

CENSE responses to PSE Data Requests 1-5

Richard Lauckhart <lauckjr@hotmail.com>

Fri 8/5/2022 2:36 PM

To: astanton@perkinscoie.com <astanton@perkinscoie.com>

Cc: nash.callaghan@utc.wa.gov <nash.callaghan@utc.wa.gov>; daniel.teimouri@utc.wa.gov <daniel.teimouri@utc.wa.gov>; Harry.Fukano@utc.wa.gov <harry.fukano@utc.wa.gov>; joe.dallas@utc.wa.gov <joe.dallas@utc.wa.gov>; jeff.roberston@utc.wa.gov <jeff.roberston@utc.wa.gov>; Lisa.Gafken@atg.wa.gov <LISA.GAFKEN@ATG.WA.GOV>; Nina.suetake@atg.wa.gov <nina.suetake@atg.wa.gov>; Ann.Paisner@atg.wa.gov <ann.paisner@atg.wa.gov>; Shay.Bauman@atg.wa.gov <shay.bauman@atg.wa.gov>; Stephanie.chase@atg.wa.gov <stephanie.chase@atg.wa.gov>; Thomas.johnson@atg.wa.gov <thomas.johnson@atg.wa.gov>; Chanda.mak@atg.wa.gov <chanda.mak@atg.wa.gov>; Brice.Hartman@atg.wa.gov <brice.hartman@atg.wa.gov>; blc@dvclaw.com <blc@dvclaw.com>; jog@dvclaw.com <jog@dvclaw.com>; rita.liotta@navy.mil <rita.liotta@navy.mil>; simon@ffitchlaw.com <simon@ffitchlaw.com>; carol@ffitchlaw.com <carol@ffitchlaw.com>; yzakai@smwlaw.com <yzakai@smwlaw.com>; breckenridge@smwlaw.com <breckenridge@smwlaw.com>

 5 attachments (251 KB)

PSE Data Request to CENSE No. 001.pdf; PSE Data Request to CENSE No. 002.pdf; PSE Data Request to CENSE No. 003.pdf; PSE Data Request to CENSE No. 004.pdf; PSE Data Request to CENSE No. 005.pdf;

Ms. Stanton-

Attached are CENSE responses to PSE Data Requests 1-5

Richard Lauckhart
Expert Witness for CENSE





BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Washington Utilities & Transportation Commission v. Puget Sound Energy
Docket Nos. UE-220066 & UG-220067, and UG-210918 (Consolidated)

PSE DATA REQUEST NO. 001 TO CENSE

Exh RL-5 Lauckhart-Schiffman Feb 18, 2016 Report, Page 12, Figure 5 presents an alternative demand forecast with an annual growth rate of 0.5%.

- a. How were contractual transportation loads and large customer load requests captured in this alternative?
- b. Did this alternative account for and adjust for drivers that may impact load growth in the future, such as electric vehicle adoption, electrification (transition of load from the natural gas system to the electric system), or climate change (higher winter and summer peak loads due to extreme weather patterns)?
- c. If the answer to subpart b is yes, please explain how each of these drivers were accounted for in the demand forecast and annual growth rate.

Response:

- a. The loads came directly from PSE submittals to WECC. PSE has not provided any firm contract transportation loads that they need to serve on the Eastside.
- b. The loads came directly from PSE submittals to WECC. Transmission Planning Assessments typically do not speculate on future loads. Such speculation will lead to unnecessary concerns about overloads. Transmission Planning Assessments are updated annually in order to account for drivers that impact load that were not planned for in the prior Transmission Planning Assessment. In the case of PSE studies for Energize Eastside, actual loads have come in much lower than previously planned for.
- c. See answer to (b) above.

CENSE Response to PSE data Request No. 1

Date of Response: August 4, 2022

Person who prepared response: Richard Lauckhart

Witness knowledgeable about the Response: Richard Lauckhart



BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Washington Utilities & Transportation Commission v. Puget Sound Energy
Docket Nos. UE-220066 & UG-220067, and UG-210918 (Consolidated)

PSE DATA REQUEST NO. 002 TO CENSE

NERC Standard TPL-001-4 Requirement R2.1.4 and its sub-requirements state that for all cases used to perform steady state analysis ". . .sensitivity case(s) shall be utilized to demonstrate the impact of changes to the basic assumptions used in the model. To accomplish this, the sensitivity analysis in the Planning Assessment must vary one or more of the following conditions by a sufficient amount to stress the System within a range of credible conditions that demonstrate a measurable change in System response:

- Real and reactive forecasted load
- Expected transfers
- Expected in service dates of new or modified Transmission Facilities • Reactive resource capability
- Generation additions, retirements, or other dispatch scenarios
- Controllable Loads and Demand Side Management
- Duration or timing of known Transmission outages."

In consideration of this requirement, what actions were taken to stress the system in the load flow analysis presented in Exh RL-5 Lauckhart-Schiffman Feb 18, 2016 Report to ensure adequate performance, as required by the NERC TPL Standard?

Response:

This Data Request misstates the TPL-001-4 Requirement R2.1.4 by neglecting to include Section 2.1 that 2.1.4 falls under. Section 2.1 indicates this is for Near Term Transmission Planning Horizon. For longer range studies under Section 2.2 (such as PSE and I have done for Energize Eastside) this sensitivity analysis is not to be performed.

TPL-001-4 is a 31-page document. It is inappropriate to take a small subsection of this Reliability Requirement out of context and ask questions about it. I have once again made a CEII request for the files that PSE/Quanta used in their 2013 and 2015 studies. Once again, I have not received those files from PSE. If PSE provided me those requested files, I would be able to see if PSE/Quanta did those sensitivities and what sensitivities they included.

CENSE Response to PSE data Request No. 2

Date of Response: August 4, 2022

Person who prepared response: Richard Lauckhart

Witness knowledgeable about the Response: Richard Lauckhart



BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Washington Utilities & Transportation Commission v. Puget Sound Energy
Docket Nos. UE-220066 & UG-220067, and UG-210918 (Consolidated)

PSE DATA REQUEST NO. 003 TO CENSE

It is stated in several places in Exh RL-5 Lauckhart-Schiffman Feb 18, 2016 Report that local generation was turned on as part of the load flow analysis.

- a. Were any sensitivity cases developed to account for the transition away from fossil-fuel based generation, currently being driven by the Clean Energy Transformation Act?
- b. If not, what was the rationale for assuming that this fossil-fuel based generation would be available to meet future system needs?

Response:

- a. The local generation came directly from PSE submittals to WECC. Transmission Planning Assessments typically do not speculate on future generation mix. Such speculation will lead to unnecessary concerns about overloads. Transmission Planning Assessments are updated annually in order to account for drivers that impact generation that were not planned for in the prior Transmission Planning Assessment. In the case of PSE studies for Energize Eastside, local generation that PSE/Quanta shut down continue to exist and are needed to provide year-around reliable power.
- b. See response to (a) above.

CENSE Response to PSE data Request No. 3

Date of Response: August 4, 2022

Person who prepared response: Richard Lauckhart

Witness knowledgeable about the Response: Richard Lauckhart



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PSE DATA REQUEST NO. 004 TO CENSE

Exh RL-5 Lauckhart-Schiffman Feb 18, 2016 Report, Page 9 includes contingency results for a single N-1-1 contingency (outage of the Talbot South 230/115 kV transformer and the Sammamish East 230/115 kV transformer).

- a. What is the total number of NERC credible contingencies studied to conclude that there were no violations of "winter emergency" capacity ratings?
- b. Was any analysis completed on a summer peak load case?
- c. Please provide the results of any and all cases and contingencies that were studied.

Response:

- a. The credible N-1-1 contingencies are the failure of one 230/115 KV transformer at Talbot Hill followed immediately by the failure of one 230/115 KV transformer at Sammamish. While there are a very large number of N-1-1 outages that can be counted across WECC, the purpose of the Puget/Quanta studies and the Lauckhart/Schiffman studies were to determine if there is a problem in Bellevue. These two contingencies are the key N-1-1 contingencies. An outage of one 230/115 KV transformer in Spokane followed immediately by an outage of another 230/115 KV transformer in San Diego would not cause any problems for Bellevue. It is my understanding that PSE/Quanta studied N-1-1 outages in the same way the Lauckhart/Schiffman did. I have again made a CEII request to PSE for the key input and output files from the PSE/Quanta runs. I have not been provided those files. If I could get those files I could see what N-1-1 outages that PSE/Quanta used.
- b. The Lauckhart/Schiffman study/report (Exh RL-5) discusses the summer peak load case at its Appendix G on page 24.
- c. The Lauckhart/Schiffman study report (Exh RL-5) provides the results of any and all cases and contingencies that were studied.

CENSE Response to PSE data Request No. 4

Date of Response: August 4, 2022

Person who prepared response: Richard Lauckhart

Witness knowledgeable about the Response: Richard Lauckhart



BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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Docket Nos. UE-220066 & UG-220067, and UG-210918 (Consolidated)

PSE DATA REQUEST NO. 005 TO CENSE

In Exh-RL-1T, Mr. Lauckhart makes reference to a Public Records Request he made to the City of Newcastle regarding MaxETA load flow studies.

- a. Please provide all information received as part of that Public Records Request.
- b. What is the basis for Mr. Lauckhart's conclusion from this information that "the load flow studies [MaxETA] talks about in their report simply were not made by MaxETA/Synapse?"

Response:

See Email to me from Mr. Paul White of the City of Newcastle which appears on starting on the next page. As you can see, MaxETA simply got six Base Cases from WECC and did some investigation of what was in those cases. He reports that he did not find any reliability problems in the Heavy Winter case. Same finding as Lauckhart/Schiffman. He testifies to the existence of a Heavy Summer Bulk System vulnerability in King County, but has no case that shows this. Nor does he have a case that shows that the unidentified vulnerability can be solved by building EE. And PSE has never provided to anyone (Northern Grid, RC West, BPA, Seattle City Light, or WECC) any evidence that a Heavy Summer Bulk system vulnerability exists in King County. If such a problem actually exists (for many past years), PSE should have already fixed it or self-reported a violation to WECC/NERC. And PSE should have long ago initiated a gathering of SCL, BPA, and others to discuss the problem and possible solutions to it.

CENSE Response to PSE data Request No. 5

Date of Response: August 4, 2022

Person who prepared response: Richard Lauckhart

Witness knowledgeable about the Response: Richard Lauckhart



Mr. Lauckhart:

Mr. Camacho has confirmed to us that he provided you, via an online file transfer platform, the files listed below in six zip collections. He has explained that these are the only records in MaxETA's possession that were used in their analysis. Therefore, it is the city's position that we, with the help of our consultant(s), have provided all the available records responsive to your request. This closes your request under Chapter 42.56 RCW. If I can be of further assistance, please let me know.

Records Produced

19HSP1a1PW.zip
19HSP11.dyd
19HSP1a ASMAT.pdf
19HSP1a.epc
19HSP1a1.PWB
19HSP1a_Bubble.jpg
Annual Base Case Compilation and Data Check Log -
19HSP1a1.xlsx
avangrid_gen_KFallsCoGen - Readme.txt
avangrid_gen_KFallsCoGen.dyd
avangrid_gen_KFallsCoGen.epc
bpa_SeriesCaps_Bakeoven - Readme.txt
bpa_SeriesCaps_Bakeoven.aux
Input ES-TA TL23030 - Readme.txt
Input ES-TA TL23030.epc
Mead-Perkins Series Reactors Correction AUX for 19HSP1 -
README.txt
Mead-Perkins Series Reactors Correction.aux
pss_exempt.dat
Southern Oregon Impedance, Toplogy & Rating Correction epc for
PW - README.txt
Southern Oregon Impedance, Toplogy & Rating Correction.epc
Steadystate_And_Dynamics_Dashboard.xlsx
19HSP1a1_SUPPLEMENTAL\AEPCO.xlsx
19HSP1a1_SUPPLEMENTAL\Alberta.xlsx

CENSE Response to PSE data Request No. 5

Date of Response: August 4, 2022

Person who prepared response: Richard Lauckhart

Witness knowledgeable about the Response: Richard Lauckhart



19HSP1a1_SUPPLEMENTAL\APS.xlsx
19HSP1a1_SUPPLEMENTAL\BCHydro.xls
19HSP1a1_SUPPLEMENTAL\El Paso.pdf
19HSP1a1_SUPPLEMENTAL\FortisBC.xls
19HSP1a1_SUPPLEMENTAL\Idaho.xlsx
19HSP1a1_SUPPLEMENTAL\IID.xlsx
19HSP1a1_SUPPLEMENTAL\LADWP.xlsx
19HSP1a1_SUPPLEMENTAL\Mexico.xlsx
19HSP1a1_SUPPLEMENTAL\Montana.xlsx
19HSP1a1_SUPPLEMENTAL\Nevada.xlsb
19HSP1a1_SUPPLEMENTAL\New Mexico.xlsx
19HSP1a1_SUPPLEMENTAL\Northwest.xls
19HSP1a1_SUPPLEMENTAL\PACE.xlsx
19HSP1a1_SUPPLEMENTAL\PG&E.xlsx
19HSP1a1_SUPPLEMENTAL\PSCo.xls
19HSP1a1_SUPPLEMENTAL\SCE.xlsx
19HSP1a1_SUPPLEMENTAL\SDGE.xls
19HSP1a1_SUPPLEMENTAL\Sierra.xlsb
19HSP1a1_SUPPLEMENTAL\SRP.xlsx
19HSP1a1_SUPPLEMENTAL\TEP.xlsx
19HSP1a1_SUPPLEMENTAL\WALC.xlsx
19HSP1a1_SUPPLEMENTAL\WARM-L&R.pdf
19HSP1a1_SUPPLEMENTAL\WARM-sig_changes.pdf
19HSP1a1_SUPPLEMENTAL\WAUW.pdf

19HW3a1PW.zip

19HW3a Annual Base Case Compilation and Data Check Log.xlsx
19HW3a Eastpine splitted buses update for pslf breaker bug.aux
19HW3a Eastpine splitted buses update for pslf breaker bug.txt
19HW3a Steadystate_And_Dynamics_Dashboard v3.xlsx
19HW3a SUPPLEMENTAL
19HW3a-OP FINAL.pdf
19HW3a1.PWB
avangrid_gen_KFallsCoGen - Readme.txt
avangrid_gen_KFallsCoGen.epc
Input ES-TA TL23030 - Readme.txt

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Witness knowledgeable about the Response: Richard Lauckhart



Input ES-TA TL23030.epc
pss_exempt.dat
README - dynamics notes - PW.txt
Scattergood-Airport Update.txt
Southern Oregon Impedance, Toplogy & Rating Correction epc for
PW - README.txt
Southern Oregon Impedance, Toplogy & Rating Correction.epc
19HW3a SUPPLEMENTAL\19HW3 ALBERTA.xlsx
19HW3a SUPPLEMENTAL\19HW3 ARIZONA.xlsx
19HW3a SUPPLEMENTAL\19HW3 BC HYDRO and FORTISBC.xls
19HW3a SUPPLEMENTAL\19HW3 CENACE.xlsx
19HW3a SUPPLEMENTAL\19HW3 EPE.pdf
19HW3a SUPPLEMENTAL\19HW3 IDAHO.xlsx
19HW3a SUPPLEMENTAL\19HW3 IID.xlsx
19HW3a SUPPLEMENTAL\19HW3 LADWP.xlsx
19HW3a SUPPLEMENTAL\19HW3 MONTANA
19HW3a SUPPLEMENTAL\19HW3 NEVADA and SPP.xlsm
19HW3a SUPPLEMENTAL\19HW3 NEW MEXICO.xlsx
19HW3a SUPPLEMENTAL\19HW3 NORTHWEST.xls
19HW3a SUPPLEMENTAL\19HW3 PACE.xlsx
19HW3a SUPPLEMENTAL\19HW3 PG&E.xlsx
19HW3a SUPPLEMENTAL\19HW3 PSCo.xls
19HW3a SUPPLEMENTAL\19HW3 SCE.xlsx
19HW3a SUPPLEMENTAL\19HW3 SDG&E.xls
19HW3a SUPPLEMENTAL\19HW3 SRP.xlsx
19HW3a SUPPLEMENTAL\19HW3 WAPA LC.xlsx
19HW3a SUPPLEMENTAL\19HW3 WAPA RM
19HW3a SUPPLEMENTAL\19HW3 WAUW.pdf
19HW3a SUPPLEMENTAL\19HW3
MONTANA\NWMT_19HW3_OP.xlsx
19HW3a SUPPLEMENTAL\19HW3
MONTANA\NWMT_Loads_19HW3_OP.xlsx
19HW3a SUPPLEMENTAL\19HW3 WAPA RM\2018-19 HW3-OP
Base Case changes from Area 73.pdf
19HW3a SUPPLEMENTAL\19HW3 WAPA RM\2018-19 HW3-OP
L&R from Area 73.pdf

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Witness knowledgeable about the Response: Richard Lauckhart



19HW3a SUPPLEMENTAL\19HW3 WAPA RM\2018-19 HW3-OP
Tie Lines from Area 73.pdf

24HS2a1PW.zip

24HS2a1.pwb

24HS2a_Annual Base Case Compilation and Data Check Log.xlsx

24HS2a_ASMAT.pdf

24HS2a_PSLF_bubble.png

24HS2a_Steadystate_And_Dynamics_Dashboard.xlsx

24HS2_PAC_Load_Fix README - PW.txt

24HS2_PAC_Load_Fix.EPC

baseloadflag.doc

pss_exempt.dat

readme.txt

24HS2a_Supplemental\24HS2_AEPCO.xlsx

24HS2a_Supplemental\24HS2_ALBERTA.xlsx

24HS2a_Supplemental\24HS2_APS.xlsx

24HS2a_Supplemental\24HS2_BCHYDRO.xls

24HS2a_Supplemental\24HS2_CFE.xlsx

24HS2a_Supplemental\24HS2_EPE.pdf

24HS2a_Supplemental\24HS2_IDAHO.xlsx

24HS2a_Supplemental\24HS2_IID.xlsx

24HS2a_Supplemental\24HS2_LADWP.xlsx

24HS2a_Supplemental\24HS2_MONTANA.xlsx

24HS2a_Supplemental\24HS2_NEV_SIERRA.xlsb

24HS2a_Supplemental\24HS2_New Mexico.xlsx

24HS2a_Supplemental\24HS2_Northwest.xls

24HS2a_Supplemental\24HS2_PACE.xlsx

24HS2a_Supplemental\24HS2_PGE.xlsx

24HS2a_Supplemental\24HS2_PSCo.xls

24HS2a_Supplemental\24HS2_SCE.xlsx

24HS2a_Supplemental\24HS2_SDGE.xls

24HS2a_Supplemental\24HS2_SRP.xlsx

24HS2a_Supplemental\24HS2_TEP.xlsx

24HS2a_Supplemental\24HS2_WAPALC.xlsx

24HS2a_Supplemental\24HS2_WAPARM.pdf

CENSE Response to PSE data Request No. 5

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Person who prepared response: Richard Lauckhart

Witness knowledgeable about the Response: Richard Lauckhart



24HS2a_Supplemental\24HS2_WAUW.pdf

24HW2a1PW.zip

24HW2a - Steadystate_And_Dynamics_Dashboard.xlsx

24HW2a-FINAL.pdf

24HW2a.PWB

24HW2a1 Annual Base Case Compilation and Data Check Log.xlsx

24HW2_PAC_Load_Fix README - PW.txt

24HW2_PAC_Load_Fix.EPC

pss_exempt.dat

readme-PW.txt

24HW2a SUPPLEMENTAL\24HW2 AEPCo.xlsx

24HW2a SUPPLEMENTAL\24HW2 ALBERTA.xlsx

24HW2a SUPPLEMENTAL\24HW2 APS.xlsx

24HW2a SUPPLEMENTAL\24HW2 BCHYDRO and FORTIS BC.xlsx

24HW2a SUPPLEMENTAL\24HW2 CENACE.xlsx

24HW2a SUPPLEMENTAL\24HW2 EPE.pdf

24HW2a SUPPLEMENTAL\24HW2 IDAHO.xlsx

24HW2a SUPPLEMENTAL\24HW2 IID.xlsx

24HW2a SUPPLEMENTAL\24HW2 LADWP.xlsx

24HW2a SUPPLEMENTAL\24HW2 MONTANA.xlsx

24HW2a SUPPLEMENTAL\24HW2 PACE.xlsx

24HW2a SUPPLEMENTAL\24HW2 PG&E.xlsx

24HW2a SUPPLEMENTAL\24HW2 PSCo.xls

24HW2a SUPPLEMENTAL\24HW2 SCE.xlsx

24HW2a SUPPLEMENTAL\24HW2 SDG&E.xls

24HW2a SUPPLEMENTAL\24HW2 SRP.xlsx

24HW2a SUPPLEMENTAL\24HW2 WAPA RM.pdf

24HW2a SUPPLEMENTAL\24HW2 WAUW.pdf

24HW2a SUPPLEMENTAL\24HW2a NEVADA.xlsb

24HW2a SUPPLEMENTAL\24HW2a NEW MEXICO.xlsx

24HW2a SUPPLEMENTAL\24HW2a NORTHWEST.xls

24HW2a SUPPLEMENTAL\24HW2a TEP.xlsx

24HW2a SUPPLEMENTAL\24HW2a WAPA LC.xlsx

28HS1a1PW.zip

CENSE Response to PSE data Request No. 5

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Witness knowledgeable about the Response: Richard Lauckhart



2028 HS1a base case modification - extra WAPA LC loads
2028 HS1a base case modification-B2H README.txt
2028 HS1a base case modification-B2H-
bpa_line_Remove_B2H_v2.aux
2028 HS1a base case modification-B2H-implement.p
2028 HS1a base case modification-B2H-remove.p
2028HS1_AEPCO_Modifications_Ver3 README.txt
2028HS1_AEPCO_Modifications_Ver3.p
28ads-removelines - README.txt
28ads-removelines.p
28HS1a1 Annual Study Program Results Log.xlsx
28HS1a1 FINAL.pdf
28HS1a1 REPLOG.xlsx
28HS1a1 Steadystate_And_Dynamics_Dashboard.xlsx
28HS1a1 WPR additional data request
28hs1a1.pwb
bpa_line_Brothers_Hampton_ChristmasVal.aux
bpa_line_Brothers_Hampton_ChristmasVal.txt
pss_exempt.dat
Southern Oregon Impedance, Toplogy & Rating Correction epc for
PW - README.txt
Southern Oregon Impedance, Toplogy & Rating Correction.epc
2028 HS1a base case modification - extra WAPA LC loads\2028
HS1a base case modification - extra WAPA LC loads.txt
2028 HS1a base case modification - extra WAPA LC loads\2028HS
WECC base case - 1.msg
2028 HS1a base case modification - extra WAPA LC loads\2028HS
WECC base case - 2.msg
2028 HS1a base case modification - extra WAPA LC
loads\RE 2028HS WECC base case - extra WAPA LC loads.msg
28HS1a1 - SUPPLEMENTAL\28HS1 - ALBERTA.XLSX
28HS1a1 - SUPPLEMENTAL\28HS1 - ARIZONA.xlsx
28HS1a1 - SUPPLEMENTAL\28HS1 - BC HYDRO - FORTIS.xls
28HS1a1 - SUPPLEMENTAL\28HS1 - CENACE.xlsx
28HS1a1 - SUPPLEMENTAL\28HS1 - EPE.pdf
28HS1a1 - SUPPLEMENTAL\28HS1 - IDAHO.xlsx

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28HS1a1 - SUPPLEMENTAL\28HS1 - IID.xlsx
28HS1a1 - SUPPLEMENTAL\28HS1 - LADWP.xlsx
28HS1a1 - SUPPLEMENTAL\28HS1 - MONTANA.xlsx
28HS1a1 - SUPPLEMENTAL\28HS1 - NEVADA - SIERRA.xlsb
28HS1a1 - SUPPLEMENTAL\28HS1 - NEW MEXICO.xlsx
28HS1a1 - SUPPLEMENTAL\28HS1 - NORTHWEST.xls
28HS1a1 - SUPPLEMENTAL\28HS1 - PACE.xlsx
28HS1a1 - SUPPLEMENTAL\28HS1 - PG&E.xlsx
28HS1a1 - SUPPLEMENTAL\28HS1 - PSCo.xl
28HS1a1 - SUPPLEMENTAL\28HS1 - SCE.xlsx
28HS1a1 - SUPPLEMENTAL\28HS1 - SDG&E.xls
28HS1a1 - SUPPLEMENTAL\28HS1 - WAPA LC.xlsx
28HS1a1 - SUPPLEMENTAL\28HS1 - WAPA RM
28HS1a1 - SUPPLEMENTAL\28HS1 - WAUW.pdf
28HS1a1 - SUPPLEMENTAL\28HS1 - WAPA RM\2028 HS1 Base
Case changes from Area 73.pdf
28HS1a1 - SUPPLEMENTAL\28HS1 - WAPA RM\2028 HS1 L&R
from Area 73 V2.pdf
28HS1a1 - SUPPLEMENTAL\28HS1 - WAPA RM\2028 HS1 Tie
Lines from Area 73.pdf
28HS1a1 WPR additional data request\WPR additional data
request ALBERTA.xlsx
28HS1a1 WPR additional data request\WPR additional data
request BCH (Area 50).xlsx
28HS1a1 WPR additional data request\WPR additional data
request BHCE.xlsx
28HS1a1 WPR additional data request\WPR additional data
request BHP CLFP .xlsx
28HS1a1 WPR additional data request\WPR additional data
request EPE.xlsx
28HS1a1 WPR additional data request\WPR additional data
request FBC (Area 52).xlsx
28HS1a1 WPR additional data request\WPR additional data
request IDAHO.xlsx
28HS1a1 WPR additional data request\WPR additional data
request NEW MEXICO.xlsx

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28HS1a1 WPR additional data request\WPR additional data request NORTHWEST.xlsx
28HS1a1 WPR additional data request\WPR additional data request PG&E.xlsx
28HS1a1 WPR additional data request\WPR additional data request PRPA.xlsx
28HS1a1 WPR additional data request\WPR additional data request PSCo.xlsx
28HS1a1 WPR additional data request\WPR additional data request SCE.xlsx
28HS1a1 WPR additional data request\WPR additional data request SDGE.xlsx
28HS1a1 WPR additional data request\WPR additional data request Tri-State.xlsx
28HS1a1 WPR additional data request\WPR additional data request WAPA RMR.xlsx

28HW1a1PW.zip

28HW1a_ASMAT.pdf
28HW1a_bubble.jpg
28HW1a_REPLOG.xlsx
28HW1a_Steadystate_And_Dynamics_Dashboard.xlsx
28HW1a_Supplemental
28HW1PW_1a.PWB
Annual Study Program Results Log - 28HW1a.xlsx
bpa_SeriesCaps_Bakeoven - Readme.txt
bpa_SeriesCaps_Bakeoven.aux
pss_exempt.dat
Southern Oregon Impedance, Toplogy & Rating Correction epc for PW - README.txt
Southern Oregon Impedance, Toplogy & Rating Correction.epc
28HW1a_Supplemental\2027-28_HW1_SDGE.xls
28HW1a_Supplemental\2027-28_HW1_ALBERTA.xlsx
28HW1a_Supplemental\2027-28_HW1_BCHYDRO.xls
28HW1a_Supplemental\2027-28_HW1_CEN.xlsx
28HW1a_Supplemental\2027-28_HW1_EPE.pdf

CENSE Response to PSE data Request No. 5

Date of Response: August 4, 2022

Person who prepared response: Richard Lauckhart

Witness knowledgeable about the Response: Richard Lauckhart



28HW1a_Supplemental\2027-28_HW1_IDAHO.xlsx
28HW1a_Supplemental\2027-28_HW1_IID.xlsx
28HW1a_Supplemental\2027-28_HW1_LADWP.xlsx
28HW1a_Supplemental\2027-28_HW1_NEVADA_SIERRA.xlsb
28HW1a_Supplemental\2027-28_HW1_NEWMEXICO.xlsx
28HW1a_Supplemental\2027-28_HW1_NORTHWEST.xls
28HW1a_Supplemental\2027-28_HW1_NWMT.xlsx
28HW1a_Supplemental\2027-28_HW1_PACE.xlsx
28HW1a_Supplemental\2027-28_HW1_PGE.xlsx
28HW1a_Supplemental\2027-28_HW1_PSCO.xls
28HW1a_Supplemental\2027-28_HW1_SCE.xlsx
28HW1a_Supplemental\2027-28_HW1_WAPALC.xlsx
28HW1a_Supplemental\2027-28_HW1_WAPARM.pdf
28HW1a_Supplemental\2027-28_HW1_WAUW.pdf
28HW1a_Supplemental\2027-28_HW1_ARIZONA.xlsx

Respectfully,



Paul J. White, CMC

Newcastle City Clerk

425-386-4102 (desk) ❖ 425-496-0205 (mobile)

This message and any replies are public records subject to disclosure pursuant to Chapter 42.56 RCW, regardless of any claim of privilege that may be asserted by a third party.

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