2027 Electric and Natural Gas Integrated Resource Plans

Technical Advisory Committee Meeting No. 13 Agenda

Monday, August 17, 2026

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

Topic	State	Audience
• Introduction and Questions from TAC 12		
• Oregon Non-Pipe Alternatives	OR	Gas
• Natural Gas Resource Needs	All	Gas
• Preferred Resource Strategy Results	All	Electric
• Scenario & Sensitivity Update	All	Electric
• IRP/Progress Report Outlines	All	Electric

Microsoft Teams meeting
Join: https://teams.microsoft.com/meet/246420606870292?p=xx4e9nws52f8rYhOU4
Meeting ID: 246 420 606 870 292
Passcode: Ex2ch2gL

Need help? | System reference
Dial in by phone
+1 509-931-1514,,526094725# United States, Spokane
Find a local number
Phone conference ID: 526 094 725#
For organizers: Meeting options | Reset dial-in PIN

Introductions 2027 Electric & Gas Integrated Resource Planning

TAC 13 – August 17, 2026

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

TAC 13 Agenda

- Introduction and Questions from TAC 12
  - Consideration of Inverter Based Resources for Grid Reliability – Grid Harmonics & Formation
  - Solar Involvement in Spanish Peninsula blackout
  - Process Update
- Oregon Non-Pipe Alternatives
- Natural Gas Resource Needs
- Preferred Resource Strategy Results
- Scenario & Sensitivity Update
- Electric IRP/Progress Report Outlines

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

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 Morrocco, total collapse

US Is Operated 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

Process Update

TAC 13 – August 17, 2026

James Gall, Manager of Resource Analysis

Modeling Methodology Changes

- Separating Gas and Electric capacity expansion modeling
  - Impacts Electrification Analysis only
- Electrification will be a resource option in the Gas model CROME as it was in the prior IRPs
  - Any selection will be included in the final Electric IRP modeling
  - Electrification scenarios will still be conducted as plan
- Gas planning results and scenarios will be presented later with additional TAC meetings schedule at the end of the year

Technical Modeling Workshop (TAC 11) – Monday, September 21, 2026 (13:00 – 15:30 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
CROME Model Tour	All	Gas

TAC 14 – Wednesday, September 30, 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 – 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 – TBD, October or November 2026		
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 – TBD if Needed		
Topic	**State**	**Audience**
TBD	TBD	TBD

Other Key 2027 IRP Dates

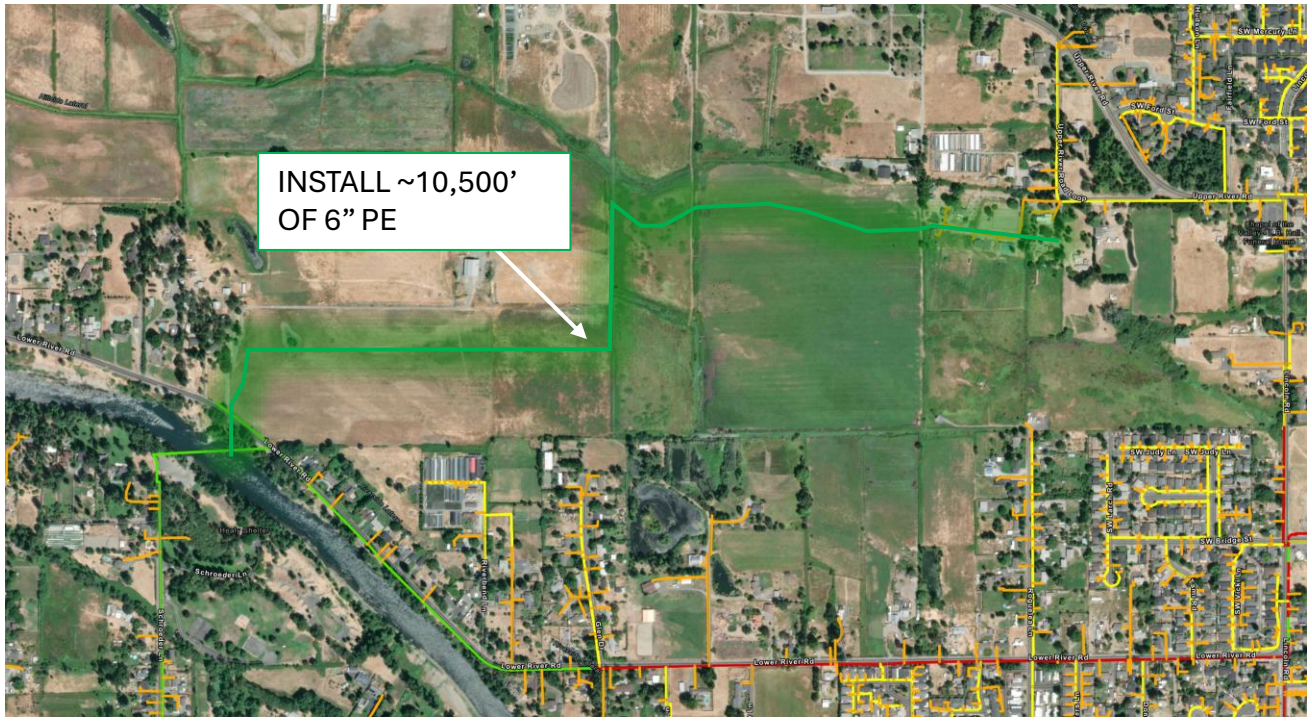
- Oct 15, 2026 – Draft Electric IRP Released to TAC
- Nov TBD 2026 – Virtual Public Meeting
  - Noon-1pm
  - 6-7pm
- Jan 1, 2027 – Final Electric IRP Filed
- Feb 15, 2027 – Draft Gas IRP Released to TAC
- Apr 1, 2027 – Final Gas IRP Filed

GRANTS PASS: 51 HDD (average daily temp14’ F)

GRANTS PASS

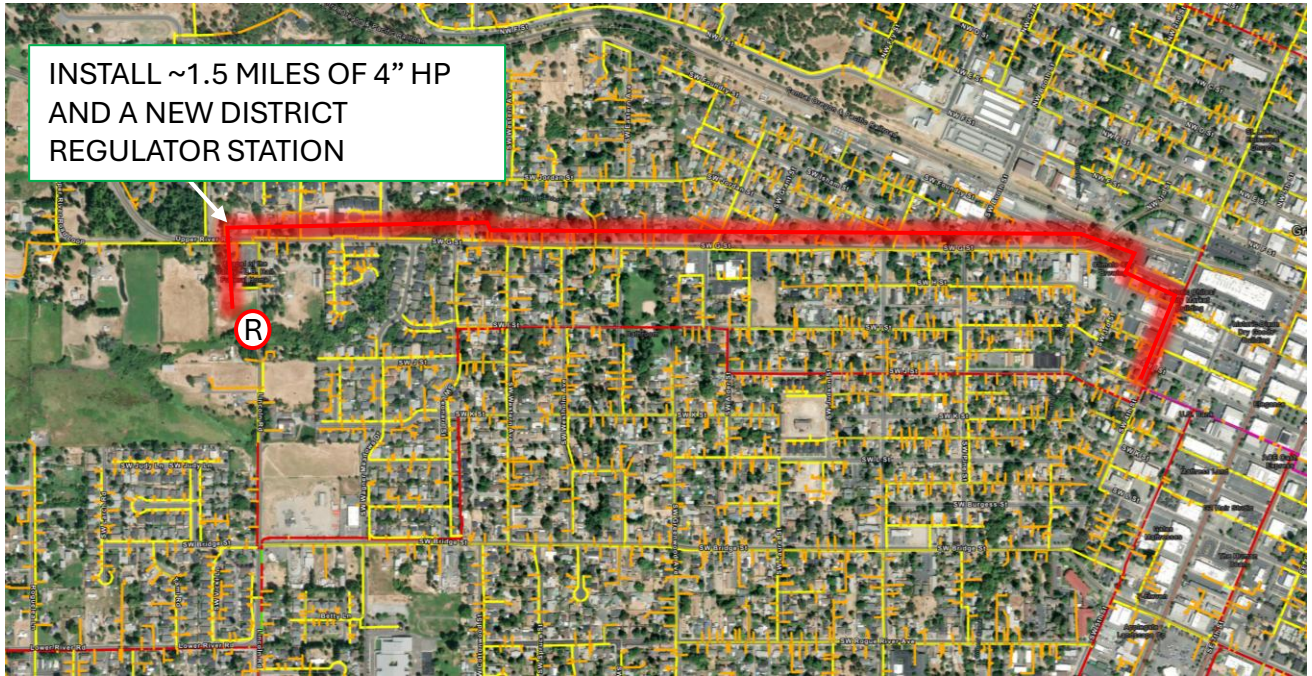
Reinforcement Option #1

- 2 miles of 6” PE and a river bore: $1-1.5 million

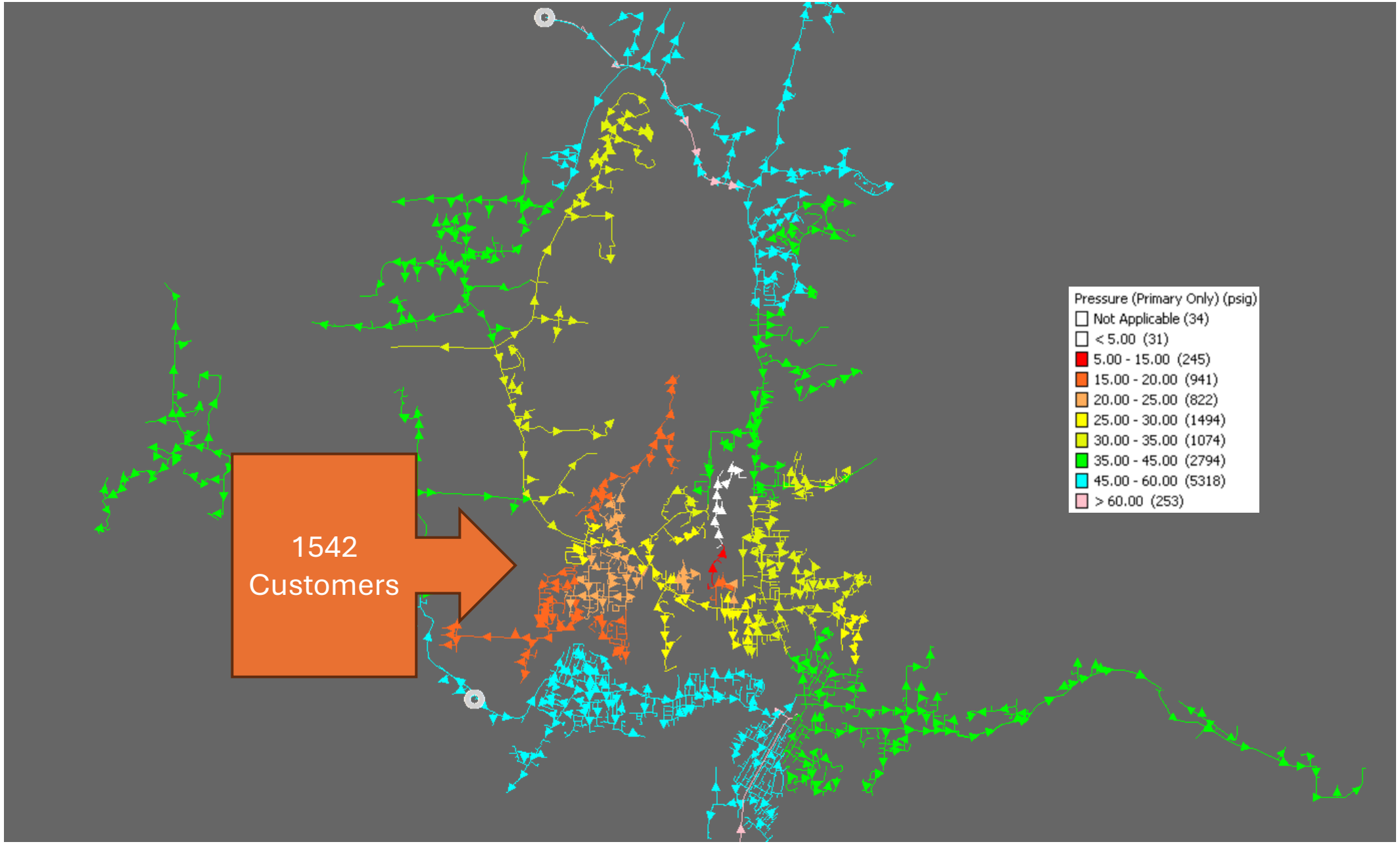


Reinforcement Option #2

- 1.5 miles of HP + Reg Station: $2-2.5 million



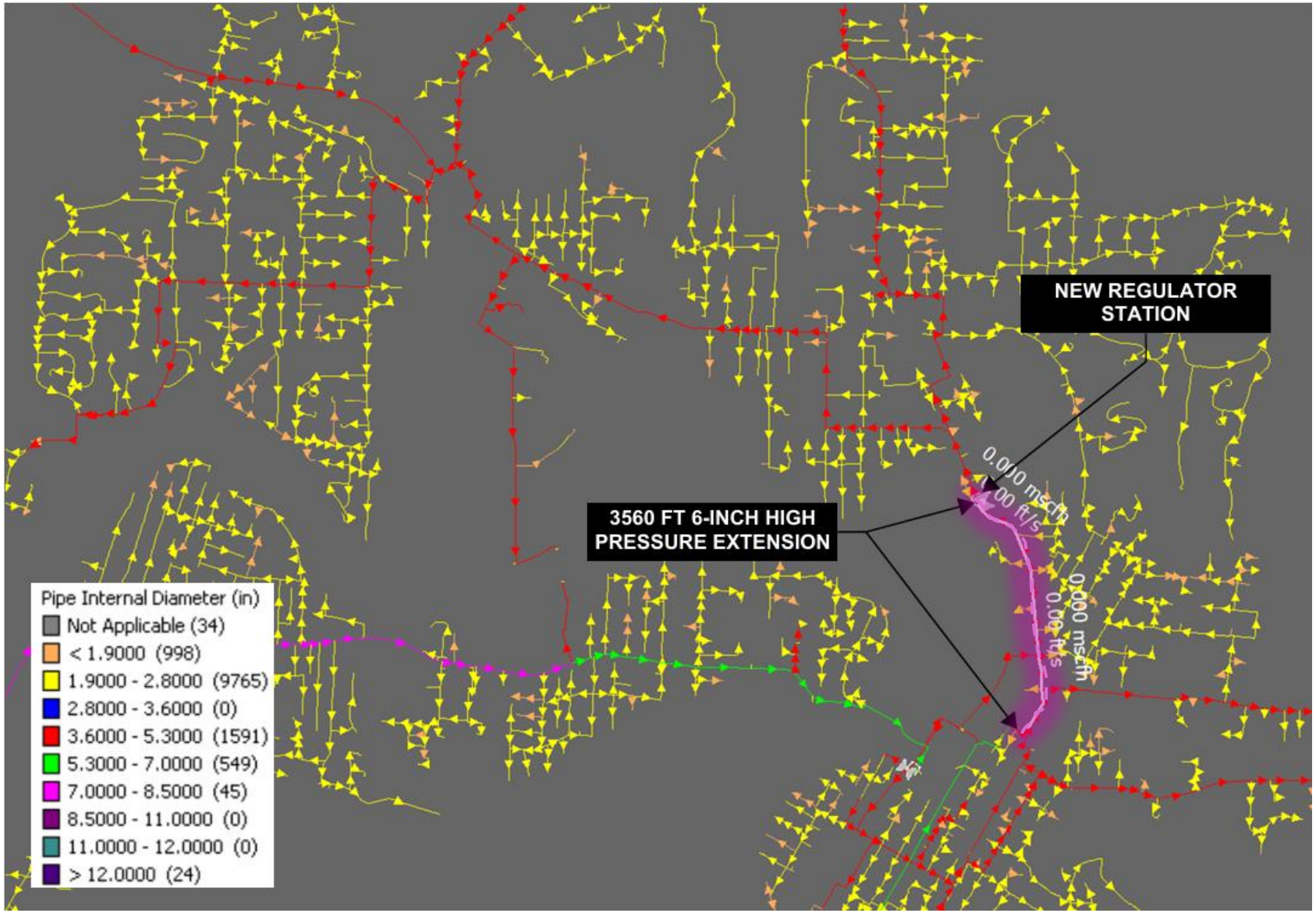
ROSEBURG: 47 HDD (average daily temp18’ F)



ROSEBURG

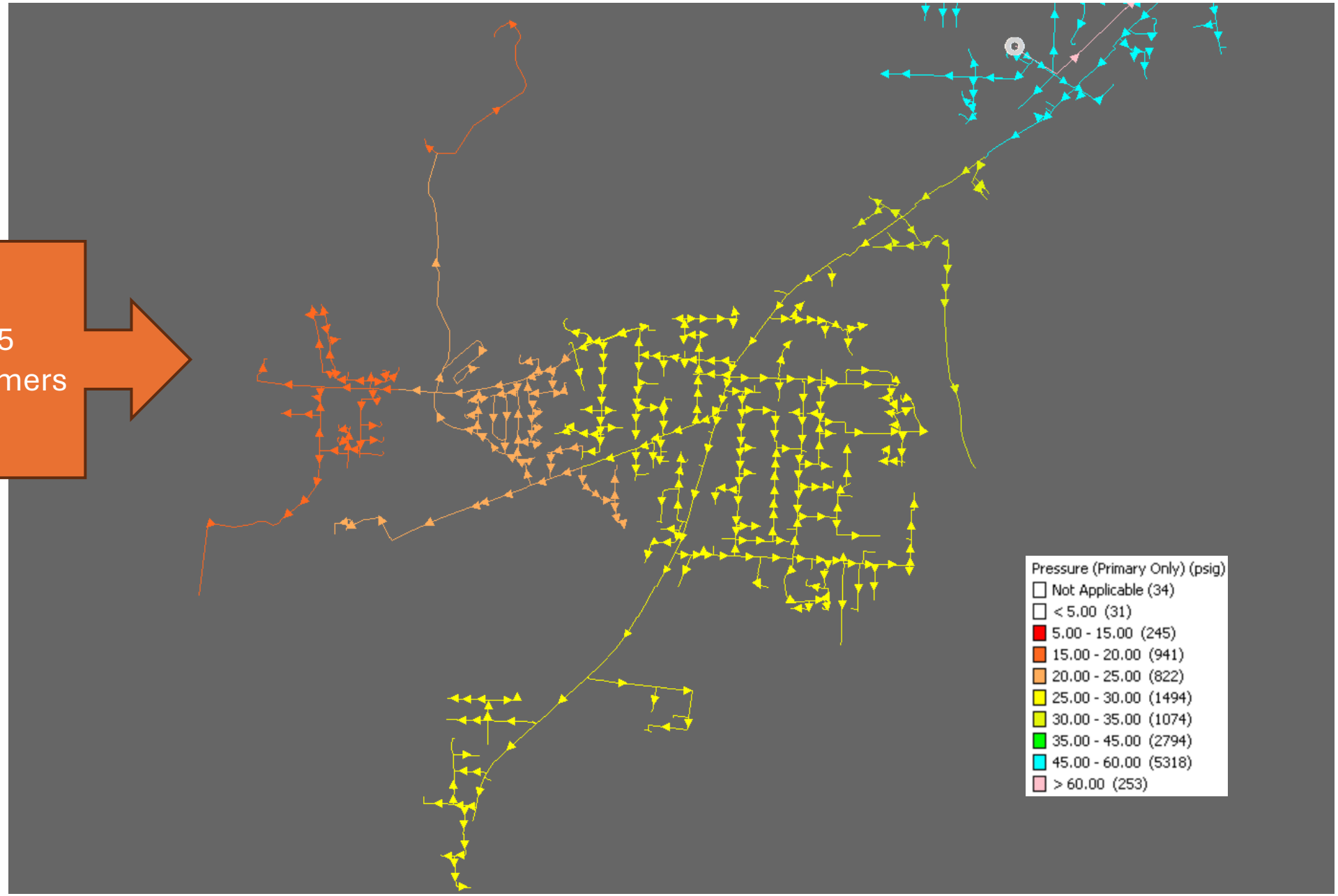
Reinforcement

- 3560 feet of HP + Reg Station: $1.2 million



WINSTON: 47 HDD (average daily temp18’ F)

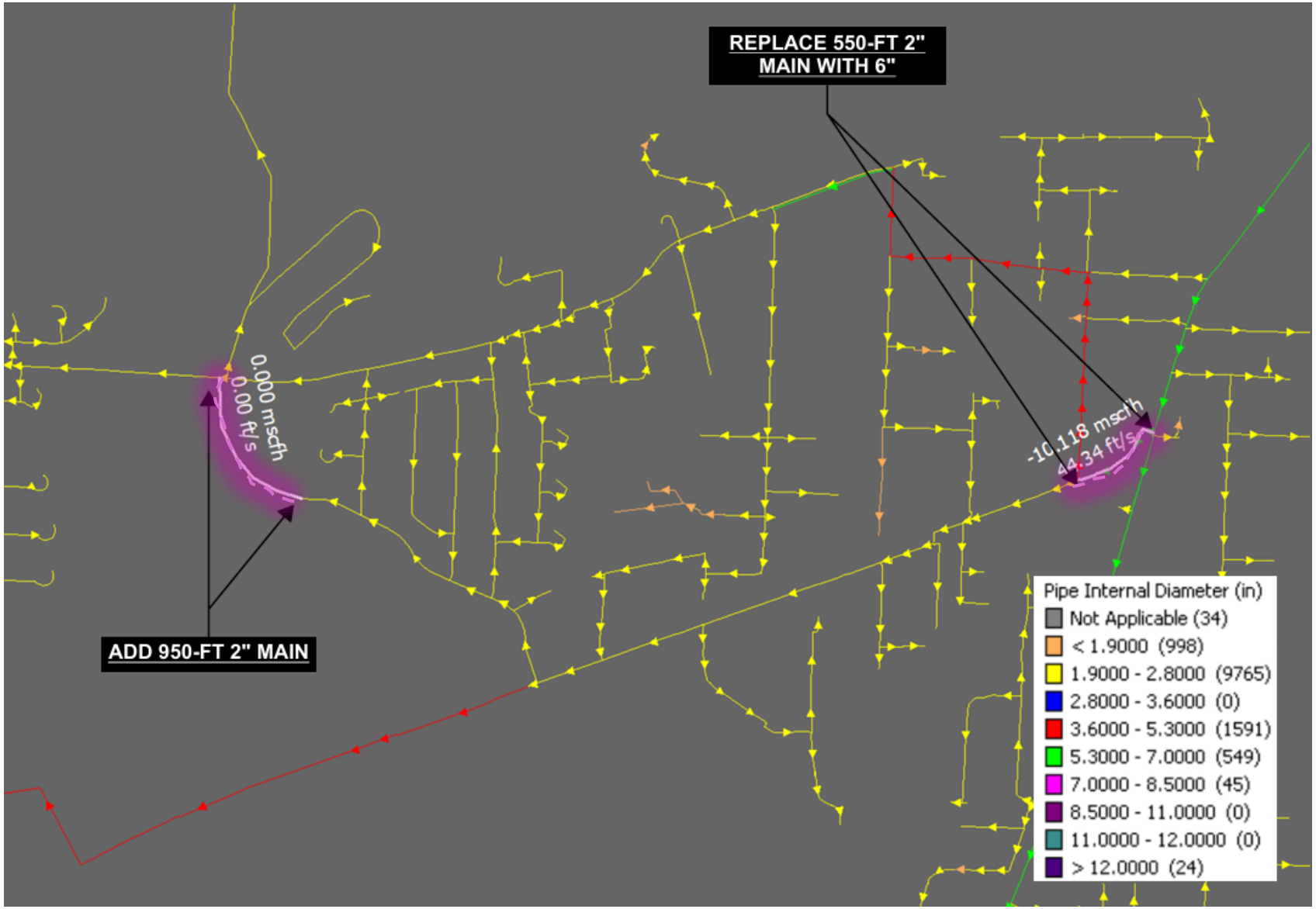
505 Customers



WINSTON

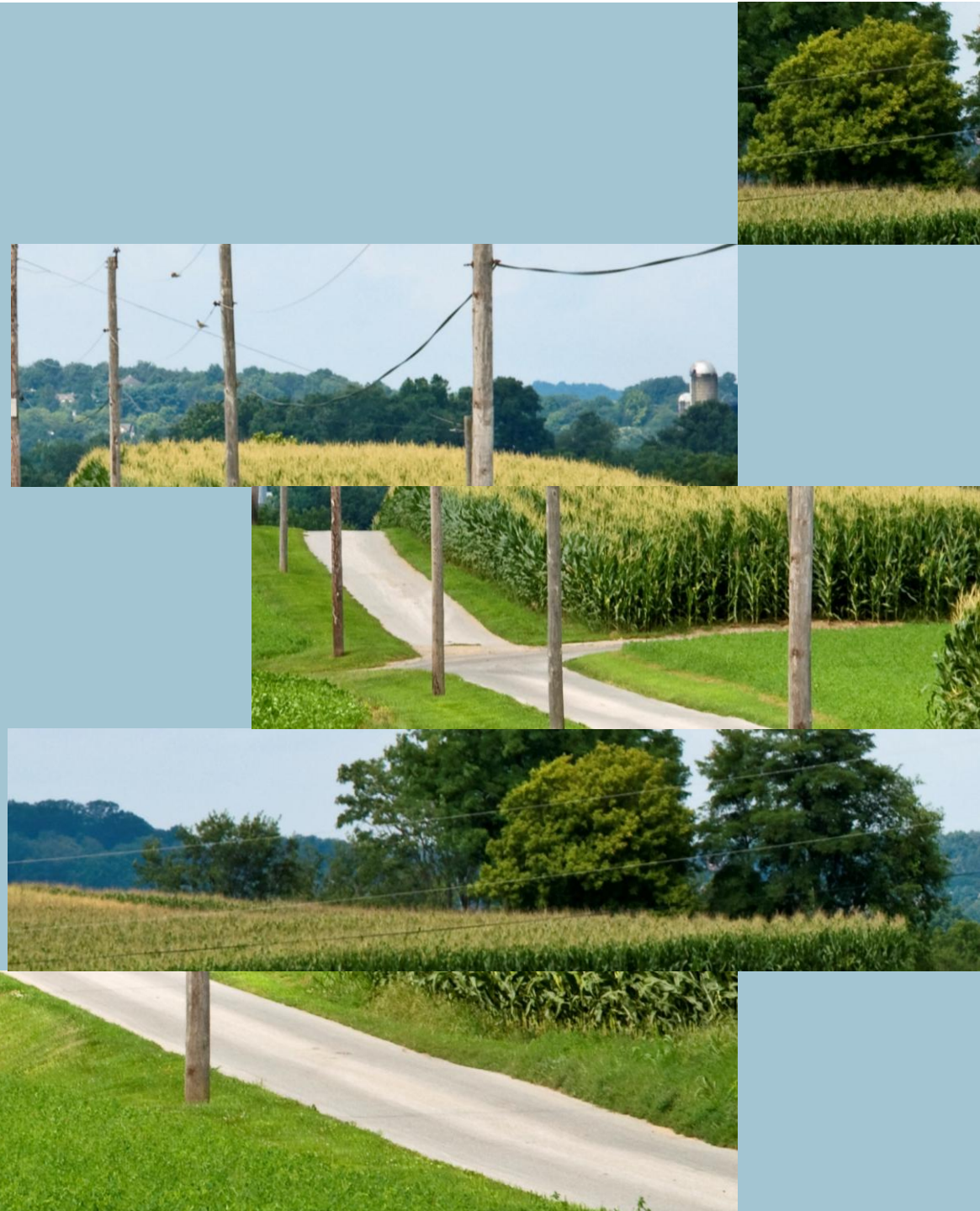
Reinforcement

- 1500 feet of intermediate pipe: $220 thousand



Avista Non-Pipeline Alternative Analysis

August 17, 2026



CADMUS

AVISTA

Agenda

Oregon Non-Pipeline Alternative Overview

Scenario Definitions

Cost Assumptions

Results

Non-Pipe Alternative (NPA) Overview

Three at-risk areas in Southern Oregon with future natural gas delivery constraints

Roseburg	*Customers*:	~1,500 at risk in 2031
	Constraint:	86 therms/hour 344 therms per 4-hr event
	Expansion cost:	$1.2M
Winston	*Customers*:	~500 at risk in 2034
	Constraint:	25.4 therms/hour 102 therms per 4-hr event
	Expansion cost:	$220K
Grants Pass	*Customers*:	~2,900 at risk in 2029
	Constraint:	145 therms/hour 580 therms per 4-hr event
	Expansion cost:	$1.75M

NPA Design

Develop gas demand reduction scenarios

Technologies: conservation, gas to electric, demand response

Peak Period: Winter 6 a.m. to 10 a.m.

NPA Approach

Area Selection Data	Building Stock Analysis	NPA Impact Characterization	NPA Cost Analysis
• Customer sales and counts • Peak distribution constraints • Reinforcement costs • Projected constraint timeline	• Segment and end-use load disaggregation • End-use space heating and water heating loads using CPA and customer sales data	• Retrofit savings calculations • End-use hourly load shape analysis • Peak hour identification • Assign adoption and ramp rates • Develop measure bundles	• Incentive and implementation costs • Lost revenue • Utility avoided costs • Assume early replacement for existing equipment

Scenario Analysis

NPA Scenarios

Baseline	Measure adoption ramp rates from gas energy efficiency study (Council ramp rates). Moderate electrification adoption assumptions and demand response program participation assumptions. Incentives = full installation cost
Accelerated	Increase the baseline scenario with faster Council ramp rates. Increase measure and program administrative costs to reflect higher costs to accelerate adoption
Maximum Electrification	Further accelerates adoption of measures to maximize impact in shortest time. Increased emphasis on electrification. Incentives = 1.25 * full installation cost. Admin costs = 3 * baseline

Scenarios Inputs

Increased share of electrification to 50% compared to other scenarios' 10%

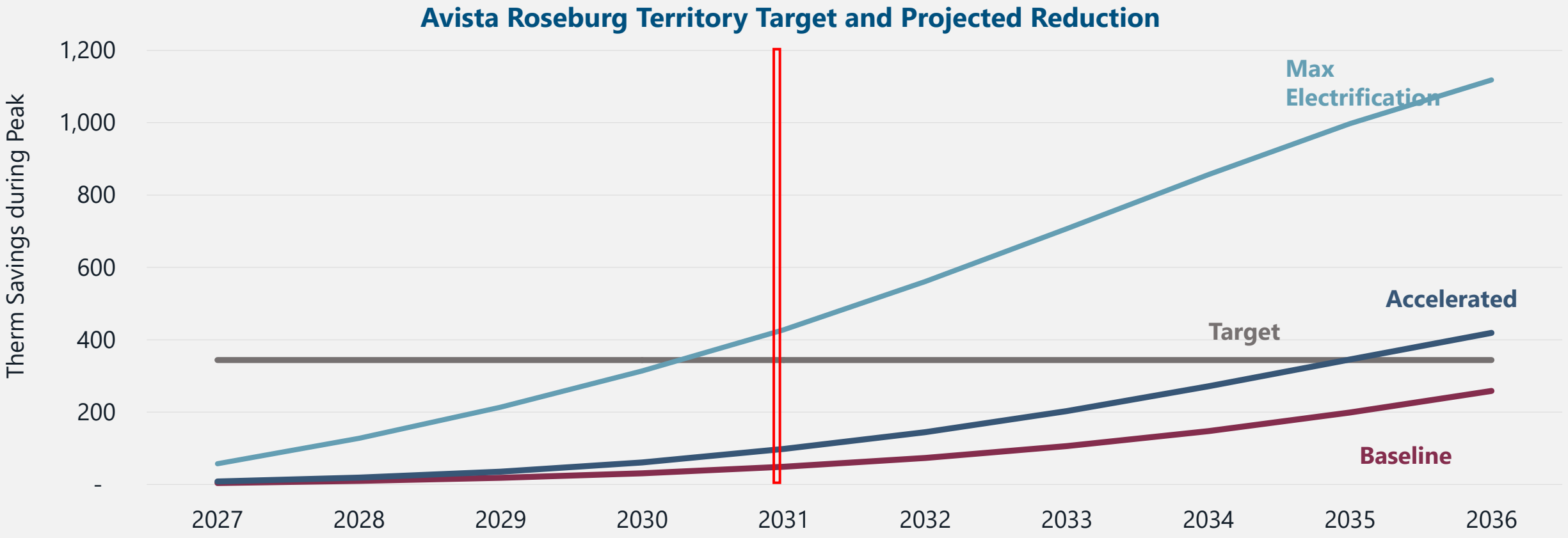
	Baseline	Accelerated	Max Electrification
Adoption Rate:	1Slow (slowest ramp rate)	3Slow (slightly accelerated ramp rate)	5Med (fast ramp rate)
Max Applicability:	85%	85%	85%
DR Ramp Rate:	10% per year	20% per year	Custom
DR Max Applicability:	18% (Res) 9.5% (Com)	18% (Res) 9.5% (Com)	18% (Res) 9.5% (Com)
Program Costs/ Admin Multiplier:	1	1.2	3
Incentive Cost Multiplier:	1	1.05	1.25

Cost Assumptions

Incentives	Incentives set at full measure installation costs. Demand response incentive estimates based on the Council Draft 9th Plan workbooks
Program/ Administration Costs	Program setup assumes 0.5 FTE per territory, per sector. O&M and marketing costs are assigned per participant (informed by Avista's 2023 Annual Conservation Report)
Avoided Utility Cost / Commodity Impacts	Net impacts of avoided utility costs. No electric utility costs applied. Decreased gas delivery cost at wholesale gas rate
Lost Revenue	Impacts of reduced gas sales (no electric sales impacts applied). Calculated annually using current Avista gas rates
Expansion Costs	Costs of alternate solution: reinforcement of existing gas distribution system

Results

Roseburg

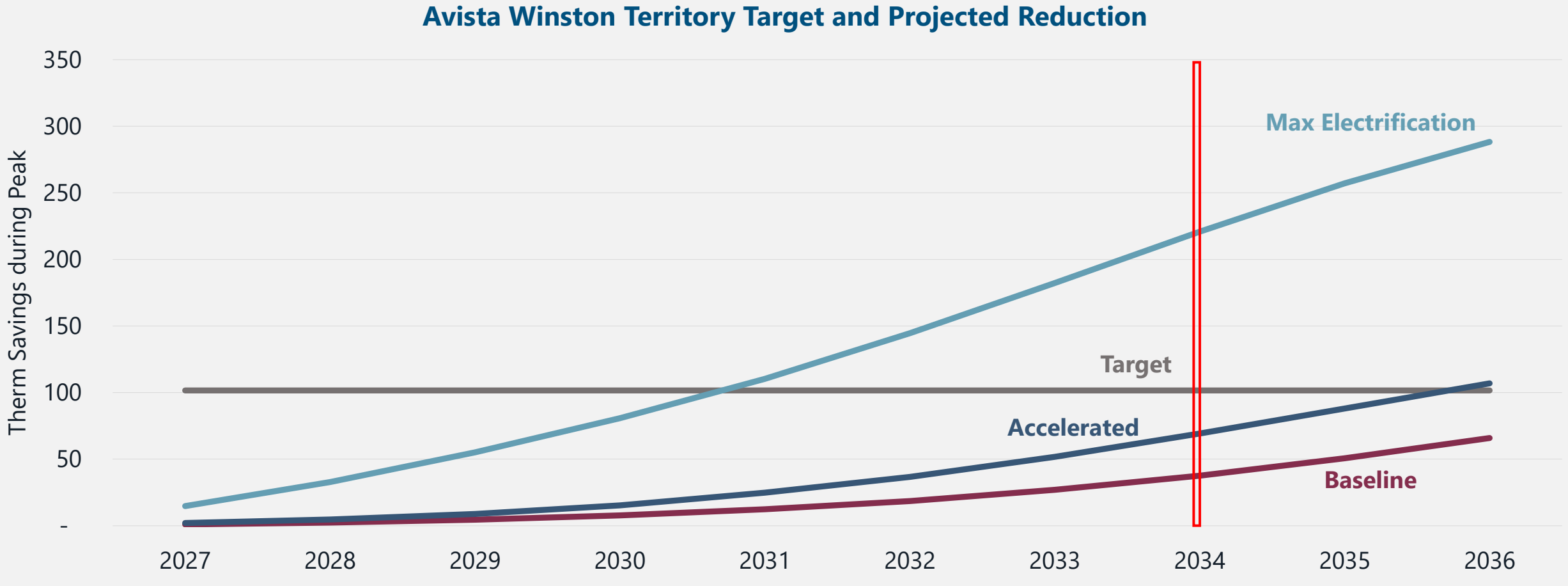

Avista Roseburg Territory Target and Projected Reduction
Therm Savings during Peak
1,200
1,000
800
600
400
200
-
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
Max Electrification
Accelerated
Target
Baseline

Roseburg

Target Year	2031
Target Period	Winter 6 a.m. to 10 a.m.
Target Therms (4-hour total)	344
Expansion Cost	$1.2M

Target Year Impacts	Baseline	Accelerated	Maximum Electrification
NPA Achievement	49	98	428
NPA Acquisition Cost	$743K	$1.4M	$7.6M
Net Commodity Impacts	$7K	$15K	$113K
Net Revenue Impacts	$21K	$42K	$321K

Winston


Avista Winston Territory Target and Projected Reduction
Therm Savings during Peak
350
300
250
200
150
100
50
-
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
Max Electrification
Target
Accelerated
Baseline

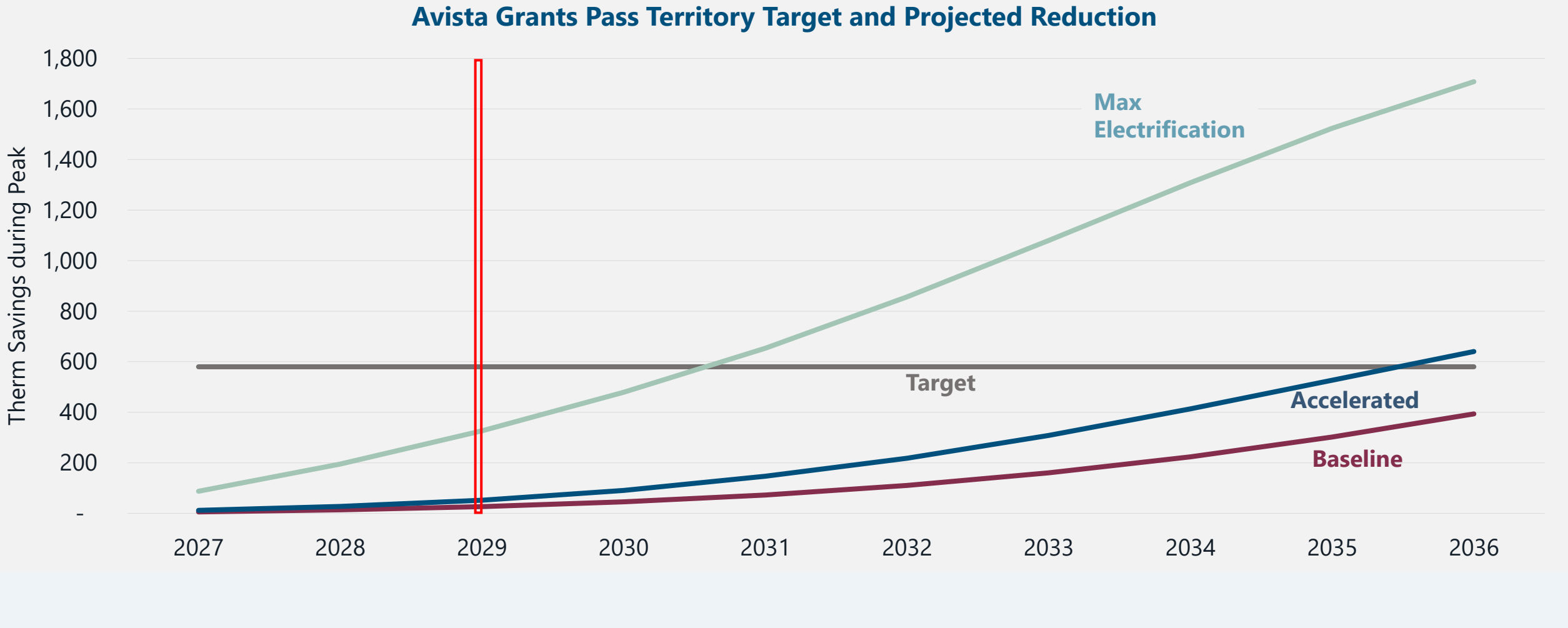
Winston

Target Year	2034
Target Period	Winter 6 a.m. to 10 a.m.
Target Therms (4-hour total)	102
Expansion Cost	$220K

Target Year Impacts	Baseline	Accelerated	Max Electrification*
NPA Achievement	38	69	221 (110)
NPA Acquisition Cost	$851K	$1.6M	$5.1M ($2.8)
Net Commodity Impacts	$7K	$14K	$61K ($28K)
Net Revenue Impacts*	$19K	$37K	$165K ($76K)

** Impacts and costs in year target achieved (2031)*

Grants Pass


Avista Grants Pass Territory Target and Projected Reduction
Therm Savings during Peak
1,800
1,600
1,400
1,200
1,000
800
600
400
200
-
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
Max Electrification
Target
Accelerated
Baseline

Grants Pass

Target Year	2029
Target Period	Winter 6 a.m. to 10 a.m.
Target Therms (4-hour total)	580
Expansion Cost	$1.75M

Target Year Impacts	Baseline	Accelerated	Max Electrification
NPA Achievement	27	52	326
NPA Acquisition Cost	$491K	$865K	$7.0M
Net Commodity Impacts	$2K	$4K	$52K
Net Revenue Impacts*	$6K	$11K	$149K

**Includes energy revenue only (does not include capacity)*

Thank You

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Appendix: Additional Slides

NPA Measures: **Residential**

#	Measure Bundle	Measures Included
1	**Space and water heating electrification** (no efficiency or load control)	• Space heating electrification (CCHP) • Water heating electrification (HPWH)
2	**Load control only** (no efficiency measures)	• Space heating direct load control (DR) • Water heating direct load control (DR)
3	**Load control plus weatherization** (full weatherization)	• Space heating direct load control (DR) • Water heating direct load control (DR) • Attic insulation (EE) • Floor insulation (EE, single family only) • Wall insulation (EE, multifamily only)
4	**Load control plus weatherization and furnace upgrade** (full weatherization and furnace upgrade)	• Space heating direct load control (DR) • Water heating direct load control (DR) • Attic insulation (EE) • Floor insulation (EE, single family only) • Wall insulation (EE, multifamily only) • High-efficiency furnace upgrade (EE)
5	**Full weatherization** (no load control)	• Attic insulation (EE) • Floor insulation (EE, single family only) • Wall insulation (EE, multifamily only)

NPA Measures: **Commercial**

#	Measure Bundle	Measures Included
6	**Space heating electrification**	• Replacement of furnaces, boilers or RTUs with CCHPs (electrification, buildings with furnaces or RTUs only) • Replacement of room heat with PTHPs (electrification, buildings with room heat only)
7	**Load control only** (no efficiency measures)	• Space heating direct load control (DR)
8	**Load control, weatherization, and furnace, boiler, or RTU upgrade**	• Space heating direct load control (DR) • Wall insulation • Roof insulation • High-efficiency furnace upgrade (buildings with furnaces only) • High-efficiency RTU upgrade (buildings with RTUs only) • High-efficiency boiler upgrade (buildings with boilers only)
9	**Weatherization** (no load control)	• Wall insulation • Roof insulation
10	**Full weatherization and equipment upgrade** (no load control)	• Wall insulation • Roof insulation • High-efficiency furnace upgrade (buildings with furnaces only) • High-efficiency RTU upgrade (buildings with RTUs only) • High-efficiency boiler upgrade (buildings with boilers only)

Building Counts and End-Use Consumptions

	Roseburg					
	Residential		Commercial			
	Single Family	Multi-family	Buildings with RTUs	Buildings with Furnaces	Buildings with Room Heat	Buildings with Boilers
# Buildings / Units with NG Space Heating	1,228	45	34	9	18	21
# Buildings / Units with NG Water Heating	971	48				
Average Annual NG Usage: Space Heating	426	133	2,117	1,891	1,325	2.115
Average Annual NG Usage: Water Heating	138	111				

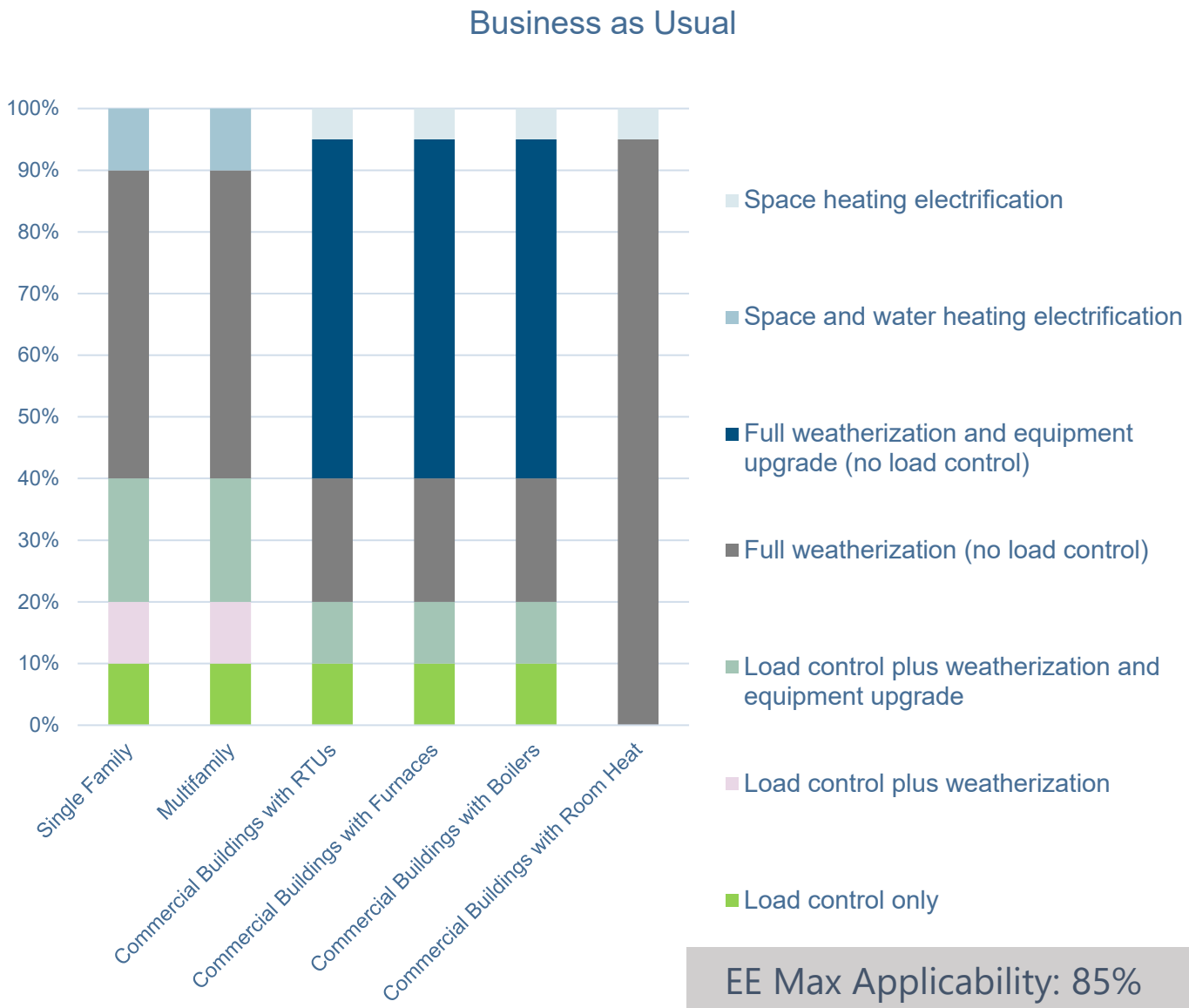
Building Counts and End-Use Consumptions

	Winston					
	Residential		Commercial			
	Single Family	Multi-family	Buildings with RTUs	Buildings with Furnaces	Buildings with Room Heat	Buildings with Boilers
# Buildings / Units with NG Space Heating	402	2	12	3	6	7
# Buildings / Units with NG Water Heating	317	1				
Average Annual NG Usage: Space Heating	333	172	2,575	2,435	1,706	2,724
Average Annual NG Usage: Water Heating	48	0				

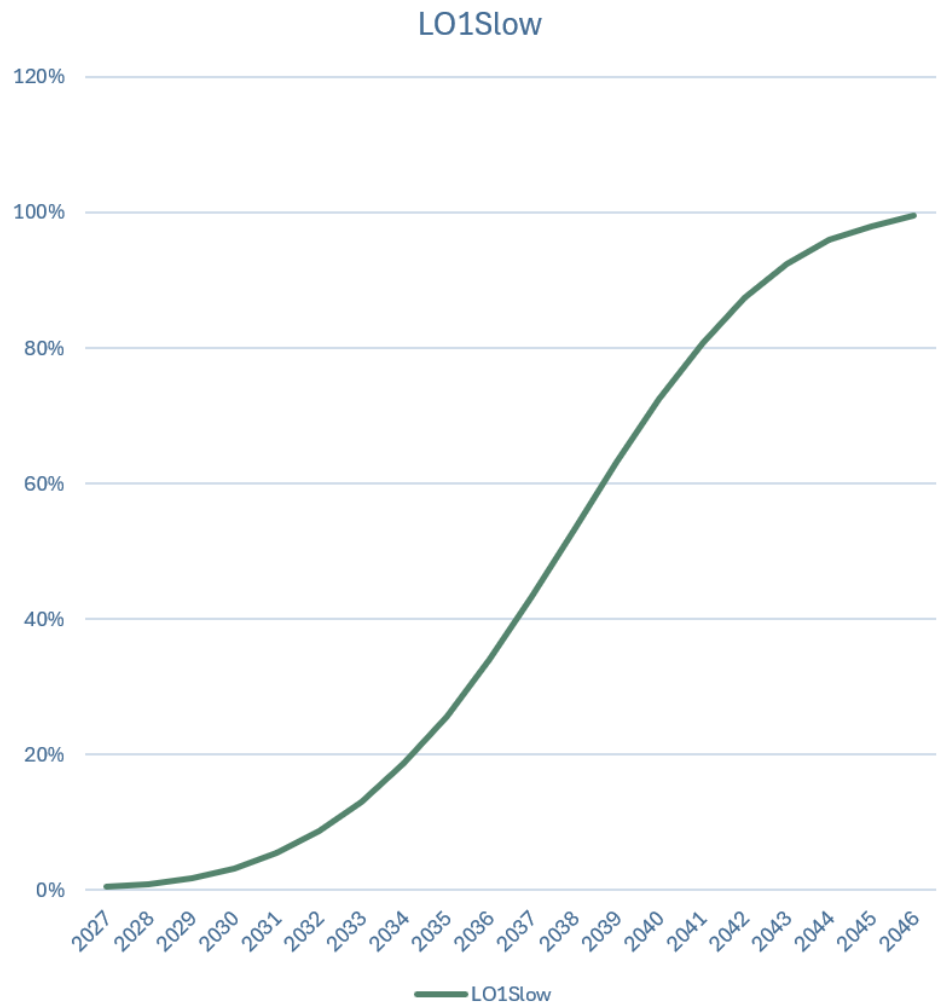
Building Counts and End-Use Consumptions

	Grants Pass					
	Residential		Commercial			
	Single Family	Multi-family	Buildings with RTUs	Buildings with Furnaces	Buildings with Room Heat	Buildings with Boilers
# Buildings / Units with NG Space Heating	2,315	112	48	12	25	30
# Buildings / Units with NG Water Heating	1,937	97				
Average Annual NG Usage: Space Heating	353	287	1,553	1,469	988	1,534
Average Annual NG Usage: Water Heating	44	32				

Bundle Share

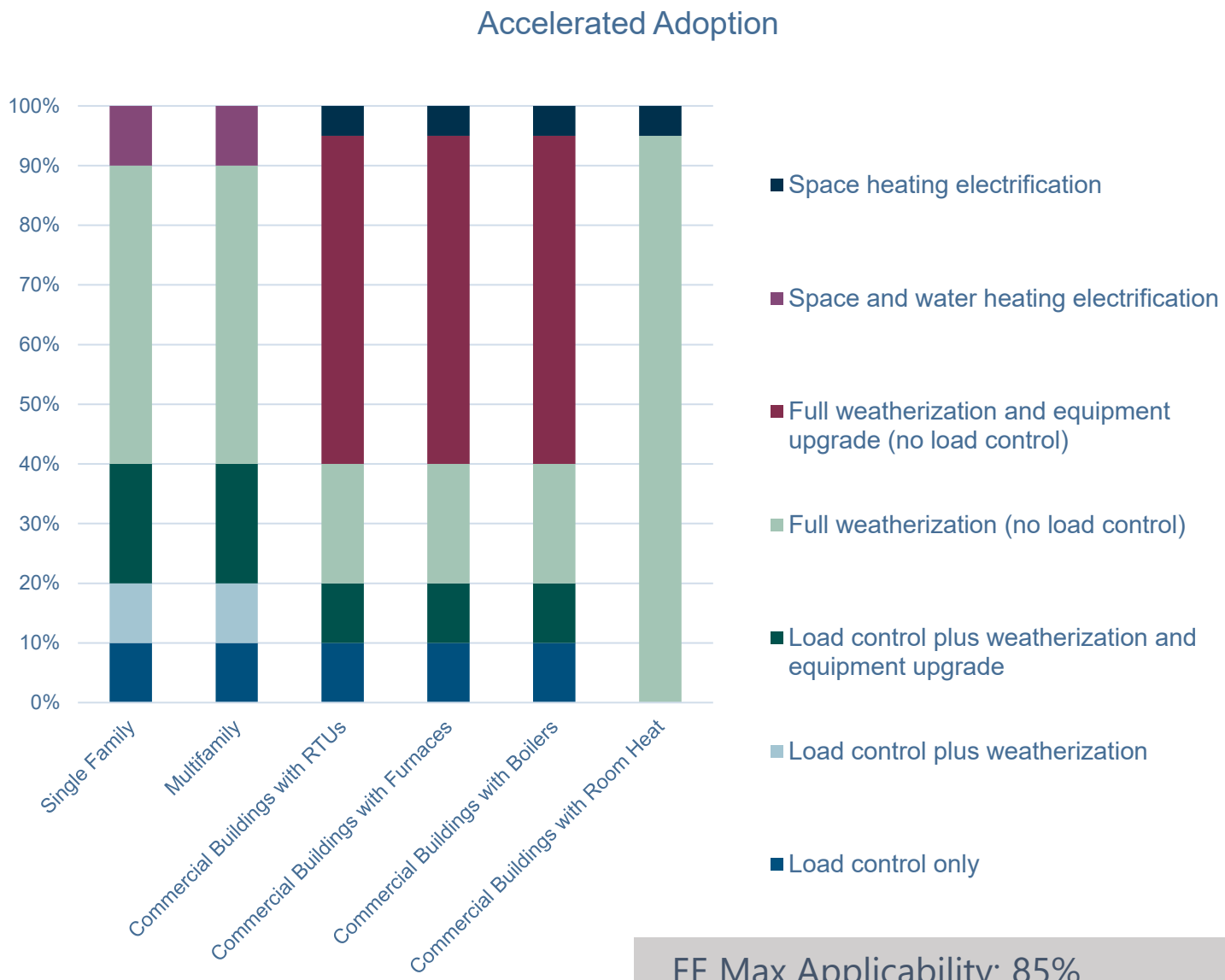


Ramp Rate



EE Max Applicability: 85%
DR Max Applicability: 9.5%-18%

Bundle Share



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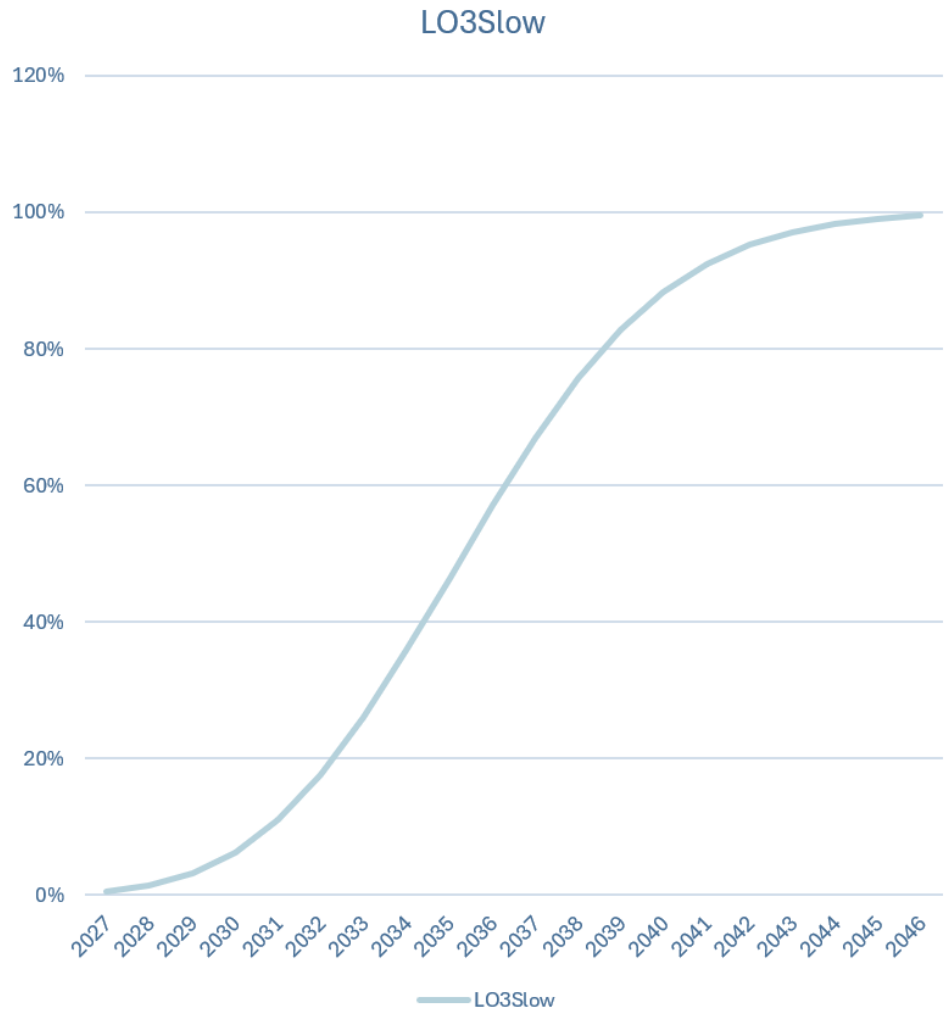

EE Max Applicability: 85%
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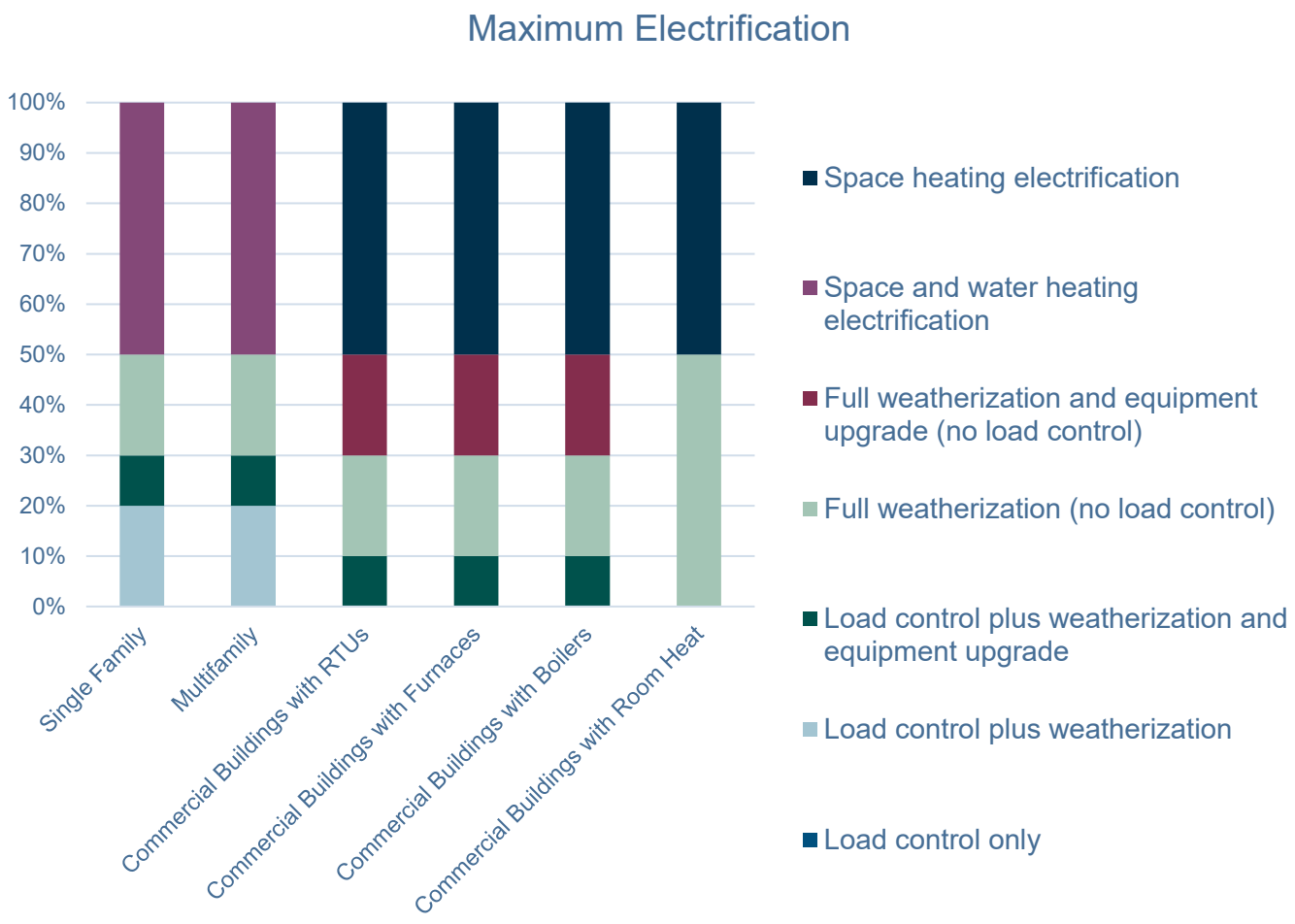
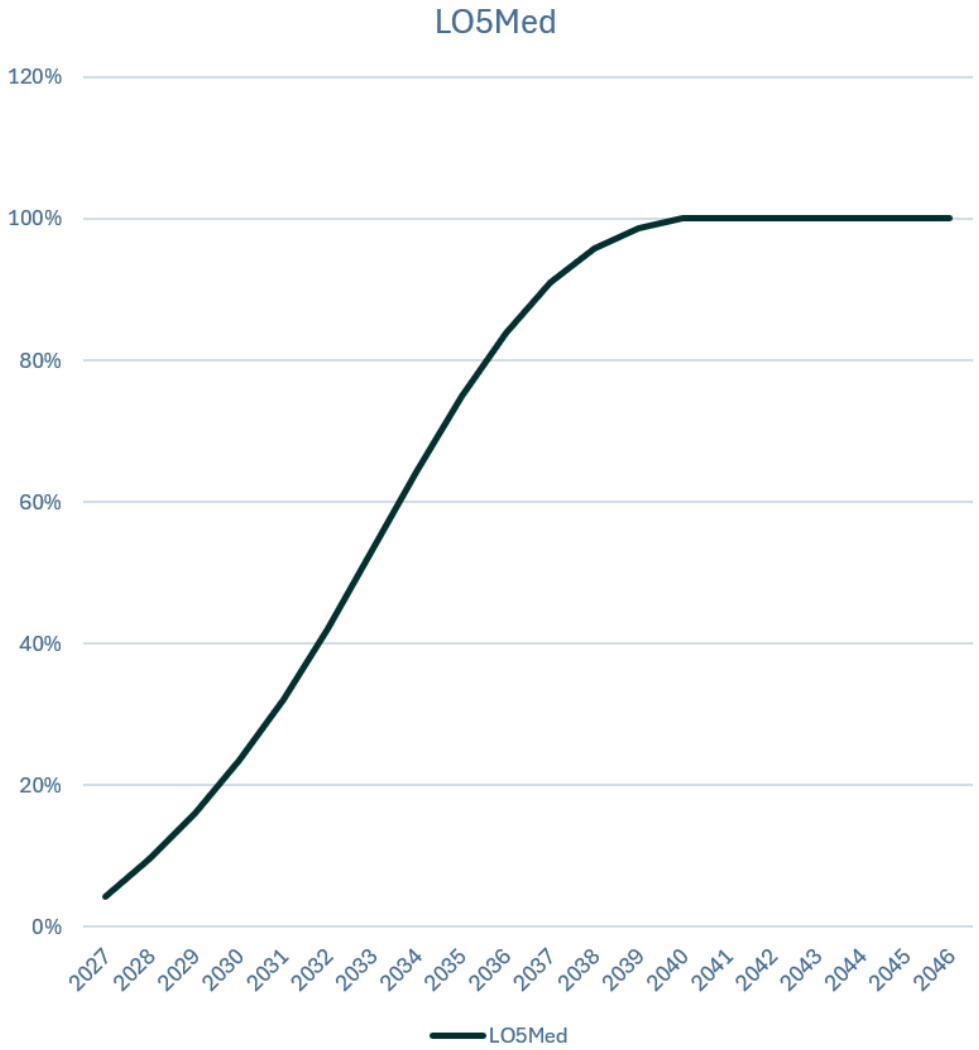
Bundle Share



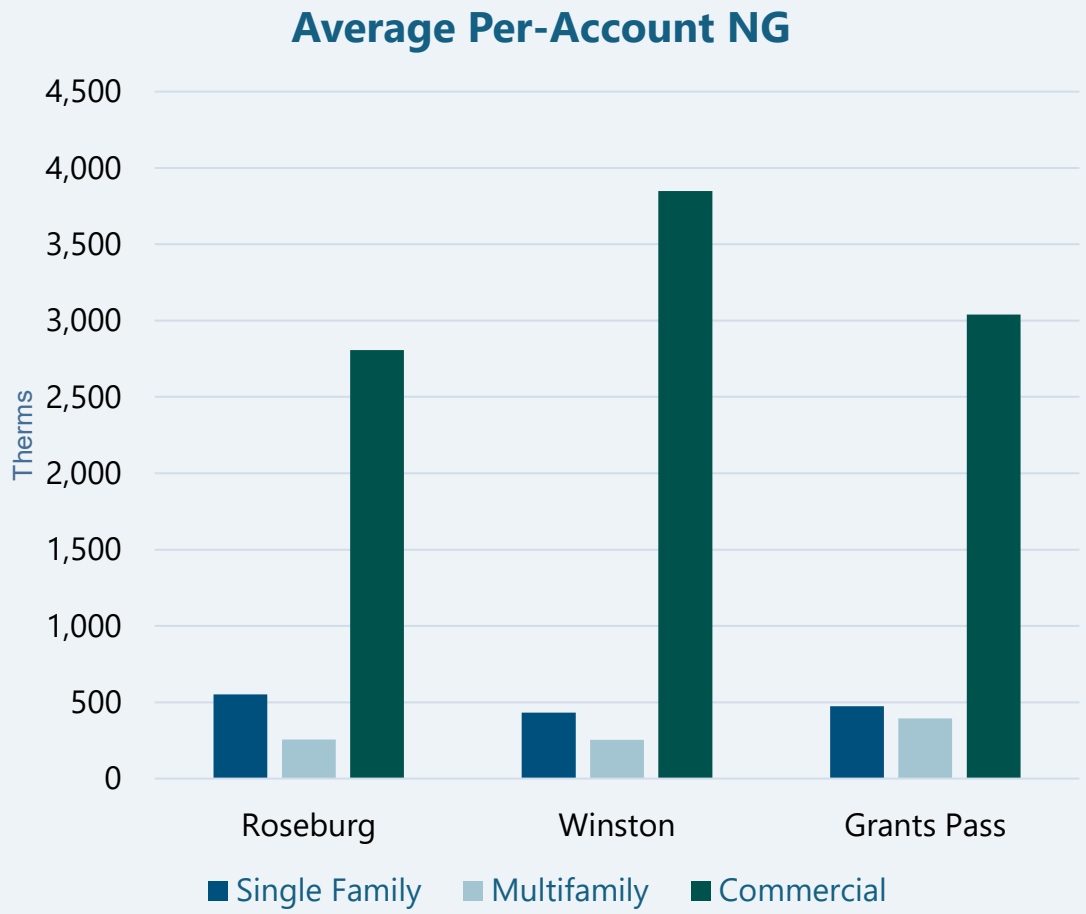
Ramp Rate

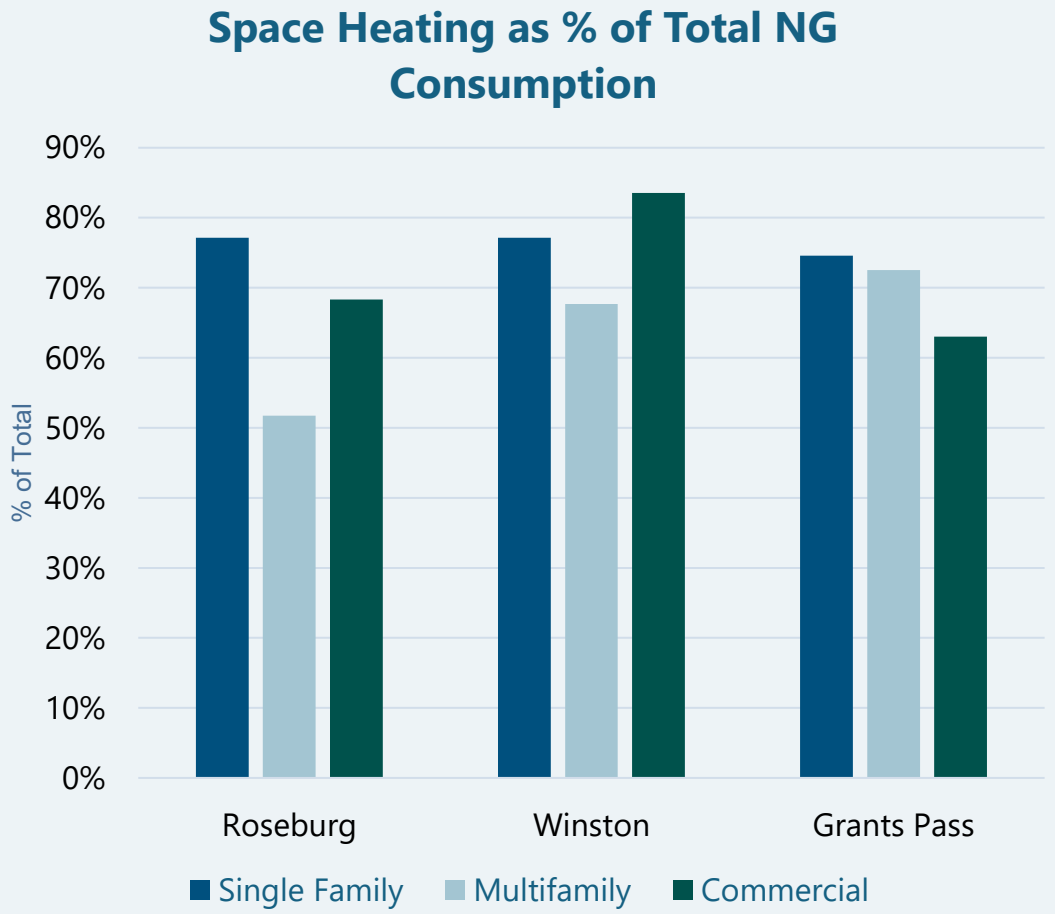


EE Max Applicability: 85%
DR Max Applicability: 9.5%-18%

Energy Use and End-Use Estimates

Resulting end-use consumption checked against total consumption by segment.





Demand Response Assumptions: **Benchmark Summary**

Benchmarked data show savings from load control setpoint adjustments (typically 3 to 4 degrees) over 4- to 6-hour winter morning event period starting at 6 a.m. or 7 a.m.

Residential savings are typically 0.1 to 0.7 therms/event; C&I savings are 100+ therms/event.

Residential DR Reference	Event Length	Therms Shift per Event
Con Edison 2021/22 Winter DLC	4-6 Hours	0.1-0.53 therms
Con Edison 2019 Gas-Fired WH DLC	4 Hours	0.24 therms
Xcel Energy 2024 Heat Savers pilot	4 Hours	0.74 therms
KEDNY/KEDLI and NMPC territories National Grid 2024/5 BYOT	3 Hours	0.44-0.51 therms
National Grid 2022/2023	4 Hours	0.29 therms
Washington Gas Pilot 2022/2023	3.5 Hours	0.36 therms
Consumers Energy 2021/2022	5 Hours	0.12 therms
SoCalGas 2018/19 Smart Therm	4 Hours	0.03 therms

Measure Detail Assumptions: Residential

Measure	End Use	Building Type	NG Efficiency Gain	Baseline Equipment	Baseline Consumption – Roseburg (therms)	Baseline Consumption – Winston (therms)	Baseline Consumption – Grants Pass (therms)
Load control only (no efficiency measures)	GasHeat - Heat Gas FAF	Single Family	n/a	Federal Standard 2016 Furnace - 80% AFUE	552	432	473
	GasWater Heat GT 50 Gal NG	Single Family	n/a	Standard 2015 and 2030 Condensing WH > 55 GAL - UEF 0.77	138	48	44
	GasHeat - Heat Gas FAF	Multifamily	n/a	Federal Standard 2016 Furnace - 80% AFUE	256	253	395
	GasWater Heat GT LE 50 Gal NG	Multifamily	n/a	Standard 2015 Storage WH ≤ 55 GAL - UEF 0.58	111	-	32
Load control plus weatherization (full weatherization)	GasHeat - Heat Gas FAF	Single Family	17%	Federal Standard 2016 Furnace - 80% AFUE	552	432	473
	GasWater Heat GT 50 Gal NG	Single Family	0%	Standard 2015 and 2030 Condensing WH > 55 GAL - UEF 0.77	138	48	44
	GasHeat - Heat Gas FAF	Multifamily	22%	Federal Standard 2016 Furnace - 80% AFUE	256	253	395
	GasWater Heat GT LE 50 Gal NG	Multifamily	0%	Standard 2015 Storage WH ≤ 55 GAL - UEF 0.58	111	-	32
Load control plus weatherization and furnace upgrade (full weatherization and furnace upgrade) - Space Heating	GasHeat - Heat Gas FAF	Single Family	26%	Federal Standard 2016 Furnace - 80% AFUE	552	432	473
	GasWater Heat GT 50 Gal NG	Single Family	0%	Standard 2015 and 2030 Condensing WH > 55 GAL - UEF 0.77	138	48	44
	GasHeat - Heat Gas FAF	Multifamily	31%	Federal Standard 2016 Furnace - 80% AFUE	256	253	395
	GasWater Heat GT LE 50 Gal NG	Multifamily	0%	Standard 2015 Storage WH ≤ 55 GAL - UEF 0.58	111	-	32
Space and water heating electrification (no efficiency or load control) - Space Heating	GasHeat - Heat Gas FAF	Single Family	n/a (100%)	Federal Standard 2016 Furnace - 80% AFUE	552	432	473
	GasWater Heat GT 50 Gal NG	Single Family	n/a (100%)	Standard 2015 and 2030 Condensing WH > 55 GAL - UEF 0.77	138	48	44
	GasHeat - Heat Gas FAF	Multifamily	n/a (100%)	Federal Standard 2016 Furnace - 80% AFUE	256	253	395
	GasWater Heat GT LE 50 Gal NG	Multifamily	n/a (100%)	Standard 2015 Storage WH ≤ 55 GAL - UEF 0.58	111	-	32
Full weatherization (no load control)	GasHeat - Heat Gas FAF	Single Family	17%	Federal Standard 2016 Furnace - 80% AFUE	552	432	473
	GasHeat - Heat Gas FAF	Multifamily	22%	Federal Standard 2016 Furnace - 80% AFUE	256	253	395

Measure Detail Assumptions: Commercial

Measure	End Use	Building Type	NG Efficiency Gain	Baseline Equipment	Baseline Consumption – Roseburg (therms)	Baseline Consumption – Winston (therms)	Baseline Consumption – Grants Pass (therms)
Load control only (no efficiency measures)	Heat - Gas FAF	Commercial	n/a	Federal Standard 2016 Furnace - 80% AFUE	2,115	2,435	1,469
	Heat - Gas RTU	Commercial	n/a	Conventional Packaged Rooftop Unit - Et = 75%	1,891	2,575	1,553
	Heat - Gas Boiler	Commercial	n/a	Boiler < 300 kBtuh: 2022 Standard 84% AFUE	2,117	2,724	1,534
Load control weatherization, and furnace, boiler, or RTU upgrade	Heat - Gas FAF	Commercial	28.0%	Federal Standard 2016 Furnace - 80% AFUE	2,115	2,435	1,469
	Heat - Gas RTU	Commercial	28.8%	Conventional Packaged Rooftop Unit - Et = 75%	1,891	2,575	1,553
	Heat – Gas Boiler	Commercial	22.8%	Boiler < 300 kBtuh: 2022 Standard 84% AFUE	2,117	2,724	1,534
Weatherization (no load control)	Heat - Gas FAF	Commercial	14.5%	Federal Standard 2016 Furnace - 80% AFUE	2,115	2,435	1,469
	Heat - Gas RTU	Commercial	14.5%	Conventional Packaged Rooftop Unit - Et = 75%	1,891	2,575	1,553
	Heat – Gas Boiler	Commercial	14.5%	Boiler < 300 kBtuh: 2022 Standard 84% AFUE	2,117	2,724	1,534
Full weatherization and equipment upgrade (no load control)	Heat - Gas FAF	Commercial	28.0%	Federal Standard 2016 Furnace - 80% AFUE	2,115	2,435	1,469
	Heat - Gas RTU	Commercial	28.8%	Conventional Packaged Rooftop Unit - Et = 75%	1,891	2,575	1,553
	Heat – Gas Boiler	Commercial	22.8%	Boiler < 300 kBtuh: 2022 Standard 84% AFUE	2,117	2,724	1,534
Space heating electrification	Heat - Gas FAF	Commercial	n/a (100%)	Federal Standard 2016 Furnace - 80% AFUE	2,115	2,435	1,469
	Heat - Gas RTU	Commercial	n/a (100%)	Conventional Packaged Rooftop Unit - Et = 75%	1,891	2,575	1,553
	Heat – Gas Boiler	Commercial	n/a (100%)	Boiler < 300 kBtuh: 2022 Standard 84% AFUE	2,117	2,724	1,534

Efficiency and Electrification Measure Assumptions

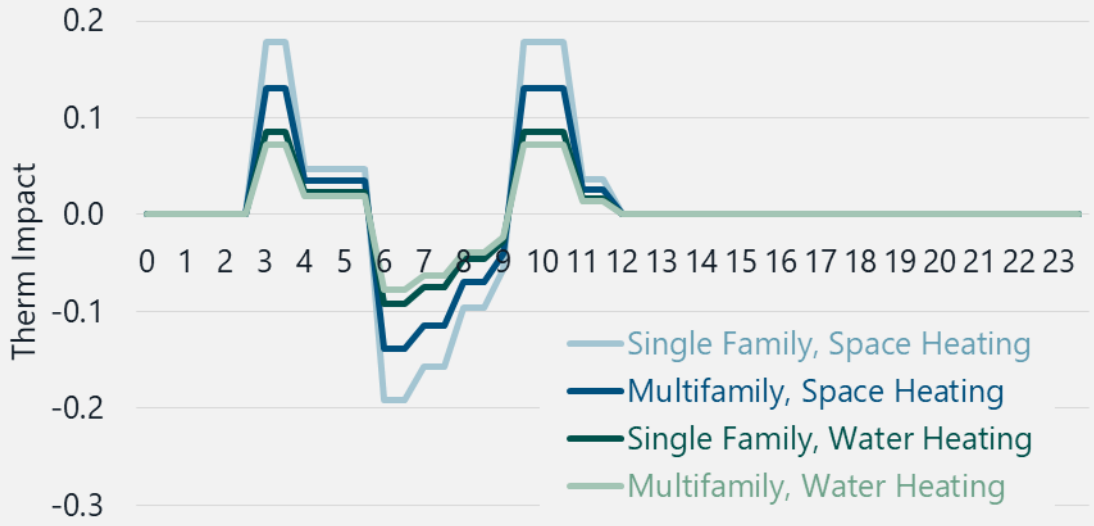
Measure Bundle	Efficiency Improvement for End-Use	Cost
Residential		
Space and water heating electrification	100% removal of gas end-use consumption (electric backup)	Space heating: $2,300-$18,700 Water heating: $2,300
Weatherization	17%-22%	$2,500-$5,400
Weatherization and furnace upgrade	26%-31%	$5,500-$9,700
Commercial		
Space heating electrification	100% removal of gas end-use consumption (electric backup)	$25,000-$143,000
Weatherization	14%	$29,000
Weatherization and space heating equipment upgrade	26%-28%	$32,000-$59,000

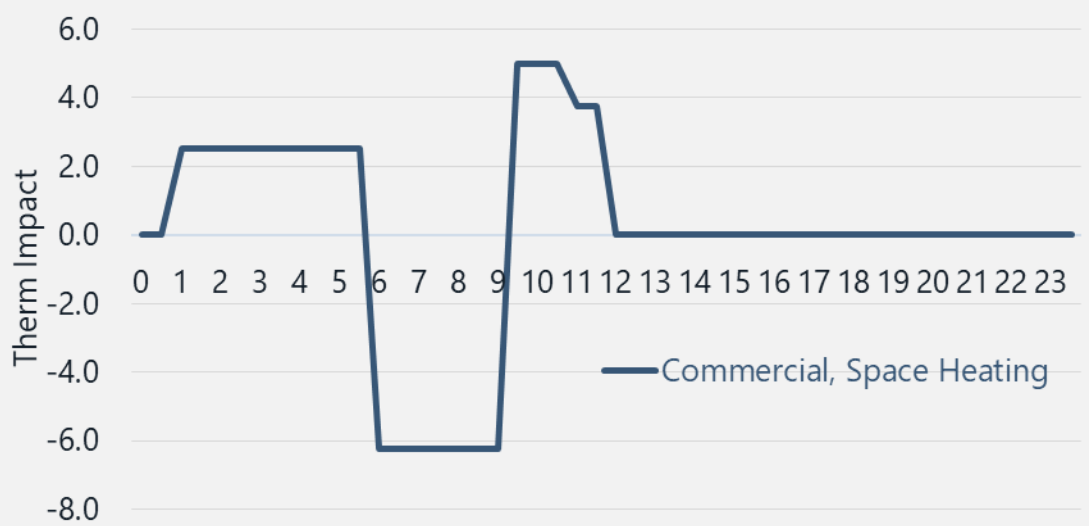
Demand Response Assumptions

	Space Heating			Water Heating	
	Single Family	Multifamily	Commercial	Single Family	Multifamily
Total Impact (therms/event)*	0.5	0.4	25	0.24	0.20
Event Hours	6 a.m. to 10 a.m.				

* The event is applied and then refined to avoid (1) event shift that exceeds end use demand in event hours and (2) negatives in any single hour's total end-use consumption.

Model assumes zero net savings.





Loads & Resources Methodology – Natural Gas

TAC 13 – August 17, 2026

Jon Lee, Resource Planning Analyst

Key Topics

- Overview of the major pipelines serving Avista's natural gas service territory
- Main natural gas loads and resources planning assumptions
  - Regional weather variations and load breakdown by firm and interruptible
  - Peak day planning
  - Pipeline transportation contracts and expiration dates
- Regional/System winter peak day position from 2028-2050
- Annual natural gas load and emissions forecast
  - CCA and CPP compliance

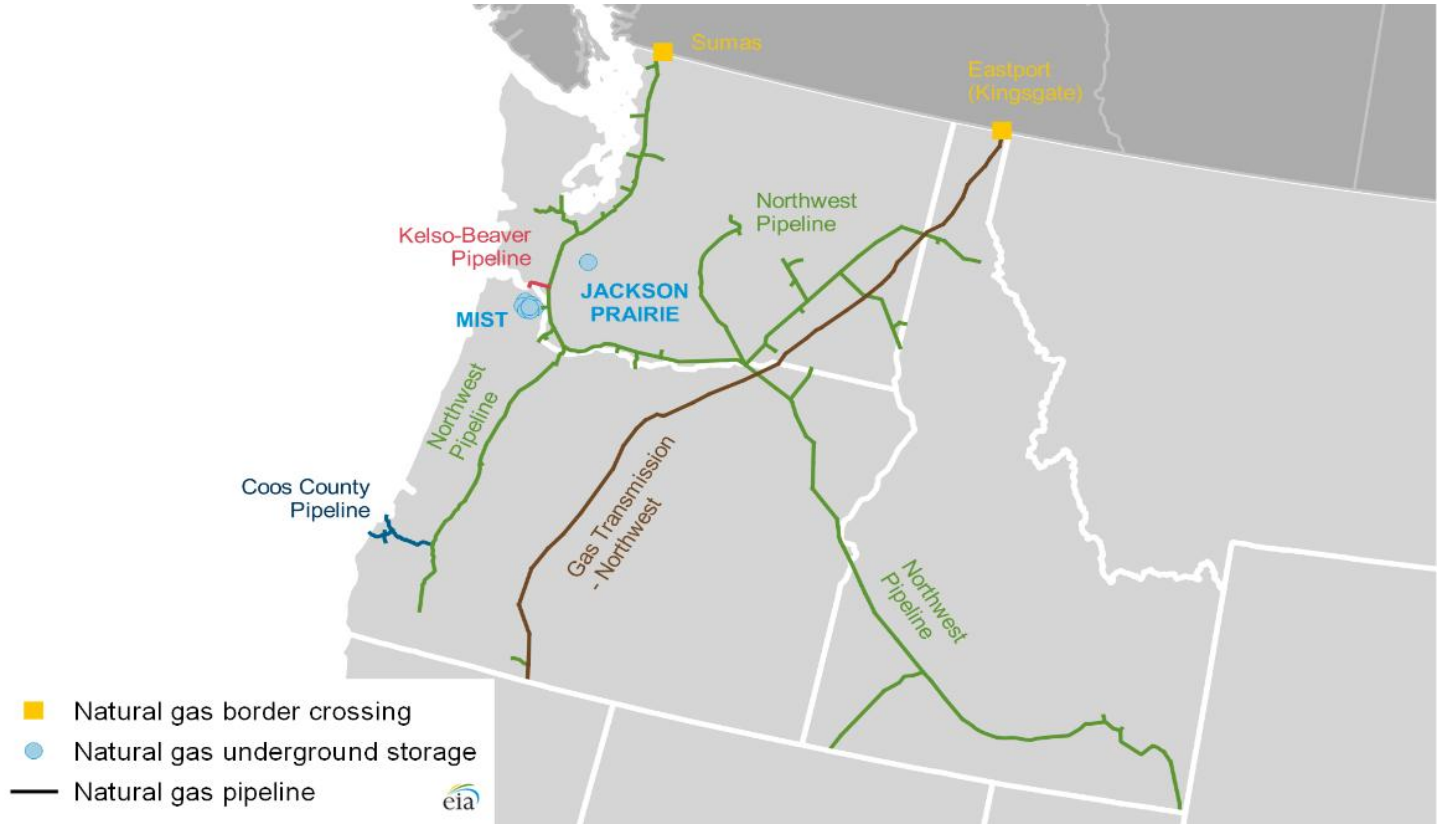
Major Pipelines Serving the Northwest

- **Northwest Pipeline (NWP):**
  - Bi-directional regional backbone moving gas southbound from supply basins in British Columbia/Alberta and northbound from the Rockies
  - Spokane/Coeur d' Alene and Palouse laterals serve WA/ID load and the Grant's Pass lateral serves Medford/Roseburg load
  - Main line serves La Grande load
- **Gas Transmission Northwest (GTN):**
  - Primarily north-to-south system moving Western Canadian Sedimentary Basin gas from the U.S./Canadian border to the OR/CA border (Kingsgate>Malin)
  - Serves load along the path down from northern Idaho to Klamath Falls, OR and over to Medford, OR via a lateral
- **NGTL:** Alberta/BC gathering and market hub system feeding export pipelines
- **Foothills:** Alberta to U.S. border export corridor (AECO>Kingsgate)
- **Westcoast:** north to south BC transmission backbone (Station 2>Huntingdon/Sumas)
- **Tuscarora:** small pipeline that originates at Malin, OR and terminates at Wadsworth, NV

Map Source: Northwest Gas Association

Jackson Prairie Storage Facility

- Avista is a one-third owner with Williams and Puget Sound Energy
- Avista's share of total working gas capacity of around 8.5 Million Dth
  - **WA/ID:** 7.7 Million Dth of owned capacity with approx. 346,000 Dth/day of deliverability
  - **OR:** 823,000 Dth of owned capacity with approx. 52,000 Dth/day of deliverability and 95,565 Dth of leased capacity and 2,654 Dth/day of deliverability
- Flexibility to serve peak period needs in service areas with distinct weather patterns
- Offers additional supply point diversity and improved reliability

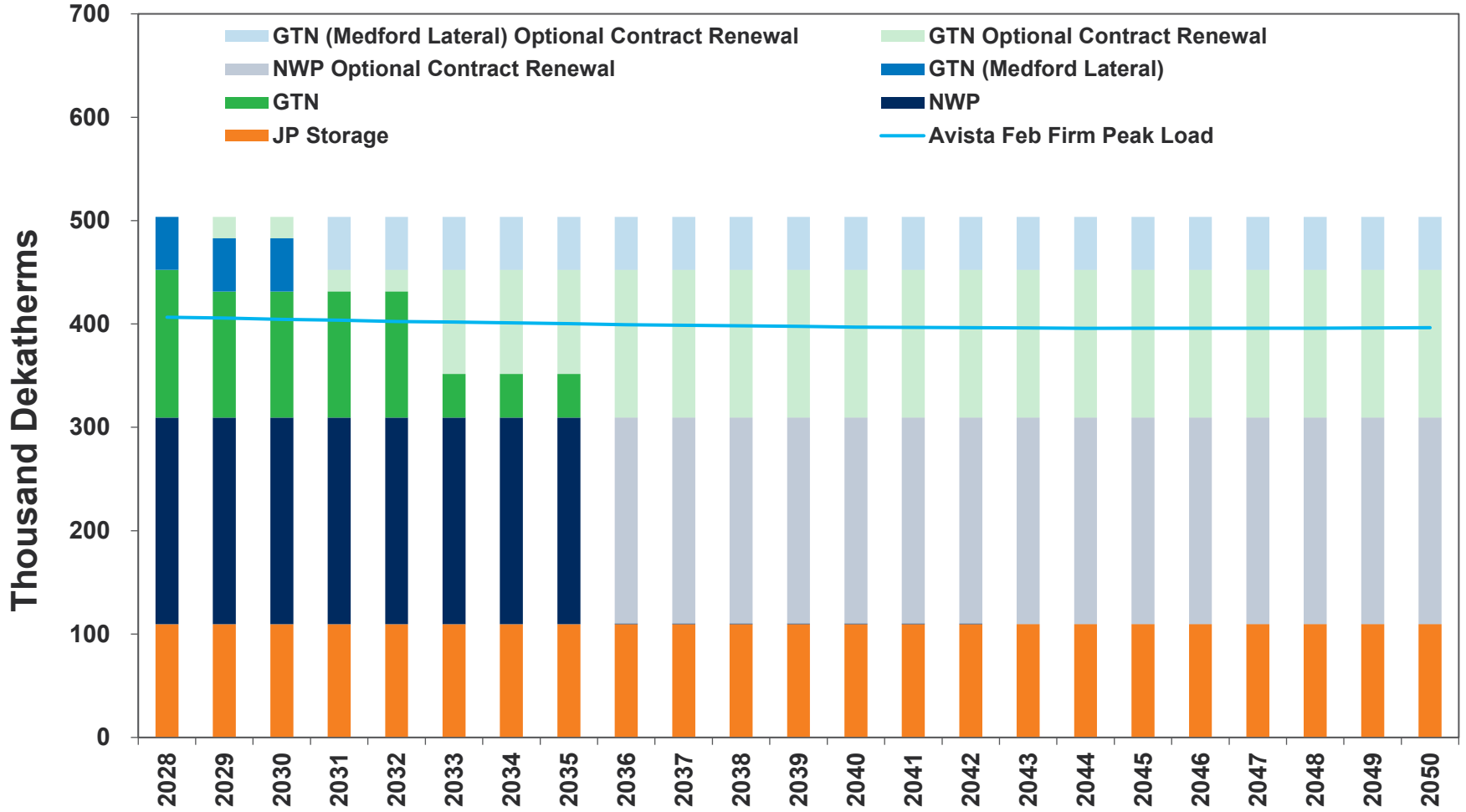


*Note: Requires transportation capacity from the storage facility to service territory delivery points

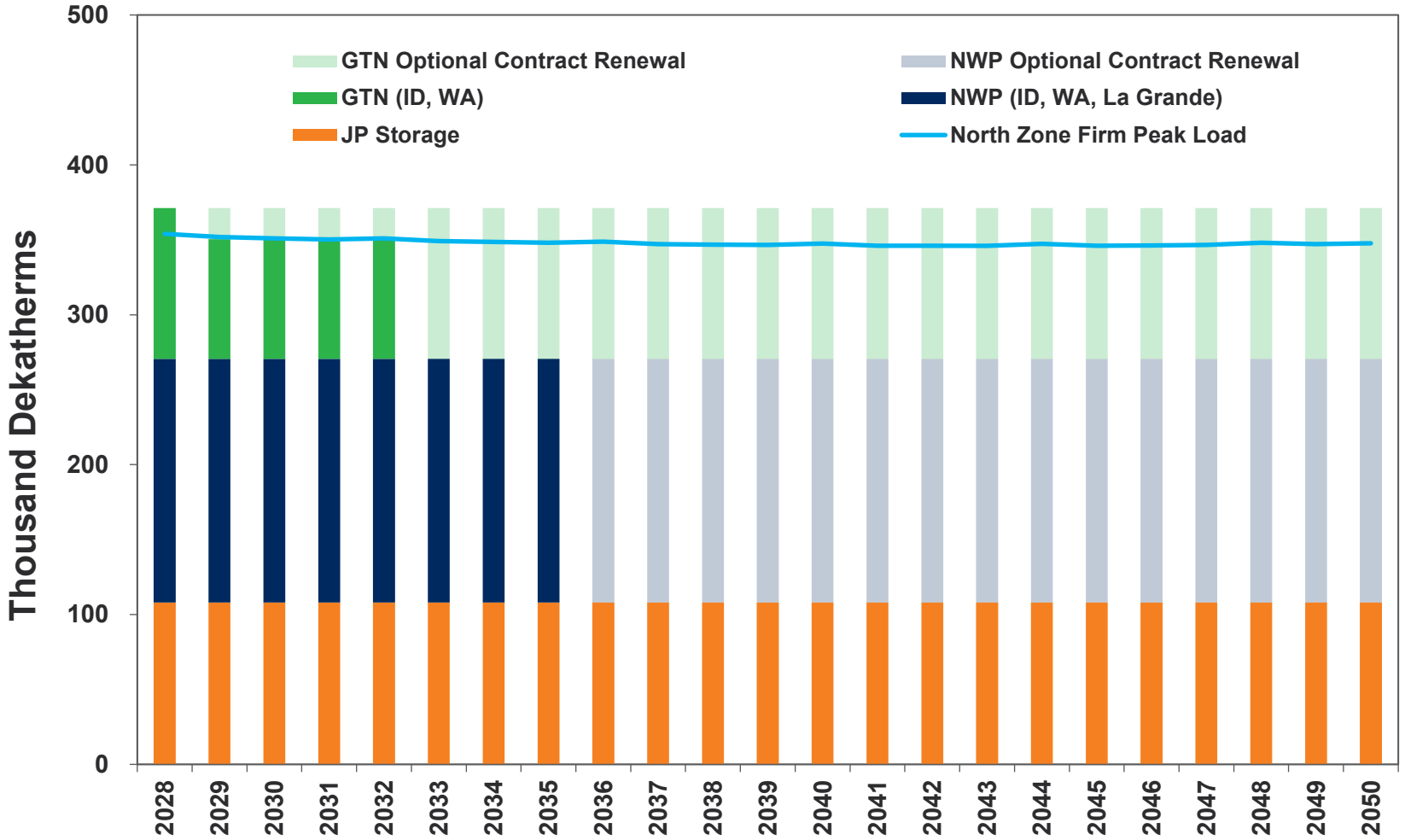
Peak Planning Assumptions

- Peak day forecast by region
  - December - Medford/Roseburg, Klamath Falls
  - February - Spokane/CDA, Palouse, La Grande
  - Categorized by Firm (Res/Com/Ind) and Interruptible Non-Transport and Transport (Res/Com/Ind)
  - Max daily demand by month for each region
- Firm pipeline capacity contracts
  - Only firm contracts are included in the peak day planning
  - Categorized by receipt and delivery point by pipeline
  - Includes annual and seasonal transportation contracts with volumes and end dates
- Jackson Prairie storage withdrawal availability during winter months
  - Limited by transportation contract volumes and max deliverability

System Winter Capacity Position – February Peak



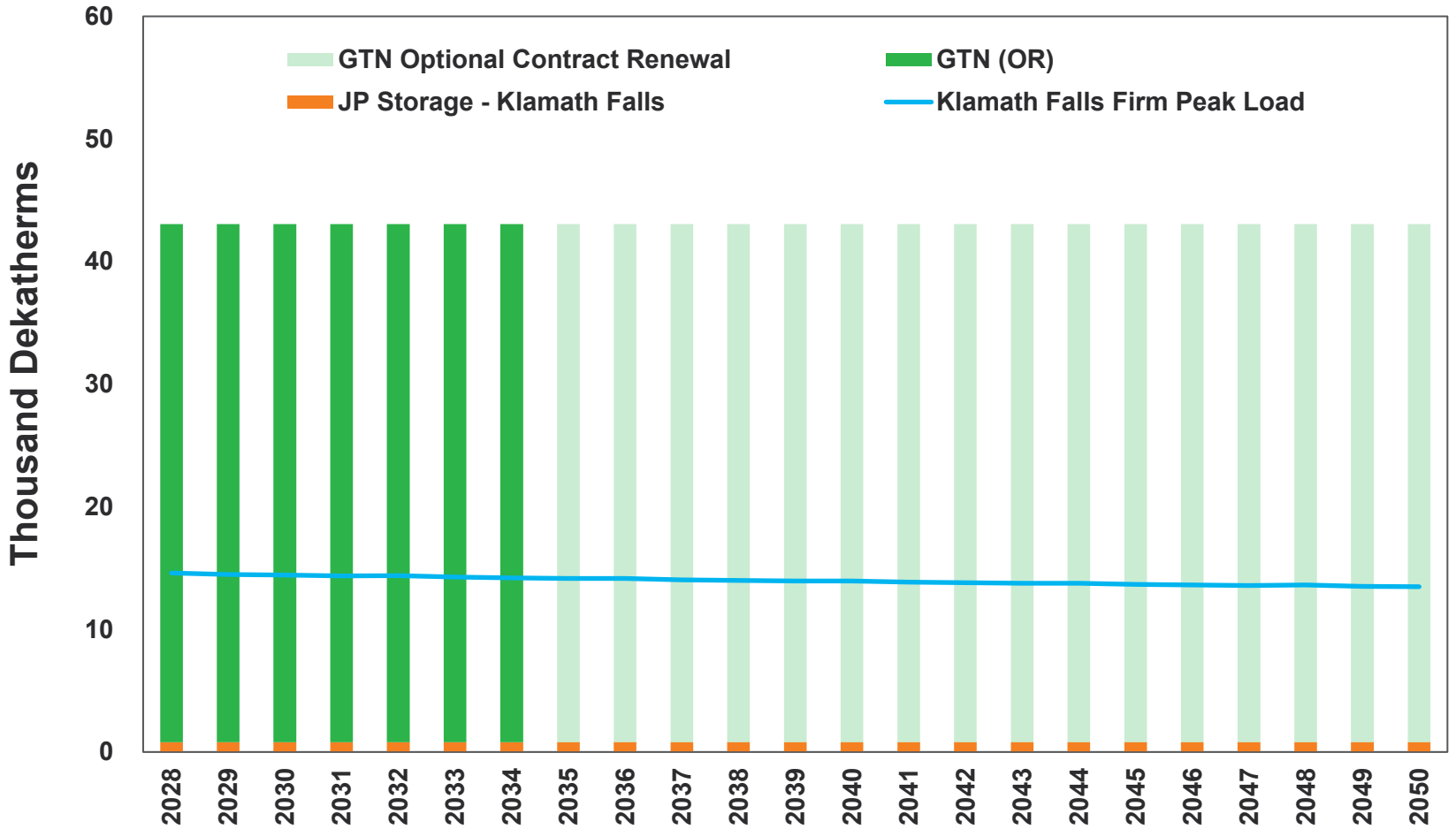
Avista North Zone Winter Capacity Position – Feb Peak



Includes:

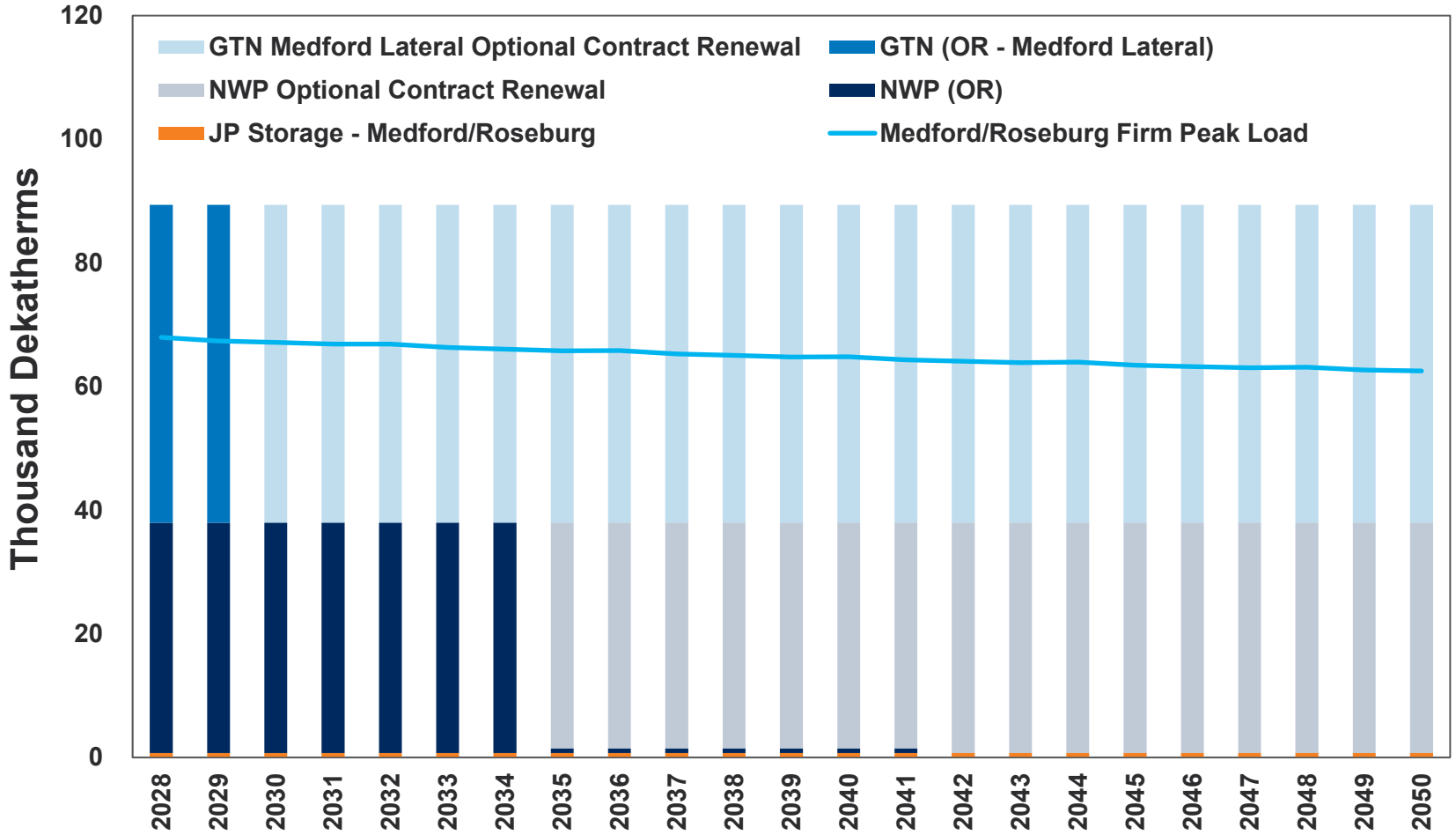
- Spokane/Coeur d' Alene Region
- Palouse Region
- La Grande Region

Klamath Falls Winter Capacity Position – Dec Peak



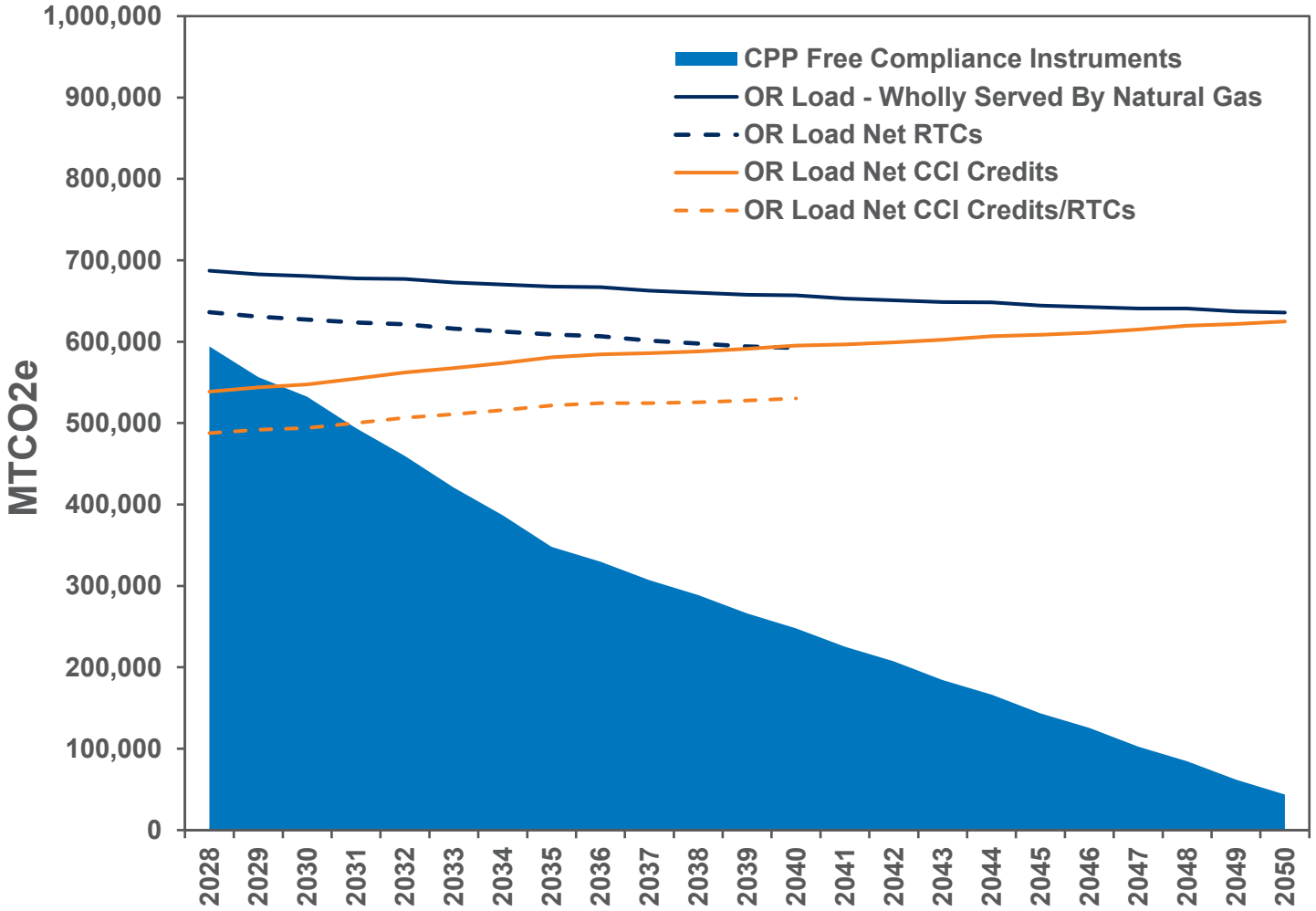
- The GTN (OR) contract is used to supply the GTN Medford Lateral

Medford/Roseburg Winter Capacity Position – Dec Peak



- GTN Medford Lateral only has deliverability rights and relies on the GTN (OR) contract for supplies from either Kingsgate or Malin

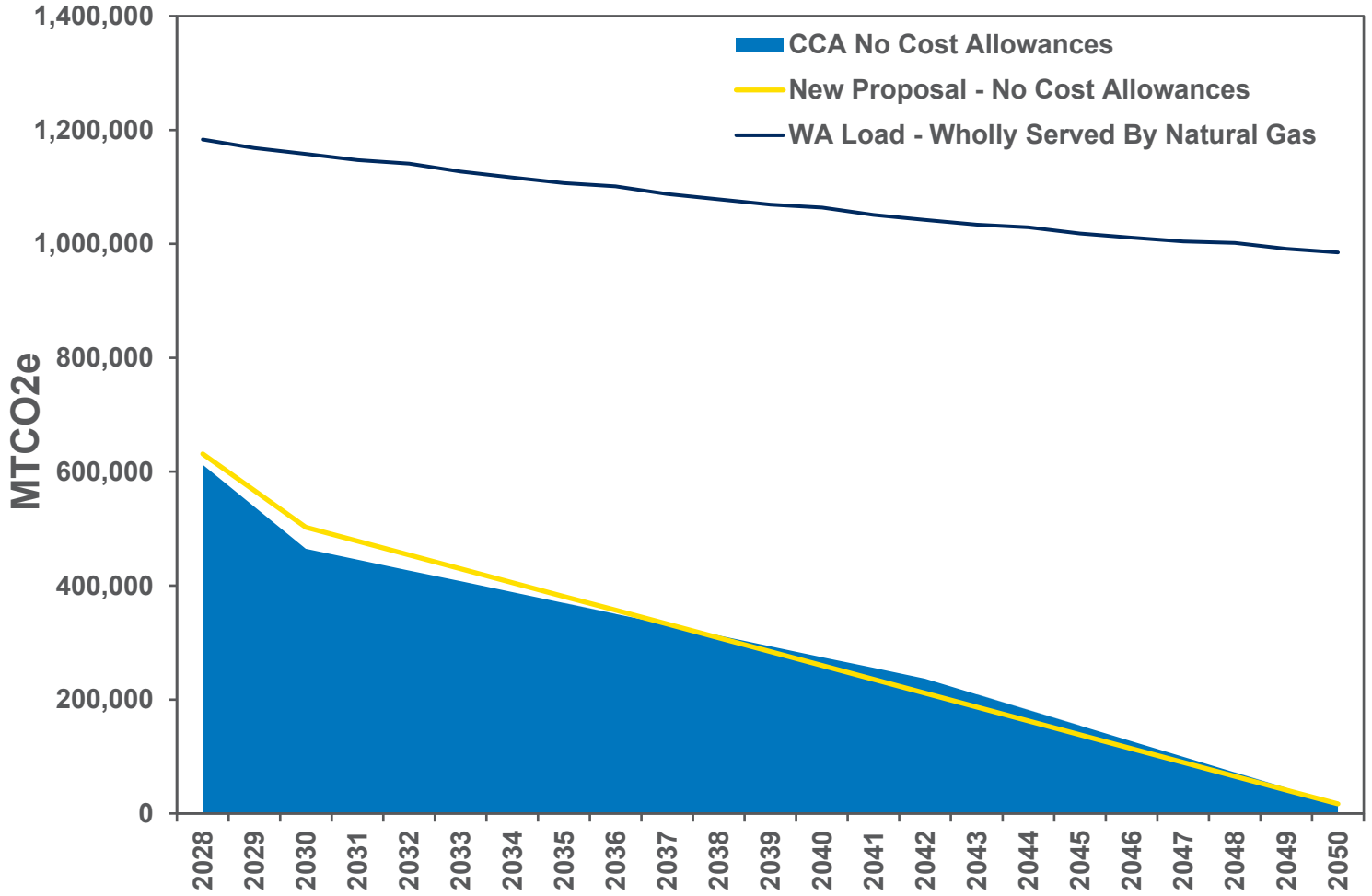
Oregon Energy Forecast and CPP Compliance



- Emissions forecast out to 2050 based on firm and transport customers that Avista is required to cover
- Allowable Community Climate Investment Credits (CCI) lower the net OR Load emissions position
- Free compliance instruments meet net OR emissions load until 2030
- Dotted lines assume Avista utilizes all the RTCs available currently under contract

*Note: Does not yet include Energy Efficiency, which will lower OR Load – Wholly Serve By Natural Gas

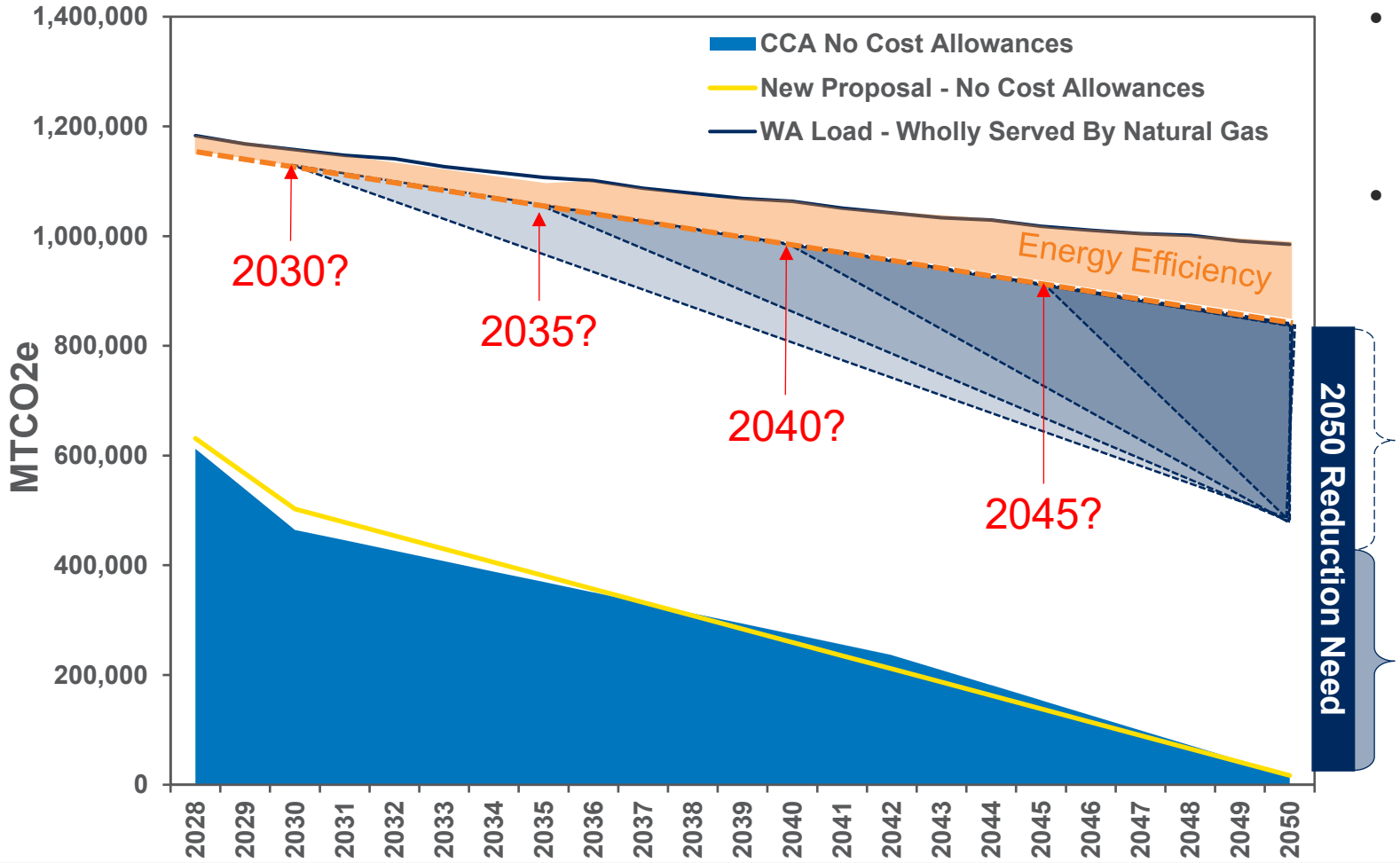
Washington Energy Forecast and CCA Compliance



- WA load forecast consists of Avista covered Residential, Commercial, Industrial customers
- Emissions assume all load is served by natural gas
- Department of Ecology's proposed revisions to allowance budgets and allocation methodologies may be adopted later in the year

*Note: Does not yet include Energy Efficiency, which will lower WA Load – Wholly Serve By Natural Gas

Washington Energy Forecast and CCA Compliance



Questions

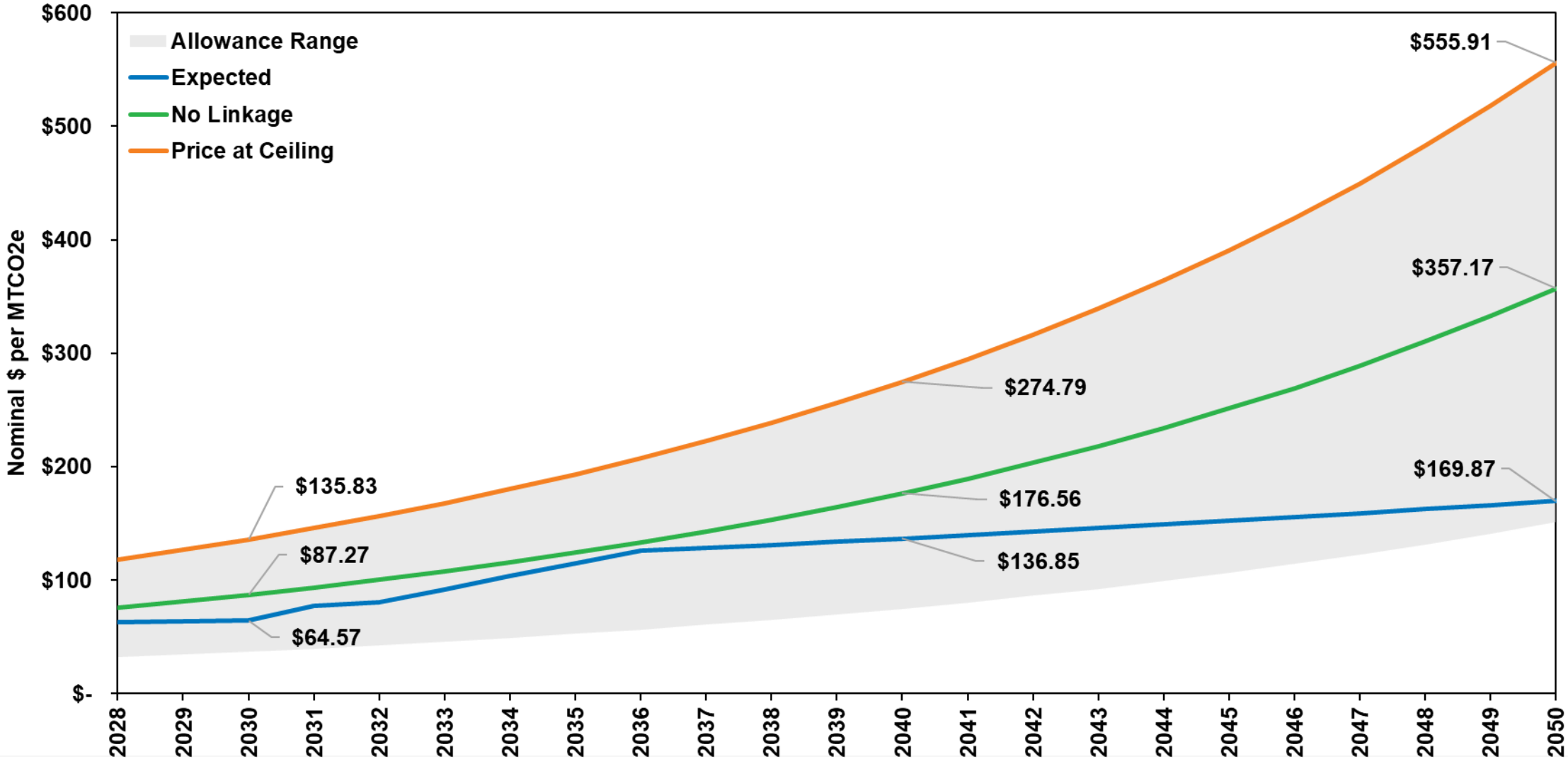
- What is a reasonable year to begin constraining the quantity of Allowances available for Avista to purchase at auction price?
- By 2050, how many Allowances are available for Avista to purchase at the auction price?

Additional Allowances available but priced at **ceiling**.

50% Allowances available at **auction** price

Energy Efficiency savings are for illustrative purposes only.

Allowance – Forecast



Preferred Resource Strategy - Draft

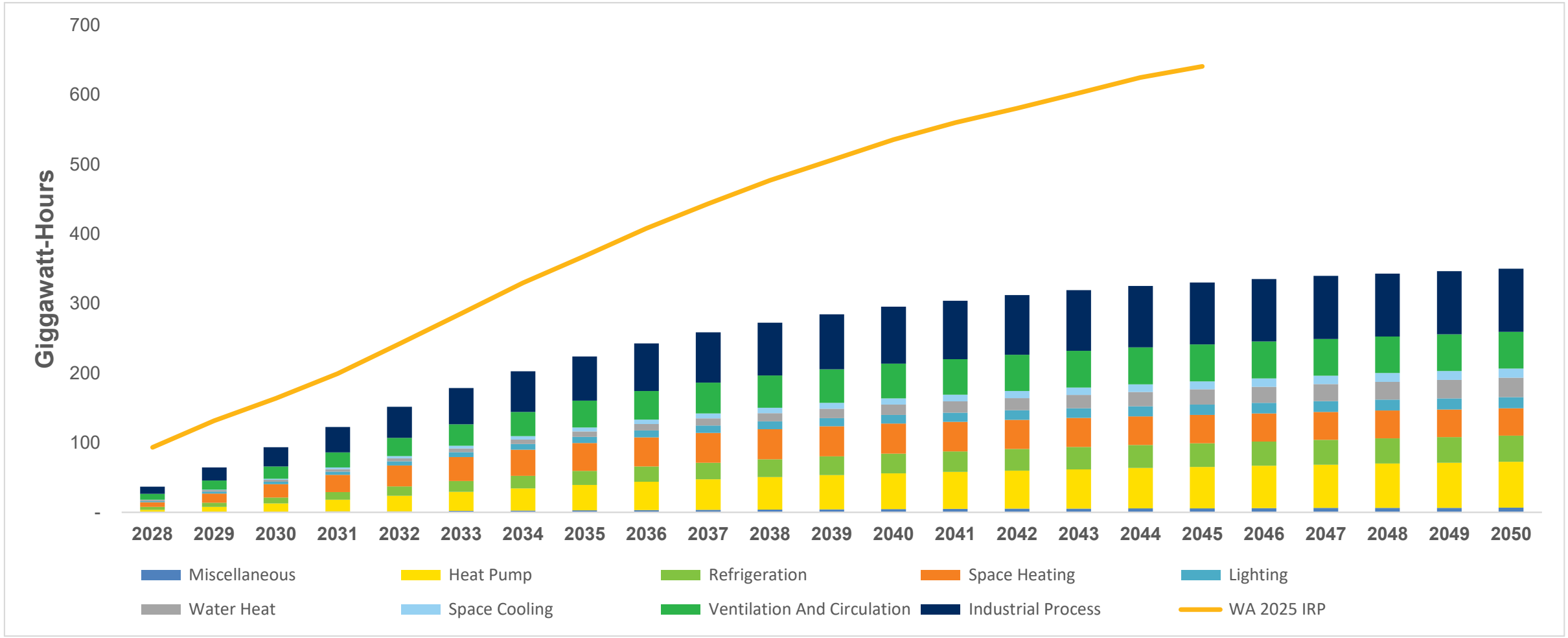
TAC 13 – August 17, 2026

Jacob Heimbigner – Resource Planning Analyst

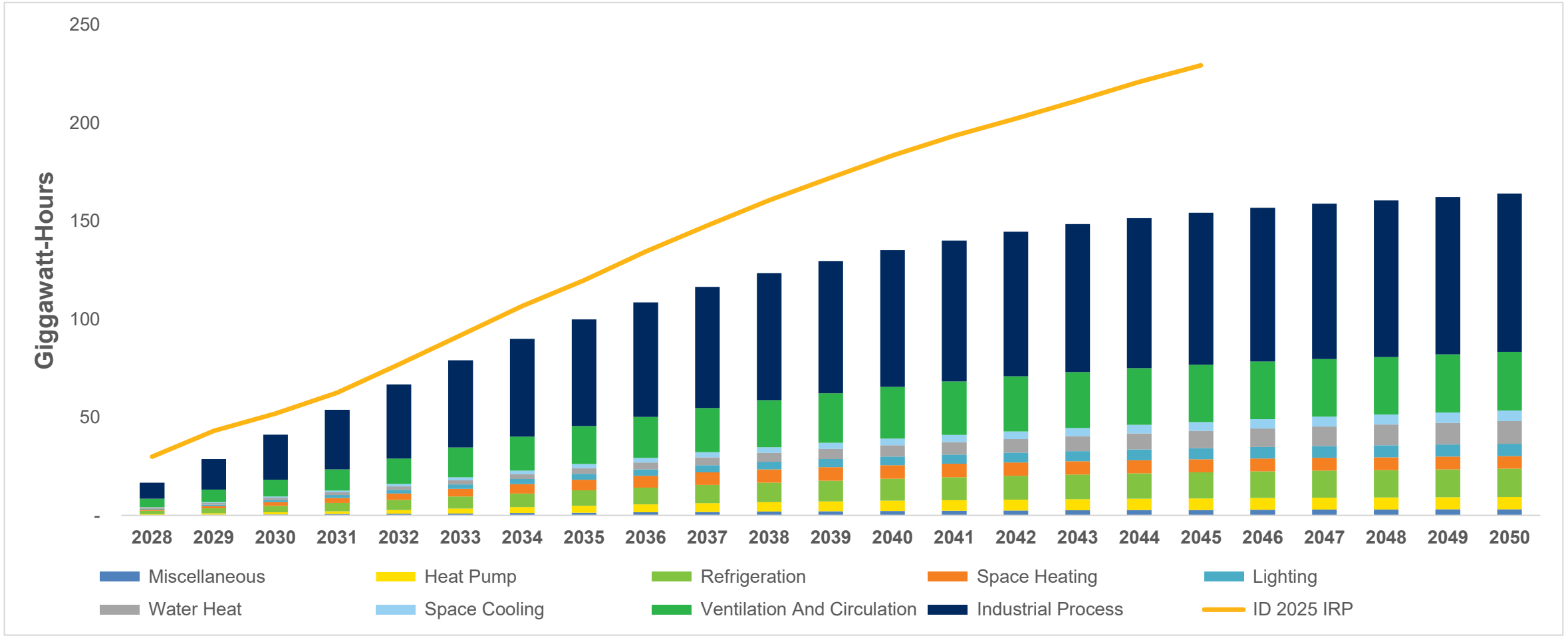
Washington Electric Energy Efficiency 2-Year Target

- 2-year target method
  - 2025 IRP: 73,672 MWh
  - 2027 Draft IRP TAC 12: 52,697 MWh
  - 2027 Draft IRP TAC 13: 51,725 MWh
- WA Decrease attributed to Energy Efficiency that is now code
  - Lighting
  - Air Source Heat-Pump
  - Heat-Pump Water-Heater

WA Electric Energy Efficiency 20-Year Comparison



ID Electric Energy Efficiency 20-Year Comparison



Washington Resource Selection (MW)					
Resource Type	2028-2033	2034-2044	2045	2046-2050	Total
Natural Gas	-	-	-	-	-
NG CT to H2 CT	-	-	-	-	-
NG CT to Biodiesel CT	-	-	-	-	-
Biodiesel CT	-	248	152	-	400
Power to Gas CT	-	180	-	-	180
RNG CT	-	-	-	-	-
PtoG	-	-	96	-	96
Nuclear	-	-	-	-	-
Wind	-	1,038	539	637	2,213
Solar	-	210	-	155	364
Storage 4hr	26	185	-	77	289
Storage 8hr+	-	53	29	406	488
Geothermal	-	-	-	-	-
Biomass	11	-	58	-	69
Total	**37**	**1,914**	**873**	**1,275**	**4,099**

Idaho Resource Selection (MW)					
Resource Type	2028-2033	2034-2044	2045	2046-2050	Total
Natural Gas	50	534	-	-	584
NG CT to H2 CT	-	-	-	-	-
NG CT to Biodiesel CT	-	-	-	-	-
Biodiesel CT	-	-	-	-	-
Power to Gas CT	-	-	-	-	-
RNG CT	-	-	-	-	-
PtoG	-	-	-	-	-
Nuclear	-	-	-	-	-
Wind	-	-	-	-	-
Solar	-	-	-	-	-
Storage 4hr	-	-	-	-	-
Storage 8hr+	-	-	-	25	25
Geothermal	-	-	-	-	-
Biomass	-	-	-	-	-
Total	50	534	-	25	609

Washington Demand Resoponse Avg Ramp by Time period (MW)					
Resource Type	2028-2033	2034-2044	2045	2046-2049	2050
ComEVTOU	0.98	4.53	7.05	7.37	7.56
NRCoolSwchMed	2.33	4.65	4.65	4.65	4.65
NRCoolSwchSm	-	-	-	-	-
NRTstatSm	-	-	-	-	-
ResACSwch	-	-	-	8.32	16.65
ResBattery	-	-	-	-	-
ResBYOB	1.24	1.86	1.86	1.86	1.86
ResBYOT	10.95	13.68	13.68	13.68	13.68
ResERWHDLC	-	-	-	-	-
ResERWHDLCG	-	-	-	-	-
ResHPWHDLCG	-	-	-	-	-
NRCurtailCom	11.89	12.59	12.59	12.59	12.59
NRCurtailInd	1.09	1.15	1.15	1.15	1.15
NRIrr	2.39	3.19	3.19	3.19	3.19
NRPTRCom	0.19	0.24	0.24	0.24	0.24
ResEVTOUDLC	-	0.89	9.80	15.51	16.33
ResPTR	4.87	6.08	6.08	6.08	6.08
ResTOU	3.48	5.50	5.50	5.50	5.50
Total	**39**	**54**	**66**	**80**	**89**

Idaho Demand Resoponse Avg Ramp by Time period (MW)					
Resource Type	2028-2033	2034-2044	2045	2046-2049	2050
ComEVTOU	0.04	0.49	0.94	1.08	1.15
NRCoolSwchMed	-	0.40	2.21	2.98	3.09
NRCoolSwchSm	-	-	-	-	-
NRTstatSm	-	-	-	-	-
ResACSwch	-	-	-	-	-
ResBattery	-	-	-	-	-
ResBYOB	-	-	-	-	-
ResBYOT	6.66	8.32	8.32	8.32	8.32
ResERWHDLC	-	-	-	-	-
ResERWHDLCG	-	-	-	-	-
ResHPWHDLCG	-	-	-	-	-
NRCurtailCom	4.79	5.07	5.07	5.07	5.07
NRCurtailInd	0.68	0.72	0.72	0.72	0.72
NRIrr	-	0.01	0.31	0.58	0.62
NRPTRCom	-	-	-	-	-
ResEVTOUDLC	-	-	-	-	-
ResPTR	-	0.11	1.84	2.92	3.07
ResTOU	-	-	-	-	-
Total	**12**	**15**	**19**	**22**	**22**

Transmission ($000)	2028-2033	2034-2044	2045	2046-2050	Total
Transmission Spend	4	107	380	20	510
Tranmission Opprtunity Savings	-	(32)	-	-	(32)
Total	**4**	**75**	**380**	**20**	**479**

E3 Washington Resource Selection (MW)					
Resource Type	2028-2033	2034-2044	2045	2046-2050	Total
Natural Gas	-	-	-	-	-
NG CT to H2 CT	-	90	-	-	90
NG CT to Biodiesel CT	-	-	-	-	-
Biodiesel CT	-	279	121	-	400
Power to Gas CT	-	180	-	-	180
RNG CT	-	-	-	-	-
PtoG	-	-	96	40	136
Nuclear	-	-	-	-	-
Wind	-	1,049	454	623	2,126
Solar	-	224	100	412	735
Storage 4hr	25	137	50	80	291
Storage 8hr+	-	-	-	383	383
Geothermal	-	-	-	-	-
Biomass	11	-	58	-	69
Total	**36**	**1,958**	**879**	**1,538**	**4,410**

E3 Idaho Resource Selection (MW)					
Resource Type	2028-2033	2034-2044	2045	2046-2050	Total
Natural Gas	50	530	-	-	580
NG CT to H2 CT	-	-	-	-	-
NG CT to Biodiesel CT	-	-	-	-	-
Biodiesel CT	-	-	-	-	-
Power to Gas CT	-	-	-	-	-
RNG CT	-	-	-	-	-
PtoG	-	-	-	-	-
Nuclear	-	-	-	-	-
Wind	-	-	-	-	-
Solar	-	-	-	-	-
Storage 4hr	-	-	-	-	-
Storage 8hr+	-	-	-	25	25
Geothermal	-	-	-	-	-
Biomass	-	-	-	-	-
Total	50	530	-	25	605

E3 Washington Demand Resoponse Avg Ramp by Time period (MW)					
Resource Type	2028-2033	2034-2044	2045	2046-2049	2050
ComEVTOU	0.98	4.53	7.05	7.37	7.56
NRCoolSwchMed	1.66	4.59	4.65	4.65	4.65
NRCoolSwchSm	-	-	-	-	-
NRTstatSm	-	-	-	-	-
ResACSwch	3.33	16.34	16.65	16.65	16.65
ResBattery	-	-	-	-	-
ResBYOB	-	0.51	1.86	1.86	1.86
ResBYOT	10.95	13.68	13.68	13.68	13.68
ResERWHDLC	-	-	-	-	-
ResERWHDLCG	-	-	-	-	-
ResHPWHDLCG	-	-	-	-	-
NRCurtailCom	11.89	12.59	12.59	12.59	12.59
NRCurtailInd	1.09	1.15	1.15	1.15	1.15
NRIrr	2.39	3.19	3.19	3.19	3.19
NRPTRCom	-	-	-	0.02	0.14
ResEVTOUDLC	-	-	-	0.82	6.53
ResPTR	4.87	6.08	6.08	6.08	6.08
ResTOU	3.48	5.50	5.50	5.50	5.50
Total	**41**	**68**	**72**	**74**	**80**

E3 Idaho Demand Resoponse Avg Ramp by Time period (MW)					
Resource Type	2028-2033	2034-2044	2045	2046-2049	2050
ComEVTOU	0.07	0.56	1.01	1.11	1.16
NRCoolSwchMed	-	0.40	2.21	2.98	3.09
NRCoolSwchSm	-	-	-	-	-
NRTstatSm	-	-	-	-	-
ResACSwch	-	-	-	-	-
ResBattery	-	-	-	-	-
ResBYOB	-	-	-	-	-
ResBYOT	6.66	8.32	8.32	8.32	8.32
ResERWHDLC	-	-	-	-	-
ResERWHDLCG	-	-	-	-	-
ResHPWHDLCG	-	-	-	-	-
NRCurtailCom	4.79	5.07	5.07	5.07	5.07
NRCurtailInd	0.68	0.72	0.72	0.72	0.72
NRIrr	-	0.01	0.31	0.58	0.62
NRPTRCom	-	-	-	-	-
ResEVTOUDLC	-	-	-	-	-
ResPTR	-	0.11	1.84	2.92	3.07
ResTOU	-	-	-	-	-
Total	**12**	**15**	**19**	**22**	**22**

Transmission ($000)	2028-	2034-	2045	2046-	Total
Transmission Spend	4	115	377	33	529
Tranmission Opprtunity Savings	-	(40)	-	-	(40)
Total	**4**	**75**	**377**	**33**	**490**

Scenario List

TAC 13 – August 17, 2026

James Gall, Manager of Resource Analysis

Climate Policy Scenarios

- **Zero GHG by 2050:** Trend emissions to zero by 2050 for both utilities
- **High CCA Pricing:** Higher then expected CCA prices (e.g., linkage fails)
- **No Climate Programs:** Counter factual study of if the CETA, CPP, and CCA end

Potential Fuel Switching Scenarios

- **Appliance Replacement:** Gas appliances transition to electric upon failure (Cadmus forecast for system loads)
- **High Natural Gas Retail Pricing:** high retail pricing accelerates gas usage reduction in Washington State (Cadmus forecast)
- **Hybrid Heating:** transitions Washington heat pumps added to natural gas furnaces and water heating electrified (approximate 80% of demand)
- **High Electrification:** transition Washington space and water heating to electric (approximate 80% of demand)

Electric Load Scenarios

- **High Economic Growth:** System loads grow at higher annual average growth rate (Cadmus forecast)
- **Low Economic Growth:** System loads grow at lower annual average growth rate (Cadmus forecast)
- **2032 500 MW Large Load:** new 500 MW large in Washington load by 2032*
- **2032 250 MW Large Load:** new 250 MW large in Washington load by 2032*
- **2036 500 MW Large Load:** new 500 MW large in Washington load by 2036*

*Based on PRS Large Load in Idaho would show need for new Natural Gas Generation

Resource Cost Scenarios

- **IRA returns in 2030:** Renewable energy tax credits return in 2030
- **High Resource Renewable Resource Costs:** 50% higher CapEx by 2030
- **Low Resource Renewable Resource Costs:** 50% lower CapEx by 2030

Electric Resource Scenarios

- **Accelerated qualifying CETA resources:** minimum 60 aMW by 2030 per CEIP condition
- **No North Plains Connector:** North Plains Connector does not proceed
- **Nuclear:** what price is Nuclear selected in the resource portfolio if not in PRS
- **Carbon Sequestration**: What if Carbon Sequestration is a qualifying resource
- **No Power to Gas**: Remove power to gas options
- **E3 QCC values:** Uses QCC from the Resource Adequacy and the Energy Transition in the Pacific Northwest
- **Alternative Lowest Cost:** No clean energy target but includes Social Cost of Greenhouse Gas in Washington

Electric Sensitivities

- Portfolios are tested against market pricing
  - High Natural Gas Prices: 95th percentile of Monte Carlo price draws
  - Low Natural Gas Prices: 5th percentile of Monte Carlo price draws
- Portfolios to be tested
  - Preferred Resource Strategy
  - No Climate Programs
  - Zero GHG by 2050

IRP/Progress Report Outlines

TAC 13 – August 17, 2026

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

Updated 2027 Electric IRP Format

- 2025 IRP had 11 chapters plus the Washington Clean Energy Action Plan and appendices

- 2027 IRP will have three major sections plus appendices
  1. Resource Plan
  2. Planning Environment
  3. Technical Support
  - Appendices

Resource Plan

1. Preferred Resource Strategy
   - Strategy
   - Resource Adequacy Results
   - CETA Compliance
   - Cost Forecast
   - Avoided Cost
   - Risk Assessment
2. Resource Need Assessment
   - Economic Overview
   - Load Forecast
     - Energy Efficiency Impacts
   - Capacity and Energy L&Rs
   - CETA and EIA L&Rs
   - Pipeline Requirements
3. Portfolio Scenario Analysis
   - Scenario Assumptions
   - Scenario Results
   - Resource Adequacy Results
   - Cost/Risk Analysis
   - Emissions
4. Action Plan
   - 2025 IRP Update
   - 2029 IRP Action Items

Planning Environment

1. IRP Policy Objectives
   - TAC
   - Idaho Requirements
   - Washington Requirements
2. Environmental Policy Overview
3. Existing Supply Resources
4. Transmission & Distribution Planning
   - Transmission
   - Distribution
   - Merchant
5. Washington Equity Assessment
   - NEI
   - CBI Forecast
   - SCGHG
   - NCIF
   - CEIP

Technical Support

1. Modeling Methodology
   - Overall Modeling Process
   - Methodology Changes
2. L&R Methodology
   - Load Forecast Methodology
   - Weather
   - Resource Adequacy / Planning Reserve Margin
   - VER/Reserves
   - Contingency Planning
   - Maintenance Planning
3. Distributed Energy Resource Options
   - Energy Efficiency
   - Energy Efficiency Avoided Cost
   - Demand Response
   - DER in Load Forecasts
   - DER Evaluation Methodology
   - Company Initiatives
4. Supply-Side Resource Options
   - Energy Storage
   - Natural Gas
   - Renewables
   - Other
   - QCC

Technical Support

5. Market Analysis
    1. Regional Forecast
    2. Gas Price Forecast
    3. Electric Price Forecast

Appendices

- Appendix A: TAC Items
- Appendix B: Workplan
- Appendix C: Cadmus' CPA and DR Potential Assessment
- Appendix D: 2025 System Plan
- Appendix E: IRP Transmission Integration Study
- Appendix F: Public Data files
- Appendix G: Confidential Data Files
- Appendix H: PRS Generation Location Forecast
- Appendix I: Washington Schedule 62 (PURPA Rates)
- Appendix J: TAC & Public Comments