

Comments by James Adcock on Docket UE-210795 PSE CEIP
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Commenting party's name: James Adcock, Electrical Engineer
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Comments Related to Puget Sound Energy's CEIP, Docket UE-210220
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Comments by James Adcock, Electrical Engineer, MIT, decades-long participant in PSE's public Integrated Resource Planning Process, and a leading critic of PSE's modeling efforts. James has spent his entire career engaging in statistical analysis, including at three Fortune 500 companies.

PSE invents a fictitious 2% limit prior to 2030 -- and then simply proposes to use that 2% as an unproductive "slush fund" instead of maximizing the amount of GHG reductions possible using that money -- "Lowest Reasonable Cost". On the contrary to a 2% limit, CETA says in plain English that utilities are required to get to 80% by 2030, period, and that the 2% limit "off ramp" only applies after 2030.

PSE, for the last dozen years, has told IRP Stakeholders that if, in theory, the laws changed and put them into a "Green World" scenario then they would rush to build a ton of new Wind farms. With CETA PSE is now in that "Green World" scenario. In their latest January 2022 IRP meeting PSE acknowledged that their models still say that they should be building a ton of new Wind Farms -- but that PSE won't actually be building a ton of Wind as their models show. Instead, PSE proposes to spend ratepayer money up to their self-imposed fictitious "2% limit" on extremely expensive and unproductive measures that don't greatly reduce GHG emissions. The plain language of CETA says that PSE must reduce GHG on a "Lowest Reasonable Cost" basis -- meaning First using the lowest cost methods, such as cost-effective Efficiency measures, Wind farms, and Solar farms. Further, PSE has the option of using the alternative compliance "off ramp" of say \$60 per MWh of combined cycle generation, combined with the natural gas cost to generate that MWh of about \$65, meaning that PSE should never spend more than \$125 per MWh equivalent on any GHG reduction or conservation methods. I ask that UTC actually enforce that PSE engages in "Lowest Cost First" CEIP measures, and that PSE never spends more than say \$125 MWh-equivalent on any GHG reduction or conservation methods. CETA is not an excuse to engage in Environmental "Economic Hostage Taking" -- unlimited unproductive gouging of Ratepayer Pocketbooks, saying "Your Money or Your Life." Rather PSE must BOTH reduce Environmental Damages as cost effectively as possible AND generate our necessary electricity as cost effectively as possible. This is the nature of regulated "Prudency."

I express a general concern (to be followed by a specific concern) that I believe PSE intends to "slipstream" new Natural Gas generating plants [mentioned only in the appendices as discussed below], perhaps falsely labeling those plants as being "Hydrogen" or "Biodiesel" plants in order to give the false impression that they won't actually be running on Natural Gas. Without openly and honestly discussing these new fossil fuel generating plants with stakeholders. IE "without vetting." I ask that UTC require open and honest discussions with IRP and CEIP Stakeholders

aka "Vetting" prior to building such new Natural Gas generating plants. We would need to be actually assured that PSE has accurately and honestly modeled Efficiency, BESS, Wind and Solar prior to making a decision to build new Natural Gas generating plants. At least with BESS, that clearly has not been the case so far. Rather, what PSE has told IRP Stakeholders is that all they have modeled so far is using Natural Gas Peakers in an "extremely rare standby use" as compared to using BESS in an "extremely rare standby use" -- but neither of these options would in practice be used in such an "extremely rare standby use" manner. Rather, either would be used whenever it would be economically advantageous to do so -- including in the case of new Natural Gas generation to serve the Californian Energy Imbalance market. IE PSE's Washington State Ratepayers pay to build the plant, but Californian Ratepayers reap the benefits.

In Specific, Appendix A-3 tab CEIP_Resource_Additional_Annual shows "CEIP Specific Actions" of PSE acquiring new Fossil Fuel Generating Plants as follows:

2026 237 MW of Frame Peaker
2027 237 MW of Frame Peaker
2036 237 MW of Frame Peaker
2043 237 MW of Frame Peaker

We can identify that these are indeed Fossil Fuel-Powered Plants since Appendix A-3 tab _Emissions_ Suite 6 CEIP Preferred Portfolio line 59 shows specific emissions for this "New Peaking Capacity."

However, at the January 2022 IRP Meeting I specifically asked PSE whether or not PSE had any plans to build new Fossil Fuel Generating plants and I was told by PSE that PSE had no such plans to build any new Fossil Fuel Generating plants. How can it be that PSE identifies Specific Actions in their CEIP document to build new Fossil Fuel Plants, yet PSE continues to tell Stakeholders that PSE does not plan to build Fossil Fuel Plants? How can these both be true simultaneously? How can Stakeholders be said to have any meaningful participation in IRP and CEIP meetings if PSE continues to be lie to us?

In addition, PSE "puts their finger on the scale" -- or rather "puts an entire elephant on the scale" -- by falsely assigning a \$2.5 million dollar "stub line" cost to their modeling of SMALL utility scale BESS -- making that stub line costs a large portion of the entire project cost. But my review of other utility-scale BESS projects being implemented by other utilities shows that is not how utilities are siting BESS. Rather, utilities are building BESS right next to existing infrastructure, such as an existing switching station, Wind Farm, or Solar Farm, explicitly so that the utility can AVOID such an expensive stub line cost -- which is always known to be a bad overhead expense that utilities are constantly trying to avoid. However, in the case of Natural Gas generation, noise concerns require the generating plant to be located somewhat remotely, necessitating the use of such a stub line. So then PSE falsely imposes the stub line cost on BESS as well -- and makes the BESS small in MW size compared to the Natural Gas generating plant -- in order to falsely skew the results in favor of continued build of new Natural Gas Plants. Current PSE BESS plans are "microscopic" in size compared to PSE peak loads -- and these Modeling Falsification Tricks are in part why.

I don't believe PSE will actually meet the clearly stated requirements of CETA in so many words to be 100% net carbon neutral by 2030, and to actually be 80% renewable or non-emitting by 2030. The most recently "glide path" plots shown at the January 2022 IRP meeting demonstrate that at current implementation rates PSE will miss the 80% requirement by a large margin. I ask UTC to require PSE to follow linear "glide path" implementation and to not engage in current "foot dragging" implementation, so that Ratepayers are reasonably insured that PSE will "hit the mark" for 80% by 2030 and will not "accidentally" fall short of that mark.

What follows are my detailed concerns, and errors that I found, reading through PSE's final CEIP document:

Page 3 500 MW Nameplate Wind and 300 MW Nameplate Solar only generates about 2,400,000 MWh per year, not 11,404,183 MWh.

Current PSE Annual sales is about 20,000,000 MWh, of which the proposed new Wind and Solar would represent only about 12%.

Currently PSE reports 4,090,000 MWh annual renewables, or currently about 20%. Added together, this means PSE would be at about 32% renewables by 2025, not 63%.

While PSE suggest an annual 2% a year increase to pay for new renewables, PSE actually wastes about half of that on highly cost-ineffective measures.

Page 85: Frequency and Duration of outages. In interpreting what PSE is saying in these regards one needs to understand that PSE doesn't even bother to record outages of less than 10 minutes. In my area we have been having very large numbers of short duration outages, with accompanying power surges, which end up destroying our electric and electronic devices -- even with our best efforts to protect our equipment with surge protectors and uninterruptible power supplies. In my personal case this has caused damages of over \$10,000.

Page 7 by 2025 425 total renewables in service, or about 1,242,000 annual MWh, or about 6% of annual load.

Page 45 I continue to express deep concern of any retained RECs [whether or not one argues those can be applied in excess of 20% or not] associated with exports to California, due to the extreme and incompatible differences between California and Washingtons GHG reduction programs and the strong potential for "Double Counting." Utilities remain liable to create contracts that ensure that no such Double Counting can occur and remain liable to correct for any REC deficiencies if such Double Counting does occur -- and/or pay Alternative Compliance and/or other penalties. But UTC still needs to be able to enforce these rules, and the public needs to be able to "see" what is going on in order to have reasonable assurance in the honest implementation and enforcement of CETA law. But utilities are trying to force everything related to RECs "behind closed doors" where the public can never see what is going on, can never "vet" utility actions, can never do any kind of "carbon balance" double-check

accounting, and can never be sure of the fair and honest enforcement of the CETA law. Without "Sunshine" comes "Corruption."

Page 46 "Double Counting" -- There is an issue when both the Customer and PSE consider that their contributions resulted in the "Environmental Attributes" of a program -- whether or not the customer actually is able to generate a REC associated with that program. At the very least, if PSE is claiming any "Environmental Attributes" associated with a program they would need to make that Extremely clear in contracts, and advertising, with the customer, lest the customer believe that it is they who are paying for, and acquiring, those Environmental Attributes. For example, a C&I should not be advertising the Environmental Attributes of "their" rooftop solar in turn to their customers, if in fact Utility "owns" those Environmental Attributes.

Page 118: PSE falsely claims that there is a "two-percent annual average incremental cost of compliance" requirement for the 2022-2025 time period. There is neither such a requirement nor such an "off-ramp" prior to 2030. Rather what the plain language of CETA requires is that PSE provide 80% of load from non-emitting/renewables by 2030. If PSE can do so for less than 2% per year PSE should do so. However, if doing so requires more than 2% per year PSE is still required to do so. In particular even if PSE manages to "waste" ratepayer monies up to the 2% level prior to 2030 that in no way forms an "off ramp" that excuses PSE from failing to meet the 2030 80% requirements.

Pag 123 etc. PSE suggests it will implement a number of "vanishingly small" [26 MW] battery storage systems in comparison to PSE's peak load. These BESS will only address about 0.5% [one half of one percent] of PSE's Peak Load. I suggest PSE needs to implement BESS on the same scale as current Natural Gas Peaker usage, and to replace the capacity of PSE's current coal use.

Page 161 SCADA -- has little to do with CEIP

Page 162 -- Actually, in terms of Electrical Engineering, neighborhood electrical systems should "automatically" be able to handle reverse flows equal to 100% of normal peak forward flow capacities. Almost all aspects of transmission and distribution are flow-direction indifferent -- wires don't care which way the power flows.

Page 175 -- "The 2% Mark" -- is purely a PSE invention in their own minds. No such "mark" exists in CETA for 2025. Rather what CETA does say is that utilities shall actually be 80% renewables and non-emitting by 2030. That is the goal PSE should be shooting for, instead of trying to figure out how to "waste" 2% of ratepayer payments and then claiming that such wastage means that "PSE has tried, oh we have really tried!"

There is a simple test to see just how "hard" PSE is trying to reduce emissions, namely the cost, for each program, to reduce one ton of emissions. If PSE (say) is implementing programs (such as utility scale Wind and Solar) that cost an increment \$30-40 per ton of reduced emissions, then PSE is in fact trying hard to reduce emissions. Conversely if PSE wastes ratepayer payments on project(s) which cost (say) \$500 per ton of emissions then PSE is hardly trying at all to reduce emissions -- on the contrary PSE is simply wasting ratepayer payments to try to

get to the PSE-invented "2% Mark" -- which doesn't even exist as part of CETA now -- only after 2030.

Page 175 -- Internal vs. External Emissions costs. PSE continues to consider emissions costs to be "External" to PSE -- until such time that emissions costs are actually assigned to utilities -- as they will be assigned to utilities -- even if utilities are granted some "free" emissions credits, those costs are still actually being assigned to utilities. At which point in time existing and new fossil fuel plants become "stranded" assets hung as an Albatross around PSE's -- and PSE's Ratepayer's necks. Which is why we actually want PSE to start modeling emission cost as Internal to PSE operations -- so we don't have to keep paying for Albatrosses. We don't want to pay to get rid of Coal -- only to pay to have new Natural Gas plants hung around our necks!

Page 177 -- Energy Efficiency -- these are costs which are being returned to Ratepayers in the form of cost discounts to their purchase of more Energy Efficient equipment.

Page 179 -- PSE assigns extremely high costs to "Grid Modernization" while achieving only a tiny 105 MW of Distributed Resources that (supposedly) need this "Grid Modernization." PSE should instead take a simpler approach to "managing" Distributed Resources until PSE can show enough actual Distributed Resources to make "Grid Modernization" a cost-effective method for reducing emissions.

Page 180 -- "Customer Education" -- what I am afraid we are already seeing in terms of "Customer Education" is not truthful but rather false advertisements that do not truthfully reflect PSE actions. Ratepayers should not be required to foot the bill for PSE False Advertisements.

Page 182 -- PSE may not be able to control Load Growth, but PSE does control their *Modeling* of Load Growth, which continues to Year after Year, Decade after Decade, over-estimate the amount of PSE's Load Growth. Being wrong constantly and always in the same direction demonstrates bias on PSE's part in terms of modeling. I ask that UTC require PSE to fix this bias in their modeling, lest Ratepayers constantly have to pay for additional unnecessary exaggerated generation and transmission capacity.

Page 185 "Public Participation" I will simply state once again that PSE's IRP and CEIP "Public Participation" programs have in practice gone from bad to worse, where, for example, PSE employees have actively asked me to stop participating entirely, and at other times have acted actively to exclude my participation. I can "raise my hand" for hours at PSE IRP and CEIP meeting and PSE simply pretends that "Raised Hand" doesn't exist. When PSE does acknowledge my questions, they simply tell me that they will get back with an answer later -- yet they never do -- and then they claim to other participants and UTC that they have answered my questions when they haven't. Or they give one answer at the start of the IRP and CEIP process, and then give a different entirely contradictory answer at the end of the IRP and CEIP process. Or in one case they suddenly and without warning canceled an IRP entirely, and then short-changed the next IRP cycle yet again.

The situation with PSE's "Public Participation" process and Stakeholders has become entirely impossible and UTC does need to step in now to fix the problem, and to keep PSE from making a total mockery of the State-required Public Participation process. I ask, again, that UTC step in and fix these problems now.

Chapter 7: Tracking and Reporting

In general, I support PSE's proposed Tracking and Reporting. However, I believe it would be more convenient and informative if this information were combined with PSE Emissions information that PSE is already required to report to the State and Federal Governments -- rather than Stakeholders having to track down and integrate the information found in these various documents. I ask UTC/Commerce to require utilities to include this Emissions information in their CEIP Tracking and Reporting documents -- including information on Emitting Resource Capacity (MW), Emitting Energy Generated or Purchased (MWh) and Unspecified Energy Generated [?] or Purchased. Also, the amount of "Retained RECs" from utility generated power, and the amount of "Retained RECs" stripped from purchased power. I would also ask that utilities be required here to report on how much power is sold and bought through the Californian Energy Imbalance Market, and its planned successors.

PSE suggests that "All customers must have a voice" in the transition to clean power. But PSE continues to make sure that this particular author *does not* "Have a Voice" by continually ignoring my "raised hand" during IRP and CEIP meetings, and by pretending that they will answer my questions at a future date -- and then repeatedly failing to actually do so.

Appendix C1 Page 8 Public Participation Plan. Based on my prior dozen years experience with PSE I do not believe that PSE will actually listen to IRP stakeholders, including this author, and further will not be honest and transparent about comments received and how PSE is, or is not, taking actions based on those comments. I ask that the UTC act to actually make PSE accountable in these areas.

Page 12: PSE should further expect that IRP stakeholders will be very interested in how PSE is changing their modeling efforts, and should be open and transparent about how they are modeling, especially in light of the various controversies related to modeling and the effects of Climate Change. I ask that UTC act to prevent PSE from continuing to obfuscate how they are modeling, especially in areas relating to Climate Change. PSE must not be allowed to continue to "Game Play" in this area -- ratepayers are being asked to pay PSE 100s of millions of dollars for new facilities -- if not billions of dollars -- and in response to PSE modeling effort "Game Playing"??? We need open, honest, and unbiased modeling. I ask that UTC actually enforce this as part of "Lowest Reasonable Cost." Faked, "Game Playing" modeling efforts do not lead to "Lowest Reasonable Cost."

In general, from an "IRP Stakeholder's Perspective" the past couple IRP cycles, and the CEIP process have been truly horrible, with PSE deliberately and aggressively "Freezing Out" IRP Stakeholders from the process. One IRP was "completely killed" before it was completed. The next IRP process was given short shrift. The CEIP process is given short shrift. Stakeholders quite frankly have been quitting, not only because PSE is not playing fair, but frankly also

because the UTC is not playing fair, and Stakeholders feel they are being stuck in a "No Win" situation. START PLAYING FAIR!

Appendix C1 -- In General: In general, I am concerned that PSE is using EAG as a ploy to shift focus away from CETA requirements to actually reduce GHG emissions, substituting instead a focus on "Social Justice" -- except that ultimately Climate Change will trump any other efforts at "Social Justice." Climate Change is the ultimate "Social Injustice" hurting poorer people more than wealthier people.

Appendix C2 page 20: I remain highly concerned that PSE is using the term "Biodiesel Peaker" as a ploy in order "slip-stream" implementation of new Natural Gas Peakers without fair public scrutiny and vetting. IE that the resulting Peaker plants will be primarily run on Natural Gas and will not be operated merely as "extremely rare standby emergency power" but rather will be run as "ordinary, everyday Natural Gas Peakers" not just serving PSE customers, but also serving the Californian Market. It is NOT FAIR if UTC allows PSE to get away with this Ploy -- which is the exact opposite of what CETA is about!

Appendix C2 page 21: I find it laughable that PSE finds the contents of Docket UE-190529 responsive to Stakeholder's desire to monitor and evaluate PSE's statistics related to arrearages and disconnections. Even this author, after a dozen years reading UTC Dockets, finds this particular docket "an impenetrable thicket of gibberish."

Appendix C2 "Response to comments on Draft Clean Energy Implementation Plan"

One can easily summarize all of PSE's responses: PSE is non-responsive to comments but rather merely explains why PSE is non-responsive to comments.

Page 7: PSE is *not* in fact including any of the actual hourly inputs to their statistical modeling efforts but rather has now introduced an intermediate "obfuscatory" input file "statistically modeled loads", then declares that input file to be "proprietary" and thus denies public access to any of their hourly input files. Such an intermediary file is properly considered part of PSE's modeling efforts, not an actual input file, and thus should not be allowed as an excuse to prevent public access to the actual, factual, hourly input files. I ask that UTC correct this PSE behavior now and require that PSE makes actual public access to their hourly input files available, including all historical temperature files used in any aspect of PSE's modeling efforts.

Page 9: PSE's continued efforts to give Batteries short shrift is very concerning. My understanding is that the latest PSE efforts to "analyse" utility scale Batteries merely compared Peakers to Batteries where both were used merely as "extreme standby" measures. But that, in practice, is neither how Peakers nor Batteries are actually used! In particular the multimodal aspect of batteries -- and the ability to switch on the fly between modes, peaking vs. balancing, etc., and shading between modes, of batteries is what makes them so attractive in the first place.

Page 18: The "2% Cost" "Off-Ramp" is only available to utilities after 2030. CETA in plain language states that utilities are actually required to actually meet 80% of actual load by

renewables and non-emitting by 2030. Instead, PSE submits plans wasting about half of their invented target of 2% per year prior to 2030, then falsely claiming that having wasted that money they have no actual requirement to get to 80% by 2030. We can tell they are wasting this money from the extraordinarily high and unproductive costs per ton GHG associated with so many of their programs.

Page 19: PSE's consultant E3 also found that *all* modeled failures in PSE statistical modeling runs corresponded to temperature conditions found only in the first half of the previous century. IE in practice PSE's Peak-Requirement results are entirely driven by many-decades-out-of-date weather data – IE IN PRACTICE PSE continues to deny the reality of Climate Change.

Page 22: PSE's contractor Black & Veatch did not even analyse Utility Scale Batteries -- because clearly such Batteries would conflict with PSE's desire expressed over the last decade at IRP meetings to build more Natural Gas Peaker Plants -- even if falsely labeled "Biodiesel" Peaker Plants.

Page 24: Again, I question whether the PSE-named "Biodiesel" plants will in practice actually run exclusively on Biodiesel, or whether these will actually be bog-standard Natural Gas Peaker Plants running on bog-standard Natural Gas which PSE has falsely labeled "Biodiesel" in order to "slip-stream" them unvetted past clear CETA requirements. UTC is well-aware of a similar ploy some-decade ago now when a would-be Coal Power Plant Developer falsely labeled their proposed project a "Clean Coal" project without actually having any real plans whatsoever to run that plant without emitting GHG. A "Biodiesel" plant which is designed to run on Natural Gas is NOT a "Biodiesel" plant. Rather it is a bog-standard Natural Gas plant!

Comments on bottom of Page 24: I will emphasize these comments by pointing out during the recent decades-coldest temperature-snap of December 2021 the PNW region was STILL exporting via the Californian AC/DC Interties 2,000 Megawatts of power down to California. IE even under coldest winter conditions the PNW STILL had provable excess capacity, not including the additional 10% safety margins, and not including the BPA "Hidden Reserves" -- even excluding those items the PNW STILL had provable excess capacity of at least 2,000 Megawatts of power. In addition, in year's past, there have been periods of time when flow does reverse -- rarely flowing S-to-N from California, proving that California does have additional excess winter capacity which it can provide to the PNW. Combining these two factors, there is then at least 5,000 Megawatts of currently unused capacity that can support future PNW winter cold snaps as cold as 16 degrees "Seatac"-- or even much colder.

Appendix D1 Page 6: With the exception of customer solar, PSE shows DER costs of \$4.64 to \$26.33 per watt -- compared to Utility Scale Wind Costs [EIA] of \$1.40 per watt, and Utility Scale Solar Costs [EIA] of \$1.80 per watt -- yet PSE continues to foot-drag when it comes to implementing highly cost-effective Utility Scale Wind and Solar, focusing on these kinds of cost-ineffective measures instead.

Appendix G Grid Modernization: This entire appendix -- correctly -- identifies not one whit of evidence that PSE's Grid Modernization efforts actually are needed to support any aspect of CETA. Not one megawatt of power saving is identified. Not one ton of GHG emission savings

is identified. As such, PSE has *correctly* made the case for itself that NOT ONE WHIT of PSE's Grid Modernization Effort should be assigned as a CETA Compliance Cost! I ask that UTC prevent PSE from assigning ANY amount of PSE's Grid Modernization costs as a CETA Compliance Cost.

Appendix H Page 7: I do not believe *in practice* PSE's expressed concerns that *theoretically* use of Battery systems *might* increase emission will remotely prove true. The On-peak hours which battery system help shave off are high-marginal emission Natural Gas Peaker hours, whereas the off-peak battery charge hours are more-likely zero-marginal emission Wind, Hydro, or Solar-marginal dispatch hours. But that question is currently moot given that PSE is not implementing Utility Scale Battery systems except on a "microscopic" scale -- and that is due in turn to PSE's previous false modeling of "Extreme Emergency Standby" "biodiesel" [actually: Natural Gas] Peakers vs. false operational model "Extreme Emergency Standby" Utility Scale Batteries.

Appendix H Page 12: In this graph PSE *correctly* does not show any losses due to insufficient Peaking power in the PSE system, because PSE does not have a shortage of Peaking power. It also doesn't show losses due to frequent short-term outages -- such as experienced in my neighborhood, which eventually manage to blow out our electrical equipment -- because PSE does not even bother to record those frequent short-term outages. I ask that UTC require utilities to record ALL outages -- even those of short duration. A theoretical reduction in "once in 20 years" insufficient Peaking capacity is meaningless in the face of 20 short-term outages during just one recent mild windstorm! A reasonable explanation of this high number of outages would simply be that a tree-branch is slapping the wires -- but I can't get PSE to take the need for local Tree Maintenance seriously!

Appendix I: Public Participation: I will simply repeat again that the situation with PSE and the IRP Participants has become completely untenable, where PSE is simply engaging in a charade, where they will permit no meaningful conversation, and provide no meaningful answers to questions, but rather simply engages in "running out the clock" -- continually "presenting" in a one-sided manner to participants, and doing so on a vacuous, content-free, "Kindergarten Level." This has got to change. I ask that UTC require this change. The public must be allowed to engage with PSE on what will cost ratepayers on the order of a Billion Dollars -- much of which it appears that PSE is intent on wasting, without any meaningful environmental benefits. PSE's position is: "Oh Look -- we've wasted 2% -- now we don't have to actually do anything!" This Has Got to Change!

Appendix I: Specific Actions Page 3: I believe that PSE is intending to take a "Specific Action" of implementing new Natural Gas Generating plants, perhaps falsely labeling those plants as being "Biodiesel Plants" or "Hydrogen Plant" without fairly detailing those actions in this CEIP, nor allowing fair public IRP discussions and considerations on those actions.

Appendix I: Lowest Reasonable Cost Page 4: PSE has not explained the extraordinarily high costs associated with some of their programs -- over \$500 per MWh -- when instead they could simply be building more utility scale Wind and Solar generation at an EIA estimated cost of \$40 per MWh -- more than 10X less expensive. I ask that UTC not allow PSE to waste our

ratepayer monies on these insanely expensive and unproductive programs. Do first that which is inexpensive -- so inexpensive that it is pretty much equivalent to *just* the fuel costs of Natural Gas plants -- build more utility scale Wind and Solar NOW -- and when PSE has saturated its ability to absorb more Wind and Solar, only then consider more expensive programs. AKA "Lowest Reasonable Cost."

Appendix I: Calculation of Threshold Amount Page 5: The Threshold Amount only exists after 2030. Prior to 2030 the plain language of CETA requires utilities to get to 80% -- period -- no "off ramp." If PSE manages to waste 2% a year prior to 2030 on unproductive measures, that in no way excuses them from the plain language requirement in CETA to get to 80% by 2030.

Appendix I: Input Files Page 6: PSE falsely avoids providing the public with non-proprietary hourly input files by introducing an intermediary obfuscating file based on statistical modeling, and then calling that obfuscating file "their hourly input file" -- and then calling their statistical modeling "proprietary." But that obfuscating file is based on statistical modeling techniques and thus is properly considered part of their statistical model, and is not an actual, factual, input hourly file. In particular, I ask that PSE be required to make public hourly input data "Temperatures" for any date and year that they have used that temperature data in any aspect of any of their modeling efforts. This is public data. It is not proprietary. After arguing with PSE about their temperature modeling for literally a dozen years, and getting contradictory answers from PSE even within one IRP cycle, I just want to see what PSE is *actually* using! Or should UTC continue to permit PSE to engage in fraudulent modeling?

Appendix I Tree Planting Page 7: PSE has in recent Transmission Line "up-sizing" in Bellevue cut down hundreds if not thousands of trees without replacement and intends to cut down thousands of trees more as part of the unnecessary "Energize Eastside" Transmission Line project. PSE could at least be replacing these cut down trees -- in a meaningful manner. Right now they have just replaced those trees with a little bit of "beauty bark."

Appendix I 10-year Distribution Plan Page 8: PSE has refused to meaningfully include community input in regard to Transmission and Distribution planning, and has falsely, contrary to FERC requirements, prevented affective neighborhood from accessing transmission planning documents citing "Terrorism" concerns. But on the contrary FERC states explicitly that such concerns cannot be used as an excuse to prevent affected neighborhoods from accessing such planning documents. PSE has prevented me from viewing such planning documents at Columbia Grid -- even though the bylaws of Columbia Grid require that such documents be public.

Appendix I Customer Privacy: It is not "Customer Privacy" when PSE collects customer usage data in a more granular form that PSE is willing to share with that customer itself. Customer usage data belongs first to the customer itself, secondly to PSE in order that PSE can provide necessary billing. I ask UTC to require PSE to actually share customer usage data with the customer on the same level of granularity that PSE collects itself.

Appendix I Energy Efficiency Page 9: As PSE itself acknowledges, PSE is failing its Energy Efficiency requirements. I ask UTC to require PSE to make the necessary changes. One

simple suggestion is at least that if PSE implements an Energy Efficiency program, then that PSE allows that program to run a full calendar year, rather than abruptly shutting down the program mid-year, leaving contractors and ratepayers in the lurch, as PSE has done in years past.

Appendix A-2 Energy Storage Summary: The Operating Range restricted to 50% of capacity is an unreasonable restriction unrelated to the technology. PSE is doing this simply to bias their modeling analysis against BESS.

Assumed zero value assigned to Flexibility Benefit is unreasonable.

It is not clear to me that assigning a "Heat Rate" to batteries is sensible Aurora modeling. Perhaps a "Heat Rate" should be assigned to the round-trip losses that a battery incurs? In which case the "Heat Rate" should be about 10X smaller than specified here. But if the battery is charged from Renewables then there is no such "Heat Rate."

Appendix A-3 _Resource Additions Annual_ Suite 6 CEIP Preferred Portfolio shows the addition of 474 MW of Natural Gas Frame Peaker in 2026 and 2027 but nowhere is this discussed fairly and openly within the body of the CEIP. For example, if these are built what is the strategy and costs associated with retirement and replacement in order to meet 2045 CETA requirements? How is building more new fossil fuel plants congruent with CETA at all? Can we please have fair modeling of actual operation of BESS, without the fake stub line costs, and without the fake restriction to merely "extreme standby" operation?

Appendix A-3 CEIP_Resource Additions Annual_ Suite 6 CEIP Preferred -- show the microscopic amounts of battery storage that PSE is planning to acquire -- less than 5% of the amount of new fossil fuel Peaker plants PSE plans to build!

Appendix A-3 _Emissions_ Suite 6 CEIP Preferred Portfolio shows about a 65% reduction in emissions by 2030, but if PSE is to actually meet CEIP requirements that would result in about an 80% reduction in Emissions.

Appendix A-3 Output Revenue Summary Chart Suite 6 CEIP Preferred Portfolio -- shows a huge spike in required revenue in 2032-2036 -- as PSE foot-draggs "until the last moment" -- and then needs to suddenly make huge investments "in order to catch-up." I suggest that this is NOT prudent behavior, and that UTC should require PSE to invest in CETA requirements on a "linear glidepath" manner rather than engage in ploys of foot-dragging "until the very last moment" -- and then PSE will complain about the large investments its own choice of behaviors then require.

Appendix A-3 All EM[issions] Chart -- shows PSE continues to emit at and after 2045 contrary to the plain language requirements of CETA.

Appendix A-3 CEIP Build Chart -- does not show the large amount of new Natural Gas Peaker that PSE intends to build -- without discussing it with any stakeholders in a meaningful manner,

rather hiding this information from stakeholders and "slip streaming" these new Natural Gas Peaker purchases. I suggest that this is dishonestly on the part of PSE.

Appendix A-3 CETA Interim Targets chart -- shows PSE achieving 105% renewables and non-emitting as percentage of Retail Sales -- but as mentioned previously in the "All EM Chart" continues to show emissions after 2045. So PSE doesn't believe that when CETA says "It is the policy of the state that nonemitting electric generation and electricity from renewable resources supply one hundred percent of all sales of electricity to Washington retail electric customers by January 1, 2045" -- PSE doesn't believe they actually have to do what the law clearly says?

Appendix D-2 S6-Selection -- PSE shows selected DER projects costing up to \$22.47 per watt, compared to EIA estimated costs of Utility Scale Wind at \$1.39 per watt, and Utility Scale Solar at \$1.80 -- this outrageously violates "Lowest Reasonable Cost!"

IE PSE is overcharging ratepayers by 16X for some of these programs rather than to simply build large amounts of Wind -- which is what Mr. Popoff said for many many years in his IRP presentations that PSE would do if presented with a CETA-like "Green World" situation. But instead of actual building such Wind PSE just continues to invent ways of wasting Ratepayer monies! Or stated another way, these programs are simply a way for PSE to get to their self-invented limitation of "2% a year" prior to 2030 while only achieving 1/16th of the actually achievable GHG reductions! I ask UTC to please prevent PSE from deliberately wasting Ratepayers monies in these extremely unproductive manners! Just Build More Utility Scale Wind and Solar! Stop Wasting Time and Money!

Appendix C3 -- a review of all of these Advisory Group meeting documents shows that PSE never openly and honestly discussed any intention of building new natural gas generating plants. I ask UTC to require PSE to openly and honestly discuss their plans to acquire such plants in an IRP or CEIP stakeholders meeting[s] in order that stakeholders can vet whether or not there are other alternatives -- such as accelerating [as opposed to current foot-dragging] the build of new Wind or Solar generation, and whether PSE use of outdated temperature data isn't exaggerating PSE expressed need for such new fossil fuel plants.

The following documents have been provided to the UTC, and only to the UTC, in a "100% Redacted" form, completely inconsistent with UTC's long-standing requirements that documents be "Minimally Redacted" and that publicly-available and readable forms of these documents be provided. If PSE were to actually properly redact their documents, which they continue to NOT do, then that at least gives the public, appropriately, some idea of what conversations UTC and PSE are engaging in "in smoke filled rooms behind closed doors." When UTC continues to allow PSE to improperly file "100% redacted" documents that leaves both PSE, and UTC, completely unaccountable to the public, to the ratepayers, who are being asked to pay literally billions of dollars of additional fees to PSE to support CETA requirements. Without being able to see a thing! I ask UTC and PSE to stop this "100% Redaction" behaviour now!

210795-PSE CEIP LT_2021 CEIP_S Portfolio No CETA_21ATB_Bundle11_Archive (R).pdf

210795-PSE CEIP HR_2021 CEIP_S Portfolio No CETA_21ATB_Archive (R).pdf

210795-PSE CEIP HR_2021 CEIP_Preferred Portfolio_Archive (R).pdf

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Thank you for your consideration,

James Adcock, Electrical Engineer