2021 Integrated Resource Planning

February 24, 2021

Meeting Agenda

- 5:00 to 6:00
  - Welcome- Jason Thackston, SVP of Energy Resources
  - Overview of Avista's Electric Resource Plan- James Gall, Electric IRP Manager
  - Overview of Avista's Natural Gas Resource Plan- Tom Pardee, Natural Gas IRP Manager
- 6:00 to 6:30
  - Attend first breakout session
- 6:30 to 7:00
  - Attend second breakout session
- This meeting will be recorded

Objectives of Today's Meeting

- Overview of Avista's electric and natural gas systems.
- Learn about considerations when planning to meet customer load.
- Explore Avista's proposed resource plans for natural gas and electric supply.
- Opportunity to ask questions and provide feedback in breakout sessions.
- Poll questions to provide instant feedback.

Avista Generation Capability of Company-Owned Resources and Service Territory

Washington	CUSTOMERS
Electric	243,031
Natural Gas	153,467

Idaho	CUSTOMERS
Electric	127,134
Natural Gas	78,061

Oregon	CUSTOMERS
Natural Gas	98,194

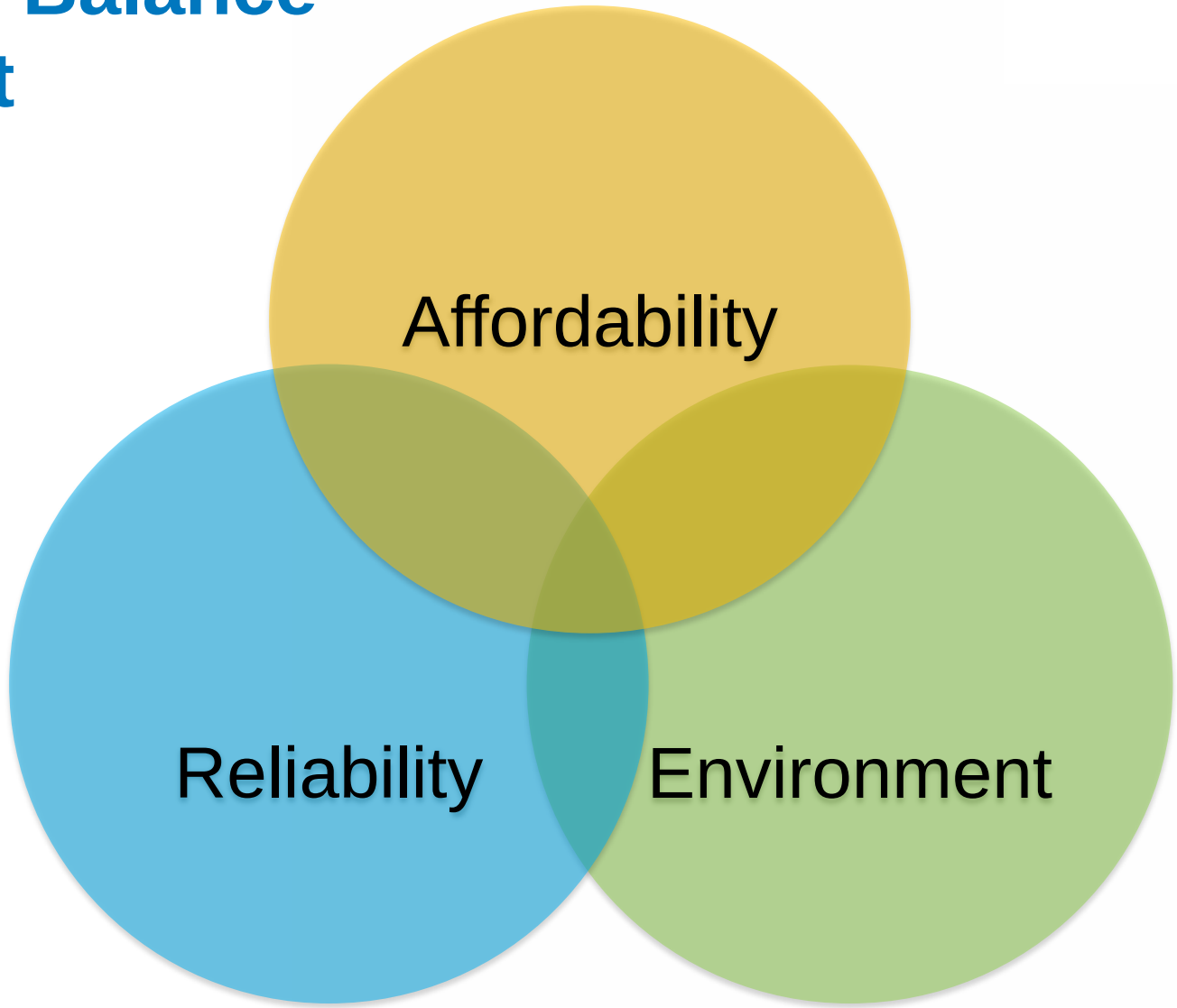
Non utility-owned or operated	GENERATION CAPABILITY (MW)
16 Lancaster N.G. (fired) (Rathdrum, ID)	270.0
17 Palouse Wind (Oakesdale,WA)	105.0

Hydroelectric	GENERATION CAPABILITY (MW)
1 Noxon Rapids (Noxon, MT)	562.4
2 Cabinet Gorge (Clark Fork, ID)	273.0
3 Long Lake (Spokane, WA)	88.0
4 Little Falls (Spokane, WA)	35.6
5 Nine Mile (Spokane, WA)	22.4
6 Post Falls (Post Falls, ID)	15.4
7 Monroe Street (Spokane, WA)	15.0
8 Upper Falls (Spokane, WA)	10.2
Total Hydroelectric Capability	**1,022.0**

Thermal	GENERATION CAPABILITY (MW)
9 Coyote Springs (Boardman, OR)	284.4
10 Colstrip (Units 3&4) (Colstrip, MT)	222.0
11 Rathdrum Combustion Turbines (Rathdrum, ID)	166.5
12 Northeast Combustion Turbines (Spokane, WA)	64.8
13 Kettle Falls Biomass Plant (Kettle Falls, WA)	53.5
14 Boulder Park (Spokane, WA)	24.0
15 Kettle Falls Combustion Turbine (Kettle Falls, WA)	6.9
Total Thermal Capability	**822.1**

Avista also owns Alaska Light & Power in Juneau, AK

Maintaining Balance is Important



Avista's Clean Electricity Goal

Avista's goal is to serve our customers with **100 percent clean electricity by 2045** and to have a **carbon-neutral** supply of electricity by the end of **2027**

- We will maintain focus on **reliability** and **affordability**
- **Natural gas** is an important part of a clean energy future
- **Technologies and associated costs** need to emerge and mature in order for us to achieve our stated goals
- It's **not** just about generation

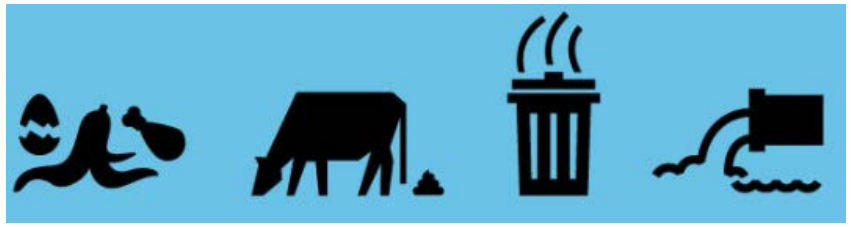
Providing Cleaner Natural Gas

- We are committed to reducing **greenhouse gas emissions** in our natural gas business too

- Achieving reductions requires an "**all-of-the-above**" approach:
  - **Natural gas supply and distribution opportunities** like renewable natural gas
  - **Upstream strategies** like targeted sourcing with suppliers
  - **Engagement with customers** to increase energy efficiency, demand response, and voluntary programs

- Just like our clean electricity goals, reducing greenhouse gas emissions in our natural gas system will require **advances in technology** and **reductions in the cost** of those technologies

- **Affordability** will guide our decisions



What is an IRP?

- Required by our state regulating commissions every two years.
- Allows for public feedback and participation.
- Commissions acknowledge, but do not approve the plans.

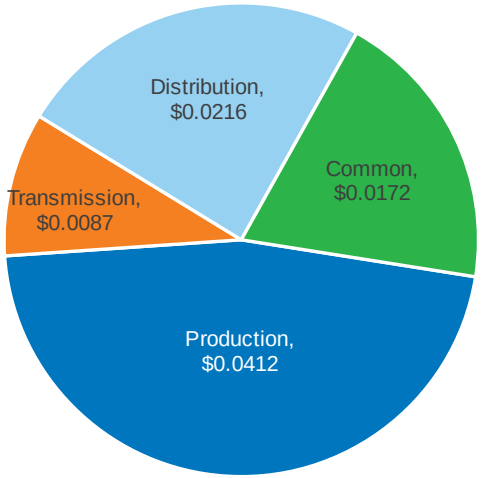
- Understand supply needs to serve our customers over the next 20 years.
- Evaluate different resource options to meet future needs.
- Determine which resources are best suited to meet customer need.
- Sets course for acquisition of resources.

Draft 2021
Electric Integrated Resource Plan

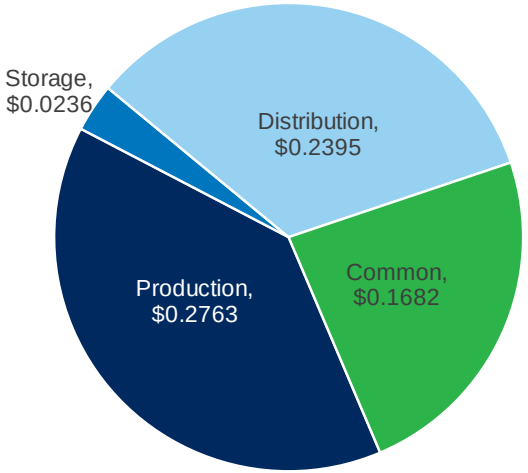
What's in your energy rate?

Begins with Cost to Serve All Customers

Electric



Natural Gas



Customer Type

- Residential
- Commercial
- Large Commercial
- Industrial
- Water Pumping
- Street Lighting

Pricing Type

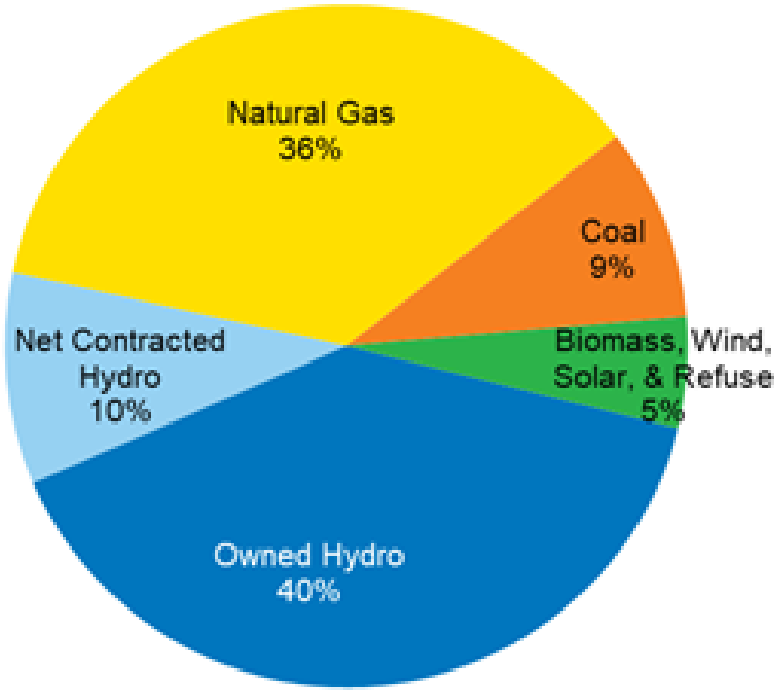
Fixed Charge
Monthly connection charge

Energy Charge
The amount of energy used over the month

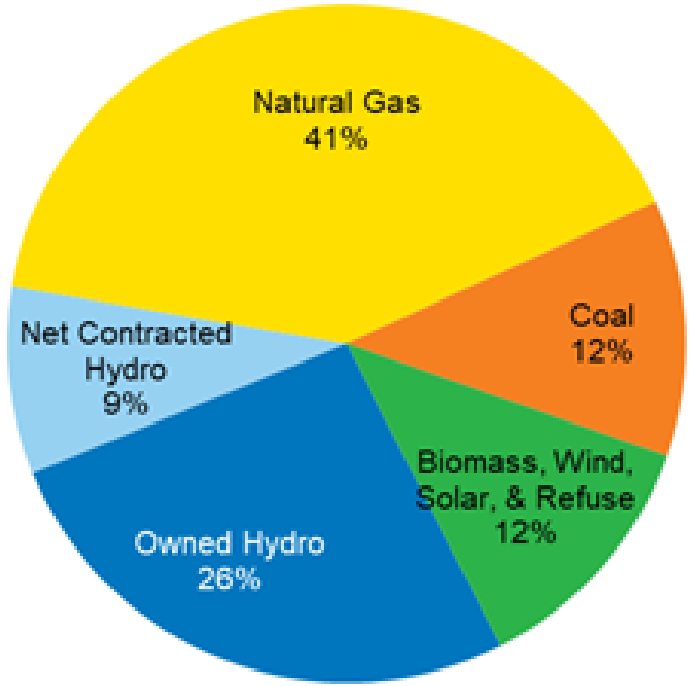
Demand Charge
The highest use over an hour in the last 12 months

What fuels our generating resources?

Winter Peak Capability

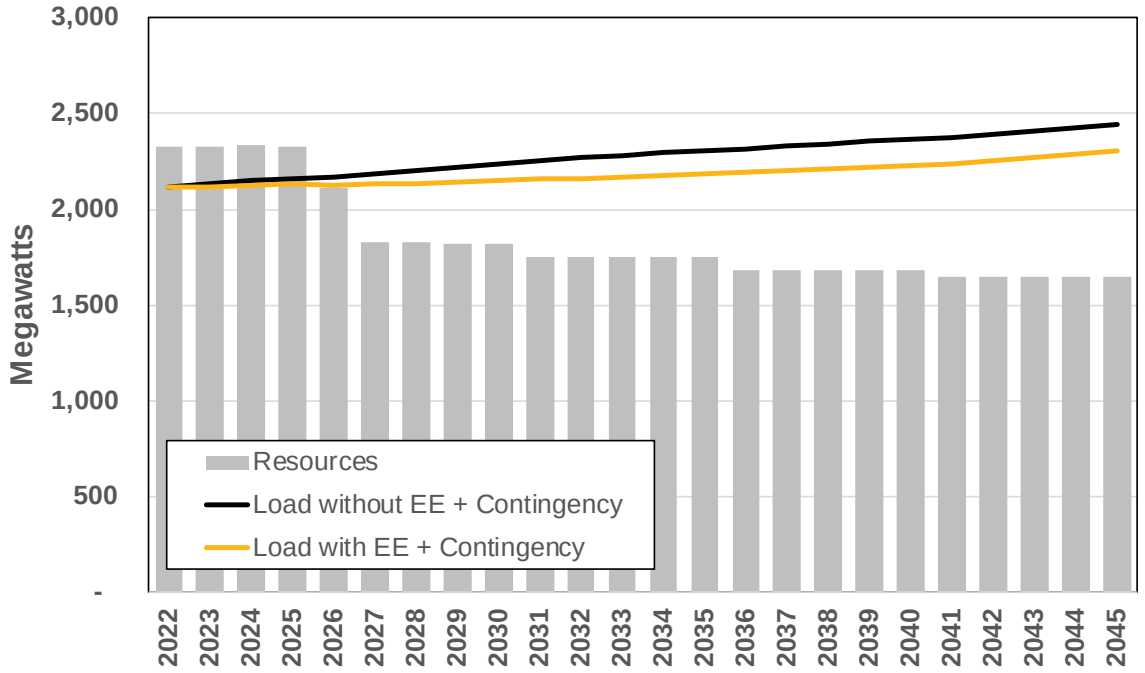


Annual Energy Capability

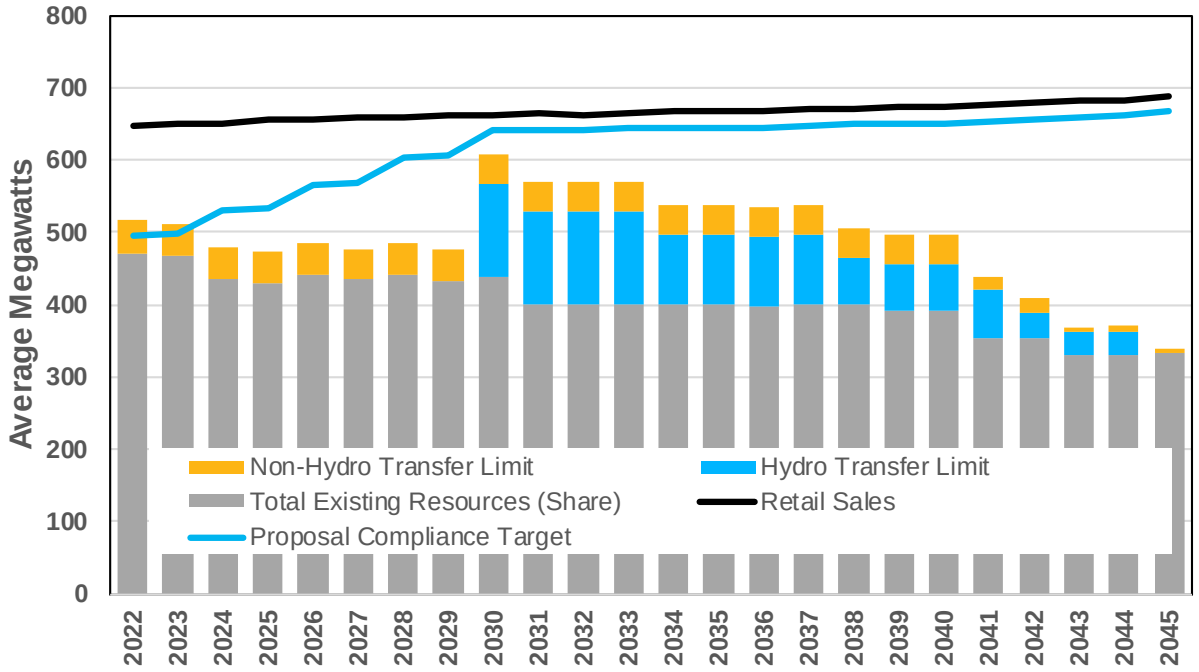


Why does Avista need new electric resources?

Meet System Winter Peak Load

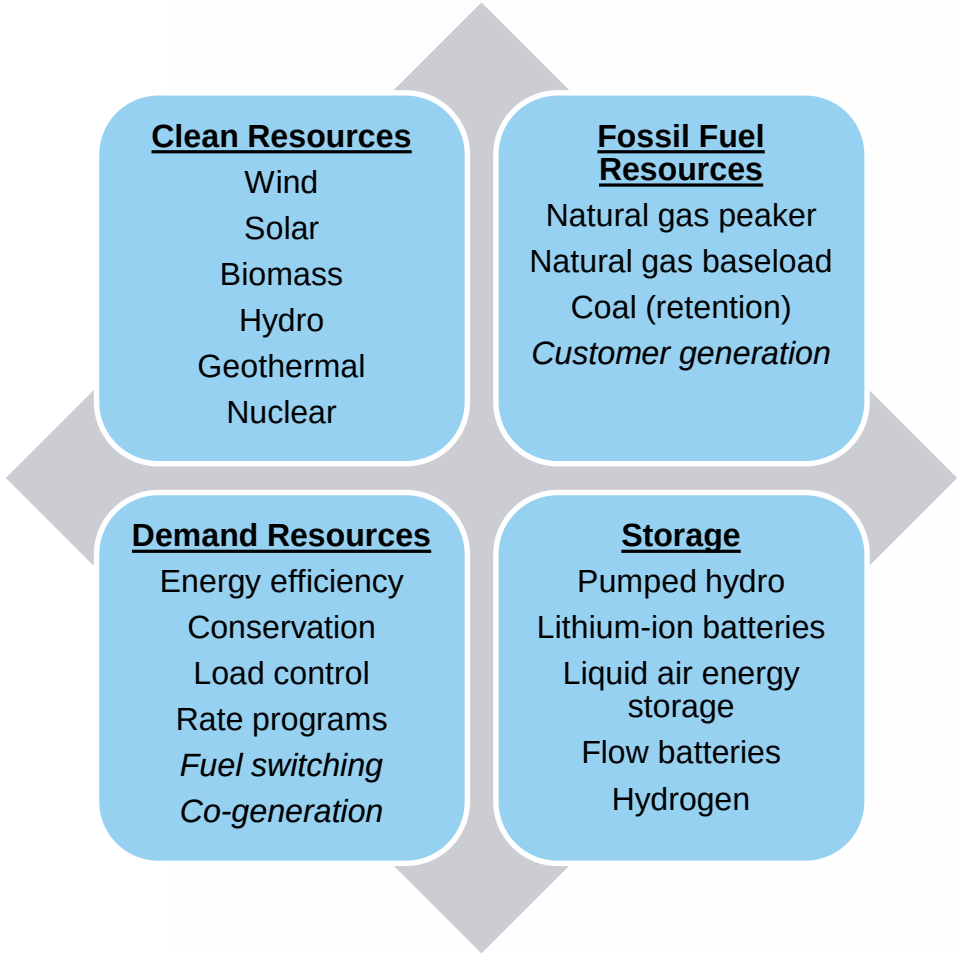


Meet Washington Clean Energy Requirements



Avista also plans to meet summer peak conditions & to ensure it generates enough energy over the course of the year in poor hydro conditions.

What options can meet our electric customer obligations?



Resources in italics were not directly modeled for this IRP.

Electric IRP's Preferred Resource Strategy over next 10 years

Generation Portfolio

- By end of 2025: Exit Colstrip
- 2023-24: Add new renewables (i.e. wind, solar, hydro)
- 2026-2027: Replace Lancaster natural gas plant (natural gas generation is lowest cost option) & increase capacity at the Kettle Falls Generating Station & Post Falls
- 2028: Add new renewable resources (Montana wind)
- 2031: Acquire existing Northwest Hydro Capacity
- 2035: Replace Northeast natural gas plant with upgrades to Rathdrum CT and acquire new capacity

Energy Efficiency

- Energy Efficiency meets 68% of future load growth
- Industrial & commercial customers provide 2/3 of savings
- Residential Single family home is largest single segment
- Washington top targets: Lighting, space heating, water heating, refrigeration, and cooling
- Idaho to targets: Lighting, space heating, and motors

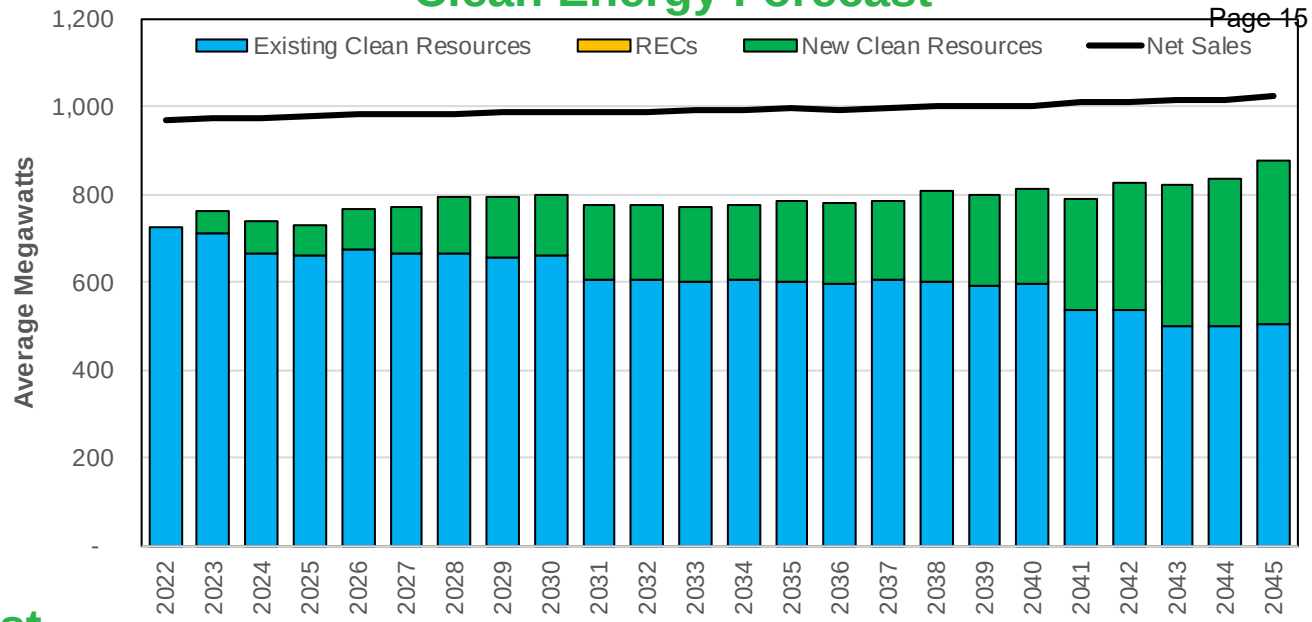
Demand Response

- 2024: Offer new rate programs (opt-in)
  (Time of use rates & variable peak pricing)
- 2026/27: Industrial load control
- 2031-32: Smart thermostat controls and commercial load control

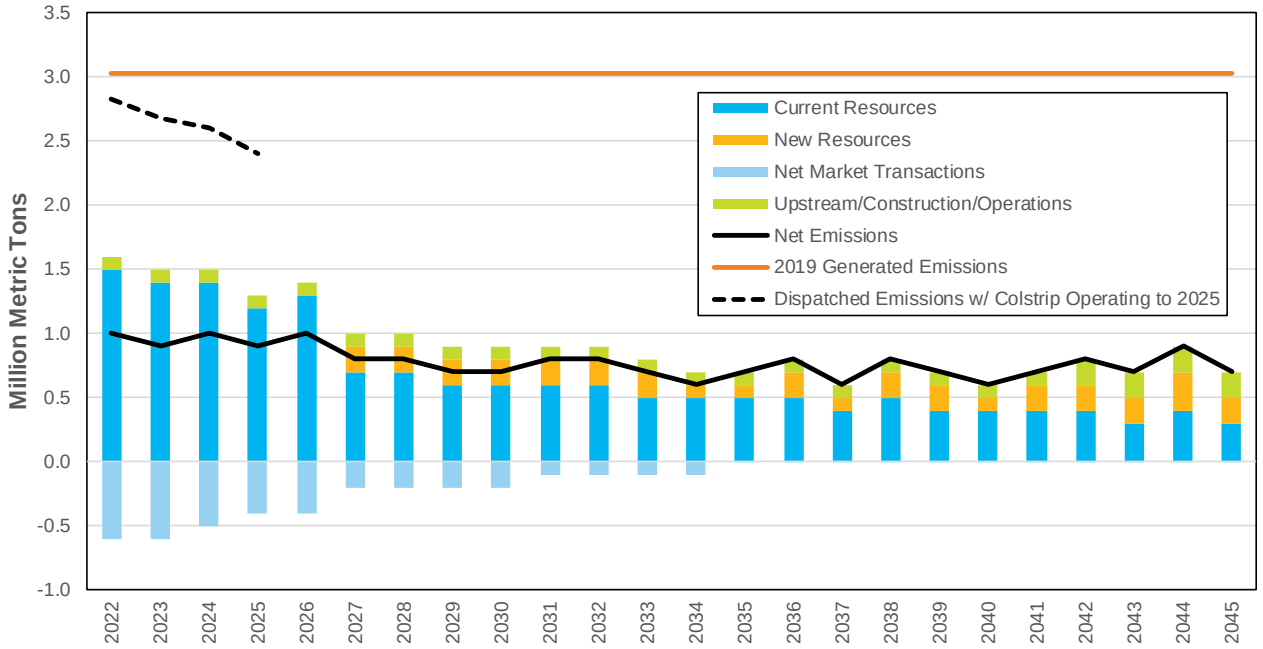
Avista's Cleaner Future

- Clean energy percent of system sales increase to 78% by 2027 and 86% by 2045.

Clean Energy Forecast



Greenhouse Gas Emission Forecast

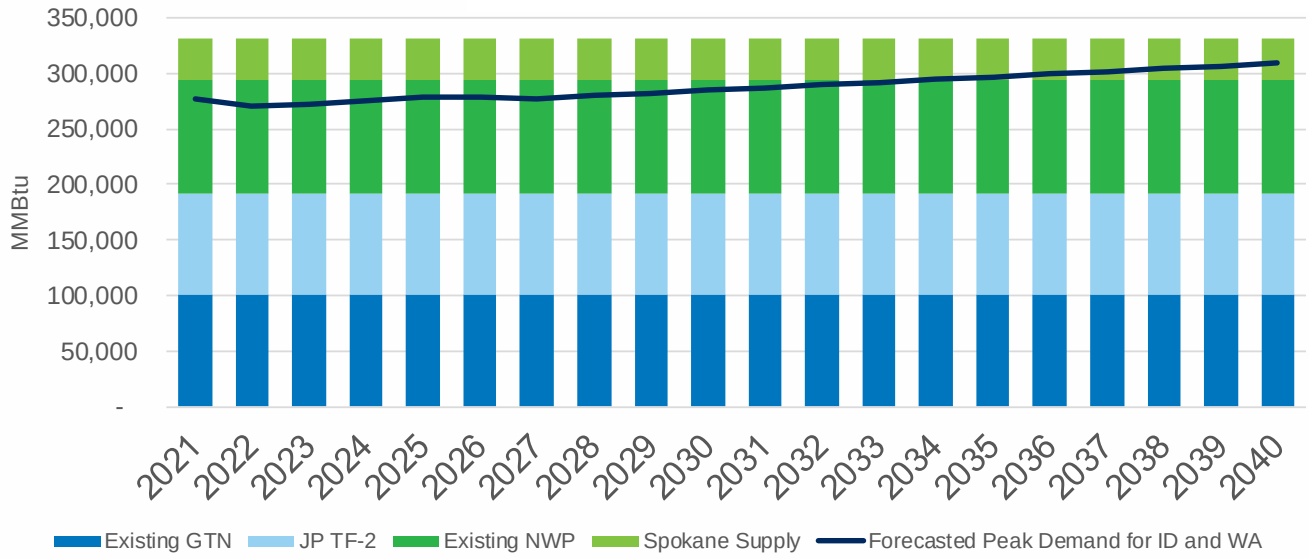


- By 2030, Avista's greenhouse gas emissions fall by 76 percent.
- 2019 Northwest power emissions were 57 million metric tons (Avista is 5.2% of those emissions).
- Power is 20% of all NW greenhouse gas emissions.

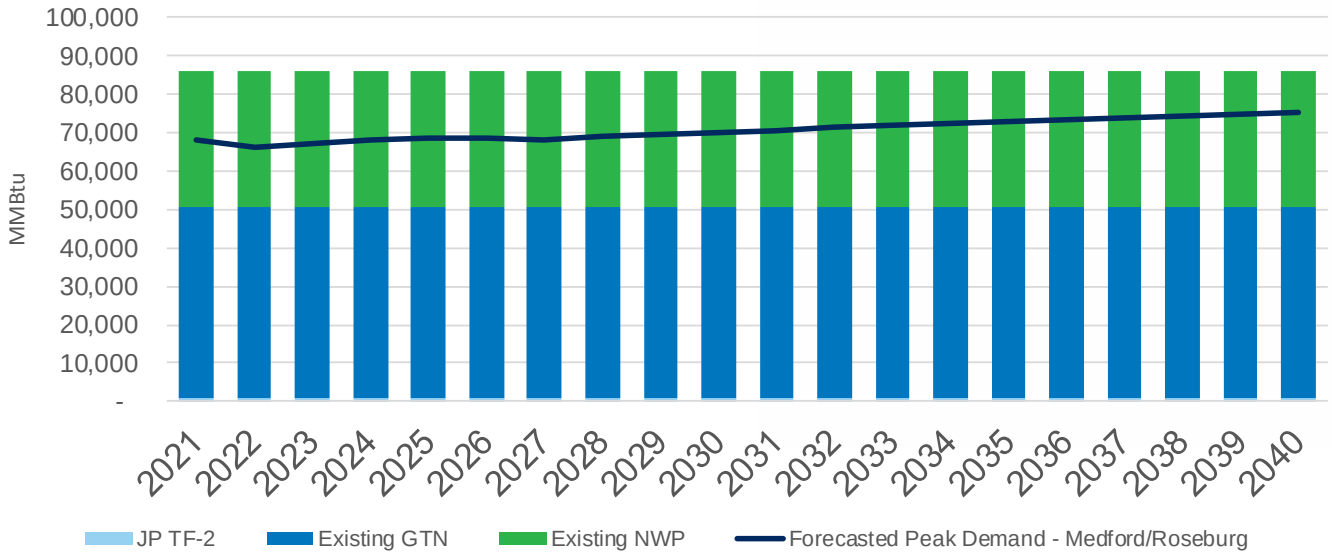
Draft 2021
Natural Gas Integrated Resource Plan

Existing Resources vs. Peak Day Demand

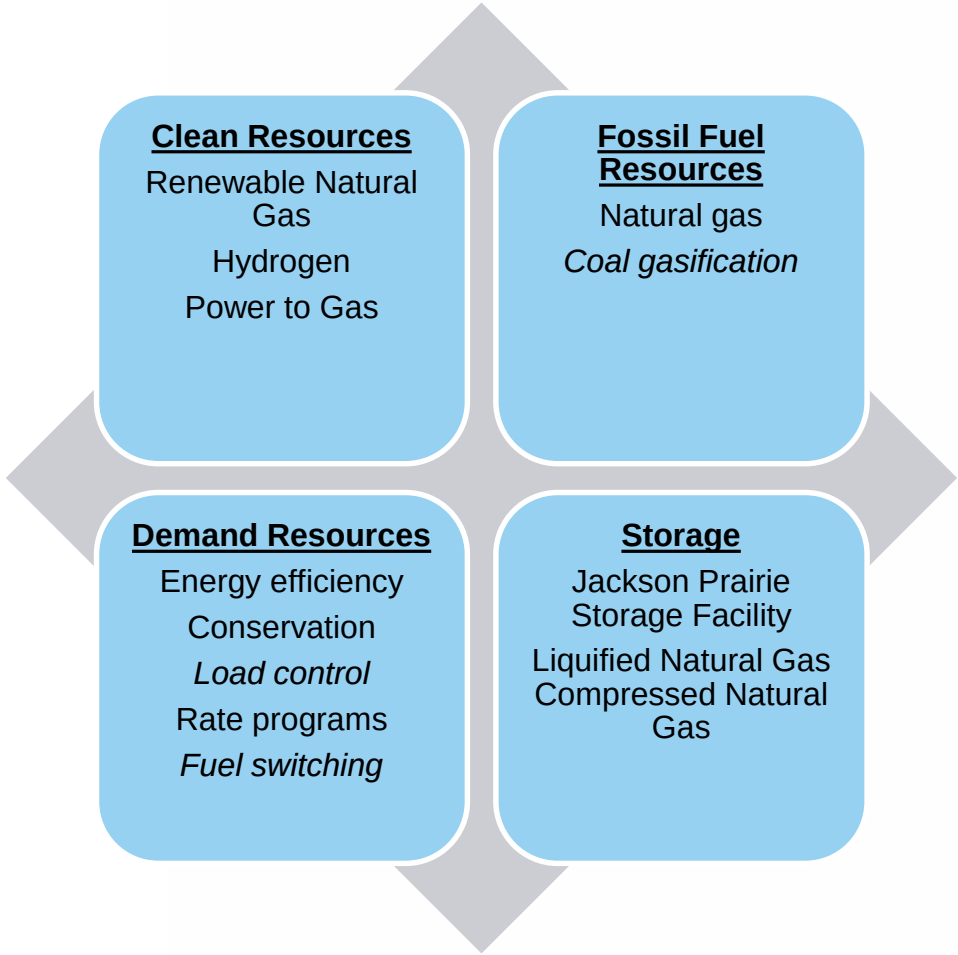
Idaho and Washington



Medford and Roseburg



What are the options to meet natural gas customer needs?



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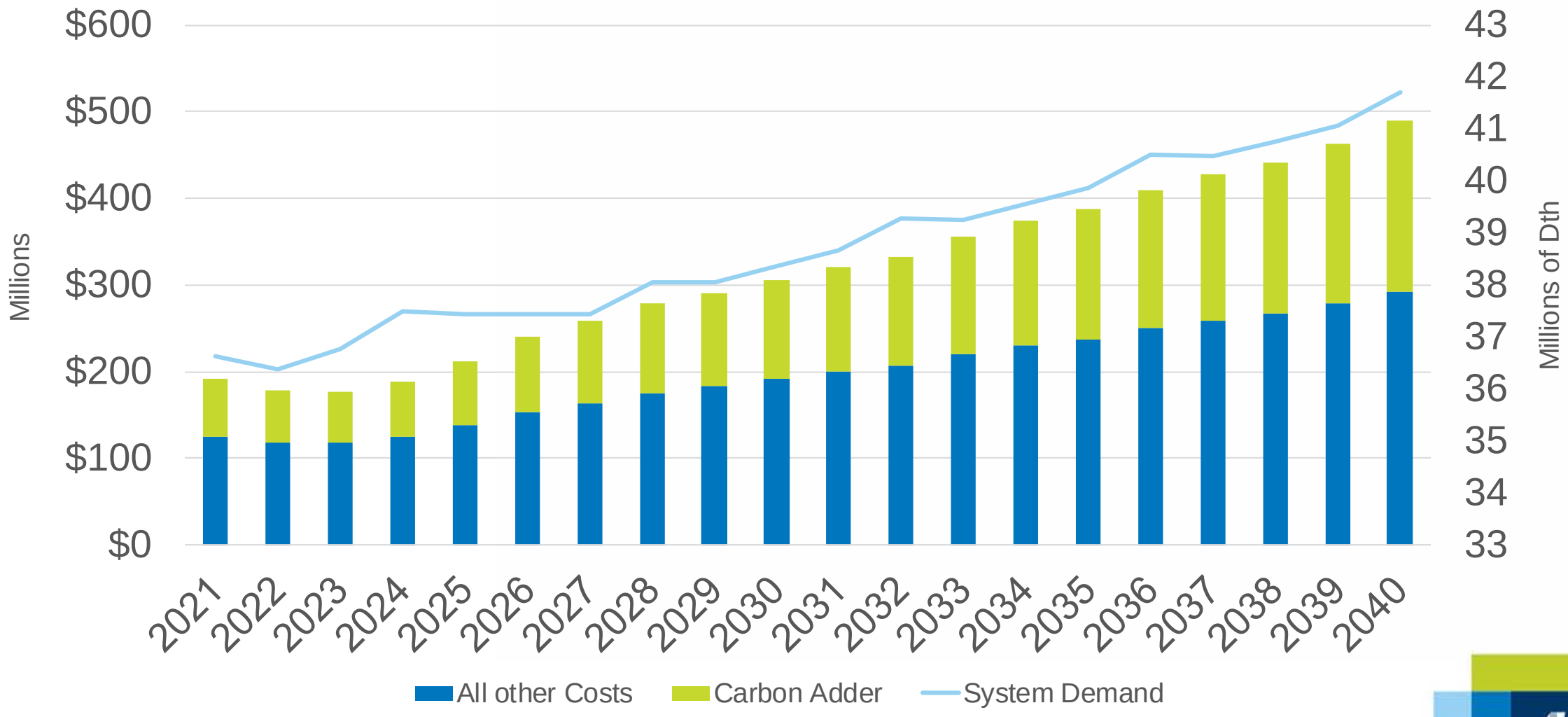
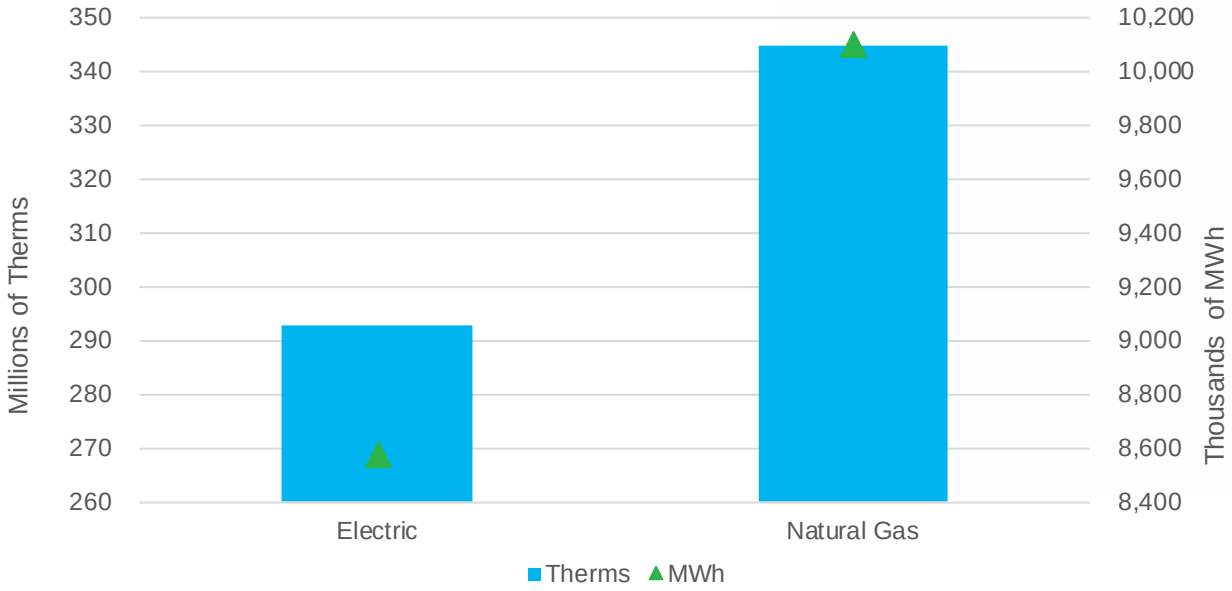
Natural Gas System Cost vs. Carbon Adder

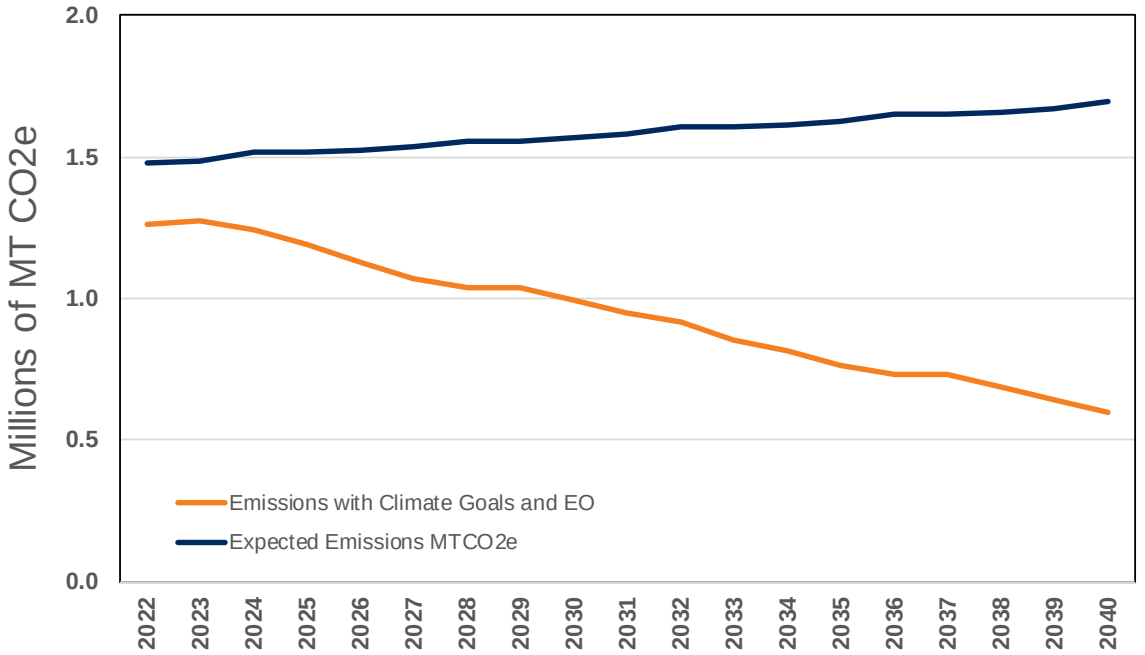


Avista Natural Gas – A Cleaner Future

2019 Retail Energy Delivered



Carbon Reduction Goals (Oregon & Washington



Oregon - Executive Order 20-04

- 80% reduction by 2050

Washington - Goal

- 95% reduction by 2050

How do I get involved with Avista's IRPs?

How to learn more:

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Email: irp@avistacorp.com or askavista@avistacorp.com

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Electric Docket: UE-200301
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Idaho PUC

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Oregon PUC

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- Breakout rooms today
- Provide written comments to Avista's planning team by March 5th.
- Provide written comments to your state's commission
- Join Avista's Technical Advisory Committees
  - Electric IRP
  - Natural Gas IRP
  - Energy Efficiency
- Future participation opportunities
  - Equity
  - Energy Assistance
  - Distribution Planning

Breakout Sessions

- Two 30 minute breakout room opportunities.
- You can access breakout rooms by using the links in the chat box or stay in this session.
  - Passcode: Avista
- Short presentation by Avista staff (5 minutes).
- Opportunity to ask Avista staff questions or provide comments.
- Any questions not answered today will be available on the IRP Avista website by March 12.
- Limit of 300 participants in each room

- Generation Resource Selection & Reliability
  - Stay here or use registration link
  - Webinar ID: 82608251 3174
- Energy Efficiency & Demand Response
  - https://us02web.zoom.us/j/82664724856?pwd=QzdUMk9zUE1nRjViYTlXRkJ5S2p5UT09
  - Meeting ID: 826 6472 4856
- Affordability & Equity
  - https://us02web.zoom.us/j/88435288369?pwd=bGtNK3JYbTBCcktCV2JMRE1sT09CZz09
  - Meeting ID: 884 3528 8369
- Environmental Topics
  - https://us02web.zoom.us/j/89096065417?pwd=M0FzYWZHdjhTQlRRR2xwOSs4M1ByZz09
  - Meeting ID: 890 9606 5417
- Natural Gas Service
  - https://us02web.zoom.us/j/84369554229?pwd=YkZJc0ZrUm91NVFSanNJNmxPaVB4UT09
  - Meeting ID: 843 6955 4229

Breakout Session Ground Rules

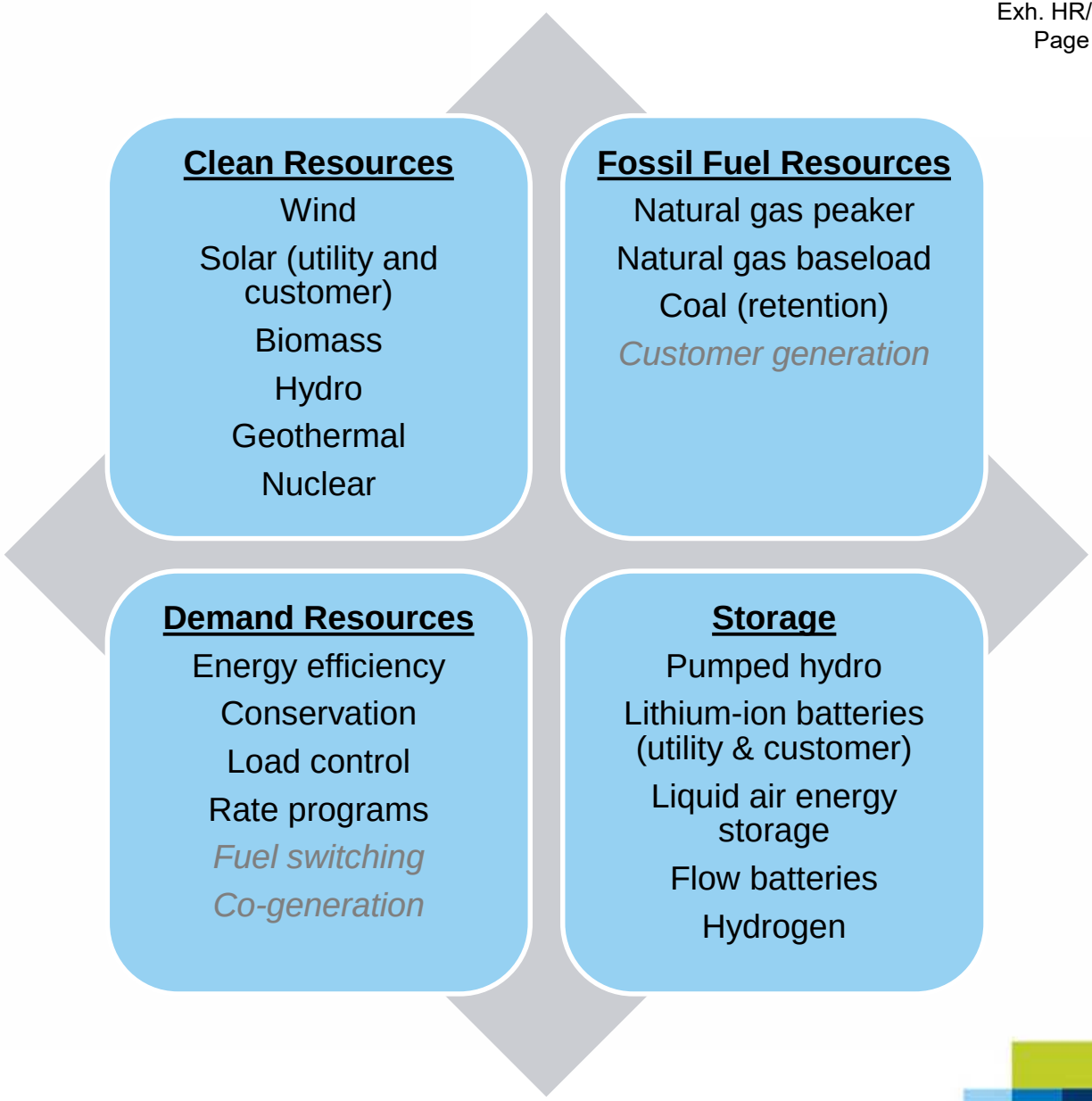
- Due to the large response to this public meeting, please limit comments and questions to 30 seconds.
  - Avista will try to answer all questions.
  - Avista will also provide written responses if we cannot fully address the question.
  - Comments will be acknowledged and recorded.
- If you would like to make a comment or ask a question.
  - Use the “raise hand” feature in the meeting controls.
  - We will call upon each person to speak.
  - Lower your hand after your comment.
  - Please comment on areas within the breakroom topic.
- Please do not repeat questions or comments.
  - If you have the same comments- please indicate in the chat box or send an email to irp@avistacorp.com with your comment.
- In the event we do not get to your comment or question in the allotted time, please email irp@avistacorp.com.
- Please limit comments or questions to resource planning- this means in relation to the energy we serve and not the delivery of energy. If you have these questions or any others please see:
  - http://myavista.com/smartmeters
  - askavista@myavista.com

Resource Selection & Reliability Breakout Room

James Gall
Thomas Dempsey
Damon Fisher

Resource Options

- Multiple factors drive resource selection
  - Cost or price
  - Clean vs. fossil fuel
  - Capacity value or “peak credit”
  - Storage vs. energy production
  - Location
  - Availability (new vs. existing)
- Resource retirements
  - Future capital investment
  - Operating & maintenance cost/availability
  - Fuel availability
  - Carbon pricing risk
- Non-energy costs & benefits
  - Social cost of carbon
  - Locational siting
  - Health, economic, and other benefits (still to come)



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Supply-Side Resource Changes

- Long-term acquisition of new resources will be conducted with a public request for proposals (RFP).
  - Avista added the Rattlesnake Flat Wind project in 2020.
  - Avista is currently working with clean energy proposals from is most recent RFP- this RFP will determine a portion of the resource need in 2023-2024.
- New resource selection is determined by deliverability and lowest economic cost subject to resource policy requirements of each state

Resource Type	Year	State	Capability (MW)
Colstrip (Coal)	By end of 2025	System	(222)
Montana wind	2023	WA	100
Montana wind	2024	WA	100
Lancaster (Natural Gas)	2026	System	(257)
Post Falls Modernization (Hydro)	2026	System	8
Kettle Falls upgrade (Wood-Biomass)	2026	System	12
Natural gas peaker	2027	ID	85
Natural gas peaker	2027	System	126
Montana wind	2028	WA	100
NW Hydro Slice	2031	WA	75
Rathdrum CT upgrade (Natural Gas)	2035	System	5
Northeast (Natural Gas)	2035	System	(54)
Natural gas peaker	2036	System	87
Solar w/ storage	2038	System	100
4-hr storage for solar	2038	System	50
Boulder Park (Natural Gas)	2040	System	(25)
Natural gas peaker	2041	ID	36
Montana wind	2041	WA	100
Solar w/ storage	2042-2043	WA	239
4-hr storage for solar	2042-2043	WA	119
Liquid air energy storage	2044	WA	12
Liquid air energy storage	2045	ID	10
Solar w/ storage	2045	WA	149
4-hr storage for solar	2045	WA	75
Supply-side resource net total (MW)			1,032
Supply-side resource total additions (MW)			1,589

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Energy Efficiency and Demand Response Breakout Room

Ryan Finesilver
Leona Haley

Energy Efficiency & Demand Response

Conservation Potential

Study to determine overall conservation potential

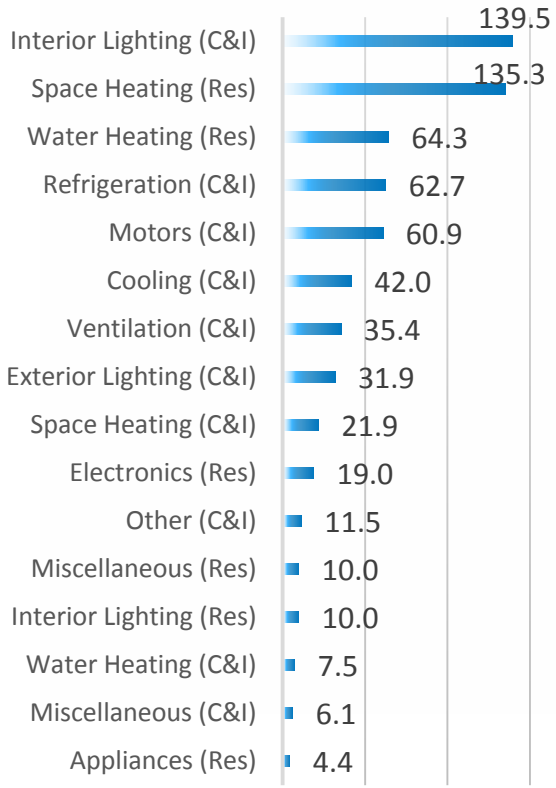
Integrated Resource Planning

Preferred Resource Strategy selects "measures" and sets target

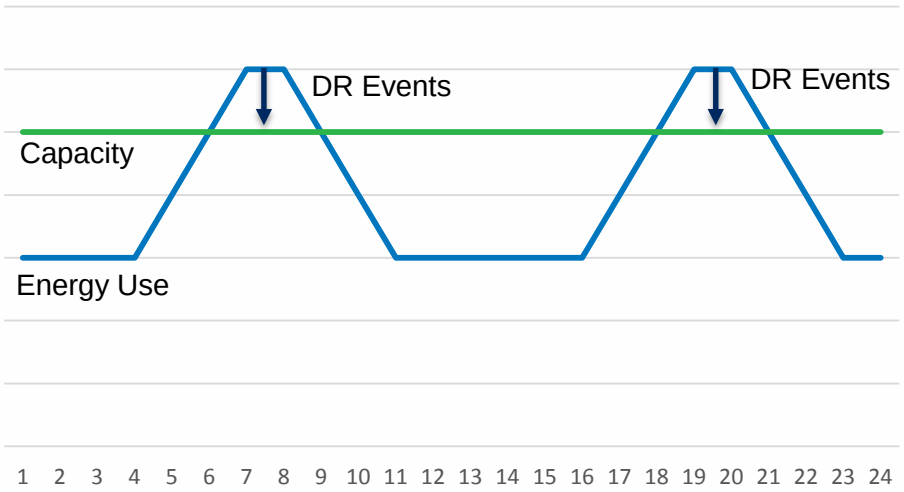
Energy Efficiency Program

Program designed to "incent" customers to make energy efficiency choices

10-YEAR GWH CONSERVATION POTENTIAL

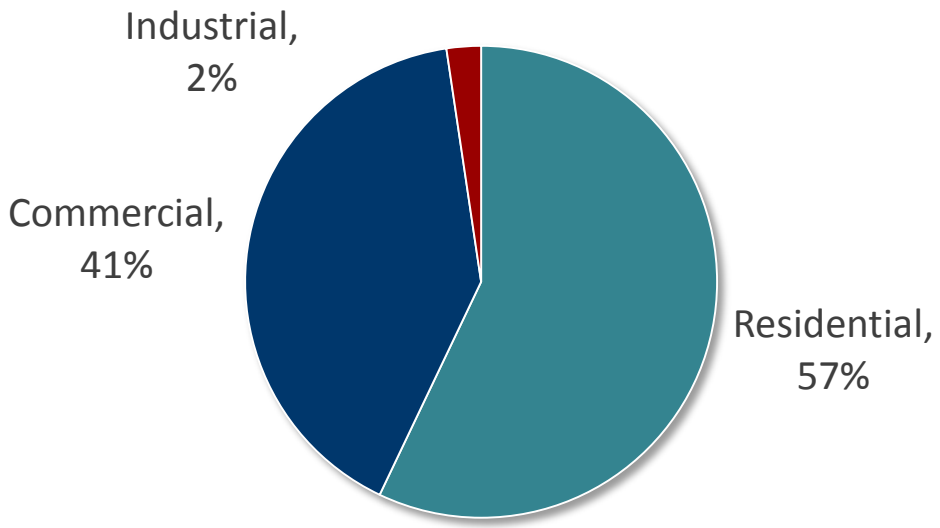


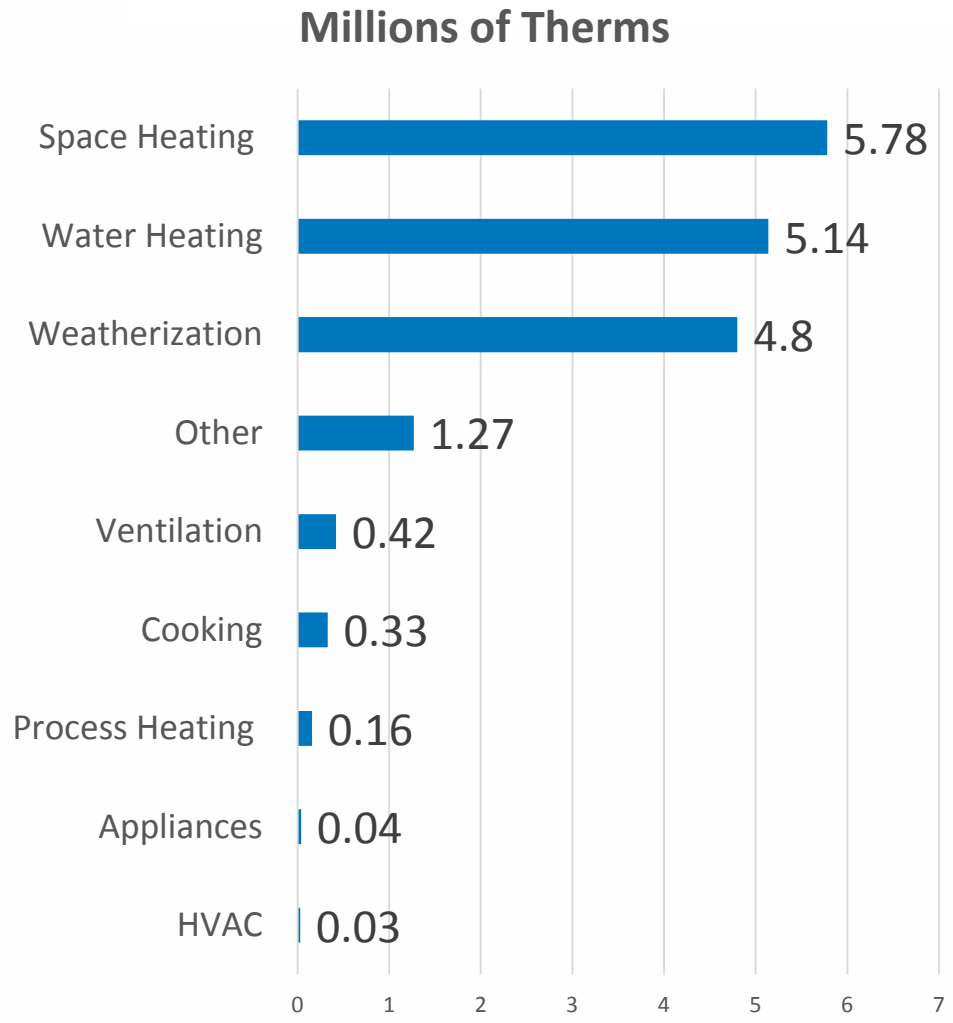
Demand Response



Program	Washington	Idaho
Time of Use Rates	2 MW (2024)	2 MW (2024)
Variable Peak Pricing	7 MW (2024)	6 MW (2024)
Large C&I Program	25 MW (2027)	n/a
DLC Smart Thermostats	7 MW (2031)	n/a
Third Party Contracts	14 MW (2032)	8 MW (2024)
Behavioral	1 MW (2041)	n/a
Total	**56 MW**	**15 MW**

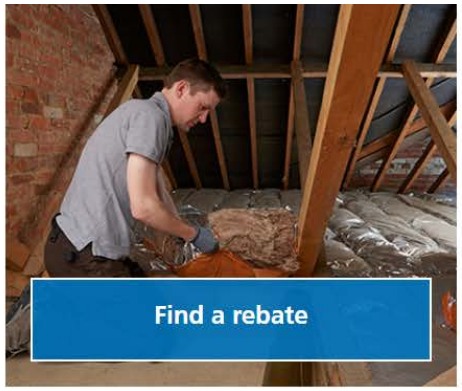
Natural Gas Energy Efficiency





Way to Save

https://www.myavista.com/energy-savings/way-to-save



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Affordability and Equity Breakout Room

Ana Matthews
Shawn Bonfield
Renee Coelho
Lisa McGarity

Washington Clean Energy Transformation Act – Energy Equity

CETA requires that all customers are benefiting from the transition to clean energy:

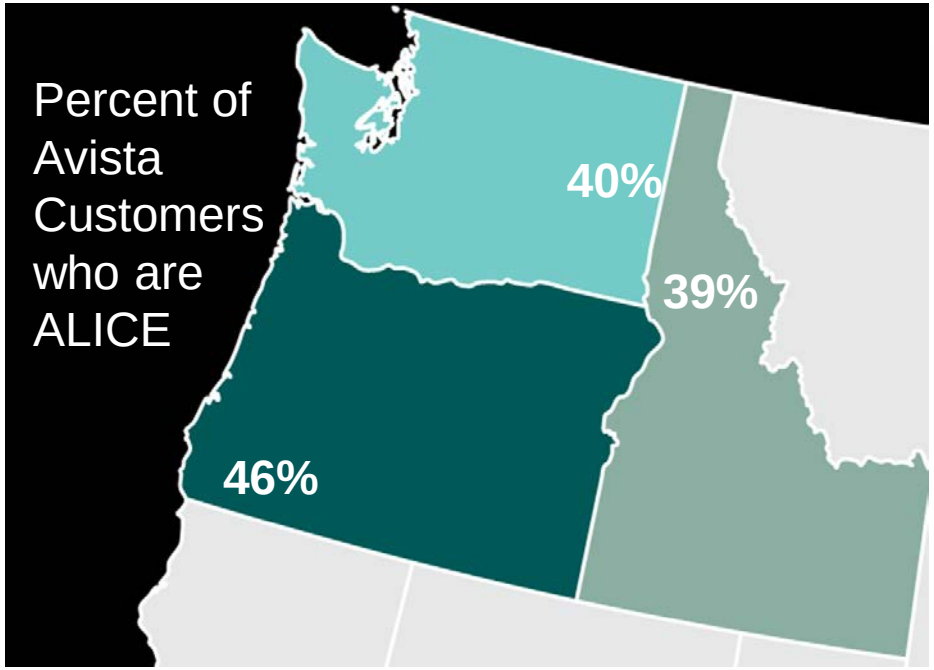
- Through the equitable distribution of energy and nonenergy benefits; and,
- Reduction of burdens to vulnerable populations and highly impacted communities.

- Equitable distribution means a fair and just, but not necessarily equal, allocation of benefits and burdens from the utility's transition to clean energy.
- Equitable distribution is based on disparities in current conditions.

Asset Limited, Income Constrained and Employed (ALICE)

Sources:

- United Way of the Pacific Northwest, 2018, https://www.uwpnw.org/
- Eligible Households Sources:
- Oregon: Apprise, 2020 LIHEAP/OEAP Evaluation
- Washington: Evergreen Economics Avista 2019 Low Income Needs Assessment
- Idaho: Community Action Partnership Association of Idaho



Households Eligible for Bill Assistance (Up to 150% Federal Poverty Level)	
Idaho	29,311
Washington	95,387
Oregon	18,410
Total	142,108

Avista Energy Assistance Overview

- Low-Income Rate Assistance Program (LIRAP) available in Oregon & Washington
- Conservation Education available in Idaho & Washington
- Weatherization available in all three states

Bill Assistance

LIRAP Heat

LIRAP Senior/Disabled Outreach

Emergency Assistance

LIRAP Emergency Share

COVID-19 Hardship

Rate Discount

Senior/Disabled

Implemented in 2021

Percent of Income Payment Plan

Arrearage Management Program

Conservation Education

Energy Fairs

Workshops

General and Mobile Outreach

Energy Efficiency

Low-Income Weatherization

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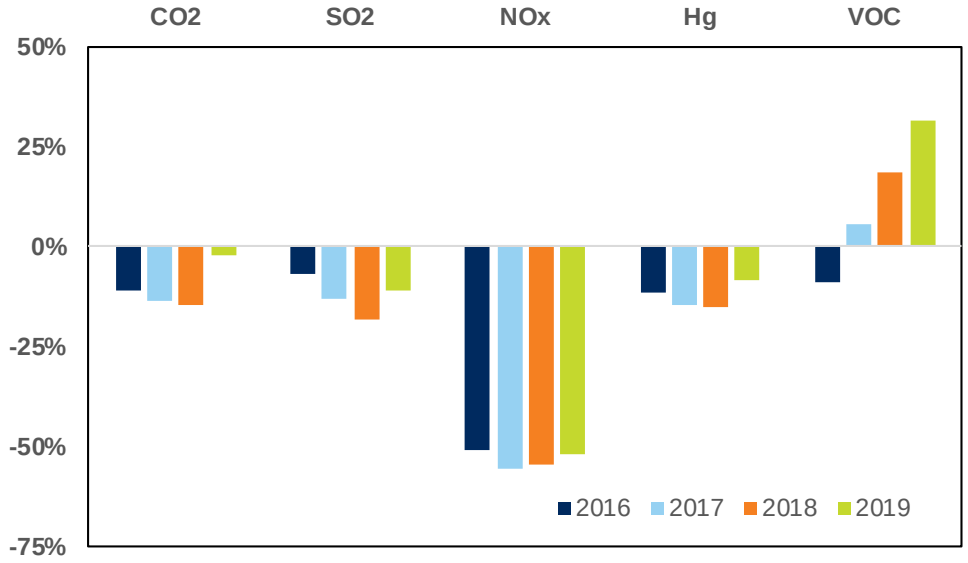
Environmental Topics Breakout Room

John Lyons
Bruce Howard

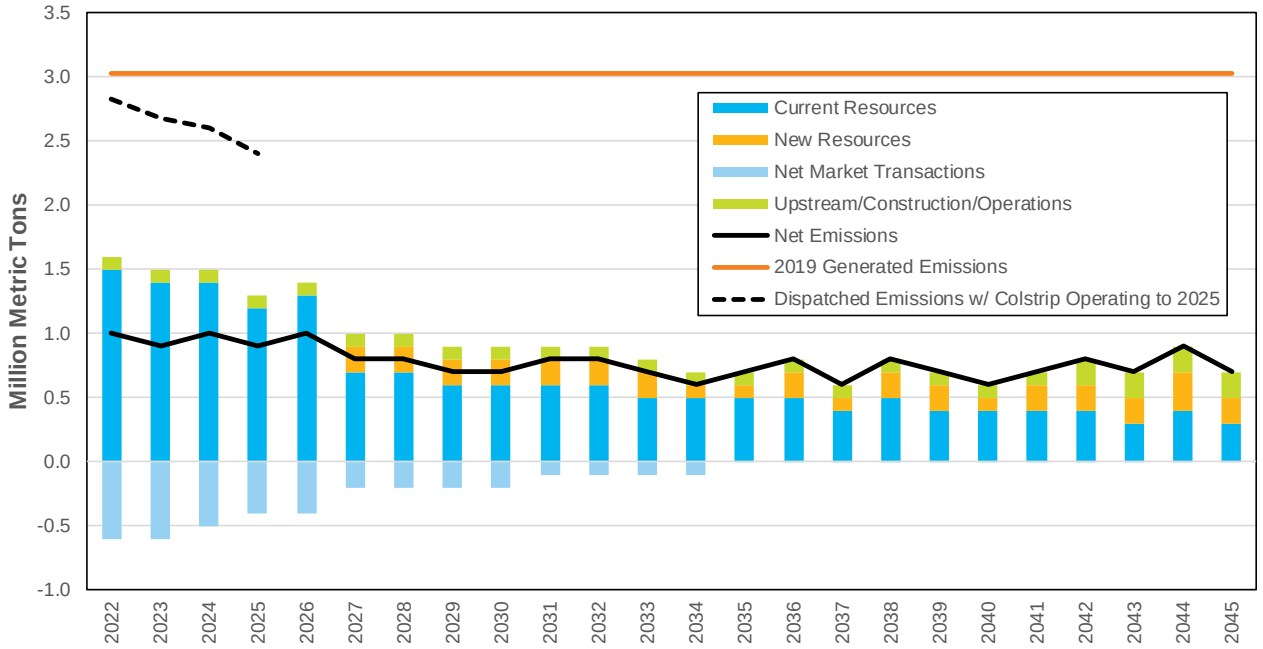
Avista's Environmental Footprint

- By 2030, Avista's greenhouse gas emissions fall by 76 percent.
- 2019 Northwest power emissions were 57 million metric tons (Avista is 5.2% of those emissions).
- Power is 20% of all NW greenhouse gas emissions.

Total Change in Air Emissions Since 2015



Greenhouse Gas Emissions Forecast



- Total emissions are determined by utilization of facilities and control technology.
- NOx emissions fall by over 50% due to smart burn technology at Colstrip coal fired facility,
- VOC emission rise is due to increased plant utilization and new testing at the Kettle Falls Biomass facility,

How do I get involved with Avista's IRPs?

How to learn more:

https://myavista.com/about-us/integrated-resource-planning

Email: irp@avistacorp.com or askavista@avistacorp.com

Washington UTC

www.utc.wa.gov

Electric Docket: UE-200301
Natural Gas Docket: UG-190724

Idaho PUC

https://puc.idaho.gov/

Oregon PUC

www.oregon.gov/puc

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- Provide written comments to your state's commission
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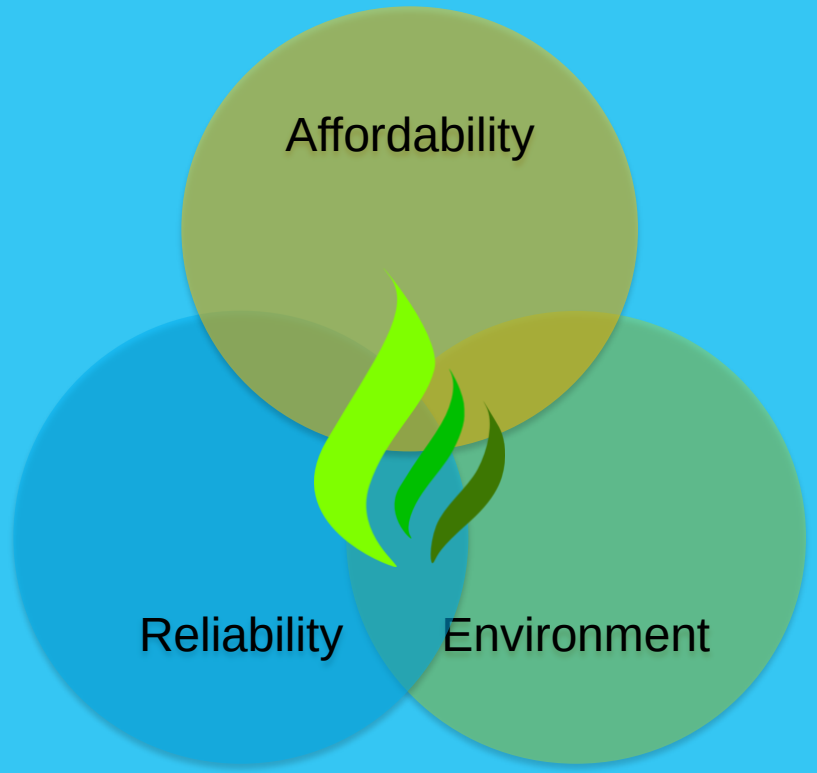
  - Natural Gas IRP
  - Energy Efficiency
- Future participation opportunities
  - Equity
  - Energy Assistance
  - Distribution Planning

Natural Gas Breakout Room

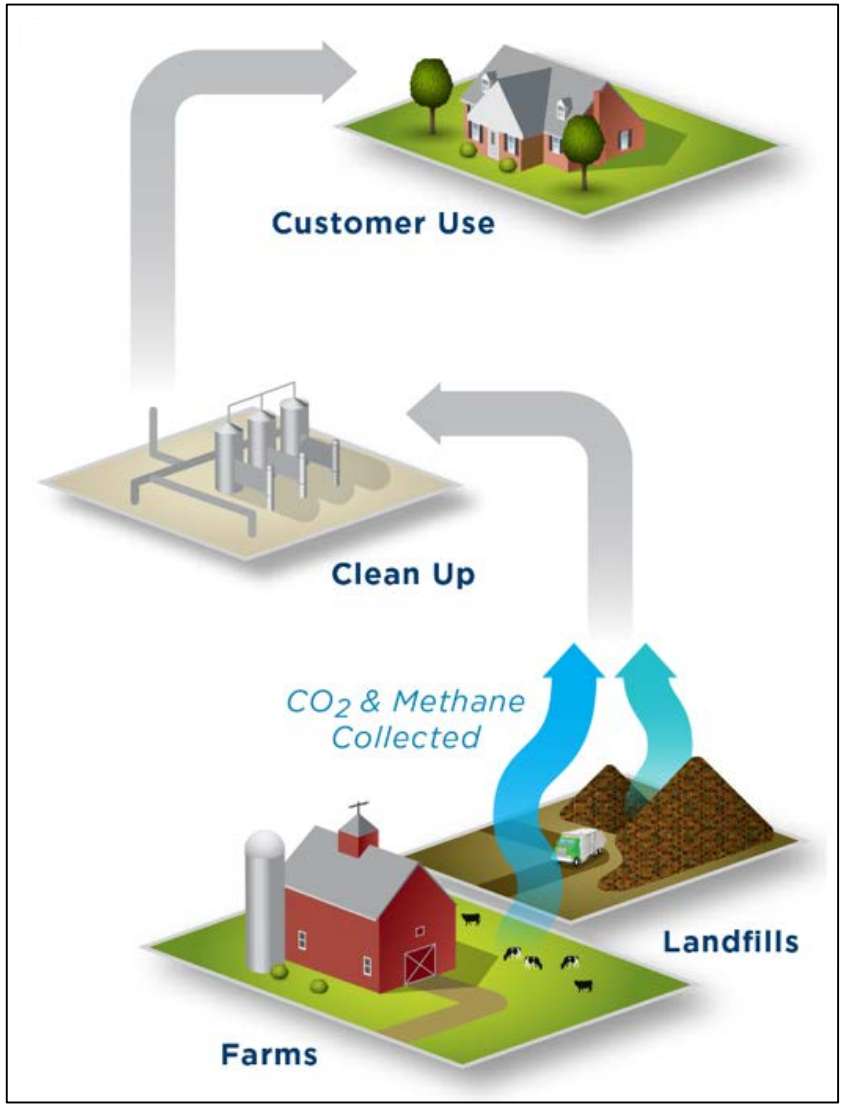


Tom Pardee
Michael Whitby
Jody Morehouse

Carbon Reduction Pathways

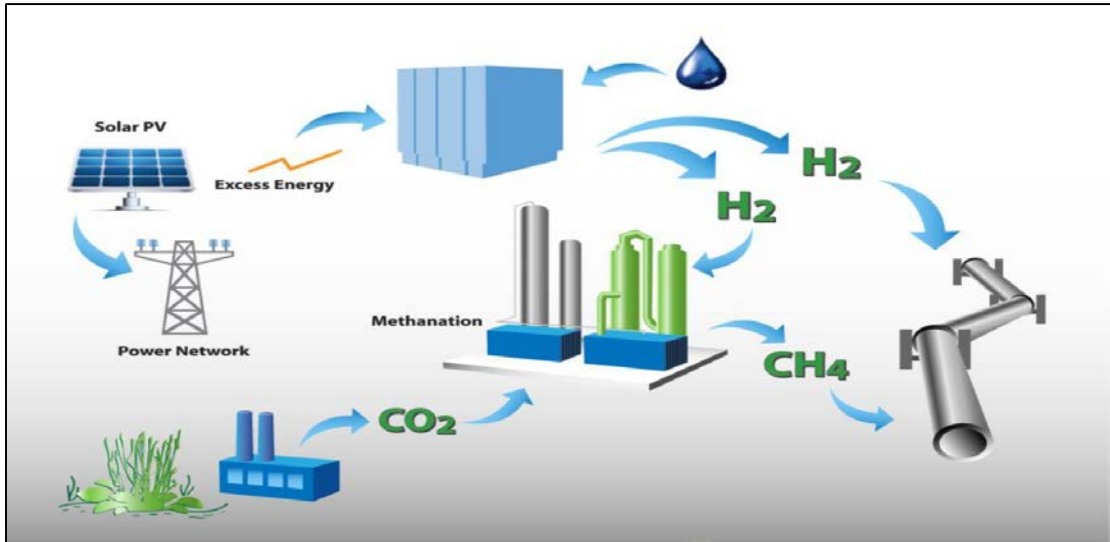
Renewable Natural Gas (RNG)

- Biogas from decomposing waste streams is captured
- The gas is scrubbed to pipeline quality RNG
- RNG flows through existing natural gas pipelines to end users



Power to Gas with Hydrogen

- Renewable electricity converts water to hydrogen
- Hydrogen is combined with waste CO_2 to make RNG
- RNG flows through existing natural gas pipelines to end users



Natural Gas is Critical to a Clean Energy Future

- In the right applications, **direct use of natural gas is best use**
- Natural gas generation provides **critical capacity** as renewables expand until utility-scale storage is cost effective and reliable
- Full electrification can lead to **unintended consequences**:
  - Creates new generation needs that can increase carbon emissions
  - Drives new investment in electric distribution infrastructure, causing bill pressure
  - Home and business conversion costs borne by customers
  - Puts at risk energy **reliability and resilience, energy choice, and affordability**
- Customers have paid for a vast pipeline infrastructure that can utilized for a cleaner future by **transitioning the fuel** and keeping the pipe
- A comprehensive view of the energy ecosystem leads to a **diversified approach to energy supply** that includes natural gas

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