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**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,  
Complainant,

Docket TP-190976

v.

PUGET SOUND PILOTS,  
Respondent.

**REBUTTAL TESTIMONY OF  
M. SAMI KHAWAJA, PH.D.  
ON BEHALF OF PUGET SOUND PILOTS**

**July 13, 2020**

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I. IDENTIFICATION OF WITNESS ..... 1  
II. PURPOSE IN SUBMITTING YOUR REBUTTAL TESTIMONY ..... 1

1 **I. IDENTIFICATION OF WITNESS**

2 **Q: Please state your name, employer and business address.**

3 A: My name is M. Sami Khawaja. I am Sr. Vice President with the Cadmus Group, LLC,  
4 located at 720 S. W. Washington, Suite 400, Portland, OR 97205.

5 **Q: Have you previously submitted testimony in this proceeding?**

6 A: Yes I did on behalf of Puget Sound Pilots in its initial filing on November 19, 2019  
7 under Exh. SK-1T.

8 **II. PURPOSE IN SUBMITTING YOUR REBUTTAL TESTIMONY**

9 **Q: What is the purpose of your rebuttal testimony here today?**

10 A: My purpose here in submitting rebuttal testimony is to respond to the UTC Staff's  
11 testimony on recommended distributed net income, its discussion of workload  
12 assessment, staffing and Callback mechanics and the necessary funding therefor and as  
13 well as the Staff's use of historical averages in some of its computations, PMSA  
14 expert's concept of establishing a methodology to arrive at an appropriate revenue  
15 requirement and DNI and finally, to briefly respond to the ratemaking impact of the  
16 COVID 19 pandemic noted by both Danny Kermode and Captain Michael Moore in  
17 their responsive testimonies.

18 **Q: Have you read the response testimonies served by the parties on May 27?**

19 A: Yes, I have.

20 **Q: First of all, do you agree with Danny Kermode's testimony for the UTC Staff?**

21 A: Yes, I do for the most part on establishment of a revenue requirement. However, there  
22 are three exceptions that I want to address: 1. His definition of Distributed Net Income  
23 (DNI); 2. His assessment of the adequacy of staffing for average conditions, and 3. His  
24 analogy of the provision of pilotage services to grocery store clerk staffing which in my  
25 view highlights some of his misperceptions on the staffing/overtime issue.

TESTIMONY OF M. SAMI KHAWAJA Exh. SK-3T -1

Williams, Kastner & Gibbs PLLC  
601 Union Street, Suite 4100  
Seattle, Washington 98101-2380  
(206) 628-6600

1 **Q: Please describe your concern with the definition of the DNI?**

2 **A:** DNI is the product of the valuation of pilotage service each *full-time on-duty* pilot  
3 performs. It is a desired earning target for each pilot. However, as Mr. Kermode points  
4 out. “pilots bear the risk of the enterprise.” They would earn their DNI only when the  
5 projected level of assignments and the *implied pilot count* align. For example, if the  
6 number of assignments falls short of projections and the number of actual pilots  
7 exceeds number of implied pilots, pilots will earn less than their DNI. Mr. Kermode  
8 further clarified his definition through his response to PMSA’s Data Request No. 3. I  
9 generally agree with his clarification (“Compensation for each of the pilots providing  
10 services was intended to be limited to only the value of the service being provided, e.g.,  
11 pilotage service”). I agree that the DNI portion of the revenue requirement should  
12 represent the value of a pilot’s pilotage service. However, he is less clear as to whether  
13 he believes DNI should include the value of work performed by pilots who accept an  
14 assignment during a day off (i.e., a Callback).

15 **Q: Does it make a significant difference whether DNI includes the value of Callback  
16 Jobs performed by off-duty (a/k/a “off-watch”) pilots?**

17 **A:** Yes, it does. First, the value of a pilot’s pilotage services should be based upon a finite  
18 unit of work that a pilot performs. This is no different than any other profession. The  
19 DNI is the value of work performed by pilots while on the clock. As I discuss below,  
20 this is an important factor in establishing adequacy of compensation when comparing  
21 what similar state pilots earn in other pilotage districts. Second, it is fair and to be  
22 anticipated that when a pilot performs additional work above that unit of work due to  
23 pilot shortages or an excess of work that there be additional compensation. Revenue  
24 requirements should take that into account, i.e., the value of additional work in the form  
25 of Callbacks should be part of the revenue requirements. It can eliminate (or reduce)

1 Callbacks to begin with by hiring additional pilots, or it can include a “retirement”  
2 benefit in the current rates. As I understand it, all Callbacks are worked by pilots who  
3 volunteer for these assignments in their time off. Although there is no premium  
4 component to the compensation, the revenue requirement methodology should provide  
5 additional compensation for Callbacks or there would be no incentive for a pilot to  
6 come in from their off-duty day and take a vessel assignment.

7 **Q: Would additional compensation for Callbacks be provided under the approach**  
8 **you proposed?**

9 **A:** It would. By establishing an assignment level that is equivalent to the work that can be  
10 performed by a pilot while on-duty/on-watch in order to establish the number of pilots  
11 to be funded, while using a DNI intended to compensate only the on-duty work, the  
12 Total DNI would include the value of pilot services performed, regardless of whether  
13 the pilot was working while on-duty or accepted a Callback.

14 **Q: Will you please demonstrate this concept to the Commission through a**  
15 **hypothetical example?**

16 **A:** Of course. For purposes of this hypothetical, I will assume that all expenses are  
17 ignored, that each pilot can safely perform 120 annual assignments on average while on  
18 duty and that 7,200 projected assignments will be performed during the rate year. I will  
19 also use a DNI figure of \$500k per pilot. Using the TDNI formula proposed by Staff,  
20 the TDNI would be expressed as follows:  $TDNI = DNI * Pilots$ ; where  $Pilots =$   
21  $Assignments\ Projected \div TAL$ .  **$Pilots = 7,200 \div 120 = 60$  and  $TDNI = \$500,000 * 60$**   
22  **$= \$30,000,000$ . Average net income per assignment would be  $\$30,000,000 \div 7,200 =$**   
23  **$\$4,167$ .** It goes without saying that if there were actually 60 licensed pilots and 7,200  
24 assignments, each pilot would work 120 assignments and earn \$500,000. Furthermore,  
25 there will be no Callbacks.

1 If instead, however, there were only 50 pilots available, the table below illustrates the  
2 financials. *Revenue requirement is still \$30 million as the implied number of pilots is*  
3 *60.* With the same number of assignments, the cost per assignment also stays the same.  
4 However, pilots now work 144 assignments (120 while on-duty and 24 while off duty)  
5 with 1,200 Callbacks. The “value” of these Callbacks is \$5,000,000 (1,200 \* 4,167).  
6 The amount collected from shippers is 30 million regardless of number of pilots. *So,*  
7 *there is no double counting.* The \$30 million can now be distributed among only 50  
8 pilots earning \$600k each.  
9

	Projected for Revenue Requirement	Actual in Rate Year
Assignments	7,200	7,200
Number of Pilots	60	50
Total DNI	\$30,000,000	\$30,000,000
Net Income Per Assignment	\$4,166.67	\$4,166.67
DNI/Actual Compensation	\$500,000	\$600,000
TAL/Assignments Worked	120	144
Callbacks Worked Per Pilot	0	24
Number of Callbacks worked	0	1,200
Total Value of Callbacks	0	\$5,000,000
<b>Additional/Callback Compensation Per Pilot</b>	<b>0</b>	<b>\$100,000</b>

17 **Q: How does your approach differ from the approach suggested by Staff?**

18 **A:** Staff is proposing to use a *historical average* workload to establish the TAL, which  
19 includes *both on-duty assignments and Callbacks*. If the number of pilots funded was  
20 based upon a TAL that included the Callbacks, no value in the revenue requirement is  
21 attributed or credit given to this additional work. Staff also proposed to use a DNI  
22 value that is the historical average of the net income earned by Puget Sound Pilots after  
23 reducing the total net income by an average value of Callbacks performed in those  
24 years. In theory, one would think that an historical average makes sense. However, one  
25 of the interesting attributes of the statistical average is that it does not apply to anyone,

1 anything, or any time period. It only applies on average. In fact, for a balanced bell-  
2 shaped distribution, 50% of the time the number is too high and 50% of the time it is  
3 too low. You either have too many or not enough pilots to perform their duties. We also  
4 used average number of on-duty assignments using historical average as well. But we  
5 proposed determining number of pilots based on an assignment level of pilots such that  
6 90% of the time, you will have sufficient number of pilots and minimize callbacks (to  
7 10% of the time). We followed a traditional economic optimization of equating  
8 marginal benefit to marginal cost. A benefit is defined as avoided a Callback and a cost  
9 as adding a pilot to the pool. We assumed that Callbacks were a component of the  
10 system to be avoided. For traditional utilities with an “obligation to serve,” equivalent  
11 to staffing, generation, transmission, and distribution capacity is often set at 110% of  
12 level of demand. We are proposing, instead, capacity at 90% of the projected demand.

13 **Q: Would Staff’s proposal include additional funding for additional work?**

14 **A:** Initially, Staff made an adjustment to reduce the value of Callbacks from the DNI but  
15 used an unadjusted historical average workload for its TAL. By doing so, they  
16 essentially removed from the revenue requirement any additional pay for additional  
17 work the pilots were previously receiving. Pilots might potentially earn additional  
18 *compensation* above the DNI under this scenario, but only if the number of Callbacks  
19 during the rate year exceeds the number of Callbacks embedded in the historic average  
20 used by Staff.

21 **Q: Mr. Kermode suggested an analogy of a grocery store as an example of how to**  
22 **staff pilotage services. Do you agree with his analogy?**

23 **A:** While there are some similarities, the analogy is not entirely apt (nor do I believe that  
24 Mr. Kermode intended it to be an exact comparison). Most staffing models assume  
25 peak times to be supplemented with overtime resources, at a cost of course. In the case

1 of the grocery store, this additional peak time staffing may often be obtained at low cost  
2 due to availability of staff on hand conducting other tasks (e.g., inventory assessment).  
3 Callbacks require use of off-duty pilots. In other words, while the analogy is valid at a  
4 high level, for pilots the personal cost can be significant and it needs to be accounted  
5 for in computation of the revenue requirement.

6 **Q: By the way, Mr. Moore suggests that your use of the term “on-duty” refers to the**  
7 **definition of “duty day” in PSP’s By-Laws, which treats both days on-watch and**  
8 **days off as “duty days” for purposes of calculating a member’s income**  
9 **distribution. Is that an accurate description of your testimony?**

10 **A:** No. When discussing “on-duty” pilots, I am referring to pilots who are scheduled to  
11 work according to the PSP watch schedule.

12 **Q: Do you agree with Mr. Sevall’s overall testimony?**

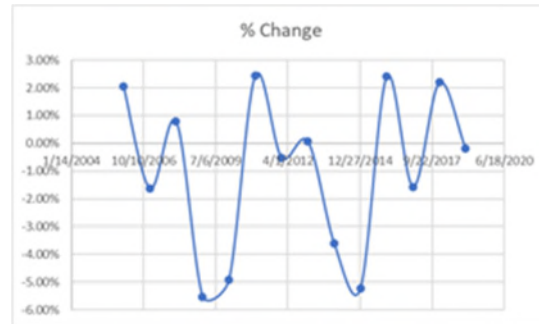
13 **A:** Yes, I do broadly. There are a couple of key exceptions that I should address, however:  
14 1. his vessel forecast is overly simplistic; 2. he, in my opinion, computes workload  
15 without accurate representation of Callbacks, and 3. similar to my concerns above, a  
16 TAL based on an historical average entails inaccuracies and analytical complications.

17 **Q: What is your first concern with the vessel forecast?**

18 **A:** I believe that the most accurate forecast is one that develops econometric models for  
19 each vessel type and forecasts them individually. I do not believe the use of year to year  
20 changes will work nearly as well and will basically be inaccurate (i.e., 50% of the time  
21 too high and 50% of the time too low). An econometric model on the other hand does  
22 indeed take into account economic conditions impacting different vessel types  
23 differently. The figure below illustrates year to year changes to a total number of  
24  
25



1 vessels. The number varies from a low of -6% to a high of +2.4%. Mr. Sevall though  
2 only used the most recent value of -0.2%.



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9 **Q: Please describe your concern with Mr. Sevall’s assessment of pilot workload.**

10 **A:** Mr. Sevall’s workload calculation does not include Callbacks as a factor, nor does it  
11 address their significance in determining the number of pilots to fund. A funded pilot is  
12 one performing his or her entire workload while on duty.

13 **Q: Do you agree with Staff’s recommendation that an “implied number of pilots”**  
14 **should be funded rather than the actual number of pilots that is proposed by**  
15 **PMSA?**

16 **A:** Yes, somewhat surprisingly I do. Using the actual number of pilots is highly  
17 problematic and would ensure that pilots are undercompensated during pilot staffing  
18 shortages. And the implications of undercompensation and possible recruitment of  
19 licensed pilots to other districts posed by inadequate compensation are indeed very  
20 concerning.

21 **Q: Do Mr. Sevall’s historical averages include or exclude Callbacks?**

22 **A:** His historical average number of assignment or TAL has Callbacks in it. Implicitly, it  
23 assumes that the historic average number of Callbacks is to continue into the future.  
24  
25

1 **Q: How does your approach differ?**

2 **A:** I assumed that we needed to determine the implied number of pilots by first calculating  
3 the on-duty workload of each pilot by optimization to reduce Callbacks.

4 **Q: Scott Sevall and Mike Moore both criticize this approach, suggesting that**  
5 **additional funding cannot assist with fatigue management or actually reduce the**  
6 **number of Callbacks. Do you have a response?**

7 **A:** Yes. I believe both Mr. Sevall and Mr. Moore misapprehend the purpose behind our  
8 optimization approach. Like Mr. Sevall, we were attempting to determine the implied  
9 number of pilots, but again, assuming each pilot would perform only the workload of  
10 an on-duty pilot without Callbacks. It is true that additional funding alone does not  
11 reduce Callbacks or avoid fatigue, but by accepting our approach, the additional work  
12 each Callback represents can be appropriately funded in the revenue requirement.

13 **Q: If your approach has no actual impact on fatigue, why did fatigue management**  
14 **rules have any impact on your analysis?**

15 **A:** That is rather simple. In 2017 and 2018, pilots needed only an 8 hour break between  
16 assignments and now pilots are required to take a 10 hour rest period between  
17 assignments. Thus, the number of assignments that a pilot can be dispatched during his  
18 or her on-duty period has decreased. If that decreased workload capacity is not  
19 quantified or acknowledged in any way, the resulting calculation of the implied number  
20 of pilots needed will not be fully accurate nor reflective of the actual workload. In other  
21 words, more Callbacks would be generated than were anticipated and they would not be  
22 funded in the revenue requirement.

1 **Q: Is there any reason you could not make a Callback adjustment calculation to the**  
2 **workload like Mr. Sevall did in Exhibit SS-2, Schedule 2.3 with his DNI**  
3 **calculation?**

4 **A:** Yes. Mr. Sevall simply subtracted the average value of Callbacks from total net  
5 income to determine the value of on-duty work. If we applied a similar approach to  
6 determine the on-duty workload by merely subtracting all Callbacks from the total  
7 number of assignments and dividing the resulting “on-duty assignments” by the number  
8 of pilots, that workload could not be used as a TAL to determine the number of on-duty  
9 pilots needed. That approach would not avoid all Callbacks and the number of pilots  
10 implied by the average would still be required to work a significant number of  
11 Callbacks for free.

12 **Q: Can you explain why that is?**

13 **A:** Vessels do not arrive at regular intervals; there are irregular patterns with peaks and  
14 valleys. Our approach, would remove all Callbacks from the workload and would  
15 require a sufficient number of pilots to permit those who work on-duty to handle 100%  
16 of the peaks. However, as I discussed in my initial testimony, there is a diminishing  
17 number of Callbacks removed as additional pilots are added. Thus, I applied an  
18 economic analysis to determine the extent to which it was logical to remove Callbacks.

19 **Q: Can you elaborate upon that concept for us?**

20 **A:** Yes. Fundamentally, economic analysis leading to optimal decisions relies on the use  
21 of marginal analysis, or an examination of the additional benefit of an activity  
22 compared to the additional cost incurred by the same activity. The marginal benefit of  
23 adding an actual pilot is: increased safety, decreased Callbacks, and decreased potential  
24 vessel delays. The marginal cost of that addition is the income of the added pilot. In  
25 2018, the number of Callbacks represented 15% of total assignments. As we have seen,

1 this level of Callbacks represents time when pilots are called in from their off-duty time  
2 to work. The purpose of these Callbacks is to avoid ship delay.

3 **Q: Did Staff's approach to using a historical average to calculate DNI present similar**  
4 **issues to Staff's historical average workload approach?**

5 **A:** In Staff's initial DNI calculation it did. Mr. Sevall's supplemental testimony appears to  
6 have acknowledged that his initial approach was mistaken.

7 **Q: Can you please illustrate the issues with Staff's initial approach?**

8 **A:** Yes. For example, in 2018, an average of 50.3 pilots worked 7,324 assignments, with  
9 1,384 Callback Jobs, and PSP earned \$20,245,370 in annual net income. These figures  
10 appear in the second column in the table below.

11 Mr. Sevall suggested using a historical average of 145.61 assignments per pilot. This  
12 average will allow 50.3 pilots to assist vessels but will require the need to resort to  
13 Callbacks 1,384 times. Total Income is \$20 million approximately for an average of  
14 \$2,764 per assignment charged to the vessels. Average compensation to a pilot is  
15 derived by distributing \$20,245,370 by 50.3 pilots for \$402,492 per pilot.

16 **Q: And what is the major defect with this approach in your view?**

17 **A:** The problem with this alternate model, is that the DNI figure, in his case \$402,492, is  
18 what the compensation should be for performing pilot service while on duty. Callbacks  
19 should be above and beyond base compensation. In this example, a pilot should have  
20 earned \$478,551 for conducting on duty and off duty (Callback) work. As a result, the  
21 net income per assignment should have been \$3,287, not \$2,764. Alternatively, the  
22 average number of assignments could have been set such that no pilot takes on any  
23 Callbacks. In that case, you would have needed 62 pilots for an average of 118  
24 assignments. Under this model, where pilots are being compensated for only on-duty  
25 time, the distributable net income component of the revenue requirement would have

1 needed to be nearly \$25 million with an average net income of \$3,411 per assignment.

2 No Callbacks happen under this scenario:

3  
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	<b>Actual</b>	<b>FTE</b>
Year	2018	2018
Assignments	7,324	7,324
Total Callback Jobs	1,384	
Number of Pilots	50.30	62.07
Average Assignments Per Pilot	145.61	118.00
Total Net Income	\$20,245,370	\$24,981,819
Average Net Income Per Assignment	\$2,764	\$3,411
Total Value of Callback Jobs	\$3,825,723	\$0
Adjusted Total Net Income	\$16,419,647	\$24,981,819
Calculated DNI	\$326,434	\$402,492

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Total Actual Pilot Compensation	\$402,492
Should have been paid for Callbacks	\$76,058
Adjusted Compensation	\$478,551

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15 **Q: And what is the takeaway from this hypothetical scenario?**

16 **A:** That the staff methodology puts the entire burden of Callbacks on the pilots. In this  
17 case, while they have earned Staff's \$400k compensation, but they had to work  
18 numerous Callbacks for free to get it.

19 **Q: What instead is your perspective?**

20 **A:** DNI should be for on duty time, not for total time. As I have previously testified,  
21 historical data show that 118 assignments are what you need to achieve minimal  
22 Callbacks. And this number actually implicates 62 pilots. Again, starting off with a  
23 number that imbeds some 18% Callbacks I believe is where staff model is likely in  
24 error.  
25

1 **Q: From an economic perspective, can a fair return on investment for pilots be**  
2 **calculated using an historic average?**

3 **A:** No. As I indicated in my initial testimony, pilot compensation for labor performed is  
4 the equivalent of return on investment. Just as is the case in other industries, in order to  
5 attract that investment, the return must be sufficient. Using a historic average of  
6 compensation cannot determine what is sufficient because the historic average will  
7 always be based on what was previously earned – determining sufficiency on what  
8 already exists is essentially circular logic. For electric utilities, we determine the  
9 reasonable range or returns based upon a number of factors, including an analysis of the  
10 rate of return for firms with corresponding risks, and whether the rate of return is  
11 sufficient to assure confidence in the firm’s capital structure and to maintain  
12 creditworthiness and ability to attract capital on reasonable terms. If such an analysis  
13 were not undertaken then there would be no way to assess whether a utility’s historic  
14 average rate of return was within a range of reasonable returns.

15 **Q: If not an historic average, what information informs the reasonable range of pilot**  
16 **net income?**

17 **A:** The analogous analysis for a reasonable range of pilotage DNI is to examine whether  
18 net income for a full-time on-duty pilot is commensurate with the net income earned by  
19 a pilot in a pilotage district with similar risks, and to assess whether it is sufficient to  
20 attract and retain pilots.

21 **Q: Did you supply the pilot income and analysis of comparability from those other**  
22 **state pilotage districts here?**

23 **A:** No. Although I am familiar with the nature of pilotage, I do not profess to have the  
24 level of knowledge that others have in this proceeding on which specific pilotage  
25 districts offer a suitable comparison. I understand that Capt. Quick, Capt. von

1 Brandenfels, and Capt. Carlson supplied information regarding pilotage district  
2 comparisons. That information also appears consistent with my understanding of  
3 nationwide pilot compensation.

4 **Q: What is your overall reaction to PMSA’s expert, John Ramirez’s, testimony?**

5 **A:** Other PSP witnesses are addressing most of the issues raised by Mr. Ramirez so I want  
6 to avoid redundancy here. Thus, I will only address two issues: 1) his use of an average  
7 compensation of \$162,000 and 2) the associated impact that has on his computation of  
8 rate of return on pilots’ investment. According to NPR<sup>1</sup>, the “average salary of harbor  
9 pilots nationwide was more than \$400,000” in 2012. With a modest 2% cost of living  
10 annual adjustment, in 2020, this number should now have been over \$460,000.  
11 According to the Columbia River Pilots, Oregon Board of Maritime Pilots, “Revised  
12 Rate Schedule Adopted,” May 19, 2010, the average compensation of some 17 national  
13 pilotage organizations, was \$381,562 in 2009. Again, with modest adjustments for  
14 inflation only, this average should be around \$500,000 today.<sup>2</sup> These levels of  
15 compensation are based on the professional skills and experience needed to perform  
16 pilotage duties as well as compensation of comparable organizations. Mr. Sevall has  
17 recommended a number at \$402,000. So, in my opinion, the \$162,000 is clearly wrong  
18 and an extreme outlier. That said, the associated computation of a 62% return on  
19 investment by Mr. Ramirez is also irrelevant. Mr. Ramirez takes the difference between  
20 actual revenue and his computation of a revenue requirement and labels that “excess  
21 profit.” Ironically, that supposed “excess profit” would disappear altogether had he  
22

23 <sup>1</sup> [https://www.npr.org/2012/03/21/149091141/harbor-pilots-reap-high-rewards-for-dangerous-  
24 job#:~:text=in%20open%20seas,-  
25 .The%20average%20salary%20of%20harbor%20pilots%20nationwide%20is%20more%20than,this%20is%20AL,  
L%20THINGS%20CONSIDERED.](https://www.npr.org/2012/03/21/149091141/harbor-pilots-reap-high-rewards-for-dangerous-job#:~:text=in%20open%20seas,-,The%20average%20salary%20of%20harbor%20pilots%20nationwide%20is%20more%20than,this%20is%20AL,20THINGS%20CONSIDERED.)

<sup>2</sup> [https://www.oregon.gov/puc/bmp/Documents/Order\\_10-01.pdf](https://www.oregon.gov/puc/bmp/Documents/Order_10-01.pdf).

1 used a more appropriate and accurate compensation level for pilots. For example, had  
2 he used say \$400,000 instead of \$162,000, his ROI declines to near zero.

3 **Q: Since the time prefiled testimony was submitted last November, the global**  
4 **economic forecast has obviously changed due to the COVID-19 pandemic. Do you**  
5 **have a recommended approach for adjusting PSP's revenue requirement to**  
6 **address the impacts of the pandemic?**

7 A: Yes. At this time my recommendation is that we move forward with the revenue  
8 requirement that was calculated in November.

9 **Q: What is the basis for your recommendation?**

10 A: The traditional approach to ratemaking at the Commission is to determine the revenue  
11 requirement by examining a historic test year and making adjustments based on known  
12 and measurable changes that will occur in the rate year. In ratemaking terms, we can  
13 only hope that this is "a nonrecurring event." Although the current pandemic has  
14 caused a global economic recession in 2020, the International Monetary Fund's Global  
15 Economic Outlook report for June 2020 indicates that the rebound is currently  
16 underway. More importantly, the IMF indicates that the size and speed of the recovery  
17 could take multiple possible paths and that changes to those projections are likely.  
18 Thus, rather than known and measurable changes, any attempted adjustments to the  
19 projections made in November 2019 would be nothing more than speculation about  
20 what will occur.

21 **Q: Does this conclude your rebuttal testimony?**

22 A: Yes, it does.  
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