

**BEFORE THE WASHINGTON  
UTILITIES & TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,

Complainant,

v.

AVISTA CORPORATION D/B/A/ AVISTA UTILITIES

Respondent.

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DOCKETS UE-220053, UG-220054, and UE-210854 (Consolidated)

**SEBASTIAN COPPOLA ON BEHALF OF THE  
WASHINGTON STATE OFFICE OF THE ATTORNEY GENERAL  
PUBLIC COUNSEL UNIT**

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**EXHIBIT SC-27**

Avista's Response to Public Counsel's Data Request No. 241, with Attachment A, and  
Data Request No. 245, with Attachment A on EV Capital Additions

**July 29, 2022**

**AVISTA CORP.  
RESPONSE TO REQUEST FOR INFORMATION**

JURISDICTION:	WASHINGTON	DATE PREPARED:	05/16/2022
CASE NO.:	UE-220053 & UG-220054	WITNESS:	Kelly MAgalskly
REQUESTER:	Public Counsel	RESPONDER:	Rendall Farley
TYPE:	Data Request	DEPT:	Customer Solutions
REQUEST NO.:	PC – 241	TELEPHONE:	(509) 495-2823
		EMAIL:	rendall.farley@avistacorp.com

**SUBJECT:**       **Transportation Electrification (TE)**

**REQUEST:**       RE: Transportation Electrification, Direct Testimony of Kelly E. Magalsky, Exh. KEM-1T at 4:3–8. Please:

- a. Provide the amount of gross plant invested in the equipment and related facilities listed in this section of your testimony and any amounts charged to any regulatory assets.
- b. Provide the total amount invested and spent on Transportation Electrification, including pilot programs, since inception and through the end of 2021. Please provide the capital investments separately from O&M expenses for each year on a total system basis and the portion applicable to Washington.
- c. Identify what portion of the cost of the equipment was paid by customers. If customers did not make a significant contribution to the cost of the equipment, please explain why it is appropriate for those customers to not share in the cost and for all other customers to subsidize benefits realized by only a few customers.
- d. Provide the revenue requirement (return, depreciation, O&M, property taxes, etc.) paid by all customers for supporting this program for 2021 and forecasted for each year 2022, 2023, and 2024 on a system basis and the portion applicable to Washington. Please provide this information in Excel with all supporting data and workpapers.
- e. Provide the amount of electricity sales to EVs and the related revenue for each year 2021 and forecasted for 2022, 2023, and 2024 system-wide and for Washington. Please provide the revenue including power costs and also excluding power costs.

**RESPONSE:**

- (a) The following table shows annual gross transfers to plant, on a system basis, for the period January 2016 through April 2022 related to transportation electrification (TE), including the EVSE Pilot Program. The Company never sought or obtained approval to defer, therefore, there are no regulatory assets related to the EV project.

Business Case	Actual TTP (System)							Jan-Apr 2022	Grand Total
	2016	2017	2018	2019	2020	2021			
Electric Transportation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 616,426	\$ 377,800	\$ 994,226	
Strategic Initiatives [1]	\$ 401,416	\$ 869,586	\$ 1,063,232	\$ 772,064	\$ 492	\$ -	\$ -	\$ 3,106,789	
<b>Grand Total</b>	<b>\$ 401,416</b>	<b>\$ 869,586</b>	<b>\$ 1,063,232</b>	<b>\$ 772,064</b>	<b>\$ 492</b>	<b>\$ 616,426</b>	<b>\$ 377,800</b>	<b>\$ 4,101,015</b>	

[1] Transfer to plant amounts under the Strategic Initiatives business case is related to the EVSE Pilot in Washington State only.

- (b) The following table shows the amount of Capital and O&M spent each year on TE including pilot programs, since inception. All amounts are system-wide and applicable to Washington, as no TE spending has yet occurred in Idaho.

	Capital	O&M
2016 – 2019	\$3,111,165	\$739,959
2020	\$4,913	\$192,019
2021	\$1,446,413	\$501,563
Total	\$4,562,491	\$1,433,541

- (c) Participating customers in Avista's charging infrastructure programs contributed \$532,573 to the up-front cost of equipment and installations. This is justified given the early stage of the market, barriers to customer participation, and long-term benefits for all customers as detailed in Avista's TE Plan. The TE Plan is aligned with supportive legislation codified in Washington RCW 80.28.360 and 80.28.365, with review and input by the Washington Joint Transportation Electrification Stakeholder group and acknowledged by the UTC on October 15, 2020. TE benefits all customers including significant regional economic and environmental benefits, load management and system planning benefits, and current and future utility billing revenue that the charging infrastructure enables and benefits all customers. For example, in 2021 an estimated \$3.6 million was saved in regional transportation costs, 9,740 tons of CO<sub>2</sub> emissions were avoided, and \$662,184 in utility revenue were provided by light-duty EVs alone. This is just the beginning, as TE gains momentum and these benefits grow substantially over the next several decades. With over one million registered vehicles in the region, consider the enormous customer savings and grid benefits that a high percentage of EVs would provide, especially when charging is optimally done during off-peak times of the day and night. In other words, TE can benefit all customers and society as a whole—not just those using EVs and other forms of electrified transportation equipment—by using a cheaper and cleaner fuel at scale, more efficiently utilizing grid infrastructure, and integrating renewable power resources that energize a healthy and more sustainable economy.

- (d) See PC-DR-241 Attachment A.

- (e) Electricity sales to light-duty EVs in Washington, in 2021 and forecasted for 2022, 2023 and 2024 are as follows:

	# of light-duty EVs	Gross Revenue	Utility Power Costs	Net Revenue
2021	2,143	\$662,184	\$132,927	\$518,545
2022	2,786	\$860,839	\$175,503	\$685,336
2023	3,900	\$1,205,175	\$251,359	\$953,815
2024	5,655	\$1,747,504	\$385,286	\$1,362,218

Electricity sales to light-duty EVs system-wide (including Washington and Idaho), in 2021 and forecasted for 2022, 2023 and 2024 are as follows:

	# of light-duty EVs	Gross Revenue	Utility Power Costs	Net Revenue
2021	2,825	\$872,815	\$175,209	\$697,606
2022	3,531	\$1,091,018	\$222,427	\$868,591
2023	4,767	\$1,472,875	\$307,190	\$1,165,685
2024	6,673	\$2,062,024	\$454,628	\$1,607,396

**ATTACHMENT A TO AVISTA'S RESPONSE TO PUBLIC  
COUNSEL'S DATA REQUEST NO. 241**

Incentive Rate of Return - Transportation Electrification

[Per PC-DR-241 (a)]

WA GRC Plant Group	Project #	Business Case	2016-2020	2021 TTP	2022 TTP	2023 TTP	2024 TTP
Programs	1	Electric Transportation	\$ 3,106,789	\$ 613,147.00	\$ 2,775,000.00	\$ 3,900,000.00	\$ 4,060,000.00

Capital Structure		48.50%	48.50%	48.50%	48.50%
Requested ROE Incentive (Equity Kicker)		2.00%	2.00%	2.00%	2.00%
Rate of Return Incentive		0.97%	0.97%	0.97%	0.97%
Depreciation Rate		5.71%	5.71%	5.71%	5.71%

Annual Depreciation	\$ 177,398	\$ 212,408	\$ 370,861	\$ 593,551	\$ 825,377
Accumulated Depreciation	\$ 88,699	\$ 106,204	\$ 291,635	\$ 482,206	\$ 709,464
Net Rate Base	\$ 3,018,090	\$ 506,943	\$ 3,096,512	\$ 4,855,941	\$ 8,608,683
<b>Incentive ROR (AMA)</b>		\$ 4,917	\$ 30,036	\$ 47,103	\$ 83,504

**2023**      **2024 (incremental)**      **Total**  
**Added Incremental 2% (Kicker) incentive on TE Assets: \$ 47,103 \$ 36,402 \$ 83,504**

	2020	2021	2022	2023	2024
Gross up for Taxes				59,624	46,078
Depreciation Expense	\$ 177,398	\$ 212,408	\$ 370,861	\$ 593,551	\$ 825,377
O&M Expense per (per PC-DR-241 (b))	192,019	501,563	501,563	501,563	501,563
Total Annual Expense	\$ 369,417	\$ 713,971	\$ 872,424	\$ 1,095,114	\$ 1,326,940

Capital	3,106,789	\$ 613,147	\$ 2,775,000	\$ 3,900,000	\$ 4,060,000
Net Additions		\$ 3,542,538	\$ 3,388,147	\$ 6,675,000	\$ 7,960,000
A/D	\$ (177,398)	\$ (194,903)	\$ (274,129)	\$ (385,474)	\$ (501,387)
Net Plant	2,929,391	\$ 3,347,635	\$ 3,114,018	\$ 6,289,526	\$ 7,458,613

NOI	\$ (277,444)	\$ (547,587)	\$ (673,913)	\$ (834,233)	\$ (1,011,631)
NOI Req.	491,583	792,299	901,547	1,341,100	1,593,257
Annual Rev. Req.	650,849	1,048,994	1,193,638	1,775,600	2,109,453

(1)  
 Approx. Test Period Rev. Req. (12ME 09.2021)      \$ 949,458

Rev. Req. RY1      (2) \$ 1,775,600

Incremental Rev. Req. RY2 above RY1 level      (2) \$ 333,853 (2024 Incremental Cost above 2023)

(1) Current annual recovery from customers prior to new rates in effect 12/21/2022.	(2) Cost to customers does not reflect expected offsetting utility benefits from the program.
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2.34% COD  
 7.31% ROR  
 0.755294 CF

**AVISTA CORP.  
RESPONSE TO REQUEST FOR INFORMATION**

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CASE NO.:	UE-220053 & UG-220054	WITNESS:	Kelly Magalsky
REQUESTER:	Public Counsel	RESPONDER:	Rendall Farley
TYPE:	Data Request	DEPT:	Customer Solutions
REQUEST NO.:	PC – 245	TELEPHONE:	(509) 495-2823
		EMAIL:	rendall.farley@avistacorp.com

**SUBJECT:           Transportation Electrification (TE)**

**REQUEST:**

**RE: Transportation Electrification, Direct Testimony of Kelly E. Magalsky, Exh. KEM-1T at 9:1–10. Please:**

- a. Identify the number of customers directly benefiting from the installation of charging equipment in 2021, and the number forecasted for each year 2022–2024.
- b. Provide the source of the \$1,483 annual benefit and the underlying calculations in Excel with formulae intact, supporting data, and assumptions clearly explained.
- c. Provide the calculations in Excel underlying the four tons of CO2 emission reductions and the \$304 in utility revenue in Excel with formulae intact, supporting data, and assumptions clearly explained. Please explain if the CO2 emission reduction is before or after considering the CO2 emission from power generation and the sourcing of car battery materials and manufacturing.

**RESPONSE:**

- (a) The following customers benefit directly through participation in charging infrastructure installations, forecasted through 2024, as well as customers directly benefiting from commercial and public charging infrastructure. These values do not include various groups and customers served by Community Based Organizations (CBOs) partnering with Avista in its Community and Low-Income programs, and all customers that benefit indirectly from TE due to regional economic and environmental benefits, as well as beneficial utility revenue as detailed in the TE Plan.

	No. of Directly Participating Customers in Charging Installation Programs	No. of Customers Directly Benefiting from Commercial and Public Charging Infrastructure
2021	420	2,143
2022	599	2,786
2023	791	3,900
2024	999	5,655

- (b) Please see excel file PC-DR-245 Attachment A

- (c) Please see excel file PC-DR-245 Attachment A

**ATTACHMENT A TO AVISTA'S RESPONSE TO PUBLIC  
COUNSEL'S DATA REQUEST NO. 245**



**response to DR-245 (b)**

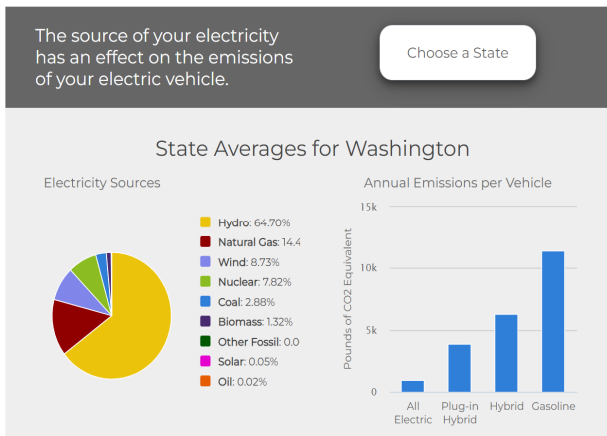
(b) \$1,483 annual fuel and maintenance cost savings benefit per EV

13900 miles driven/yr	<u>assumptions/explanation</u>
3.3 miles/kWh	average U.S. light duty miles driven per year (2020)
4212 kWh/yr/EV	pilot telematics data
\$0.10 \$/kWh	derived from average efficiency value
\$421.21 annual electricity fuel cost	Avista average rate per kWh
26 mpg average gas vehicle efficiency	derived value
\$3.00 \$/gal gasoline	average U.S. gas vehicle efficiency (2020)
\$1,604 annual gas cost	average fuel cost estimate
\$1,182.63 annual fuel savings	assumes same miles driven as EV
\$300.00 annual maintenance savings	gasoline cost - electricity cost
<b>\$1,482.63</b> annual fuel + maintenance savings per EV	Electric Power Research Institute study
	fuel + maintenance savings

**Response to DR-245 (c)**

Based on the current US Alternative Fuels Data Center website  
[https://afdc.energy.gov/vehicles/electric\\_emissions.html](https://afdc.energy.gov/vehicles/electric_emissions.html)

lbs CO2 state avg	vehicle ty	% of popu	weighted emissions
940	BEV	70%	658
3892	PHEV	30%	1167.6
<b>1826 average annual EV emissions</b>			
11435	gasoline	97.60%	11160.56
6258	hybrid gas	2.40%	150.192
<b>11311 average annual gas vehicle emissions</b>			
9485 average CO2 emissions reduction 2000 lbs/ton			
<b>4.7 tons avoided CO2 emissions</b>			



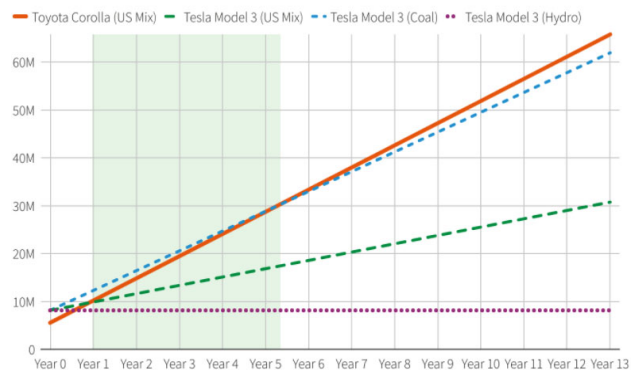
This is for annual emissions comparisons, which compares the emissions of EVs from generation sources to the CO2 produced when burning gasoline. This may be a conservative value, as more research is needed to determine if the gasoline CO2 emissions include upstream emission from extracting, refining and transporting the petroleum fuel

To evaluate the effect of emissions caused by manufacturing vehicles, see the following websites:  
<https://www.reuters.com/business/autos-transportation/when-do-electric-vehicles-become-cleaner-than-gasoline-cars-2021-06-29/>  
[https://afdc.energy.gov/vehicles/electric\\_emissions.html](https://afdc.energy.gov/vehicles/electric_emissions.html)

A screenshot is provided below, which shows that the relative difference in current manufacturing emissions are small compared to operating emissions. In Washington state, because of the clean electricity sources the EV makes up for the difference in less than one year, and would avoid nearly 5 tons of CO2 every year.

**When are EVs cleaner than gas cars?**

It takes a typical electric vehicle about one year in operation to achieve "carbon parity" with a gasoline vehicle. Although the production of EVs and batteries generates more CO2 before the first wheel turns, the total carbon "footprint" of gas cars quickly overtakes that of EVs after 15,000 miles of driving. If the EV draws electricity from a coal-fired grid, however, the catchup period stretches to more than five years. If the grid is powered by carbon-free hydroelectricity, the catchup period is about six months.



Note: Total lifetime CO2 emissions in millions of grams  
 Data source: Argonne National Laboratory GREET model

**response to DR-245 (c)**

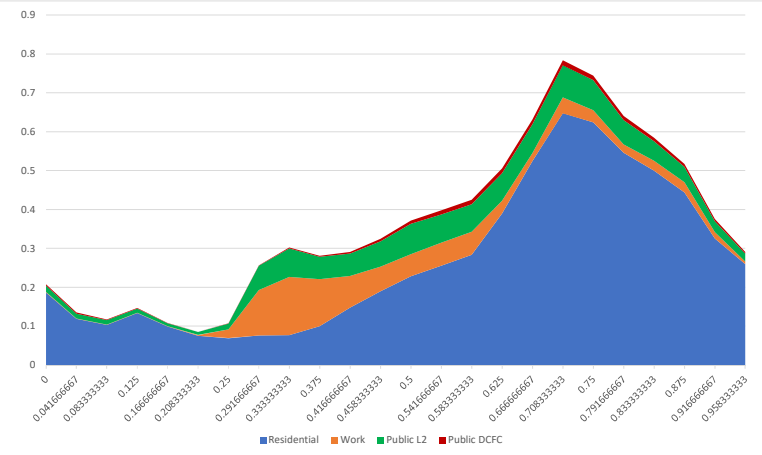
Derivation of \$304 annual utility revenue per EV

This is a conservative value based on early EV charging data in pilot. Future EVs likely with larger batteries, more driving & more consumption kWh values below in various categories are based on over 53,000 charging session data acquired in Pilot program proportion estimates in various categories based on pilot participants

BEV battery-electric (all-electric)  
 PHEV plug-in hybrid  
 C commuter  
 NC non-commuter  
 Resi residential charging location  
 Work workplace charging location  
 public ACL2/DCFC public charging location

\$0.08765 tier2 residential Sch1 applied to residential charging  
 \$0.11349 tier1 commercial Sch011 applied to workplace and public charging ACL2  
 \$0.23175 DCFC applied to DCFC

Category	BEV C kWh	BEV NC kWh	PHEV C kWh	PHEV NC kWh	Resi kWh	Resi revenue	WORK kWh	Work kWh - adj	Work rev	PUBLIC ACL2 kWh	DCFC kWh	PUB L2 + DCFC kWh	Total kWh	Total rev
Proportion	0.5	0.2	0.3	0.1	1.0	n/a	n/a	0.3	n/a	n/a	n/a	n/a	n/a	n/a
12:00:00 AM	0.20	0.09	0.22	0.19	0.19	\$0.02	0.01	0.00	\$0.00	0.02	0.00	\$0.00	0.21	\$0.02
1:00:00 AM	0.13	0.07	0.12	0.12	0.12	\$0.01	0.00	0.00	\$0.00	0.01	0.00	\$0.00	0.14	\$0.01
2:00:00 AM	0.14	0.06	0.08	0.06	0.10	\$0.01	0.00	0.00	\$0.00	0.01	0.00	\$0.00	0.12	\$0.01
3:00:00 AM	0.21	0.05	0.08	0.03	0.13	\$0.01	0.00	0.00	\$0.00	0.01	0.00	\$0.00	0.15	\$0.01
4:00:00 AM	0.15	0.04	0.07	0.02	0.10	\$0.01	0.00	0.00	\$0.00	0.01	0.00	\$0.00	0.11	\$0.01
5:00:00 AM	0.10	0.04	0.07	0.02	0.08	\$0.01	0.01	0.00	\$0.00	0.01	0.00	\$0.00	0.09	\$0.01
6:00:00 AM	0.08	0.04	0.07	0.07	0.07	\$0.01	0.11	0.02	\$0.00	0.01	0.00	\$0.00	0.11	\$0.01
7:00:00 AM	0.08	0.06	0.08	0.07	0.08	\$0.01	0.54	0.12	\$0.01	0.06	0.00	\$0.01	0.26	\$0.03
8:00:00 AM	0.08	0.10	0.07	0.05	0.08	\$0.01	0.70	0.15	\$0.02	0.07	0.00	\$0.01	0.30	\$0.03
9:00:00 AM	0.09	0.14	0.09	0.09	0.10	\$0.01	0.57	0.12	\$0.01	0.06	0.00	\$0.01	0.28	\$0.03
10:00:00 AM	0.13	0.24	0.14	0.13	0.15	\$0.01	0.38	0.08	\$0.01	0.06	0.00	\$0.01	0.29	\$0.03
11:00:00 AM	0.17	0.27	0.18	0.17	0.19	\$0.02	0.30	0.06	\$0.01	0.06	0.01	\$0.01	0.33	\$0.03
12:00:00 PM	0.21	0.28	0.22	0.28	0.23	\$0.02	0.27	0.06	\$0.01	0.08	0.01	\$0.01	0.37	\$0.04
1:00:00 PM	0.24	0.30	0.23	0.35	0.26	\$0.02	0.28	0.06	\$0.01	0.07	0.01	\$0.01	0.40	\$0.04
2:00:00 PM	0.27	0.30	0.28	0.32	0.28	\$0.02	0.27	0.06	\$0.01	0.07	0.01	\$0.01	0.43	\$0.04
3:00:00 PM	0.42	0.28	0.42	0.35	0.39	\$0.03	0.15	0.03	\$0.00	0.07	0.01	\$0.01	0.51	\$0.05
4:00:00 PM	0.57	0.28	0.65	0.36	0.52	\$0.05	0.10	0.02	\$0.00	0.07	0.01	\$0.01	0.63	\$0.06
5:00:00 PM	0.76	0.27	0.72	0.44	0.65	\$0.06	0.19	0.04	\$0.00	0.08	0.01	\$0.01	0.78	\$0.07
6:00:00 PM	0.72	0.25	0.73	0.46	0.62	\$0.05	0.15	0.03	\$0.00	0.08	0.01	\$0.01	0.74	\$0.07
7:00:00 PM	0.59	0.25	0.69	0.43	0.55	\$0.05	0.10	0.02	\$0.00	0.06	0.01	\$0.01	0.64	\$0.06
8:00:00 PM	0.55	0.24	0.61	0.37	0.50	\$0.04	0.12	0.03	\$0.00	0.05	0.01	\$0.01	0.59	\$0.05
9:00:00 PM	0.48	0.23	0.54	0.33	0.44	\$0.04	0.12	0.03	\$0.00	0.04	0.01	\$0.01	0.52	\$0.05
10:00:00 PM	0.36	0.19	0.38	0.26	0.33	\$0.03	0.07	0.02	\$0.00	0.03	0.01	\$0.00	0.38	\$0.03
11:00:00 PM	0.28	0.13	0.31	0.23	0.26	\$0.02	0.03	0.01	\$0.00	0.02	0.00	\$0.00	0.29	\$0.03
					6.41		0.96			1.12	0.15			



Daily	8.6	\$0.83
Annual	3153	\$ 304

\$0.10 all-in \$/kWh

10405 estimated annual miles driven at 3.3 mi/kWh

Totals	
Home	6.41 74%
Work	0.96 11%
Public L2	1.12 13%
DCFC	0.15 2%

