



# 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



Web Dockets UE-200900 & UG-200901<sup>RS</sup>  
 Exh. HR/LL-\_\_\_\_X  
 Electric 213,031  
 Natural Gas 153,467  
 Page 4 of 43

**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
<b>Total Hydroelectric Capability</b>		<b>1,022.0</b>

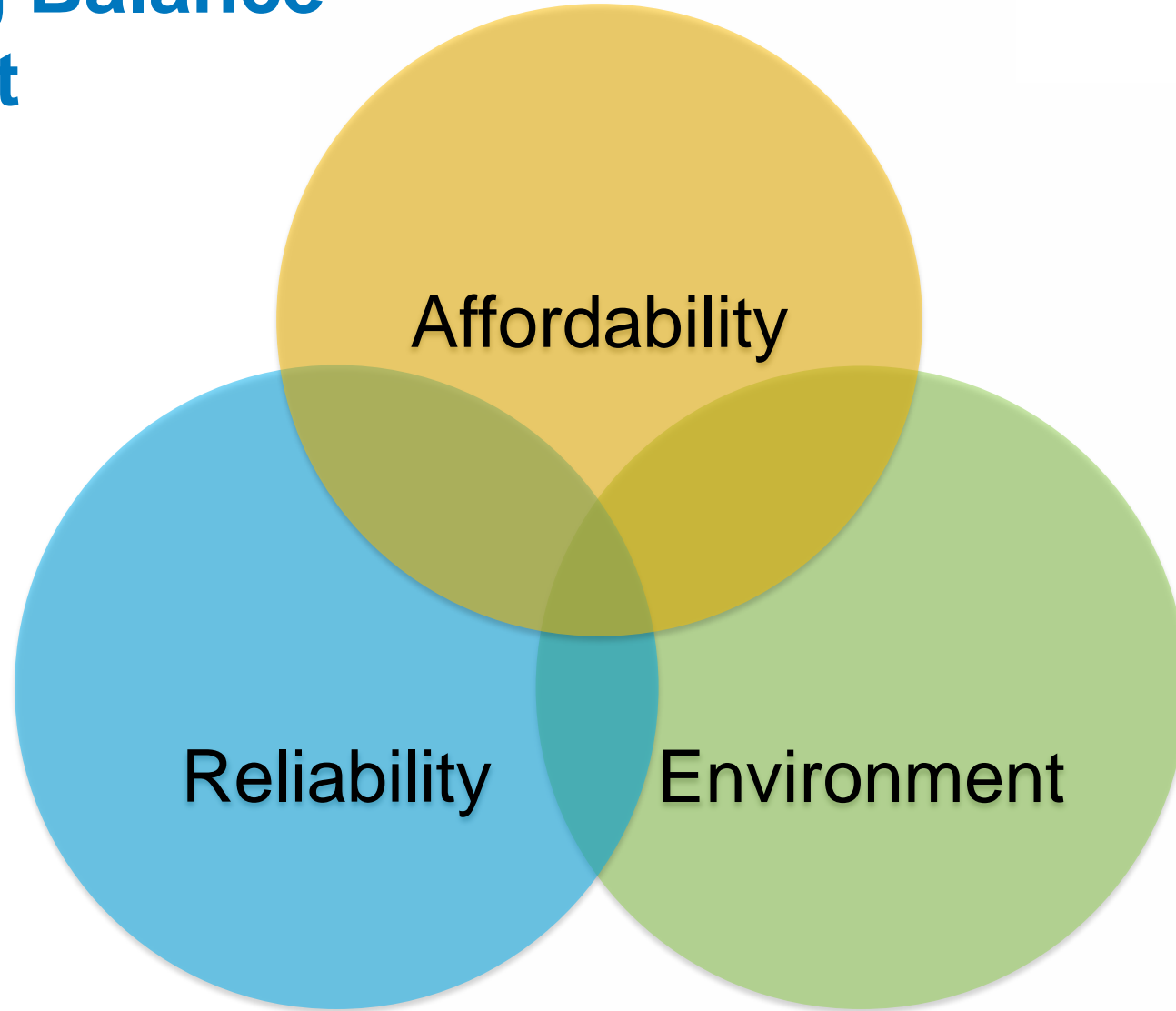
**Thermal** GENERATION CAPABILITY (MW)

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
<b>Total Thermal Capability</b>		<b>822.1</b>

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



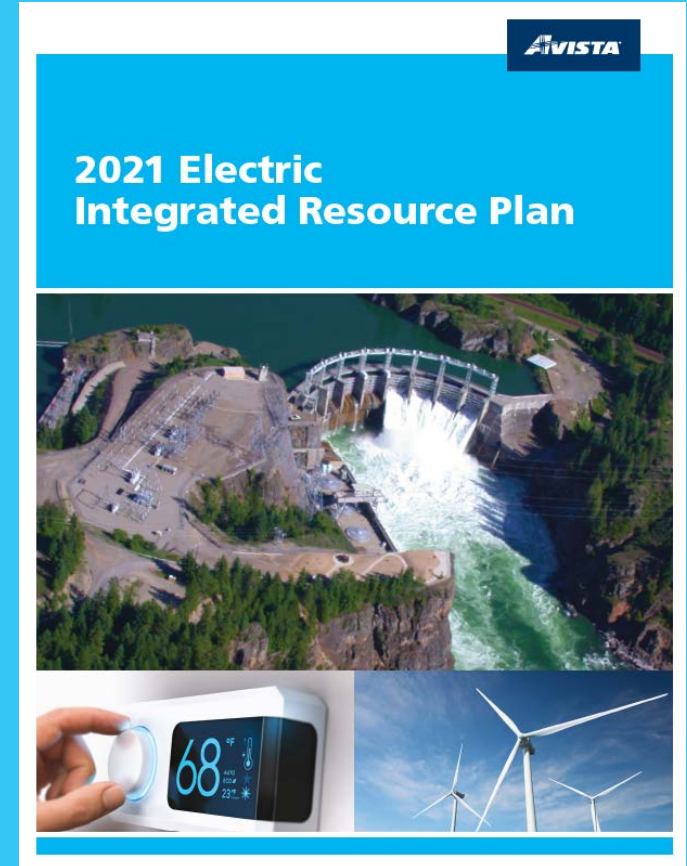
# What is an IRP?

- 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



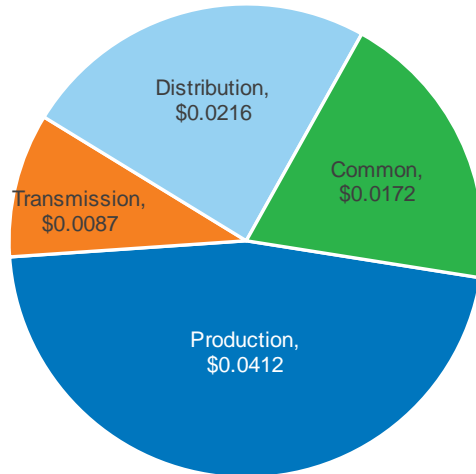
# What's in your energy rate?

**Begins with Cost to Serve All Customers**

**Customer Type**

**Pricing Type**

**Electric**



Residential

**Fixed Charge**  
Monthly connection charge

Commercial

**Energy Charge**  
The amount of energy used over the month

Large Commercial

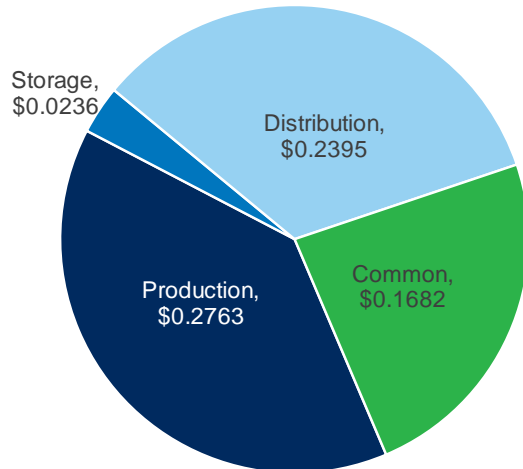
Industrial

Water Pumping

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

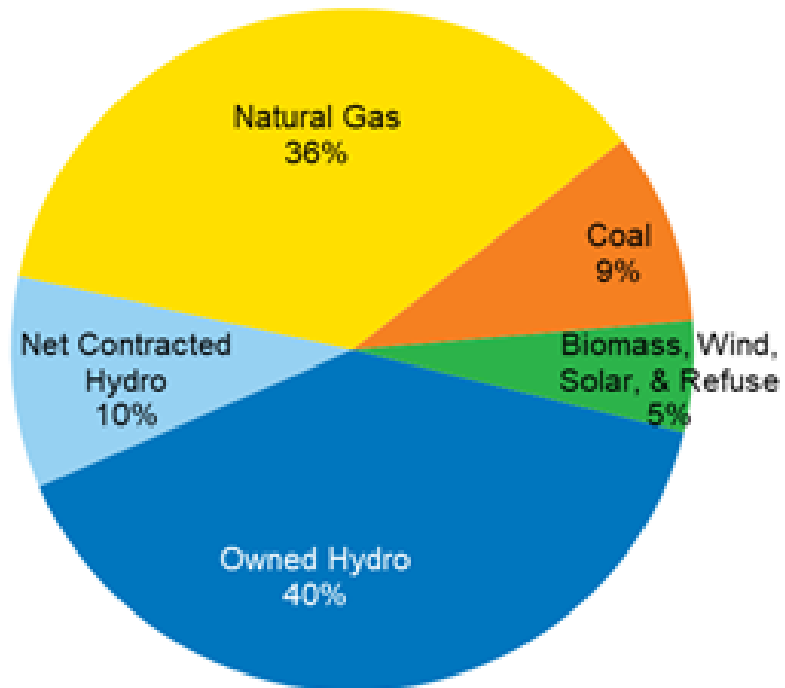
Street Lighting

**Natural Gas**

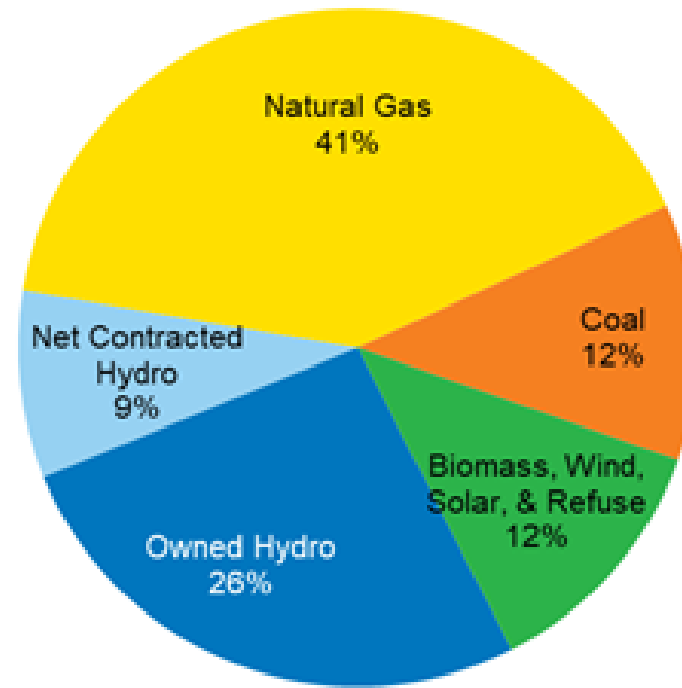


# What fuels our generating resources?

## Winter Peak Capability

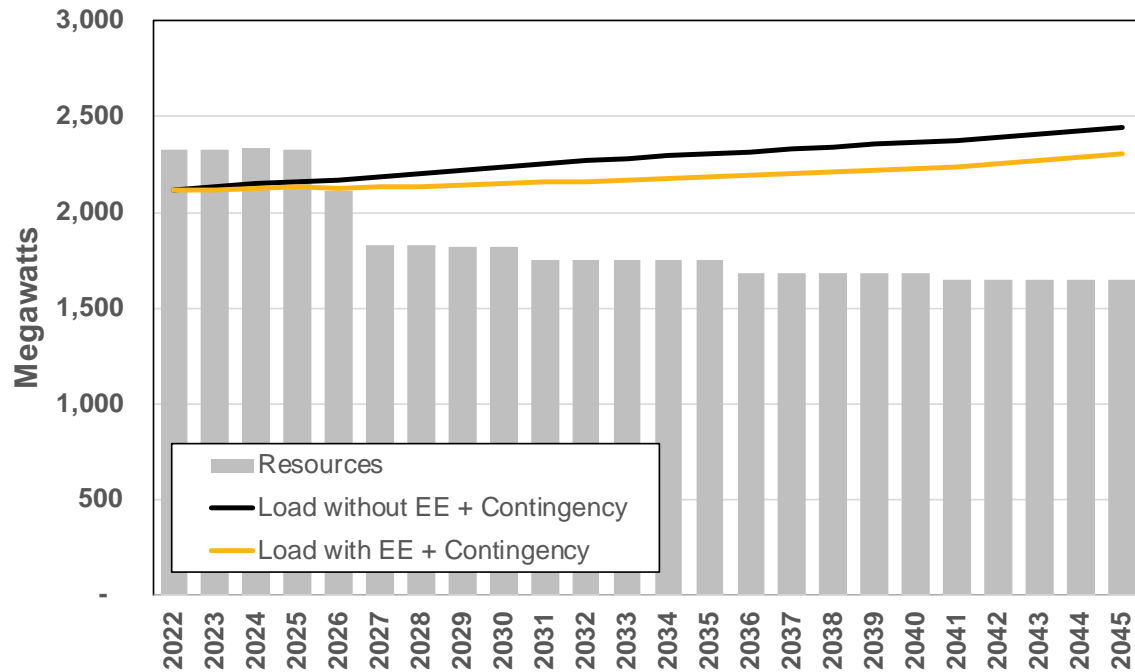


## Annual Energy Capability

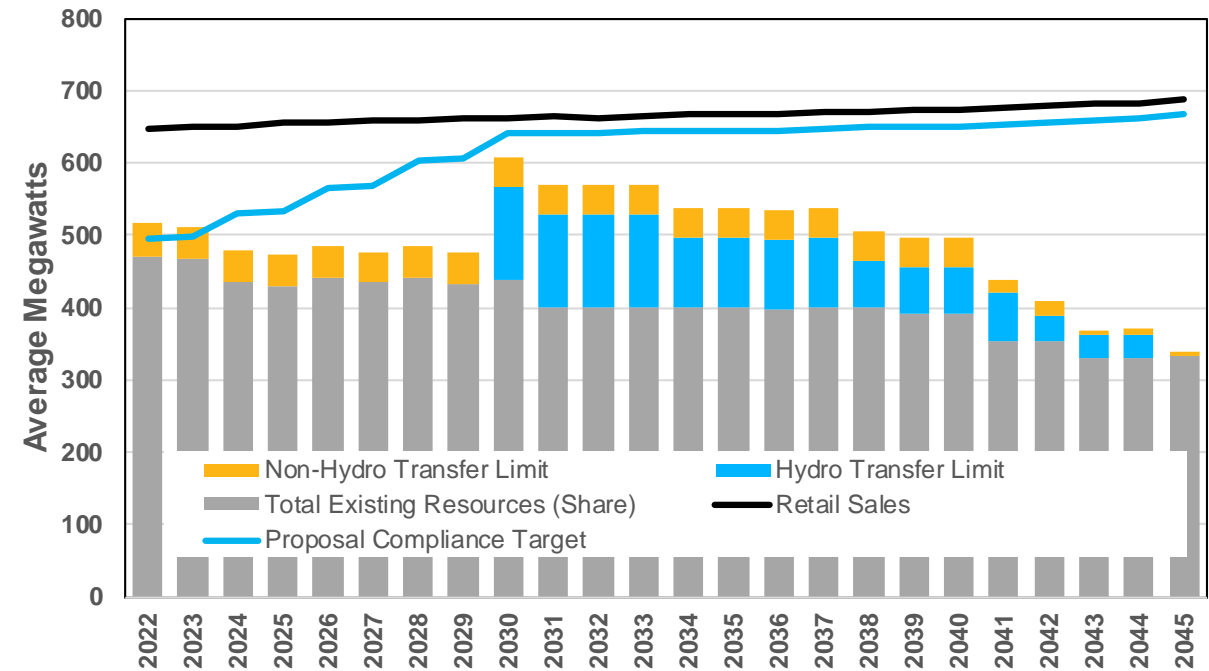


# Why does Avista need new electric resources?

## Meet System Winter Peak Load

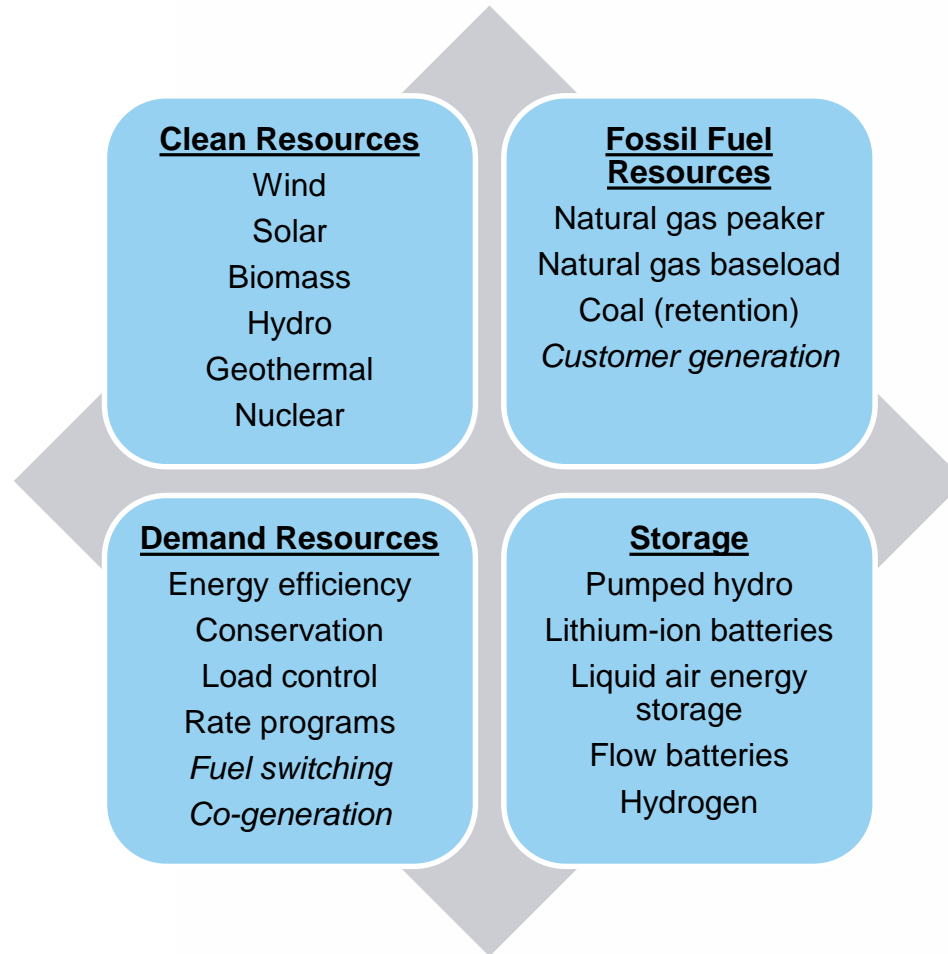


## Meet Washington Clean Energy Requirements



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

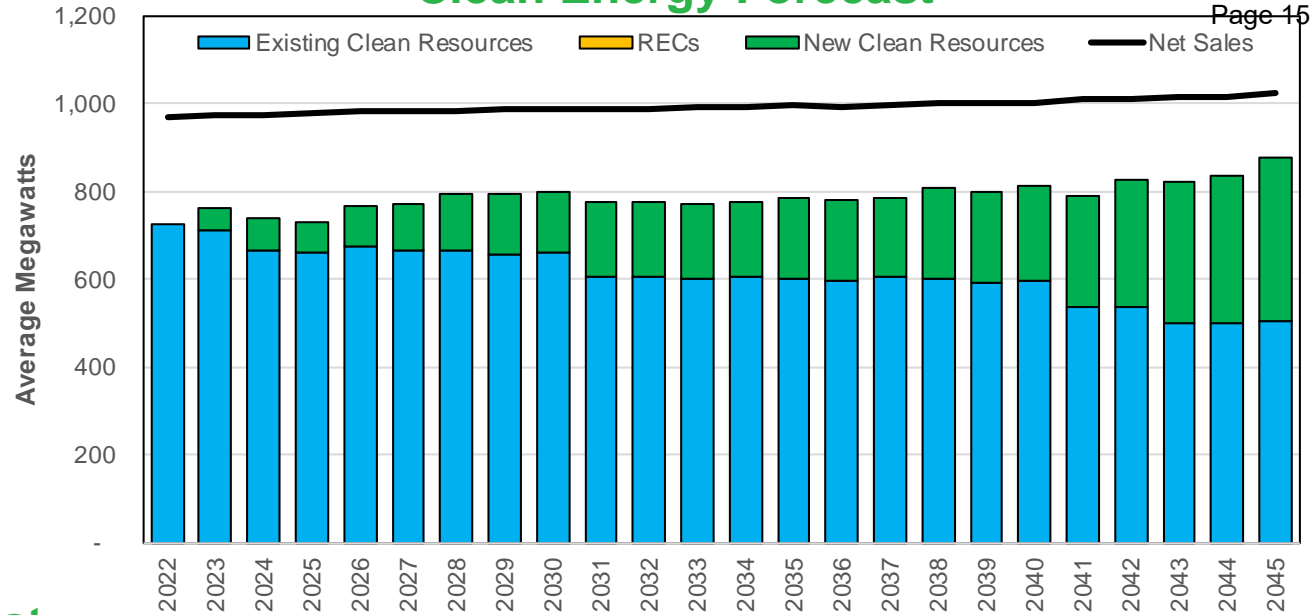
2031-32: Smart thermostat controls and commercial load control



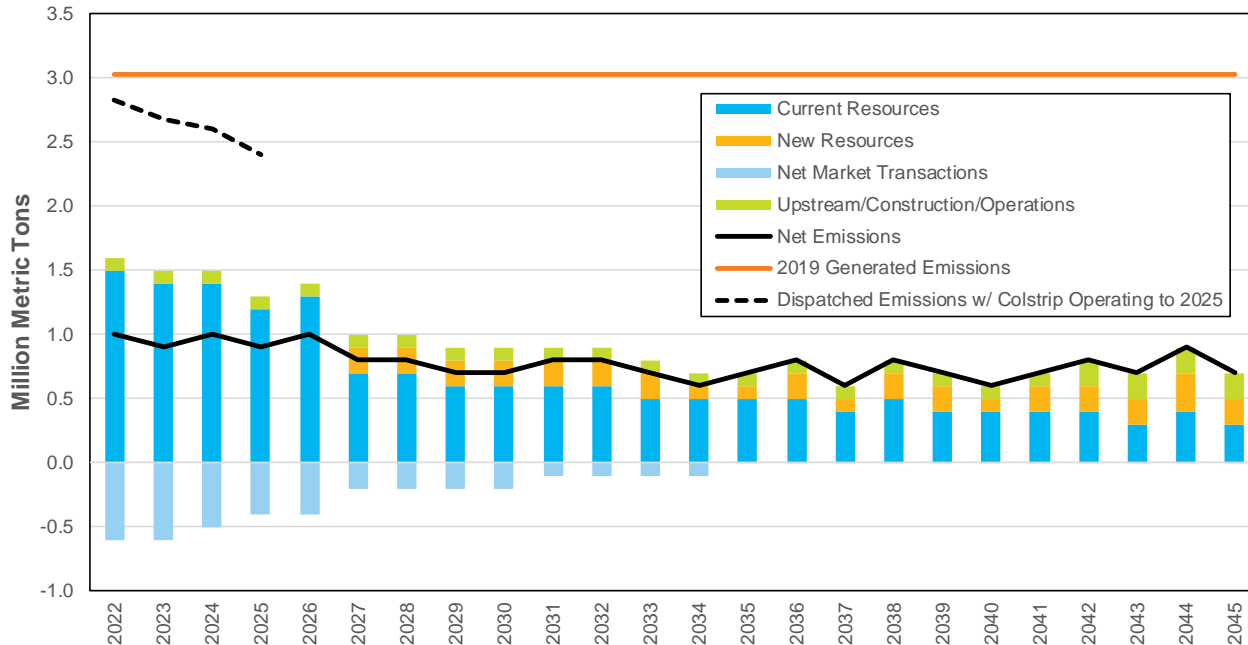
# Avista's Cleaner Future

- 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.

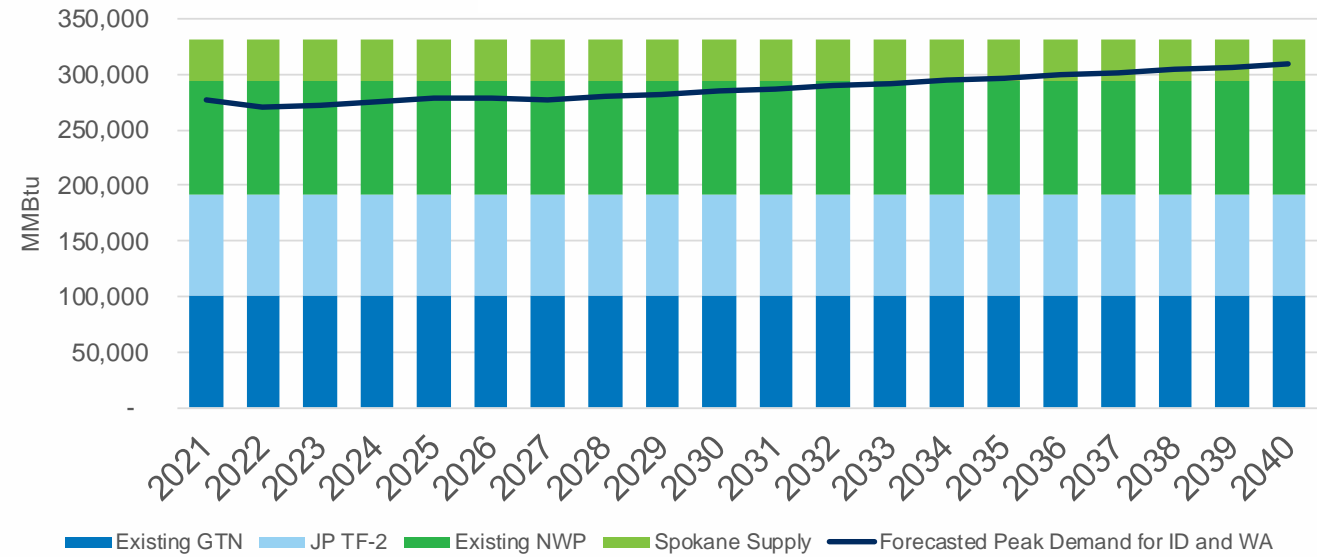


# Draft 2021 Natural Gas Integrated Resource Plan



# Existing Resources vs. Peak Day Demand

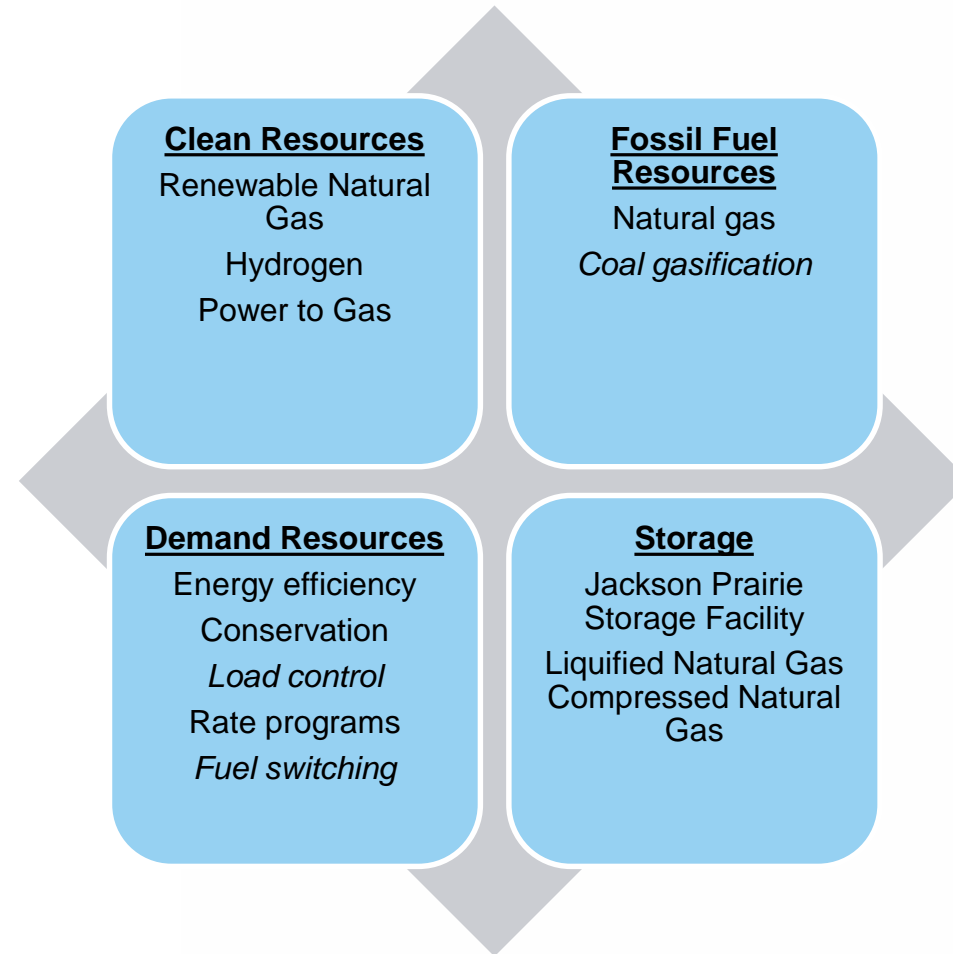
## Idaho and Washington



## Medford and Roseburg

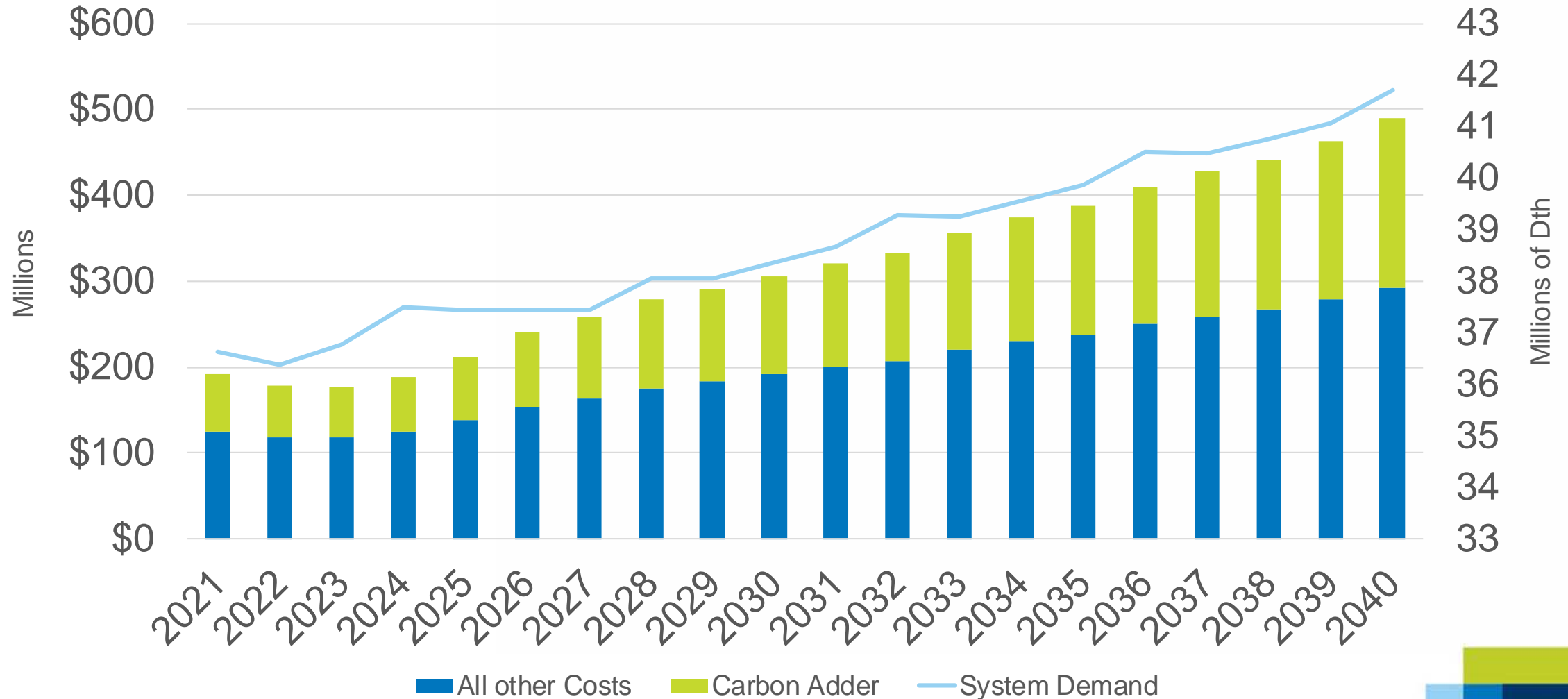


# What are the options to meet natural gas customer needs?



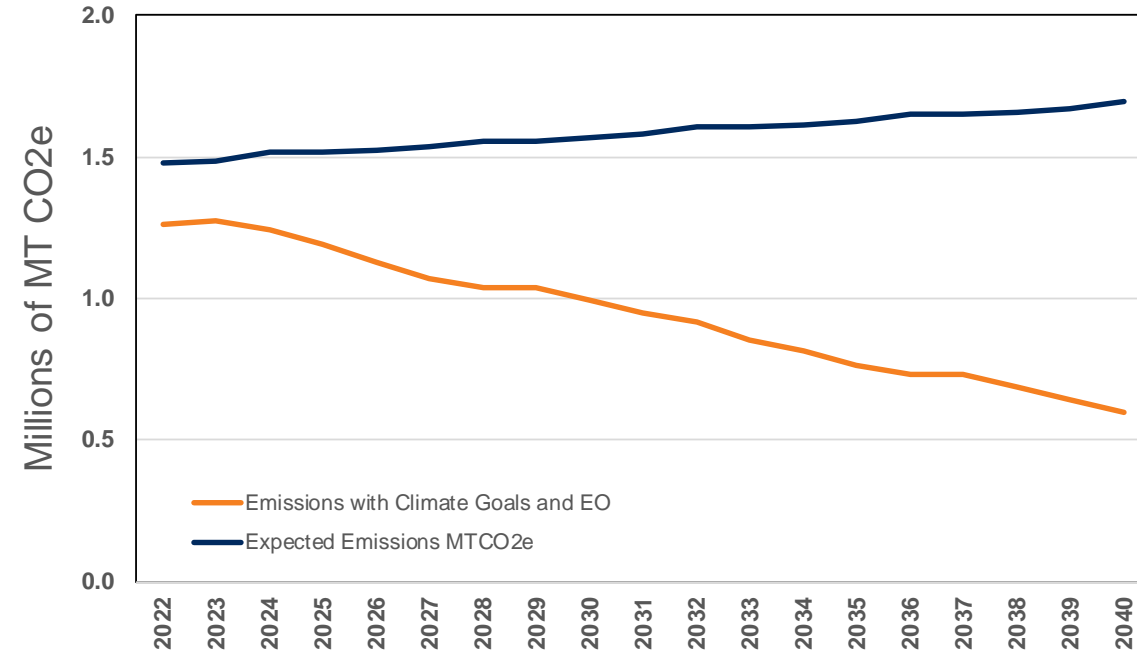
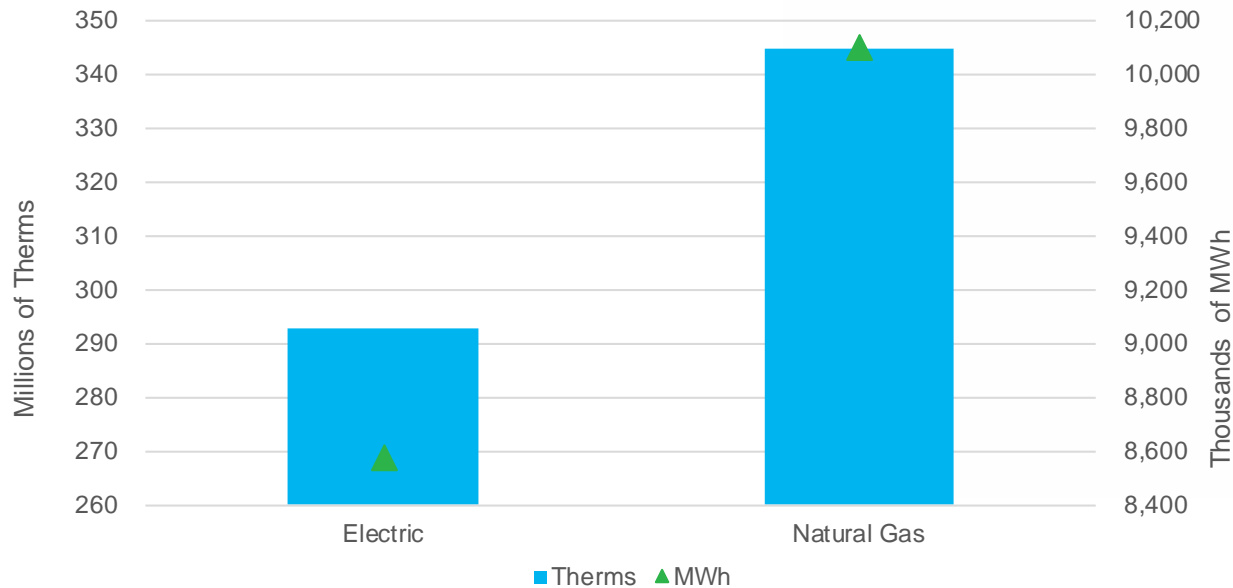
*Resources in italics were not directly modeled for this IRP*

# Natural Gas System Cost vs. Carbon Adder



# Avista Natural Gas – A Cleaner Future

## 2019 Retail Energy Delivered



### Oregon - Executive Order 20-04

- 80% reduction by 2050

### Washington - Goal

- 95% reduction by 2050



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Natural Gas Docket: UG-190724

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- Breakout rooms today
- Provide written comments to Avista's planning team by March 5<sup>th</sup>.
- 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=QzdUMk9zUE1nRjViYTIXRkJ5S2p5UT09>
- 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](mailto: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](mailto: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](mailto:askavista@myavista.com)

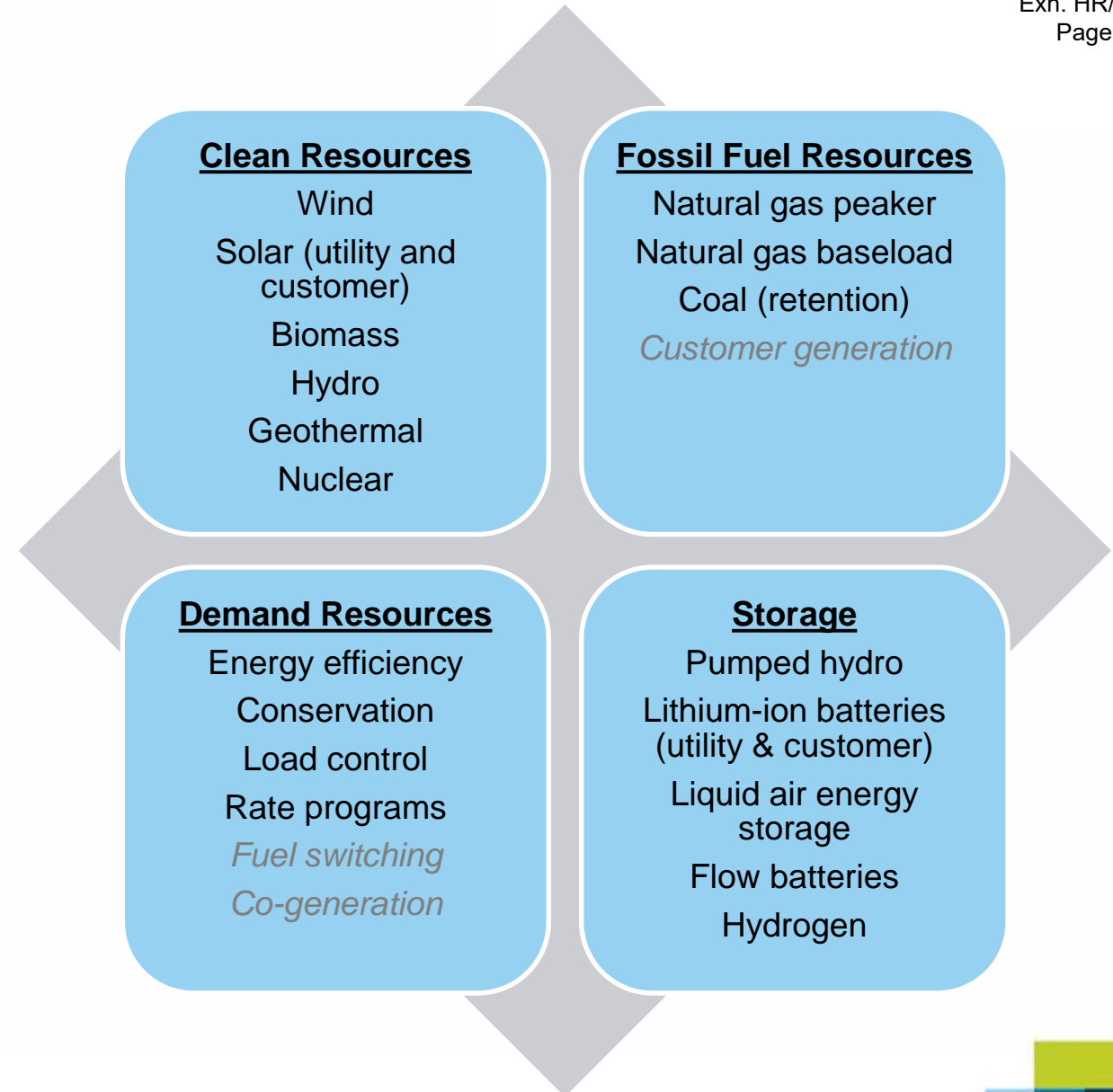


# Resource Selection & Reliability Breakout Room

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)



Resources in italics were not directly modeled for this IRP

# 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 its 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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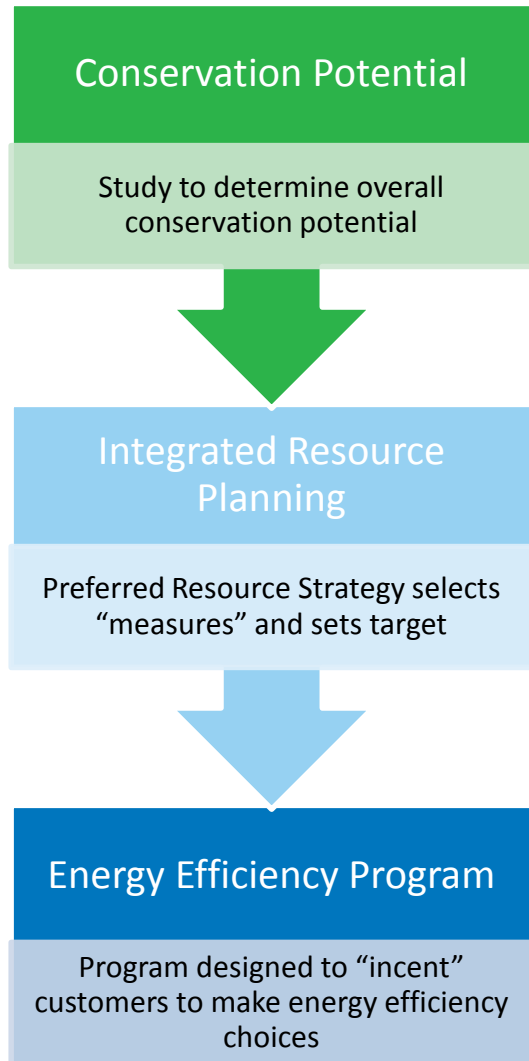
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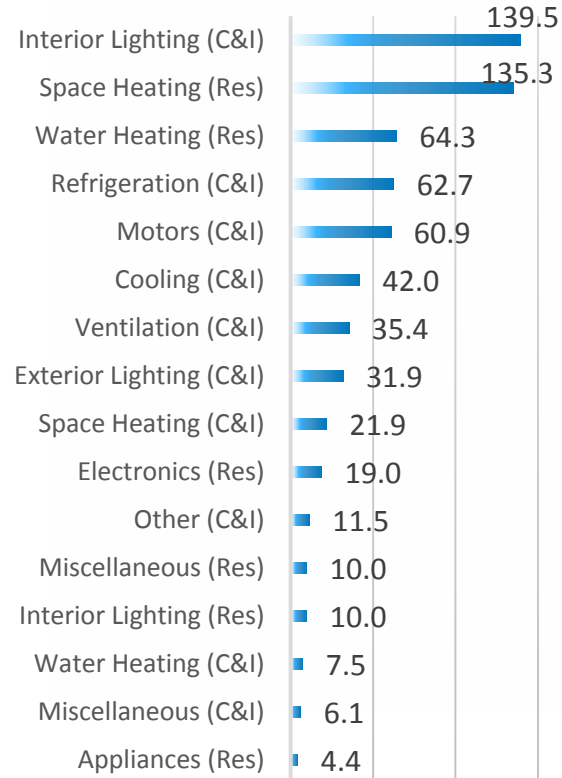
# Energy Efficiency and Demand Response Breakout Room

Ryan Finesilver  
Leona Haley

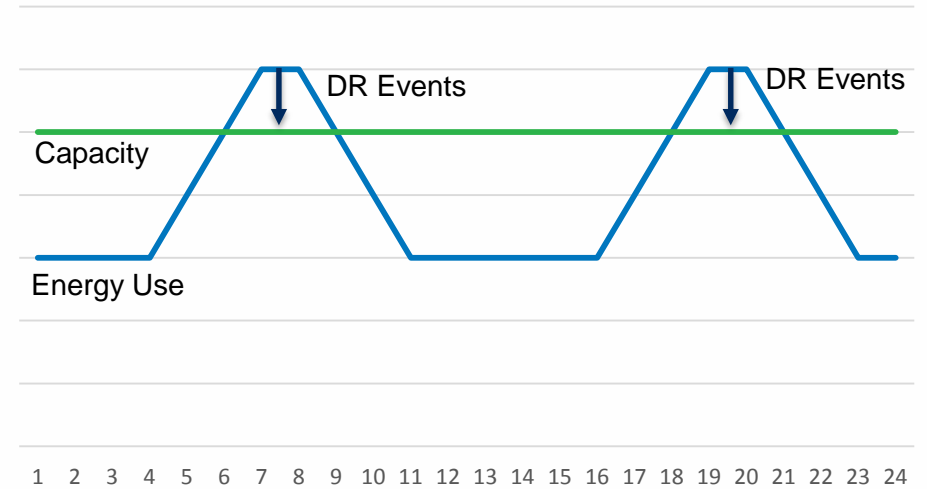
# Energy Efficiency & Demand Response



## 10-YEAR GWH CONSERVATION POTENTIAL

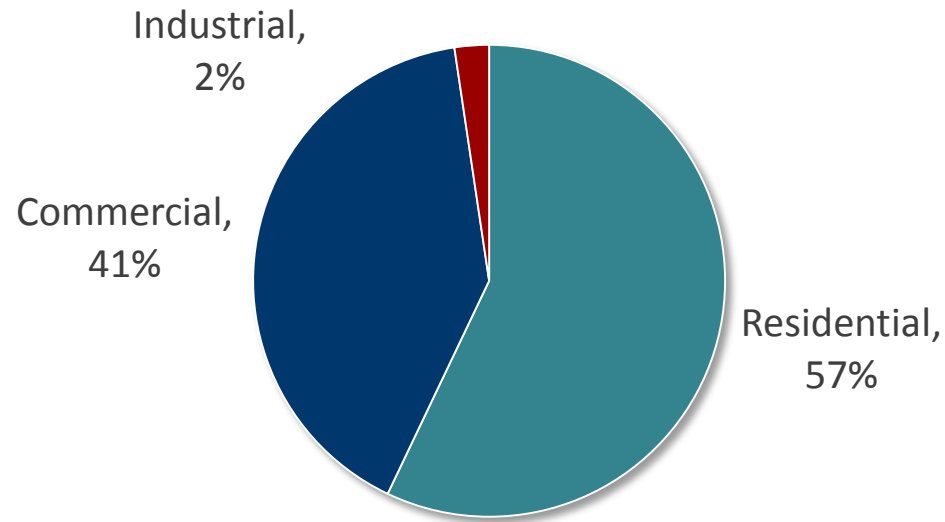


## Demand Response

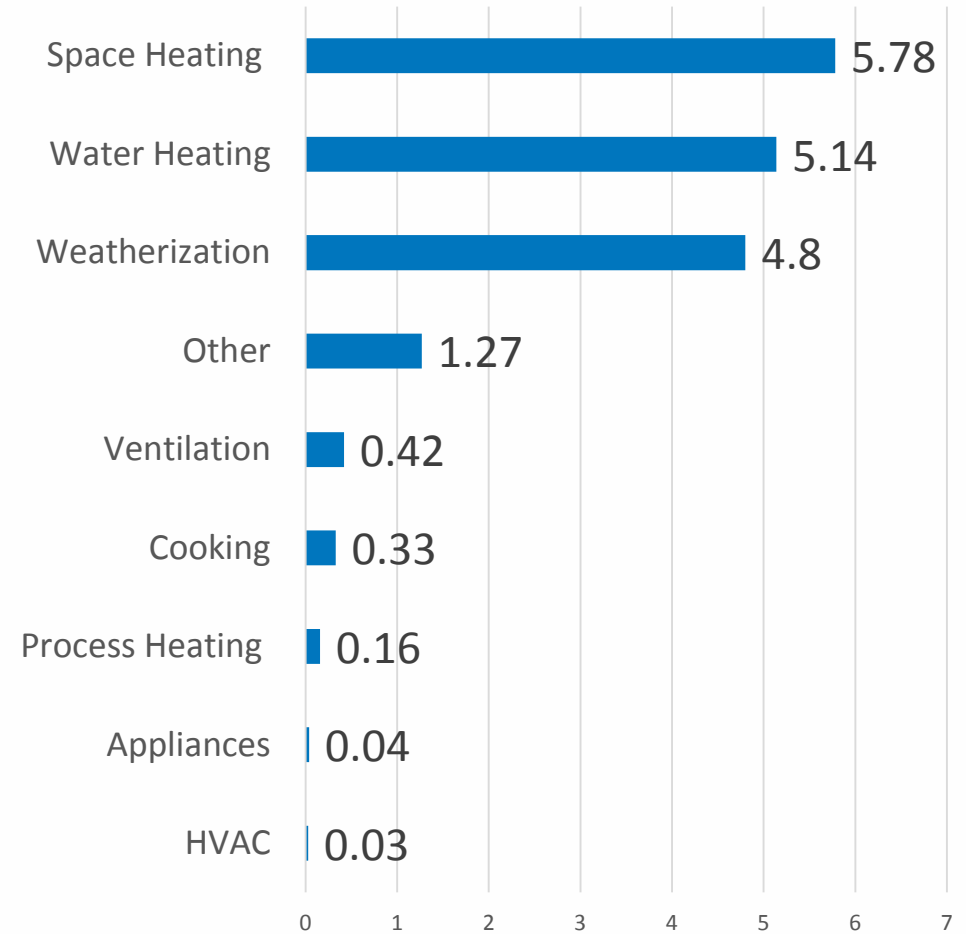


Program	Washington	Idaho
Time of Use Rates	2 MW (2024)	2 MW (2024)
Variable Peak Pricing	7 MW (2024)	6 MW (2024)
Large C&I Program	25 MW (2027)	n/a
DLC Smart Thermostats	7 MW (2031)	n/a
Third Party Contracts	14 MW (2032)	8 MW (2024)
Behavioral	1 MW (2041)	n/a
<b>Total</b>	<b>56 MW</b>	<b>15 MW</b>

# Natural Gas Energy Efficiency

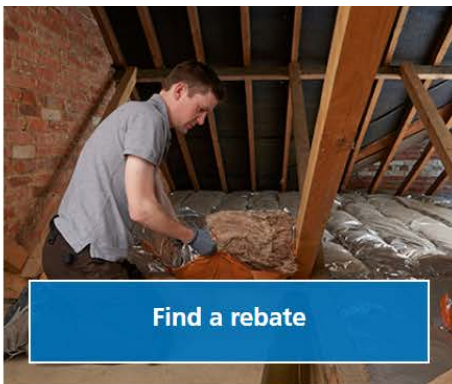


## Millions of Therms



## 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

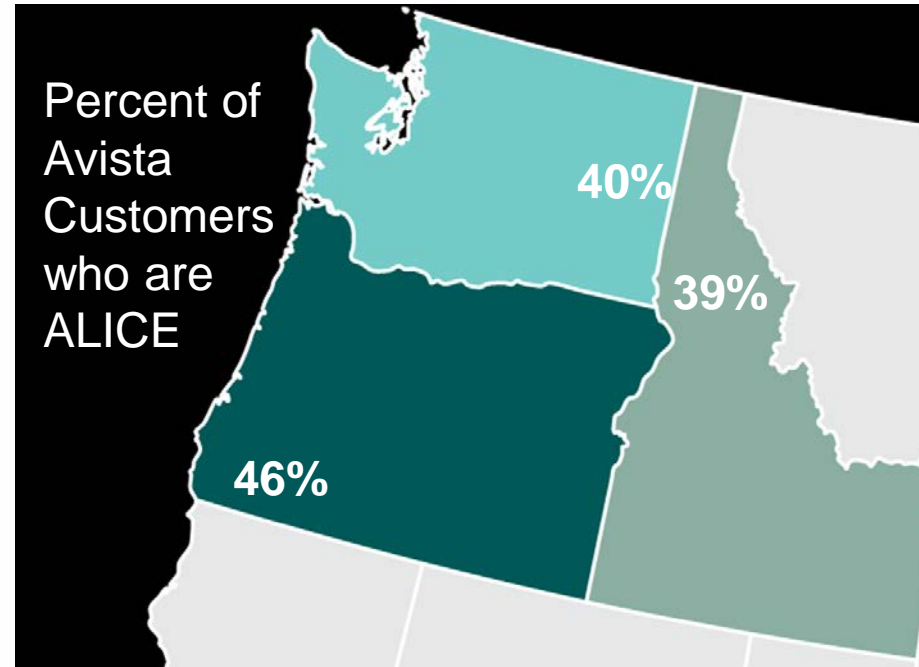
CETA requires that all customers are benefiting from the transition to clean energy:

- 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
<b>Total</b>	<b>142,108</b>



# 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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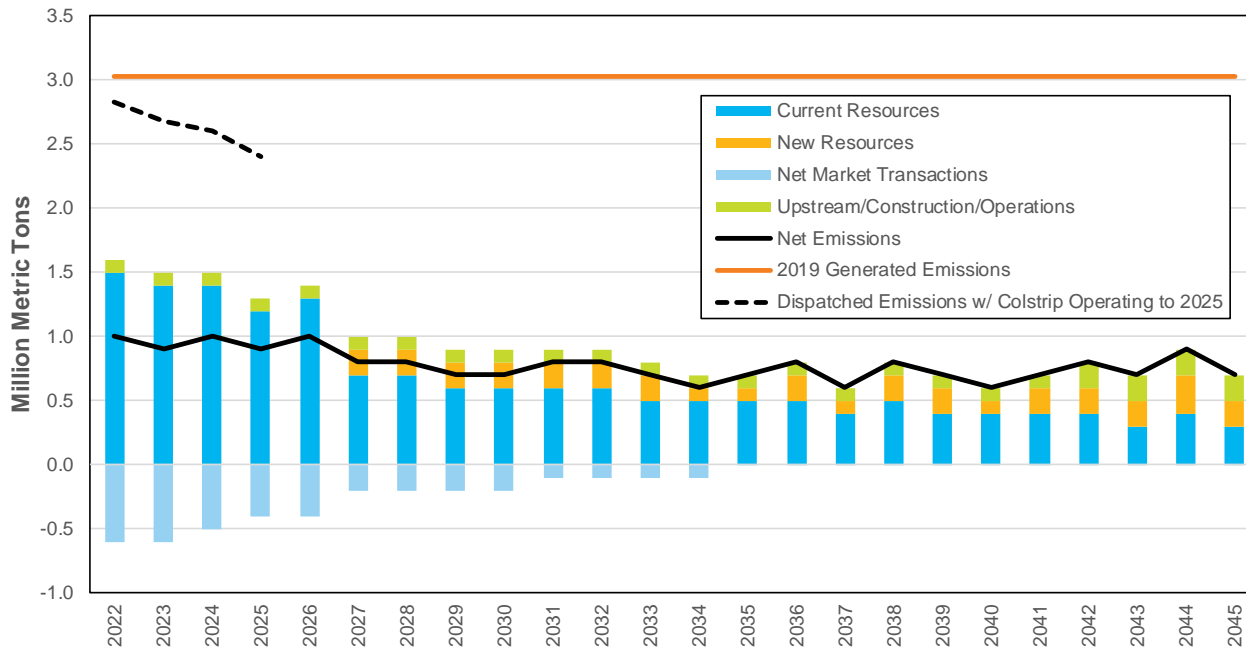
# Environmental Topics Breakout Room

John Lyons  
Bruce Howard

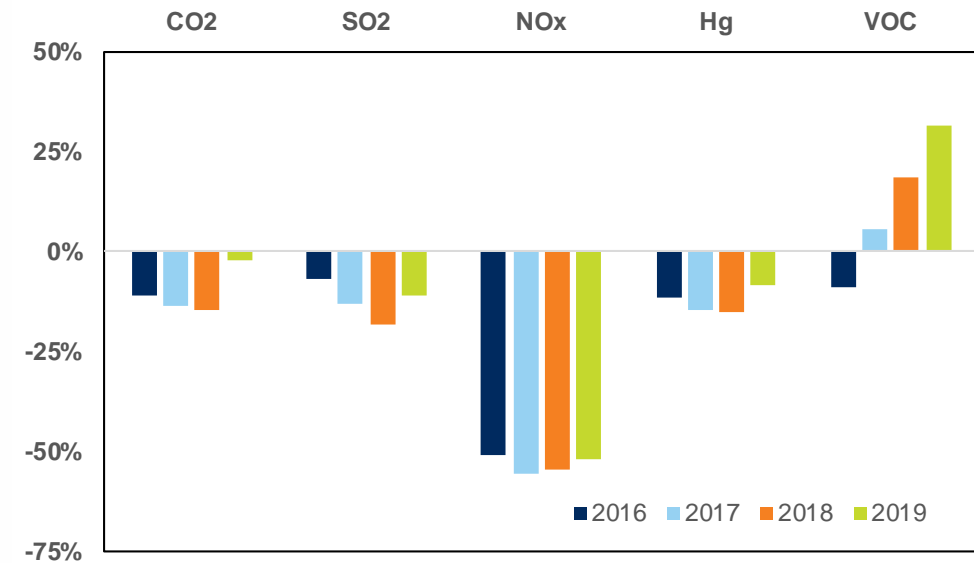
# Avista's Environmental Footprint

- 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.

## Greenhouse Gas Emissions Forecast



## Total Change in Air Emissions Since 2015



- 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,

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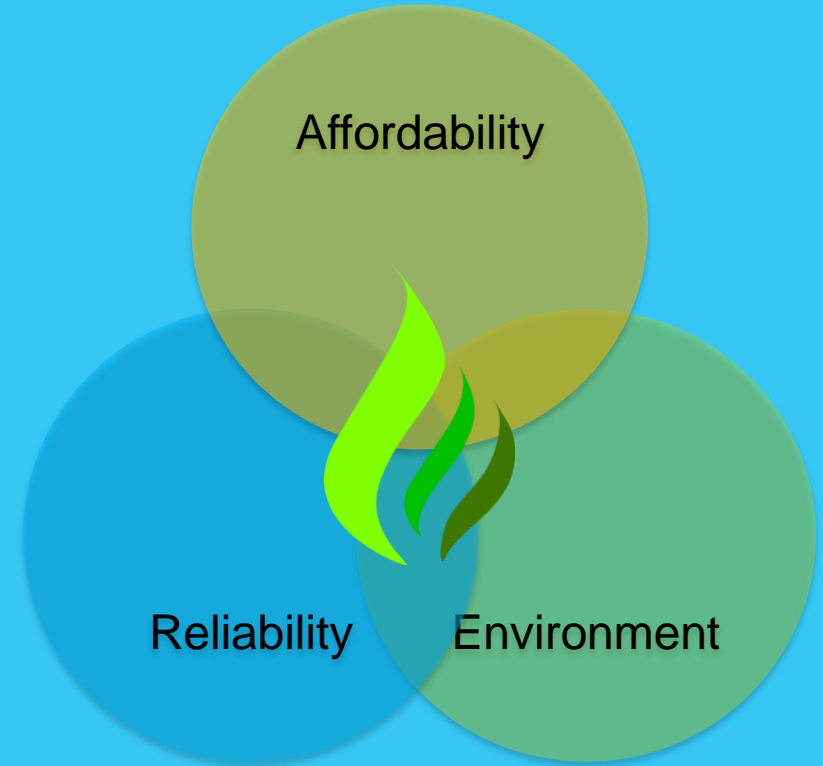
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# Natural Gas Breakout Room

Tom Pardee  
Michael Whitby  
Jody Morehouse



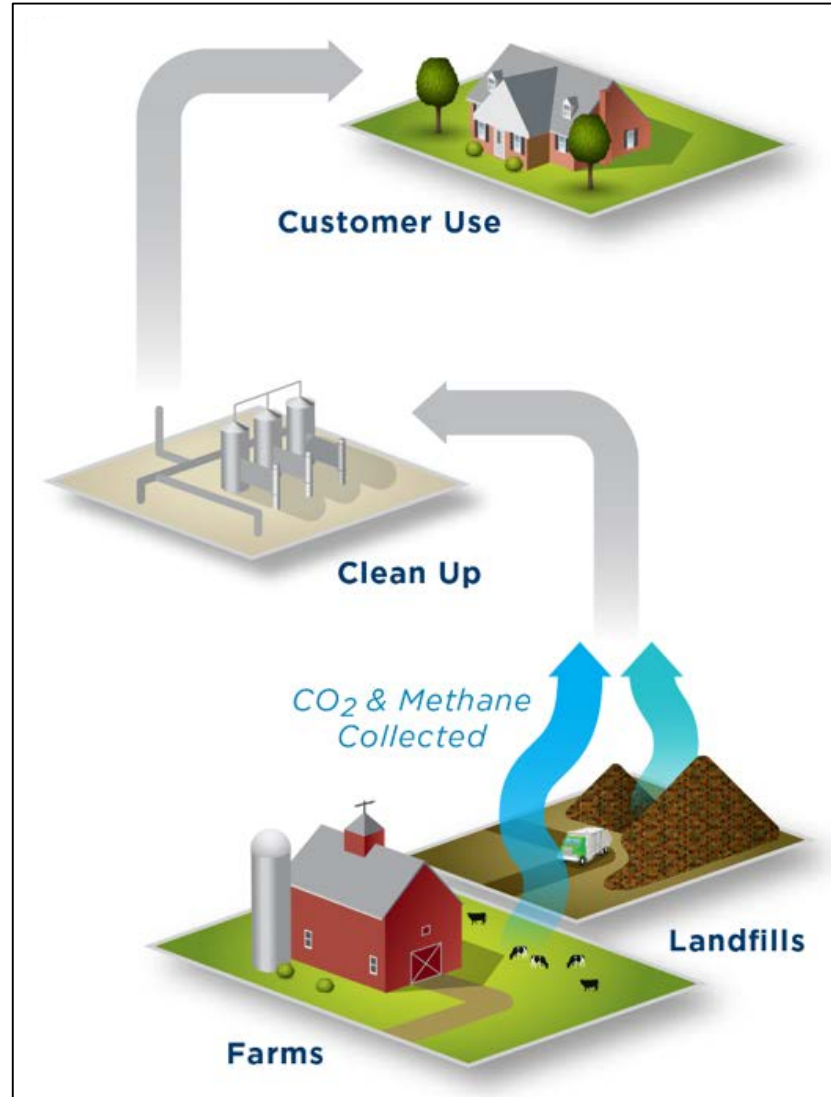


# Carbon Reduction Pathways



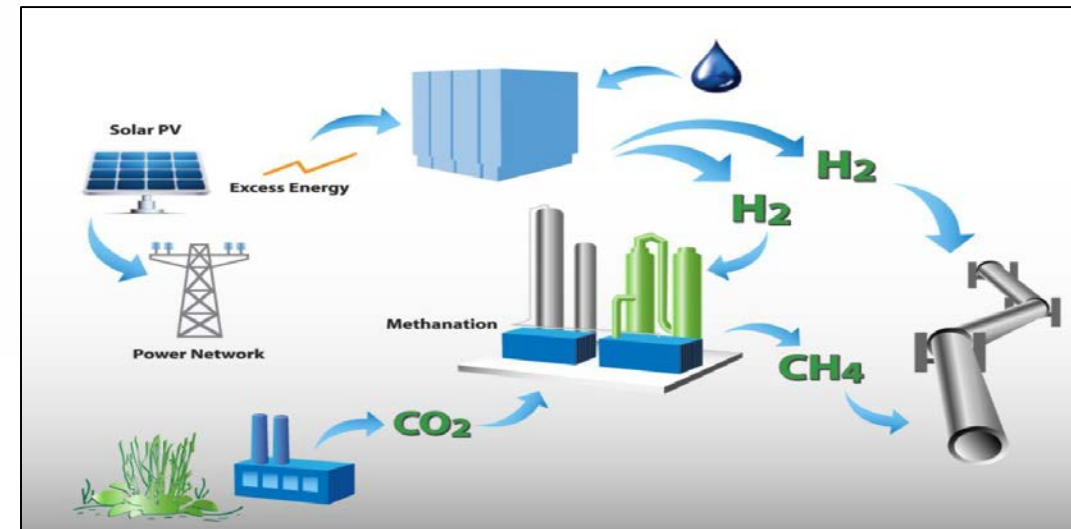
## Renewable Natural Gas (RNG)

- 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<sub>2</sub> 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 be 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

# 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](mailto:irp@avistacorp.com) or  
[askavista@avistacorp.com](mailto:askavista@avistacorp.com)

## Washington UTC

[www.utc.wa.gov](http://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](http://www.oregon.gov/puc)

- Provide written comments to Avista's planning team by March 5<sup>th</sup>.
- 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