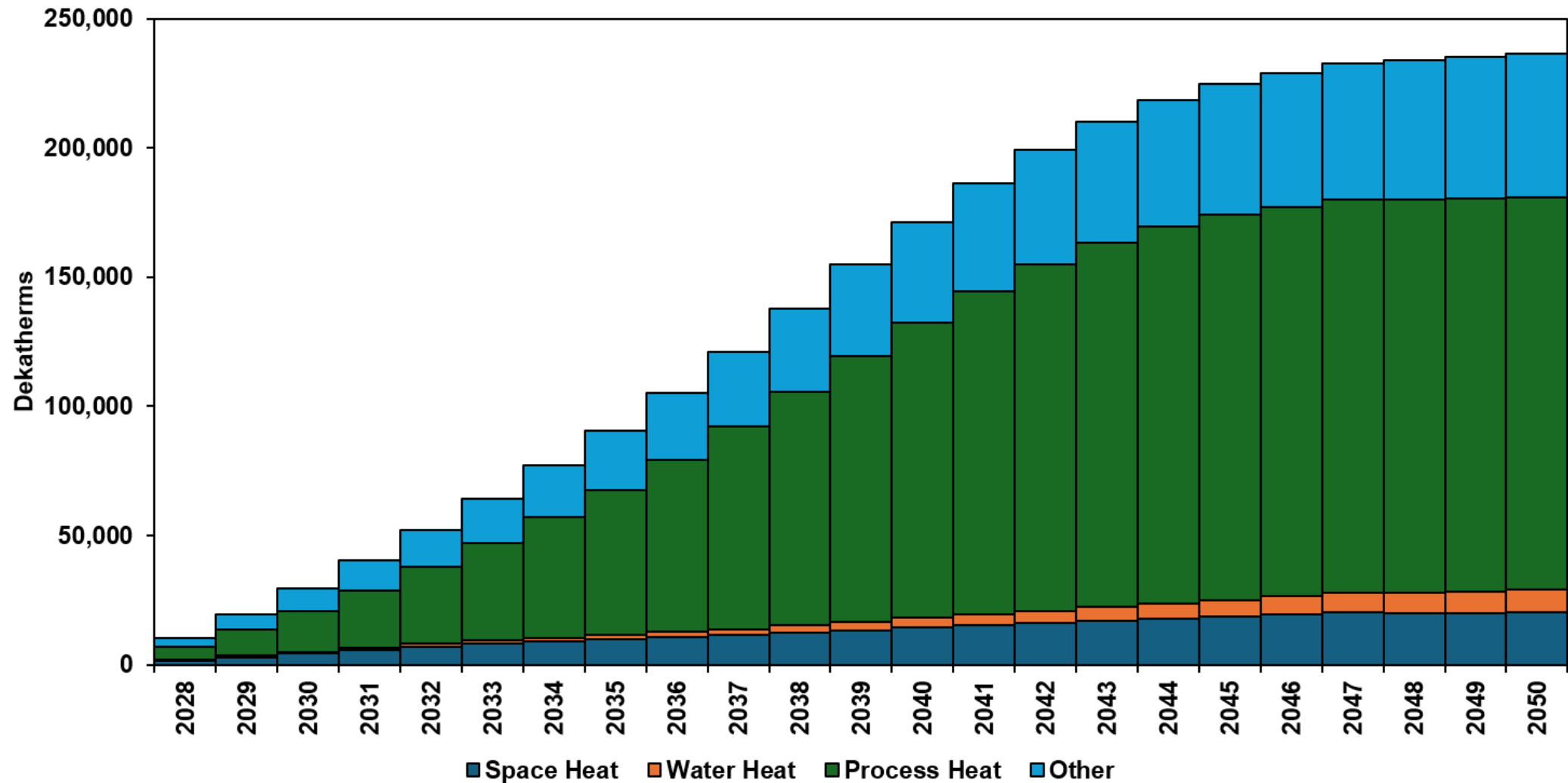
Preferred Resource Strategy: Energy Efficiency Results

Oregon – Residential Low-Income

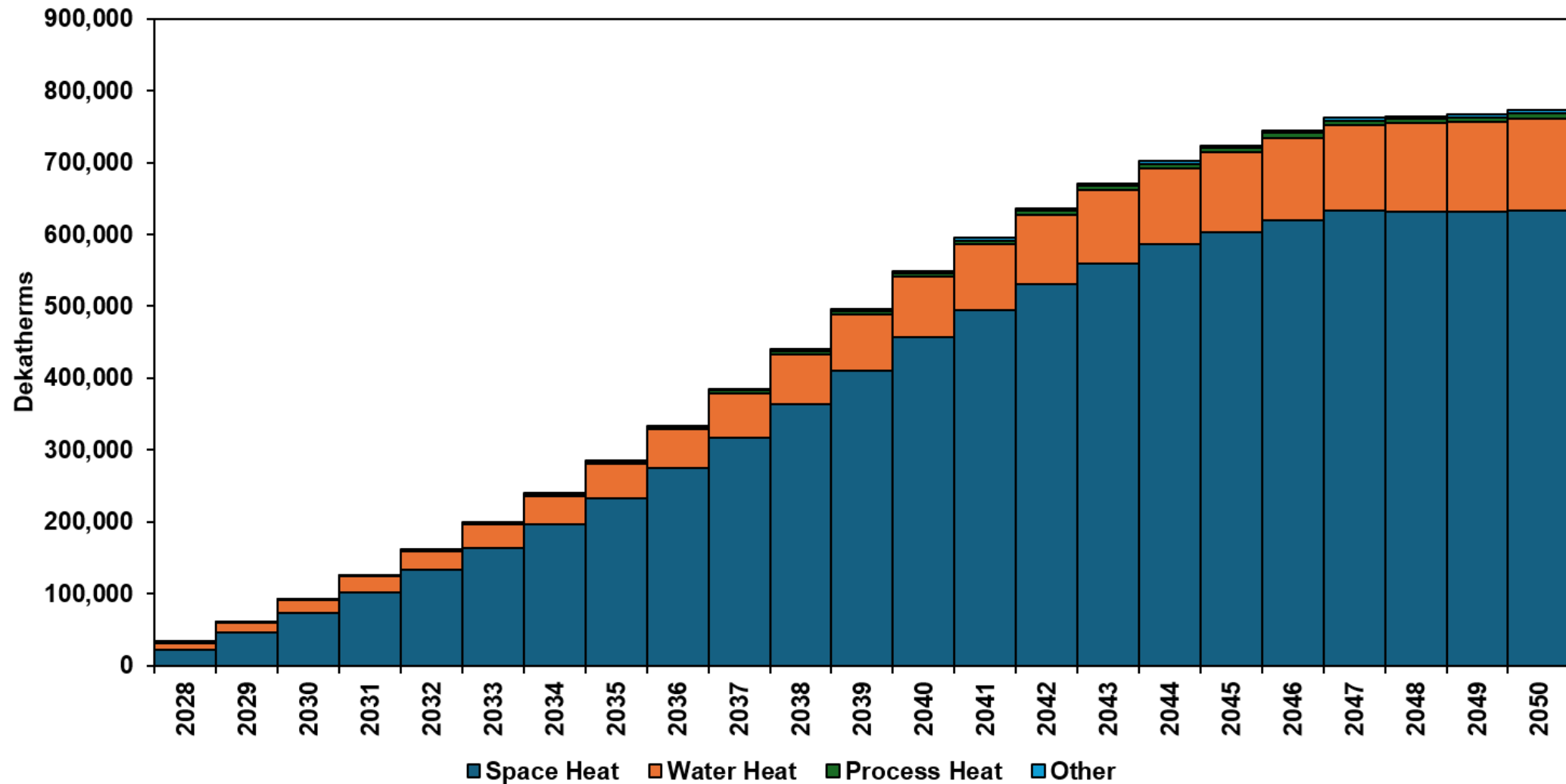


Preferred Resource Strategy: Energy Efficiency Results

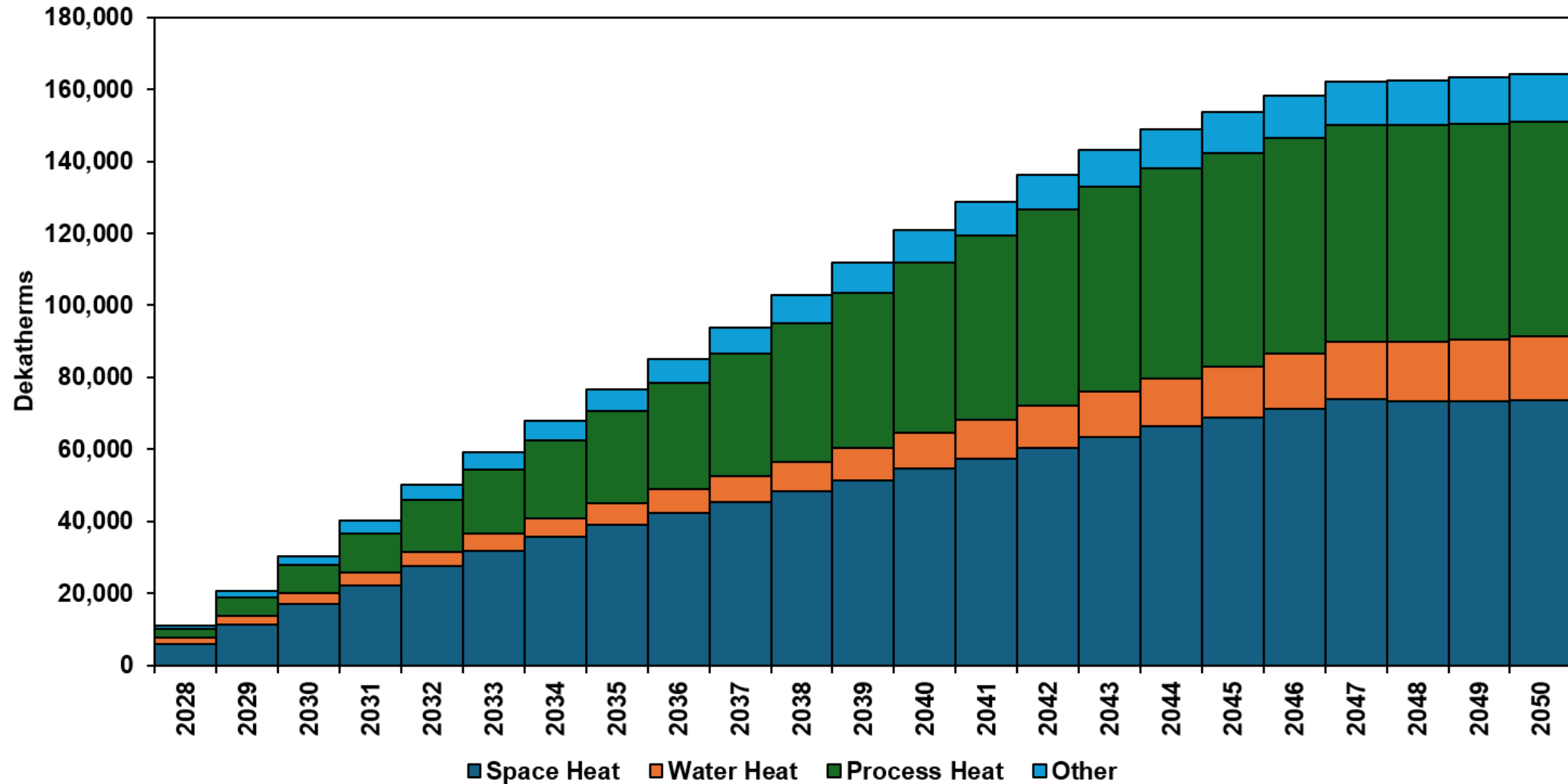
Oregon – Transport



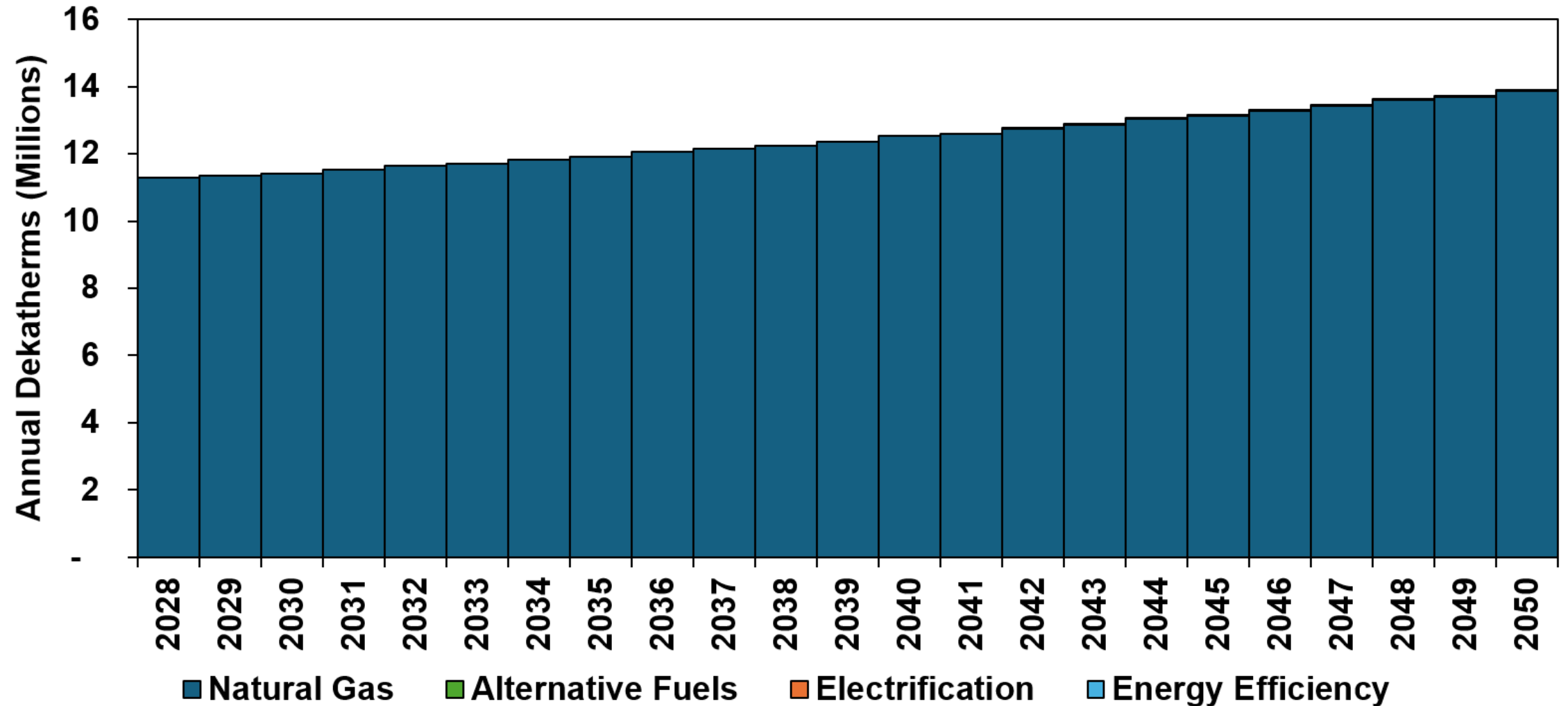
Preferred Resource Strategy: Energy Efficiency Results Washington – Non-Transport (Res., Com., Ind.)



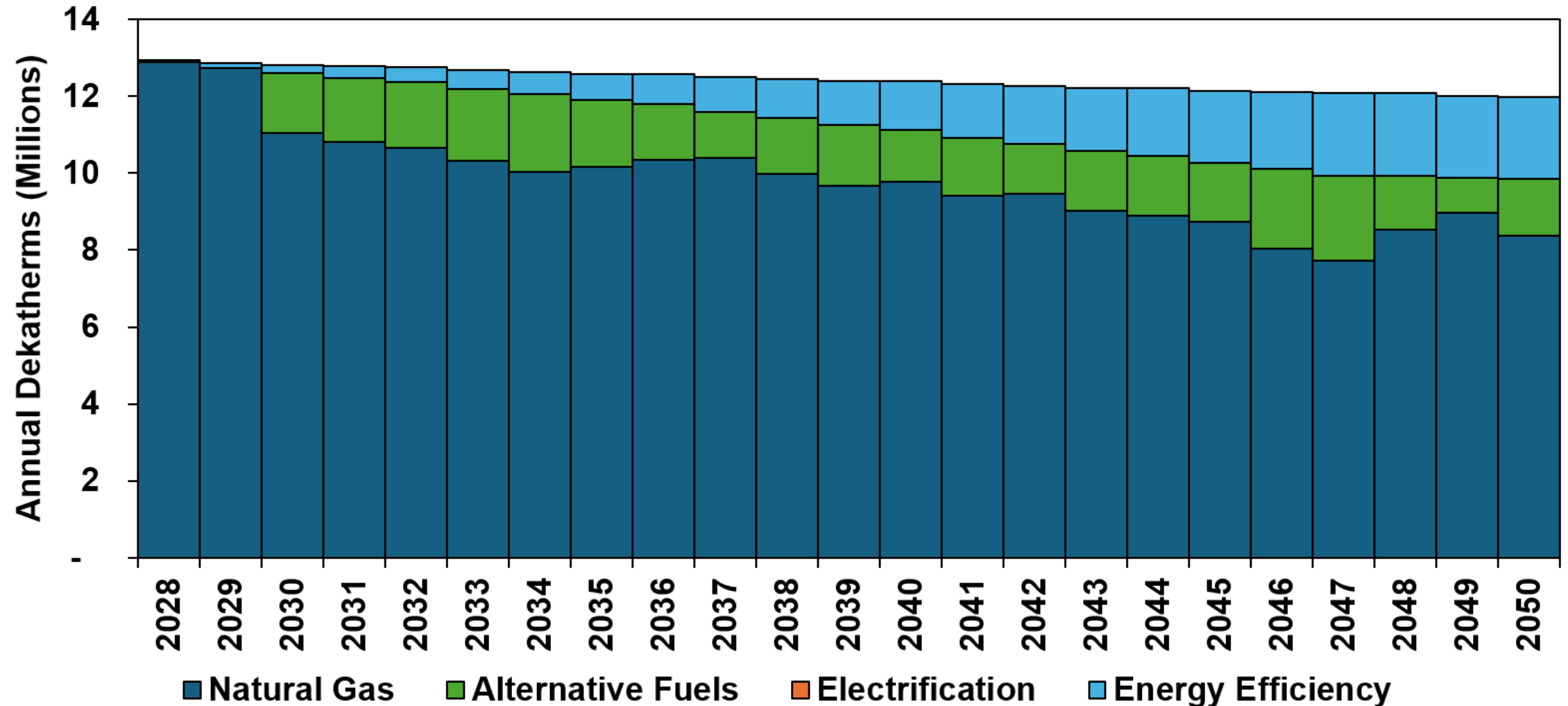
Preferred Resource Strategy: Energy Efficiency Results Washington – Transport



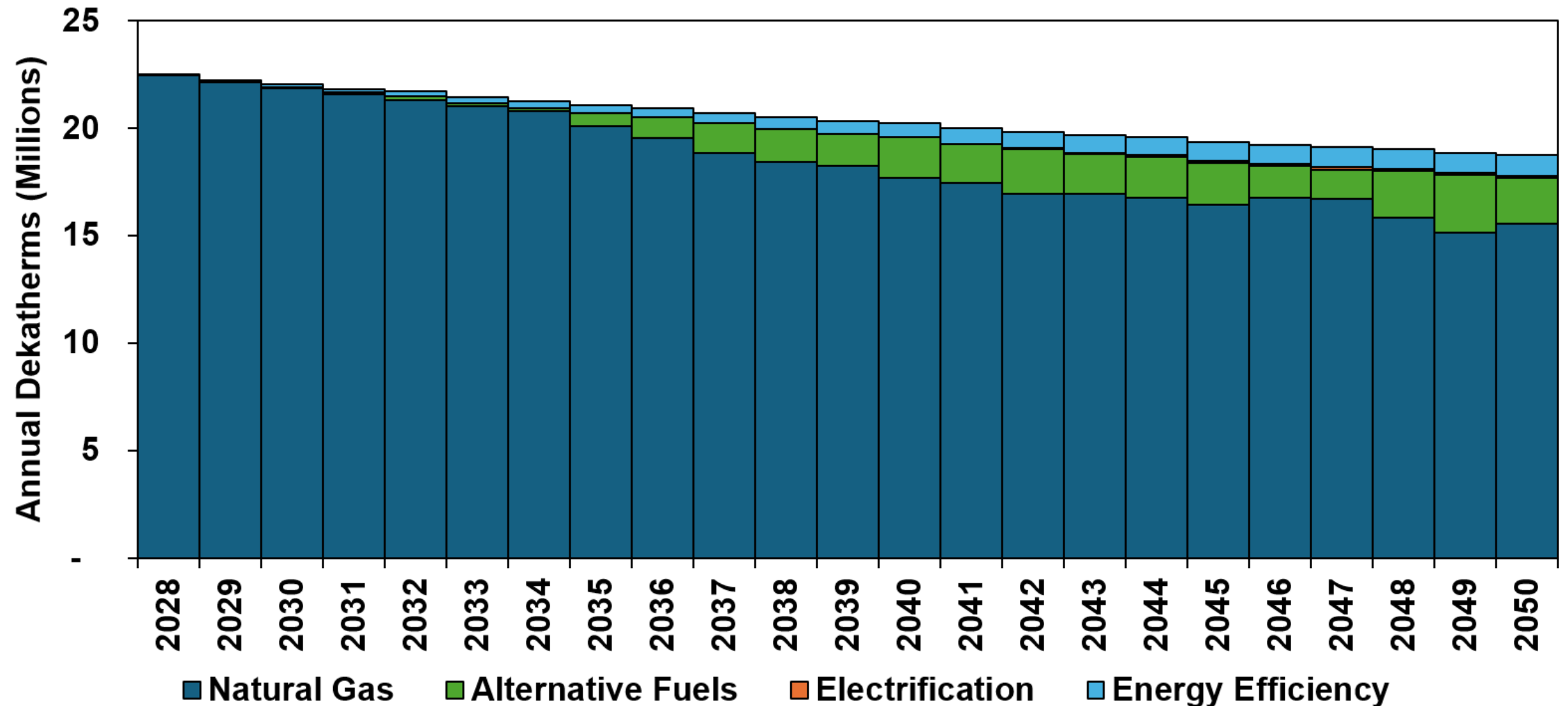
Preferred Resource Strategy: Meeting Energy Demand Idaho



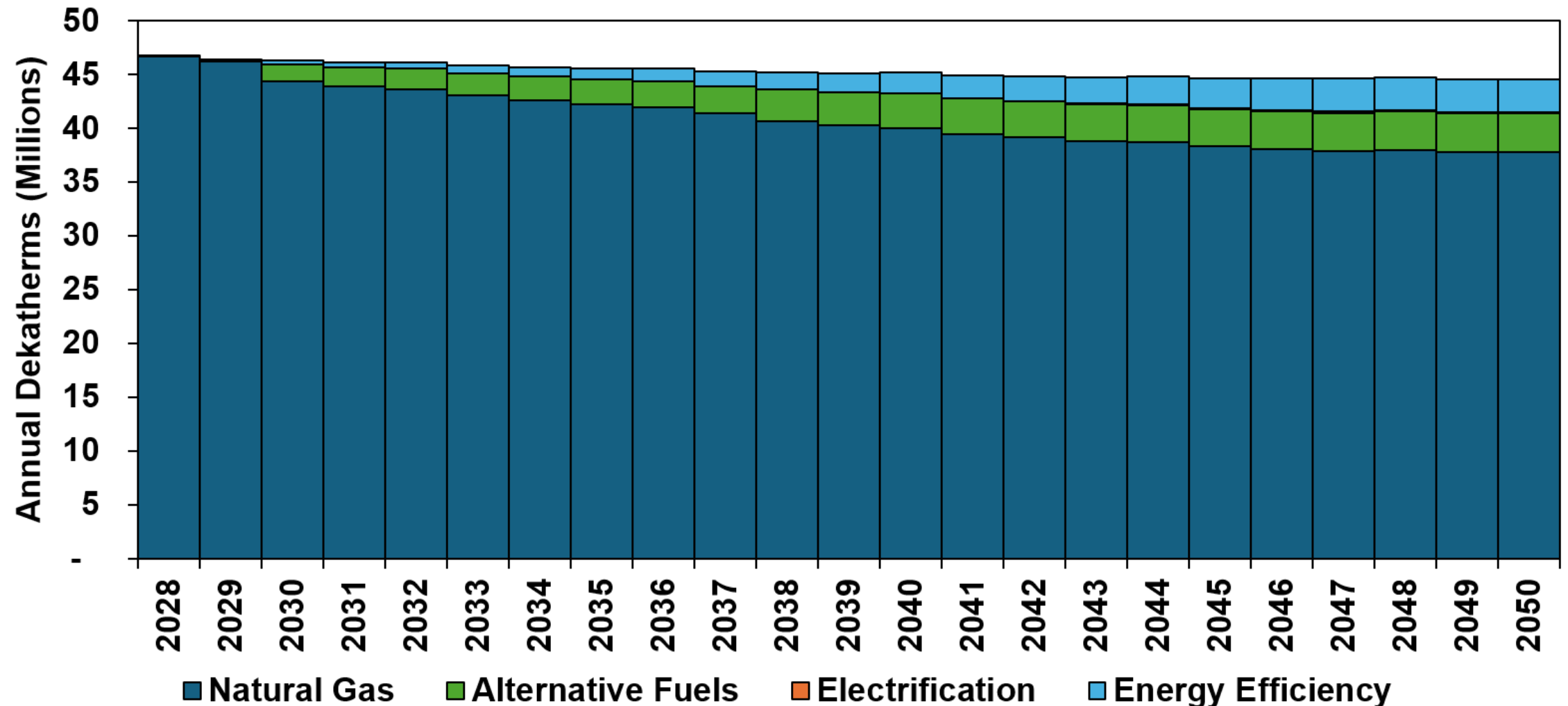
Preferred Resource Strategy: Meeting Energy Demand Oregon



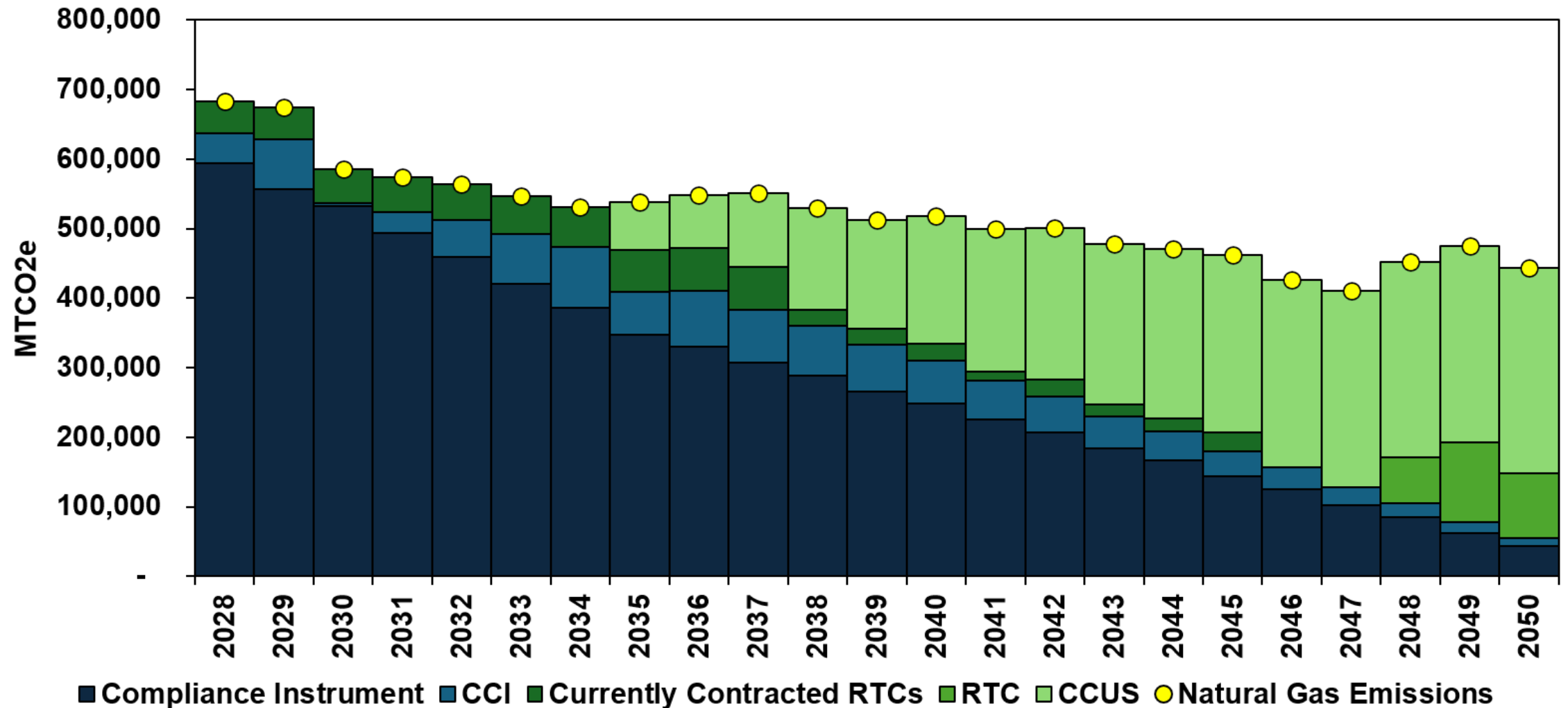
Preferred Resource Strategy: Meeting Energy Demand Washington



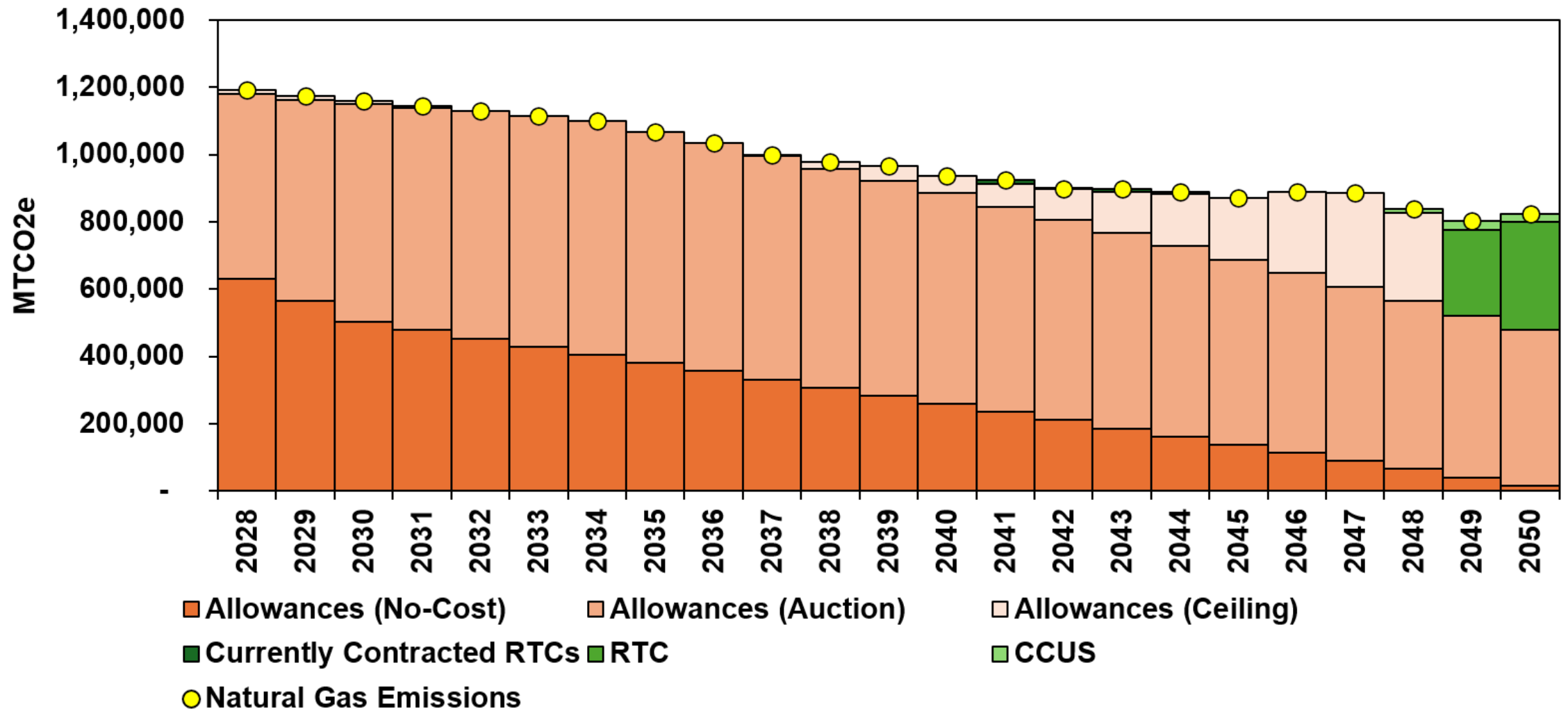
Preferred Resource Strategy: Meeting Energy Demand System



Preferred Resource Strategy: CPP Emissions Oregon



Preferred Resource Strategy: CCA Emissions Washington





Natural Gas Scenarios & Sensitivities

TAC 14 – September 30, 2026

Michael Brutocao, Natural Gas Planning Manager

Demand-Influencing

Hybrid Heating

Gas customers electrify water heaters and add electric heat pumps to furnaces (80% by 2050)

Appliance Replacement

Gas appliances transition to electric upon failure, based on the Cadmus system load forecast

No New Customers After 2030

No new gas customers added in Washington or Oregon

Perfect Storm

High electrification, 95th percentile of Monte Carlo price draws for natural gas, alternative fuels, and compliance mechanisms

High Natural Gas Retail Pricing

High retail pricing accelerates gas usage reduction

High Growth

System loads grow at higher annual average growth rate

Average Weather

20-year average daily weather; no peak days

Non-Demand-Influencing

No Climate Programs

Counter factual study of if the CCA and CPP end

Zero GHG by 2050

Trend emissions to zero by 2050

Low Renewable Resource Costs

50% lower CapEx by 2030

High Renewable Resource Costs

50% higher CapEx by 2030

IRA Returns in 2030

Renewable energy tax credits return in 2030

High CCA Pricing

Allowance prices trend to ceiling by 2035

High Natural Gas Prices

95th percentile of Monte Carlo price draws

Social Cost of Greenhouse Gas

SCGHG applied to CO₂ emitting resources in Washington and Oregon

Resiliency

Storage (Jackson Prairie) and pipeline transport capacities experience partial or zero availability for up to one week

No CO₂ Sequestration

CCUS technology is not available



2027 Electric IRP Preferred Resource Strategy & Scenarios

Jacob Heimbigner, Resource Planning Analyst

Executive takeaway

The PRS is a large, staged build program driven by load growth, clean-energy needs and reliability requirements.

5.3 GW

NEW NAMEPLATE CAPACITY

2028–2050, WA + ID

\$10.6B

2028-2050 Present Value
Modeled Cost

34%

SYSTEM LOAD GROWTH

Average MW, 2028–2050

65%

NET GHG REDUCTION

System MMT, 2028–2050

\$0.30 kWh

WA RATE PATH

\$/kWh in 2050. Current 2028 per PRS
\$0.16 kWh

\$0.20 kWh

ID RATE PATH

\$/kWh in 2050. Current 2028 per PRS
\$0.12 kWh

What matters

Near-term runway

Only modest acquisitions through 2033; the build accelerates materially in the late 2030s.

Portfolio concentration

Washington additions are dominated by wind and storage, with solar and firm/fuel-conversion resources supporting the back half.

Capital execution

The highest annual capital requirements cluster in 2041–2046, creating financing, procurement and delivery risk.

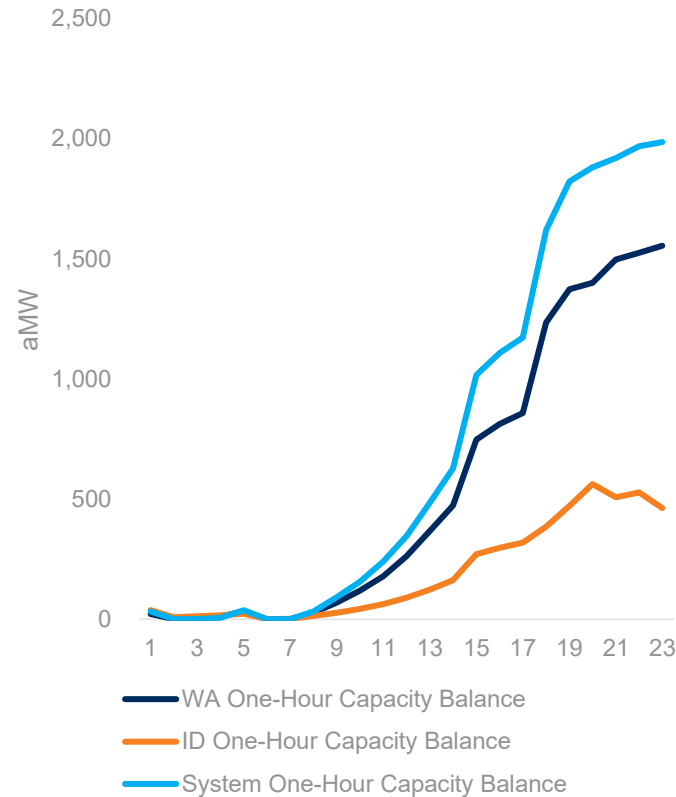
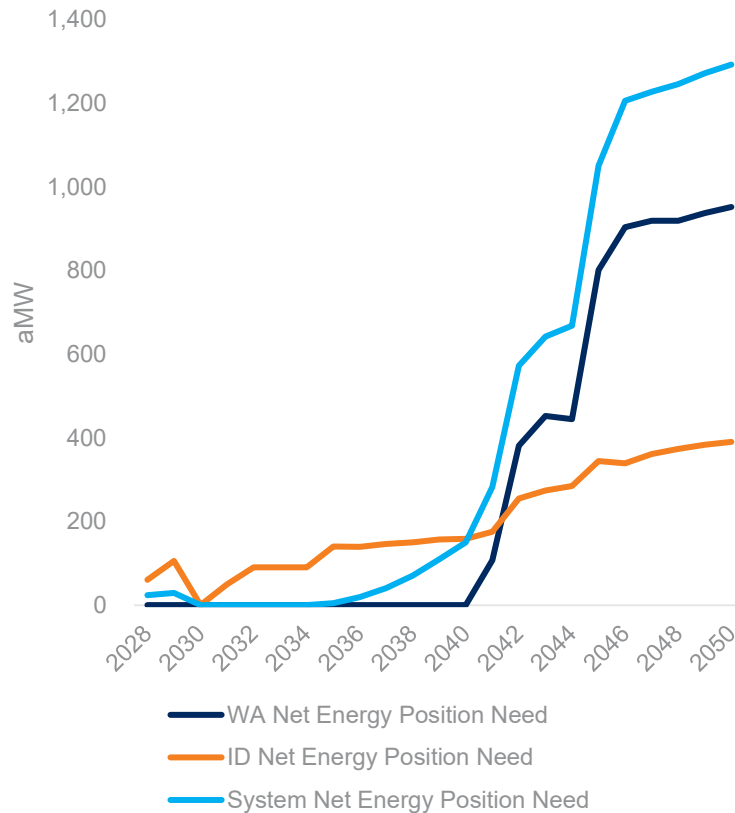
Customer affordability

Modeled rates rise steadily, making pacing, procurement discipline and customer programs central to execution.

Transmission Needs

Includes 220 MW of capacity through North Plains Connector and requires large build-out of expanded transmission of Big Bend.

Energy and Capacity needs increase as retirement and contracts expire



1.55 GW & 950 aMW

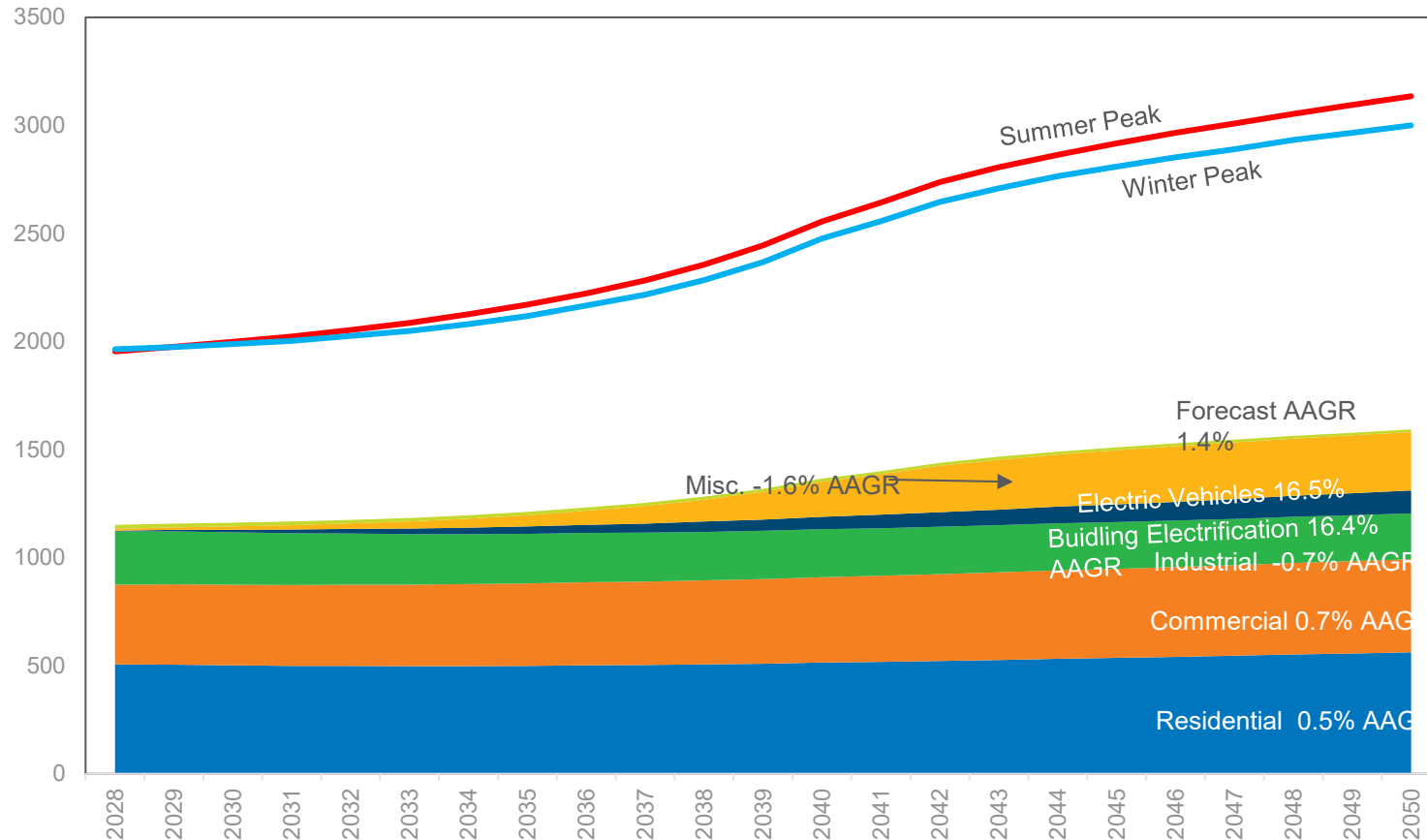
WA Capacity and Energy need in 2050

460 GW & 390 aMW

ID Capacity and Energy need in 2050

Demand growth raises both energy and capacity needs

System average load grows 34%; summer and winter peaks rise faster, increasing the value of flexible and firm capacity.



1374 → 1843 aMW

SYSTEM AVERAGE LOAD

1.3% AAGR

1927 → 3071 MW

SUMMER PEAK

2.0% AAGR

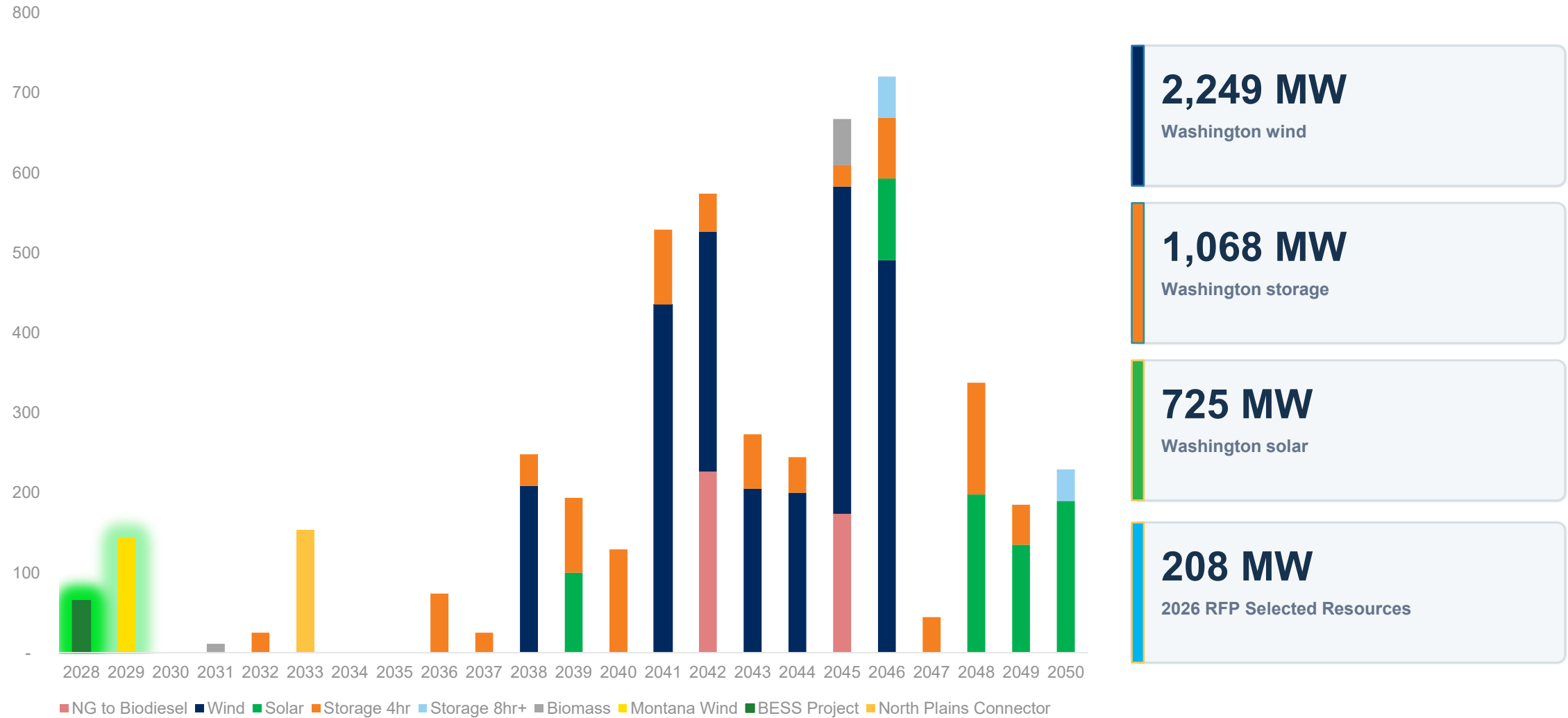
1887 → 2892 MW

WINTER PEAK

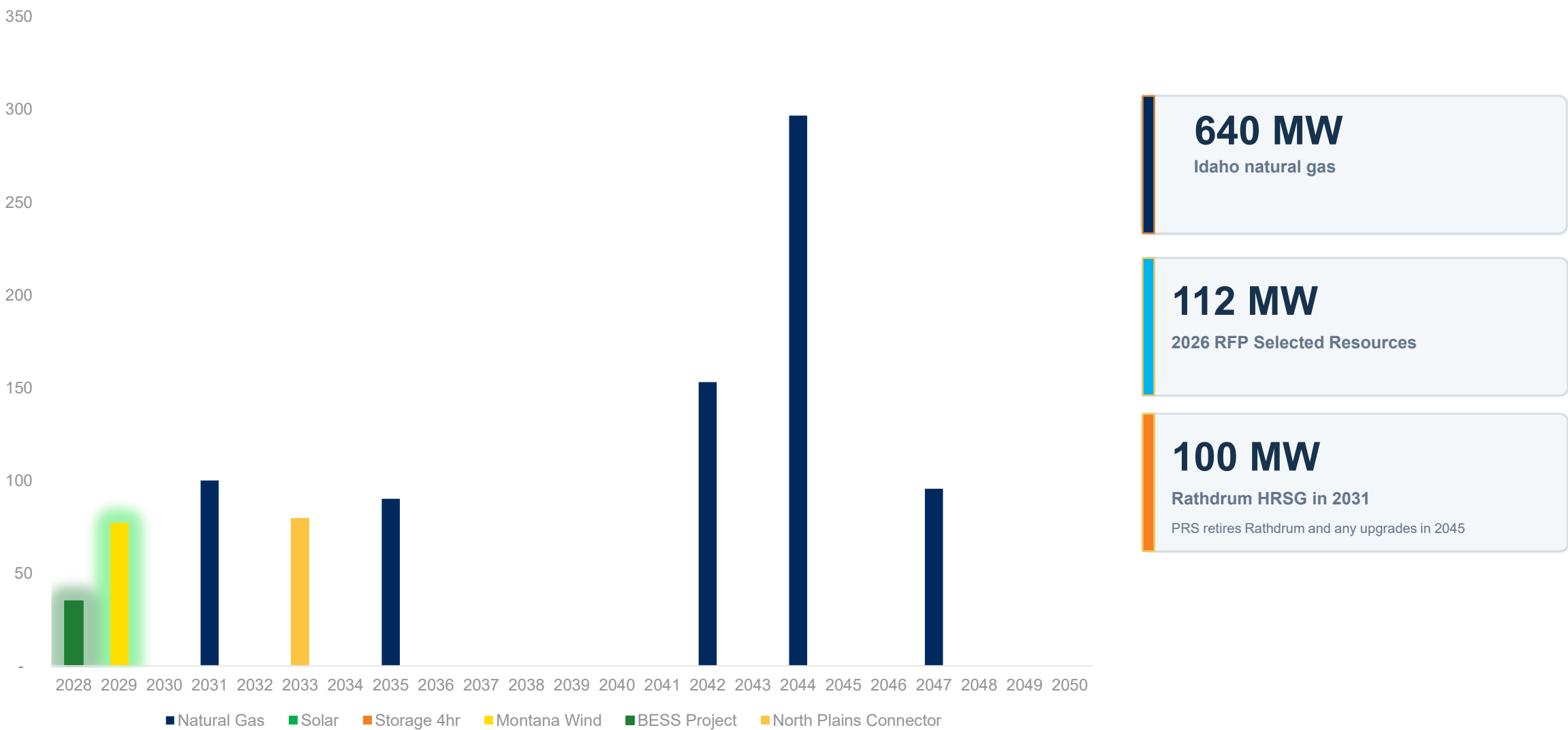
1.9% AAGR

The build shifts from incremental to transformational - WA

Annual additions are limited early, then accelerate after 2038 as wind, storage and firm resources enter the plan.

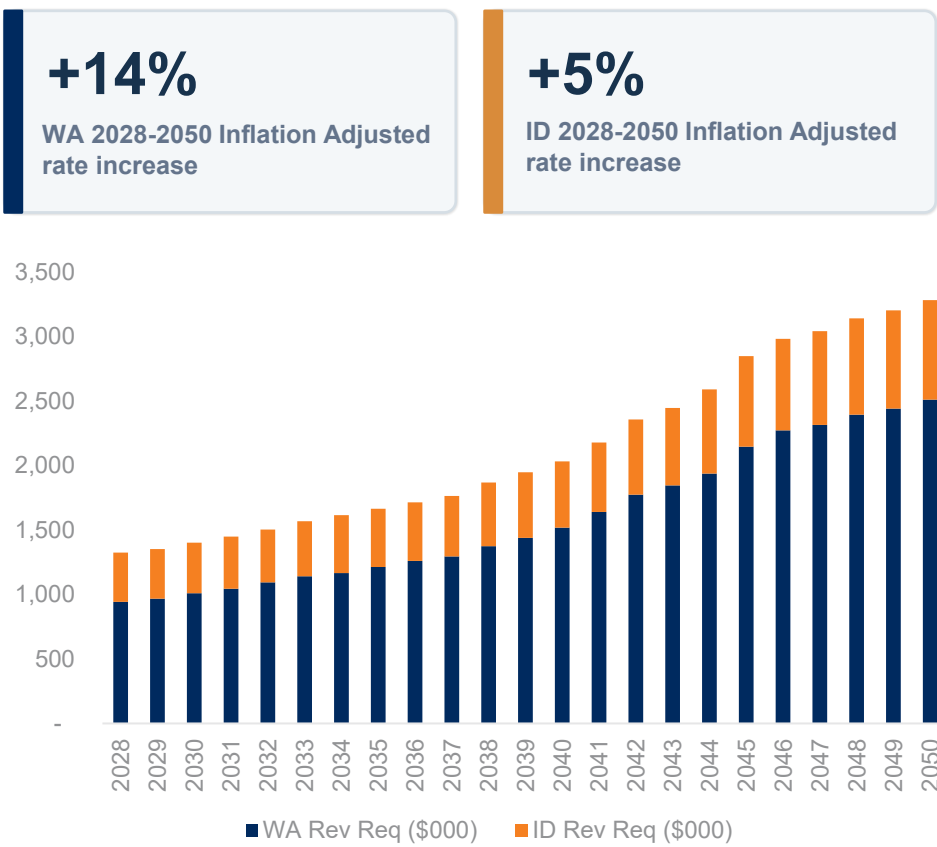
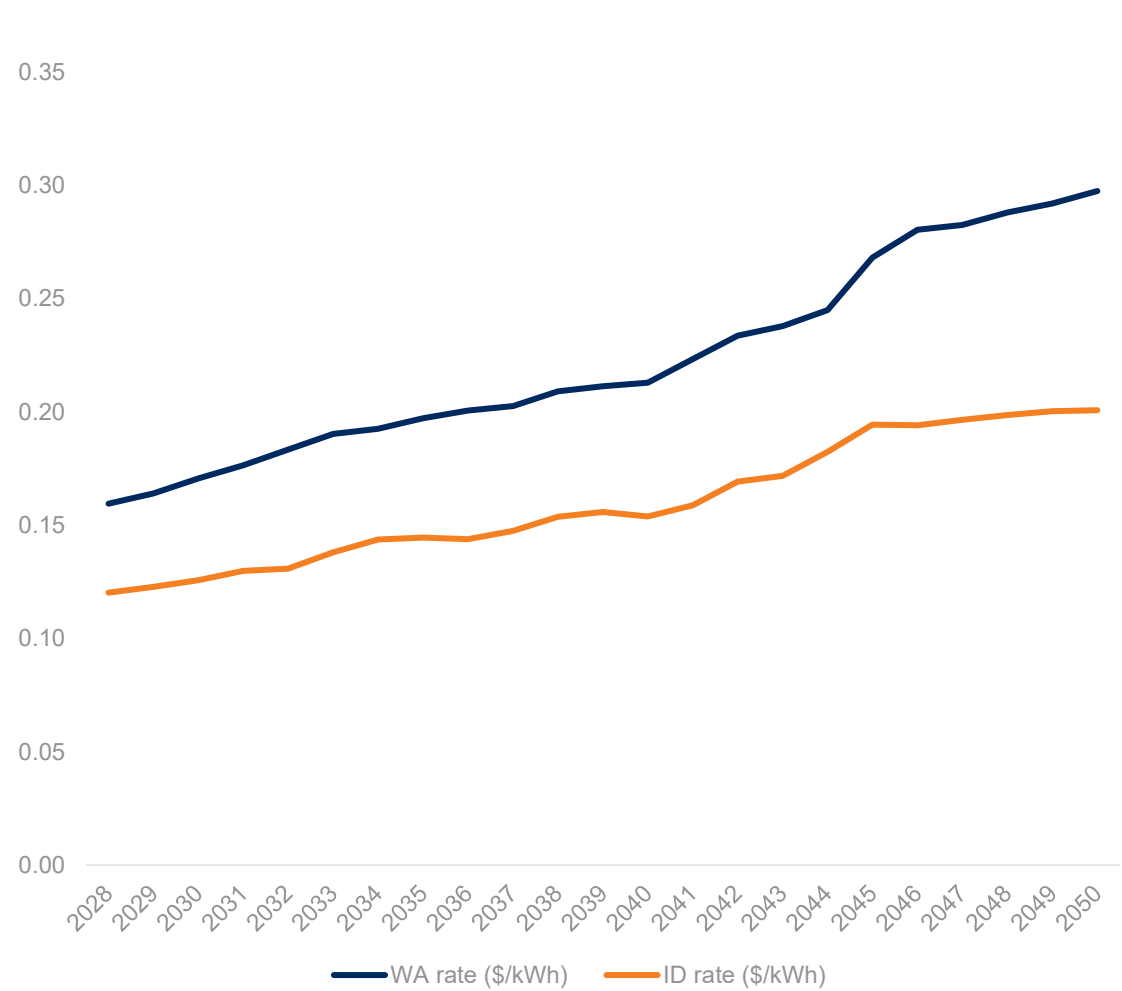


Sporadic build peaking for replacing unit retirement - ID



Electric Rates Rise throughout the horizon

Revenue requirement and retail rates trend upward, with the steepest pressure occurring alongside the mid-2040s build cycle.



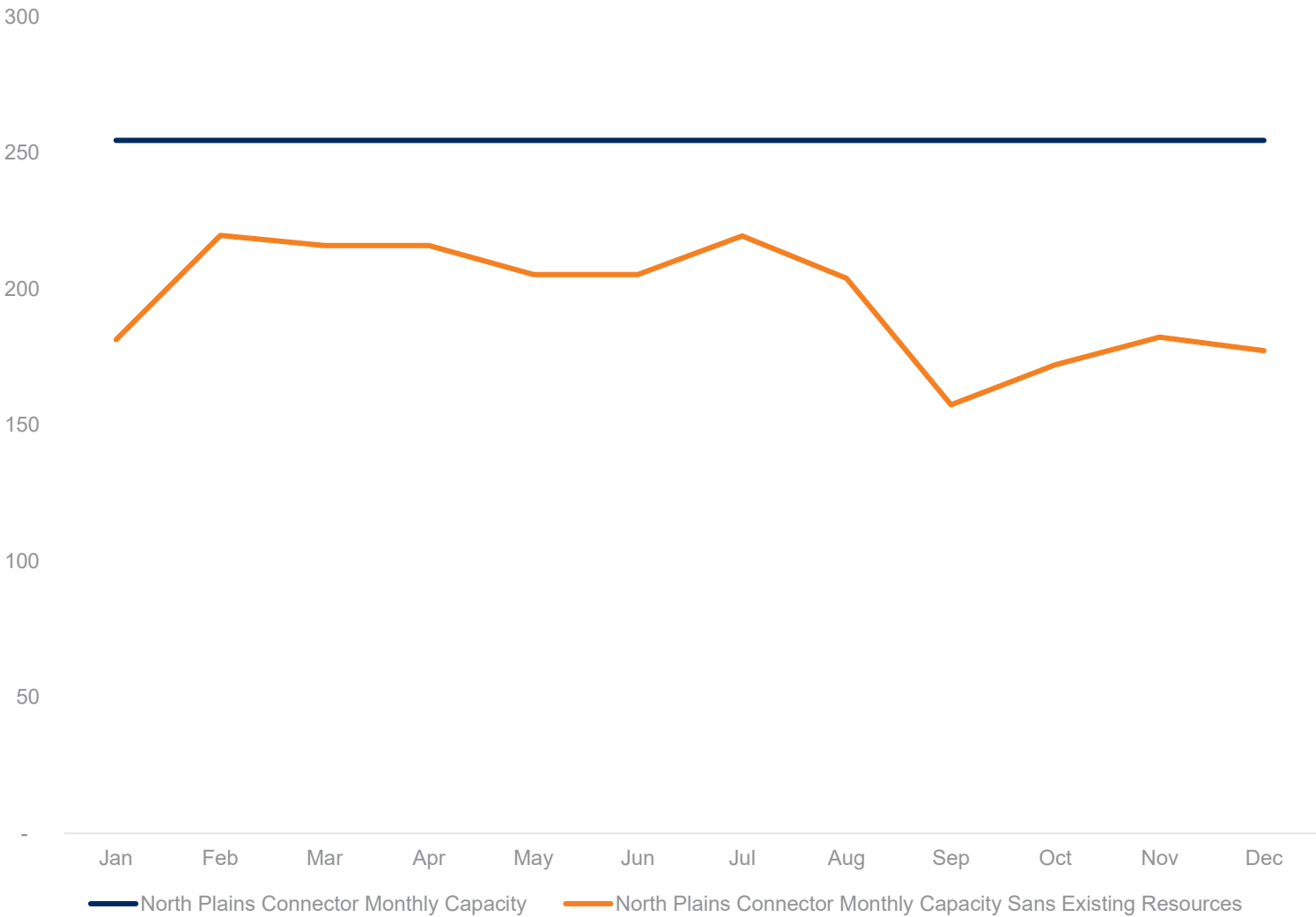
+14%
WA 2028-2050 Inflation Adjusted rate increase

+5%
ID 2028-2050 Inflation Adjusted rate increase

Total revenue requirement reaches \$3341MM by 2050.
WA represents 76% of Rev. Req but avg 67% of the PT Ratio.

North Plains Connector adds meaningful Capacity

PRS expects NPC to come online in 2033



\$509M

Present Value expense 2028-2050

255MW Capacity

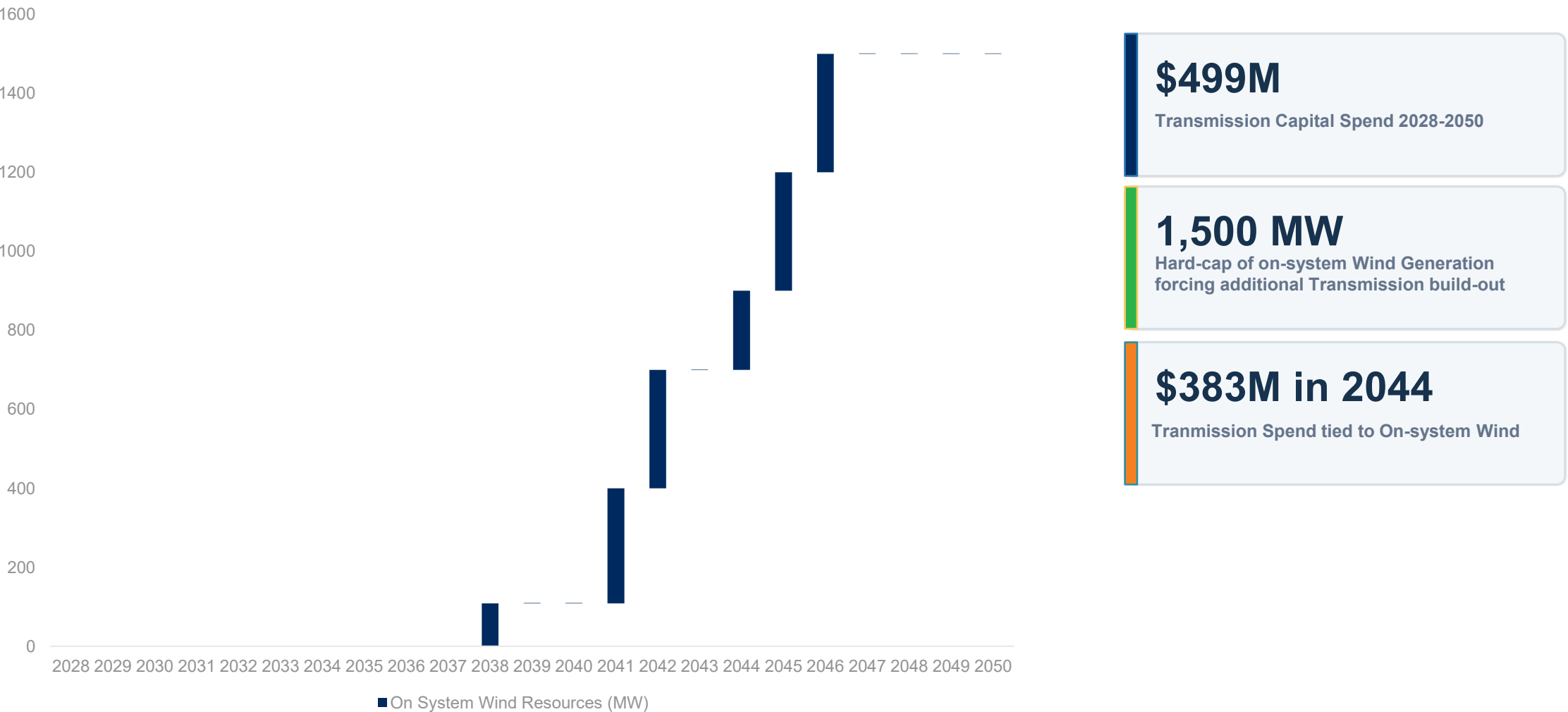
296MW of Nameplate Capacity – 14% of line losses

196 MW avg Monthly Capacity

Existing resources utilizing a percentage of NPC

Transmission hits a high hurdle in 2044

Potential for opportunity savings does little for the needed build-out for on-system wind resources



Demand Response provides a flexible capacity resource

The current program list is getting smaller that is financially viable.

94 MW by 2050

Selected Demand Response

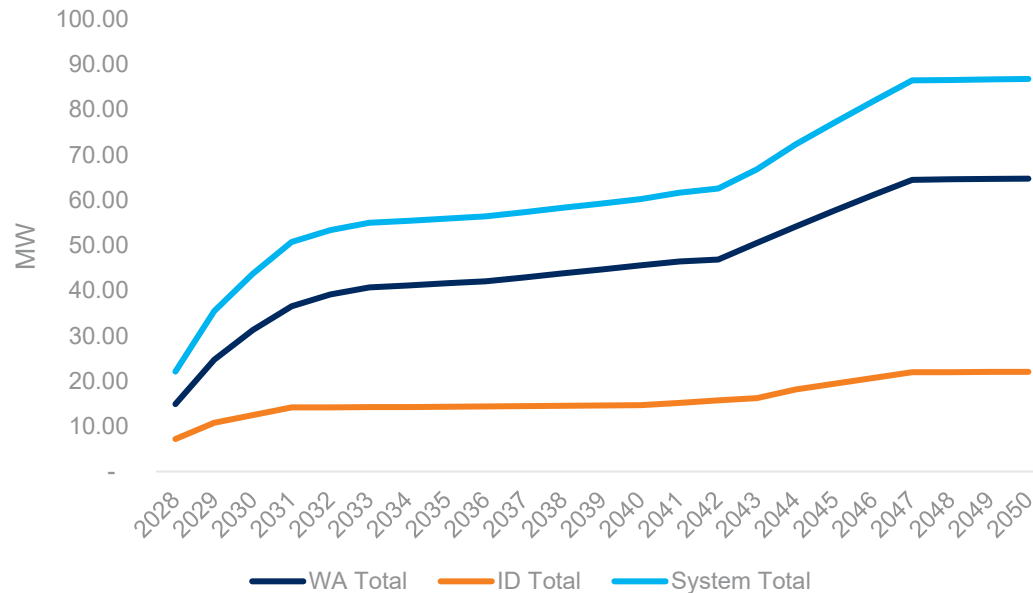
2028–2050, WA + ID

56% Selection

Of programs on a system level
by 2050

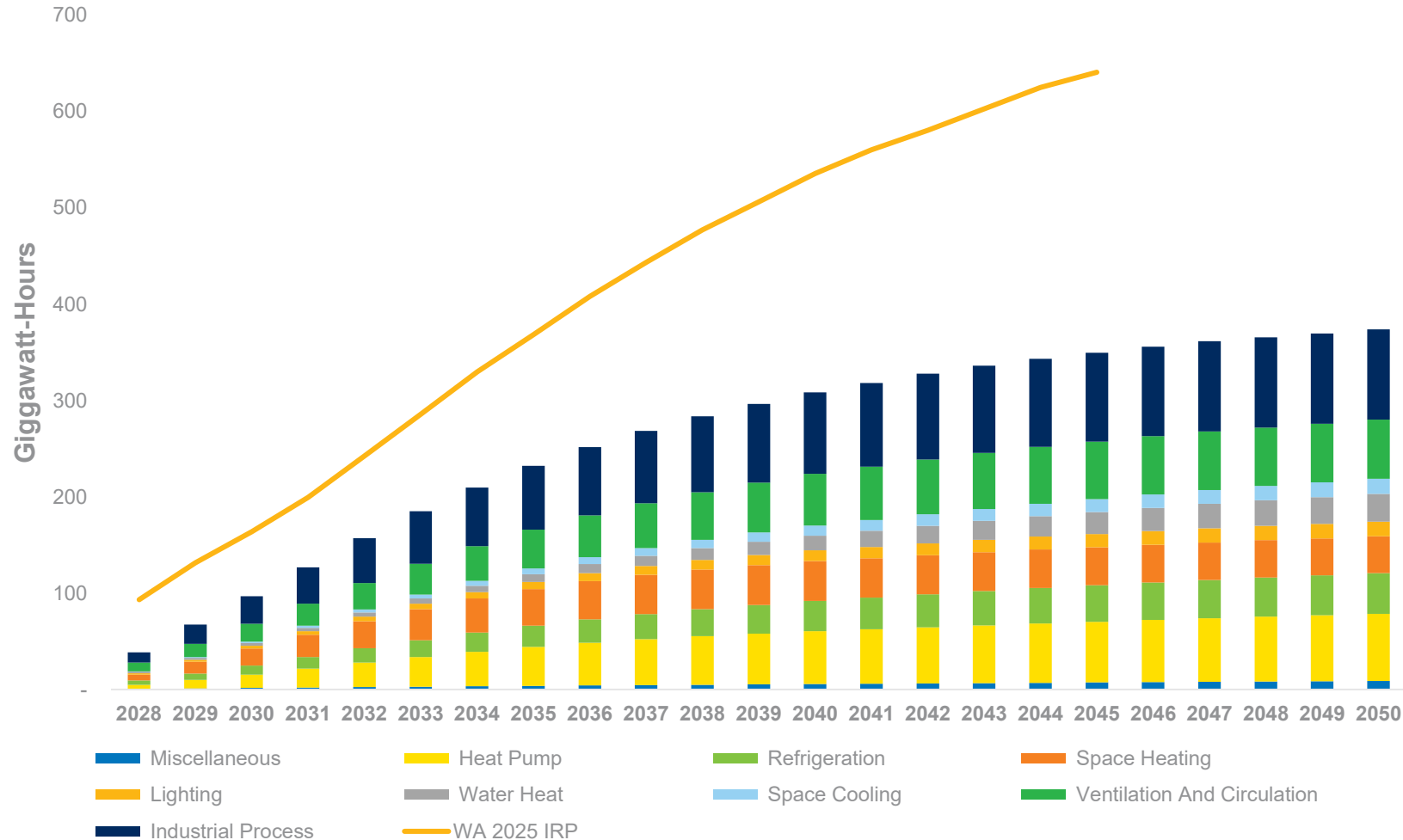
5 forced-in

Programs that Avista is already
obligated to start



DR Program	WA 2050	ID 2050	Forced In?
	Max	Max	
Commercial Electric Vehicle Time-of-Use	7.56	1.15	Yes
Nonresidential Cooling Switch, Medium	-	3.09	No
Nonresidential Cooling Switch, Small	-	-	
Nonresidential Thermostat, Small	-	-	
Residential Air-Conditioner Switch	-	-	
Residential Battery	-	-	
Residential Bring Your Own Battery	1.86	-	No
Residential Bring Your Own Thermostat	13.68	8.32	Yes
Residential Electric-Resistance Water Heater Direct Load Control	-	-	
Residential Electric-Resistance Water Heater Direct Load Control, Grid-Enabled	-	-	
Residential Heat-Pump Water Heater Direct Load Control, Grid-Enabled	-	-	
Nonresidential Commercial Curtailment	12.59	5.07	Yes
Nonresidential Industrial Curtailment	1.15	0.72	Yes
Nonresidential Irrigation	-	0.62	No
Nonresidential Commercial Peak-Time Rebate	-	-	
Residential EV Time-of-Use and Direct Load Control	16.33	-	No
Residential Peak-Time Rebate	6.08	3.07	Yes(WA only)
Residential Time-of-Use	5.50	-	No

Energy Efficiency provides savings across residential, commercial, and industrial users - WA



53.7 GWh

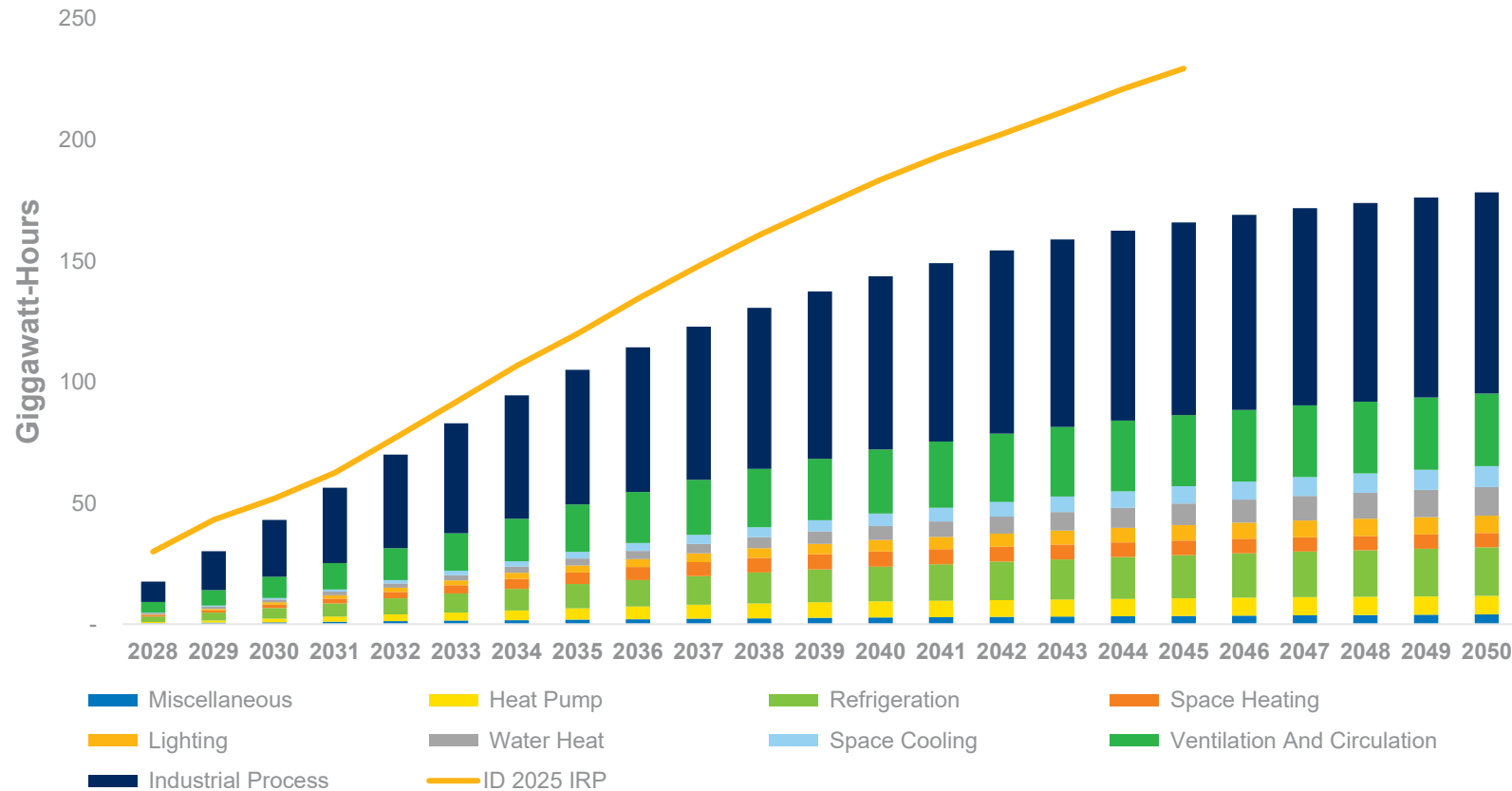
WA 2-yr Target Method
20 GWh reduction vs 2025 IRP

13.5 GWh

WA 2-yr Target Method tied to Low Income

374 GWh savings in 2050

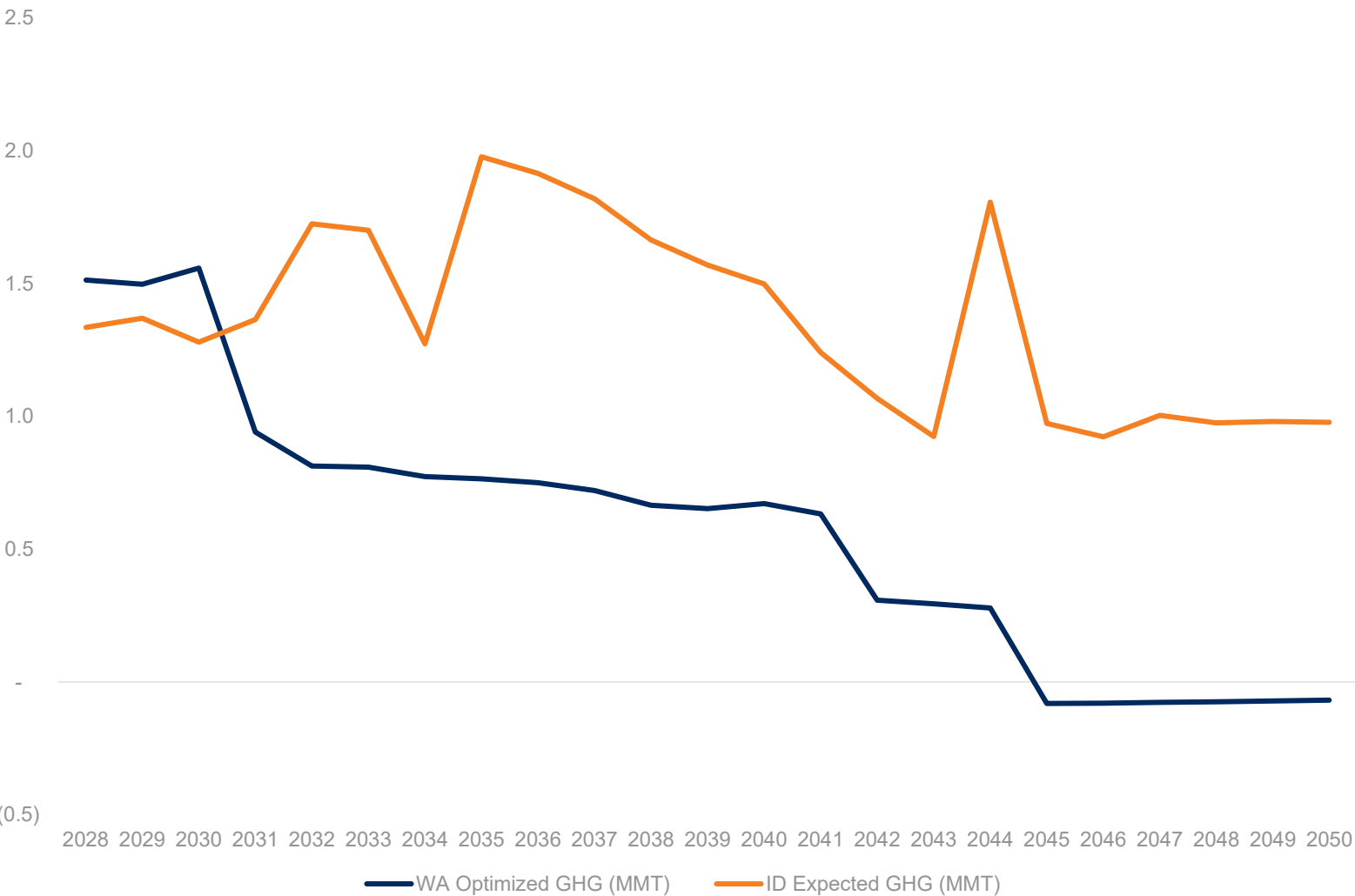
Idaho sees tighter potential vs 2025 IRP than WA in the early years



178 GWh in 2050

Emissions decline despite material load growth

WA Optimized GHG hits negative values in 2045



1.5 → (-)0.07 MMT

WA Optimized GHG

105% reduction

435 → 831 MT

NoX 2028-2050 tied to second Kettle Falls biomass unit in 2044

0.24 → .02 MT

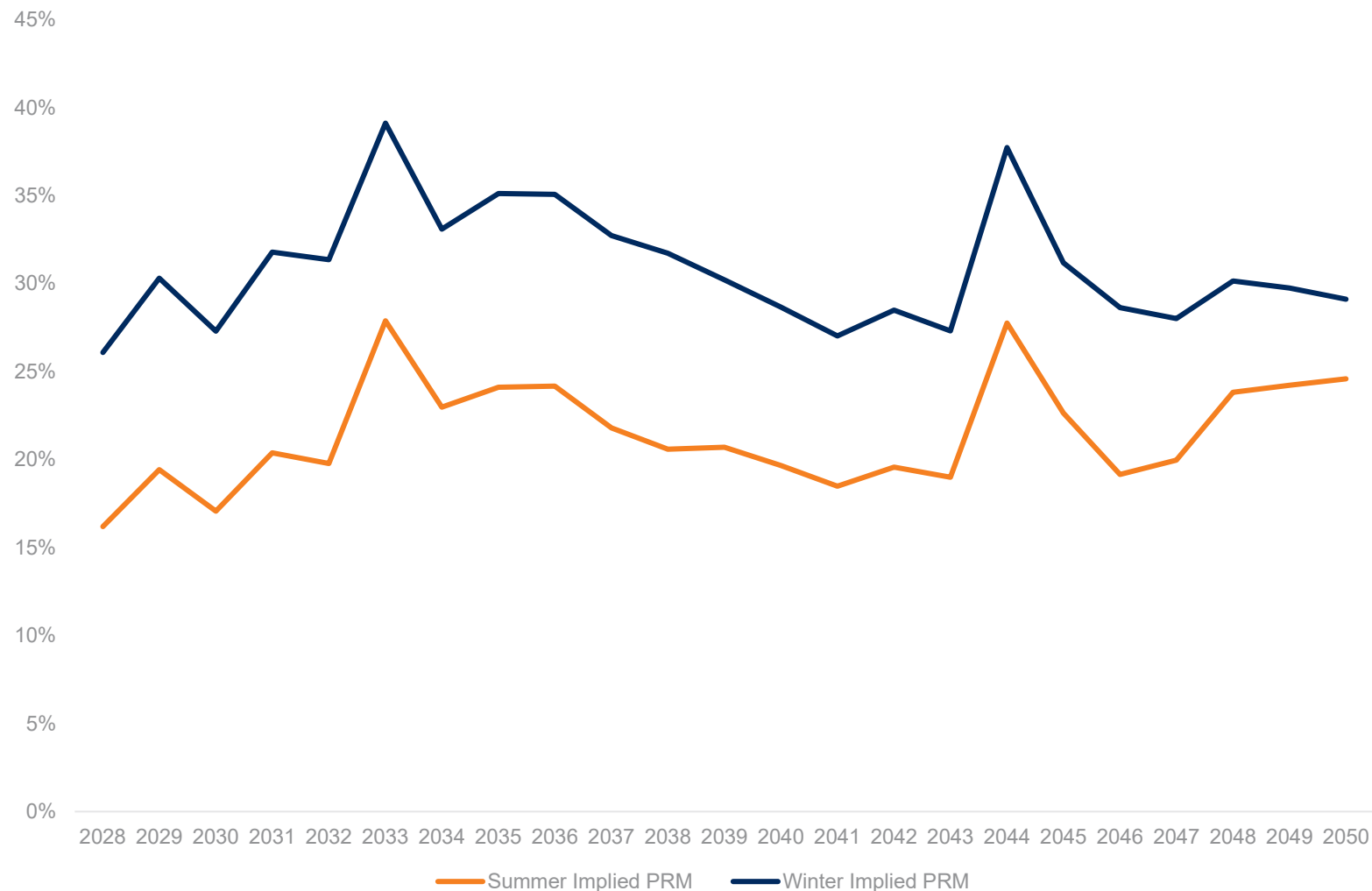
So2 2028-2050 reduction

26.2 → 21.7 MT

Vox 2028-2050 reduction

Reliability remains the governing constraint

Implied reserve margins are maintained while capacity requirements rise, but execution risk increases as additions become larger and more diverse.



Key reliability watchpoints

1 Resource timing

Late-delivery risk grows as build volume increases.

2 Technology performance

Storage duration, QCC and fuel availability are critical assumptions.

3 Transmission readiness

Interconnection and network upgrades must stay synchronized.

4 Portfolio optionality

Retain off-ramps and alternatives as costs and policy evolve.

No.	Scenario		Description
Preferred Resource Strategy			
1.1	Preferred Resource Strategy (PRS)		Reference portfolio and benchmark for evaluating the alternative scenarios.
Policy and Regulatory Scenarios			
2.1	Zero GHG by 2050		Trend emissions to zero by 2050 for both utilities.
2.2	No Climate Programs		Counterfactual analysis assuming CETA, CPP, and CCA end.
2.3	Accelerated Qualifying CETA Resources		Minimum of 60 aMW of qualifying resources by 2030, consistent with the CEIP condition.
2.4	Alternative Lowest Cost		No clean energy target, but includes the Social Cost of Greenhouse Gas in Washington.
2.5	Carbon Sequestration		Assumes carbon sequestration is a qualifying resource.
Washington Electrification and Demand Scenarios			
3.1	Appliance Replacement		Washington Gas appliances transition to electric upon failure, based on the Cadmus system load forecast.
3.2	High Heat Pump Adoption		Washington heat pumps are added to natural gas furnaces, and water heating is electrified, representing approximately 80% of applicable demand.
3.3	High Natural Gas Retail Pricing		high retail pricing accelerates gas usage reduction in Washington State (Cadmus forecast)
3.4	High Electrification		transition Washington space and water heating to electric (approximate 80% of demand)
Economic Growth and Load Scenarios			
4.1	High Economic Growth		System loads grow at the higher annual average growth rate from the Cadmus forecast.
4.2	Low Economic Growth		System loads grow at the lower annual average growth rate from the Cadmus forecast.
Large Load Scenarios			
5.1	2032 500 MW Large Load		A new 500 MW large load is added in Washington by 2032.
5.2	2032 250 MW Large Load		A new 250 MW large load is added in Washington by 2032.
5.3	2036 500 MW Large Load (incremental 250MW)		A new 500 MW large load is added in Washington by 2036. (Ramp)
Resource Cost Scenarios			
6.1	High Renewable Resource Costs		Renewable resource capital costs are 50% higher by 2030.
6.2	Low Renewable Resource Costs		Renewable resource capital costs are 50% lower by 2030.
6.3	IRA Returns in 2030		Assumes renewable energy tax credits return in 2030.
Resource Availability and Technology Scenarios			
7.1	No North Plains Connector		Assumes the North Plains Connector does not proceed.
7.2	Nuclear		Evaluates the price at which nuclear is selected in the resource portfolio when it is not selected in the PRS.
7.3	No Power-to-Gas		Removes power-to-gas resource options.
7.4	E3 QCC Values		Uses QCC values from Resource Adequacy and the Energy Transition in the Pacific Northwest.
Deterministic Fuel Price Scenarios			
8.1	Base Case		Uses the reference natural gas price forecast.
8.2	High Natural Gas Prices		Uses the 95th percentile of the Monte Carlo natural gas price draws.
8.3	Low Natural Gas Prices		Uses the 5th percentile of the Monte Carlo natural gas price draws.

Preferred Resource Strategy

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	190	545
NG CT to H2 CT	-	-	-	-
NG CT to Biodiesel CT	-	400	-	-
Power to Gas CT	-	-	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	209	2,040	-	-
Solar	-	725	-	-
Storage 4hr	164	814	-	-
Storage 8hr+	-	91	-	-
Geothermal	-	-	-	-
Biomass	11	58	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	745	4,224	382	545

\$0.30 kWh

WA RATE PATH

\$/kWh in 2050

+14%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.20 kWh

ID RATE PATH

\$/kWh in 2050

+5%

ID 2028-2050 Inflation
Adjusted rate increase

Zero GHG by 2050

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	-	-
NG CT to H2 CT	-	-	-	-
NG CT to Biodiesel CT	-	180	117	103
Power to Gas CT	-	-	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	300	2,224	100	954
Solar	-	110	-	702
Storage 4hr	161	949	-	-
Storage 8hr+	-	187	-	171
Geothermal	-	37	-	97
Biomass	-	58	11	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	823	3,841	420	2,028

\$0.31 kWh

WA RATE PATH

\$/kWh in 2050

+17%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.30 kWh

ID RATE PATH

\$/kWh in 2050

+49%

ID 2028-2050 Inflation
Adjusted rate increase

Accelerated Qualifying CETA Resources

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	190	545
NG CT to H2 CT	-	-	-	-
NG CT to Biodiesel CT	-	400	-	-
Power to Gas CT	-	-	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	209	2,040	-	-
Solar	-	726	-	-
Storage 4hr	156	880	-	-
Storage 8hr+	-	40	-	-
Geothermal	-	-	-	-
Biomass	11	58	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	737	4,240	382	545

\$0.30 kWh

WA RATE PATH

\$/kWh in 2050

+14%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.21 kWh

ID RATE PATH

\$/kWh in 2050

+5%

ID 2028-2050 Inflation
Adjusted rate increase

Carbon Sequestration

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	385	190	545
NG CT to H2 CT	-	-	-	-
NG CT to Biodiesel CT	-	331	-	-
Power to Gas CT	-	-	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	242	1,120	-	-
Solar	-	283	-	-
Storage 4hr	159	643	-	-
Storage 8hr+	-	72	-	-
Geothermal	-	-	-	-
Biomass	11	-	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	773	2,931	382	545

\$0.30 kWh

WA RATE PATH

\$/kWh in 2050

+14%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.21 kWh

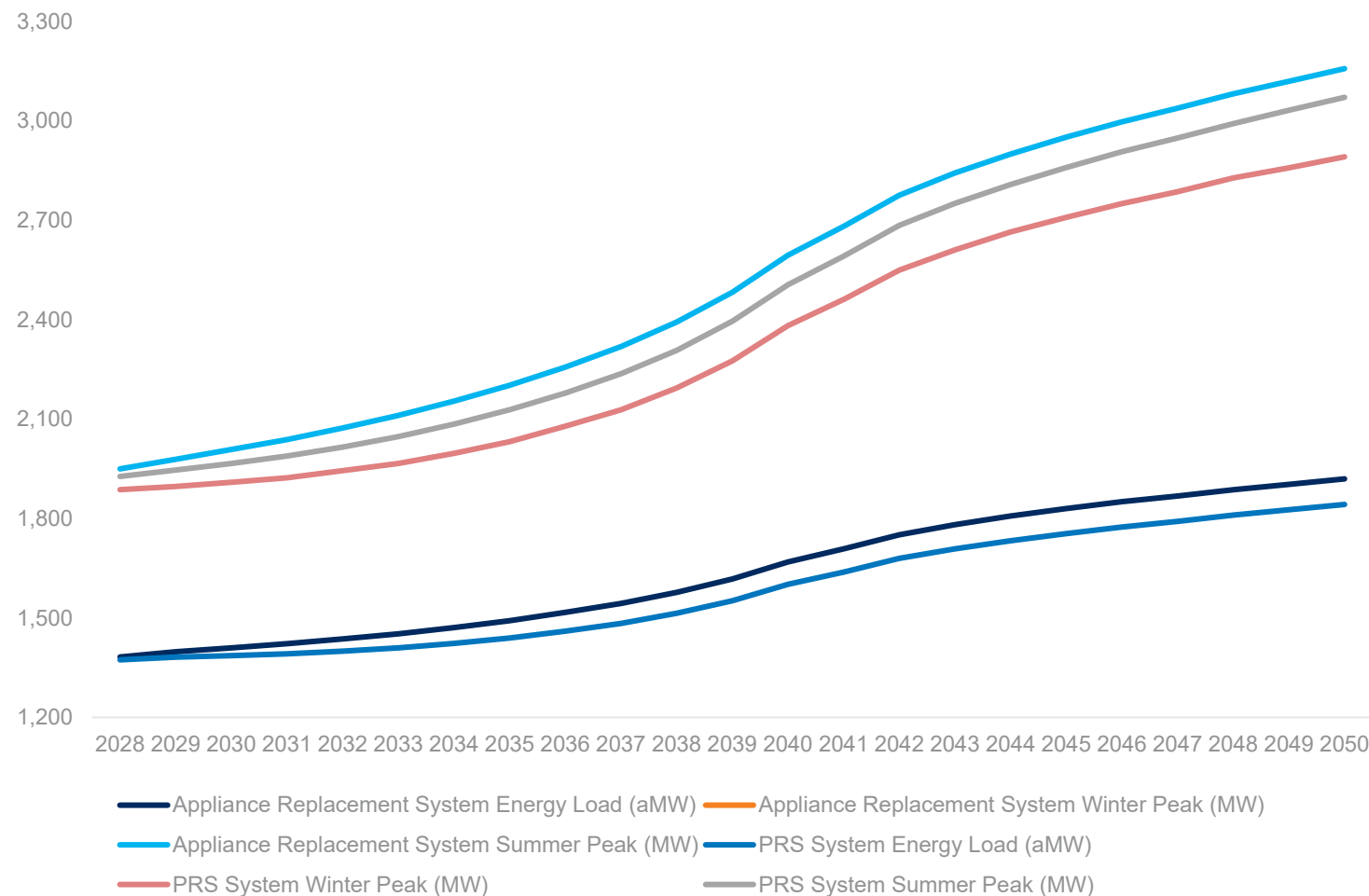
ID RATE PATH

\$/kWh in 2050

+4.5%

ID 2028-2050 Inflation
Adjusted rate increase

Appliance Replacement



\$0.33 kWh

WA RATE PATH

\$/kWh in 2050

+22%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.22 kWh

ID RATE PATH

\$/kWh in 2050

+8.6%

ID 2028-2050 Inflation
Adjusted rate increase

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	190	545
NG CT to H2 CT	-	-	-	-
NG CT to Biodiesel CT	-	400	-	-
Power to Gas CT	-	-	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	259	2,340	-	-
Solar	-	143	-	-
Storage 4hr	474	947	-	-
Storage 8hr+	-	-	-	-
Geothermal	-	81	-	-
Biomass	11	58	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	1,106	4,064	382	545

High Heat Pump Adoption

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	190	545
NG CT to H2 CT	-	-	-	-
NG CT to Biodiesel CT	-	400	-	-
Power to Gas CT	-	-	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	269	2,325	-	-
Solar	-	100	-	-
Storage 4hr	163	774	-	-
Storage 8hr+	-	84	-	-
Geothermal	-	40	-	-
Biomass	11	58	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	805	3,877	382	545

\$0.30 kWh

WA RATE PATH

\$/kWh in 2050

+15%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.22 kWh

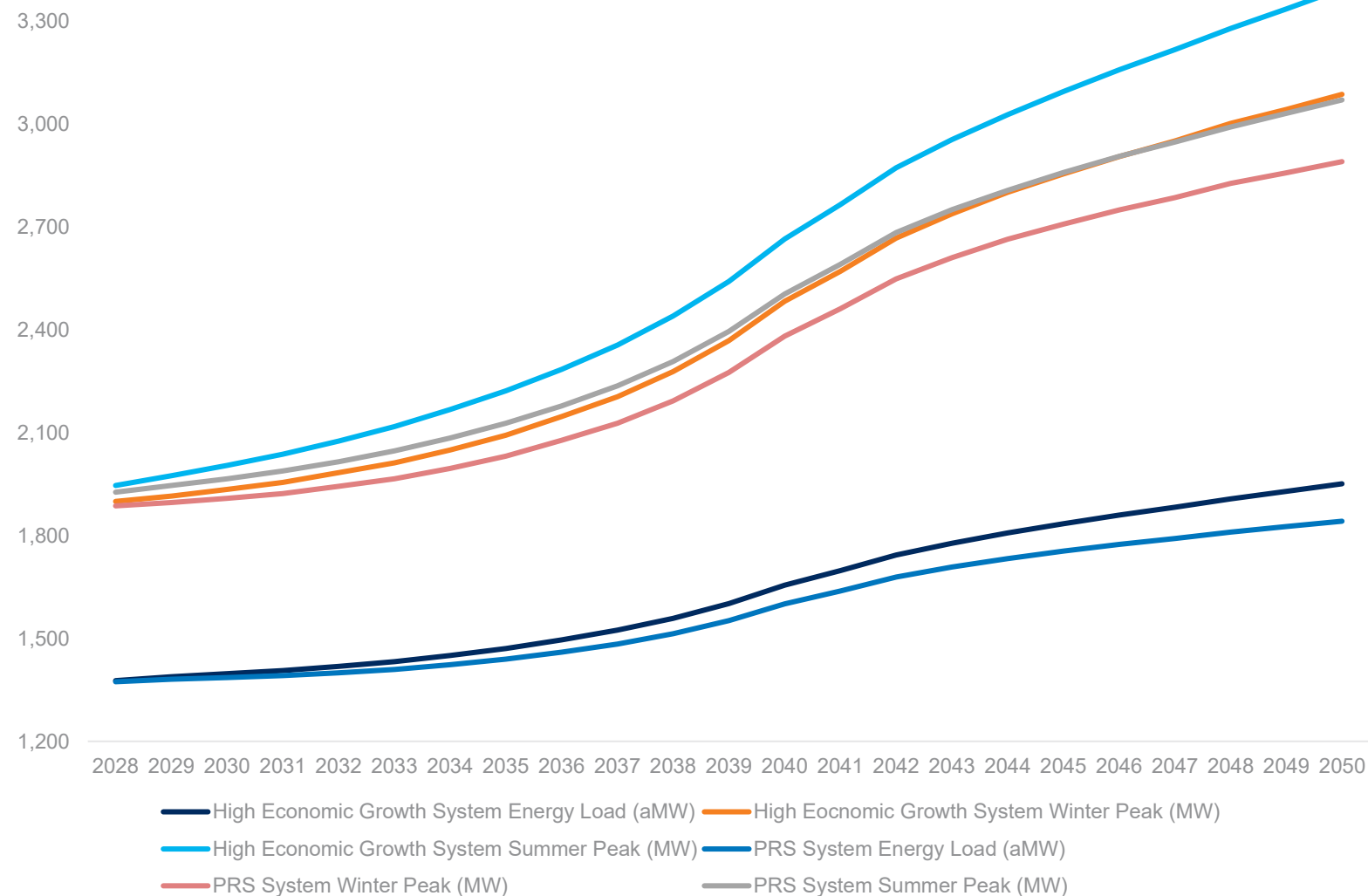
ID RATE PATH

\$/kWh in 2050

+8.6%

ID 2028-2050 Inflation
Adjusted rate increase

High Economic Growth



\$0.32 kWh

WA RATE PATH

\$/kWh in 2050

+22%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.21 kWh

ID RATE PATH

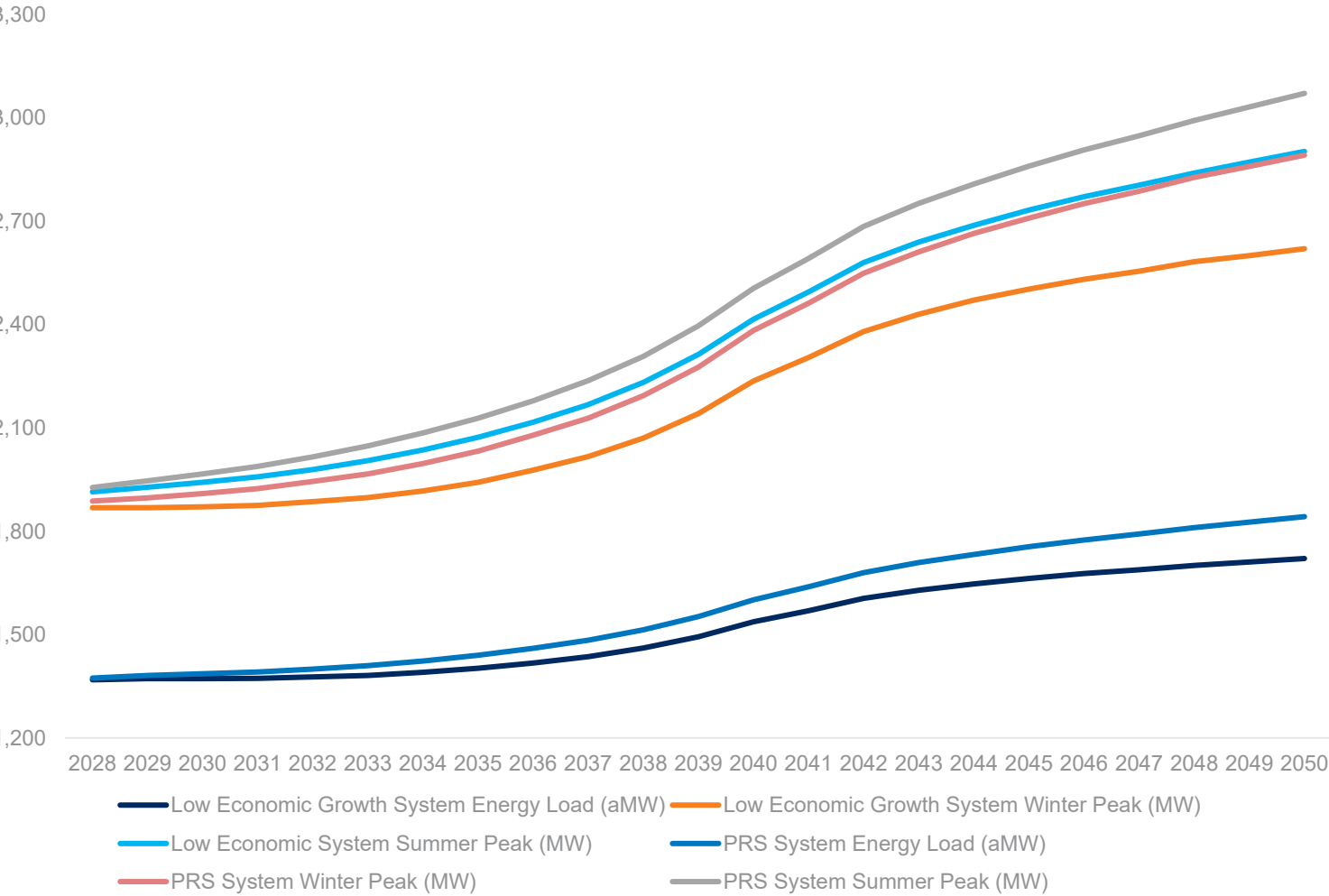
\$/kWh in 2050

+5.7%

ID 2028-2050 Inflation
Adjusted rate increase

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	249	527
NG CT to H2 CT	-	90	-	-
NG CT to Biodiesel CT	-	400	-	-
Power to Gas CT	-	180	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	100	1,991	-	-
Solar	200	620	-	-
Storage 4hr	242	458	-	-
Storage 8hr+	-	128	-	63
Geothermal	-	79	-	-
Biomass	11	58	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	914	4,100	441	590

Low Economic Growth



\$0.32 kWh

WA RATE PATH

\$/kWh in 2050

+22%

WA 2028-2050 Inflation

Adjusted rate increase

\$0.23 kWh

ID RATE PATH

\$/kWh in 2050

+15%

ID 2028-2050 Inflation

Adjusted rate increase

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	100	518
NG CT to H2 CT	-	-	-	-
NG CT to Biodiesel CT	-	317	-	-
Power to Gas CT	-	-	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	100	1,893	-	-
Solar	100	303	-	-
Storage 4hr	75	402	-	-
Storage 8hr+	-	403	-	-
Geothermal	-	-	-	-
Biomass	11	58	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	648	3,472	292	518

2032 500 MW Large Load

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	190	545
NG CT to H2 CT	-	90	-	-
NG CT to Biodiesel CT	-	400	-	-
Power to Gas CT	-	171	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	238	-	-
Wind	934	1,665	-	-
Solar	156	1,094	-	-
Storage 4hr	656	389	-	-
Storage 8hr+	-	79	-	-
Geothermal	100	-	-	-
Biomass	69	-	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	2,276	4,223	382	545

\$0.29 kWh

WA RATE PATH

\$/kWh in 2050

+8.3%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.22 kWh

ID RATE PATH

\$/kWh in 2050

+9%

ID 2028-2050 Inflation
Adjusted rate increase

2032 250 MW Large Load

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	190	545
NG CT to H2 CT	-	90	-	-
NG CT to Biodiesel CT	-	400	-	-
Power to Gas CT	-	98	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	798	1,801	-	-
Solar	119	842	-	-
Storage 4hr	463	534	-	-
Storage 8hr+	-	85	-	-
Geothermal	-	100	-	-
Biomass	11	58	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	1,753	4,104	382	545

\$0.29 kWh

WA RATE PATH

\$/kWh in 2050

+9%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.22 kWh

ID RATE PATH

\$/kWh in 2050

+9%

ID 2028-2050 Inflation
Adjusted rate increase

2036 500 MW Large Load (Incremental 250MW)

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	196	540
NG CT to H2 CT	-	90	-	-
NG CT to Biodiesel CT	310	90	-	-
Power to Gas CT	-	151	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	249	-	-
Wind	900	1,699	-	-
Solar	364	783	-	-
Storage 4hr	353	688	-	-
Storage 8hr+	-	86	-	-
Geothermal	100	-	-	-
Biomass	11	58	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	2,399	3,990	387	540

\$0.27 kWh

WA RATE PATH

\$/kWh in 2050

+8.6%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.22 kWh

ID RATE PATH

\$/kWh in 2050

+9%

ID 2028-2050 Inflation
Adjusted rate increase

High Renewable Resource Costs

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	221	514
NG CT to H2 CT	-	90	-	-
NG CT to Biodiesel CT	94	306	-	-
Power to Gas CT	-	180	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	100	2,144	-	-
Solar	-	208	-	-
Storage 4hr	25	683	-	-
Storage 8hr+	-	-	-	-
Geothermal	-	-	-	-
Biomass	69	-	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	650	3,706	413	514

\$0.35 kWh

WA RATE PATH

\$/kWh in 2050

+31%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.21 kWh

ID RATE PATH

\$/kWh in 2050

+5.2%

ID 2028-2050 Inflation
Adjusted rate increase

Low Renewable Resource Costs

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	100	90
NG CT to H2 CT	-	-	-	-
NG CT to Biodiesel CT	-	-	-	-
Power to Gas CT	-	-	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	1,100	1,449	200	300
Solar	-	10	800	-
Storage 4hr	-	-	-	-
Storage 8hr+	-	1,386	-	270
Geothermal	100	-	100	-
Biomass	-	-	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	1,562	2,941	1,392	660

\$0.22 kWh

WA RATE PATH

\$/kWh in 2050

-17%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.19 kWh

ID RATE PATH

\$/kWh in 2050

-5.5%

ID 2028-2050 Inflation
Adjusted rate increase

IRA Returns in 2030

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	190	503
NG CT to H2 CT	-	-	-	-
NG CT to Biodiesel CT	-	400	-	-
Power to Gas CT	-	-	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	100	2,109	-	-
Solar	100	541	159	-
Storage 4hr	190	767	-	-
Storage 8hr+	-	105	-	-
Geothermal	-	20	-	-
Biomass	-	69	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	751	4,106	541	503

\$0.29 kWh

WA RATE PATH

\$/kWh in 2050

+10%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.21 kWh

ID RATE PATH

\$/kWh in 2050

+4.2%

ID 2028-2050 Inflation
Adjusted rate increase

No Northern Plains Connector

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	267	518
NG CT to H2 CT	-	-	-	-
NG CT to Biodiesel CT	-	400	-	-
Power to Gas CT	-	-	-	-
RNG CT	-	-	-	-
PtoG	-	96	-	-
Nuclear	-	-	-	-
Wind	100	2,149	-	-
Solar	200	556	-	-
Storage 4hr	311	890	-	-
Storage 8hr+	-	43	-	25
Geothermal	-	-	-	-
Biomass	11	58	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	-	-	-	-
Total	831	4,192	379	543

\$0.30 kWh

WA RATE PATH

\$/kWh in 2050

+14%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.21 kWh

ID RATE PATH

\$/kWh in 2050

+4.7%

ID 2028-2050 Inflation
Adjusted rate increase

Nuclear – At what price is it selected

		23-yr Levelized Cost to select (100MW SMR, 300MW AP1000)	PRS 23-yr Levelized Costs	Redution Needed
SMR	\$	121.38	\$ 242.77	-50%
AP1000	\$	117.31	\$ 213.30	-45%

No Power-to-Gas

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	190	545
NG CT to H2 CT	-	-	-	-
NG CT to Biodiesel CT	-	400	-	-
Power to Gas CT	-	-	-	-
RNG CT	-	-	-	-
PtoG	-	-	-	-
Nuclear	-	-	-	-
Wind	209	2,387	-	-
Solar	-	411	-	-
Storage 4hr	164	1,011	-	-
Storage 8hr+	-	-	-	-
Geothermal	-	20	-	-
Biomass	11	58	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	745	4,286	382	545

\$0.31 kWh

WA RATE PATH

\$/kWh in 2050

+19%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.22 kWh

ID RATE PATH

\$/kWh in 2050

+8.6%

ID 2028-2050 Inflation
Adjusted rate increase

E3 QCC Values

Resource Type	WA		ID	
	2028-2038	2039-2050	2028-2038	2039-2050
Natural Gas	-	-	190	545
NG CT to H2 CT	-	90	-	-
NG CT to Biodiesel CT	100	300	-	-
Power to Gas CT	-	180	-	-
RNG CT	-	-	-	-
PtoG	-	176	-	-
Nuclear	-	-	-	-
Wind	318	1,531	-	-
Solar	100	711	-	-
Storage 4hr	50	177	-	-
Storage 8hr+	-	374	-	-
Geothermal	-	76	-	-
Biomass	11	58	-	-
Montana Wind	143	-	77	-
BESS Project	65	-	35	-
North Plains Connector	153	-	80	-
Total	941	3,672	382	545

\$0.33 kWh

WA RATE PATH

\$/kWh in 2050

+23%

WA 2028-2050 Inflation
Adjusted rate increase

\$0.21 kWh

ID RATE PATH

\$/kWh in 2050

+6.9%

ID 2028-2050 Inflation
Adjusted rate increase

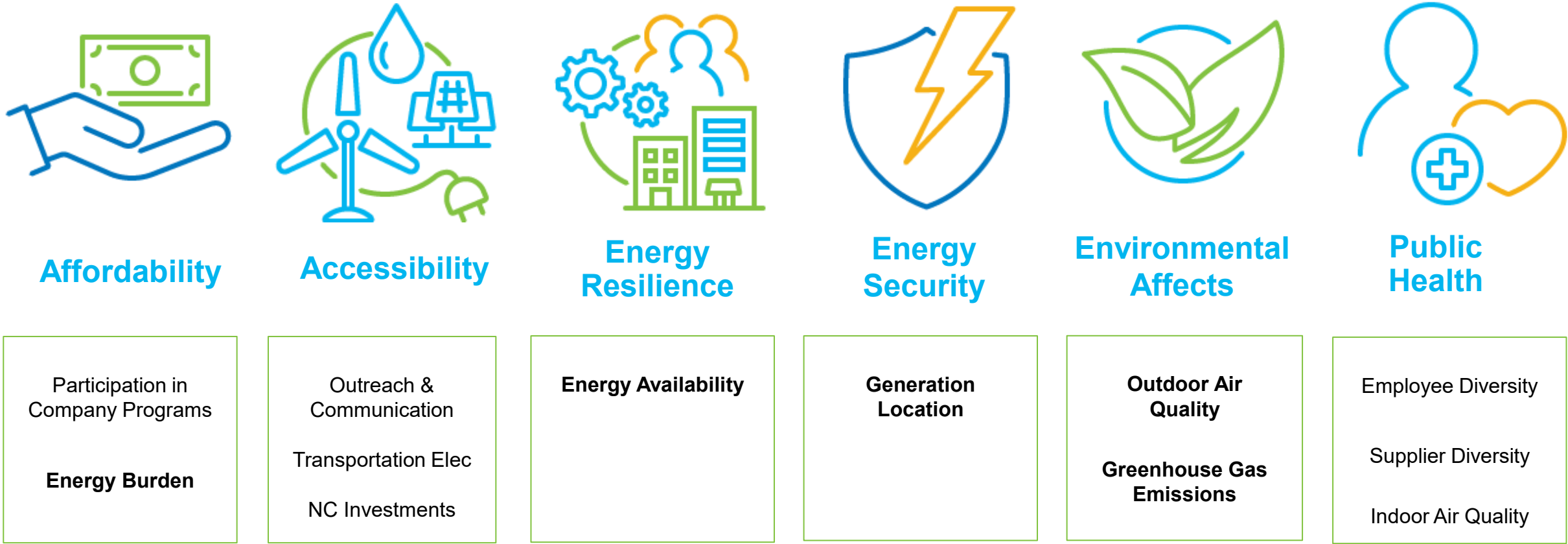


Customer Benefit Indicators

TAC 14 – September 30, 2026

Robert Hughes/Jon Lee, Resource Planning Analysts and
Carryn Vande Griend, Sr. Clean Energy Policy & Implementation Manager

2025 CEIP Customer Benefit Indicators



CBI: Energy Burden Metric Changes

2021 CEIP (3 metrics)

- The number of households with energy burden exceeding 6% of income
- Percentage of customers with excess energy burden
- Average excess energy burden

2025 CEIP (9+ metrics by census tract)

- All Customers: Annual residential bill divided by area median income before & after energy assistance (electric)
- NC Customers: Annual residential bill divided by area median income before & after energy assistance (dual fuel, electric)
- Non-NC Customers: Annual residential bill divided by area median income before & after energy assistance (dual fuel, electric)
- Number & percentage of customers with high energy burden before & after energy assistance (dual fuel, electric)

Energy Burden Metric

- Energy Burden is a metric that measures the share of annual household income spent on energy costs
- Energy Burden (%) = Total Household Energy Costs ÷ Household Income
- Includes all household fuel expenditures (electricity, natural gas, propane, wood, heating oil)
- Forecast three metrics related to household energy burden:
 - The number of households with energy burden exceeding **6%** of income
 - Percentage of customers with excess energy burden
 - Average excess energy burden per household

Example:

$$\begin{array}{c} \$3,000 \text{ Annual Energy Costs} \\ \div \\ \$50,000 \text{ Annual Income} \\ = \\ \underline{\underline{6.0\% \text{ Energy Burden}}} \end{array}$$

Model Inputs

Household Income by Census Tract

- Customer income derived from LEAD tool
- Grouped into General and Disadvantaged customer populations
- Annual inflation adjustment

Energy Consumption

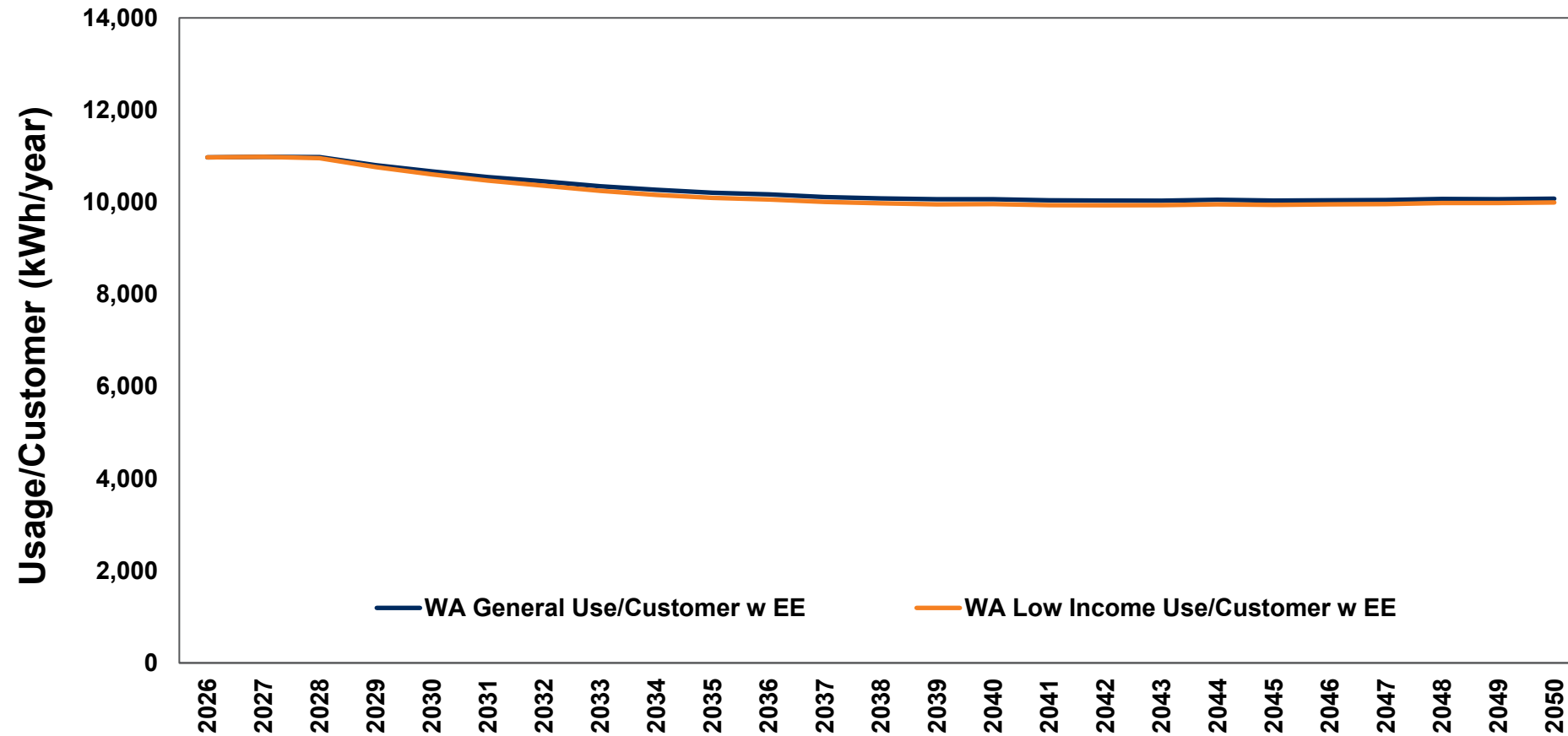
- Average customer electric and natural gas usage
- Wood, propane, and heating oil assumptions based on 2022 RBSA
- Customer growth based on IRP load forecast

Energy Cost Forecast

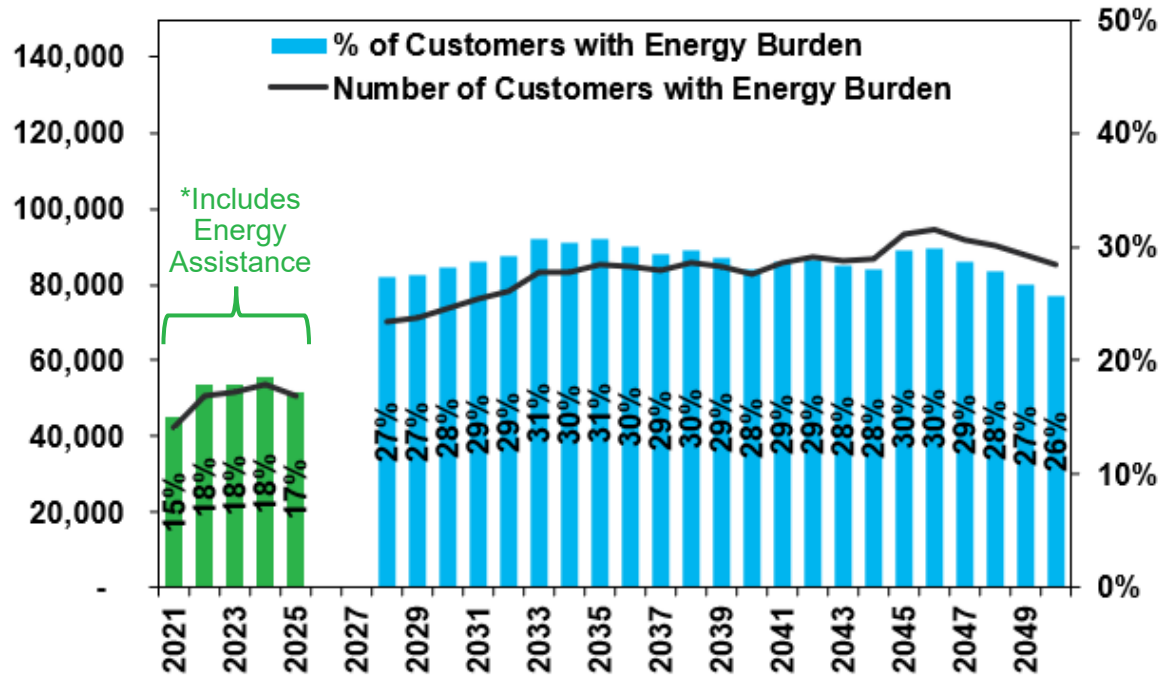
- Electric and natural gas Avista residential rate forecast through 2050 by state (excluding EVs)
- Non-Avista electric and natural gas residential rates and other fuels adjusted by an annual inflator

- Utilized @Risk, which is a risk analysis add-in for Microsoft Excel, using Monte Carlo simulation to model uncertainty and calculate probabilities of outcomes
- Created a random distribution of customer incomes and average energy usage by running 10,000 iterations
- Calculated the energy burden for each customer group to track percentage of households above the 6.0% threshold

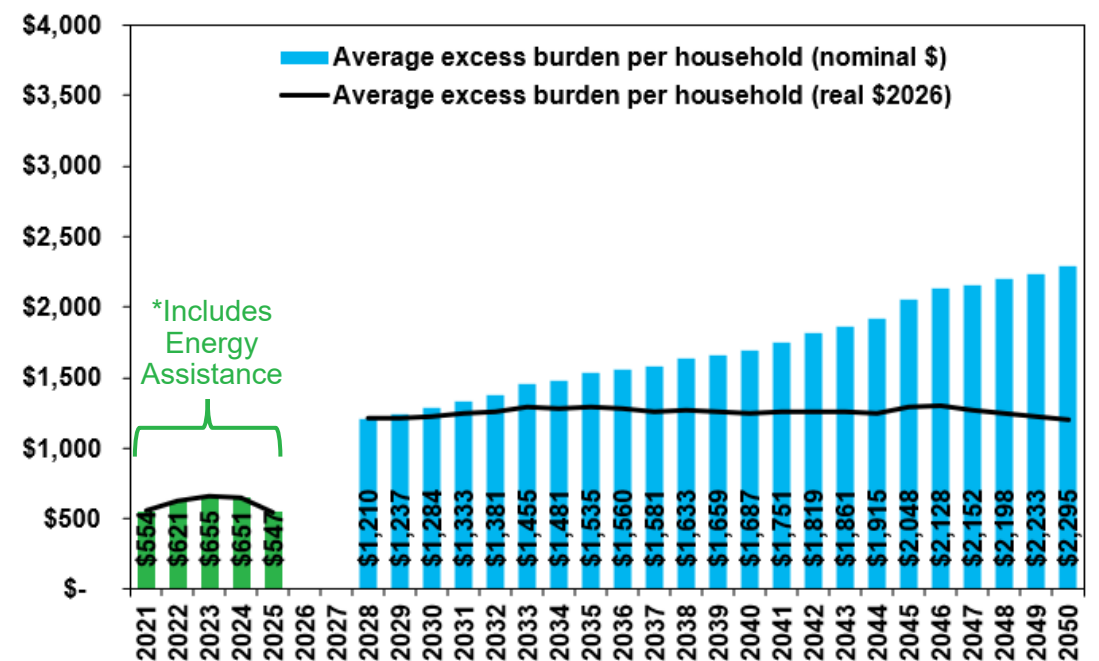
Electric Use/Customer Group



Washington Customers with Excess Energy Burden



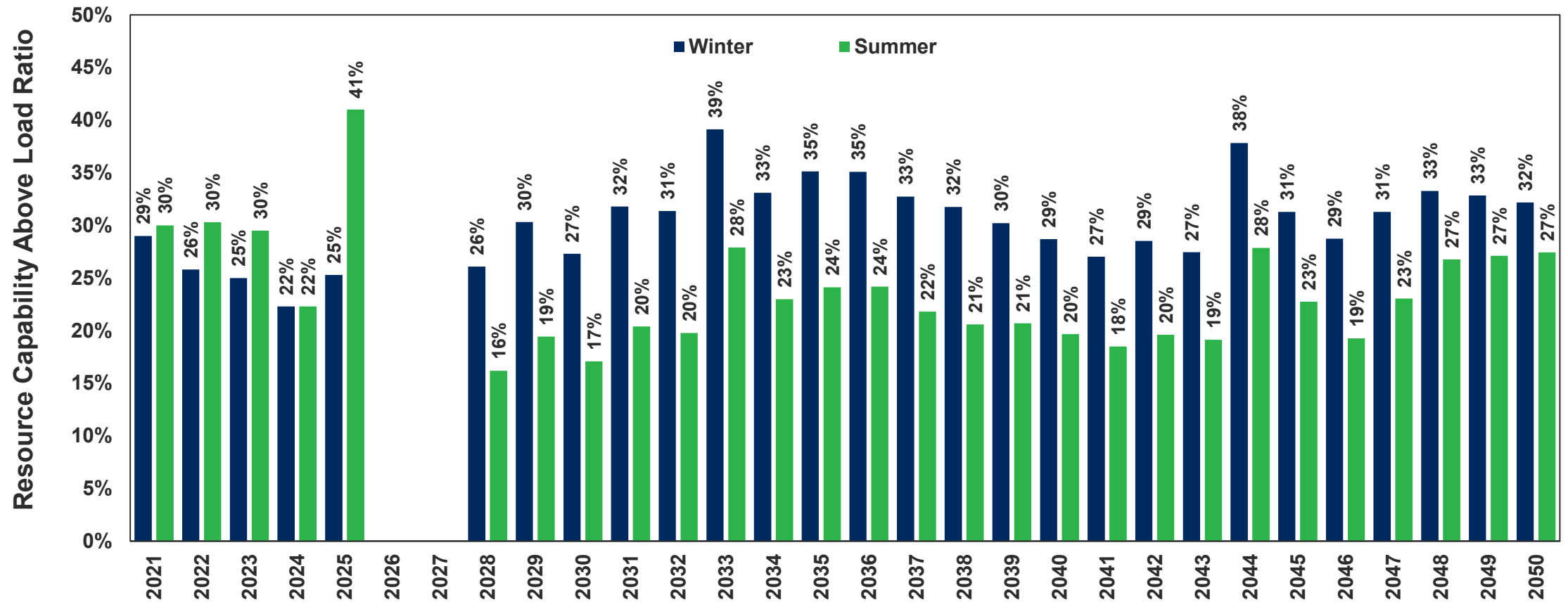
- Around 27% of WA customers forecast to be energy burdened in 2028
- Expected to increase to 31% in 2033 and modestly decline to 26% by 2050



- Average excess burden per household forecast to grow from \$1,210 in 2028 to around \$2,295 (nominal \$) in 2050

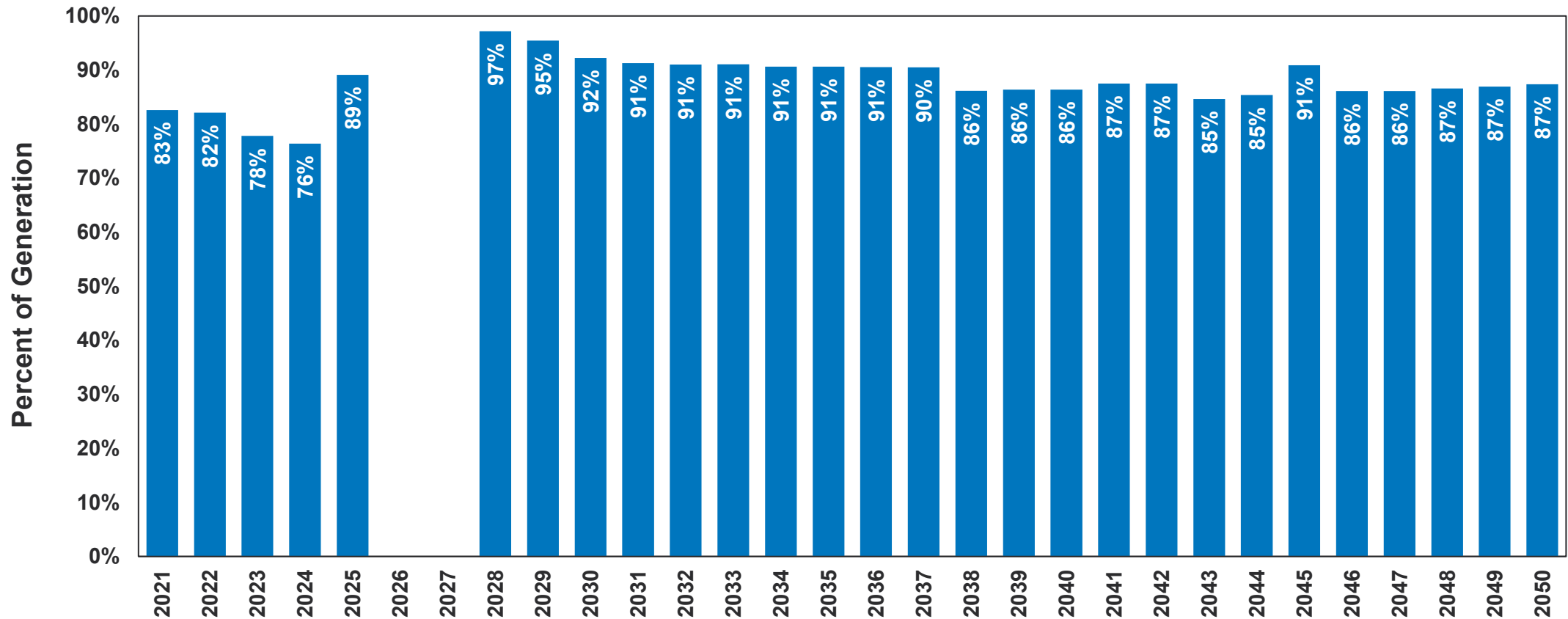
CBI: Energy Availability

Metrics: Reserve Margin Summer & Winter in MW



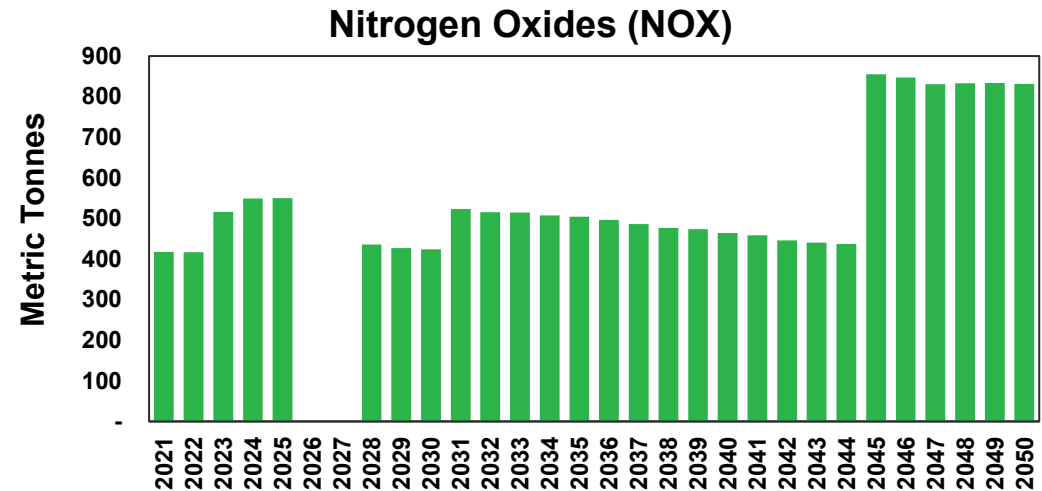
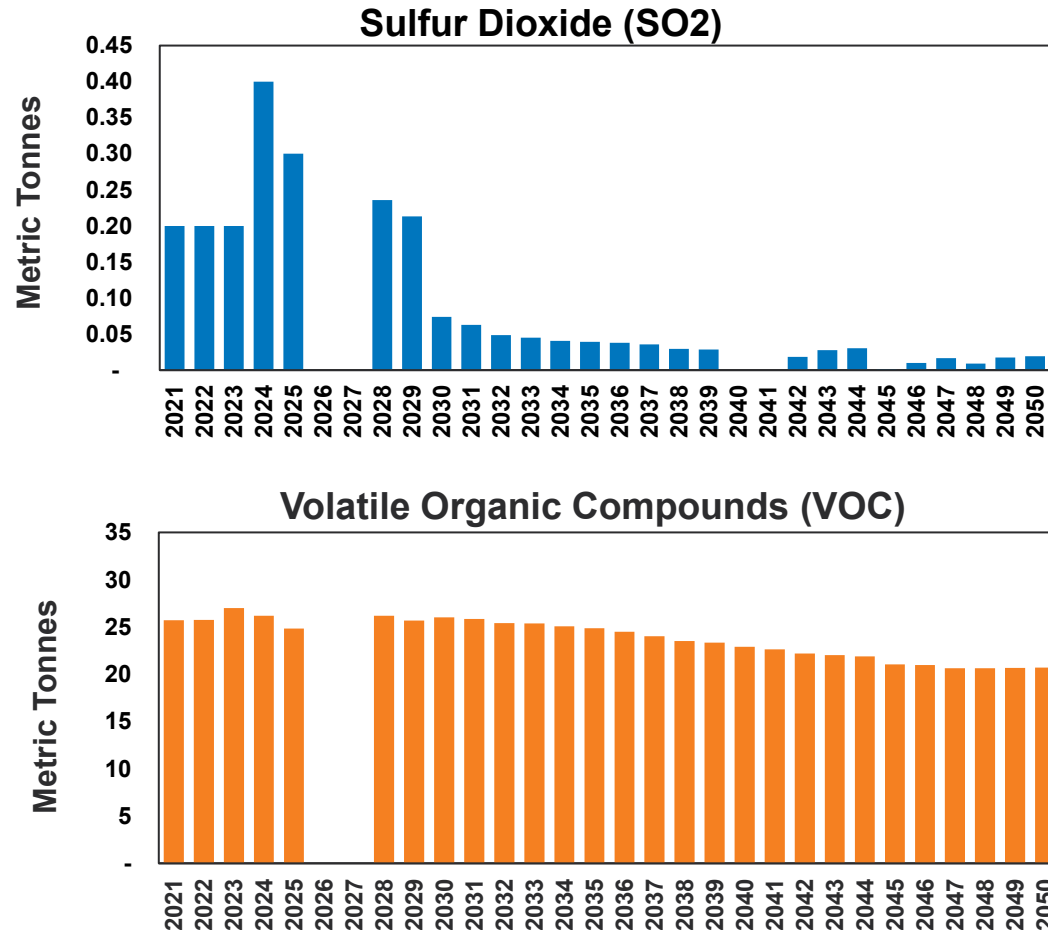
CBI: Generation Location

Metric: Percent of generation located in WA or connected to Avista transmission



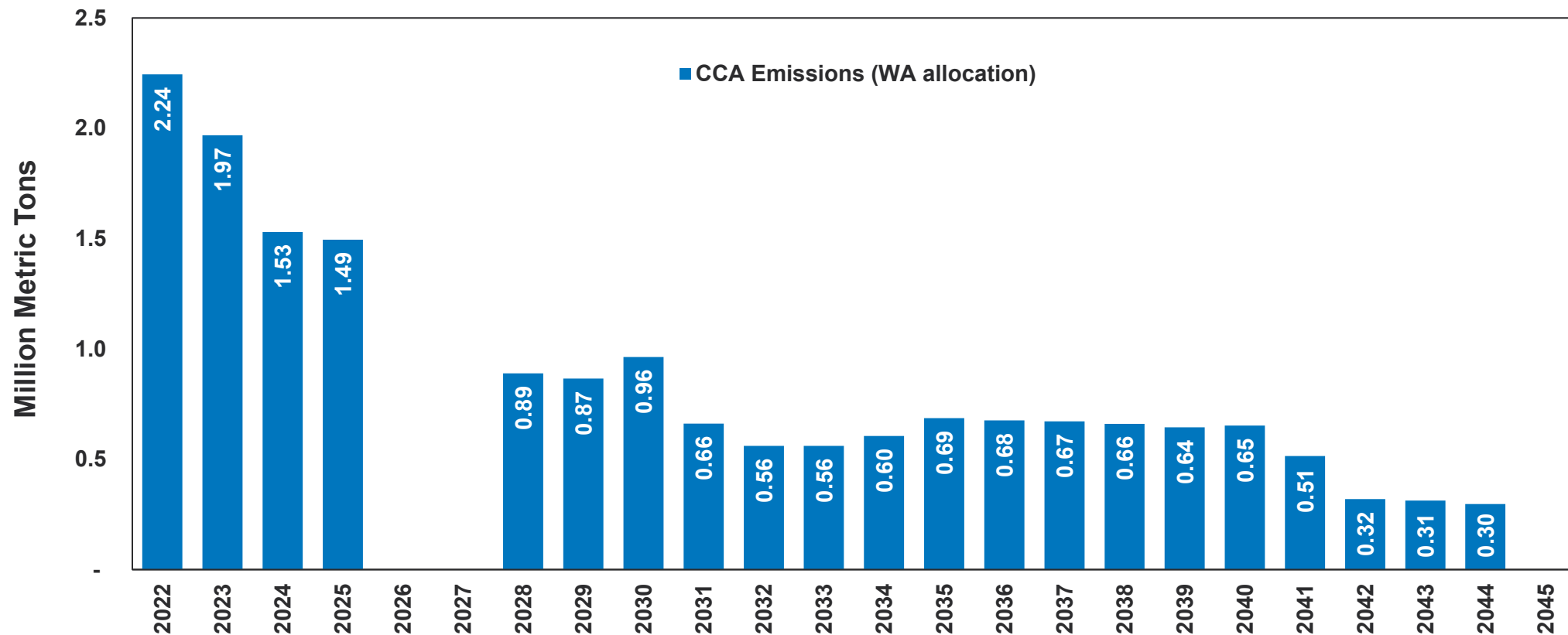
CBI: Outdoor Air Quality

Metrics: Avista plant air emissions for NO_x, SO₂ & VOC in metric tons



CBI: Greenhouse Gas Emissions

Metric: CCA calculation of GHG in metric tons





2027 Electric IRP Action Items

TAC 14 – September 30, 2026

2027 IRP Action Items – Company Actions

- Develop an all-source Request for Proposal (RFP) in 2027. The RFP will include resource location preferences to minimize new transmission investment.
- Work with interested parties on framework to Jurisdictionally Separate and Allocate (JSA) existing and new resources between Washington and Idaho.
- Pursue transmission expansion opportunities within Avista's service territory and those connecting to Avista's transmission system, including working with capacity market operators to ensure capacity treatment for regional transmission connections.
- Continue to pursue a day ahead market operator prior to the 2029 IRP.

2027 IRP Action Items – Planning Actions

- Investigate best in class modeling tools and methodologies for the 2029 IRP. Includes a full review of technology choices for resource dispatch, market price forecast, and capacity expansion techniques.
- Develop a load forecast methodology where long-term changes in end uses can be considered and be useful for needs across the Company.
- Enhance resource cost analysis to include stochastic resource costs and include these results in the capacity expansion modeling process.
- Incorporate the ability for distribution level resources to offset future distribution capacity requirements in a similar manner as the transmission offset methodology in the 2029 IRP.
- Investigate alternative climate studies for 2029 IRP for future temperatures. Work with regional entities on the next generation hydro climate studies.