

McCULLOUGH RESEARCH

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PRINCIPAL

Date: September 23, 2026

To: McCullough Research Clients

From: Robert McCullough
Michael Weisdorf

Subject: City of Portland's CEI Hub Policy Project

Attached is a report prepared by McCullough Research. As friends to the city, we offer these findings in hopes that we might assist Council in its deliberations on the CEI Hub Policy Project amendments. We aim to outline some important priorities for the city, provide an overview of the fuels industry on the west coast, and if possible, to clear up some confusion with respect to the theory and practice of economic models.

McCullough Research has been active in energy and environmental issues for the past thirty-five years. Our credentials are extensive and Robert McCullough's *curriculum vitae* can be found at our [website](#).

Since 2007 we have researched issues primarily related to the deeply concentrated west coast petroleum markets including presentations at Congressional hearings, State commissions, and testimony in the *Persian Gulf Inc. v. BP West Coast Products LLC et al* anti-trust case in the Southern District of California. We are currently retained in the *Herold v. Chevron Corp.* anti-trust case in the Northern District of California as well. We have also worked for the Federal Trade Commission on petrochemical collusion issues and the U.S. Department of Justice in the prosecution of Enron trading executives.

A Modest Proposal: Portland's CEI Hub Policy Project

I. Fuels Policy Priorities

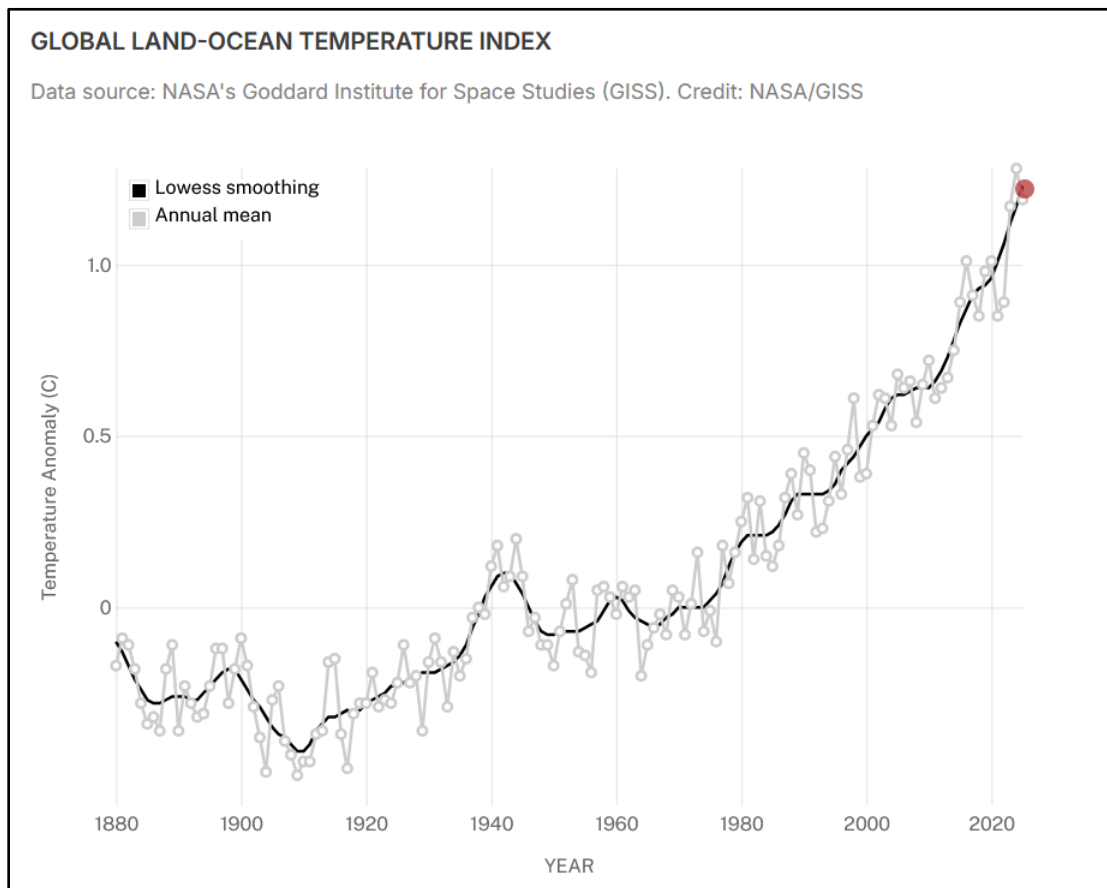
Portland's bulk fuel storage and handling facilities impact us all in a variety of ways. In order of diminishing importance, we consider the following list:

1. Climate
2. Safety
3. Air Quality
4. Oil Exports

A magician uses misdirection to astonish and entertain. A good lobbyist uses the same tools for far more serious reasons. In this case, we would remind Council that there is a hierarchy of concerns that should inform Portland's policy process. As understandably fascinating as an apparently growing renewable fuels industry may be, the grave risks posed by urban wildfires, floods, droughts, or a Cascadia subduction zone earthquake must take priority here.

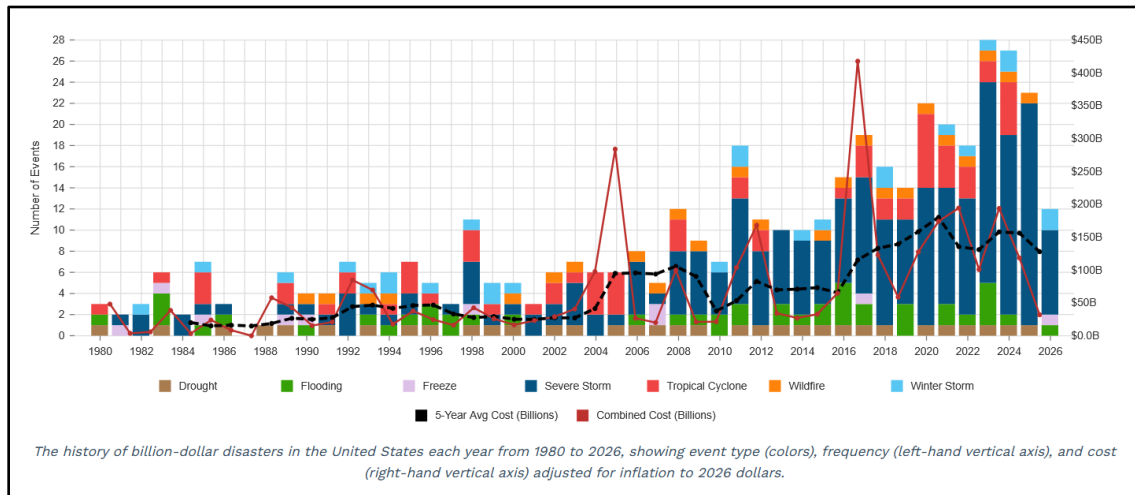
1. Climate Impacts

One of President Trump's earliest objectives was to discourage research into the causes and consequences of global warming.



¹ Global Temperature – Earth Indicator. NASA.
<https://science.nasa.gov/earth/explore/earth-indicators/global-temperature/>

The following chart shows the history of billion-dollar disasters in the United States since 1980. The data compiled by Dr. Adam B. Smith, who led this research program at NOAA for 15 years and is now Senior Climate Impacts Scientist at Climate Central, makes clear the growing costs of climate impacts, one billion-dollar disaster after another.



2. Fire Safety: It can't happen here

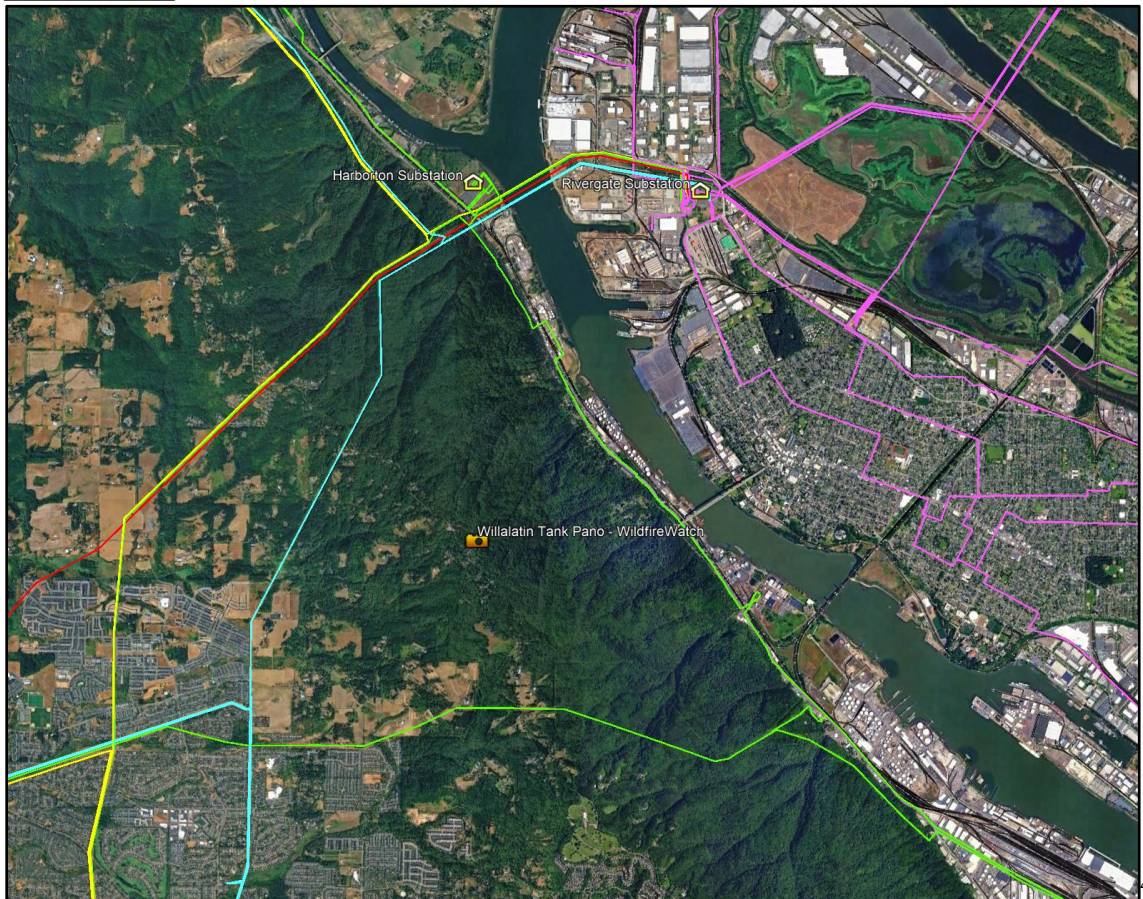
In a recent opportunity to discuss Portland's risk of urban wildfires with U.S Senator Jeff Merkley the question of risk came up. Urban wildfires have traditionally been described as Black Swans – a term from statistics identifying extremely consequential events with near-zero frequency of occurrence. Black Swans almost by definition come as a surprise, but are rarely surprising in hindsight. At McCullough Research, it was remarked, we now call them Black Ostriches. The Senator paused, thinking through the odd comment and then burst out laughing. "Very good," he replied, "we do have our head in the sand."

We are nearing the close of the most catastrophic wildfire season in Oregon history with over 2.5 million acres already burned.³ With 28 active fires still burning, we can expect to add to that figure.

Worse still, two of the twenty largest cities on the west coast have suffered severe urban wildfires in just the past two years. Portland shares many of the same vulnerabilities as Spokane and Los Angeles, not least of which is that the city's largest Wildfire Hazard Zone sits adjacent to the Critical Energy Infrastructure Hub.

² [U.S. Billion-Dollar Weather and Climate Disasters](#). Adam B. Smith.

³ [Oregon Fires Dashboard](#). Fire Stats.



The CEI Hub is a six-mile strip of fuel transport and handling installations that runs from PGE's Harborton Substation down to the BNSF intermodal facility, housing storage tanks, pipelines, barge offloading and loading facilities, and rail access for crude oil unit trains. It sits mainly on river bank and fill, at seismic risk of both landslide and soil liquefaction. Next door is Forest Park, one of the largest forested city parks in the United States and Portland's largest Wildfire Hazard Zone, effectively concatenating urban wildfire risk from high voltage transmission lines, oil train derailments, barge accidents, pipeline leaks, and petrochemical storage, not to mention the ever-looming subduction zone event which threatens all of these simultaneously.

The primary lesson from the catastrophic urban wildfire in Spokane, Washington was that the initial spread of the Old Trails wildfire was five miles to the northwest in one day. The distance from the Willbridge Terminals to Portland International Airport is roughly five miles (the distance to City Hall is slightly less than that).

⁴ What Causes Urban Wildfires? Applying L.A.'s Lesson to Portland. Reed College Lecture, April 14, 2026.

As Yoda remarked when Luke Skywalker said he was not afraid, “*You will be.*”



3. Air Quality

However, Portland need not be consumed in the flames for our bulk fuels throughput to have significant impacts on public health. As a transportation center, we have one heavy truck for every six Portlanders, ten railyards, marine traffic and a major airport. This summer, air quality in Portland was the worst in the world on one day – August 4, 2026 – and a close runner up on several days in September. Gasoline & diesel emissions remain a substantial source of air toxic particulates even when wildfire is not in season, and chronic air quality problems create a burden felt by every Portlander but falling disproportionately on the alveoli of the elderly and infirm.

Transportation by any mode, be it air, road, rail, or sea, is still heavily dependent on fossil fuels. Our record on electric vehicles is good, but not so good that next year’s air quality will be substantially better than today’s. The long-term public health benefits of reducing overall fuel consumption in the urban area accrue to Portlanders first and foremost, in addition to any mitigation of risks with respect to priorities 1 and 2.

⁵ Google Earth Pro. The line of measurement is calculated by the software.

4. Exporting oil from Portland

In the many years we have worked on these issues, the specter of renewable diesel has haunted the discussion. We find that this is a holdover from a decade ago when the U.S. was not the world’s largest producer of oil and gas. In terms of fossil fuel production, we are at present the world’s largest producers of oil, natural gas, “petrol” and diesel.

Rank	Oil	Natural Gas	Gasoline	Diesel
1	United States	United States	United States	United States
2	Saudi Arabia	Russia	China	China
3	Russia	Iran	Russia	Russia
4	Canada	China	India	India
5	China	Canada	South Korea	Saudi Arabia
6	Iran	Qatar	Japan	South Korea
7	Iraq	Australia	Saudi Arabia	Japan
8	United Arab Emirates	Norway	Canada	Germany
9	Brazil	Saudi Arabia	Germany	Singapore
10	Kuwait	Algeria	Brazil	Netherlands / Italy / Brazil

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No matter how many celebrations we may see of a burgeoning trade in renewable diesel, the fact remains that the majority of renewable diesel would be more accurately called “diesel with renewable characteristics” as it is frequently comprised of 90% or more petroleum fraction blended with renewable feedstocks, such as tallow. Precisely how renewable any given gallon of renewable diesel might be is a matter of much accounting and litigation, but in any case, the “renewable” fraction of renewable diesel is better understood as a blending component, and not as a direct substitute for conventional fuel.

Renewable diesel can be best understood as a compliance strategy for reducing the calculated carbon intensity of the diesel fuel product line as required by statute, rather than a strategy for reducing the amount of diesel fuel consumed in Oregon. Expansion of this line of industry is thus unlikely to lead to overall reductions in either greenhouse gas emissions or air toxics exposures in the either Portland or the broader region. If expanding exports of diesel, renewable or otherwise, to other countries is your primary aim, we recommend you revisit priority 1.

Whether the products being handled are petroleum-based fuels and fuel precursors or renewable fuel products and feedstocks, the energy contained in those fuels is what provides their economic benefits on the one hand, and poses their risk of conflagration on the other. Both petroleum and renewable fuels should be subject to the same regulations when being handled in bulk at CEI Hub terminals.

Our priorities must be to first address climate impacts, then safety, and finally emissions and air quality. Veering from the priority issues to add to exports of petroleum products is simply a detour.

⁶ Perplexity ranking production of energy types.

II. An overview of the industry

We often hear that the west coast is a petrochemical island. While the rest of the continental U.S. is bound together by pipeline networks, our region has no single pipeline system spanning California, Oregon, and Washington. Refineries in northern Washington and northern and southern California transport fuel products by local pipelines, rail, truck, and barge. The west coast (PADD 5 to the Energy Information Administration and the Petroleum Administration for Defense) both exports and imports fuels, but not by pipeline to the rest of the country east of the Rockies.

The west coast market is unique in another way. Fuel prices are set daily at 2:15 P.M. by a division of Dow Jones called the Oil Price Information Service (OPIS). Their daily periodical, the OPIS West Coast Spot Market Report, has an unusually central role in setting fuel prices from Bellingham, Washington to San Diego, California.

A small number of traders buy and sell ULS No. 2, CARB No. 2, Sub-oct Reg, Sub-oct Pre, CARBOB-R, CARBOB-P, JET, JET-WTG, AVG B5, AZRBOB-R, AZRBOB-P, CARB RFG-R, and CARB RFG-P throughout the day. We are usually most concerned with diesel (ULS No, 2), jet fuel (JET), and California reformulated blendstock (CARBOB) which is blended with 10% ethanol to create finished gasoline.

The traders can submit their trades to OPIS for inclusion in the price setting process which is summarized on the last page of the newsletter:

U.S. West Coast Price Discovery Methodology

Editors confirm and record deals done for gasoline and distillate products with a minimum pipeline size of 10,000 bbl in California and 5,000 bbl in the Pacific Northwest. As the majority of the market is done on an EFP basis, we follow deals as basis discounts or premiums to the New York Mercantile Exchange. We consider fixed-price deals only if they fall within the full-day differential range based off the NYMEX at settlement. Fixed price deals in California spot markets are converted to an EFP when reported and confirmed and then reapplied to the NYMEX settlement price.

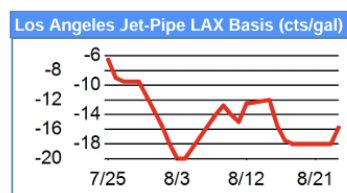
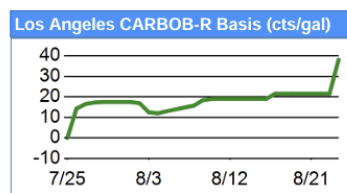
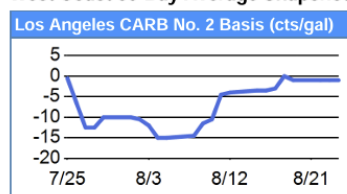
OPIS does publish "prompt" ranges, which are trades that reflect "any month / buyers option" transactions. "Buyers option" gives the buyer the choice of taking delivery in any of the four cycles in throughout the month. In Los Angeles, OPIS identifies the prompt Kinder Morgan cycle for timing clarity but ranges are buyer option/any month lifting.

OPIS works with the Kinder Morgan Pipeline to determine the timing of the various cycles throughout the month. Typically, each month has four pumping cycles. In cases where it is close to the end of the months trading cycle, OPIS reserves the right to roll coverage forward to the more liquid month.

For the Los Angeles market, OPIS follows the Kinder Morgan West Line, and in the Bay area the OPIS assessment is for the Kinder Morgan Zero Line. In the Pacific Northwest, prices are FOB Portland - Olympic Pipeline and jet fuel is FOB Seattle barge. For complete methodology, visit <http://www.opisnet.com/about/methodology.aspx>⁷

Here is a sample of the results, from the first page of the OPIS West Coast Spot Market Report from August 24, 2022:

West Coast 30-Day Average Snapshot



CASH TRADE CENTERS ON LOS ANGELES CARBOB

8/24/2022 - Crude futures ended higher Wednesday after a back-and-forth session, helped by signs that the U.S. will not make additional concessions to Iran to restore Tehran's nuclear pact with the West, which would significantly increase global supply.

Iran's foreign ministry said on Wednesday that Tehran has received the U.S. response to a European Union-drafted final offer to save a 2015 nuclear pact between Iran and the West, according to news reports. However, Iran did not indicate how close it is in reaching a new deal, the reports said.

Refined product futures were mixed, with NYMEX RBOB futures tumbling after the latest U.S. Energy Information Administration (EIA) data showed that implied gasoline demand had fallen to its lowest weekly reading in more than two decades. The report, for the week ending Aug. 19, was released Wednesday morning.

October NYMEX West Texas Intermediate crude rose \$1.15/bbl, to \$94.89/bbl, on CME Globex, after it finished more than \$3/bbl higher Tuesday. The second-month November WTI also gained about \$1.15/bbl, to \$94.40/bbl.

London-based October Brent crude, the global oil benchmark outside of the U.S., rose \$1/bbl, to \$101.22/bbl, on ICE Futures Europe. November Brent was up around \$1.17/bbl, to \$100.34/bbl.

The most active NYMEX October RBOB settled down 9.93cts/gal at \$2.6470/gal on CME Globex, and the front-month September RBOB fell 13.23cts/gal, to \$2.8007/gal.

The most active NYMEX October ultra-low-sulfur diesel finished 16.04cts/gal higher at \$3.9649/gal, and September ULSD rose 17.13cts/gal, to \$4.0132/gal.

EIA on Wednesday estimated implied U.S. gasoline demand in the week ending Aug. 19 at just 8.434 million b/d, the lowest weekly reading for the month in 23 years.

Analysts attributed ULSD's strength to high natural gas prices, particularly in

(Continued on Page 3)

New York Mercantile Exchange at Settlement

WTI Crude Oil (\$/bbl)		
Month	Price	Change
OCT	94.89	1.15
NOV	94.40	1.15
DEC	93.65	1.12

RBOB Unleaded (cts/gal)		
Month	Price	Change
SEP	280.07	-13.23
OCT	264.70	-9.93
NOV	259.66	-7.16

ULSD (cts/gal)		
Month	Price	Change
SEP	401.32	17.13
OCT	396.49	16.04
NOV	389.97	15.14

L.A. 3-2-1 Crack Spread*		
Price (\$/bbl)	Change	
36.32	-1.39	

*Crack is based on midpoints for L.A. CARBOB Gasoline, CARB and ANS

Snapshot of OPIS Mean West Coast Prompt Month Spot Pipeline Prices and Basis Differentials (cts/gal)

Product	Los Angeles				Bay Area				Pacific Northwest			
	Physical Prices		Basis Diff.		Physical Prices		Basis Diff.		Physical Prices		Basis Diff.	
	Mean	Change	Mean	Change	Mean	Change	Mean	Change	Mean	Change	Mean	Change
ULS No. 2	396.490	16.040	0.000	0.000	406.240	16.050	9.750	3.750	414.320	17.130	13.000	0.000
CARB No. 2	395.490	16.040	-1.000	0.000	406.240	16.050	9.750	3.750	---	---	---	---
Sub-oct Reg	301.700	-12.100	37.000	16.500	304.200	-12.430	39.500	-2.500	308.570	-13.230	28.500	0.000
Sub-oct Pre	346.700	-19.600	82.000	9.000	320.200	-12.430	55.500	-2.500	338.570	-33.730	58.500	-20.500
CARBOB-R**	302.700	-12.100	38.000	16.500	304.700	-12.430	40.000	-2.500	308.570	-13.230	28.500	0.000
CARBOB-P**	342.700	-19.600	78.000	9.000	320.700	-12.430	56.000	-2.500	338.570	-33.730	58.500	-20.500
JET **	380.740	14.550	-15.750	2.250	380.740	14.550	-15.750	2.250	396.240	14.550	-0.250	2.250
JET-WTG AVG	380.655	14.465	-15.835	2.165	---	---	---	---	---	---	---	---
B5	---	---	---	---	---	---	---	---	411.320	17.130	10.000	0.000
AZRBOB-R	324.200	-12.100	59.500	16.500	---	---	---	---	---	---	---	---
AZRBOB-P	357.700	-12.100	93.000	16.500	---	---	---	---	---	---	---	---
CARB RFG-R	302.680	-11.790	---	---	304.480	-12.090	---	---	---	---	---	---
CARB RFG-P	338.680	-18.540	---	---	318.880	-12.090	---	---	---	---	---	---

Full price display on page 2. Note: **L.A. Jet Fuel is JET-PipeLAX, Bay Area Jet Fuel is JET-Pipe, PNW CARBOB-R is Suboctane-Reg (FOB Seattle), PNW CARBOB-P is Sub-octane-Pre (FOB Seattle).

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⁷ [OPIS West Coast Spot Market Report](#), August 24, 2022, page 7.

⁸ *Ibid.*, page 1.

The line highlighted in red will determine prices the next day throughout California’s rack and retail markets, with details depending on the ownership and contracts of the various distributors involved.

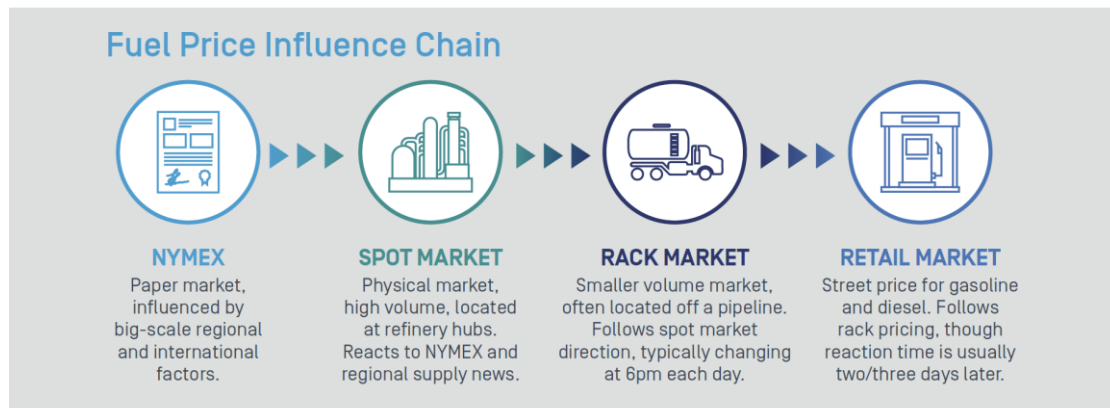
OPIS has an unusually powerful influence on consumer prices. While it has competitors, the OPIS West Coast Spot Market Report is clearly preeminent in west coast markets.

Manipulation of OPIS pricing is a constant concern. Since market participants can pick and choose their submissions to OPIS, they can influence prices across the region.

There is no clearly assigned market surveillance of the oil and gasoline markets. The California Attorney General’s office launched a successful investigation of “wash trading” in 2015 which resulted in significant settlements.⁹ Robert McCullough’s testimony at the U.S. Senate Committee on Commerce, Science, and Transportation resulted in his invitation to work for the U.S. Federal Trade Commission on similar issues, but no actions resulted from the review.¹⁰

Here is how this all fits together. OPIS teaches courses and provides training materials for traders, middlemen, retailers, and bulk buyers. One of them is a primer named “Fuel Buying 101: Your resource for navigating the gasoline & diesel fuel price influence chain.”¹¹

The basic framework is displayed on page 3:



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OPIS prices are frequently used as a reference to price gasoline sold to retailers. This is the part of the industry the average consumer sees. A “lessee dealer” here denotes a gas

⁹ [Drivers, Claim Your Money: Attorney General Bonta Reminds Californians of Gas Antitrust Settlement](#)

¹⁰ [Ensuring Transparency in Petroleum Markets](#). US Senate Commerce Committee, 2022.

¹¹ [Fuel Buying 101: Futures and Spot Markets - OPIS, A Dow Jones Company](#)

¹² *Ibid.*, page 3.

station owned by one of the industry majors but leased out to an “independent” dealer. An example might be Shell or Chevron. OPIS describes the relationship as follows:

A lessee dealer does not actually own the real estate or the equipment. They lease or rent the space and absorb the costs of operating the station.

Usually – but not always – the lessee dealer gets into the brand relationship via a branded distributor, what is known in the business as a branded jobber. Essentially, the lessee dealer leases the real estate and, through the jobber, pays a fee back to use the brand name. They are usually locked into long-term contracts with the branded jobber and, by default, with the major oil company.¹³

Prices in this industry are often described as “going up like a rocket and coming down like a feather.” When Iranian forces fire on supertankers in the Strait of Hormuz, the supply and demand in global oil markets shift accordingly, and forward prices increase. The benchmark components of the OPIS prices in the daily report reflect this and the price charged to the wholesale customers changes immediately. Over time, sales reduce as consumers change stations, take the bus, or walk to work. As the majors see this, they can grant gradual reductions in price to their branded distributors. This is the phase where prices float gently downward.

Since the west coast is an island, competition is quite muted. Government regulators and academics use a statistic called the Herfindahl-Hirschman Index or HHI to measure the degree of competition. In California, which acts as the west coast price leader, the HHI has now risen to 2,824 – a value typically classified as highly concentrated.¹⁴ The U.S. Department of Justice guidelines identify any HHI value over 1,800 as highly concentrated.¹⁵

Compared to other commodity markets, the west coast oil majors are collegial and will even cooperate to help their competitors when operating issues occur. All of this contributes to a desire on their part to keep the details of their operations secret. The irony is that the firms who have the most to gain by sharing information frequently also cite anti-trust concerns to block collection of needed market and safety data.

This battle has gone on in California for the past twenty years. In the last few years safety and market data has gradually become more transparent. Robert McCullough worked with Governor Newsom’s staff to pass SB1322, signed into law on September 16, 2022. This law, also known as the California Oil Refinery Cost Disclosure Act, specifies a variety of information to be submitted to the California Energy Commission on an

¹³ *Ibid.*, page 21.

¹⁴ HHI calculated using gross output of California utilities refining gasoline from EIA data.

¹⁵ [Antitrust Division | Herfindahl-Hirschman Index](#)

ongoing, monthly basis. Concerns about data submissions in the first half of 2025 have led to the filing of the anti-trust case *Herold v. Chevron Corp.* in federal court. A second amended complaint was filed just last week.¹⁶

In sum, regulating the bulk fuels system without the necessary data is an impossibility. Detailed operating data on deliveries, outgoing cargos, and inventories in the tanks along the Willamette is needed to address our shared environmental and safety concerns.

In 1776, the other Adam Smith, the architect of our capitalist system published the *Wealth of Nations*. The most quoted passage in this pivotal book makes reference to the “invisible hand”:

. . . [the individual] is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it. **I have never known much good done by those who affected to trade for the public good. It is an affectation, indeed, not very common among merchants, and very few words need be employed in dissuading them from it.**¹⁷

The canny Scot closed this paragraph with a warning to disregard the merchants’ claims of trading for the sake of the public good. This is sound advice. The City of Portland needs access to the underlying data both in order to craft good rules and to enforce them.

III. Forecasting by assumptions

All of the public’s priorities would be well served by the collection and timely reporting to the city of reliable data on bulk fuel storage and handling at Portland’s terminals. Currently available data is insufficient to assess bulk fuel operations and associated risks.

Every expert and research group to examine the bulk fuels system in Portland has concluded that there is insufficient data to adequately understand and model these activities. An [Appendix](#) to this report provides the litany of citations to this effect, including many from the city’s own expert and staff reports. Effective regulation to establish safety and manage risk is not possible without collecting this data.

No number of expert reports and studied opinions will substitute for actual data on the activities taking place every day at the CEI Hub facilities. Data collection is a prerequisite to adequately understand and model Portland’s bulk fuels system, which by all accounts

¹⁶ [Herold et al. v Chevron Corp et al.](#)

¹⁷ *Wealth of Nations*, Adam Smith, 1776, Book IV, Chapter 2. Emphasis added.

is also the vast majority of Oregon’s bulk fuels system. The City has both the authority and the duty to require bulk fuel terminals to disclose data on fuel handling activity on a regular and timely basis.

If monthly data is required to be reported periodically then a timely report electronically providing that data to the city each and every month is appropriate. The regular collection and reporting of this monthly data will also aid bulk fuel terminal operators in preparing their more detailed inventory reports as required under Title 17.112.070 (Inventory and Reporting Requirements), and city staff in preparing their analysis and review of those reports. The public has a compelling interest in knowing throughput rates and volumes of fuels being handled at these CEI facilities on a timely basis.

i) Assuming a can-opener¹⁸

The fuel demand model developed by Parametrix for BPS represents an admirable effort to spin straw assumptions into gold conclusions. Unfortunately, given the by now well-established unavailability of necessary data on bulk fuel handling at the CEI terminals, the model principally demonstrates the logic of its own assumptions. The September 9, 2026 update makes this clear on its first page:

The lack of quality, publicly reported data on fuel flows and capacity utilization at the bulk fuel terminals in the CEI Hub presents a challenge to understanding the potential impacts from these regulations.¹⁹

And so forth on its second page:

Additional challenges for the analysis represented in the Modeling Analysis Memo 2025 included:

- Little visibility into real fuel exports flowing through the CEI hub to demand outside of Oregon.
- No hard data on current delivery and flow logistics (pipeline flows, trans-loading capacities, etc.), which necessitated assumptions to fill gaps in knowledge.²⁰

¹⁸A physicist, an engineer, and an economist are stranded on a desert island with only a single can of food. The physicist proposes starting a fire and heating the can until the internal pressure blows it apart. The engineer recommends finding a rock and beating the can open. The economist simply remarks, “first assume a can opener.”

¹⁹ Parametrix Memorandum: City of Portland Critical Energy Infrastructure Hub Analysis, Updated Fuel Forecast Findings. September 9, 2026. Page 1.

²⁰ *Ibid.*, Page 2.

The fundamental problem, which cannot be solved by improving forecasts of population growth, nor by either the inclusion or exclusion of the NW Natural LNG tank, nor by adopting the Port of Portland's preferred forecast of linear growth in demand for jet fuel, is that ***there is not enough available data to understand or model bulk fuel handling activities at the CEI Hub.***

Thus, the model's results turn primarily on its own assumptions. For example, the assumption that the average CEI Hub tank turns over its average volume of unspecified product once per month. That may well be true, but it means little since the actual CEI Hub tanks will have quite different numbers of annual tank turns from one another, depending on their functions and contents.

In contrast to the once-a-month assumption employed by the fuel demand model, consider that the 2017 Oregon Fuel Action Plan developed by the Oregon Department of Energy states on page 10:

Portland Petroleum Distribution Terminals – The seven terminals located in the Fuel Hub in Portland are on a six-day refueling cycle. At any given time, the Fuel Hub has only a one-week supply of refined gasoline and diesel reserves on hand.²¹

So, which is it? Do the CEI Hub terminals contain a week's worth of fuel, as ODOE found in 2017? Or do they contain a month's worth of fuel, as the fuel demand model employed by BPS and its consultants seem to assume in their more recent memoranda?

The only way to actually know what we are talking about is to require regular, timely reporting of actual data to the city, to the state, and ultimately to the public. Economists are famous for assuming a can-opener as needed but the more pressing problem is that these cans are not labeled, making it nigh impossible to know what is inside.

McCullough Research has two back-up generators – one in Portland and one at the coast in Arch Cape. The software that comes with the Generac unit includes an application called Mobile Link. The software can see whether the generator is ready, running, exercising, or reporting a fault. It is possible to add a feature that will also report the volume of propane available for use and even feed this data to the propane supplier.

Not surprisingly, petrochemical tanks are equipped with laser or radar depth estimation devices that give real time updates over networked equipment to local staff and bounces the data to Bellingham, L.A., or Houston. This is data necessary for safety and for the most efficient logistic planning.

Regulation of tank capacity will likewise require data for enforcement. In the absence of such data the regulations simply become suggested options.

²¹ [Oregon Fuel Action Plan](#). Oregon Department of Energy. October 2017.

President Reagan once quoted the Russian phrase “Доверяй, но проверяй” in negotiations concerning nuclear disarmament.²² The same maxim applies to regulatory policy at the CEI Hub.

ii) Fuel distribution vs. oil export

Another critical distinction which the model does not fully articulate is the distinction between bulk fuels handling related to distribution of finished products to consumers in Oregon and neighboring areas and bulk fuels handling related to export of crude oil and other intermediate products to refineries not serving Oregon customers. While both kinds of activity share certain common features, such as the use of tanks, pumps, railcars and barges, the two categories do not necessarily share similar profiles with respect to the benefits they provide to Oregonians nor the risks they pose to Portlanders.

Distribution of gasoline and diesel to consumers throughout the state is the primary activity for which the CEI Hub is enfranchised and the principal justification for the tolerating the considerable risks it poses to the city. Export of crude oil to petroleum refineries outside of Oregon also poses tremendous risks to Portland, although the benefits to the city provided by this relatively novel development at the CEI Hub are less obvious. There is a clear need to distinguish these two categories in the modeled demand for “tank capacity” at the CEI Hub in order to accurately forecast the impact of any proposed tank capacity reductions on fuel availability in Oregon.

The Parametrix updated fuel forecast memorandum states that crude oil exports are expected to cease in 2027.²³ We all may certainly hope that proves true, but the fact is that crude oil exports from Portland were never expected to begin in the first place. This entire line of business has been out of step with the stated priorities of the city since its inception. The current owner of the main export terminal has repeatedly deceived the city and the public as to its intentions with respect to this line of business, and while the future owner certainly has an opportunity to “do better” than the past one, it would be prudent to “trust, but verify” with respect to bulk fuels handling for export at the CEI Hub going forward. The city also has an opportunity to “do better” than it has in the past when it comes to monitoring the types of fuel handling activity taking place at CEI Hub terminals.

²² Trust, but verify.

²³ Parametrix Memorandum: City of Portland Critical Energy Infrastructure Hub Analysis, Updated Fuel Forecast Findings. September 9, 2026. Page 3.

IV. Conclusion

Over the past forty years, meetings have summoned us to Longview, Olympia, Tacoma, and Seattle hundreds of times. As a utility executive, it was possible leave Flightcraft in the utility's plane. On occasion, a helicopter ride would fly directly to downtown helipads. Most flights were commercial, however. The number of meetings has continued to climb, but forecasts of flights based on meetings give the wrong answer. Forecasts based on population would do no better.

Today, it has been years since one would consider such slow, expensive, and uncomfortable options. Zoom, of course, allows meetings to commence in minutes without a trip to the airport, security, or expensive tickets.

Even without Zoom, electric vehicles have reduced the marginal cost of a trip to Seattle. The marginal cost of driving a Tesla to Seattle is approximately \$10. The trip is actually faster since there is no security screening and you drive directly to the destination. Depending on your taste for risk, the Tesla self-driving feature will allow you to read, work, or confer during the trip.²⁴

Modeling fuel use without considering technological change is futile. Modeling with no data and without considering technological change is worse than futile.

Over the long horizon, the city has no choice but to do the unthinkable and relocate the facilities which comprise Oregon's bulk fuels system away from their present and unsustainable location.

Can you imagine planning a project of that scope with no available data? The choice before the City is only whether to begin this long process ourselves in a deliberate fashion, or to wait for the dreaded Black Ostrich to arrive on its own timeline.

²⁴ Don't try this at home.

Appendix. Citations to Unavailable Data

Exhibit A. CEI Hub Title 17 Reduction Regulations
City of Portland, Bureau of Planning & Sustainability
August 17, 2026
Page 32:

Challenges in data availability require the model to make key assumptions regarding the operations at the bulk fuel terminals. ... Given the available data, EConorthwest finds that a potential outcome is that the proposed regulations will not impact the price of fuel. ... There are other factors that impact fuel prices and there remains uncertainty, especially due to the lack of available data, about what, if any, impact the regulations may have on fuel prices.

Memo 1: Parametrix Model Review and Policy Implications
EConorthwest
July 20, 2026
Page 1:

Challenges in data availability and limitations regarding the operations at the bulk fuel terminal required Parametrix to make assumptions around key model components. **Uncertainty in these assumptions limit the use of the model to evaluate potential economic consequences of the proposed regulations.**

Technical Memorandum—Appendix C
Parametrix
November 10, 2025
Page 2:

Several key metrics needed to assess total facility throughput capacity were not available, so estimates for throughput capacity were generated through inference from average storage volumes, tank storage capacity, fuel demand, and benchmark operational metrics.

CEI Hub Policy Project
September 23, 2026
Page 18

Summary of Pilot Project State Technical Assistance on Multi-Sector Analysis for Electric and Petroleum Fuels: A Pilot Project for Oregon
Pacific Northwest National Laboratory, for US Department of Energy
August 2025
Page iii:

However, fuel supply chains are challenging to analyze because of the fractured and limited availability of data on a state scale. Specific challenges include the following:

- Data is commonly proprietary, protected, and not available without subscription services.
- Data is partial or limited by a given service provider or fuel type.
- Data is not granular by location or by time.
- Data represents static or annualized conditions, which does not support an analysis of flows or relationships between system supply chains.

Page 1:

The data the team needed to complete the full study was not accessible. This prevented the team from conducting the full analysis that was originally planned.

Page 6:

The limited availability of publicly accessible data and prohibitive costs constrained access to the required data identified.

CEI Hub Seismic Risk Analysis
Multnomah County, Office of Sustainability
February 2022
Page 18 (Chapter 1 page 12):

1-3.3 Quantities of Materials at CEI Hub

There are 630 tanks of varying sizes throughout the CEI Hub holding a combined active storage tank capacity of at least 350.6 million gallons. There is varying information available about the 630 tanks, as follows:

- 558 tanks have available location data from either OSFM data, COP data, or City of Portland permitting information. Of these tanks:
 - 143 are listed as “Out of Service” and thus not evaluated in the analysis.
 - 18 are listed as “Empty”.

- 4 tanks have unknown contents. These tanks are located at Chevron (1 tank), and Shore Terminals (3 tanks). These tanks are evaluated in the analysis as “Unknown” material types.
- 393 tanks are in service and have known contents information. Of these tanks:
 - 365 tanks have tank capacity information, measured in gallons.
 - 28 tanks are missing capacity information. These tanks are located at BP (2 tanks), Shore Terminals (1 tank) and Zenith Energy (25 tanks).
- 72 tanks were identified via aerial photographs but are not identified in the OSFM or COP datasets; these tanks are all in Area 4 (Zenith Energy) and are all relatively small tanks. These tanks are missing specific location details, tank age, tank contents, and tank capacity information. Because of the missing information these tanks were excluded from the analysis. Due to the location of the property, it is likely that any releases from these tanks would be onto the ground.

*Summary of Available Data and Report of Expected Earthquake Risk
Salus Resilience, for Multnomah County Office of Sustainability
February 2, 2022
Page 9-10:*

During the initial data gathering process, it became clear that the data available from the OSFM would likely not include all data necessary to construct a complete inventory of tanks and supporting infrastructure at the CEI Hub. A critical part of this evaluation was to include an inventory of the tanks and supporting infrastructure at the CEI Hub, which would later be used to evaluate the impacts of a CSZ earthquake on the CEI Hub.

*Liquid Storage Tanks at the Critical Energy Infrastructure (CEI) Hub
Seismic Assessment of Tank Inventory
Peter Dusicka, PhD, PE
PSU Department of Civil and Environmental Engineering
May 2019
Page 19:*

The current tank data set is incomplete and basic information that was inferred needs to be obtained, including missing tank diameters, tank roof types and physical locations. Additional structural data currently not available needs to be gathered.