2027 Electric and Natural Gas Integrated Resource Plans

Technical Advisory Committee Meeting No. 8 Agenda

Monday, April 20, 2026

Virtual Meeting – 1:00 pm to 4:00 pm Pacific Time

Topic	State	Audience
• Introduction and Questions from TAC 7		
• Energy Efficiency and Demand Response Potential Methodology and Assumptions	All	E&G
• Demand Response Potential Assessment	WA/ID	Electric
• Energy Efficiency Potential Assessment	All	E&G

Microsoft Teams meeting

Join: https://teams.microsoft.com/meet/27554197560920?p=tkmr2Y7b2VwtvRtPQB

Meeting ID: 275 541 975 609 20

Passcode: KR3js2mx

Need help? | System reference

Dial in by phone

+1 509-931-1514,,467251816# United States, Spokane

Find a local number

Phone conference ID: 467 251 816#

For organizers: Meeting options | Reset dial-in PIN

Introductions 2027 Electric & Gas Integrated Resource Planning

TAC 8 – April 20, 2026

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

TAC 8 Agenda

- Introduction and Questions from TAC 7
- Energy Efficiency and Demand Response Potential Methodology and Assumptions
- Demand Response Potential Assessments by State
- Energy Efficiency Potential Assessments by State

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

TAC 9 – Friday, May 15, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
IRP Generation Option Transmission Planning Studies	WA/ID	Transmission
Distribution System Planning within the IRP	WA/ID	Dist.
Transmission Project Example Evaluation	WA/ID	Transmission
QCC Forecast	WA/ID	Electric
Gas Distribution Update	All	Gas
★ Natural Gas Availability & Resiliency Cost	All	Gas

TAC 10 – Wednesday, May 27, 2025 (9:00 – 12:00 PDT)		
Topic	**State**	**Audience**
CEIP Update	WA	Electric
CETA Interim/Energy Compliance Report	WA	Electric
Load Forecast Update	All	E & G

TAC 11 Technical Modeling Workshop – Monday, June 15, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
PRiSM Model Tour	All	E & G
Aurora Resource Adequacy Model Tour	WA/ID	Electric
New Resource Cost Model	All	E & G

TAC 12 Wednesday, July 15, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
Load & Resource Balance and Methodology	WA/ID	Electric
Loss of Load Probability	WA/ID	Electric
WRAP Update	WA/ID	Electric
Draft Preferred Resource Strategy Results	All	E & G
ETO Energy Savings	OR	Gas

TAC 13 – Monday, August 17, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
Preferred Resource Strategy Results	All	E & G
Oregon Non-Pipe Alternatives	OR	Gas
Aldyl-A Analysis and Targeted Voluntary Electrification	OR	Gas
IRP/Progress Report Outlines	All	E & G
Next Steps	All	E & G

TAC 14 – Thursday, September 17, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
Portfolio Scenario Analysis	All	E & G
Avoided Cost	All	Electric
Resource Adequacy Results	WA/ID	Electric
CBI Forecast and Results/Energy Burden	WA/OR	E & G
Final Report Overview and Comment Plan	All	E & G
Action Items	All	E & G

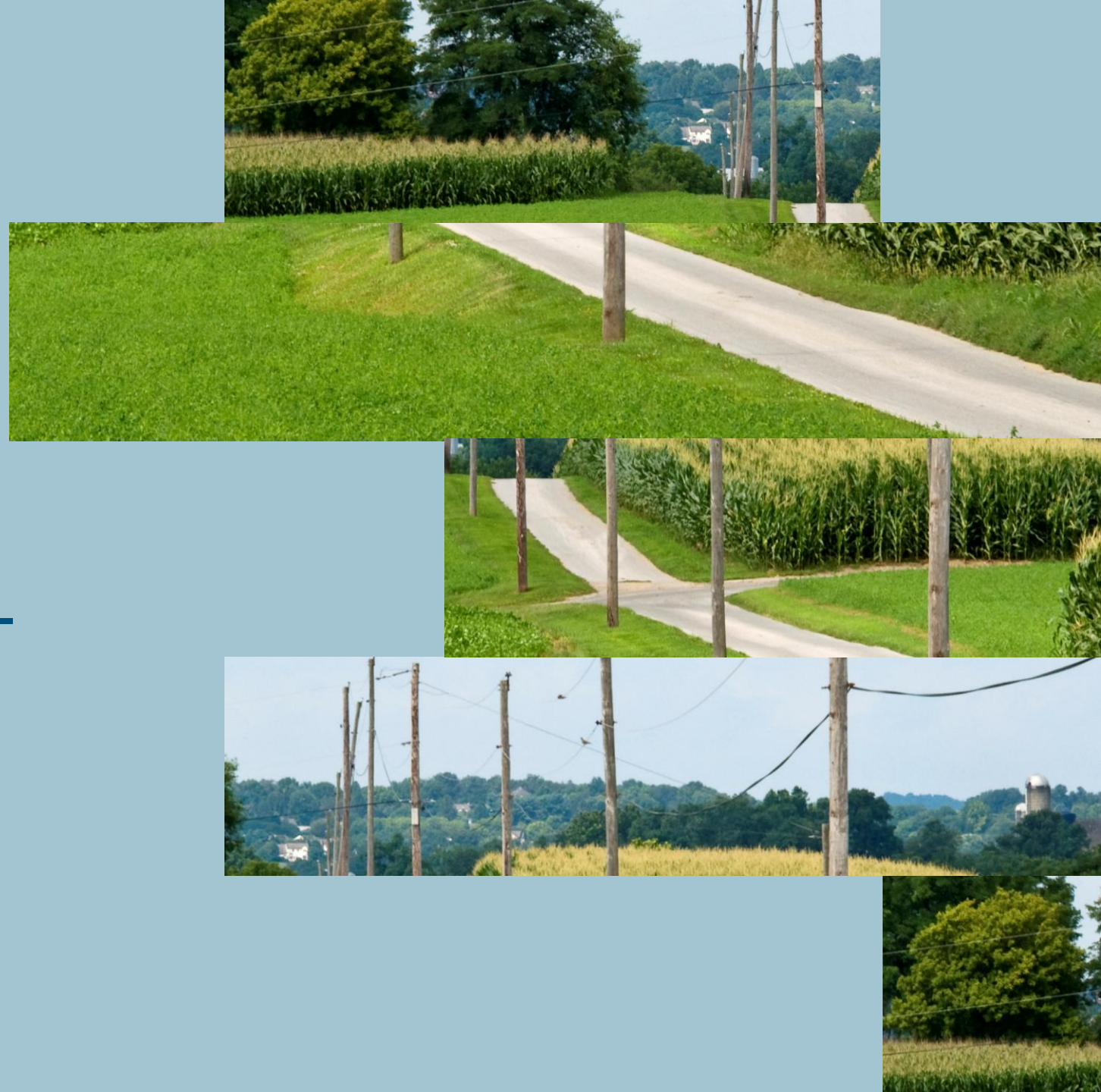
Electric Transmission & Distribution 5-Year Plan – October 7, 2026 (10:00 – 12:00 PDT)		
Topic	**State**	**Audience**
Electric Trans Transmission & Distribution 5-Year Plan	WA/OR	Electric

Other Key 2027 IRP Dates

- Oct 15, 2026 – Draft Electric IRP Released to TAC
- Nov TBD 2026 – Virtual Public Meeting
  - Noon-1pm
  - 6-7pm
- Jan 1, 2027 – Final Electric IRP Filed
- Feb 15, 2027 – Draft Gas IRP Released to TAC
- Apr 1, 2027 – Final Gas IRP Filed

Avista 2028-2050 Electric and Gas Energy Efficiency and Demand Response Potential– DRAFT RESULTS

April 20, 2026



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Agenda

1. Introduction
2. Energy Efficiency and Demand Response Potential Methodology and Key Assumptions
3. Idaho Electric Demand Response Potential
4. Washington Electric Demand Response Potential
5. Idaho Energy Efficiency Potential (Electric and Gas)
6. Oregon Energy Efficiency Potential (Gas Only)
7. Washington Energy Efficiency (Electric and Gas)

Introduction

Presentation Objectives

Meeting participants understand:

- Methodology and key data assumptions for developing Avista potential estimates
- The technical and achievable potential for energy efficiency measures to reduce electric and gas loads through 2050 in Avista service territory in ID, OR, and WA
- The potential for demand response products to lower electric peak load
- The end-uses with the highest potential for energy savings
- Which measures have the highest potential for energy savings

Methodology and Key Assumptions

Energy Efficiency Potential Overview

PERIOD

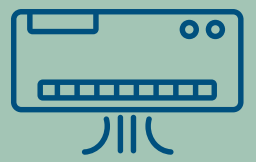
2028 to 2050

STATES

Idaho and Washington: electric and gas (all sectors, segments, end-uses)
Oregon: gas low income and transportation only

SECTORS

Residential, commercial, industrial buildings



MEASURES

Aligned with Power Council 9th Plan

TYPES OF POTENTIAL

Technical Potential

Achievable Technical Potential

COSTS

Levelized costs (Utility Cost Test and Total Resource Cost Test)

Results are draft pending final input. If you have additional comments, please email John.Lyons@avistacorp.com by May 4, 2026

Energy Efficiency Potential Model Overview

Modeling Approach

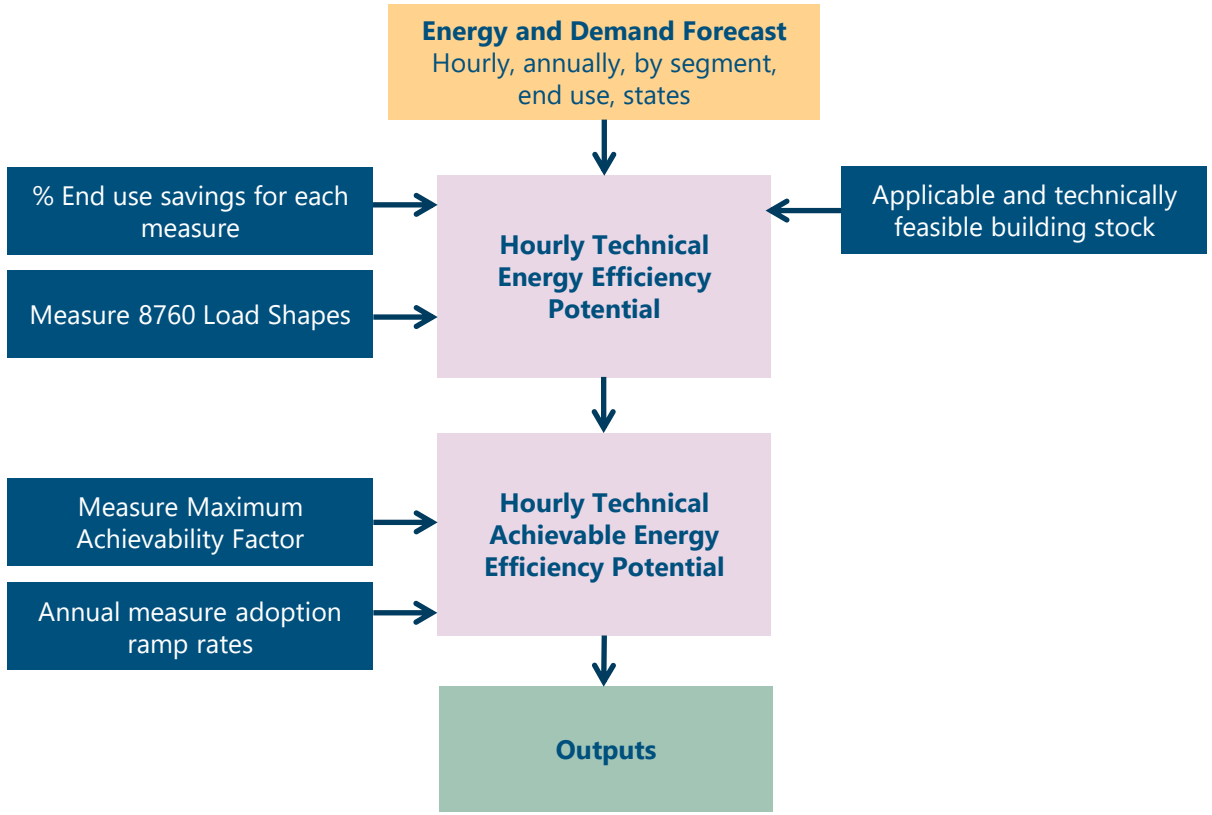
1. Estimate load forecast at end-use

Technical Potential

2. Identify loads applicable and technically feasible for energy efficiency upgrades (equipment based on existing equipment EUL, retrofit can occur any time) – accounts for fuel switching in end use forecast
3. Calculate percentage of end-use energy consumption that can be reduced with energy efficiency measures
4. Apply percent energy savings to applicable / feasible building end-use consumptions

Achievable Technical Potential

5. Apply maximum possible market adoption to technical potential (accounting for market barriers)
6. Apply annual adoption rates to maximum achievable potential (to account for market diffusion over time)



Draft Results

Key Input Data and Assumptions

Codes and Standards	All federal equipment standards with final rulings (Department of Energy). Accounts for current state energy codes using baselines consistent the 9th Power Plan
Measure Characteristics	Electric characteristics aligned with the preliminary Council's 9th Power Plan analysis. Gas characteristics primarily inferred from 9th Plan or aligned with Regional Technical Forum Used 9th Power Plan supporting data to establish end use equipment loads where possible. Adjusted weather sensitive measures to align with Avista's climate forecast rather than the 9th Plan's FMY assumptions Using state and regional analysis from the latest available RBSA and CBSA for fuel shares, saturations, and other modeling inputs, where possible
Adoption Rates	Measure adoption rates primarily aligned with Power Council 9th Plan assignments. Some adjustments to assignments made and still considered to account for Avista-specific delivery experience
Hourly Load Shapes	National Laboratory of the Rockies (NLR) ResStock and ComStock, 9th Power Plan, miscellaneous sources

Energy Efficiency Measures

Residential

Heat – Electric, Heat – Gas Boiler, Heat – Gas Forced Air Furnace (FAF), Heat – Gas FAF (Poor Ducts), Heat – Gas Rooftop Unit (RTU), Heat – Electric Forced Air Furnace (eFAF), Heat – Heat Pump, Ductless Heat Pump, Heat Room – Electric Resistance (ER), Heat Room – Gas, Cool Central, Cooling Chiller, Cooling DX (Direct Expansion), Package Terminal AC (PTAC), Package Terminal Heat Pump (PTHP), Cool Room, Dehumidifier, Ventilation and Circulation, Circulator Pump – Domestic Hot Water (DHW), Circulator Pump – Hydronic Heating, Water Heater ≤ 55 Gallon – Electric, Water Heater > 55 Gallon – Electric, Water Heater ≤ 55 Gallon – Natural Gas, Water Heater > 55 Gallon – Natural Gas, Lighting – Regulated Screw Base, Lighting – Regulated Pin Base, Lighting – Unregulated Screw Base, Lighting – Unregulated Pin Base, Lighting Interior, Lighting Exterior, Cooking, Cooking Oven, Cooktop, Miscellaneous Cooking, Refrigerator, Freezer, Refrigeration, Dryer, Computer – Desktop, Computer – Laptop, Monitor, TV, Servers, Miscellaneous Plug Loads, Other Plug Load, Other (Electric), Other (Gas), Other, Electric Vehicle, Pool Pump, Pool Heating, Portable Spa

Commercial

Circulator Pump – DHW, Circulator Pump – Hydronic Heating, Computer – Desktop, Computer – Laptop, Cooking, Cooking Oven, Cooktop, Cool Central, Cool Room, Cooling Chiller, Cooling DX (Direct Expansion), Dehumidifier, Dryer, Ductless Heat Pump, Electric Vehicle, Freezer, Heat – Electric, Heat – Gas Boiler, Heat – Gas Forced Air Furnace (FAF), Heat – Gas FAF (Poor Ducts), Heat – Gas Rooftop Unit (RTU), Heat – Electric Forced Air Furnace (eFAF), Heat Pump, Heat Room – Electric Resistance (ER), Heat Room – Gas, Lighting – Regulated Pin Base, Lighting – Regulated Screw Base, Lighting – Unregulated Pin Base, Lighting – Unregulated Screw Base, Lighting Exterior, Lighting Interior, Miscellaneous Cooking, Miscellaneous Plug Loads, Monitor, Other, Other (Electric), Other (Gas), Other Plug Load, Package Terminal AC (PTAC), Package Terminal Heat Pump (PTHP), Pool Heating, Pool Pump, Portable Spa, Refrigeration, Refrigerator, Servers, TV, Ventilation and Circulation, Water Heater ≤ 55 Gallon – Electric, Water Heater ≤ 55 Gallon – Natural Gas, Water Heater > 55 Gallon – Electric, Water Heater > 55 Gallon – Natural Gas

Industrial

Advanced Motors – Efficiency Upgrade – Material Handling, Advanced Motors – Efficiency Upgrade – Material Processing, Advanced Motors – Efficiency Upgrade – Other Motors, Advanced Motors – Efficiency Upgrade – Refrigeration, Advanced Motors – VFD – Material Handling, Advanced Motors – VFD – Material Processing, Advanced Motors – VFD – Other Motors, Advanced Motors – VFD – Refrigeration, Air Compressors – New Replacement – Reciprocating – Constant Speed to Constant Speed, Air Compressors – New Replacement – Rotary – Constant Speed to Constant Speed, Air Compressors – New Replacement – Rotary – Constant Speed to Variable Speed, Air Compressors – New Replacement – Rotary – Variable Speed to Variable Speed, Air Compressors – Retrofit – Large System Upgrade, Clean Water Pumps – New Replacement – Constant Speed to Constant Speed – Large Pump, Clean Water Pumps – New Replacement – Constant Speed to Constant Speed – Small Pump, Clean Water Pumps – New Replacement – Variable Speed to Variable Speed – Large Pump, Clean Water Pumps – New Replacement – Variable Speed to Variable Speed – Small Pump, Clean Water Pumps – Retrofit – System Upgrade – Large Pump, Clean Water Pumps – Retrofit – System Upgrade – Small Pump, Cleanroom HVAC, Energy Management, Energy Management – WWW, Energy Management 2, Fans – New Replacement – Constant Speed to Constant Speed – Large Fan, Fans – New Replacement – Constant Speed to Constant Speed – Small Fan, Fans – New Replacement – Variable Speed to Variable Speed – Large Fan, Fans – New Replacement – Variable Speed to Variable Speed – Small Fan, Fans – Retrofit – System Upgrade – Large Fan, Fans – Retrofit – System Upgrade – Small Fan, Fast Acting Doors, Forklift Battery Charger, HVAC, Heat Pump – 2.5H, Heat Pump – 2.5L, Heat Pump – 2.5M, Heat Pump – 2.6M, Heat Pump – 3.0M, Lithium-Ion Battery Forklift, Process Optimization, Refrigeration Retrofit, Solid-State Chiller, Thermal Recovery, Tool Vacuum Pumps, Upgrade Chiller System, Upgrade to Roller Mill, UV-C LED Disinfection, Vehicle – Engine Block Heater Controls, Wastewater – High Cost Upgrades, Wastewater – Low Cost Upgrades, Water Supply – High Cost Measure, Water Supply – Low Cost Measure

Demand Response Potential Model Overview

Modeling Approach

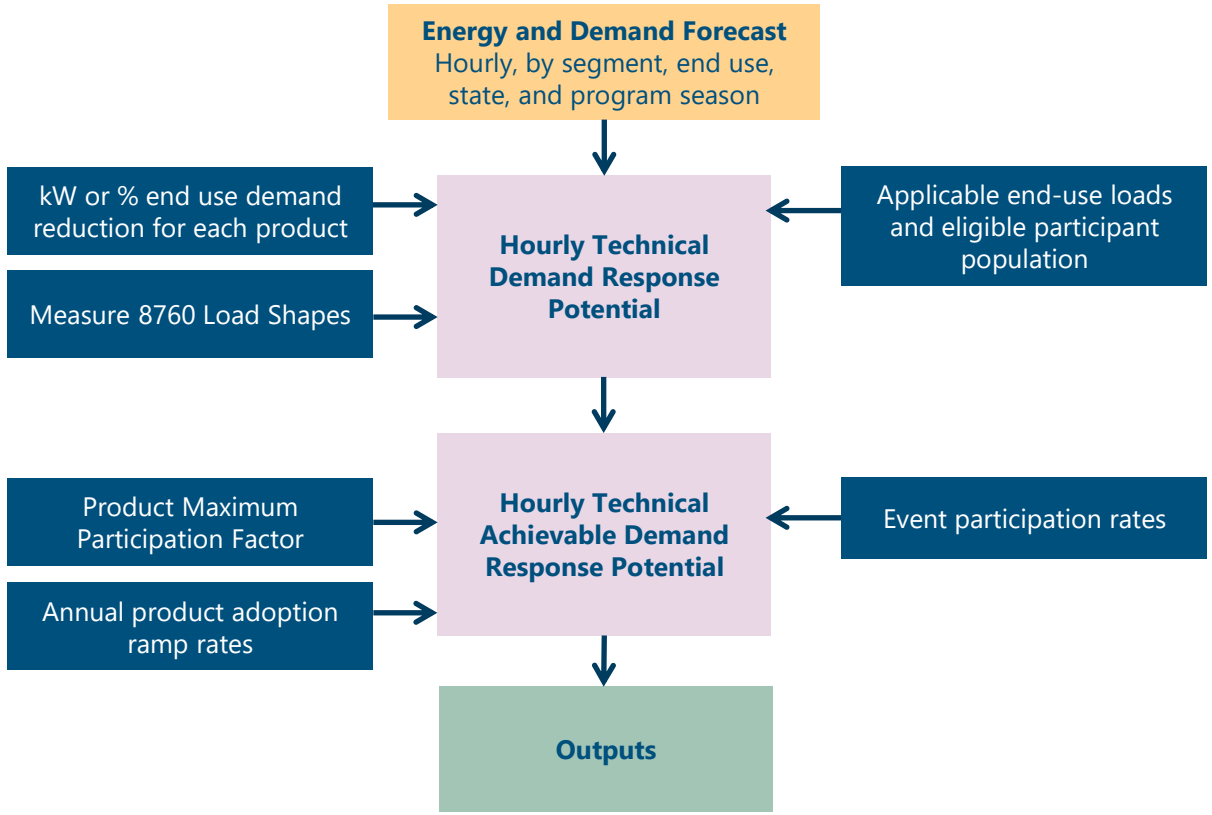
1. Estimate load forecast at end-use
2. Characterize feasible DR products (applicable end-use load, per-unit impacts, costs, eligibility requirements, participation).
3. Determine modeling method for each product (top-down vs bottom-up)

Technical Potential

4. For bottom-up products, scale per-unit impacts by size of the eligible participant population.
5. For top-down products, identify the eligible portion of the applicable end-use load basis, and apply product demand reduction impact as a percent of reference load.

Technical Achievable Potential

6. Apply maximum possible market adoption to technical potential (accounting for market barriers)
7. Apply annual adoption and attrition rates to maximum achievable potential
8. Apply event participation rates



Draft Results

Demand Response Key Input Data and Assumptions

DR Product Impacts, Costs, Eligibility, and Participation	Demand response product characteristics aligned with Avista sources (vendor quotes, program evaluations, etc.) or with Power Council 9th Plan results, where necessary NWPCC Demand Response Advisory Committee meeting materials
Adoption Rates	DR product adoption rates primarily aligned with Power Council 9th Plan assumptions. Some adjustments to assignments made for existing programs, emerging technology, or measures with high barriers to adoption
DR Product Conflict Hierarchy	Avista product prioritization

Demand Response Products

Residential	AC Switch, Battery (New Adoption), Battery (BYO), Thermostat (BYO), ER Water Heater (Switch), ER Water Heater (Grid Connected), HP Water Heater (Grid Connected), Electric Vehicle (TOU + DLC), Peak Time Rebates, Time of Use
Commercial	Small Commercial AC Switch, Medium Commercial AC Switch, Small Commercial Thermostat, Commercial Electric Vehicle TOU, Commercial Peak Time Rebates, Commercial Curtailment, Agricultural Irrigation Management
Industrial	Industrial Curtailment

Draft Results

Idaho Demand Response Potential

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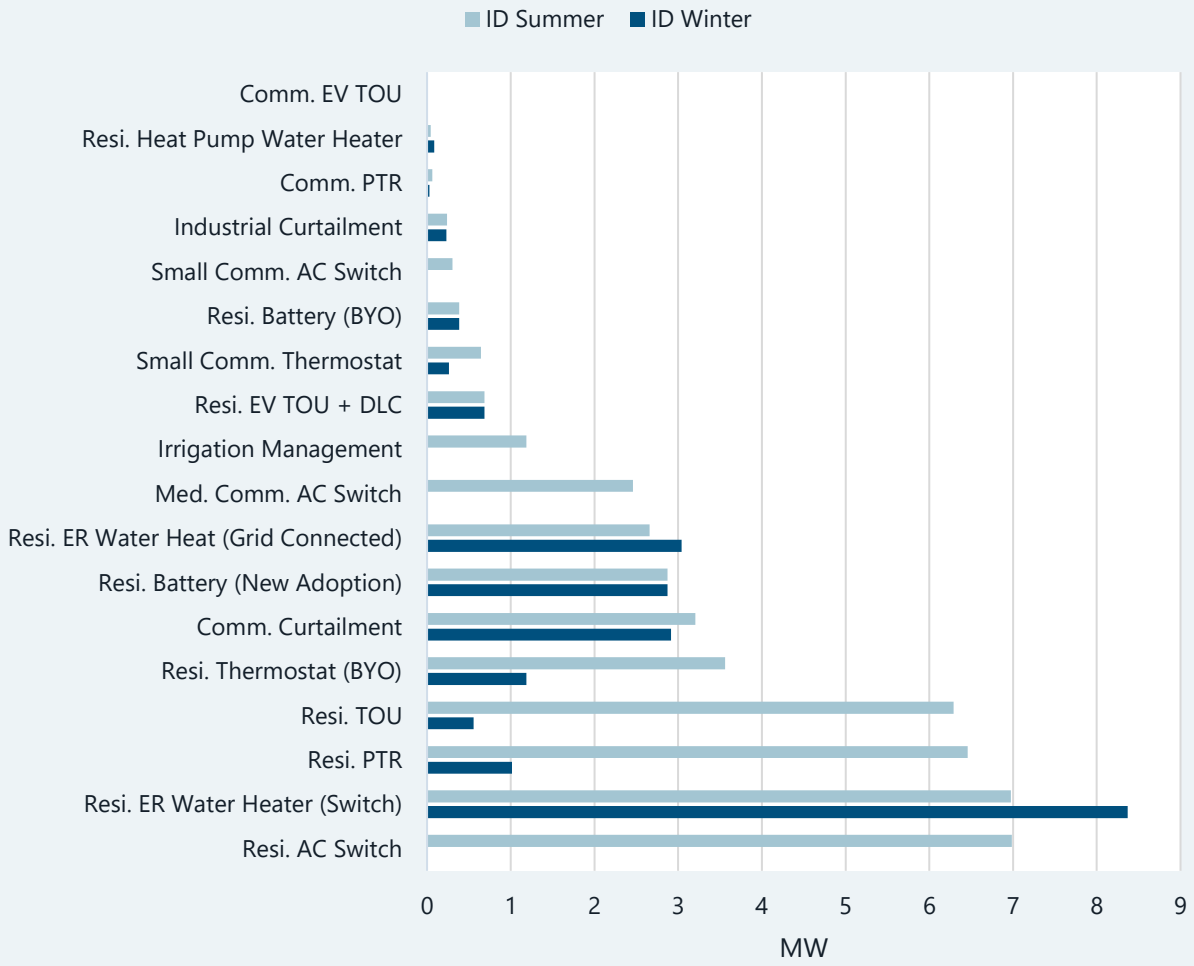
Idaho 5-Year DR Potential (2032)



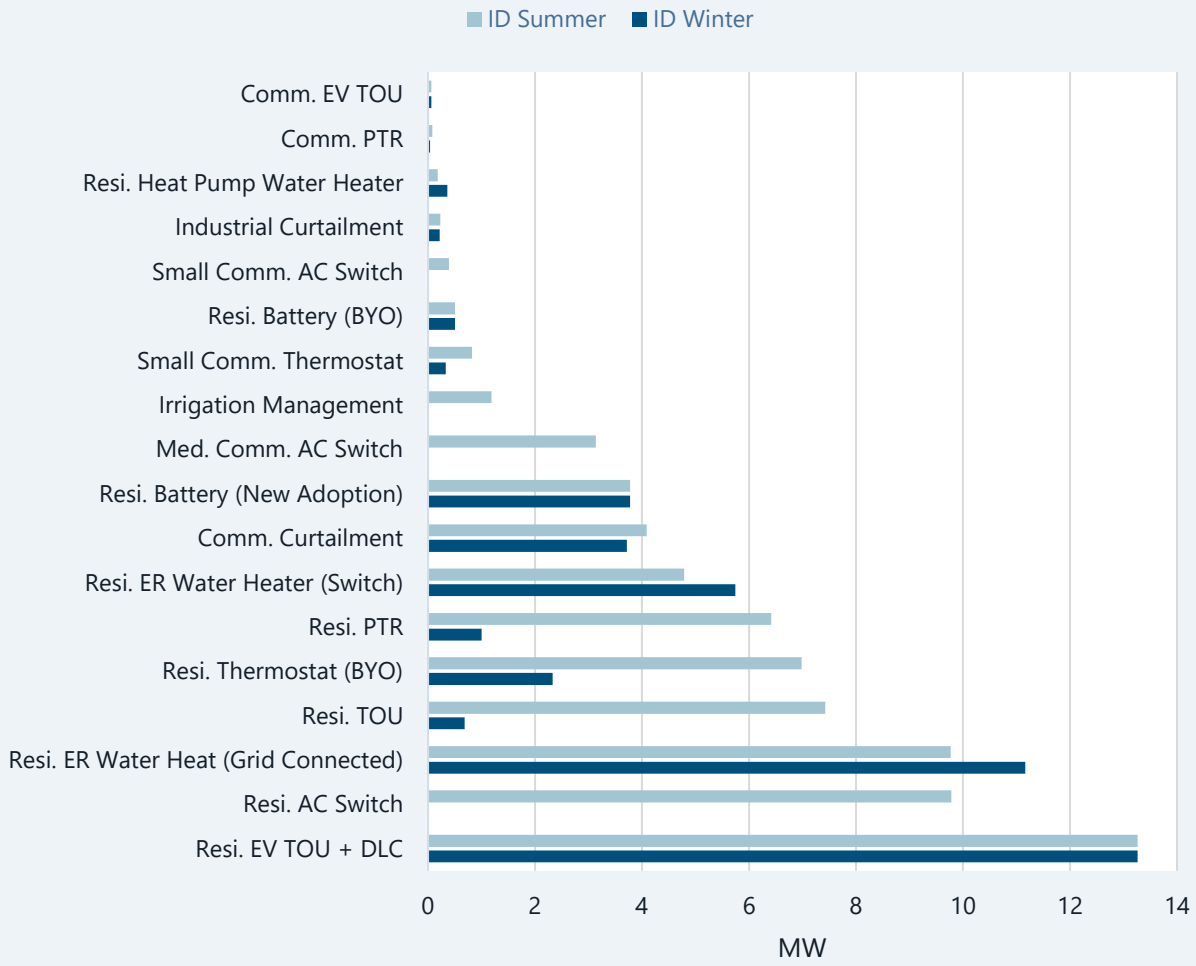
*Discussion / Findings**

- Within 5-year time horizon, residential AC switch, switch-controlled electric resistance water heaters, TOU, and PTR programs have greatest potential
- Summer potential (45 MW) roughly 2x winter potential (21.6 MW), driven by
  - Residential and commercial AC switch products
  - Irrigation
  - Products sensitive to the underlying electric vs gas HVAC mix (BYO thermostat, TOU, and PTR)
- 5-year potential assumes products launch in 2028. DR product launch may be constrained by AMI availability and other factors

Draft Results

*DR results updated pending forecast revision

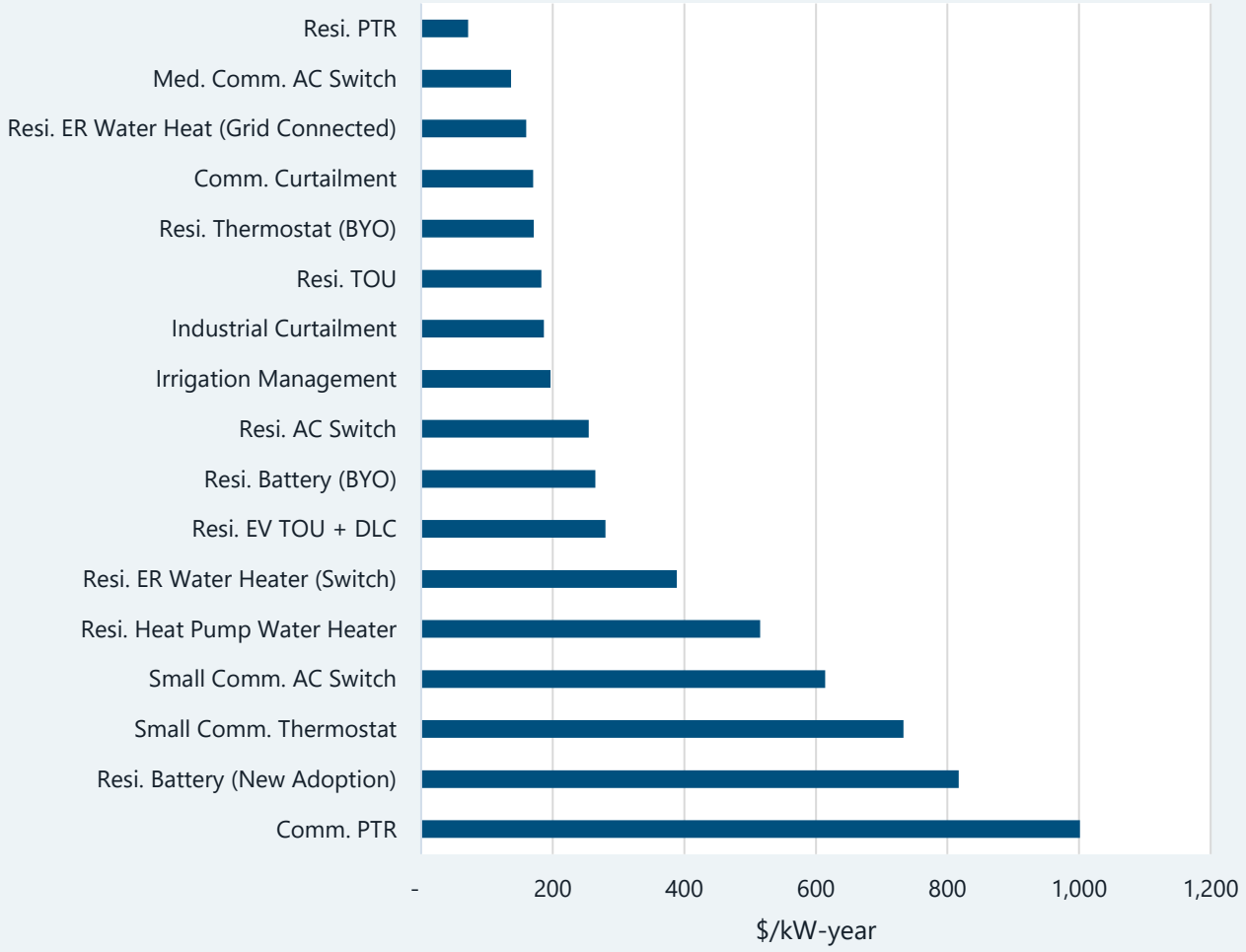
Idaho Long-term DR Potential (2050)



Discussion / Findings

- In long-run significant growth in achievable potential from residential EV charging and grid-connected electric resistance water heaters
- Most other products increase gradually over time
- Switch-controlled residential electric resistance water heaters an exception. Potential declines as market share of connected water heaters grows
- In 2050, summer potential (73 MW) is 1.7x greater than Winter potential (43 MW)

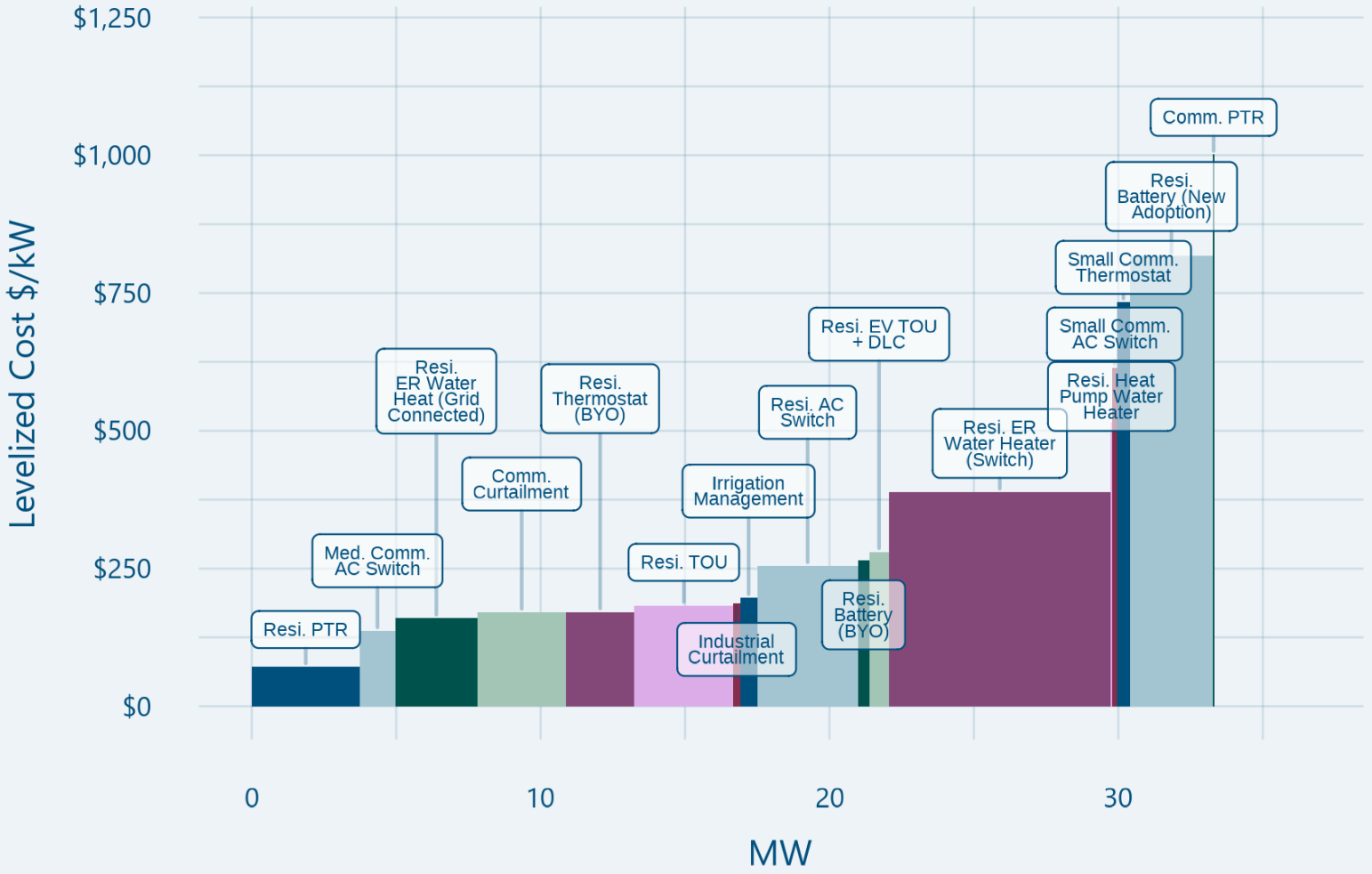
Idaho DR Product 5-Year Levelized Costs ($/kW)



Discussion / Findings

- Costs estimates include 5-year amortized capital and operating costs using 10% capital recovery factor (CRF). Avista to conduct additional cost analysis before IRP modeling
- Product costs range from $71/kW-year to $1,001/kW-year
- Residential battery (new adoption) program costs reflect high incentives for new battery adoption
- Costs inversely correlated with potential (high potential -> lower cost)

Idaho DR Product 5-Year Supply Curve



Discussion / Findings

- 15-20 MW of DR capacity is available at competitive cost, at or below $250/kw-year.
- Costs higher for products with low potential, reflecting fixed costs are spread over a small impact base. Examples include:
  - Commercial PTR
  - Commercial EV TOU (not pictured)
  - Small commercial thermostat
- Products with greater potential have lower costs. Residential ER water heater is an exception with relatively high marginal costs for switch installation and relatively low impacts per unit.

Draft Results

Washington Demand Response Potential

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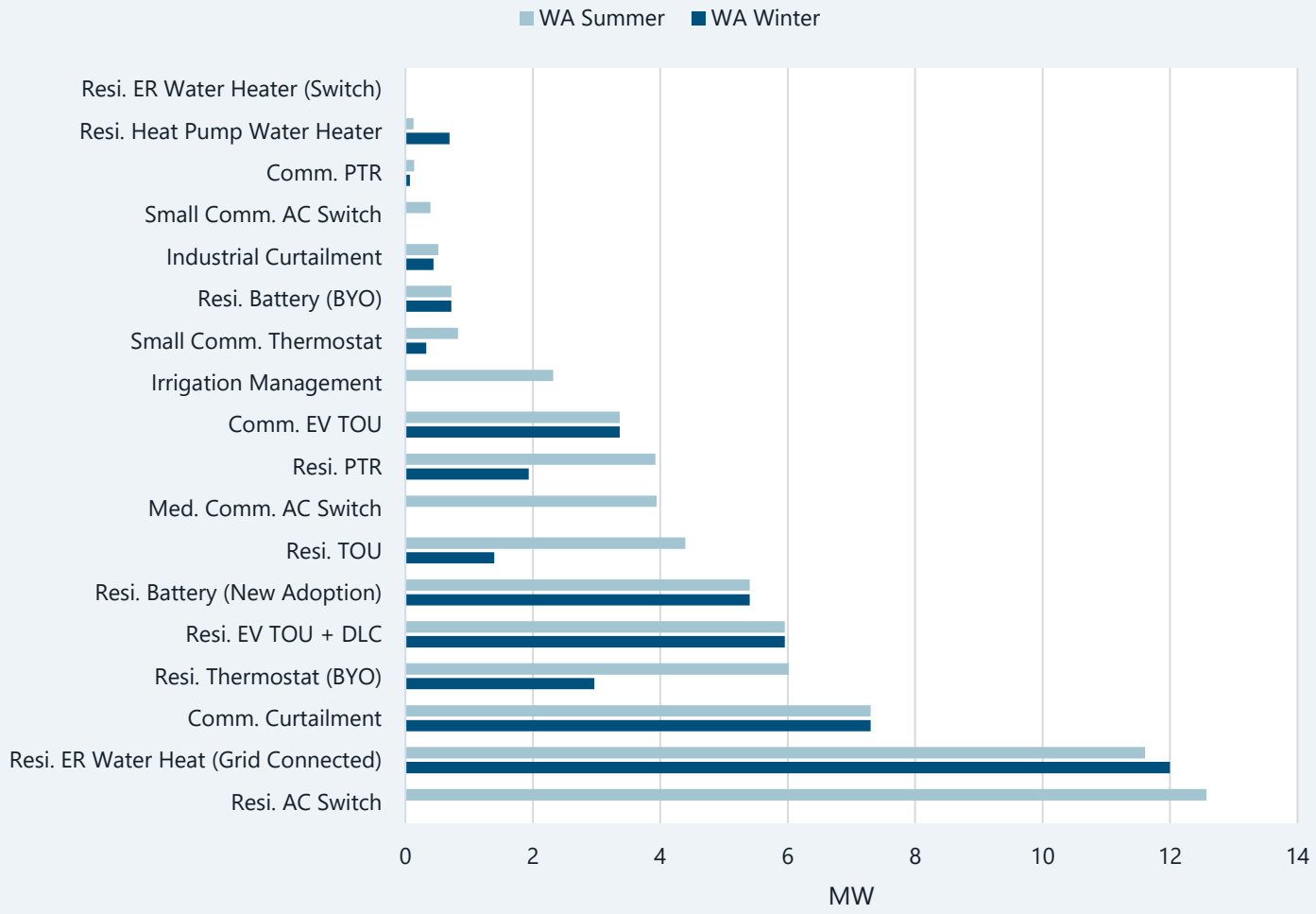
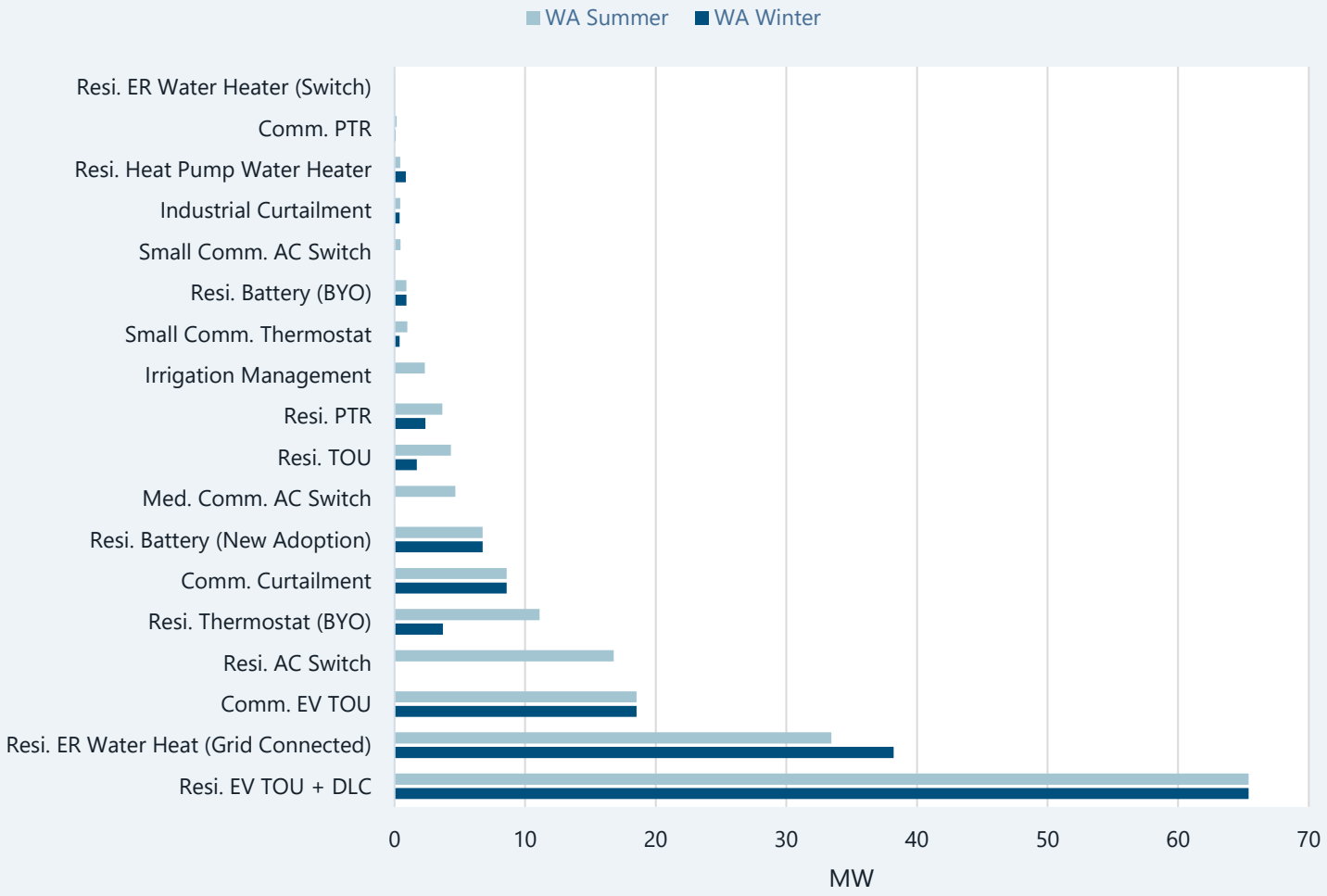
Washington 5-Year DR Potential (2032)



Discussion / Findings

- Within 5-year time horizon, residential AC switch and grid-connected electric resistance water heater programs provide the greatest potential.
- Summer potential (70 MW) is 1.6x winter potential (42 MW). Driven by:
  - Increased potential from AC and irrigation products.

Washington Long-term DR Potential (2050)

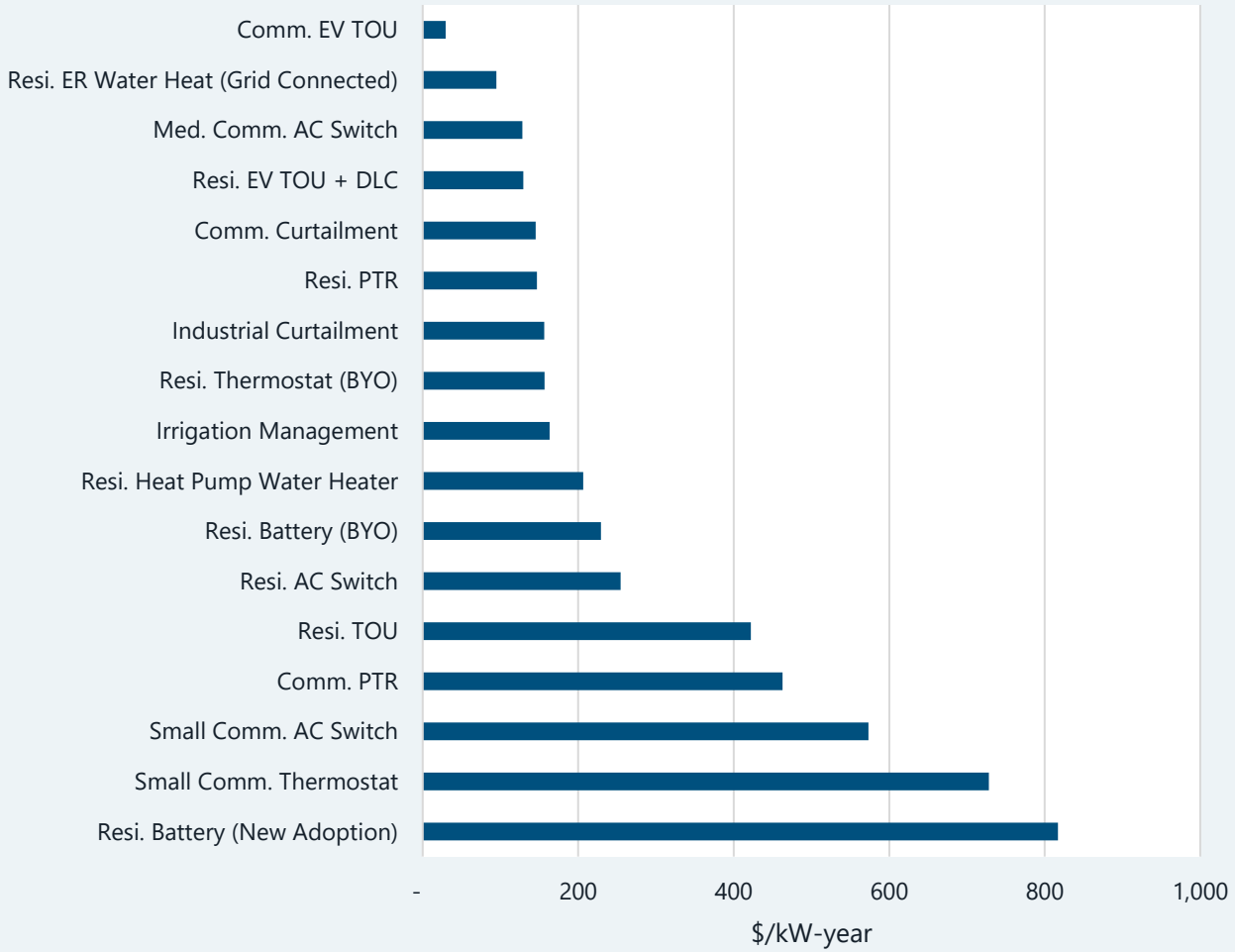


Discussion / Findings

- In the long-run there is significant growth in achievable potential from residential EV charging and grid-connected electric resistance water heaters.
- In 2050, Summer potential (179 MW) is 1.2x greater than Winter potential (148 MW)

*We expect EV potential to shift lower after a pending a revision to the reference forecast.

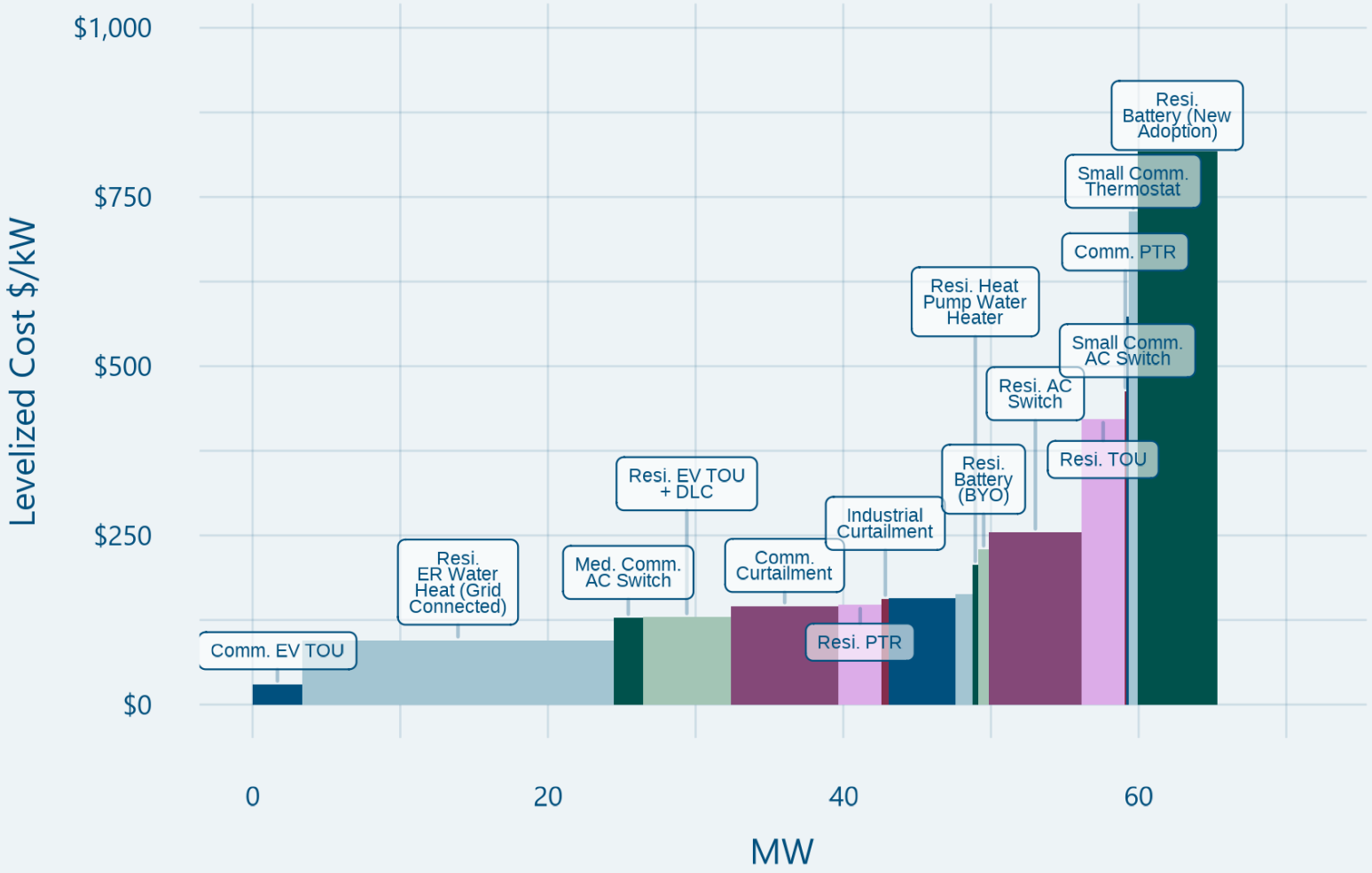
Washington DR Product 5-Year Levelized Costs ($/kW)



Discussion / Findings

- Costs estimates include 5-year amortized capital and operating costs using a 10% capital recovery factor (CRF). Avista will conduct additional cost analysis before IRP modeling.
- Product costs range from $30/kW-year to $817/kW-year. Costs are generally lower than in ID due to larger program scale.

Washington DR Product 5-Year Supply Curve



Discussion / Findings

- 50 MW of DR capacity is available at competitive cost, at or below $250/kw-year.
- Commercial EV TOU is low-cost opportunity. Residential costs are higher reflecting the added cost of the DLC component.
- Grid connected water heaters providea large capacity, low-cost resource.

Draft Results

Break – 5 Minutes

Idaho Energy Efficiency Potential

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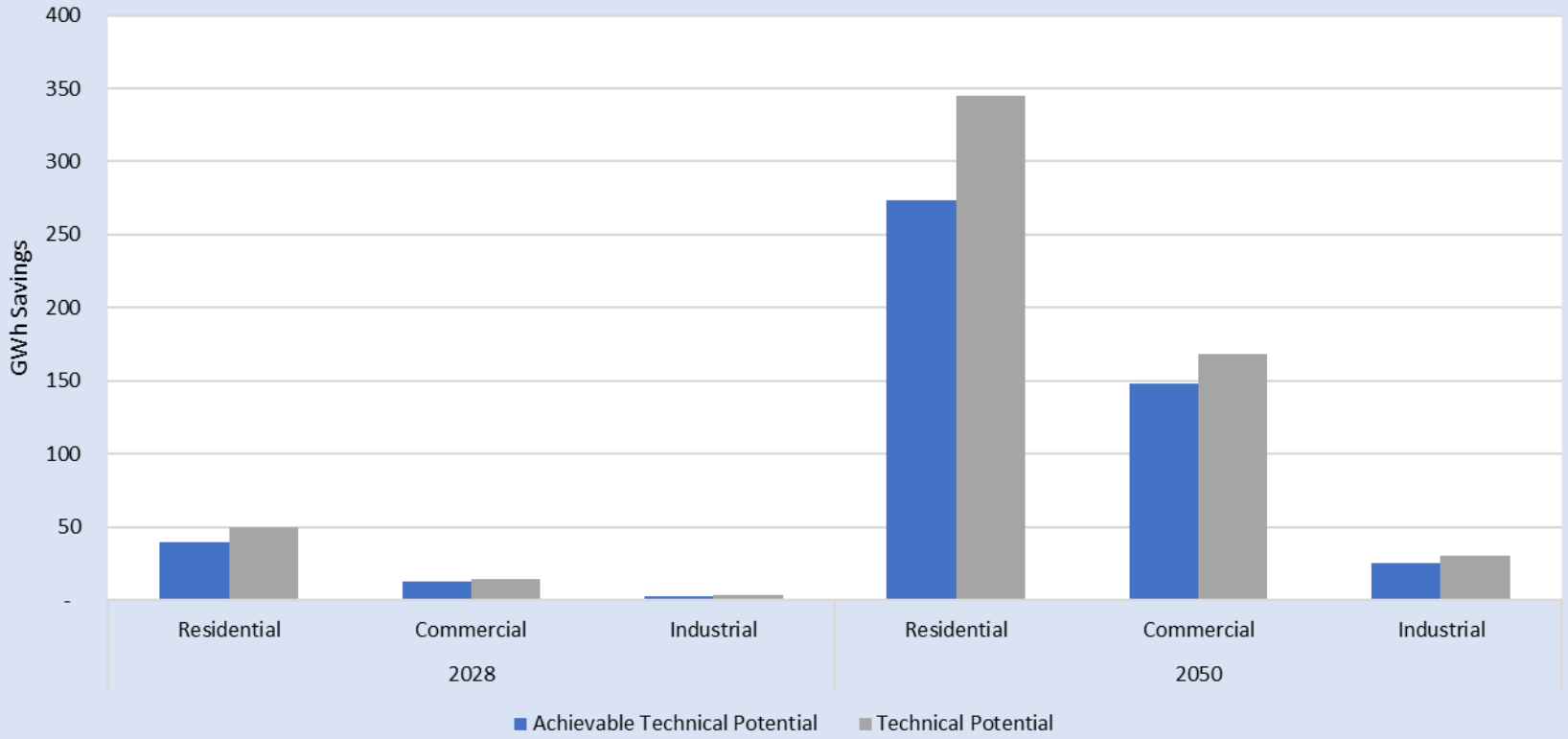
Idaho Electric Energy Efficiency Potential

Cumulative Savings - GWh	2028	2033	2038	2043	2050
Achievable Technical Potential	55	214	317	384	447
Technical Potential	68	263	388	468	544

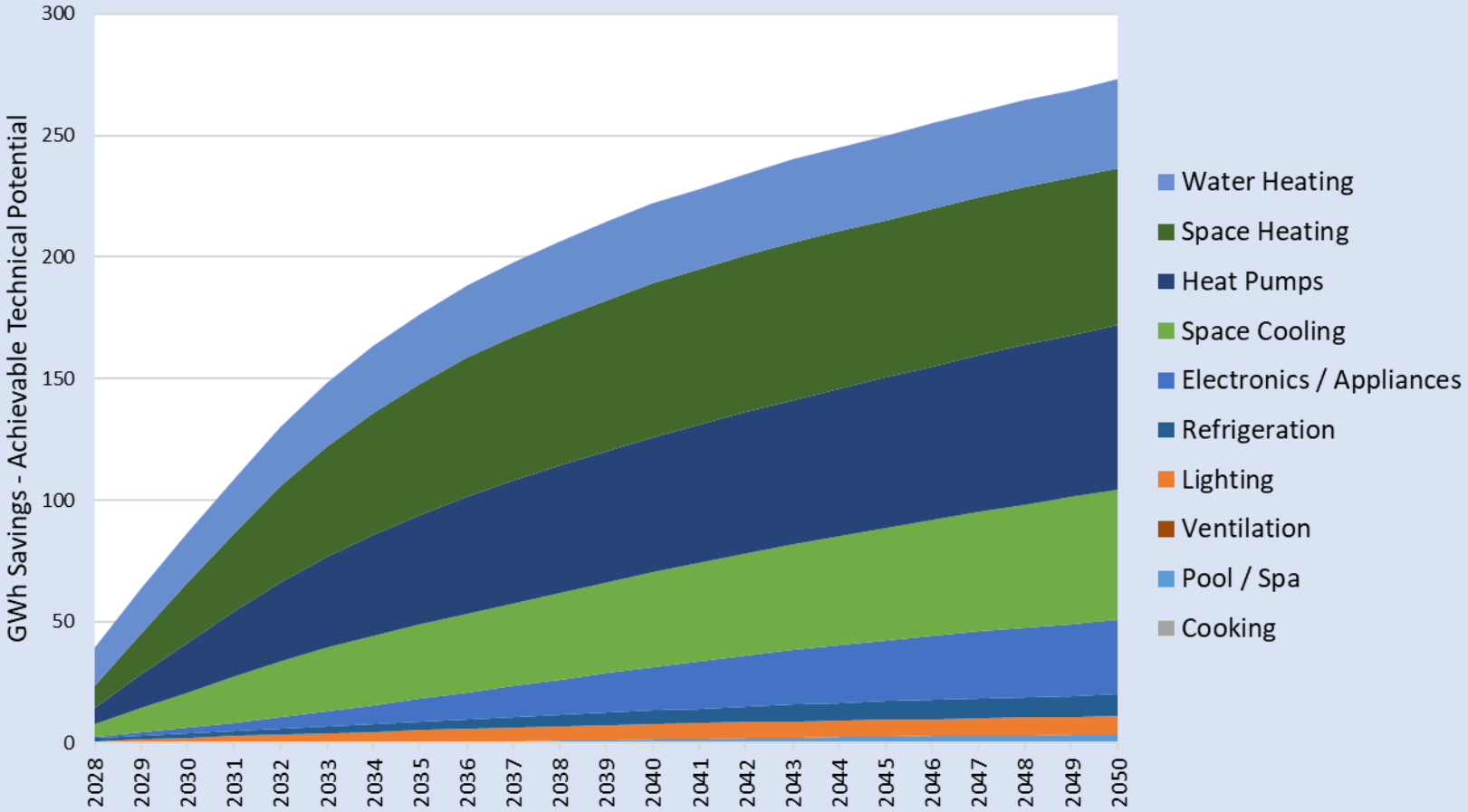


Discussion / Findings

- Achievable Technical and Technical potential approximately 85% and 70% of previous study. Reasons for changes in potential estimates across studies include: differing measure mix, new codes and standards, changes to customer base
- Over study horizon, achievable technical potential increases 700%
- Savings primarily concentrated in residential sector, which has approximately 51% of total baseline load
- Avista's largest industrial customers excluded from analysis

Idaho Electric Energy Efficiency Potential

Residential End Uses



Discussion / Findings

- Approximately 35% of residential potential in homes occupied by income-qualified customers
- Early in study water heating, space heating, and heat pump upgrades have highest potential. In later years space cooling upgrades become higher savers, as temperatures increase

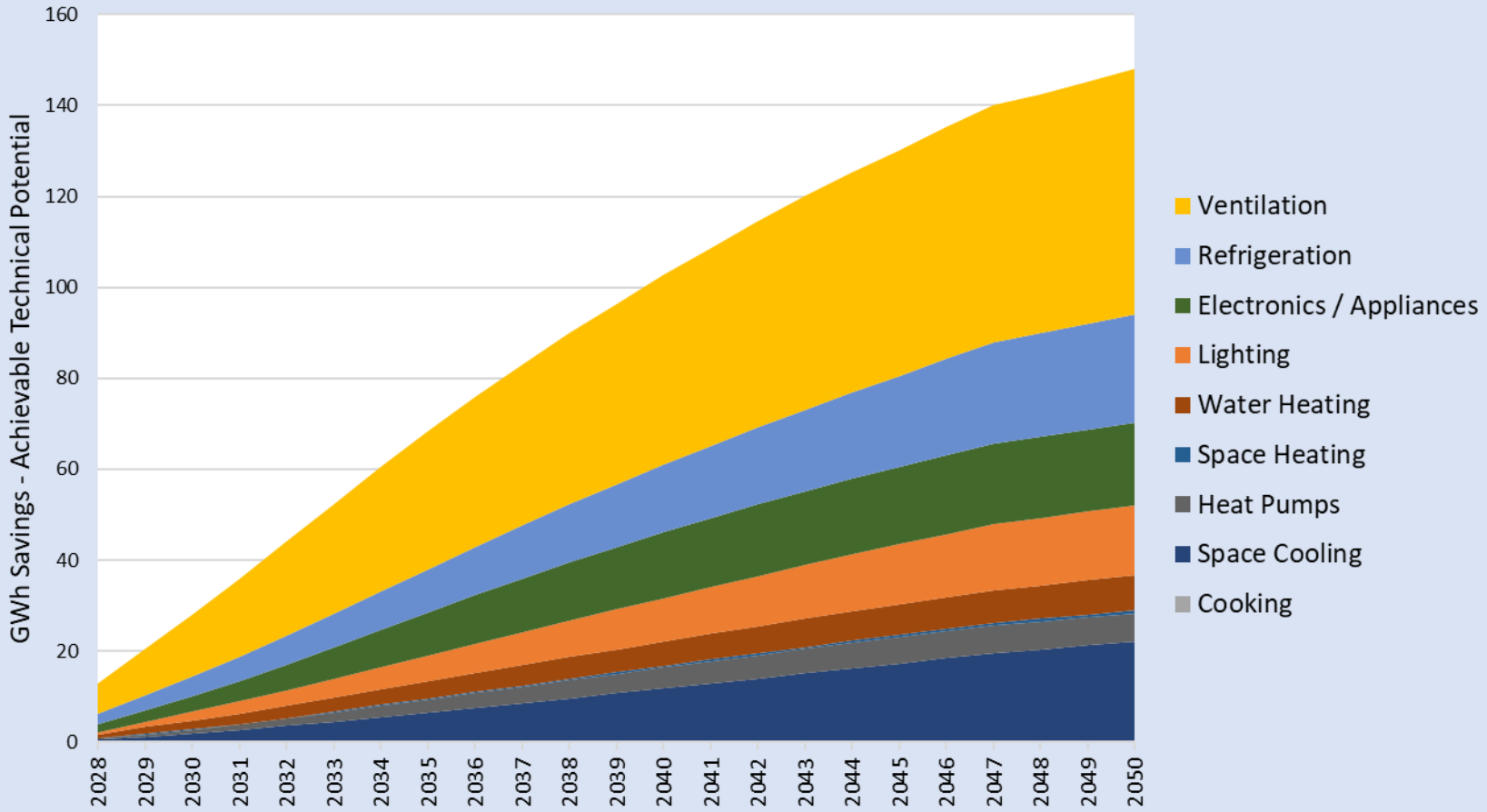
Idaho Energy Efficiency Potential

Idaho Top 10 Residential Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative GWh Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/kWh)	UCT Levelized Cost ($/kWh)
1	Advanced Windows U-0.10	11.2	19%	1	$3.90	$0.15
2	Standard 2030 HPWH <= 55 GAL - UEF 2.3	9.9	17%	9	$0.07	$0.19
3	Home Energy Management System (HEMS)	7.5	13%	4	$48.60	$0.21
4	Front Load ENERGY STAR Washer_Electric DHW_Electric Dryer	3.5	6%	14	$0.17	$0.19
5	Advanced CC ASHP - SEER2 18.0 and HSPF2 12.0	2.2	4%	3	$0.15	$0.15
6	ElectricHVAC V + T CAC Bill Screen: NA Any HZ *[Duct Sealing]*	1.7	3%	8	$0.07	$0.15
7	Tier 4 HPWH <= 55 GAL	1.2	2.1%	10	$0.08	$0.19
8	Single Family Windows - Add a Low-e Storm Window to an existing Double Paned Window - Heating Zone 2/3 (Zonal or DHP)	1.2	2.0%	16	$0.27	$0.14
9	Tier 3 HPWH <= 55 GAL	1.0	1.6%	12	$0.06	$0.18
10	Single Family Windows - Add a Low-e Storm Window to an existing Double Paned Window - Heating Zone 2/3 (Gas FAF - Any)	0.9	1.6%	19	$2.42	$0.14

Idaho Electric Energy Efficiency Potential

Commercial End Uses



Discussion / Findings

- Ventilation upgrades highest saving end use over study horizon
- Not much lighting potential remaining
- Space cooling savings grow relative to total savings as cooling loads increase over time

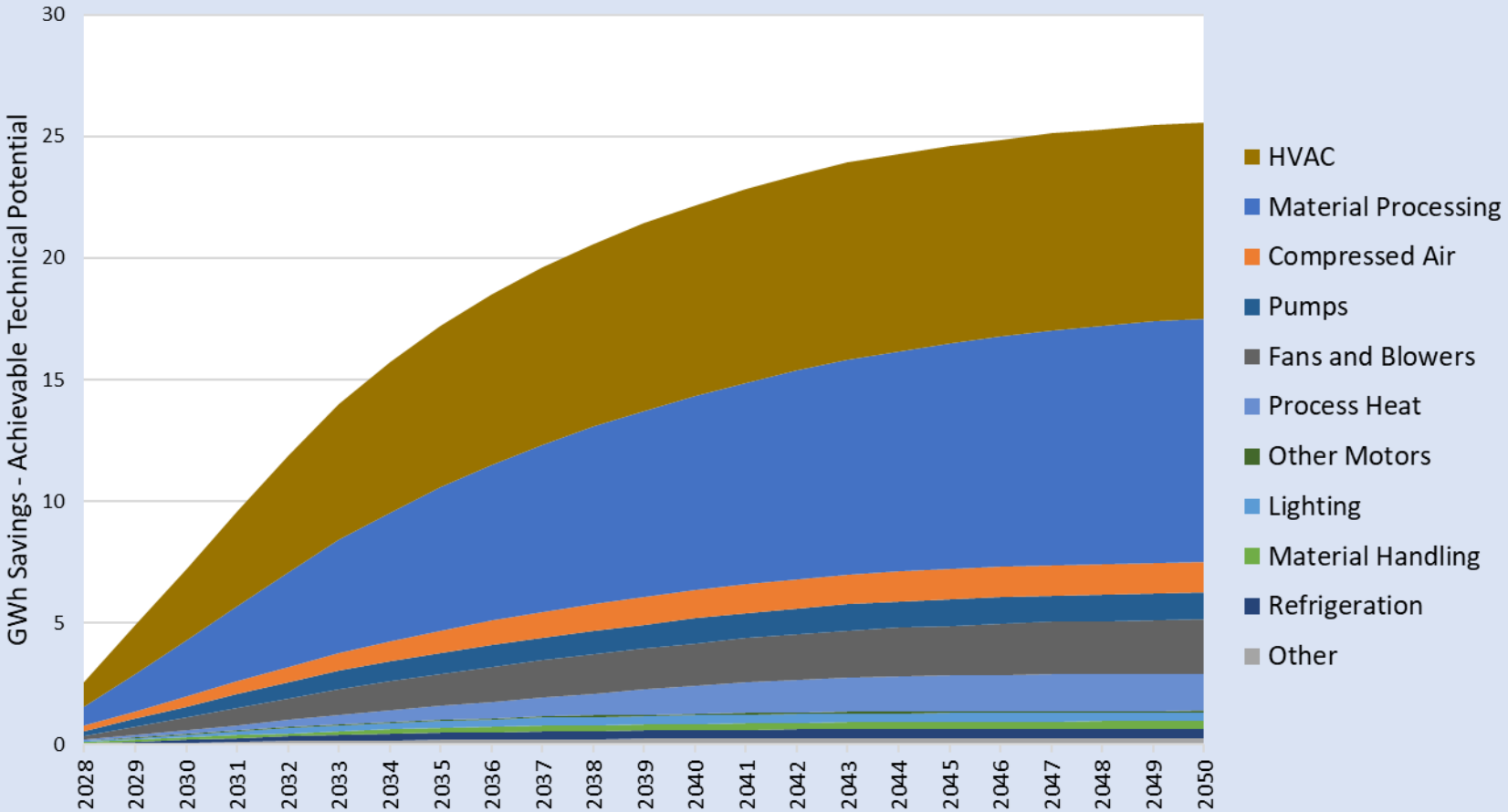
Idaho Energy Efficiency Potential

Idaho Top 10 Commercial Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative GWh Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/kWh)	UCT Levelized Cost ($/kWh)
1	Fans-NR-Commercial-CS->CS-Large Fan *[Efficient Fan]*	1.5	7%	3	$0.02	$0.06
2	Tier 2 HRV Retrofit – ID *[Heat Recovery Ventilator]*	1.4	7%	9	$0.12	$0.06
3	ENERGY STAR Servers	1.1	6%	20	$0.02	$0.05
4	Fans-NR-Commercial-VS->VS-Large Fan *[Efficient Fan]*	0.8	3.7%	11	$0.02	$0.06
5	Fans-NR-Commercial-CS->VS-Small Fan *[Constant to Variable Speed]*	0.7	3.5%	30	$0.04	$0.07
6	Commissioning_New_Groc	0.7	3.4%	10	$0.03	$0.07
7	Engine Block Heater Control_Com_Any_9P_HZ2	0.6	2.7%	4	$0.02	$0.07
8	Clean Water Pumps-Retro-Commercial-SystemUpgrade, Large Pump	0.5	2.6%	36	$0.12	$0.07
9	Fans-NR-Commercial-CS->VS-Large Fan	0.5	2.4%	38	$0.02	$0.07
10	RetroCommissioning_Groc	0.4	2.1%	19	$0.03	$0.07

Idaho Electric Energy Efficiency Potential

Industrial End Uses



Discussion / Findings

- HVAC and material processing upgrades highest energy savers in Idaho industries
- Other miscellaneous end uses account for approximately 30% of remaining savings
- Distribution of savings by end use driven by types of industrial loads in Avista's ID service territory

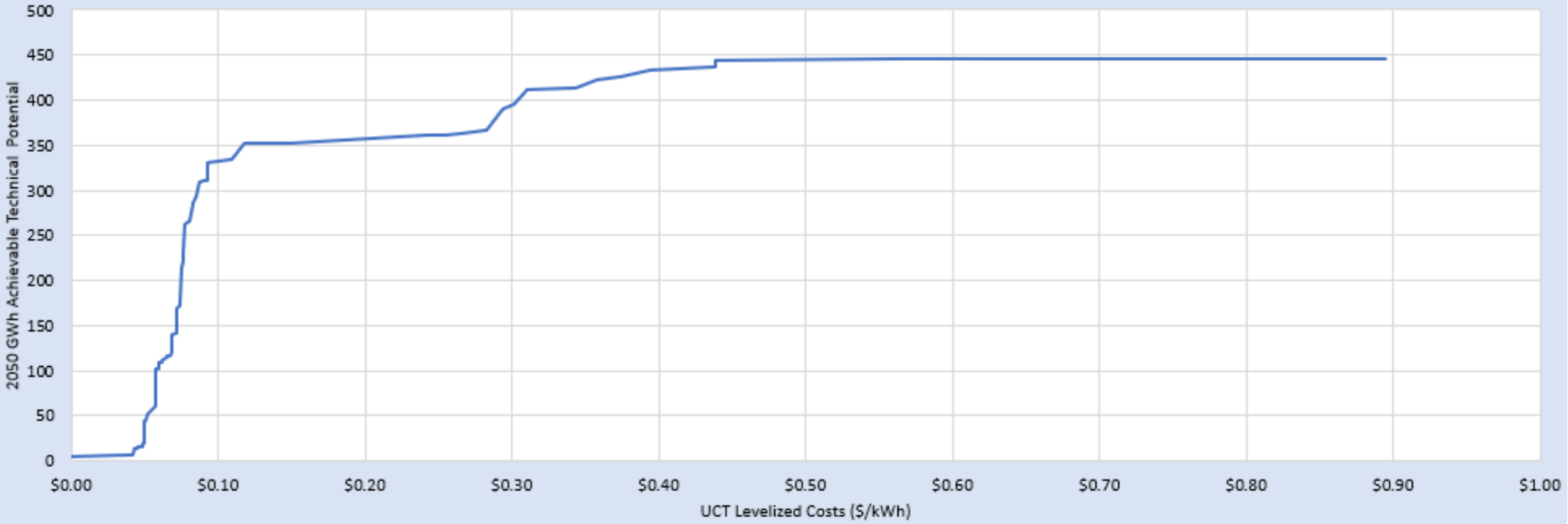
Idaho Energy Efficiency Potential

Idaho Top 10 Industrial Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative GWh Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/kWh)	UCT Levelized Cost ($/kWh)
1	HVAC	1.4	29%	1	$0.07	$0.07
2	Energy Management	1.2	25%	2	$0.02	$0.07
3	Energy Management2	1.0	20%	4	$0.03	$0.07
4	Advanced_Motors-VFD-Material Processing	0.3	6%	3	$0.07	$0.05
5	Wastewater - Low Cost Upgrades	0.3	5.7%	5	$0.07	$0.06
6	Clean Water Pumps-NR-Industrial-VS->VS-Large Pump *[Efficient Water Pumps]*	0.1	1.9%	14	$0.02	$0.06
7	Air Compressors-NR, Rotary-Industrial-CS->VS *[Constant-to-Variable Speed Compressor]*	0.1	1.5%	11	$0.06	$0.03
8	Air Compressors-NR, Rotary-Industrial-CS->CS *[Efficient Air Compressor]*	0.1	1.4%	13	$0.04	$0.03
9	Process Optimization	0.1	1.1%	8	$0.15	$0.07
10	Air Compressors-NR, Rotary-Industrial-VS->VS *[Efficient Air Compressor]*	0.0	1.0%	15	$0.07	$0.03

Draft Results

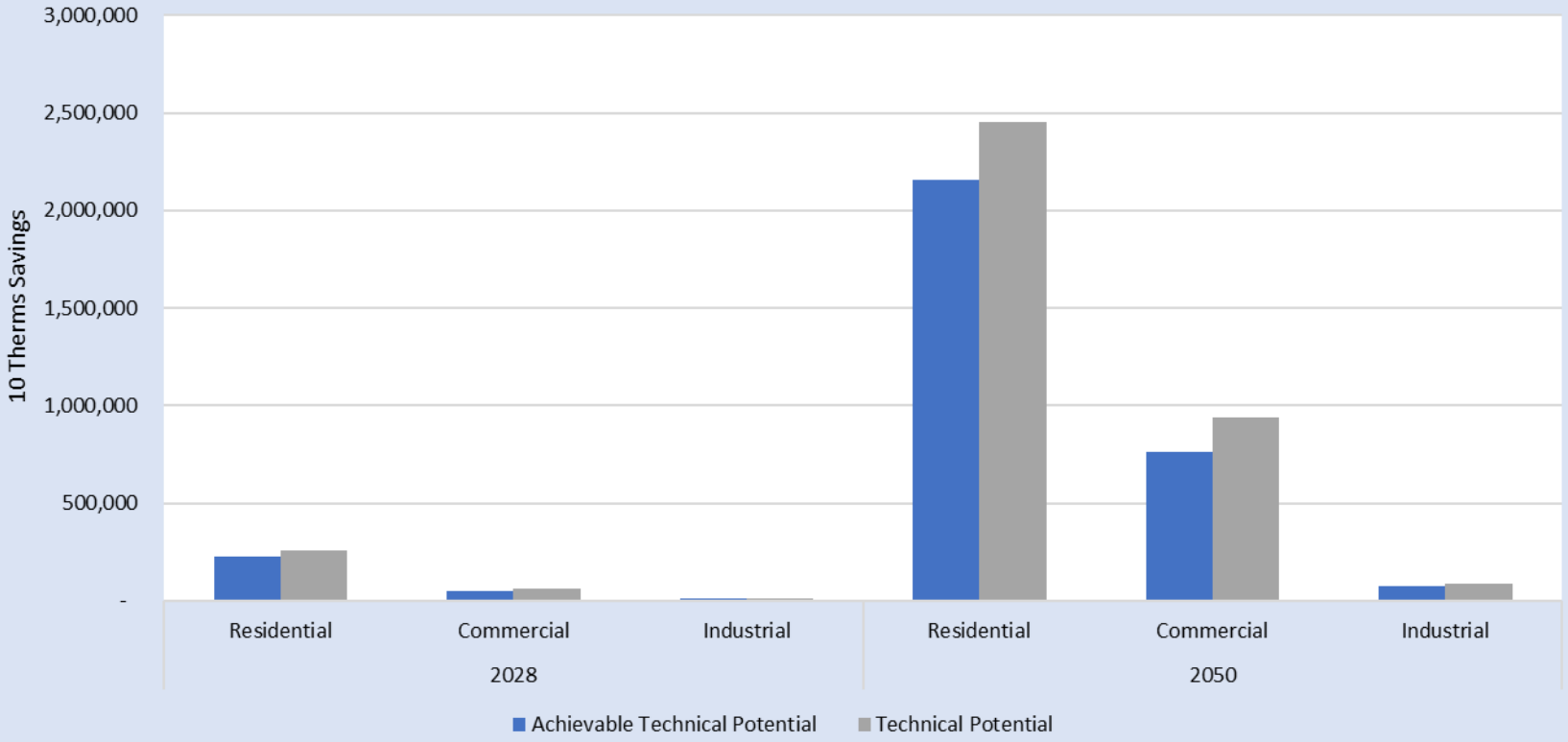
Idaho Energy Efficiency Potential: Supply Curve



Draft Results

Idaho Gas Energy Efficiency Potential

Cumulative Savings - 10 Therms	2028	2033	2038	2043	2050
Achievable Technical Potential	282,566	1,519,344	2,189,898	2,577,505	2,994,939
Technical Potential	326,229	1,753,356	2,533,150	2,989,851	3,480,985

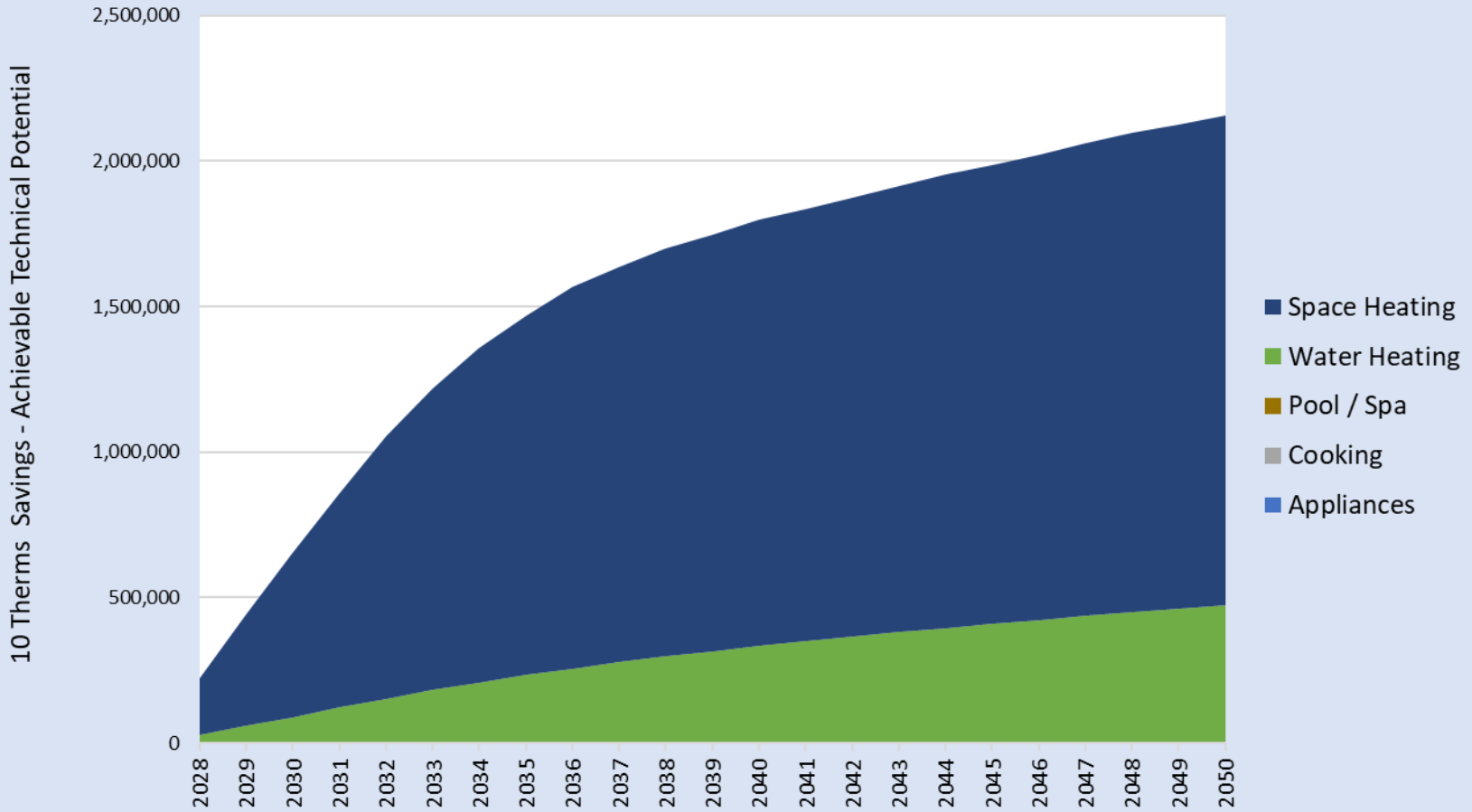


Discussion / Findings

- As with electric, gas savings concentrated in residential sector, which has highest proportion of load
- In early years of study, only small proportion of achievable savings available

Idaho Gas Energy Efficiency Potential

Residential End Uses



Discussion / Findings

- Approximately 30% of achievable potential in income-qualified households
- While savings exist for other end-uses, most load reduction potential from measures that reduce space heat (including envelope, controls, and equipment upgrades)

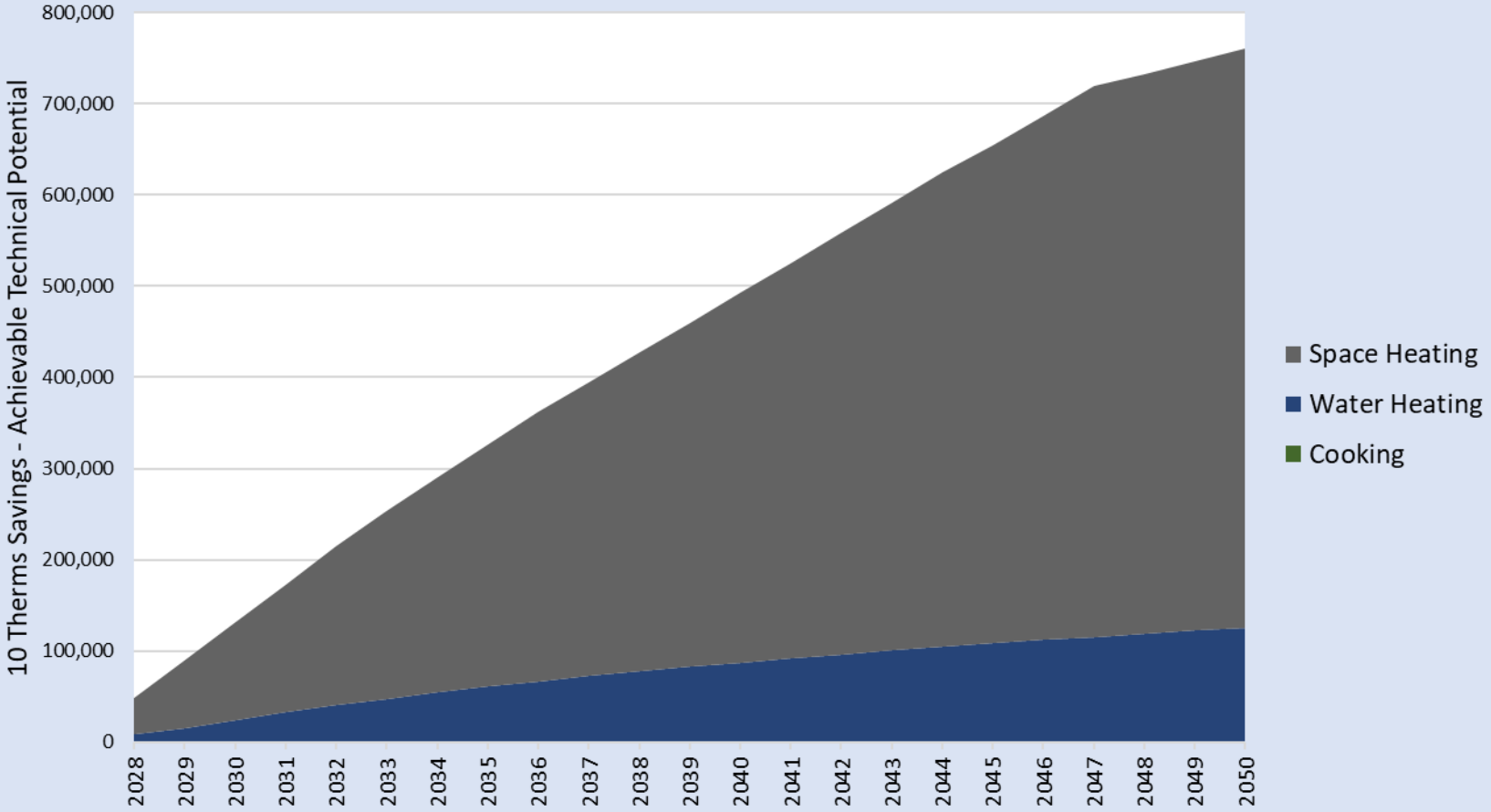
Idaho Energy Efficiency Potential

Idaho Top 10 Residential Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative 10 Therms Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/10 Therms)	UCT Levelized Cost ($/10 Therms)
1	Home Energy Management System (HEMS)	53,476	12%	4	$16.12	$10.74
2	Single Family Windows - Add a Low-e Storm Window to an existing Double Paned Window - Heating Zone 2/3 (Gas FAF - Any)	51,188	12%	7	$3.92	$6.91
3	Advanced Windows U-0.10	48,402	11%	5	$56.53	$7.23
4	Single Family Windows - Double Pane to Class 22 - Heating Zone 2/3 (Gas FAF - Any)	46,474	11%	8	$7.98	$5.63
5	GasHVAC V + T CAC Bill Screen: NA Any HZ *[Duct Sealing]*	31,583	7.2%	3	$0.92	$7.37
6	CEE Advanced Tier Gas Heat Pump - 120% AFUE	30,488	6.9%	1	$13.53	$7.59
7	ConnectedTstat_SF and MH_Gas FAF_Retail_HZ2	19,858	4.5%	6	$1.38	$13.84
8	ENERGY STAR v5.0 Tankless WH <= 55 GAL - UEF 0.95	19,494	4.4%	2	$1.77	$9.04
9	Single Family Weatherization - Insulate Attic - R11 to R38 - Heating Zone 2/3 (Gas FAF - Any)	18,345	4.2%	11	$2.17	$5.63
10	Single Family Infiltration Reduction - CFM50 reduction - Heating Zone 2/3 (Gas FAF - Any)	17,665	4.0%	12	$5.40	$6.63

Idaho Gas Energy Efficiency Potential

Commercial End Uses



Discussion / Findings

- Measures that reduce gas consumption for space heat primary energy savers; water heat has some savings potential, cooking upgrades almost no savings

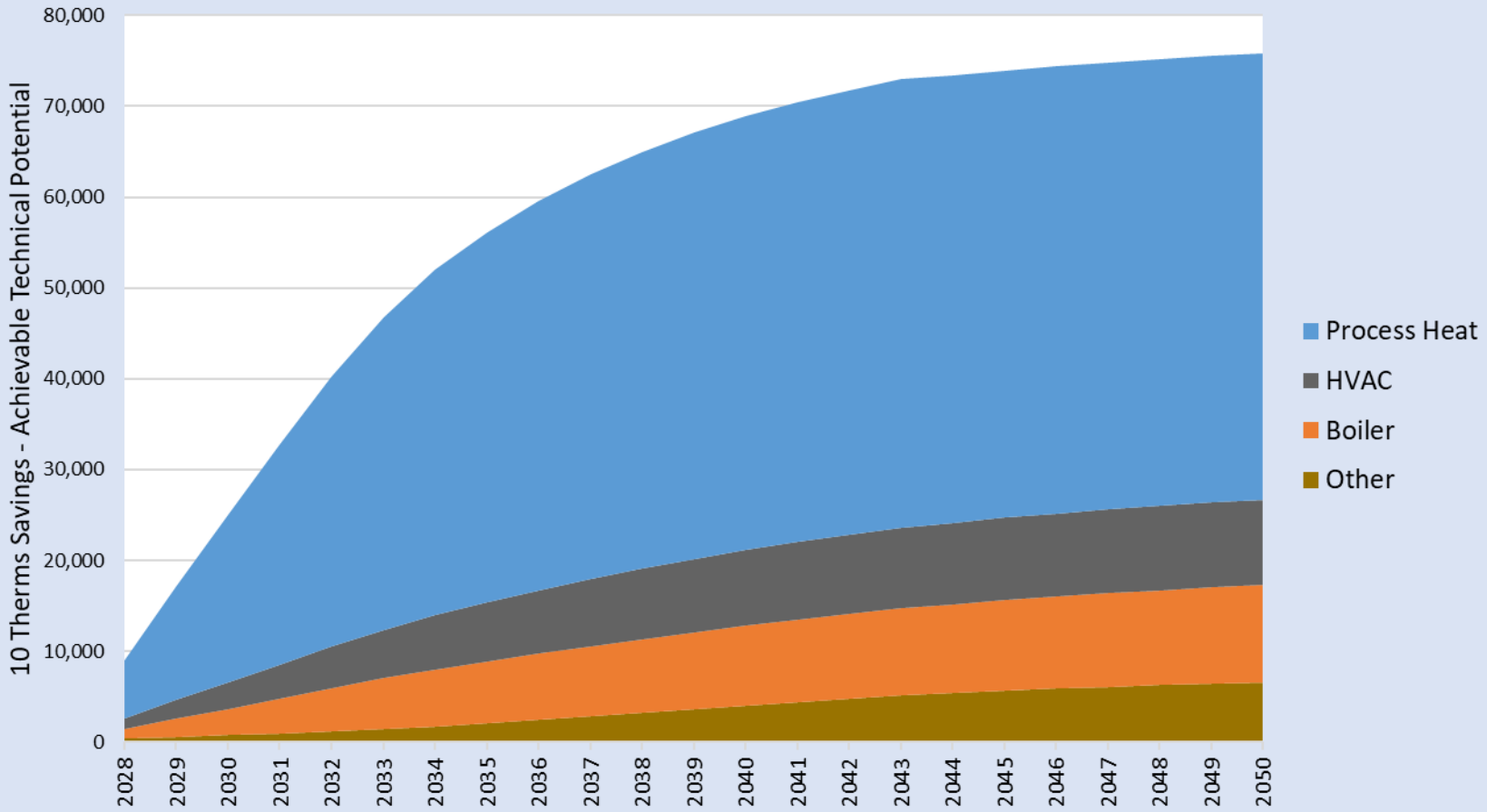
Idaho Gas Efficiency Potential

Idaho Top 10 Commercial Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative 10 Therms Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/10 Therms)	UCT Levelized Cost ($/10 Therms)
1	Tier 2 HRV Retrofit – ID *[Heat Recovery Ventilator]*	10,364	11.6%	9	$1.23	$0.71
2	Wall Insulation R-19	10,163	11.4%	8	$7.78	$0.55
3	Roof Insulation R-30	8,982	10.1%	10	$12.22	$0.55
4	Com-EM-Medium Off-Retro *[Energy Management]*	6,643	7.4%	12	$0.31	$0.71
5	Commercial-NR-Circ-DHW Recirculation	5,909	6.6%	14	$0.31	$0.86
6	ENERGY STAR v5.0 Tankless WH <= 55 GAL - UEF 0.95	4,135	4.6%	2	$1.76	$0.71
7	ConnectedThermostats-Small Ret	3,344	3.7%	22	$3.91	$0.63
8	Com-EM-University-Retro *[Energy Management]*	3,181	3.6%	17	$3.45	$1.33
9	ENERGY STAR v5.0 Condensing WH <= 55 GAL - UEF 0.81	2,971	3.3%	18	$0.31	$0.71
10	ConnectedThermostats-Medium Ret	2,688	3.0%	25	$5.11	$0.73

Idaho Gas Energy Efficiency Potential

Industrial End Uses



Discussion / Findings

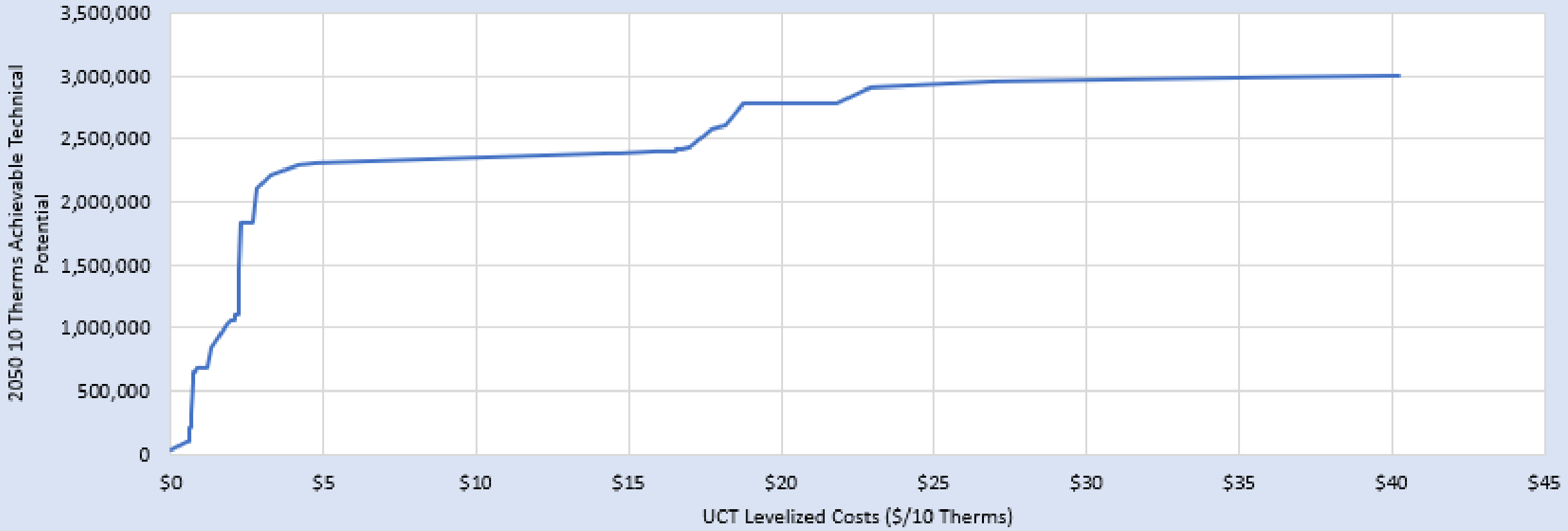
- Process heat end use with highest gas potential (includes improvements such as controls and custom projects)
- Other end uses, including HVAC and boiler upgrades account for approximately 30% of remaining savings potential

Idaho Gas Efficiency Potential

Idaho Top 10 Industrial Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative 10 Therms Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/10 Therms)	UCT Levelized Cost ($/10 Therms)
1	Custom Controls (Gas)	3,664	21%	1	$0.14	$0.39
2	Heat Recovery	3,024	18%	2	$0.17	$0.37
3	Custom Process (Gas)	2,985	17%	3	$0.18	$0.34
4	SEM (Gas)	1,784	10.4%	4	$0.21	$0.38
5	Custom O&M	1,760	10.3%	5	$0.13	$0.35
6	Ceiling/Roof Insulation	913	5.3%	8	$0.26	$0.44
7	Pipe Insulation	697	4.1%	9	$0.16	$0.44
8	Gas-fired HP Water Heater	567	3.3%	6	$0.47	$0.33
9	Process Insulation	447	2.6%	11	$0.15	$0.40
10	Advanced Wall Insulation	398	2.3%	12	$0.27	$0.44

Idaho Energy Efficiency Potential: Supply Curve



Draft Results

Oregon Energy Efficiency Potential

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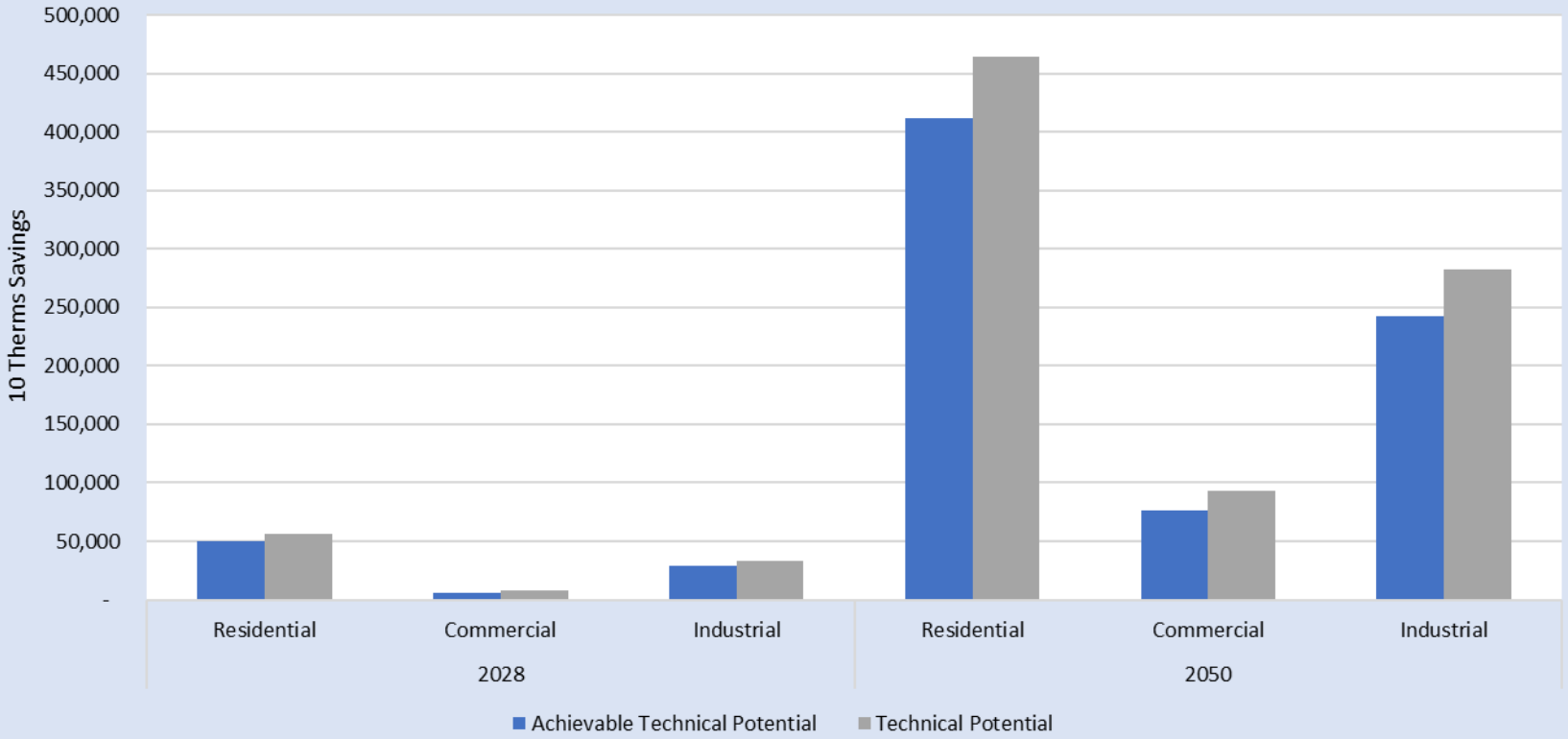
Oregon Gas Energy Efficiency Potential

Cumulative Savings – 10 Therms	2028	2033	2038	2043	2050
Achievable Technical Potential	85,082	457,380	626,497	691,048	730,973
Technical Potential	97,581	524,425	718,935	794,037	840,464

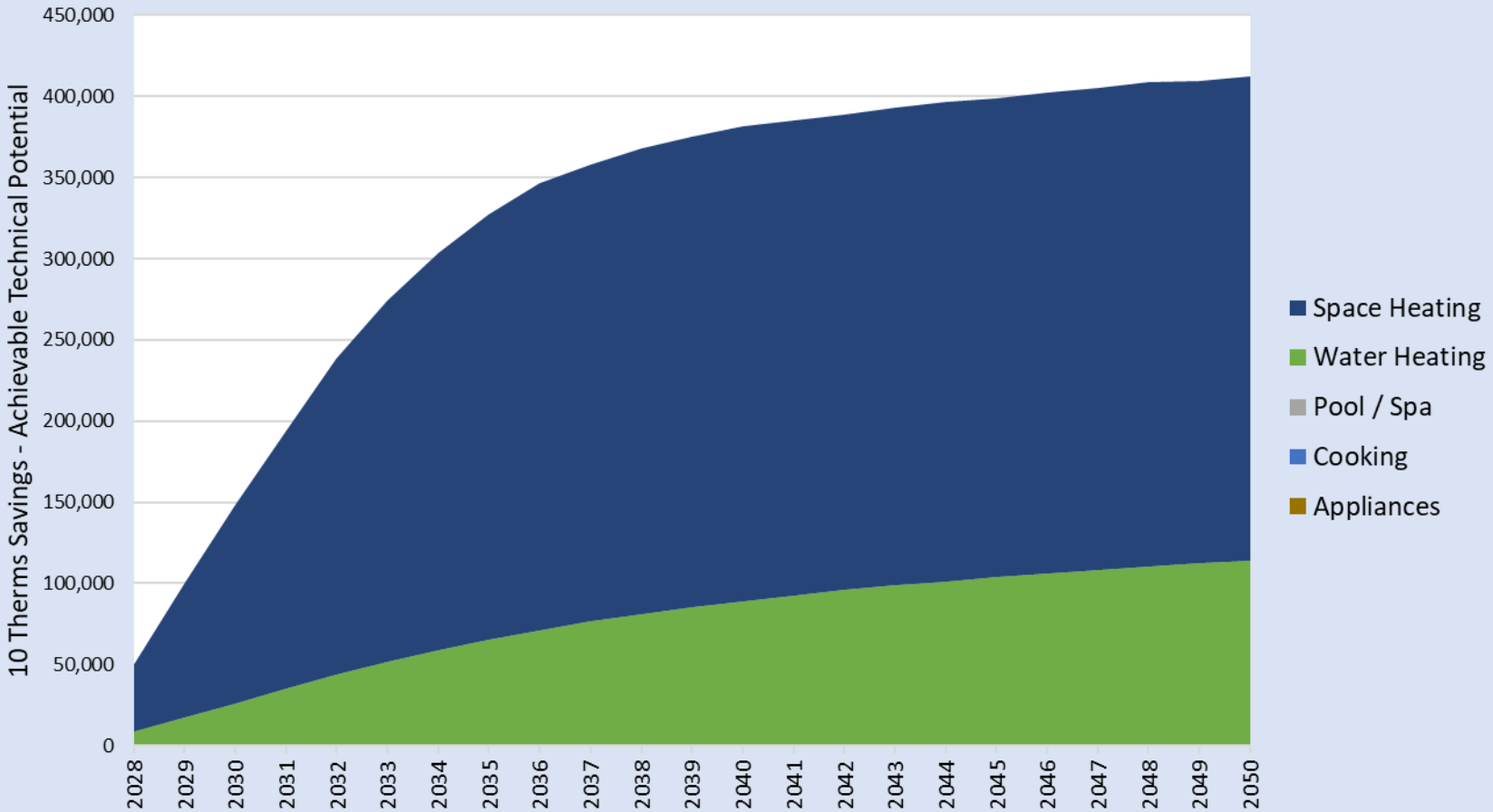


Discussion / Findings

- Avista offers energy efficiency programs to transportation and income qualified customers in Oregon; potential shown for only those customer segments
- Residential income qualified and non-residential transportation customers have roughly equal savings potential

Oregon Gas Energy Efficiency Potential

Residential End Uses



Discussion / Findings

- Measures reducing gas use for space heating primary savers, including envelope upgrades, Home Energy Management Systems, and equipment upgrades
- Water heating end use has second most gas savings
- Almost no gas savings for other end uses

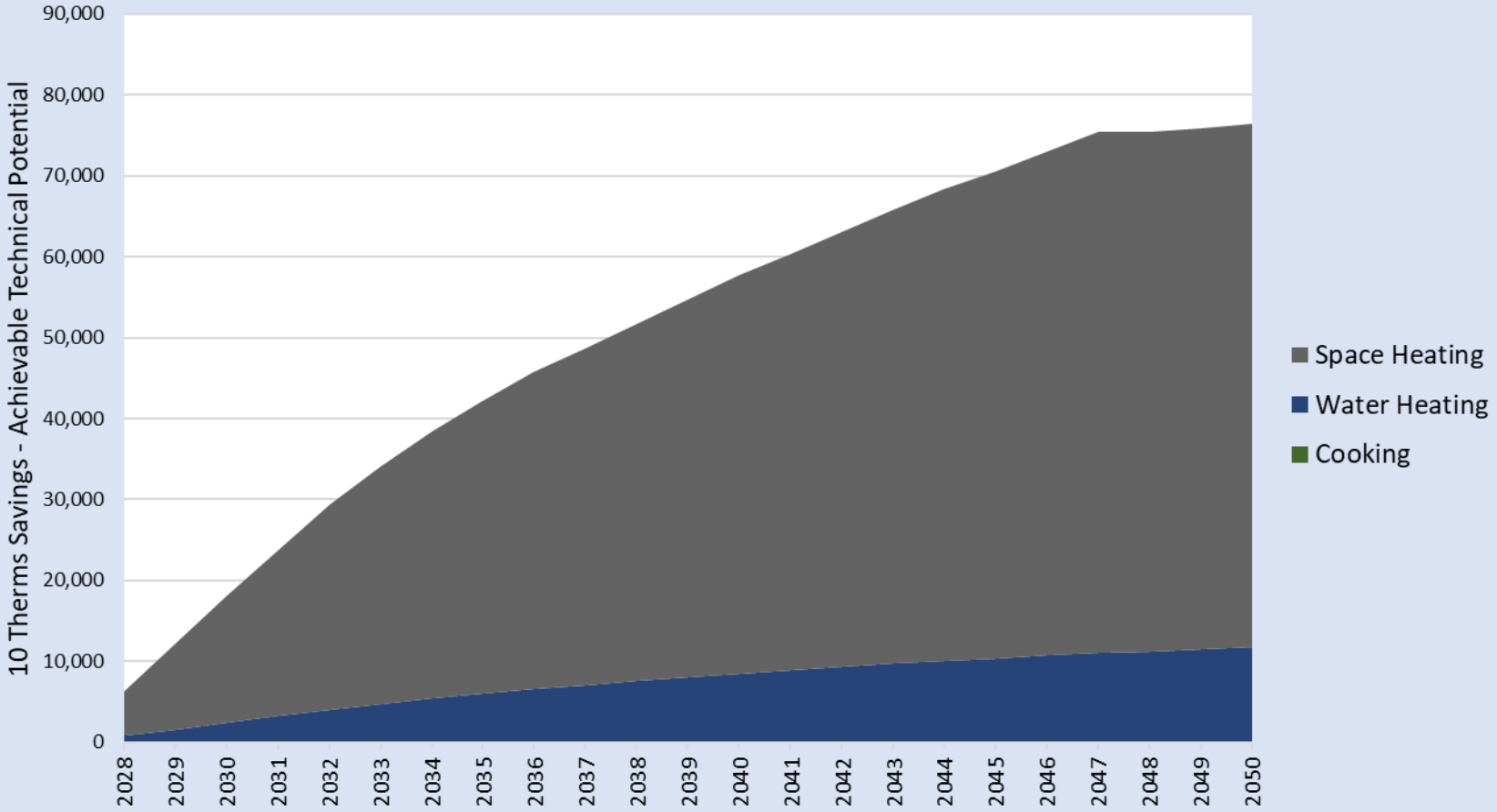
Oregon Energy Efficiency Potential

Oregon Top 10 Residential Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative 10 Therms Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/10 Therms)	UCT Levelized Cost ($/10 Therms)
1	Single Family Windows - Add a Low-e Storm Window to an existing Double Paned Window - Heating Zone 2/3 (Gas FAF - Any)	12,650	12.7%	4	$3.76	$17.70
2	Single Family Windows - Double Pane to Class 22 - Heating Zone 2/3 (Gas FAF - Any)	11,466	11.6%	6	$7.78	$14.36
3	Home Energy Management System (HEMS)	10,248	10.3%	5	$20.53	$27.04
4	GasHVAC V + T CAC Bill Screen: NA Any HZ *[Duct Sealing]*	8,370	8.4%	3	$0.80	$17.70
5	Advanced Windows U-0.10	8,290	8.4%	8	$55.82	$17.70
6	CEE Advanced Tier Gas Heat Pump - 120% AFUE	5,809	5.9%	1	$11.31	$18.75
7	ENERGY STAR v5.0 Tankless WH <= 55 GAL - UEF 0.95	5,699	5.7%	2	$2.13	$22.93
8	ENERGY STAR v5.0 Condensing WH <= 55 GAL - UEF 0.81	3,958	4.0%	10	$2.43	$22.93
9	Single Family Weatherization - Insulate Attic - R11 to R38 - Heating Zone 2/3 (Gas FAF - Any)	3,756	3.8%	11	$2.03	$14.36
10	Single Family Infiltration Reduction - CFM50 reduction - Heating Zone 2/3 (Gas FAF - Any)	3,748	3.8%	12	$5.22	$16.99

Oregon Gas Energy Efficiency Potential

Commercial End Uses



Discussion / Findings

- Measures to reduce space heating fuel primary savers. These measures include heat recover ventilators, energy management systems, and building shell upgrades

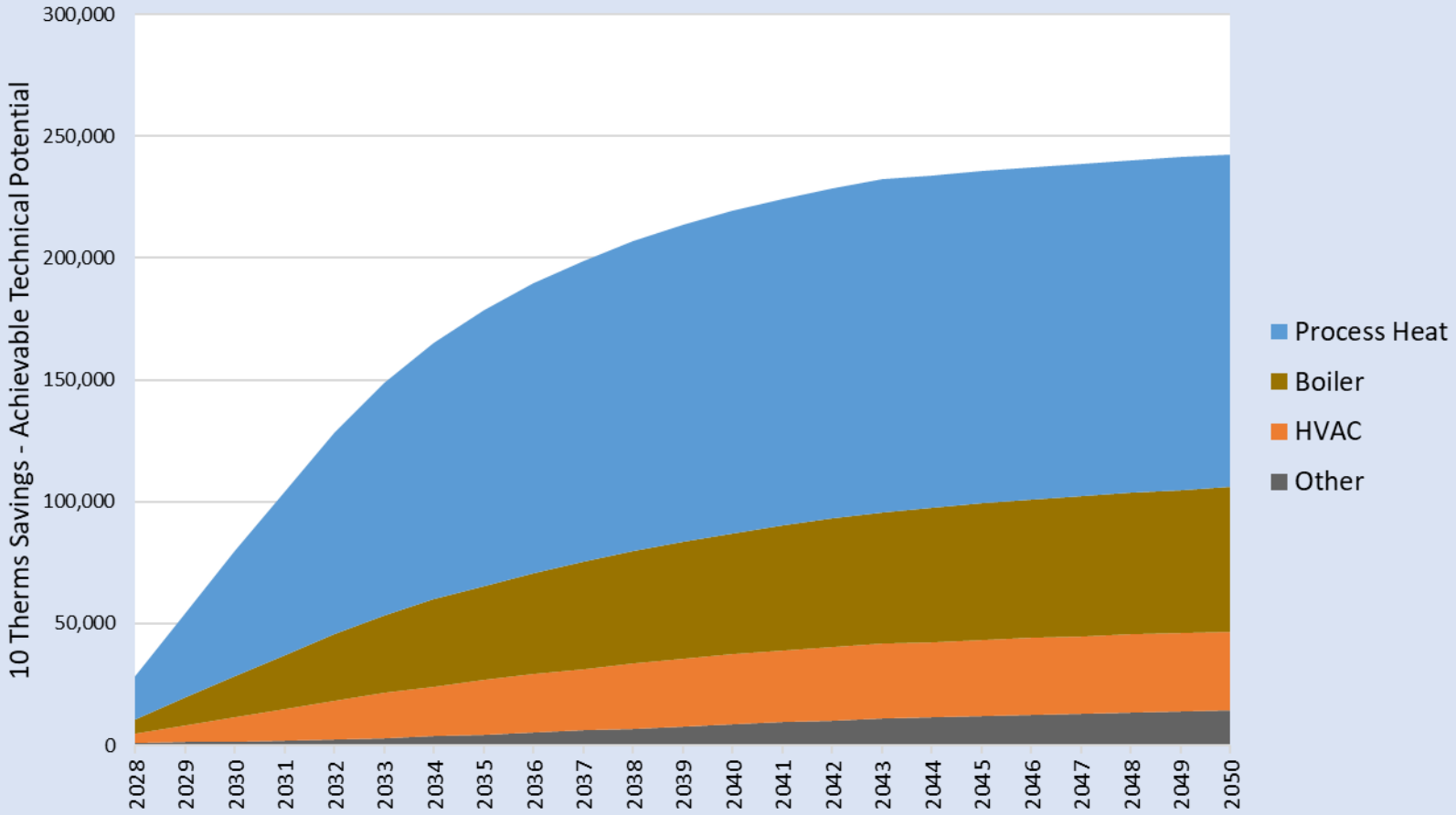
Oregon Gas Efficiency Potential

Oregon Top 10 Commercial Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative 10 Therms	2029 % of Total	2050 Rank	TRC Levelized Cost (2026$ per 10 therms)	UCT Levelized Cost (2026$ per 10 therms)
1	Tier 2 HRV Retrofit *[Heat Recovery Ventilator]*	3,772	31.0%	3	$1.22	$0.71
2	Roof Insulation R-30	1,258	10.3%	7	$1.75	$0.71
3	Wall Insulation R-19	834	6.9%	9	$3.17	$0.55
4	Com-EM-University-Retro	762	6.3%	10	$2.54	$0.55
5	Commercial-NR-Circ-DHW Recirculation	589	4.8%	14	$0.31	$0.71
6	ENERGY STAR v5.0 Tankless WH > 55 GAL - UEF 0.95	453	3.7%	5	$0.31	$0.86
7	Com-EM-Hospital-Retro *[Energy Management]*	348	2.9%	15	$1.09	$0.63
8	Com-EM-Assembly-Retro *[Energy Management]*	306	2.5%	17	$0.33	$0.71
9	ConnectedThermostats-Assembly	266	2.2%	20	$0.30	$0.71
10	ENERGY STAR v5.0 Condensing WH <= 55 GAL - UEF 0.86	248	2.0%	18	$3.12	$1.33

Oregon Gas Energy Efficiency Potential

Industrial End Uses



Discussion / Findings

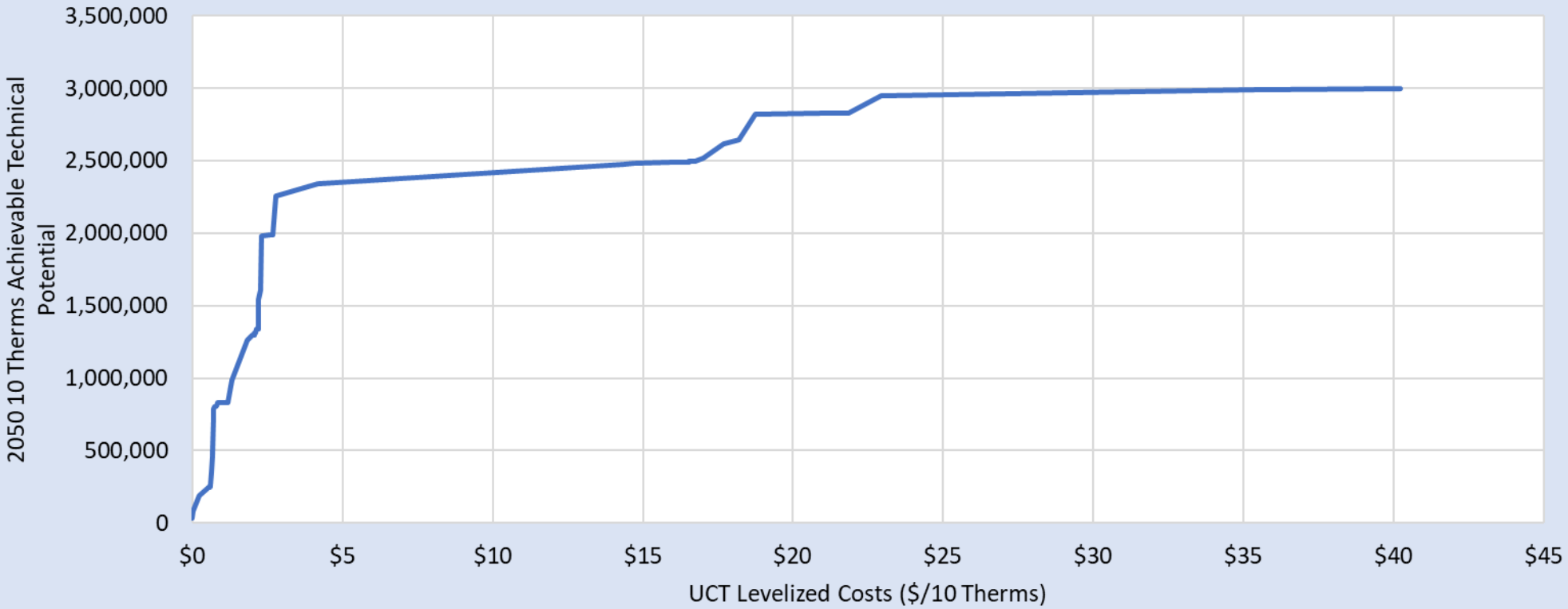
- Process heat and boiler improvements primary energy savers. Measures include heat recovery, custom projects, and strategic energy management

Oregon Gas Efficiency Potential

Oregon Top 10 Industrial Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative 10 Therms	2029 % of Total	2050 Rank	TRC Levelized Cost (2026$ per 10 therms)	UCT Levelized Cost (2026$ per 10 therms)
1	Heat Recovery	11,068	4.6%	1	$0.30	$0.66
2	Custom Controls (Gas)	9,950	4.1%	2	$0.27	$0.75
3	Custom Process (Gas)	8,105	3.3%	3	$0.34	$0.65
4	SEM (Gas)	5,644	2.3%	4	$0.36	$0.65
5	Custom O&M	5,082	2.1%	5	$0.24	$0.65
6	Pipe Insulation	3,680	1.5%	7	$0.23	$0.66
7	Ceiling/Roof Insulation	3,137	1.3%	9	$0.31	$0.52
8	Process Insulation	1,527	0.6%	11	$0.25	$0.65
9	Advanced Wall Insulation	1,368	0.6%	12	$0.32	$0.52
10	Gas-fired HP Water Heater	1,223	0.5%	8	$0.86	$0.59

Oregon Energy Efficiency Potential: Supply Curve



Break – 5 Minutes

Washington Energy Efficiency Potential

AVISTA

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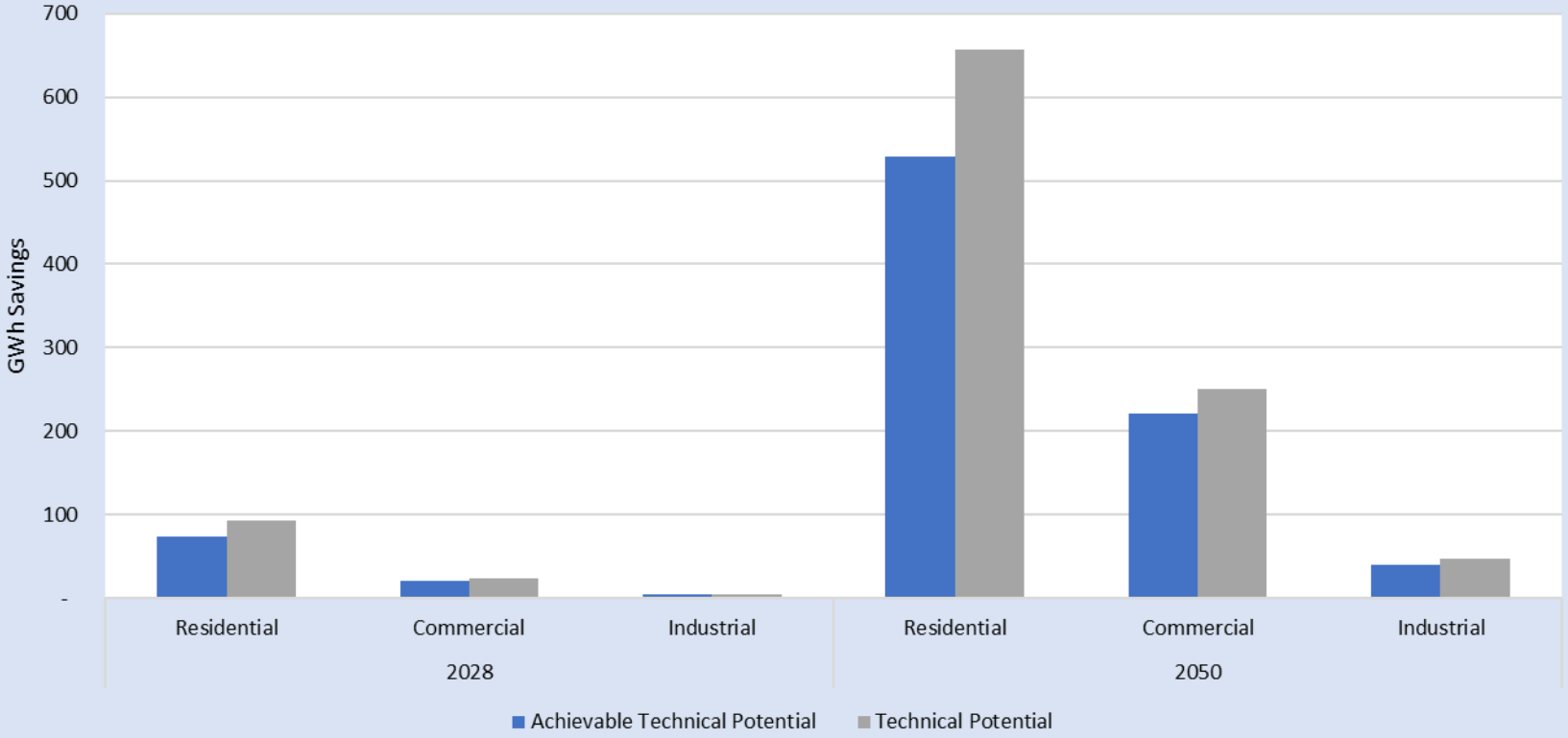
Washington Electric Energy Efficiency Potential

Cumulative Savings - GWh	2028	2033	2038	2043	2050
Achievable Technical Potential	100	397	580	691	790
Technical Potential	122	483	703	836	955

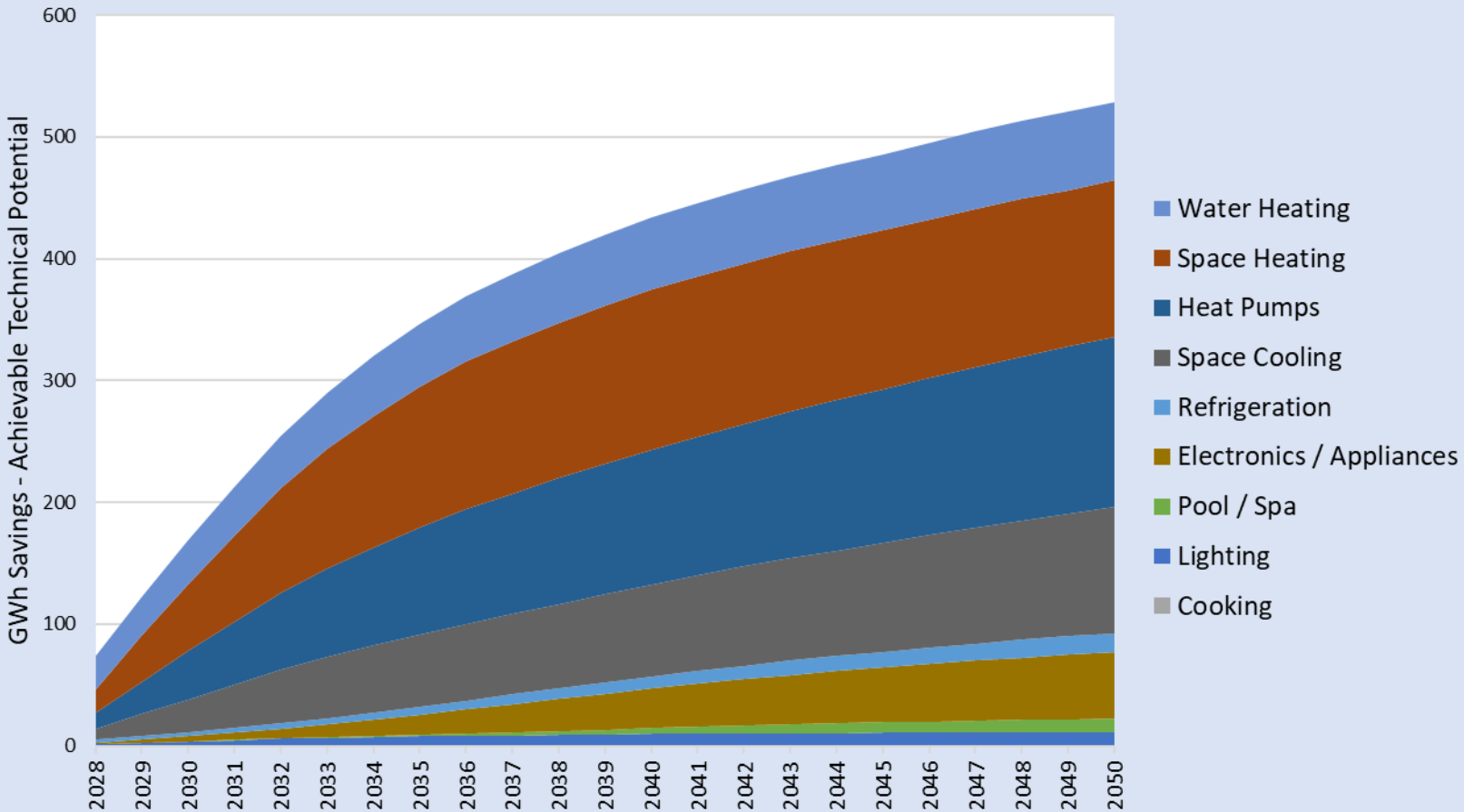


Discussion / Findings

- Savings primarily concentrated in residential sector; homes account for approximately for almost 55% of Avista's Washington energy load
- Estimated achievable technical potential savings is ~50% less than previous study. This is driven by WA state commercial lighting mercury ban starting in 2029 and well electric water heater equipment standards
- Note: Avista's largest industrial customers were excluded from analysis

Washington Electric Energy Efficiency Potential

Residential End Uses



Discussion / Findings

- Approximately 60% of potential in Named Communities
- Water heating measures primary savers in early years, in later years space conditioning measures have greater share potential
- Federal HPWH standard dampens water heating savings starting 2030
- Heat pump savings growth driven by new construction

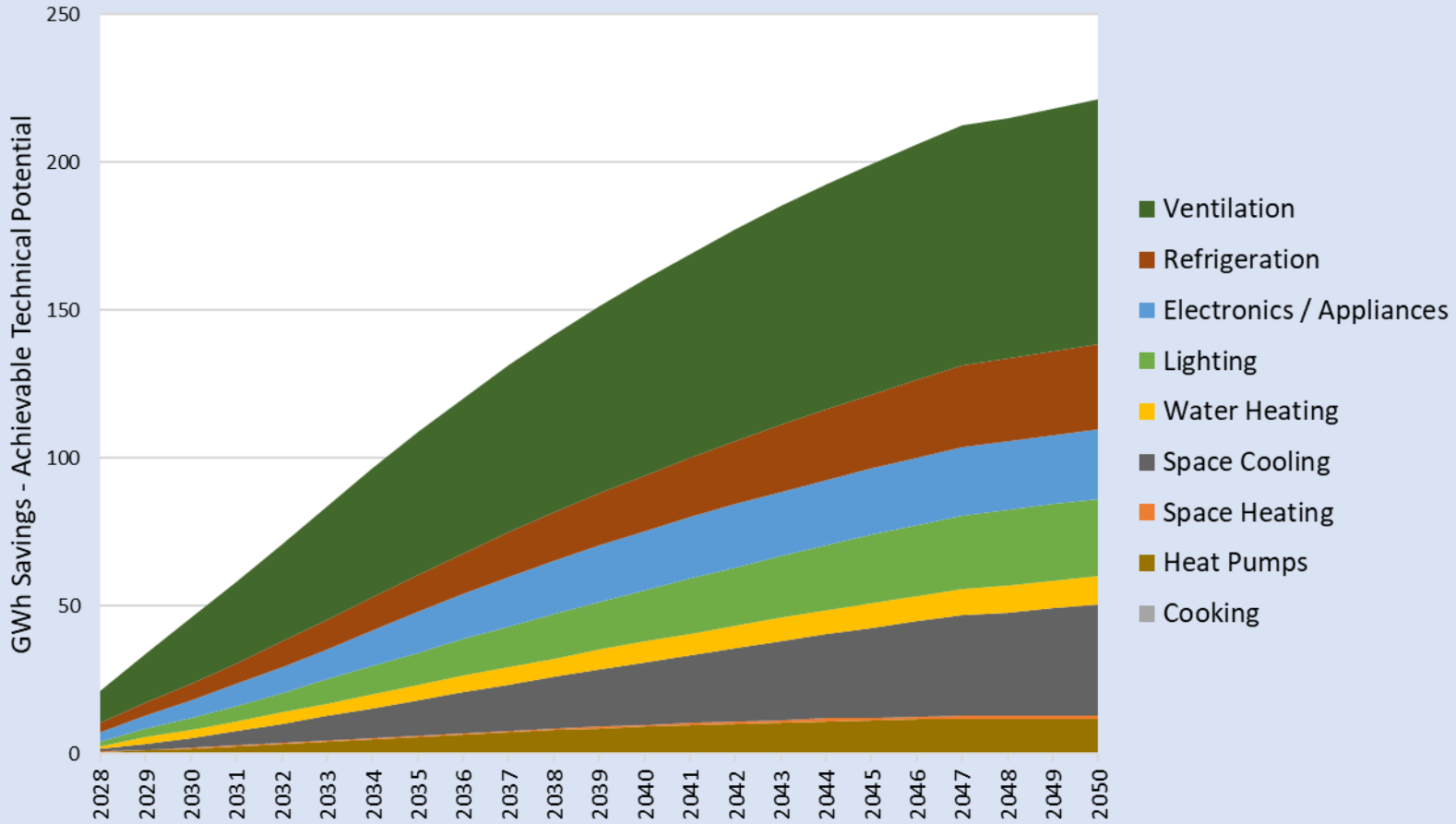
Washington Energy Efficiency Potential

Washington Top 10 Residential Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative GWh Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/kWh)	UCT Levelized Cost ($/kWh)
1	Advanced Windows U-0.10	22.5	18.4%	1	$3.38	$0.18
2	Standard 2030 HPWH <= 55 GAL - UEF 2.3	16.1	13.2%	9	$0.07	$0.27
3	Home Energy Management System (HEMS)	13.0	10.7%	4	$44.53	$0.30
4	Front Load ENERGY STAR Washer_Electric DHW_Electric Dryer	7.3	6.0%	15	$0.16	$0.26
5	Advanced CC ASHP - SEER2 18.0 and HSPF2 12.0	4.1	3.4%	3	$0.12	$0.22
6	MF Windows_Single Pane - U22_HZ2_Zonal	3.7	3.0%	17	$0.11	$0.17
7	ElectricHVAC V + T CAC Bill Screen: NA Any HZ *[Duct Sealing]*	3.0	2.4%	8	$0.07	$0.21
8	MF Windows_Double Pane - U22_HZ2_Zonal	2.5	2.0%	20	$0.16	$0.17
9	Single Family Windows - Add a Low-e Storm Window to an existing Double Paned Window - Heating Zone 2/3 (Zonal or DHP)	2.1	1.7%	19	$0.26	$0.21
10	Tier 4 HPWH <= 55 GAL	2.0	1.6%	10	$0.08	$0.27

Washington Electric Energy Efficiency Potential

Commercial End Uses



Discussion / Findings

- Ventilation upgrades, such as efficient fans have highest potential for electric savings in near and long term
- Other impactful measures include refrigeration and plug load upgrades
- Not much lighting potential remaining
- Space cooling savings grow relative to total savings as cooling loads increase over time

Washington Energy Efficiency Potential

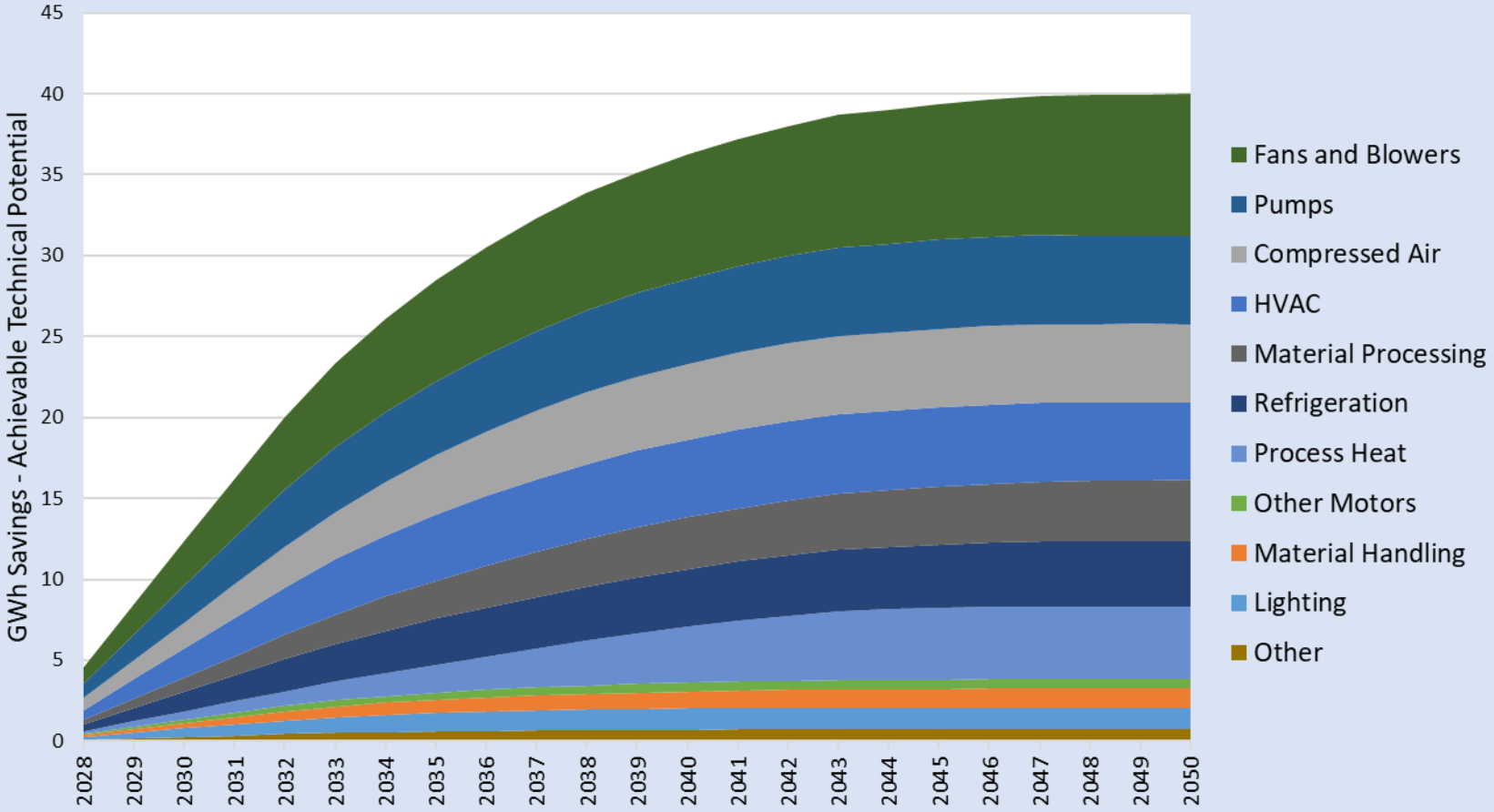
Washington Top 10 Commercial Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative GWh Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/kWh)	UCT Levelized Cost ($/kWh)
1	Fans-NR-Commercial-CS->CS-Large Fan *[Efficient Fan]*	2.5	7.4%	2	$0.02	$0.06
2	ENERGY STAR Servers	2.4	7.2%	15	$0.02	$0.05
3	Tier 2 HRV Retrofit – ID *[Heat Recovery Ventilator]*	1.9	5.7%	9	$0.12	$0.06
4	Fans-NR-Commercial-VS->VS-Large Fan	1.3	3.8%	8	$0.02	$0.06
5	Fans-NR-Commercial-CS->VS-Small Fan	1.2	3.7%	22	$0.04	$0.07
6	Commissioning_New_Groc	0.9	2.8%	14	$0.17	$0.06
7	Fans-NR-Commercial-CS->VS-Large Fan *[Constant-to-Variable-Speed Fan Upgrade]*	0.8	2.5%	31	$0.03	$0.07
8	Engine Block Heater Control_Com_Any_9P_HZ2	0.8	2.5%	5	$0.02	$0.07
9	OR/WA_High/Low Bay LOW_LF_6 lamp to LED Fixture with Occ+Daylight Controls_INCR.	0.8	2.4%	19	$0.02	$0.07
10	Fans-Retro-Commercial-SystemUpgrade-Small Fan	0.7	2.0%	39	$0.06	$0.05

Draft Results

Washington Electric Energy Efficiency Potential

Industrial End Uses



Discussion / Findings

- Industrial end uses have many diverse options for reducing energy load; fans, pumps, and compressed air account for approximately 33% of potential electric savings
- Distribution of savings by end use driven by types of industrial loads in Avista's WA service territory
- Note: Avista's largest industrial customers were excluded from analysis

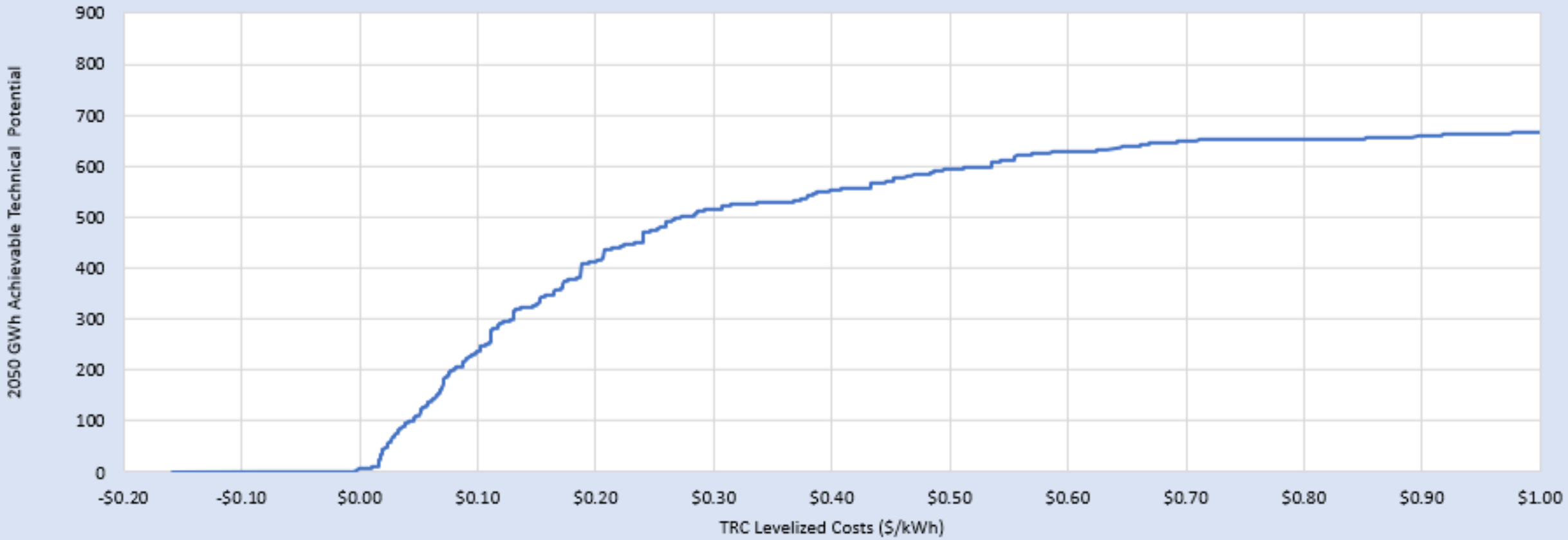
Washington Energy Efficiency Potential

Washington Top 10 Industrial Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative GWh Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/kWh)	UCT Levelized Cost ($/kWh)
1	Wastewater - Low Cost Upgrades	2.5	30.0%	1	$0.07	$0.06
2	Energy Management	1.2	3.1%	2	$0.03	$0.08
3	Energy Management2	1.0	2.4%	3	$0.04	$0.08
4	HVAC	0.7	1.8%	4	$0.07	$0.07
5	Clean Water Pumps-NR-Industrial-VS->VS-Large Pump *[Efficient Water Pumps]*	0.3	0.8%	13	$0.03	$0.08
6	Energy Management - WWW	0.3	0.8%	6	$0.02	$0.08
7	Air Compressors-NR, Rotary-Industrial-CS->VS *[Constant-to-Variable-Speed Air Compressors]*	0.3	0.6%	9	$0.11	$0.06
8	Air Compressors-NR, Rotary-Industrial-CS->CS *[Efficient Air Compressors]*	0.2	0.6%	10	$0.07	$0.06
9	Thermal Recovery	0.2	0.5%	15	$0.18	$0.07
10	Fast Acting Doors	0.2	0.5%	16	$0.12	$0.06

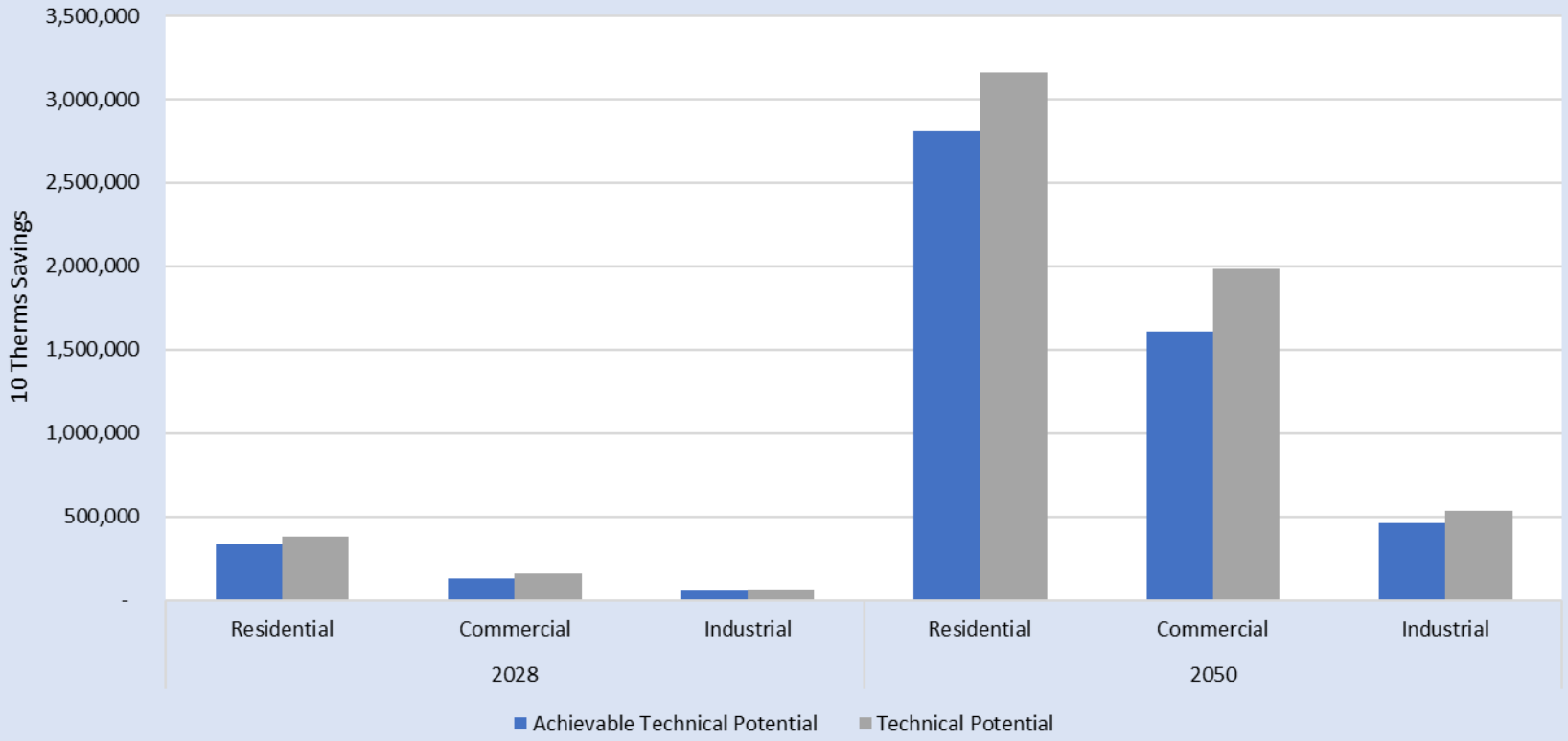
Draft Results

Washington Energy Efficiency Potential: Supply Curve



Washington Gas Energy Efficiency Potential

Cumulative Savings – 10 Therms	2028	2033	2038	2043	2050
Achievable Technical Potential	518,139	2,780,072	3,921,162	4,469,061	4,880,045
Technical Potential	598,403	3,205,544	4,533,675	5,186,770	5,679,130

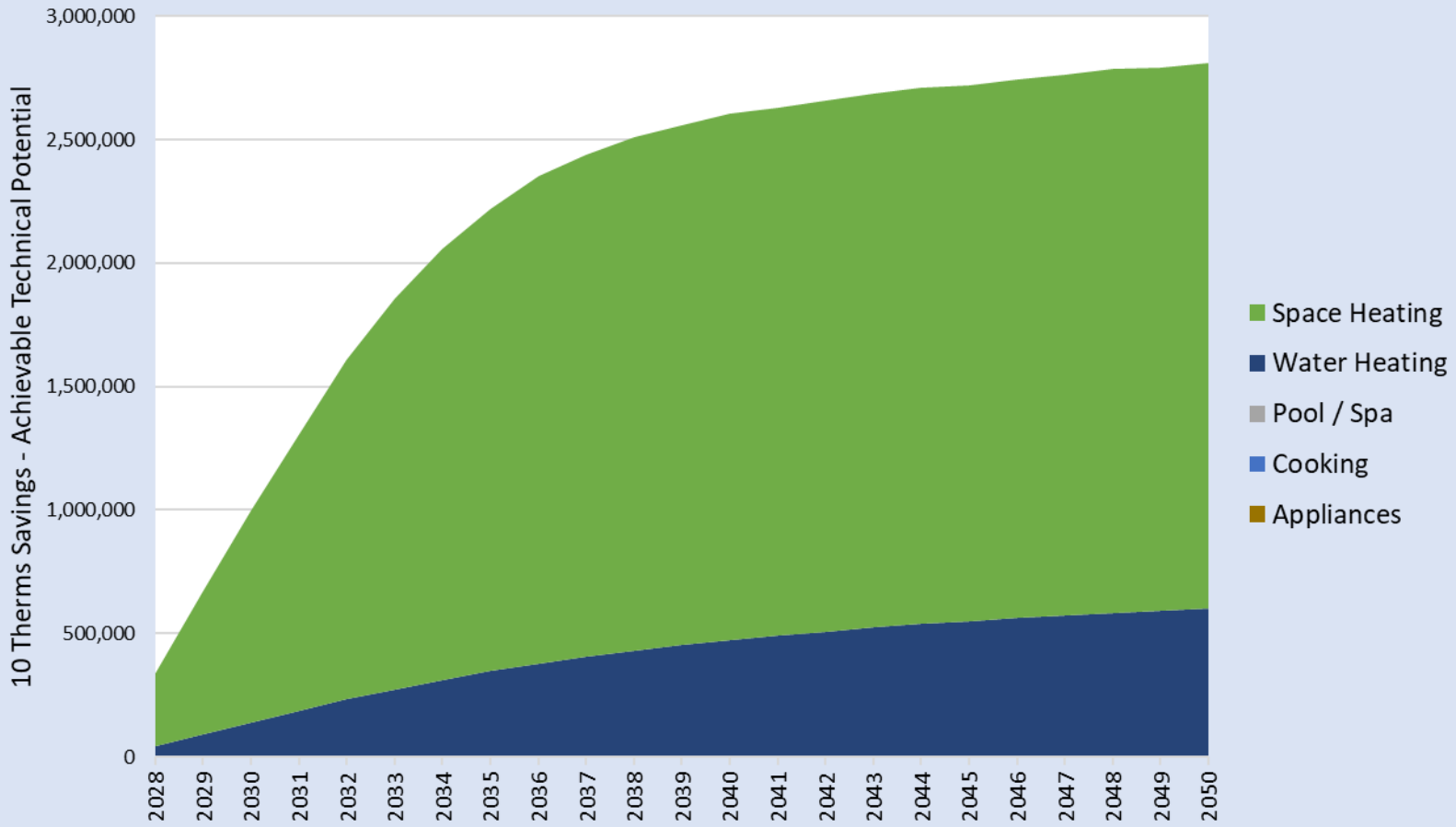


Discussion / Findings

- Approximately 70% of gas savings potential in residential sector; homes comprise less than half the statewide gas load

Washington Gas Energy Efficiency Potential

Residential End Uses



Discussion / Findings

- Approximately 50% of residential savings potential in Named Communities
- Savings potential concentrated in equipment and building shell measures that reduce space heating load

Washington Energy Efficiency Potential

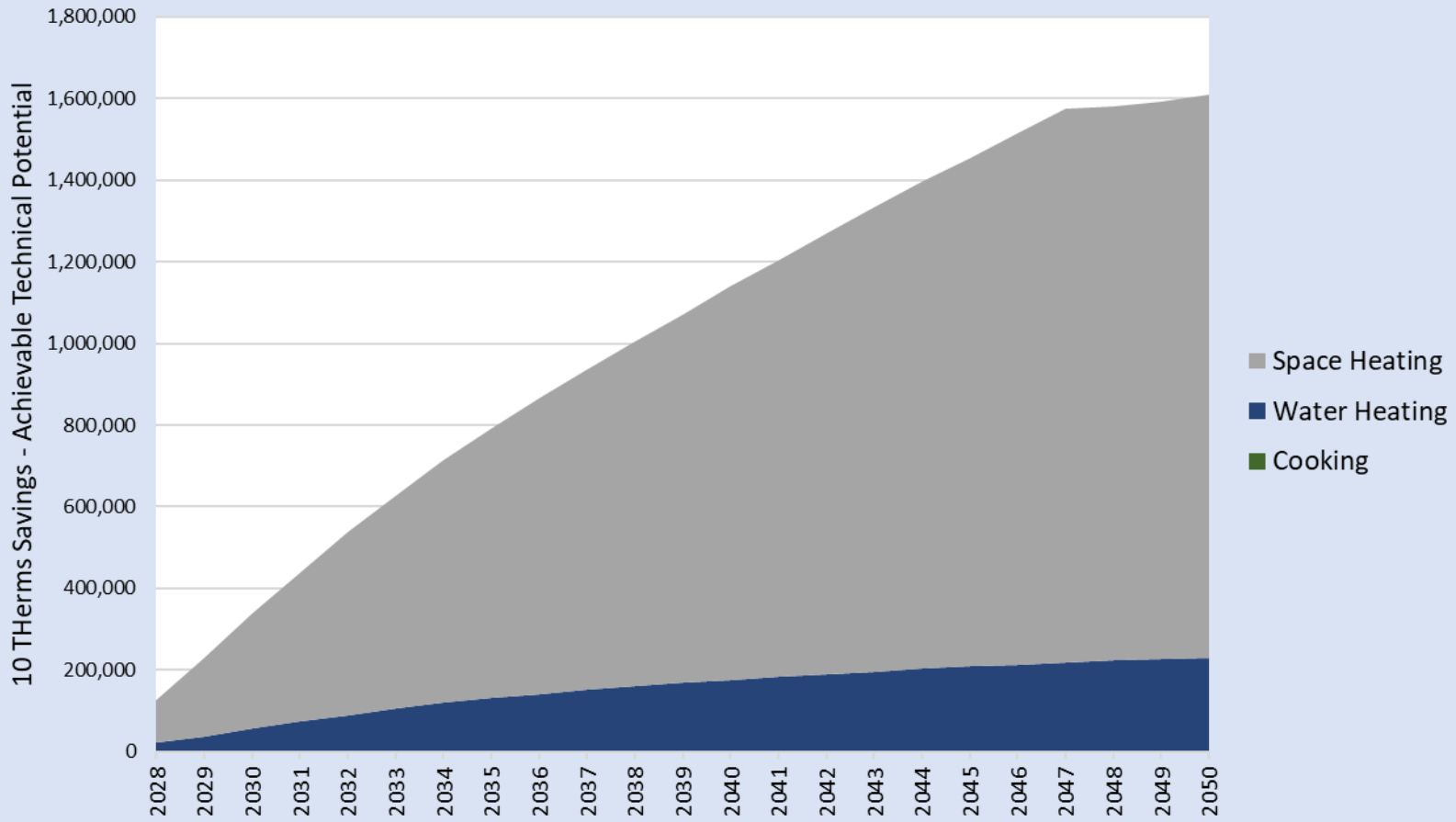
Washington Top 10 Residential Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative 10 Therms Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/10 Therms)	UCT Levelized Cost ($/10 Therms)
1	Single Family Windows - Add a Low-e Storm Window to an existing Double Paned Window - Heating Zone 2/3 (Gas FAF - Any)	89,663	13.4%	4	$3.84	$10.04
2	Single Family Windows - Double Pane to Class 22 - Heating Zone 2/3 (Gas FAF - Any)	82,489	12.3%	5	$7.86	$8.17
3	Home Energy Management System (HEMS)	69,943	10.5%	6	$17.32	$15.29
4	Advanced Windows U-0.10	56,721	8.5%	8	$56.34	$10.04
5	GasHVAC V + T CAC Bill Screen: NA Any HZ *[Duct Sealing]*	56,364	8.4%	3	$0.89	$10.03
6	CEE Advanced Tier Gas Heat Pump - 120% AFUE	42,156	6.3%	1	$10.35	$10.62
7	ENERGY STAR v5.0 Tankless WH <= 55 GAL - UEF 0.95	30,543	4.6%	2	$2.04	$12.98
8	Single Family Weatherization - Insulate Attic - R11 to R38 - Heating Zone 2/3 (Gas FAF - Any)	26,291	3.9%	11	$2.11	$8.17
9	Single Family Infiltration Reduction - CFM50 reduction - Heating Zone 2/3 (Gas FAF - Any)	26,160	3.9%	12	$5.31	$9.64
10	Single Family Weatherization - Insulate Wall - R0 to R11 - Heating Zone 2/3 (Gas FAF - Any)	25,596	3.8%	13	$2.65	$8.17

Draft Results

Washington Gas Energy Efficiency Potential

Commercial End Uses



Discussion / Findings

- Commercial savings primarily from reducing gas use for space heat; impactful measures include HRV, building shell improvements, and thermostats

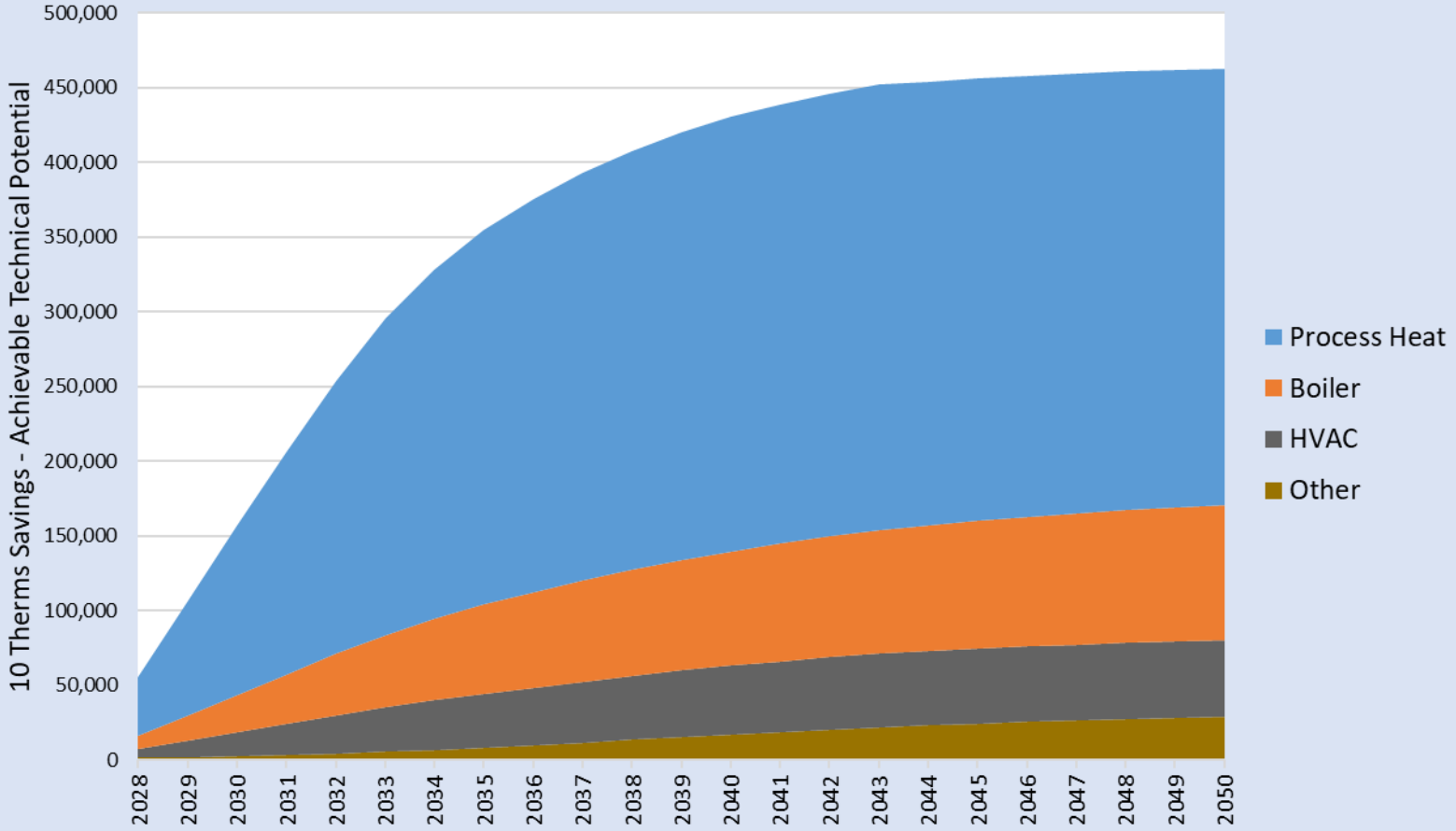
Washington Gas Efficiency Potential

Washington Top 10 Commercial Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative 10 Therms Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/10 Therms)	UCT Levelized Cost ($/10 Therms)
1	Roof Insulation R-30	25,907	11.3%	8	$1.23	$0.71
2	Wall Insulation R-19	25,713	11.2%	7	$12.38	$0.55
3	Tier 2 HRV Retrofit – WA *[Heat Recovery Ventilator]*	18,776	8.2%	11	$7.81	$0.55
4	Commercial-NR-Circ-DHW Recirculation	17,902	7.8%	14	$1.76	$0.71
5	Com-EM-University-Retro *[Energy Management]*	16,364	7.1%	12	$0.31	$0.86
6	Com-EM-Medium Off-Retro *[Energy Management]*	9,401	4.1%	15	$0.31	$0.71
7	ENERGY STAR v5.0 Tankless WH <= 55 GAL - UEF 0.95	7,768	3.4%	4	$0.31	$0.71
8	ConnectedThermostats-Warehouse	6,432	2.8%	20	$4.19	$0.63
9	ConnectedThermostats-Small Ret	6,202	2.7%	22	$3.40	$1.33
10	ENERGY STAR v5.0 Condensing WH <= 55 GAL - UEF 0.81	5,606	2.4%	16	$3.45	$1.33

Washington Gas Energy Efficiency Potential

Industrial End Uses



Discussion / Findings

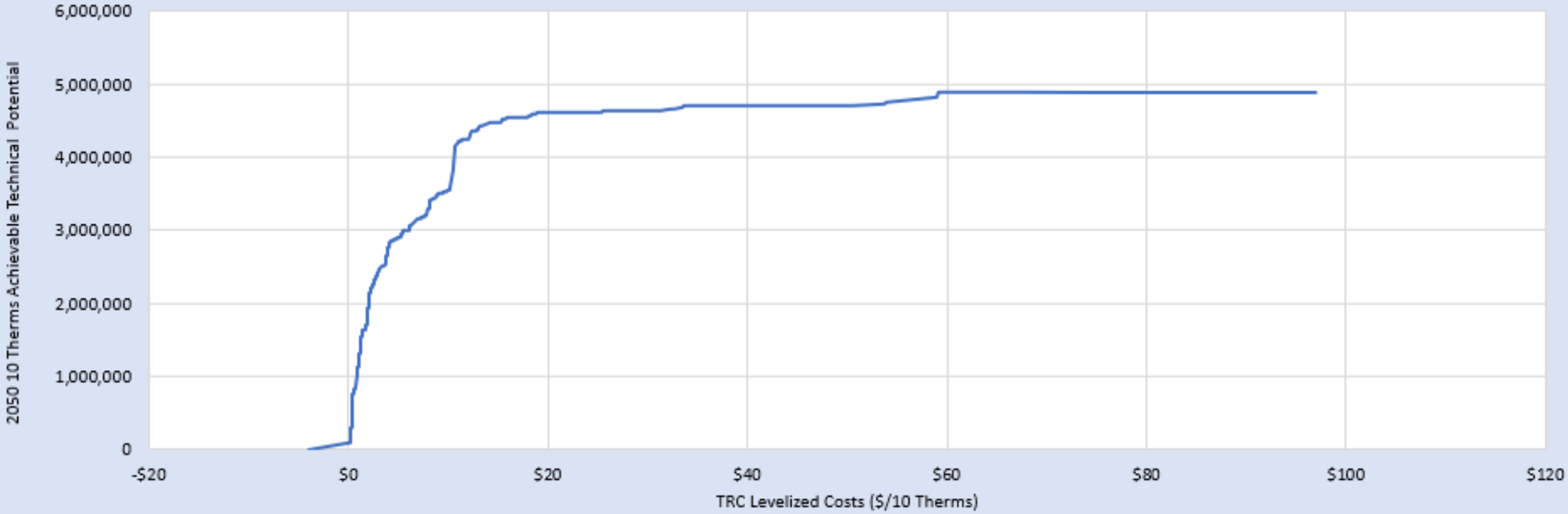
- Industrial savings potential primarily though process heat gas reduction and boiler upgrades

Washington Gas Efficiency Potential

Washington Top 10 Industrial Measures in 2029: 2 Year Technical Achievable Potential

2029 Rank	Measure / Technology	2029 Cumulative 10 Therms Savings	% of Total 2029 Savings	2050 Rank	TRC Levelized Cost ($/10 Therms)	UCT Levelized Cost ($/10 Therms)
1	Custom Controls (Gas)	21,976	20.6%	1	$0.25	$0.67
2	Heat Recovery	21,527	20.2%	2	$0.27	$0.58
3	Custom Process (Gas)	17,901	16.8%	3	$0.31	$0.59
4	SEM (Gas)	11,221	10.5%	4	$0.32	$0.57
5	Custom O&M	10,824	10.2%	5	$0.21	$0.57
6	Pipe Insulation	5,850	5.5%	8	$0.18	$0.51
7	Ceiling/Roof Insulation	5,131	4.8%	9	$0.27	$0.46
8	Process Insulation	3,445	3.2%	10	$0.21	$0.56
9	Advanced Wall Insulation	2,237	2.1%	12	$0.28	$0.46
10	Gas-fired HP Water Heater	1,812	1.7%	7	$0.84	$0.58

Washington Energy Efficiency Potential



Draft Results

Thank You

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