BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

AVISTA Corporation dba Avista Utilities)) In the Matter of Avista's Energy and) Emissions Intensity Report in) Compliance with WAC 480-109-300))	DOCKET NO. UE-22_____ COMPLIANCE REPORT OF AVISTA CORPORATION

In compliance with WAC 480-109-300, Avista Corporation (hereinafter Avista or Company) respectfully submits its 2021 Energy and Emissions Intensity (EEI) report.

I. EXECUTIVE SUMMARY

Table No. 1 below summarizes the data collected and calculated for the Energy and Emissions Intensity Report ("Report") for the Washington share of Avista's customers in 2021. The following sections show the prior 10-year annual metrics for all generating resources serving Washington customers, the trend analysis narrative and graphics, and a list of the appendices are included in this filing.

Table No. 1: 2021 Summary Energy and Emissions Intensity Report

Utility:	Avista	
Reporting for year:	2021	**MWh per Capita**
Population Served:	571,856	**9.99**

Energy Intensity Metrics

	MWh at Meter	MWh Proportion	Customer Count	**MWH per Customer**
Residential Customers	2,649,921	46.4%	235,525	**11.3**
Commercial Customers	2,132,911	37.3%	25,820	**82.6**
Industrial Customers	929,881	16.3%		
Total Load Served	5,712,713			

Emissions Intensity Metrics

	Busbar MWh	Percent of Total Load	**Metric Tons CO_2e**	
Known Resources Serving WA - EPA	7,283,350	115.2%	1,890,906	
Unknown Resources Serving WA	**(961,384)**	**-15.2%**	**(109)**	**% of 1990 CO_2**
	2021 Metric Tons CO_2e		**1,890,797**	**184.1%**

1990 Metric Tons CO_2	1,026,905

Table No. 1 reports the amount of load served to residential, commercial and industrial customers in the Energy Intensity Metrics section. The Busbar MWh of the Emissions Intensity Metrics section shows the MWh measured at the generator, losses from the generators to the eventual load are not included in this report. Also, irrigation and street lighting loads are not included in the load measurements. The emissions measurements in Table No. 1 are based on the EPA calculation methodology using the Acid Rain Report CO_2 emissions data with adjustments made for CH_4 and N_2O to calculate the CO_2e for each thermal resource. Smaller Avista thermal facilities that do not submit data to the Acid Rain Program are based on the data shown in the annual spreadsheets in Appendix A. These facilities include Boulder Park, Northeast Combustion Turbine and the Kettle Falls Combustion Turbine.

II. PRIOR 10-YEAR ANNUAL METRICS

WAC 480-109-300 requires reporting of ten years of annual metrics for all generating resources serving Washington customers as part of the annual Report. Required data includes:

- Greenhouse gas content calculation in accordance with rules enacted under the Department of Ecology consistent with RCW 19.405.020(22);
- Average megawatt-hours per residential customer;

- Average megawatt-hours per commercial customer;
- Megawatt-hours per capita;
- Million metric tons of CO_2e emissions; and
- Comparison of annual CO_{2e} emissions to 1990 emissions.
- Unspecified electricity including:
    - Metric tons CO_2e from unknown generation sources;
    - Megawatt-hours delivered to its retail customers from unknown generation sources; and
    - Percentage of total load represented by an unknown generation source.
- Narrative text and graphics describing trends and an analysis of the likely causes of changes, or lack of changes, in the metrics.

The first and second annual metrics cover the average MWh per residential and commercial customer over the past 10 years. The results are shown in Table No. 2 below. The annual values for both residential and commercial customers remain reasonably consistent from year-to-year, with a rebound in residential and commercial use-per-customer after a noticeably larger decrease in 2020 commercial use due to the COVID-19 restrictions at the time. Trends are discussed in more detail and shown in graphic representations in section III of this report.

Table No. 2: Average MWh per Residential and Commercial Customer 2012 – 2021

	Average MWh per Residential Customer	**Average MWh per Commercial Customer**
2012	11.6	92.8
2013	12.0	92.0
2014	11.6	92.3
2015	11.3	91.9
2016	10.7	88.2
2017	11.7	89.0
2018	10.9	86.9
2019	11.1	86.0
2020	10.9	79.2
2021	11.3	82.6

The third annual EEI metric covers the MWh per capita over the past 10 years. The population of the Avista service territory was estimated by applying the Spokane County

household size to all Washington residential customers. Additional details about the methodology used for the population calculation are in Appendix B. The MWH per capita numbers are shown for 2012 through 2021 in Table No. 3, and the results are discussed in Section III and shown in Chart No. 2, below. The trend shows relatively stable MWh per capita. The 2020 decreasing levels of average MWh per residential and commercial customers are likely not a result of increased levels of energy efficiency programs but appear to be a result of the significant economic disruptions due to the COVID-19 pandemic and subsequent stay at home orders and temporary as well as permanent closures of businesses. This slightly decreasing trend is reversing back to pre-COVID-19 levels of use per capita. Avista will continue to monitor the use per capita trend as for any permanent structural changes due to increasing numbers of employees continuing to work at home on a hybrid or full-time basis. The push towards electrification of transportation and buildings is also expected to drive the use per capita trend higher with policy and building code changes.

Table No. 3: MWh per Capita 2012 – 2021

Year	MWh per Capita
2012	10.68
2013	10.95
2014	10.84
2015	10.85
2016	10.26
2017	10.64
2018	10.17
2019	10.10
2020	9.59
2021	9.99

The last two annual EEI metrics show the amount of Avista's annual CO_{2e} emissions from 2012 through 2021 compared to Avista's 1990 CO_2 emissions, and as a percentage of the 1990

CO_2 emissions. Table No. 4 shows Avista's annual emissions results and comparisons to 1990 CO_2 emissions levels identified in Docket No. UE-131723 converted to metric tons, but not updated to include adjustments for methane and nitrous oxide. The 1990 CO_2 numbers in this report have been converted to metric tons to coincide with the updated default of 0.437 metric tons per MWh number now being used for the annual calculations. The prior annual spreadsheets in Appendix A were updated in the last reporting cycle with the new default emissions rate as well as the addition of the methane and nitrous oxide emissions converted to CO_2e equivalents discussed above.

Table No. 4: Annual CO_2e Emissions in Metric Tons 1990 and 2012 – 2021

	Annual Emissions	**1990 Emissions**	**% of 1990 Emissions**
2012	1,600,155	1,026,905	156%
2013	1,710,984	1,026,905	167%
2014	1,672,750	1,026,905	163%
2015	2,015,386	1,026,905	196%
2016	1,770,825	1,026,905	172%
2017	1,740,403	1,026,905	170%
2018	1,768,569	1,026,905	172%
2019	2,006,762	1,026,905	195%
2020	1,725,232	1,026,905	168%
2021	1,890,797	1,026,905	184%

The calculations and data for the annual energy and emissions for 2012 through 2021 are included in the workpapers filed with this report in Appendix A. The workpapers for each year includes the annual CO_2e emissions in metric tons from unknown generation sources, the annual MWh delivered to retail customers from unknown generation sources, and a calculation of the percentage of load served by unknown generation sources. The adjustments made to the data for this report are described below.

Known generation resources include all of Avista's owned generation and contracts from known sources, such as purchases from specified Mid-Columbia hydro projects, the power purchase agreement for the Lancaster combined cycle combustion turbine, and the Palouse Wind and Rattlesnake Flat Wind contracts. The other category of known resources includes PURPA hydro and biomass generation from specific resources, identified in the known resources tab in parentheses after the name of the projects. The annual spreadsheets in Appendix A identify the known resources and type of resource supplying the generation. Emissions from the EPA Acid Rain Report were used where available and the emissions from the World Resource Institute (WRI) protocol were used for known thermal sources that are not participating in the Acid Rain Program as in previous EEI reports, as well as the calculations made for the adjustments for methane and nitrous oxide emissions. Applicable Avista owned or controlled plants in the Acid Rain Program include Colstrip, Coyote Springs 2, Lancaster and Rathdrum. The CO_2e emissions from unknown resources have been assigned using the net-by-counterparty approach. Purchases and sales from the Bonneville Power Administration (BPA) are treated as unknown resources and assigned the appropriate regional or Avista emission factor based on net sales per year.

Resources specifically assigned to serve Idaho customer load were excluded from the emissions calculations. Total sales to non-Avista customers were netted from the emissions calculation in the unknown resources section of the workpapers following each annual summary tab. The busbar MWh and short tons of CO_2 of the Energy and Emissions Annual Report spreadsheets were multiplied by 65 percent to only show the Washington share of Avista's customers.

This report uses the net-by-counterparty approach for unknown resources that applies the 0.437 metric tons CO2e per MWh Department of Ecology default factor for transaction partners

the Company is a net purchaser with and applies the fleet-wide emission intensity factor for transaction partners the Company is a net seller. Please refer to Table No. 5 for Avista's generation fleet and the Washington Department of Ecology default metric tons of CO_2e/MWh emission factor numbers for 2012 through 2021.

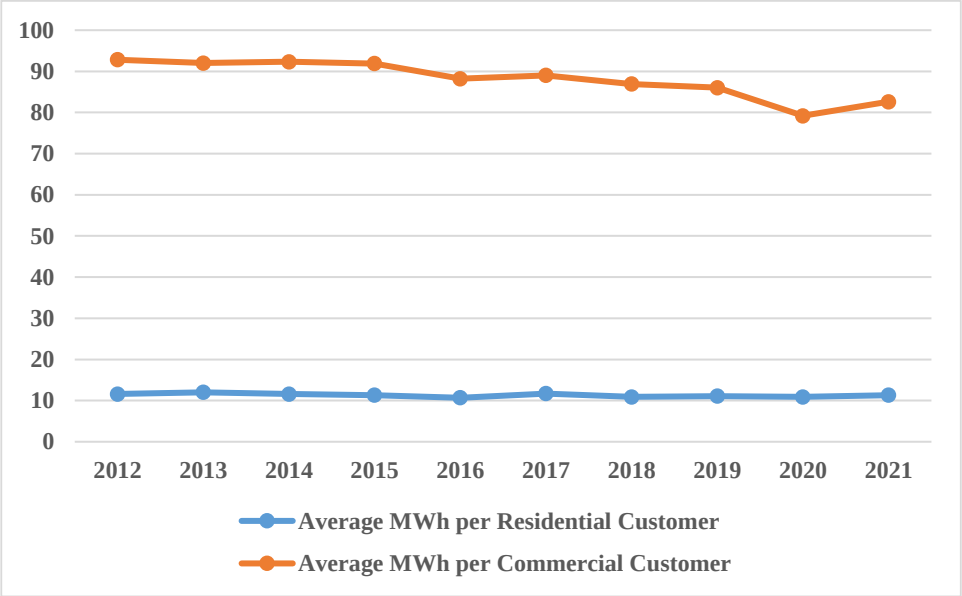
Table No. 5: Default Ecology and Avista Emissions Factors (Metric Tons CO_2e per MWh)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Avista	0.257	0.252	0.250	0.290	0.259	0.256	0.251	0.278	0.240	0.260
Ecology Default	0.437	0.437	0.437	0.437	0.437	0.437	0.437	0.437	0.437	0.437

III. TREND ANALYSIS NARRATIVE AND GRAPHICS

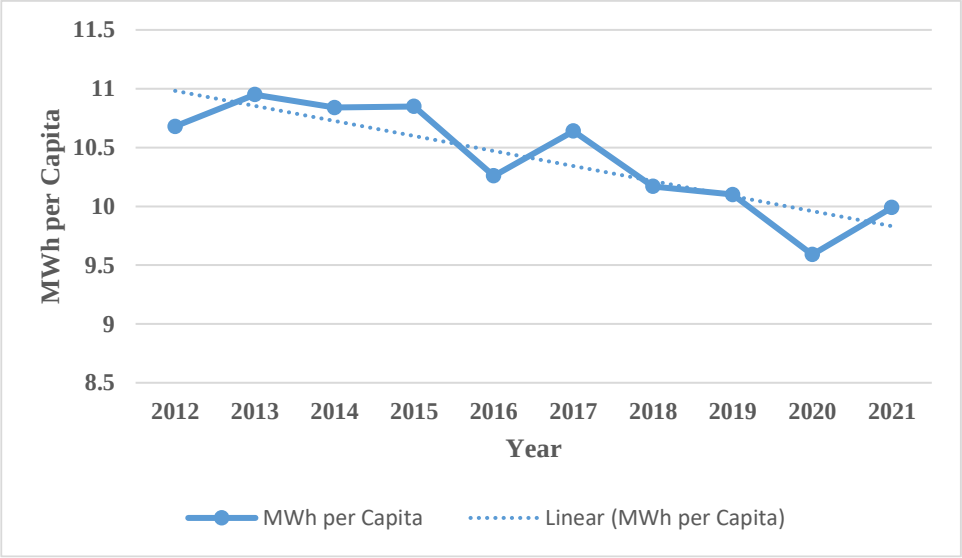
The average MWh use per customer has experienced relatively minor annual variations. Commercial customers exhibited gradual decreases with a more significant drop in 2020 to the economic recession caused by COVID-19 and the subsequent restrictions and business closures caused by the pandemic. Please refer to Chart No. 1 for the average use per commercial and residential customers. Avista's own energy efficiency efforts combined with regional efforts, improved energy efficiency technologies, and more stringent codes and standards are expected to continue driving these decreases after the full rebound and any permanent resetting of energy use patterns after the COVID-19 induced issues. The scope of commercial customers is wide enough to make detailed analysis difficult, if not impossible to identify any other specific causes for the other general fluctuations. This analysis is based on actual load data and is not normalized for weather. Recently enacted policies and building codes are expected to drive higher levels of MWh use per customer as buildings and transportation are electrified. This expected increase may be mitigated by the adoption of behind-the-meter solar installations. More time will be needed to gather data and analyze the net impact of these trends.

Chart No. 1: Average MWh per Commercial and Residential Customers 2012 – 2020



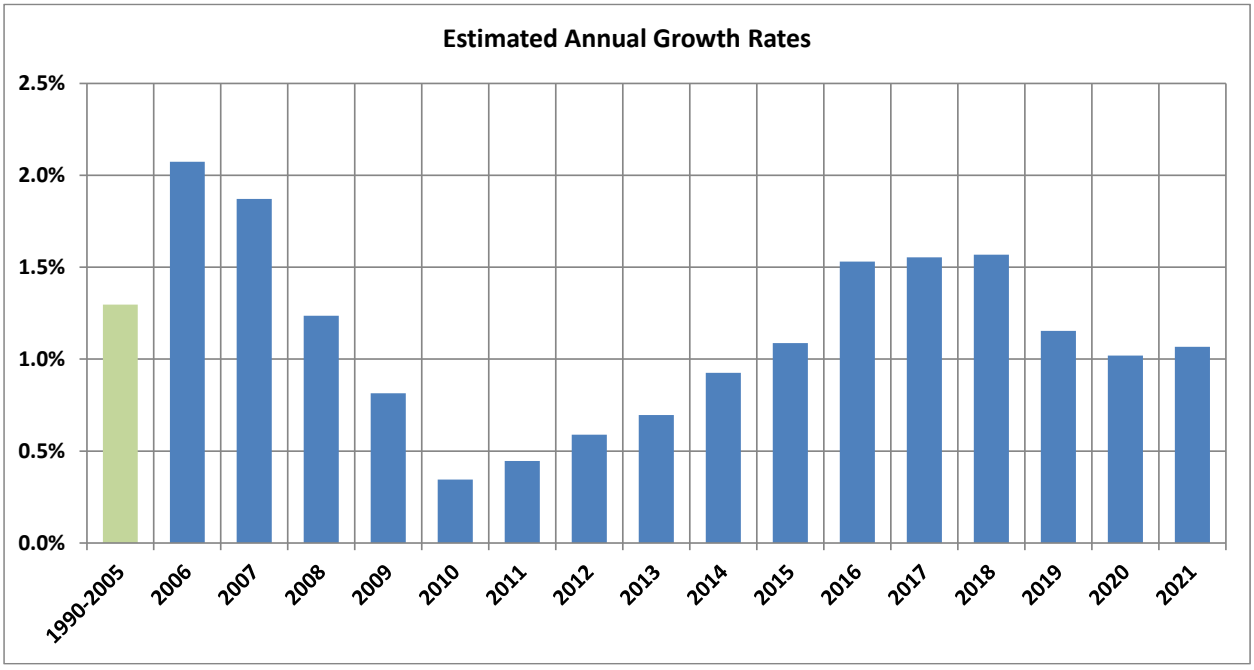
The next metric covers the MWh per capita from 2012 through 2021. The specifics underlying the population calculation for Avista's service territory are in Appendix B – Population Methodology. The trend line shows a pronounced decreasing MWh per capita trend, with significant decreases from 2015 to 2016, and again from 2017 to 2020 with a post-COVID-19 increase, pulling the overall trend downwards to its most recent trajectory as shown in Chart No. 2. This is still a short enough trend to make it difficult, if not impossible, to determine the ultimate root cause, but the continuation of the downward trend is encouraging considering the local and regional funding, and programs devoted towards energy efficiency programs, efficiency education, and the ongoing improvements to codes and standards. As discussed above, the rate of electrification for transportation and building stock, net of behind the meter solar, may negate some of the efficiency improvements.

Chart No. 2: MWh per Capita 2012 – 2021



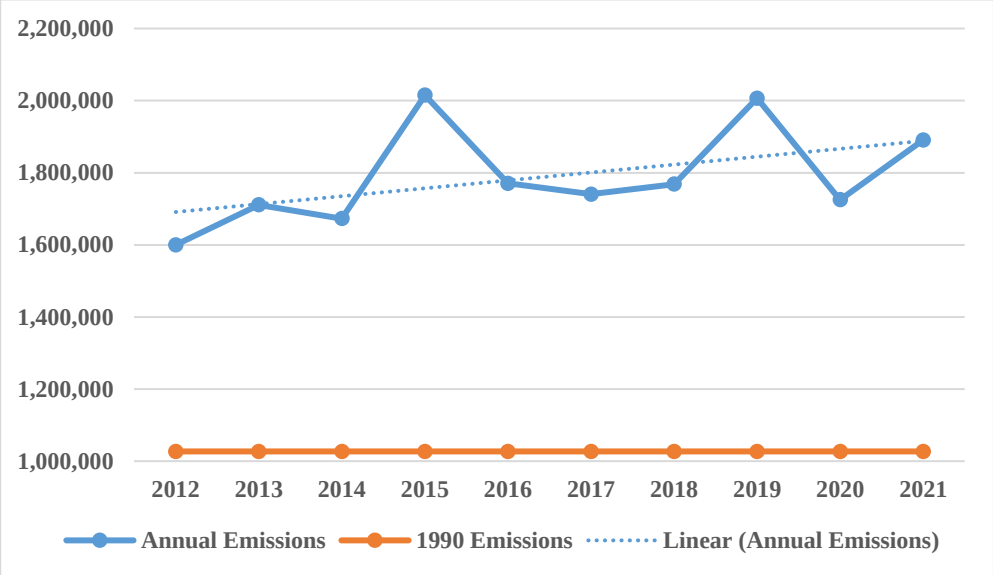
The estimated annual population growth rate was trending upwards towards previous levels seen prior to the Great Recession but has recently trended downwards again. Please see Chart No. 3 for details. A better understanding of these trends should become more apparent as the economy comes out of the COVID-19 driven recession and gets back to a more stable growth pattern.

Chart No. 3: Estimated Annual Population Growth Rates



The final two EEI report metrics include the annual CO_2e emissions in metric tons, from 2012 through 2021, and a comparison of those emissions with the 1990 emissions data. Chart No. 4 below, reflects this emissions data. The overall emissions trend has been increasing for Avista over the last decade with the addition of the Lancaster CCCT PPA partially offset by the addition of the Palouse Wind and Rattlesnake Flat Power Purchase Agreements as well as more contracts for Mid-C hydro. Annual spikes with emissions generally coincide with poor hydro years that require the use of more thermal resources to balance system needs. Based on the ongoing analysis in the Company's Integrated Resources Plan (IRP), Avista expects emissions will decrease as a higher percentage of zero emitting resources are added to Avista's system in conjunction with the Clean Energy Transformation Act (CETA) and its own corporate clean energy goals. The regional energy mix is also expected to become cleaner as prices for clean generation resources continue to decrease, as more of the remaining regional coal plants retire, and state-level clean energy goals increase.

Chart No. 4: Annual Metric Tons CO_2e Emissions 2012 – 2021



The implementation of CETA will inevitably drive CO_2e emissions lower as emissions free resources serving Washington loads increase as the system reaches carbon neutrality by 2030 and emissions free by 2045. Near-term regional emissions will still be affected by the variable amount of hydroelectric, wind and increasingly solar generation in any given year. The impact of this variability should be mitigated as more renewables, energy storage, and demand response programs are initiated across the region.

IV. APPENDICES

The following appendices provide further details about Avista's 2021 EEI Report.

Appendix A: Summary Energy and Emissions Intensity Reports for 2012 – 2021
Appendix B: Population Calculation Methodology

RESPECTFULLY SUBMITTED this 31st day of May 2022.

AVISTA CORPORATION

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