

Company: San Diego Unified Port District
Application: 17-09-005
Witness: Adam Borison
Exhibit No.: SDUPD-_____

**PREPARED REBUTTAL TESTIMONY OF
ADAM BORISON
ON BEHALF OF SAN DIEGO UNIFIED PORT DISTRICT**

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

MAY 23, 2018

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1 **I. INTRODUCTION**

2 My name is Adam Borison. I am an expert in economic/engineering analysis in the power
3 industry. My experience, education and background were set forth in my Prepared Direct
4 Testimony submitted on September 26, 2017. At the time of that submission, I was a Managing
5 Director at Berkeley Research Group, LLC (“BRG”), a corporate advisory and expert testimony
6 firm headquartered in Emeryville, California. As referenced in my Supplemental Testimony
7 submitted on April 4, 2018, I left BRG and joined Nathan Inc., an international economics
8 consulting firm, as a Senior Vice President. My current business address is 2479 East Bayshore
9 Road, Suite 150, Palo Alto, California 94303. I have been retained by the San Diego Unified Port
10 District (“the District”) to offer independent expert opinions with respect to the proposed
11 San Diego Gas & Electric (“SDG&E”) shore power rate. This testimony sets forth my expert
12 opinions.

13 The purpose of this testimony is to rebut positions set forth in the Prepared Direct
14 Testimony submitted by the Office of Ratepayer Advocates (“ORA”) and on behalf of the Utility
15 Consumers’ Action Network (“UCAN”) on April 25, 2018, in this proceeding. My testimony
16 today is one part of the District’s overall rebuttal with the second part presented in the
17 concurrently-filed testimony of Mr. Stephen Shafer. In general, my testimony addresses
18 criticisms of the economic analysis discussed in some detail in my direct testimony and responds
19 to other testimony submitted by ORA and UCAN. Mr. Shafer’s testimony addresses errors in the
20 ORA and UCAN testimony arising from their lack of knowledge about maritime and cruise ship
21 operations and misstatements in their testimony on these topics.

22 The balance of this testimony is organized as follows: **Part II** provides a summary of the
23 opinions offered in this testimony; and **Part III** provides details on my individual opinions.

24 **II. SUMMARY OF OPINIONS**

25 I offer the following opinions:

- 26 (1) The District’s original assessment of the impact of alternative electricity rates is
27 correct; ORA’s is not.

- The District’s understanding of the fundamentals of price elasticity is correct; ORA’s is not.
- The District’s estimate of price elasticity is reasonable; ORA’s is not.
- The District’s analysis of the impact of electricity rates on cruise ship visits and regional benefits is sound; ORA’s is not.

(2) An economic analysis of rates should include the effect of price elasticity; ORA’s and UCAN’s analysis does not.

(3) The circumstances at the Port of San Diego and other ports, including Long Beach, are not directly comparable.

III. REBUTTAL

A. The District’s Original Assessment of the Impact of Alternative Electricity Rates Is Correct; ORA’s Is Incorrect.

1. The District’s Understanding of the Fundamentals of Price Elasticity Is Correct; ORA’s Is Not.

Price elasticity is a basic economic concept referring to the change in **demand for a product or service** that results from the change in the **price of that product or service**. A recent Harvard Business Review article had the following simple formula;¹

$$\text{Price elasticity of demand} = \frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}}$$

The introductory MIT economics course uses the following definition:²

Price elasticity of demand measures the percentage change in quantity demanded resulting from one percentage change in price.

In this context, price is defined in the usual straightforward sense – what is the “marginal cost” of acquiring the product or service in question. Encyclopedia Britannica defines it as “the amount of money that has to be paid to acquire a given product.”³ In layman’s terms, this is the amount that shows up on your debit or credit card, or the amount you take out of your wallet. **The price**

¹ Amy Gallo, *A Refresher on Price Elasticity*, August 21, 2015.

² Chia-Hui Chen, *Principles of Microeconomics*, Fall 2007.

³ <https://www.britannica.com/topic/price-economics> (accessed May 18, 2018).

1 **elasticity is based on a simple straightforward definition of price. It does not include any**
2 **other capital or operating costs of the entity acquiring the product or service.** This is
3 consistent with the studies used to estimate the price elasticity and referenced by the District in
4 prior testimony. The reference in ORA's testimony to "*the overall operating costs of a typical*
5 *cruise ship per trip*" is entirely irrelevant in the price elasticity discussion.⁴

6 The gasoline market provides an effective analogy. If the price of gasoline goes from
7 \$3.00 to \$6.00 and the cost of filling your tank goes from \$60 to \$120, this is a 100% increase in
8 price. Assuming the price elasticity of gasoline is say 0.5, this means that a 100% increase in the
9 price of gasoline reduces demand by 50%. Any calculation of the impact of a price increase on
10 demand would be based on that simple increase. The capital or operating cost of the vehicles
11 using that gasoline is irrelevant in determining the percentage change in price and the resulting
12 demand. This is the same whatever the product or service. The price elasticity of hotel rooms is
13 based on the price of the rooms. The price elasticity of apples is based on the price of apples.
14 The price elasticity of tax preparation services is based on the price of those services. And so
15 forth.

16 The comparison with the price elasticity of cruise ship visits is straightforward. The
17 District charges cruise ships a price for the services associated with a visit. As stated in prior
18 testimony, the average price or bill charged to a cruise ship for the set of services they obtain
19 from the Port of San Diego is \$114,000 with current electricity rates. With new electricity rates,
20 this price significantly goes up. To determine the impact on demand, the price elasticity is
21 applied to this increase. Any impact calculations must be based on the percentage change in the
22 price of cruise ship visit. Including the overall operating cost of a cruise ship is simply wrong.

23 **2. The District's Estimate of Price Elasticity Is Correct; ORA's Is Not.**

24 Per the discussion above, the variable of interest is the elasticity of cruise ship demand to
25 the price of a cruise ship visit. In discussing this elasticity, ORA refers to electricity price
26 elasticity – which they contend can be lower than 1.0. Specifically, ORA states in testimony that
27

28 ⁴ ORA Witness Fong, pp. 2-5.

1 “[b]ased on ORA’s previous analysis of price elasticity with respect electric rates, ORA
2 concludes that this estimate could be made lower.”⁵ However, the variable in question here is not
3 electricity but the District’s price for a cruise ship visit – of which electricity is only a part. The
4 application of electricity price elasticity alone to the market for cruise ship port services is simply
5 wrong.

6 With respect to the price elasticity of a cruise ship visit, the available evidence indicates
7 that these are “highly elastic” – meaning an elasticity over 1.0. Cruise ships are mobile and
8 substitutes for a Port of San Diego visit are available. Based on both the comparable sources
9 presented in the District’s earlier testimony and anecdotal evidence, the District’s estimate of an
10 elasticity of 1.0 is quite conservative. It is more likely to be higher than lower.

11 Interestingly, if we focused just on electricity, the percentage price increase would be
12 much higher and we would have to apply elasticity to a much bigger increase. ORA, while
13 accepting the District’s elasticity estimate of 1.0, refers to an elasticity study which shows
14 elasticities as low as 0.02.⁶ These elasticities are for short-run residential demand, they are not
15 applicable to a long-run commercial/industrial demand. In a 2015 NERA study of long-run
16 commercial/industrial electricity price elasticity, the range was 0.26 to 3.26 with an arithmetic
17 average of 1.34.⁷ If we were using electricity as the variable – and not the total price of a cruise
18 ship visit – we would apply an elasticity of 1.34 to a 300% to 400% increase in price.

19
20 **3. The District’s Analysis of the Impact of Electricity Rates on Cruise
Ship Visits and Regional Benefits Is Sound; ORA’s Is Not.**

21 Using the appropriate understanding and estimate of price elasticity, it is clear that a
22 significant increase in electricity rates is likely to lead to a substantial reduction in cruise ship
23 visits at the Port of San Diego. As noted in earlier testimony, an increase to A6 or AL rate levels
24

25
26 ⁵ ORA Witness Fong, p.2-3, n. 44.

27 ⁶ ORA Response to Data Request 16. ORA’s narrative responses to the District’s Data Request is
attached as Exhibit 1 to Mr. Shafer’s testimony. The Response to DR 16 is on pp. 7-8.

28 ⁷ Agustin Ros, *An Econometric Assessment of Electricity Demand in the United States Using Panel
Data and the Impact of Retail Competition on Prices*, NERA Economic Consulting, June 9, 2015.

1 as recommended by UCAN and ORA would essentially eliminate demand and reduce annual
2 regional economic benefits by \$130 million.

3 **B. Economic Analysis of Rates Should Include the Effect of Price Elasticity;
4 ORA's and UCAN's Analysis Does Not.**

5 Both ORA and UCAN refer to and describe various kinds of economic analysis, including
6 contribution to margin (CTM), of electricity rates.⁸ However, this analysis all appears to assume
7 that rates do not affect demand; that is, the impacts of different rates are compared with the same
8 number of cruise ship visits. Per the discussion above, this assumption is simply wrong.

9 Electricity rates significantly affect the price of a cruise ship visit. This price, in turn,
10 significantly affects the number of visits and the economic impact on the Port, the San Diego
11 region and SDG&E's other customers. For example, the District's analysis shows that the
12 imposition of the A6 or AL rates suggested by ORA and UCAN will essentially eliminate
13 demand. With no demand, there is no regional economic benefit nor any revenue contribution.
14 To reiterate, any economic analysis of rates must consider the effect of price elasticity on cruise
15 ship demand.

16 **C. The Circumstances at the Port of San Diego and Other Ports, including Long
17 Beach Are Not Directly Comparable.**

18 Both UCAN and ORA draw comparisons between Port of San Diego and other ports, with
19 specific mention of the Port of Long Beach. For example, ORA states "*the size of the average*
20 *discounts at the Port of Long Beach is about 13%, substantially less than the 80% discount*
21 *proposed by SDG&E*"⁹ and UCAN states "*no other port has been awarded a discount anywhere*
22 *near as great as the discounts being considered in this application*" and then references the
23 discount provided to the Port of Long Beach.¹⁰

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25
26 ⁸ See, e.g., ORA Witness Danforth, pp.1-6 to 1-10; UCAN Witness Charles, pp. 12-13. The District
27 defers to SDG&E witnesses Cahill and Fang for rebuttal testimony explaining why a CTM analysis is
28 inappropriate in this situation.

⁹ ORA Protest, p. 7.

¹⁰ UCAN Witness Charles Testimony, p. 22.

1 The District believes that comparisons to the Port of Long Beach are extremely
2 misleading.

- 3 (1) The Port of San Diego has a single meter dedicated to shore power and the
4 discount is applied only to that specific use which currently has a peak demand of
5 about 11MW. The Port of Long Beach has a special rate for a range of “maritime
6 entities.” These entities had a demand estimated at 50MW in 2010 and projected
7 to grow to 250 MW by 2030.
- 8 (2) The Port of Long Beach Maritime Entity rate is offered to all customers involved
9 in “container, stevedoring, and shipping activities”. If the savings proposed for the
10 District’s cruise ship operations were allocated among all “container, stevedoring,
11 and shipping activities” at the Port of San Diego, it would be a fraction of the
12 proposed discount.
- 13 (3) Otherwise Applicable Tariffs for Long Beach are low sub-transmission (66kV)
14 rates; therefore, the discounts are based on much lower rates than those at the
15 District. The District’s discount referred to by UCAN is based on a far-higher A6
16 and AL rates.
- 17 (4) ORA and UCAN assume the SDG&E proposal will save cruise ships
18 approximately \$10 million over 5 years. In contrast, the Port of Long Beach
19 Maritime Entities rate is estimated to save \$350 million over 24 years.
- 20 (5) In preparation for the Maritime Entities rate, SCE installed four 66 to 12 kilovolt
21 substations and replaced most of the existing distribution system. This allowed the
22 Port of Long Beach to receive service at the much less expensive sub-transmission
23 rate and to consolidate multiple electrical services throughout the facility.¹¹ To
24 facilitate further savings at the port, SCE plans to “...install millions of dollars of
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28 ¹¹ <https://newsroom.edison.com/stories/helping-transform-long-beach-port-into-first-automated-shipping-terminal-in-u-s>.

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new electrical lines with voltage increased to 66 kilovolts and new substations as needed to serve the growing load at no cost to the Port and its tenants.”¹²

In the press release announcing the Maritime Entities rate (attached as **Exhibit 1** hereto), the Port of Long Beach touts its environmental goals, the importance of maritime operations and the savings to maritime users as the reasons for the rate. In order to treat all ports similarly, the CPUC’s review of the EMP should also consider all those factors and give them a similar level of priority as was given in the case of Long Beach

Finally, in this context, I disagree with UCAN witness Charles’ testimony asserting that the proposed rate would provide the District with a competitive advantage over other ports, including Long Beach.¹³ While the Port of Long Beach settlement is very complex and we do not have access to all the details, it is clear that it provides very favorable rates over decades to a wide range of loads including shore power. The District agrees that California ports’ electricity costs should not be a matter of advantage or disadvantage. If the District’s rates were raised to the level suggested by ORA or UCAN, this would put the District at a very significant **disadvantage**. If approved, the shore power mitigation would only maintain a comparatively level playing field with respect to shore power rates. Notably, Mr. Charles seems to have distanced himself from his prior testimony now admitting that there is no cost advantage given to the District.¹⁴

This concludes my testimony at this time.

* * *

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¹² <http://www.polb.com/news/displaynews.asp?NewsID=1280&TargetID=42> .
¹³ UCAN Witness Charles, pp. 20-23.
¹⁴ See UCAN Responses to the District’s Data Requests attached to District witness Shafer testimony as Exhibit 2, Response to 7, pp. 1-2. In these responses, Mr. Charles makes clear that his testimony presented a hypothetical advantage that was not supported by any analysis or study

Exhibit 1
Prepared Rebuttal Testimony
of
Adam Borison

Port of Long Beach News Release:
“New Power Rates Will Save Terminals Millions”
(April 1, 2014)



News Details

New Power Rates Will Save Terminals Millions



April 1, 2014

When it comes to running a marine terminal, the competition is fierce, the margins are slim and the overhead is not for the faint of heart.

Any opportunity to cut costs is welcome. That includes a new long-term agreement between the Port of Long Beach and Southern California Edison (SCE), expected to save maritime electricity users within the Port's jurisdiction more than \$350 million over the next 24 years.

The annual savings could add up to hundreds of thousands of dollars for a single container terminal. That kind of savings is what helps the Port, its business partners and the entire supply chain maintain a competitive edge to retain and attract business, said SSA Marine Vice President Paul Gagnon. "It's a substantial amount of money because the bills are substantial. It's going to help terminals keep costs down in an area where we have minimal control. We appreciate that."

Approved March 13 by the California Public Utilities Commission (CPUC), the agreement offers relief of an estimated 15 percent on electricity bills for container, stevedoring and shipping entities within Long Beach's 3,200-acre harbor district. CPUC approval paves the way for SCE to publish its new tariff – the new rate structure that will provide the savings. The new rates are expected to take effect in April.

Under the same agreement, SCE will install millions of dollars of new electrical lines with voltage increased to 66 kilovolts and new substations as needed to serve the growing load at no cost to the Port and its tenants. "That infrastructure is equally critical to the nation's second busiest seaport, which supports nearly 30,000 jobs in Long Beach and 1.4 million jobs across the country," said Acting Executive Director Al Moro.

Like all residents and businesses in the City of Long Beach, all electricity users in the Port of Long Beach get their power from SCE. As a group, electricity users within the Port represent SCE's No. 2 largest customer, second only to the County of Los Angeles.

Electricity has always been needed to power lighting, cool refrigerated containers and meet other daily operational needs. As efforts to cut pollution from port-related operations have intensified, the demand for green energy in the form of electricity has soared. And while bigger-ticket items such as lease payments, labor and equipment tend to dwarf utility costs, the growing demand driven by pioneering pollution reduction measures means the electric bill will only get bigger.

Dramatic clean air gains – propelled by lease requirements, voluntary initiatives and regulation – rely heavily on electricity now powering much of the heavy-duty terminal equipment, such as ship-to-shore cranes. Effective Jan. 1, California shore power requirements added to that demand, which will continue to grow as the percentage of container, refrigerated and cruise ships that must plug into electricity at berth increases between now and 2020.

The projections are daunting. Electricity consumption within the Port district is expected to skyrocket 500 percent from 50 megawatts in 2010 to 250 megawatts in 2030, according to technical analyses done for the Port.

Protecting the environment and maintaining the Port's competitive edge means ensuring the supply and cost of power are also sustainable, said Board of Harbor Commissioners Vice President Rich Dines. A champion of alternative energy solutions, Dines has pushed for near-term and long-term policies that increase energy efficiency, conservation, resiliency and security at the Port and for all its stakeholders.

Dines, who sees the need for energy management from both his seat as Chair of the Commission's Energy Subcommittee and from the ground as a marine clerk with the International Longshore and Warehouse Union, credited the teamwork of city staff from the Harbor Department, the Mayor's Office and the City Attorney's Office for the agreement. In particular, Long Beach Mayor Bob Foster, a former SCE executive, played a pivotal leadership role in securing the agreement, Dines said.

"The kind of cooperation that produced this agreement paves the way for greater collaboration as we move toward zero emissions and energy independence for both business and the environment to thrive into the future," Dines said.

CPUC approval of the rate reduction took nearly 18 months. It came on the heels of previous successes by the Harbor Department and the City Attorney's Office that eliminated per vessel call charges, saving the industry \$85 million per year, and had port operations legally classified as essential facilities exempt from SCE power interruptions.

Total Terminals International (TTI), which operates a 380-acre container terminal at Pier T, is among those tenants eager to see the details of the lower rates. "Being a large terminal operator, we draw a lot of electricity. We have 14 cranes, and many times all are working," said TTI Senior Vice President and CCO Frank Capo. "You throw in cold ironing and any relief is welcome."

The electricity bill for plugging in a single 8,000- to 11,000-TEU (20-foot equivalent container unit) vessel can average \$7,000 to \$10,000, Capo said. The costs will increase as TTI continues to modernize with new high-tech equipment, including rail-mounted gantry cranes for moving containers to and from stacks and trucks and rail cars, he said.

In today's world with the wider Panama Canal poised to open in 2015 and East Coast ports vying for more trade, the competition is everywhere, said Gagnon of SSA Marine, which operates three marine terminals in the Port of Long Beach.

"When we negotiate contracts, all the costs of doing business – utilities included – come into play," Gagnon said. "If our costs are less, we have a good chance of offering the customer a more competitive bid and capturing the account."