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September 6, 2023

MEMORANDUM

TO: Council Members

FROM: Tina Jayaweera

SUBJECT: Avista Utilities Electric Integrated Resource Plan

BACKGROUND:

Presenter: James Gall, Manager of Integrated Resource Planning

Summary: This presentation will summarize key findings from Avista's Electric Integrated Resource Plan. The 2023 Integrated Resource Plan is the most recent planning exercise to determine how Avista will serve their electric customers' needs over the next 20+ years for both their Washington and Idaho service territories. It covers their projected demand requirements and how to best meet divergent energy policies between Washington's Clean Energy Transformation Act (CETA) requirements and Idaho's least cost planning requirements.

Relevance: Tracking and understanding where utilities are headed is critical to informing our mid-term assessment and next power plan.

Workplan: A.3.2. Coordinate with regional utilities on integrated resource planning and other activities to share plan findings and leverage utility insights and advancements.

More Info: <https://www.myavista.com/about-us/integrated-resource-planning>



2023 Electric Integrated Resource Plan

James Gall
Manager of Integrated Resource Planning
9/12/2023



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Disclaimer

This document contains forward-looking statements. Such statements are subject to a variety of risks, uncertainties and other factors, most of which are beyond the Company's control, and many of which could have a significant impact on the Company's operations, results of operations and financial condition, and could cause actual results to differ materially from those anticipated.

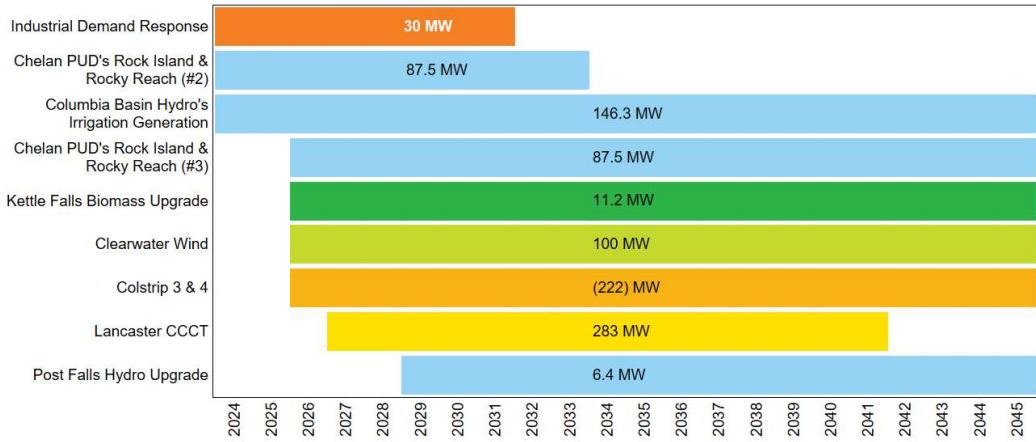
For a further discussion of these factors and other important factors, please refer to the Company's reports filed with the Securities and Exchange Commission. The forward-looking statements contained in this document speak only as of the date hereof. The Company undertakes no obligation to update any forward-looking statement or statements to reflect events or circumstances that occur after the date on which such statement is made or to reflect the occurrence of unanticipated events. New risks, uncertainties and other factors emerge from time to time, and it is not possible for management to predict all of such factors, nor can it assess the impact of each such factor on the Company's business or the extent to which any such factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statement.

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Recent Resource Portfolio Commitments

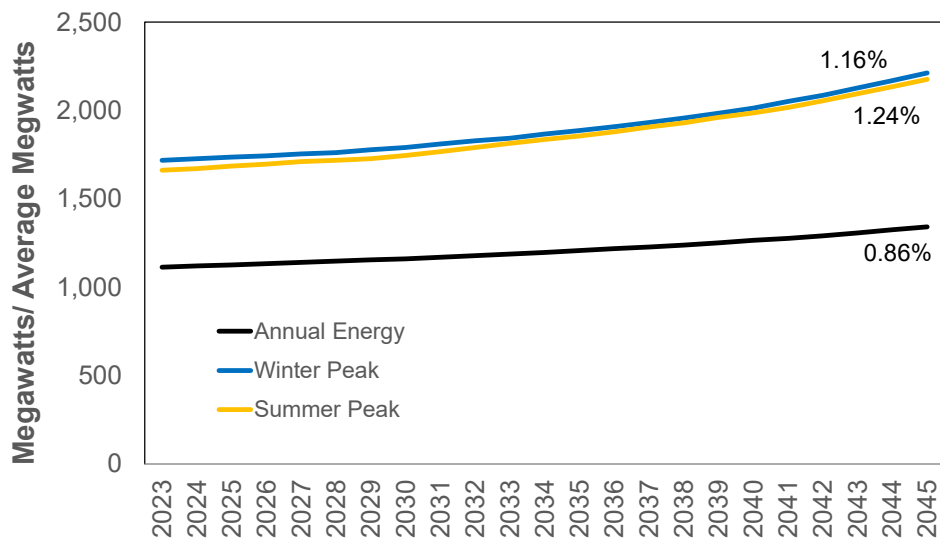


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Load Forecast & Growth Rates



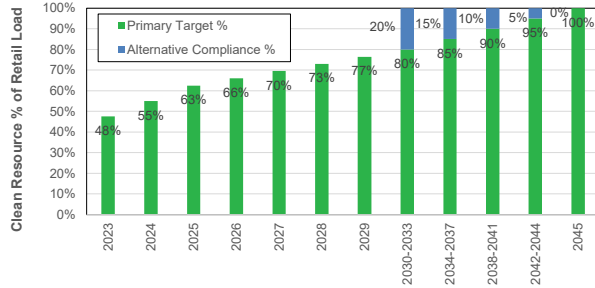
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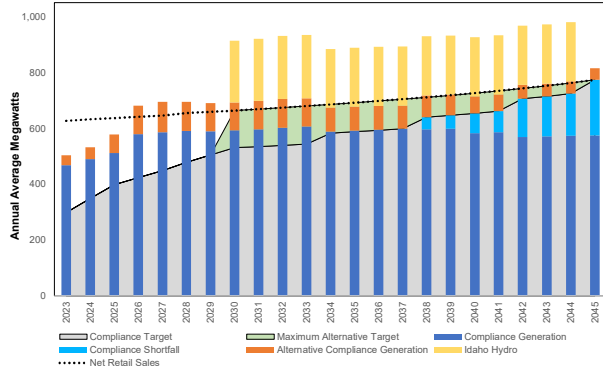
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CETA Renewable Energy Goal

Potential CETA Requirements



CETA Position



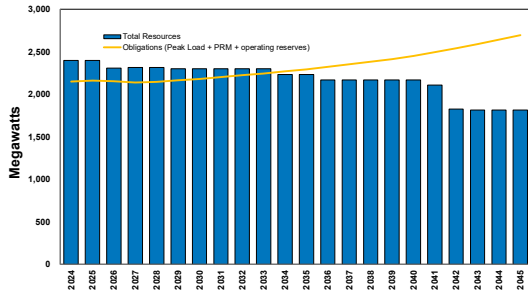
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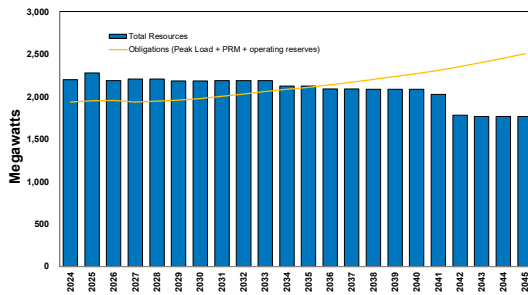
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Resource Position

Winter Peak



Summer Peak



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Energy Position

Month	2025	2030	2035	2040	2045
January	218	109	35	-3	-829
February	216	76	27	-26	-823
March	375	260	210	168	-603
April	551	427	360	311	-326
May	691	604	540	486	-17
June	737	621	540	447	-175
July	395	240	200	104	-672
August	266	135	59	-8	-766
September	339	222	176	135	-603
October	346	218	148	81	-677
November	261	116	27	-20	-818
December	297	147	69	-17	-851

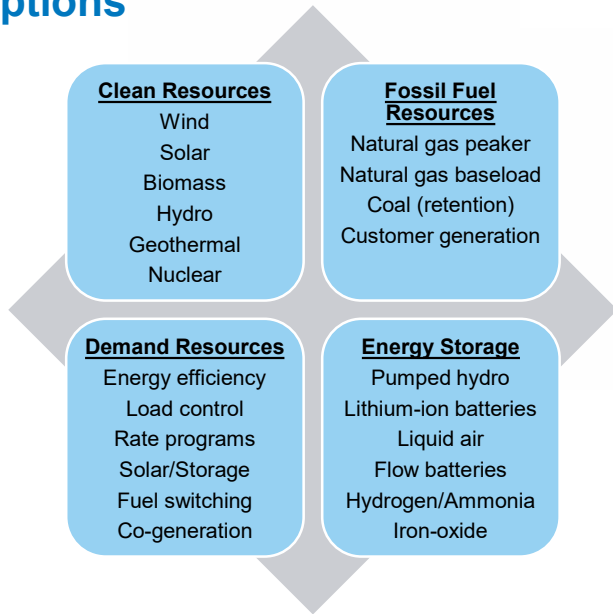
Assumed Retirements

Resource	Fuel Type	Year	January Capacity MW
Colstrip Units 3 & 4	Coal	2025	222.0
Northeast Units A & B	Natural Gas	2035	66.0
Boulder Park (1-6)	Natural Gas	2040	24.6
Kettle Falls CT	Natural Gas	2040	11.0
Rathdrum Units 1 & 2	Natural Gas	2044	176.0
Total			499.6



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Resource Options



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Equity Considerations in Washington

Ensure all customers benefit from the transition to clean energy:

- Equitable distribution
- Reduction of burden to vulnerable populations and highly impacted communities



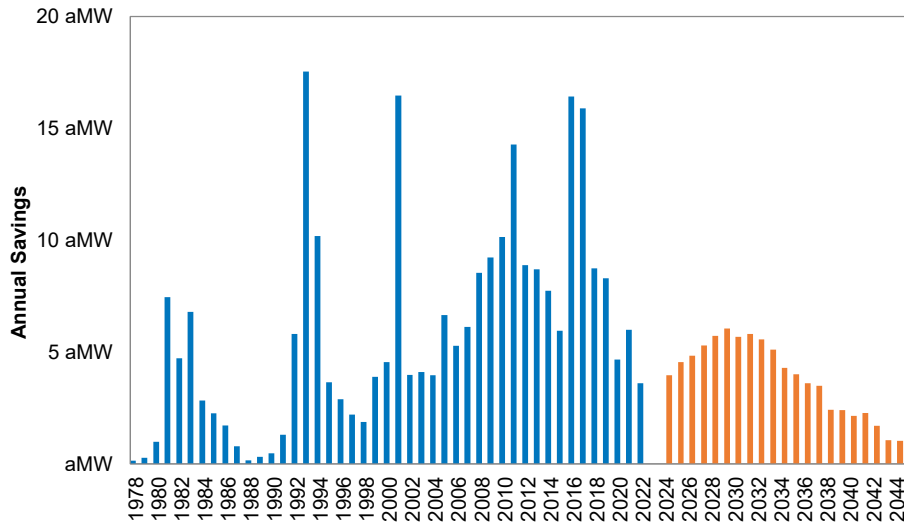
- Named Community Investment Fund
- Customer Benefit Indicators
- Societal Costs
 - Social Cost of Greenhouse Gas
 - Non-Energy Impacts
 - » Economic, Public Health (emissions), Water, Land Use, and Safety

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Annual Historical and Forecasted Energy Efficiency



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AVISTA

Demand Response

- Avista is preparing 3 opt-in pilot programs:
 - Time of use rates
 - Peak time rebate
 - CTA-2045 water heaters
- 2023 IRP Selection
 - 2025 start date, only Washington programs selected (2045 cumulative savings shown)
 - Time of Use: 6.6 MW
 - Peak Time Rebate and Variable Peak Pricing is on the margin, but not selected

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AVISTA

PRS- Supply-Side Resources Portfolio Changes

Resource	2024-2029	2030-2034	2035-2039	2040-2045	Total
Natural Gas	0	90	0	213	304
Natural Gas Retirements	0	0	(62)	(482)	(544)
Coal Retirements	(222)	0	0	0	(222)
Thermal Total	(222)	90	(62)	(269)	(462)
Hydrogen to Ammonia CT	0	0	88	608	696
Power to Gas Total	0	0	88	608	696
Biomass	11	0	0	0	11
Biomass Total	11	0	0	0	11
Northwest Wind	0	200	0	300	500
Montana Wind	100	200	0	0	300
Wind Total	100	400	0	300	800
Distributed Solar	4	4	1	1	10
Utility-Scale Solar	0	0	0	0	0
Solar Total	4	4	1	1	10
Demand Response	7	0	0	0	7
Demand Response Total	7	0	0	0	7
Short-Duration Storage (<8 hr)	0	0	0	25	25
Medium-Duration Storage (8-24 hr)	0	0	0	0	0
Long-Duration Storage (>24 hr)	0	0	52	0	52
Distributed Storage (<4hr)	0	0	1	2	2
Energy Storage Total	0	0	53	27	79
Hydropower	322	6	0	0	328
Hydropower Contract Expirations	(24)	(88)	0	0	(111)
Hydropower Total	298	(81)	0	0	216
All Resource Total	198	413	80	667	1,357
Additions	444	500	142	1,149	2,234
Subtractions	(246)	(88)	(62)	(482)	(877)

New transmission is needed

- Renewable energy resource connection and delivery
- Ammonia CT connection to load center
- Market interconnect

Additional Renewables may be required:

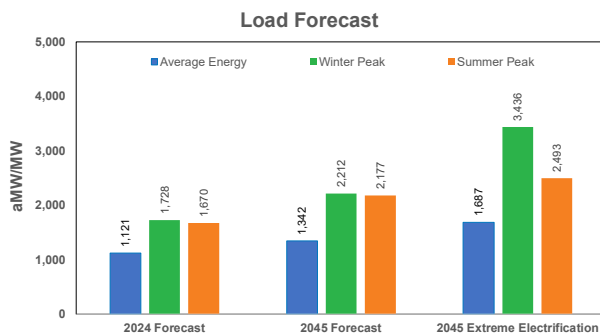
Hydrogen based fuel may require 800 to 2,000 MW of renewable capacity to create renewable fuel needed using a 20% round trip efficiency subject to further analysis

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Extreme Electrification Scenario



Resource Portfolio Impacts

- Wind: +600 MW
- Energy Storage: +1,200 MW
- Geothermal: +40 MW
- Biomass: +60 MW
- Nuclear: +350 MW
- Modest changes to natural gas and ammonia CTs and energy efficiency

Distribution System Impacts (Millions\$)

Item	Units	Unit Cost	Total Cost
New Feeder Substations	36 Stations	\$15.0	\$542
Reconductor Distribution	163 Miles	\$0.5	\$81
115kV Transmission (Substation Integration)	72 Miles	\$4.0	\$289
Switching Station (230kV/115kV)	6 Stations	\$75.0	\$450
230kV Transmission (Switching Station Integration)	30 Miles	\$2.3	\$68
Service Transformers	32,000	\$10k	\$320
Reconductor Service Connections	1,910 miles	\$62k	\$118
Total Cost			\$1,868
Cost per Feeder Substation			\$57

Distribution enhancements result in 4 cents per kWh added cost in 2045

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