Northwest **Power** and **Conservation** Council

July 6, 2022

MEMORANDUM

TO: **Council Members**

FROM: **Elizabeth Osborne**

SUBJECT: **Presentation by Avista**

BACKGROUND:

Presenters: Jason Thackston, Senior Vice President, Energy Resources, Avista
Heather Rosentrater, Senior Vice President, Energy Delivery and Shared Services, Avista

Summary: Representatives from Avista Utilities will join the Council to share updates about Avista's operations and issues facing the utility and its customers.

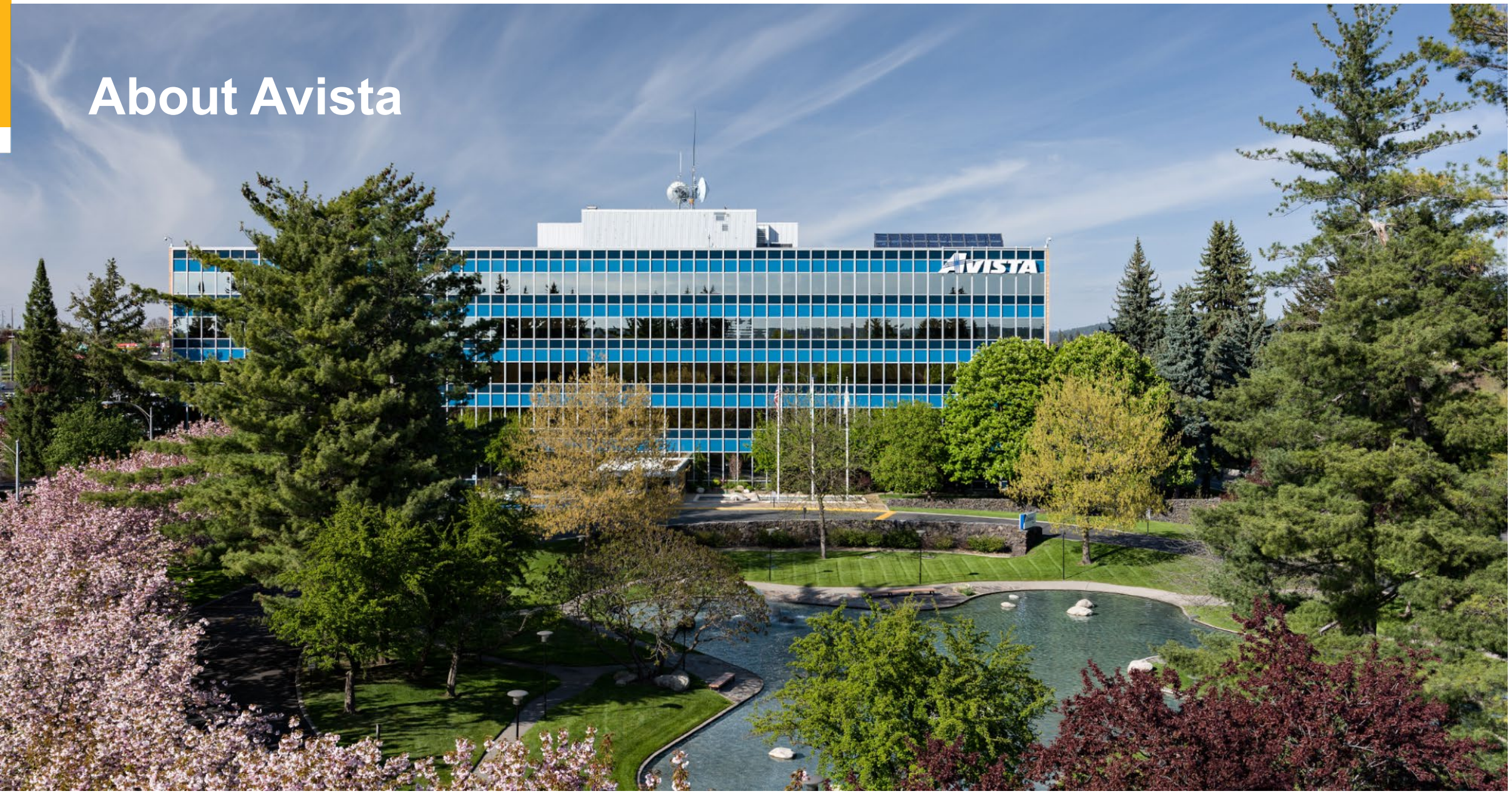
Background: Avista Utilities serves over 400,000 electric customers and 369,000 natural gas customers in several Northwest states, in and around the Spokane metro area. Avista's current electricity resource mix is about half hydro, with wind and biomass making up another 11 percent, while natural gas and coal fill the remainder.

Powering a Cleaner Future

Heather Rosentrater, Senior Vice President, Energy Delivery and Shared Services
Jason Thackston, Senior Vice President, Energy Resources

Northwest Power and Conservation Council - July 12, 2022

About Avista



By the Numbers

states	4
square miles	30,000
population	1,700,000
electric customers	406,000
natural gas customers	372,000
employees	1,800

By the Numbers

2,775 miles
transmission lines

19,200 miles
distribution lines

8,000 miles
natural gas distribution mains

(Source: *2021 Quick Facts*)

Service Area

Avista Electric and Natural Gas Service Areas

Electric
Natural Gas
Electric and Natural Gas

AEL&P

AEL&P Alaska Service Territory

AEL&P Service Territory

Electric

Avista Service Territory

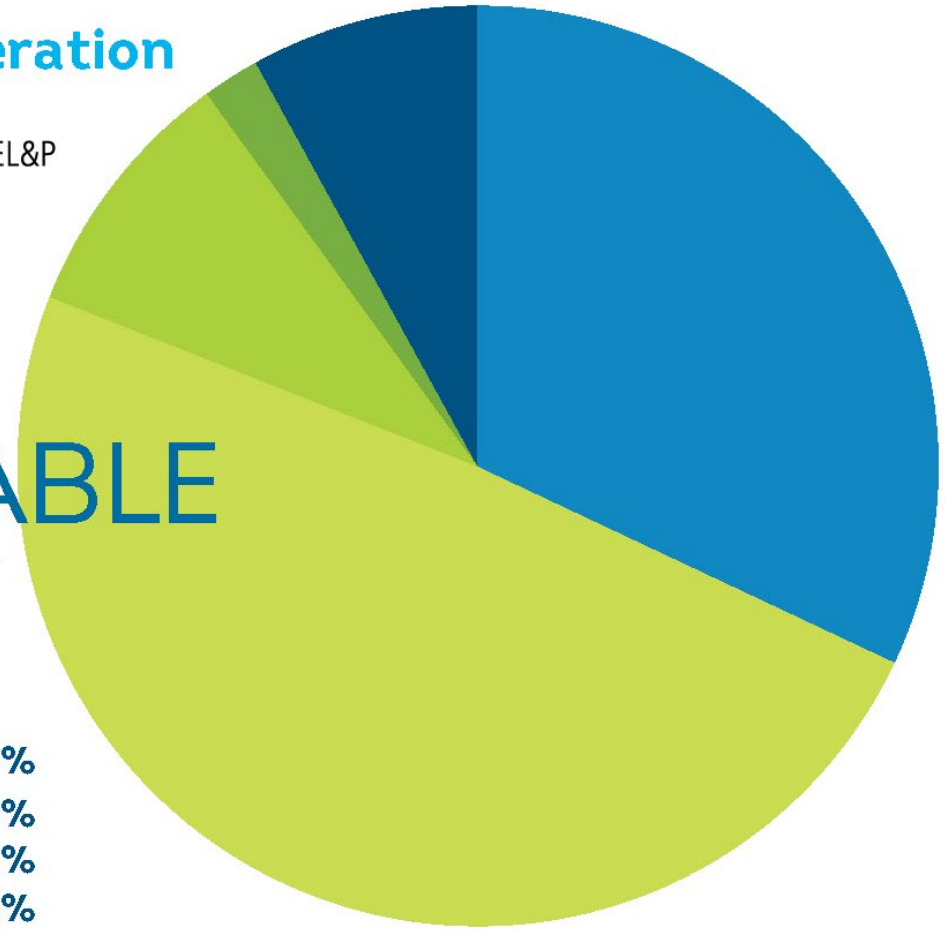
Electric
Natural Gas
Electric and Natural Gas

Supply Mix

Electricity Generation Resource Mix

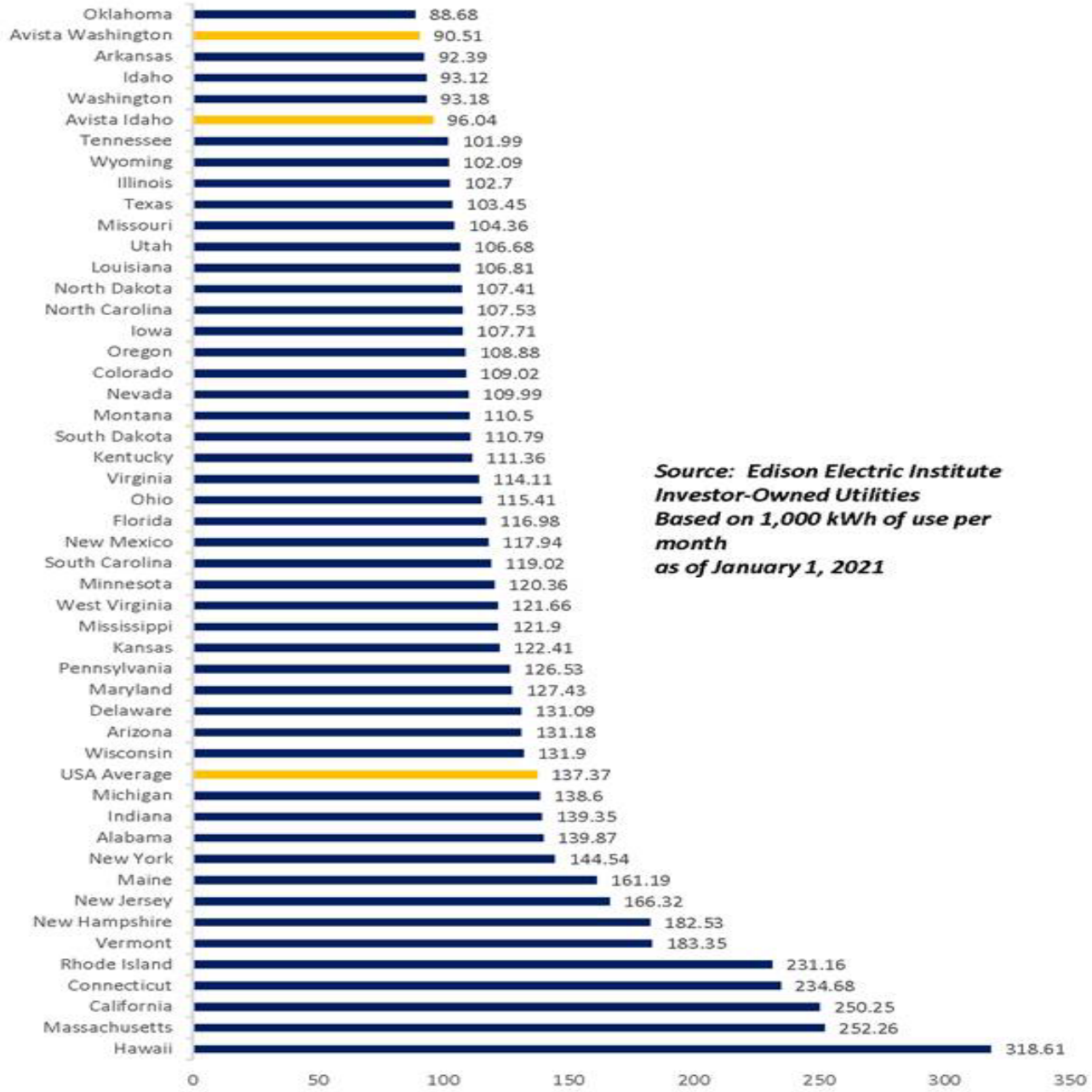
As of Dec. 31, 2021 - Excludes AEL&P

60% RENEWABLE ENERGY



Hydro	49%
Wind	9%
Biomass	2%
Natural Gas	32%
Coal	8%

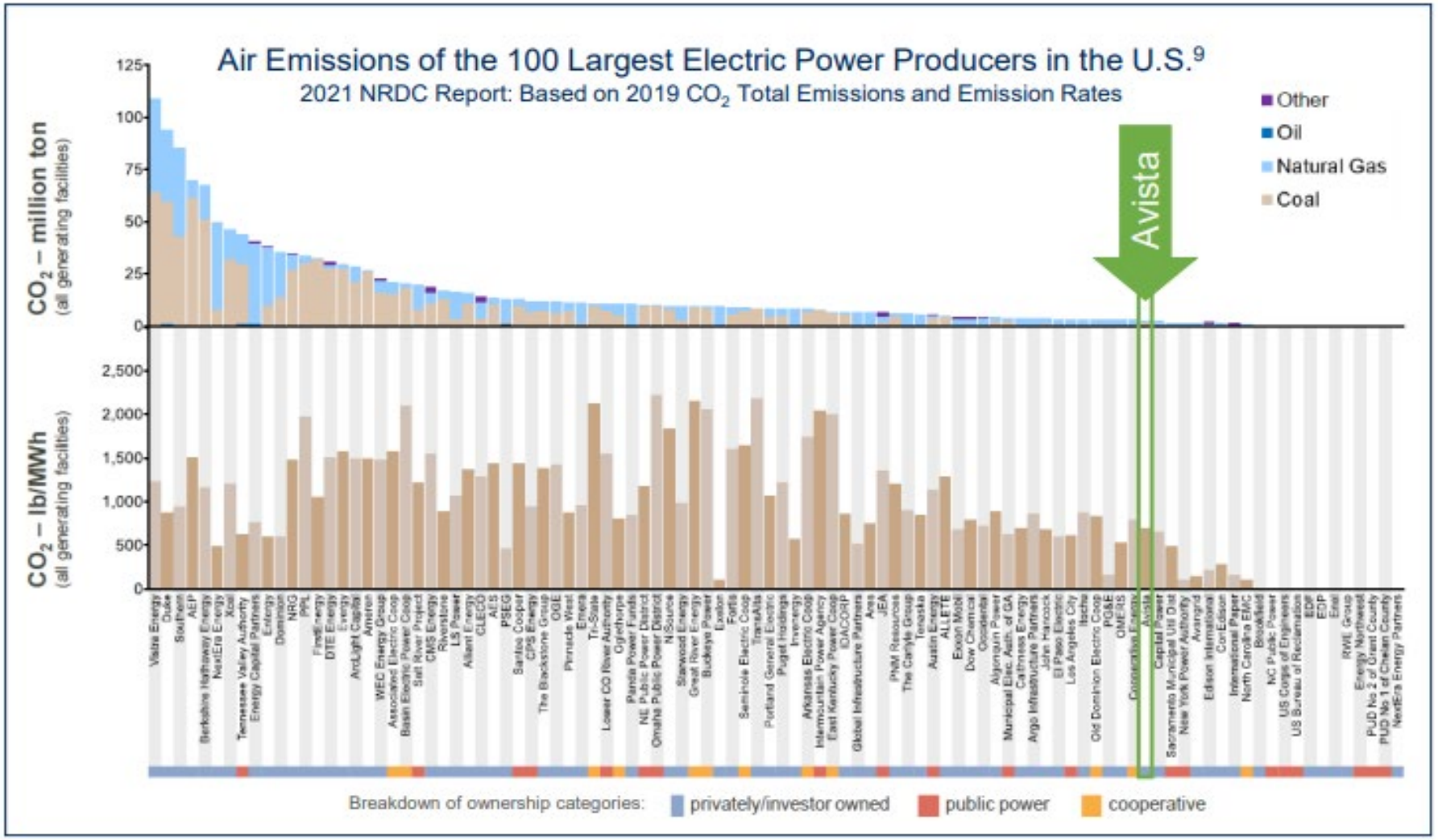
(Source: *2021 Annual Report*)



Source: Edison Electric Institute
Investor-Owned Utilities
Based on 1,000 kWh of use per month
as of January 1, 2021

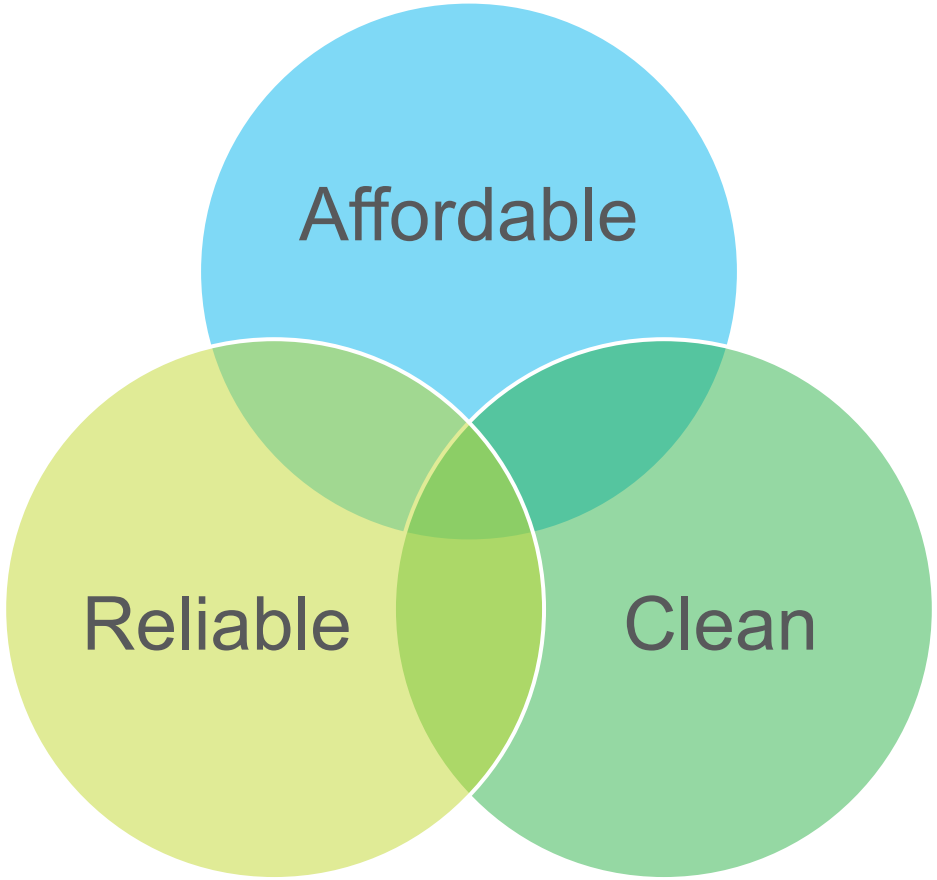
Avista Rates are Among the Lowest in the Country

Avista Greenhouse Gas Emissions are Among the Lowest in the Country



Source: National Resources Defense Council: Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the US (July 2021): https://www.nrdc.org/resources/benchmarking-air-emissions-100-largest-electric-power-producers-us

The Utility Generation Balancing Act



Avista's Plan to Create a Cleaner Grid

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

Our View: Natural Gas is Critical to 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 may increase carbon footprint
  - Drives new investment in electric distribution infrastructure, causing bill pressure
  - Home and business conversion costs borne by customers

- A comprehensive view of the energy ecosystem leads to a **diversified approach to energy supply** that includes natural gas

We are Committed to Reducing Greenhouse Gas Emissions in our Natural Gas Business

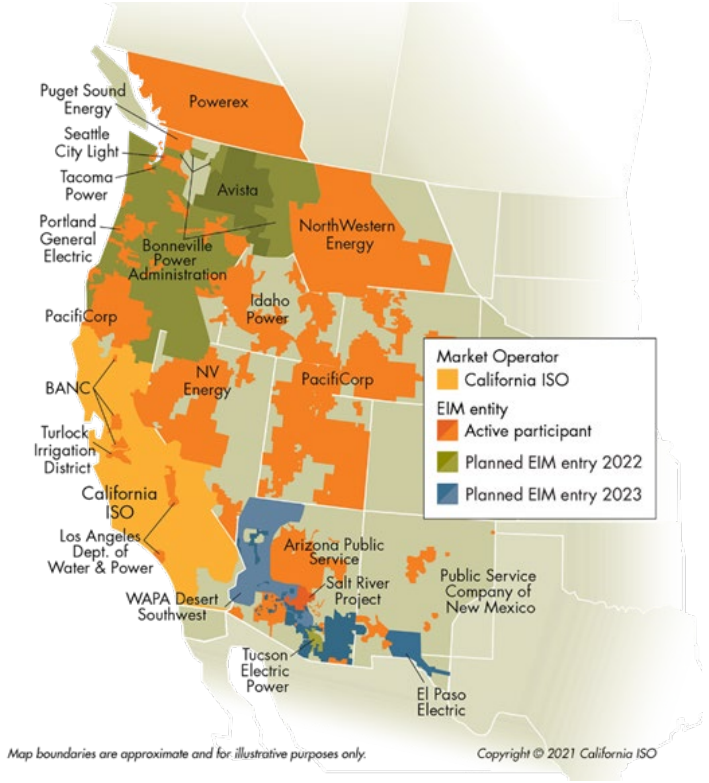
Avista's aspirational goal for its natural gas business is a **30 percent reduction in greenhouse gas emissions by 2030** and to be **carbon neutral by 2045**

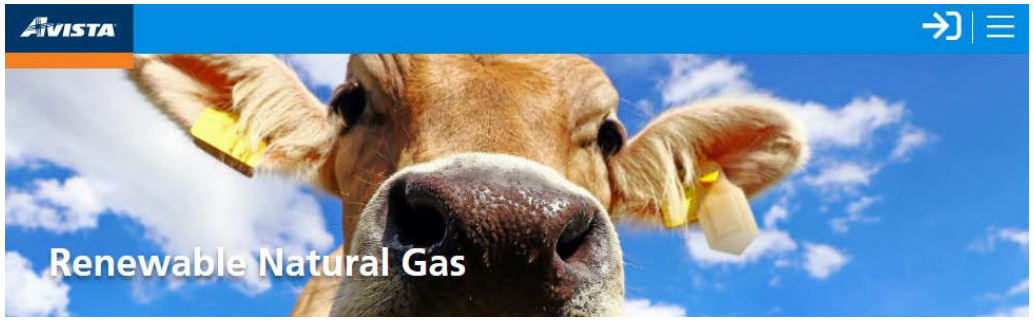
- Achieving reductions requires an "**all-of-the-above**" approach:
  - **Natural gas supply and distribution opportunities** like renewable natural gas
  - **Upstream strategies** like targeted sourcing with suppliers
  - **Engagement with customers** to increase energy efficiency, demand response,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

ENERGY CAPITAL VENTURES

AVISTA

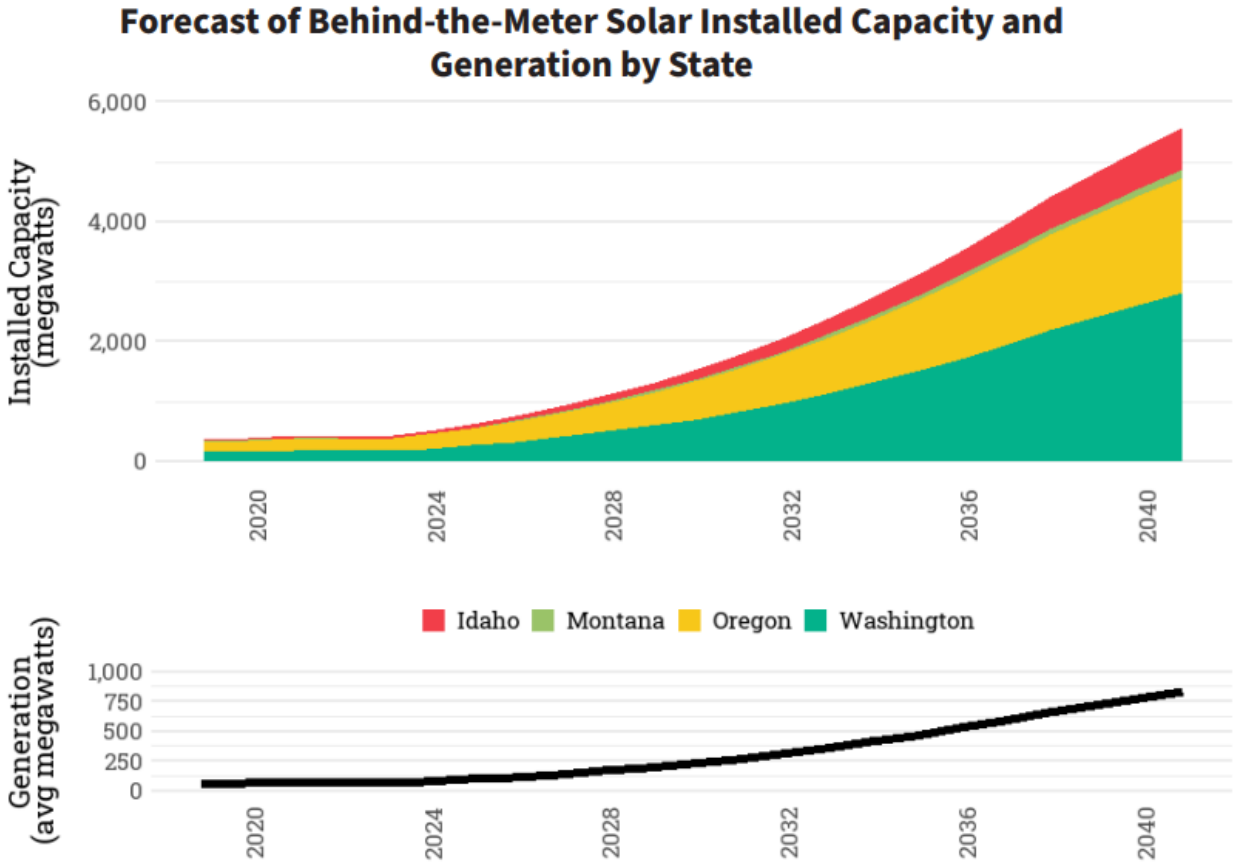
Progress in support of our clean energy goals





Trends Creating Opportunity and Challenges for the Grid

- State and Company Level Clean Energy Goals
- Distributed Energy Resources Adoption
- Transportation Electrification
- Zero Fossil-Fuel Greenhouse Gas Emission Building Codes



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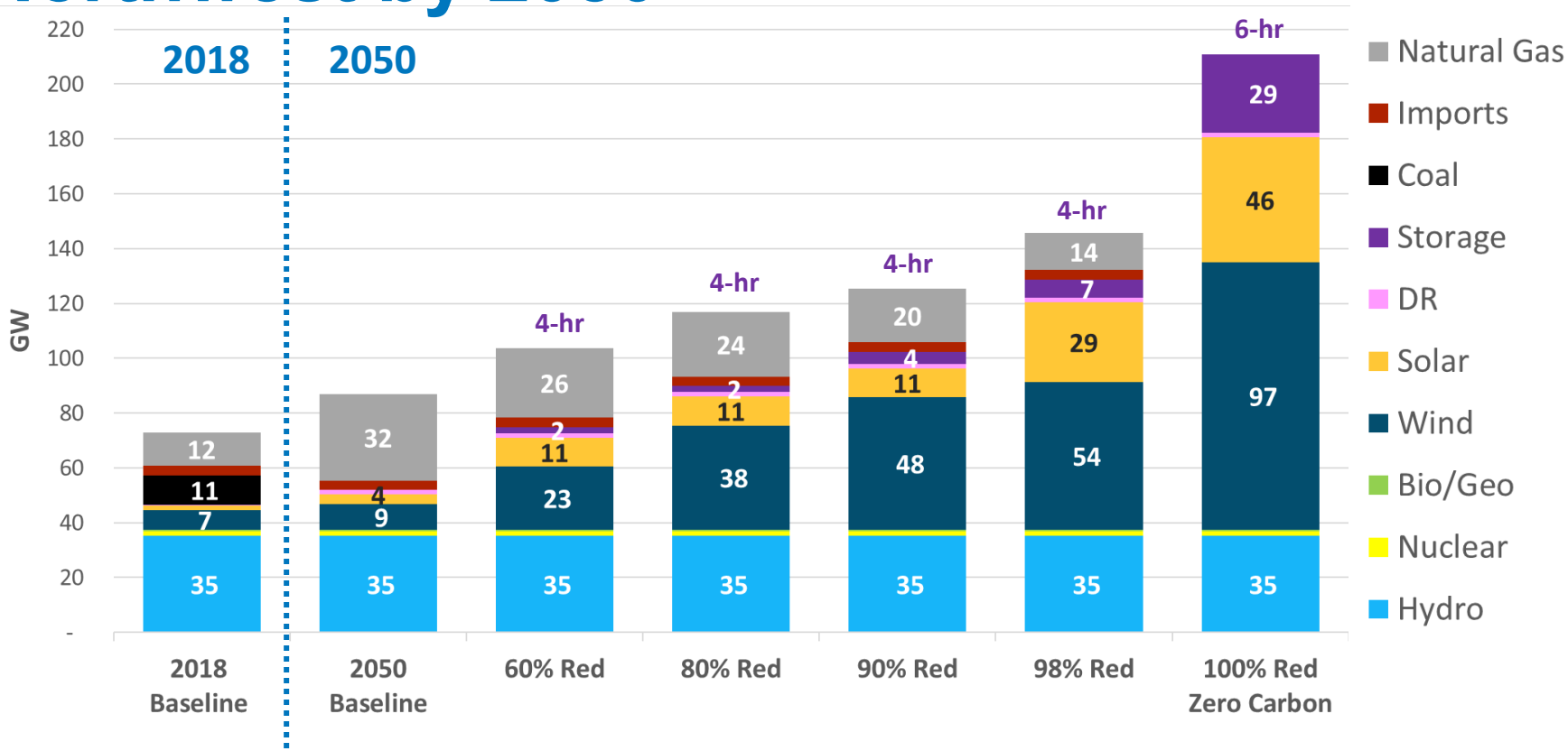
$16B-$28B to Achieve Zero Carbon Supply in the Greater Northwest by 2050



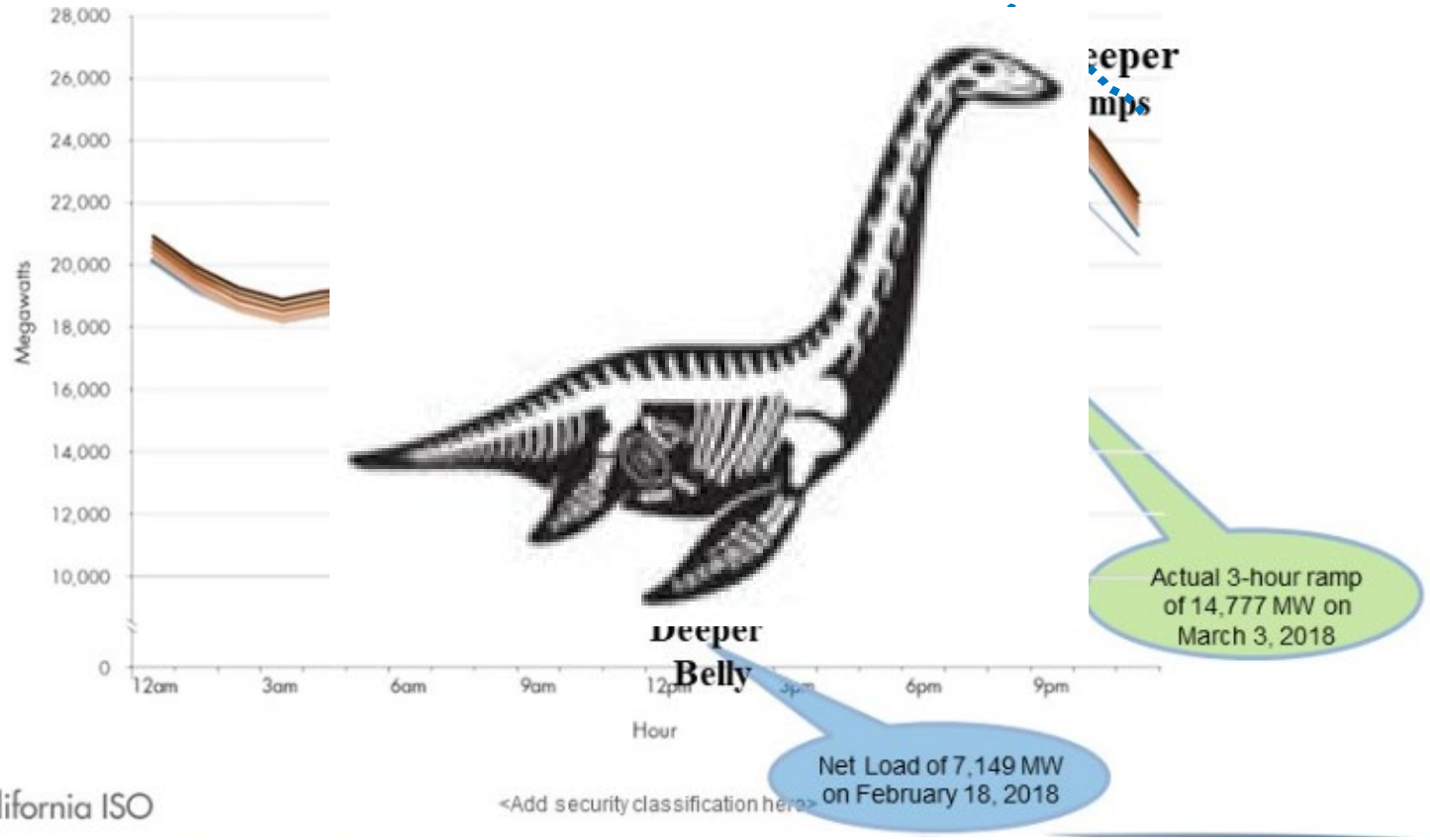
Marginal Carbon Reduction Cost ($/Metric Ton)	Base	$0 - $80	$90 - $190	$110 - $230	$310 - $700	$11,000 – $16,000
Annual Cost Delta ($B)	Base	$0 - $2	$1 - $4	$2 - $5	$3 - $9	$16 - $28
Additional Cost ($/MWh)	Base	$0 - $7	$3 - $14	$5 - $18	$10 - $28	$52 - $89

[1]CPS+ % = renewable/hydro/nuclear generation divided by retail electricity sales

[2]GHG-Free Generation % = renewable/hydro/nuclear generation, minus exports, divided by total wholesale load

Potential Long-Term Impact of Demand-Side Trends

- Electrification has the potential to significantly increase peak demand



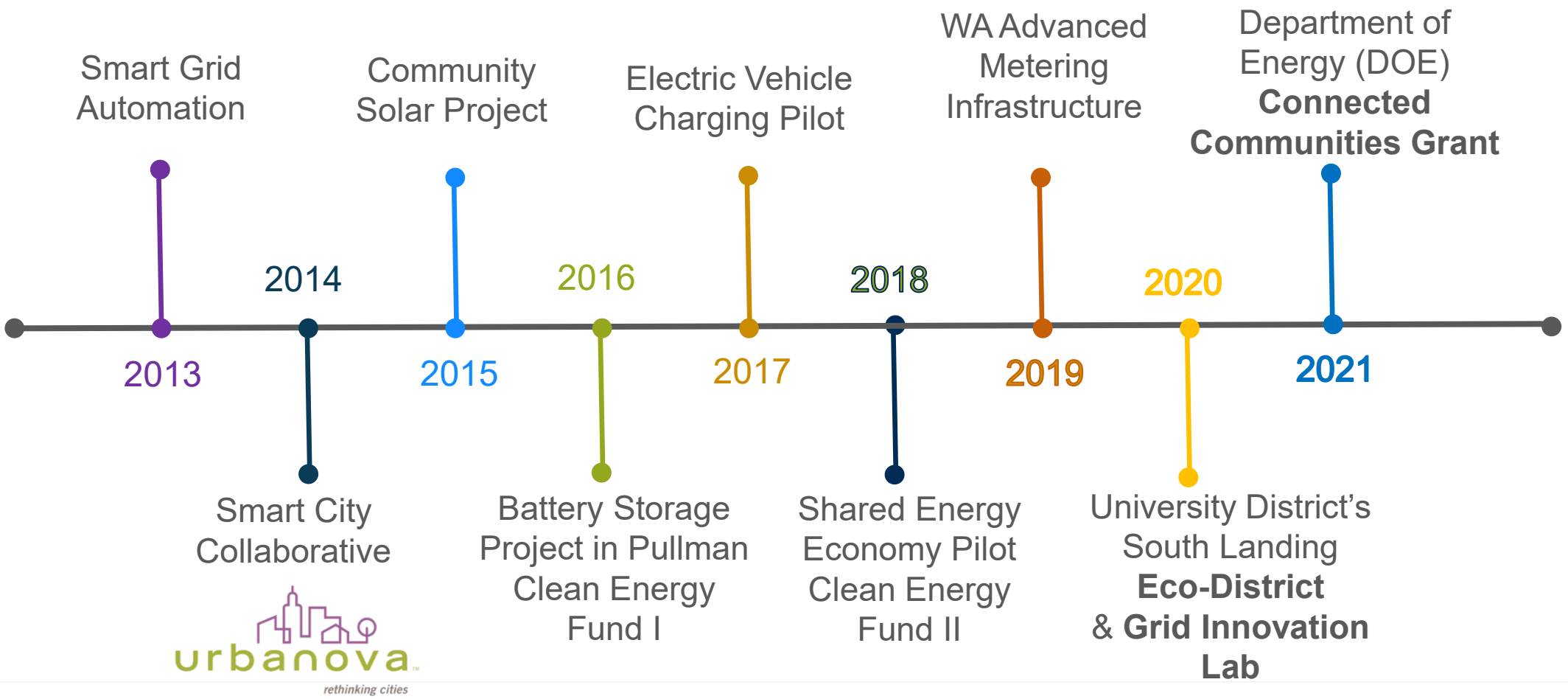
How Might We…

Support sustainable, reliable, safe, secure and resilient energy service for society in the most **affordable** way possible?

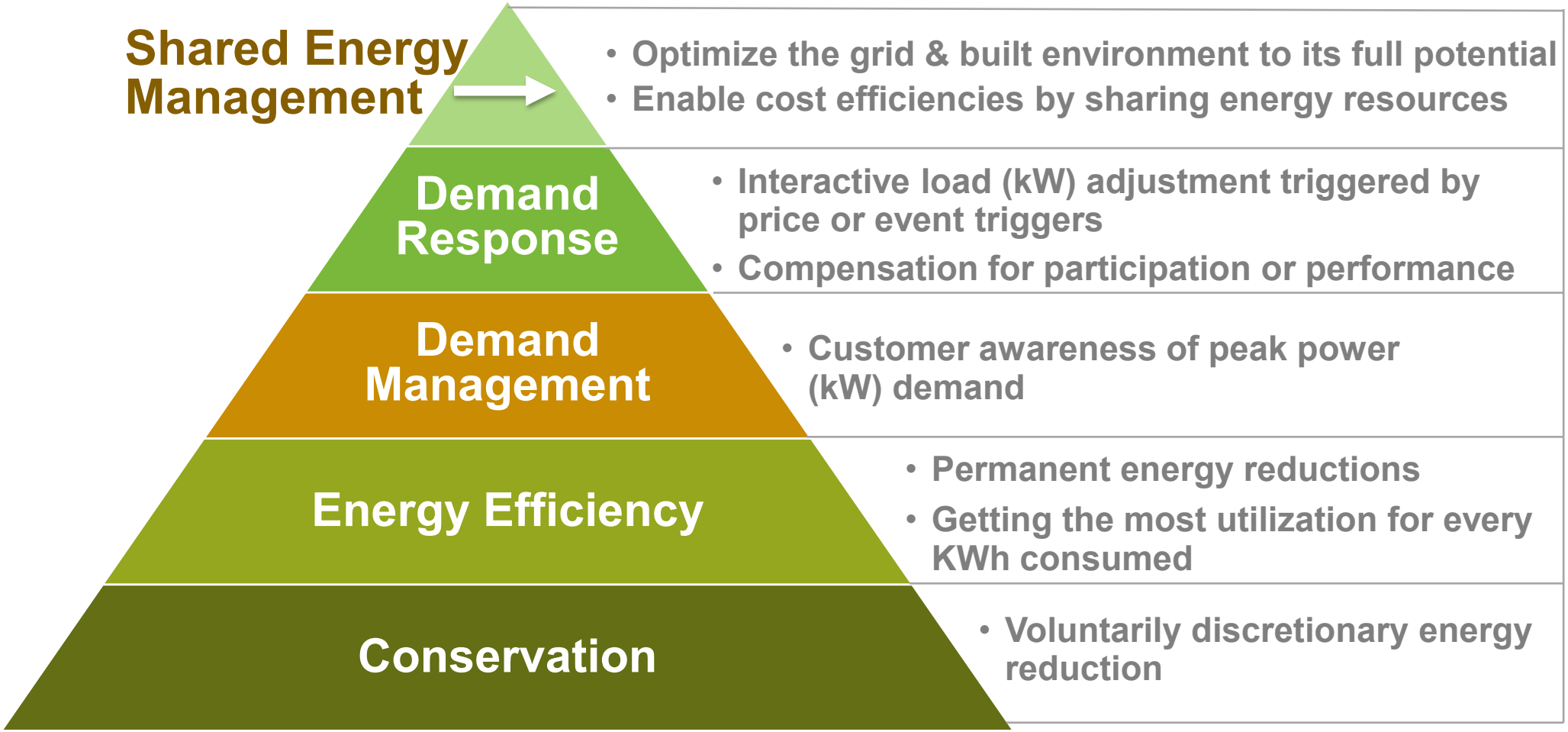
Evolving and Innovative Demand Side Management Efforts are **Essential**

Building on a History of Innovation

Avista's Roadmap of Grid Edge Opportunity & Discovery



Demand Side Management Progression



www.enernex.com/wp-content/uploads/2016/09/demandresponseJLblog

A New Era: Shared Energy Management Differentiators

- Participative
- Dynamic
- Automated
- Location-specific
- Set-it and Forget-it Design
- Optimizes the Value of the Grid and Building Assets
- Enhances Value of Distributed Energy Resources
- Flexible

Breaking Down Building and Grid Operation Silos

South Landing Eco-District

Avista's Eco-District – an innovative shared energy model that uses a centralized heating cooling and electrical system to serve the energy needs of multiple buildings with grid-friendly operations


Scott Morris Center for Energy Innovation


Interior of Central Plant

Giving Innovation an Address

Avista's Grid Innovation Lab

The Lab brings together partners from inside and outside our region as well as a real-time grid simulator that allows us to test ideas, gain insights, and refine solutions that address the challenges of our clean energy transformation.

Enabling Grid Friendly Services with our Customers

Connected Communities DOE Grant

Project Approach