BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, Complainant, v. PUGET SOUND PILOTS, Respondent.	DOCKET NO. TP-190976

REBUTTAL TESTIMONY OF

STEPHAN MORENO

PUGET SOUND PILOTS

JULY 13, 2019

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

TABLE OF CONTENTS

INDEX TO EXHIBITS		
Number	Description	Page
SM-3	Scott Sevall’s answer to PMSA Data Request 17	2
SM-4	Table of Current and Proposed Charges	12

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

I. IDENTIFICATION OF WITNESS

Q: Will you please state your name and business address?

A: My name is Stephan Moreno and my business address is 2003 Western Ave, Suite 200, Seattle, WA 98121.

Q: What is your affiliation with Puget Sound Pilots?

A: I am a pilot licensed in the Puget Sound Pilotage District since 2009 and serve on PSP's Tariff Committee.

II. PURPOSE OF TESTIMONY

Q: Will you please describe what you are seeking to accomplish through your testimony?

A: I am providing testimony in rebuttal to the prefiled testimonies of Mr. Scott Sevall of the Staff and Captain Michael Moore of PMSA on the subject of rate design.

III. REBUTTAL TESTIMONY

A. <u>Rate design policy</u>

Q: Have you had an opportunity to read the prefiled testimony and exhibits field by Scott Sevall regarding the tariff and proposed rate design?

A: Yes, I have.

Q: Do you agree with Mr. Sevall's testimony on rate design?

A: Mr. Sevall actually appears to agree with the overall structure of the tariff proposed by Puget Sound Pilots (PSP), so we are largely in agreement. However, I disagree with both the specific rates proposed by Staff and, based upon his data request responses, the policy purpose he tried to carry out in recommending rates.

Q: What data request response revealed Staff's position as to the intent of the rate design?

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

A: Mr. Sevall's answer to PMSA Data Request 17, which is being filed as Exh. SM-3, indicated that Staff's proposal is for the gross tonnage charge to recover PSP operating expenses and administrative overhead and that the Service Time charge is intended to "compensate for pilot time."

Q: What, if anything, did Staff do to implement that apparent policy in establishing its recommended rates?

A: Staff appears to have recommended a Service Time charge that would recover close to the entire TDNI component of the revenue requirement calculated by it. In this case, Staff initially recommended a TDNI of $21,700,741 and Staff recommended a Service Time Charge that they believed would collect $ $20,948,889 in the rate year.

Q: Why do you disagree with that policy?

A: My concern with it is because, whether you use PSP's revenue requirement or Staff's recommendation, the majority of the revenue requirement is comprised of compensation for pilotage labor. This means that, under Staff's recommended rates, a greater amount of revenue collection would always be placed on the Service Time Charge than on the Gross Tonnage Charge. This conflicts with the traditional principles of pilotage rate design that charges should reflect the relative risks posed by the size of and skillset required to pilot the vessel, and its revenue generating capacity. This also means that smaller ships which cannot take advantage of the same economies of scale that larger ships employ will pay a disproportionately larger share of pilotage revenue than they are accustomed to paying, and the larger ship which can afford to pay a much greater amount, due to their economies of scale, will pay substantially less.

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

IV. RISK AS A FACTOR IN ESTABLISHING RATE DESIGN

Q: Mr. Sevall testified he believes the proposed tariff also addresses risk in the time charge. Do you disagree that risk would be appropriately accounted for in his proposed rate design?

A: It is true that there is an element of risk associated with the amount of time a pilot is moving a vessel, but time alone does not acknowledge the risks associated with larger vessels so I do not believe that element of risk would be accounted for. Two vessel of different sizes travelling at the same speed can complete the same transit in the same amount of time, yet they will carry completely different risks due to their size differences.

Q: What are some of the risks associated with larger vessels?

A: Larger vessels require a more developed skillset than do smaller ships. That's one of the reasons the Board of Pilotage Commissioners requires new pilots to take upgrade trips on increasingly larger ships over the course of five years before they obtain an unlimited license and the BPC uses Gross Tonnage to define each license level. With that increasing difficulty in ship handling comes an increased exposure for an accident. Larger vessels also present a greater risk of harm should an incident occur. They carry more fuel, have a larger mass and thereby a greater potential kinetic energy, and in the case of tankers, carry more petroleum products to spill should an accident occur.

Q: What factors related to ship size require an enhanced skillset?

A: There are quite a few in fact. A non-exhaustive list would include such factors as Mass, Block Coefficient, Squat, Blockage factor, Center of Gravity, Wind Loads, Waterway design relative to the vessel, and wake.

Q: Can you elaborate on how these factors make larger ships more difficult to handle?

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

A: Yes, briefly. As ships get larger, they tend to increase in mass, especially when loaded. When keeping speed of the vessel the same, greater mass results in an increase of kinetic energy in a potential accident. Greater kinetic energy in an allision causes increased transversal and longitudinal damage and a potential increase in the number of compartments penetrated.

Another factor is Block Coefficient. Block coefficient is defined as the ratio which underwater body volume bears to a rectangular solid of the same length beam and depth. As Block Coefficient increases, directional stability decreases. Tankers and bulk carriers are notorious for being directionally unstable because of their large Block Coefficients, and this is becoming an issue in newer container vessels are also now being constructed with large Block Coefficients. This means that for a larger ship with an increased Block Coefficient it is harder to stop a turn when the vessel rudder or other external forces are applied such as wind or tugs.

Q: Can you also briefly summarize how other factors related to size affect risk?

A: Squat is the amount of additional draft (the depth below the water's surface a ship extends) that results from additional speed and the vessel's Block Coefficient. To put it simply, as ships get bigger, they tend to squat or sink more, particularly in confined waterways, and their turning radii increase, their headway carries longer, and their stopping ability is diminished.

Blockage Factor is the percentage of an available waterway a vessel occupies during a transit. The water surrounding the vessel is compressed and as the Blockage factor increases, it causes the vessel to become less responsive to rudder, engine and tug assists.

Center of Gravity (also known as "Metacentric Height" or "GM") is a determinant in how a vessel reacts when forces are applied. When GM decreases, vessels are less

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

directionally stable and tend to roll or tip easier when forces are applied such as rudder, wind or tug forces.

Q: Are the some other factors regarding handling of vessels and risk?

A: Yes. Wind Load is another significant factor in risk because the sail area of a vessel is determined by the area of exposed hull and cargo on deck. The larger cruise vessels and container vessels can have sail areas of 2.5 to 3 acres. In confined waterways, wind can present a significant risk, and requires pilots to spend significant hours training and working with customers and ports to determine the wind limits and feasibility of new classes of vessels for a particular waterway.

In more recent years, vessel wake or the waves created by a vessel while transiting has become a significant factor. As a vessel's speed increases and the Block coefficient is increased, a correspondingly larger wake is created. This wake must be controlled in an effort to reduce the risk to other smaller vessels such as recreational boaters and people and property on shore.

Q: What is your response to Capt. Moore's testimony that pilots have not been exposed to greater risks with larger ships?

A: Capt. Moore's assessment of risk primarily focuses on the number of incidents, which is a very narrow lens through which to evaluate risk. Incidents might serve an indicator of certain risks, but as Capt. Moore surely understands, a lack of incidents overall does not indicate an absence of risk. If risk is appropriately managed, which is the primary responsibility of pilots, incidents should not occur or should be very infrequent. Yet risk

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

is constantly present, and new more challenging ship handling requirements frequently increase the level of risk involved.

In reality, larger ships increase the skill and expertise required to mitigate risk. In his discussion of larger ships Capt. Moore ignores the fact that the larger container ships put in service in some of the local waterways far exceed the size of the ships for which those waterways were designed.

Q: What further omissions or deflections did you identify in Captain Moore's assessment of the handling of risks in larger vessels?

A: For one, he barely mentions the Blair Waterway in Tacoma. The Blair Waterway is a prime example of how larger ships pose greater risk. That particular waterway is one of the narrowest and most difficult to transit in the Pilotage District, and it was designed for significantly smaller ships than those that transit it today. As a rule of thumb, the width of one-way channels should be 4-5 times the maximum beam of ships expected to use it. But past the 11th Street Bridge, the Blair has a project width of just 343 feet and further reduces to 330 feet approaching the turning basin. Starting in 2018, vessels up to 160 feet in beam (width) now routinely transit the waterway. It is also prone to gusty cross winds that when applied to the wind sail area of a larger container ship can sometimes require additional tugs or require a vessel to wait until wind conditions improve. Limited Under Keel Clearance (UKC - the available depth of water under the vessel) is another factor that elevates risk in narrow waterways like the Blair. With the larger draft of these

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

big container ships, ships have a greater stopping distance, reduced steering efficiency, and an increased turning radius.

Q: What other factors enhance the risk of operating in narrow waterways?

A: In a narrow waterway with limited UKC, ships also lose directional stability because water clears out from under the keel asymmetrically. At certain times, these factors, combined with congestion at the berth and a limited turning basin in which to turn a ship around, require these larger vessels to be moved through the waterway stern-first (backwards) up to 2.2 miles, which presents another set of challenges. In order to mitigate these risks posed, pilots have undergone extensive simulator and manned model training to develop these techniques necessary to mitigate risks while transiting the waterway. As a result, some of the largest container ships transiting the Blair require three pilots and four tugs and the use of Portable Piloting Units (PPU – an independent Navigation Unit carried by the Pilot) for precision navigation.

Q: But when older ships are replaced by larger and newer ships, don't they become easier to handle due to enhanced navigational technologies?

A: No. Enhanced navigational technologies on the vessel and the Pilot's PPU are just part of the greater diligence employed to manage the additional risks created by the increase in size. Comparable to the use of additional tugs in a waterway, these tools are used to mitigate the risks and difficulties presented with a larger ship. They do not, however, obviate the increased challenge and skill required to safely move a larger ship.

Q: Do you have a response, then, to Capt. Moore's statement in Exh. MM-01, p. 93, that modern ship design and propulsion systems and rudders have grown more efficient and responsive?

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

A: Capt. Moore's testimony on the subject of enhancements to vessel design and safety is frankly superficial in its oversimplification of this topic. He does not factor in the challenges faced by pilots as they guide vessels during the course of their duties, likely because he lacks the personal ship handling experience to inform his testimony on this topic. Instead, his discussion of risk focuses primarily on the number of reported incidents.

Q: Please elaborate here.

A: In regard to ship propulsion systems and rudder design, the operative word in Mr. Moore's testimony is "efficient." The efficiency of which he speaks is the "at sea" efficiency of the vessel as it carries its cargo from various ports. But fuel efficiency and other enhancements for navigation at sea are not synonymous with enhancements for navigation in confined waters. In fact, increased efficiency comes at a cost to the handling ability of a vessel in confined waters. The efficient propulsion and steering systems at the vessel's service speed are degraded as the vessel slows to maneuvering speeds in pilotage waters.

Q: Can you also elaborate on the impacts of increased "at sea" efficiency in newer vessels on maneuverability in confined waters?

A: Yes. One example of design choices that increase efficiency but make piloting more challenging is engine speed. The newer container vessels frequently have a "dead slow speed" (the slowest RPMs at which the engines will run) in excess of 7 to 8 knots, while in older vessels it is common to have a dead slow speed of 3-5. This increased speed in a confined waterway is capable of causing significant damage to other moored vessels, creates significant Squat, and renders assist tugs unusable for athwartship (sideways) movement. To avoid those concerns, speed must be managed by a series of starts and

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

stops or use of tugs to leash back the ship. But that comes at a cost to the vessel's maneuverability.

Q: Are there any other examples?

A: Yes. Increased fuel efficiency also effects rudder size. At sea, a smaller more streamlined rudder may reduce drag and thereby increase fuel efficiency, but for the Pilot, this means less directional stability and responsiveness in confined waters.

Q: What then, is your overall conclusion about whether increased efficiency in newer vessels reduces risk?

A: Based on my 30 years of experience and approximately 4,500 vessel movements as a pilot, modern ship designs and efficiency do not particularly translate into reduced risk.

Q: Do you agree propulsion systems are much improved in newer ships?

A: Generally, yes, but not without issues. I performed a review of the BOPC Marine Safety Occurrences ("MSO")since January 2018 and found that of the 45 MSO's I reviewed, 28 of them related to a propulsion system problem over a range of vessel types, sizes, and age. In my experience over the 30 years as a pilot, propulsion failures have been the number one marine safety occurrence I have encountered.

Q: Given the complexity of the risk factors you have discussed, how is this risk best measured by a pilotage tariff?

A: Again, all of these risk factors are associated with the size of the vessel, and size is best addressed in the tariff through a greater emphasis on International Gross Tonnage rather than an emphasis on revenue collection through Service Time which is my primary critique of Scott Sevall's recommended rate design restructure

B. <u>Economies of scale and the value of pilotage service to the vessel</u>

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

Q: You mentioned economies of scale employed by larger ships earlier. What does that have to do with rate design?

A: Larger ships of the same class tend to carry more cargo and therefore have a smaller transportation cost per unit of volume shipped, as well as additional revenue generating capacity based on that greater volume. As an example, we can compare two actual ships that called on the Puget Sound, Cap Pasado and the New York Express. Both container vessels are transiting from the Pilot station and bound for Seattle, but they have vastly different Gross Tonnages, and therefore vastly different container-carrying capacities:

Q:

Vessel	**TEU Capacity**	**Gross Tonnage**
Cap Pasado	2,742	28,372
New York Express	13,167	142,295

The New York Express has nearly five times the cargo carrying or revenue generating capacity than the Cap Pasado. However, when applying the Staff's proposed rates, the Cap Pasado would pay $.194/ton for service and the New York Express under this rendition would pay $.065/ton for the same service. Certainly, this demonstrates the revenue generating capacity of the New Your Express is exponentially greater than the Cap Pasado, yet the New York Express would pay a disproportionately lower rate for service.

Staff's recommended rates do not reflect the cost per gross ton, nor is it mentioned in their testimony. The Staff proposal places an unfair burden for revenue generation on the smaller vessels.

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

Q: How can this distortion in relative revenue generation be corrected in your view?

A: The only appropriate way to properly and proportionately spread the rates and recognizing vessel revenue generating capacity is through an appropriate Gross Tonnage charge.

V. IMPACT OF RATE DESIGN ON CUSTOMERS AND REVENUE STABILITY

Q: What is your overall response to Mr. Sevall's proposed rate design with respect to its impact on the charges vessels would pay?

A: As I indicated in my initial testimony, one of PSP's goals in its proposed rate design was to reapportion rates over vessel sizes and classes. We believe that the difference between what the largest ships paid and what the smallest ships paid was somewhat disproportionate, and rather than simply an escalation of the per-ton rate as ships grew larger, a stepping down of the per-ton rate would help mitigate the slope of the curve. Nevertheless,, larger ships pay more than smaller ships in every port for a reason. As I discussed in some detail above, they present a larger risk and permit greater revenue generation through increased economies of scale. In my opinion, Mr. Sevall's proposed rate design poses some very real unintended consequences like rate shock.

Q: What makes you think rate shock could occur under Mr. Sevall's rate design principles?

A: A couple reasons. First, as Capt. Moore stated in his response testimony, most shipping customers are accustomed to across-the-board increases of a flat percentage when tariff increases occur. Knowing that would not fully be the case in our own rate design, we nonetheless attempted to preserve some stability in the rate design by maintaining the ratio between the LOA and Gross Tonnage charges in the current tariff when applied to Service Time and Gross Tonnage in the new tariff. Second, if you applied Mr. Sevall's

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

rate design to PSP's revenue requirement, it would result in the smaller ships paying astronomically higher rates than they currently do. Using his proposed rates, the concern about disproportionate rates would then swing in the direction of the small ships, which would bear a much larger fee per Gross Ton than they would typically pay.

Q: Can you provide some examples of the effect Staff's rate design proposal would have on the pilotage fees vessels would pay?

A: Yes, I can. The following table reflects selected details of Exh. SM-4, which demonstrates the impacts of Staff's rate design policy on actual vessels that were charged within the pilotage invoice data set used to establish tariff rates. To develop Exh. SM-4, I applied the same policy espoused by Mr. Sevall in setting the Service Time charge at the rate that would be required to collect the TDNI portion of the revenue requirement calculated by PSP for its year 1 tariff. Otherwise, all assumptions were based upon PSP's revenue requirement and vessel projection. As is depicted here, because Staff's rate design places such a huge emphasis on Service Time, despite a significant revenue increase required to properly compensate pilotage labor, the effect is that the rates paid by smaller vessels would be dramatically increased compared to what occurs under PSP's rate design, while the larger vessels would see a significant *decrease*.

Vessel	G/T	Type	Current Tariff*	Staff Rate Design*	PSP Proposed Tariff (Year 1)*
Pioneer	499	Yacht	$2,609	$8,725	$5,766
Sea Owl	1494	Yacht	$2,210	$6,624	$4,786
ATB Dublin Sea	14935	ATB	$1,906	$4,522	$3,805
Global Round (Global Gold)	21158	BULK (S)	$2,021	$5,976	$4,547
Balao (Cap Pasado)	26412	CONT(S)	$2,294	$5,516	$4,620

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

Overseas Los Angeles	29242	TANK (M)	$2,692	$5,646	$4,831
Stability (Fortune Iris)	43022	BULK (L)	$4,272	$7,678	$6,526
Peak Pegasus (Brenda)	43005	BULK	$4,271	$7,063	$6,198
Prestige Ace (Triumph Ace)	55878	CAR	$5,603	$8,207	$7,562
Midnight Sun	65314	RO/RO	$3,821	$5,947	$5,329
Mol Partner (Brighton)	71837	CONT (M)	$7,339	$8,076	$8,269
TYSLA	75251	RO/RO (L)	$7,862	$7,498	$8,183
Polar Resolution (Polar Discovery)	85387	TAN (L)	$8,107	$8,560	$9,225
Carnival Legend	85942	PASS(M)	$8,037	$7,879	$8,938
MSC Silvia	94469	CONT (M)	$8,932	$8,184	$9,540
New York Express	142295	ULCV	$14,259	$9,273	$12,726
Norwegian Bliss	168028	ULPV	$16,393	$9,436	$14,100

*Does not include BPC Training and BPC SILA surcharge

A good example here of the shifting of revenue collection from larger to smaller ships is the Global Round, a bulk carrier going from the Pilot Station to Anchor in Seattle. Under the current tariff, the pilotage fee would be $2,021 for the move. Under PSP's proposed tariff for year 1 there is no doubt a sizeable increase required for the Global Round is in order to lessen the increase on the largest ships that would otherwise occur. Yet, applying Staff's rate design to PSP's calculated revenue requirement, the Global Round would pay $5,976, resulting in an increase of 196% above the current tariff. As an example of how the skill required to pilot a ship should be factored into the reliance on Gross Tonnage charges. I would like to compare the Global Round and New York Express. Both vessels are transiting from the Pilot Station to Seattle. The Global Round transit requires the vessel to anchor and the New York Express requires the vessel to berth in confined waters of the East waterway. The service to the Global Round is a

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

relatively routine maneuver, requiring the pilot to anchor in Seattle harbor. Although a lengthier transit due to its slower speed, the Global Round move is far simpler than the more complex move involving an Ultra Large Container Vessel like the New York Express. An hour of time on the Global Round and an hour of time spent on the New York Express are worlds apart regarding risk and the requite skill required to compete the assignment, yet applying Staff's rate design the New York Express would see a 35% *decrease* in its total charge.

The New York Express is over 5 ½ times larger than the Global Round and requires far more skill to navigate in the confined waters of the East waterway in Seattle, thus it justifiably should pay a comparatively larger pilotage fee than would be expected when applying Staff's proposed rate design.

The UTC staff proposed rate for the New York Express would be $9,273. For comparison outside the district, for the same movement the New York Express would expect pilotage fees in Prince Rupert and in Vancouver of $15,511 and $12,868 respectively and in San Francisco, a like vessel, would expect a fee of $18,045. See Exhibit IC-22.

Q: Can you give another example of how the UTC staff prosed rate affects a yacht that utilize Pilotage service?

A: Yes. For example, I will use the Yacht Pioneer and the Yacht Sea Owl from the test year data and use the UTC staff rate design policy as I did in the previous answer. The M/Y Pioneer would expect pilot service fee of $8,725, a 234.46 % increase, and the M/Y Sea Owl a fee of $6,624.30, a fee of 6624, a 199.74 % increase.

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

Q: Does Staff's rate design have any impacts on revenue collection stability?

A: Yes. The Gross Tonnage charge currently produces about 60% of the total revenue and the LOA/Distance charge 27.3%. We felt it was very important to keep these percentages the same or close to the same range in our rate proposal to ensure rate stability. Although important, the PSP rate proposal does not overemphasize service time and produces about 29% of the overall revenue. This revenue generation is consistent with the current rate spread for the LOA/Distance table. In the UTC staff proposal in contrast, service time yields about 57% of the revenue. This overemphasis on service time will produce a less reliable and less stable revenue stream as opposed to the fixed value of Gross Tonnage. Service Time, as noted by Staff is a variable charge under the tariff, and thus is a less predictive in the revenue it will generate. Delays in arrival or departure, in berthing or unberthing due to congestion, tug availability, weather conditions, currents with or against the vessel, wake control will all affect the amount of service time an assignment will incur..

Q: How does Staff's recommendation compare to the current tariff in terms of revenue collection?

A: Under the current tariff, the primary sources of revenue collection are the Gross Tonnage charge and the LOA charge. The current Gross Tonnage charge collected just over $20.3 million in revenue in the test year. Applying Mr. Sevall's rate design to PSP's year 1 revenue requirement, the Gross Tonnage charge would collect just about $11 million, or a decrease of 46.5%. Conversely, the current LOA charge collected about $9.3 million in revenue in the test year. Staff's rate design (applied to PSP's revenue requirement) would instead collect about $27 million via the Service Time charge, a 197% increase over what the LOA charge collects. This results in a material shift of the revenue streams

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

where charges for tonnage under 50,000 gross tons will produce an increase of over $10.3 million and charges for tonnage over 50,000 gross tons will produce a reduction of just over $1 million.

Q: Does this conclude your testimony?

A: Yes, it does.

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