

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

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|---------------|-----------------------|----------------|-------------------------------|
| JURISDICTION: | WASHINGTON | DATE PREPARED: | 04/19/2021 |
| CASE NO.: | UE-200900 & UG-200901 | WITNESS: | Josh DiLuciano |
| REQUESTER: | Public Counsel | RESPONDER: | Dan Burgess/Tamara Bradley |
| TYPE: | Data Request | DEPT: | Electrical Engineering |
| REQUEST NO.: | PC - 321 | TELEPHONE: | (509) 495-7896 |
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SUBJECT: AMI-Enabled Energy Efficiency

REQUEST:

Please refer to Revised Attachment B provided in response to Public Counsel Data Request No. 135, tab “EnergyEfficiency_CVR”.

This tab still retains many pasted values. In Avista’s response to this data request, please provide all responses in worksheet format with no pasted values, no hidden or protected cells, and all formulae intact and available for Public Counsel review.

- a) For this tab explain, and provide all data, calculations, assumptions, estimates, and other support, for the level of MWh savings by year.
- b) For this tabs explain, and provide all data, calculations, assumptions, estimates, and other support, for the manner in which MWh savings by year were translated into dollar values by year.

RESPONSE:

Please find attached the file PC-DR-321 Attachment A, originally provided as PC-DR-135 Revised Attachment B, which has been updated with formulae intact for the benefit category noted in this request.

- a) Please also see the file provided as PC-DR-321 Attachment B, which includes the lists of feeders developed in 2015 for the initial estimate of financial benefits to be achieved through CVR. The lists of feeders are presented in three groups, based on their potential and the planned application of CVR, which groups are labeled ‘Future Grid Mod,’ ‘Grid Mod Augmentation’ and ‘X&R Savings.’ A high-level description of these feeder groups is provided in Columns B though J, lines 2 through 9. For each feeder in each group, the Company listed amperage by phase, the CVR Factor (CVRf), the projected voltage reduction (VDROP%), the expected MWh savings (Column S), and the expected financial value of the energy savings (\$CVR). Derivation of the financial value assigned to each MWh reduced is presented in the tab labeled Avoided Costs Reference. The financial values for the feeders in each group, by year, are summarized in the tab labeled ‘Summary by Year,’ which values are indexed to account for expected load growth and inflation (by the percentages shown in the table).

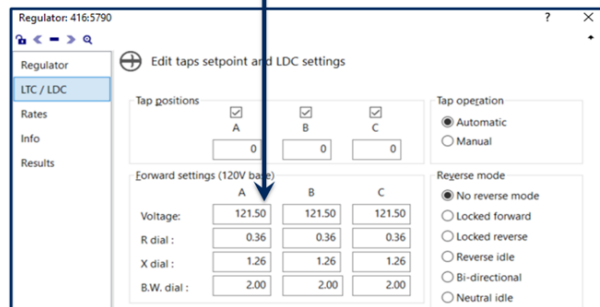
Results from the tab Summary by Year were input into the AMI benefits workbook (PC-DR-321 Attachment A) under the tab labeled EnergyEfficiency_CVR, in Columns I through O, lines 47 through 72. The expected realization schedule for the financial benefits in each feeder group is shown in columns B through D, lines 16 through 37. Multiplying the realization schedule value (0-1.0) by the expected financial value for each feeder group for each year, produced the expected realized financial benefit, shown in columns I through K, lines 18 through 37. These financial values were then transposed into lines 7 through 9 in Columns C through W, reflecting the annual financial benefits shown in the tab labeled Summary Detail, which annual nominal values were used to calculate the net present value of the total lifecycle benefits.

For the calculation of CVR benefits in the Company’s current AMI business case, please see PC-DR-320 Attachment A in the tab labeled Conservation Voltage Reduction. Savings for the feeders, as initially calculated and described above, have been included in this tab in the manner described above. The expected realization schedule (shown in Columns B through D, lines 14 through 35) was modified to account for the current deployment of AMI, and was also reduced in overall value by 60% using the multipliers shown in line 2. The multipliers in line 2 served to reduce the calculated values to match actual CVR savings achieved in 2019 and 2020, and the expected values for year 2021 through 2037, with the full expected value occurring (with a line 2 multiplier of 0.4) in year 2023. The purpose of the multipliers in line 2 is to reduce the overall CVR benefit initially estimated to match the potential financial value associated with the Company’s current assessment of the factors limiting CVR potential, as discussed by Avista in responses to PC-DR-151, PC-DR-152, PC-DR-204, PC-DR-205 and PC-DR-206. As noted in those responses, and during the online presentation with Public Counsel (one of which presentation slides is shown in the image below), Avista is modeling the CVR potential of each candidate feeder to determine initial regulator settings to optimize the feeder voltage, and monitoring actual voltage levels in real time at each customer’s service using our AMI system data. Through the duration of the project, actual energy savings will be reported each year for each individual feeder in Washington, which has been evaluated and modeled, and for which new regulator settings have been implemented and refined.

Adjust Model Substation Regulator Settings

Step #6: Input new Regulator settings based on lowered base voltage and Steps #3 & #4

| Forward Settings: | | | |
|-------------------|--------|------------------|--------------------|
| Voltage Base | 121.50 | Volts at No Load | Max Voltage: 127.5 |
| Bandwidth | 2 | Volts | Min Voltage: 117 |
| R Comp | 0.36 | ohms-secondary | |
| X Comp | 1.26 | ohms-secondary | VLC-High: 127.5 |
| Time Delay | 30 | Seconds | VLC-Low: 117.0 |



Also, as described in PC-DR-320, and as accomplished with the multipliers in line 2 discussed above, Avista has reduced expected benefits from the as-filed values for years 2019 through 2022, reducing the NPV of the overall CVR expected benefit to \$16,647,784 compared with the as-filed value of \$18,494,601.

b) Please see part (a) above.

⁴³³
Avoided Cost Calculation

For 1 MW Measure with Flat Delivery

| Item | \$/MWh |
|------------------|--------------|
| Energy Price | 44.63 |
| Capacity Savings | 13.33 |
| Risk Premium | 0.29 |
| Subtotal | 58.26 |

← Converts \$107/kW-yr to \$/MWh

Avoided Cost:
\$68.05
 per
 MWh

2011 IRP was \$104.39/MWh

| Item | \$/MWh |
|-------------------------------|-------------|
| 10% Preference | 6.19 |
| Distribution Capacity Savings | 0.88 |
| T&D losses | 2.72 |
| Subtotal | 9.79 |

Analysis based on earlier draft of Market Prices

Table 8.8: Nominal Levelized Avoided Costs of the PRS (\$/MWh)

| | 2014-2033 |
|------------------------------------|--------------|
| Energy Forecast | 44.08 |
| Capacity Value | 11.74 |
| Risk Premium | 1.89 |
| Transmission & Distribution Losses | 2.69 |
| Distribution Capacity Savings | 1.35 |
| Power Act Premium | 6.17 |
| Total | 67.92 |

The avoided cost calculation to the left is from a 2013 TAC presentation. The table bottom left labeled Table 8.8 is from the 2013 IRP. As noted earlier, it is important to stay consistent with these values. The assumption is that the demand response is reliable (dispatchable) so that you would not need to build capacity with traditional generating resources.

Note: DR assets and associated costs would be included in the Avista Supply Resource Stack

Both tables have similar total levelized costs of approximately \$68 with the Risk Premium showing the largest delta.