LAO
55 Years of Service

Sales Taxation Of Bunker Fuel

January 25, 2001 LEGISLATIVE ANALYST'S OFFICE

Executive Summary

Background

Bunker fuel refers to fuel that is used to propel ships. Like most tangible products sold in the state, bunker fuel is subject to the state's sales and use tax (SUT). Prior to July 1991, the state provided a partial SUT exemption of bunker fuel sales—that is, it did not tax fuel consumed after the first out-of-state destination of the ship. From July 15, 1991 through December 31, 1992, the state fully taxed all bunker fuel sales in the state, but then reinstated the partial exemption beginning January 1, 1993. The partial exemption is now scheduled to sunset by 2003.

LAO Findings

The Bunker Fuel Industry Has Experienced a Decline in California. The bunker fuel industry in California underwent a sharp decline in the early 1990s, based on the amount of bunker fuel delivered. It is likely that local economies and employment also suffered as a result of this decline in activity. In addition, the bunker fuel industry in the state does not appear to have recovered from the declines that it experienced earlier in the decade.

The Decline in the Bunker Fuel Industry Stemmed from the Economic Recession, Coupled With Several Secondary Factors. The decline in the industry is likely to have stemmed largely from the economic recession which occurred nationwide and was particularly steep in California, leading to an associated decline in the demand for bunker fuel. Industry performance was also affected by the following secondary factors:

- Declines in the refining capacity in the Los Angeles vicinity.
- Revocation of the SUT bunker fuel exemption during 1991 and 1992.
- Technological features of shipping and the fuel capacity of ships.
- Development of alternative bunker fuel facilities elsewhere in the world.

Some of the Decline in the Industry Was Likely Due to the Revocation of the SUT Exemption. Although precise estimates are not possible, the available evidence and economic theory suggests that removal of the bunker fuel exemption in 1991 probably resulted in some reduction in bunker fuel industry activity. It is likely that the revocation of the SUT exemption resulted in a reduction in industry employment on the order of 100 to 200 jobs annually, and increased state-local SUT revenues in the range of $20 million to $30 million.

Revoking the SUT Exemption Now Would Likely Have a Larger Impact Than It Did in the Early 1990s. Due to technological and economic changes in the industry, revok-

ing the exemption at the current time would likely result in a somewhat greater employment response and generate less revenue than it did in the past. Ongoing improvements in ship fuel capacity as well as the development of new bunkering facilities would tend to increase the impact that small differences in bunker fuel prices can have on port activities.

A Partial SUT Exemption for Bunker Fuel Constitutes Appropriate Tax Policy. On tax-policy grounds, a strong argument can be made for the current partial exemption. Generally, items purchased in California that are subject to the SUT are presumed to be used in the state, while sales for export are usually exempt from the SUT. Bunker fuel purchases fall somewhere in between, since bunker fuel purchases are used both outside of and within state boundaries, suggesting that a partial SUT bunker fuel exemption constitutes appropriate treatment.

LAO Recommendations

Based on our findings, we recommend that the Legislature remove the existing sunset for the current partial SUT exemption for bunker fuel sales, and make the exemption permanent. This would result in the SUT being levied in the future *only* on the portion of the fuel purchased in California which is consumed between California and the first out-of-state destination (as is currently the case). This action would result in treating bunker fuel sales similarly to other export sales and place California ports on par with other U.S. out-of-state ports.

We also recommend that the Legislature review the appropriateness of current SUT treatment of fuel sales to common carriers other than vessels, including air and rail common carriers. California fuel purchases by most other such carriers (except international airlines) are fully taxed, and thus, treated differently than vessels. The Legislature should consider developing a more uniform and consistent SUT treatment for them.

Introduction

Chapter 615, Statutes of 1997 (AB 366, Havice) requires the Legislative Analyst's Office (LAO) to prepare a report regarding the taxation of bunker fuel. Specifically, the LAO is required to examine the current SUT exemption for bunker fuel provided for under Section 6385 of the California Revenue and Taxation Code, and report to the Legislature regarding its effect on sales of bunker fuel and other petroleum products to water common carriers. The report is to include a comparison of bunker fuel sales for the period beginning on and after January 1, 1993 (during which time the exemption *has been* in effect), with those of the period beginning on July 15, 1991 and ending December 31, 1992 (during which time the exemption *was not* in effect).

The report presents our major findings and recommendations. We first present pertinent background information regarding the bunker fuel industry, followed by a review of the past and present SUT treatment of bunker fuel sales. We then examine the evidence regarding the effect of SUT treatment on bunker fuel sales.

Background on the Bunker Fuel Industry

What Is Bunker Fuel?

The term "bunker fuel" refers to fuel that is used to propel ships. Bunker fuel is made from the very end products of the oil refining process, formulated from residues remaining from the primary distilling stages of the refining process. The residues are processed to generate additional products, including material used as a component of marine or bunker fuel. The residues by themselves are too heavy for fuel purposes, and lighter oils are blended with them to make bunker fuel. In some parts of the world, the residues also are used for the manufacturing of asphalt, and in some cases, to produce petroleum coke used in blast furnaces for steel production.

Industry Participants and Their Roles

The bunker fuel industry involves the following diverse collection of different types of businesses and activities.

Shipping Companies. Shipping companies are the final consumers of bunker fuel. The ships involved in the industry can be either of American registry or under the registry of a foreign country, with shipping companies typically splitting their fleets' registry between two or more nations. Generally, ships can either be considered "liners" (container ships with a fixed schedule), or "tramp" steamers (bulk carriers with no fixed schedule). Two of the most prominent shipping companies operating in California are American President Lines, Inc (APL) and Maersk Sealand. To obtain fuel, shipping companies usually contract with bunker brokers, who obtain bids from various fuel

suppliers. These suppliers, in turn, lock in supplies from refiners in order to make bunker fuel deliveries.

Refiners and Suppliers. Bunker fuel produced in California is largely based on Alaskan crude oil refined in the San Francisco Bay Area. San Francisco is the only West Coast port that has significant amounts of domestically produced bunker fuel available on a consistent basis, although there is some limited capacity in the Los Angeles region. Other West Coast ports typically rely either on foreign- or Alaskan-produced bunker fuel which is shipped in, or bunker fuel produced in the San Francisco Bay Area. Although refinery capacity and bunker production once existed on a large scale in the Los Angeles area, much of this capacity was lost due to more stringent environmental controls as well as the closure of marginal refineries with high production costs.

Traders, Brokers, and Agents. As with other highly competitive industries, obtaining timely and accurate information regarding the price, geographic availability, and quality of bunker fuel is deemed essential by industry participants. Bunker fuel sales are arranged through one of several different types of traders and brokers. While these businesses may act simply as brokers to facilitate the sale and purchase of bunker fuel, many firms also engage in related financial services in order to assist purchasers in managing risk and exposure to changing fuel prices. For example, they may offer credit, spot purchasing, fuel contract design services, price risk management, forward purchase contracts (such as options), and arbitrage arrangements. Once a fuel purchase is confirmed, independent agents are typically hired by the shipping company to negotiate and coordinate the delivery of the fuel.

Bunker brokers and traders make it possible for bunker fuel purchasers to commit to fuel purchases well in advance of the actual loading of the fuel. Typically, purchasers will commit to buy fuel in the range of 10 days to 14 days before loading, except in cases of unusual market volatility, which would tend to encourage forward purchases. Since the typical sailing time across the Pacific Ocean is between two and three weeks, purchase commitments are sometimes made en route, giving purchasers extensive flexibility regarding port locations and suppliers.

Tug and Barge Companies. Tug and barge companies facilitate the delivery of bunker fuel from the pier to the ship. The bunker fuel may either be already blended with necessary fuel additives or may be blended by the barge operators during the transportation and loading of the bunker fuel. Tug boats are involved in bringing the barges from the terminal area, taking the barges alongside the ships where the bunkers are discharged, and then bringing them back to the berthing facilities at the port terminal.

Bunker Testing and Surveying. There are numerous companies that participate in the bunkering industry by assessing the quality of the product being delivered. Marine surveyors, for example, check for the quantity and the quality of the fuel being delivered to make sure it meets or exceeds certain standards. Bunker testing is a more elabo-

rate process that involves frequent sampling to determine the presence of metals or other impurities (such as water or silicates) which can be destructive to marine equipment. Bunker equipment suppliers provide technical equipment not only to facilitate the loading of the fuel, but also to test the quality of the product.

Port Facilities and Services. Major port facilities are located up and down the West Coast, with major concentrations in the Seattle, Portland, San Francisco, and Los Angeles areas. The San Francisco Bay Area ports include those at Alameda, Avon, Benicia, Crockett, Martinez, Oakland, Richmond, and San Francisco. Los Angles area ports include those at Long Beach, Los Angeles, Port Hueneme, San Pedro, and Wilmington. In the Seattle area, ports are located in Anacortes, Everett, Port Angeles, Seattle, and Tacoma. Since the enactment of the North American Free Trade Agreement, additional activity has occurred with respect to ports in Mexico, including an expansion and upgrading of the port at Ensenada.

Most ports receive wharfage fees from fuel stored at terminals located on port facilities. They also may receive docking or anchorage fees from ships fueling at the ports. In addition, ports hire directly or contract with organizations that employ ship pilots, who are responsible for commanding ships within an established port zone.

Other Bunkering-Related Services. Other services are provided in conjunction with the delivering of bunker fuel. The process of fuel delivery is closely regulated in California to prevent environmental damage occurring from oil and fuel spills. Several companies operate oil spill services in the state and provide equipment that ships are required to maintain on board for dealing with spills. Other companies are involved in "deslopping" and "desludging" (cleaning and maintaining) fuel tanks on board ships and barges. Such firms also play a role in disposing of the waste stemming from these operations. Finally, a variety of businesses are involved in providing food, medical care, equipment, and supplies for the ships involved and their crews.

Overall Economic Significance of the Industry

A precise count of the individual jobs and businesses associated with California's bunker fuel industry is not available. For virtually all of the businesses that participate in the industry, bunker-fuel-related activity constitutes only a fraction of their activities. For example, inspectors, tug and barge operators, and fuel dealers are involved in many other markets in addition to the bunker fuel market. Overall, however, it appears as though some two dozen different types of businesses are involved in the industry, with something in the range of 1,000 to 2,000 California jobs being directly linked to the bunker fuel industry.

Prior to evaluating the effects of the SUT exemption for bunker fuel, we next discuss California's SUT generally and, more specifically, its application to bunker fuel and other fuels.

California's SUT-Related Provisions

General Features of the SUT

The SUT is generally levied in California on the gross receipts of personal property sold or transferred to individuals and businesses which are held to be the final consumer. The SUT actually consists of two different taxes having identical rates. The two components are: (1) the *sales* tax, which is levied on the total purchase price of tangible personal property sold *within* the state, and (2) the *use* tax, which is applied to the storage or use of goods in California purchased outside of the state. The SUT's rate (effective January 1, 2001) averages 7.67 percent statewide, comprising a uniform state-level rate of 5.75 percent and an average countywide rate of 1.92 percent.

The SUT-Related Tax Expenditure Programs. Existing law provides for approximately 75 SUT-related exemptions and exclusions. The rationales for different individual tax expenditures vary, but typically are designed to subsidize consumers of certain commodities, assist in the marketing of certain goods, or provide incentives for certain types of economic behavior. Other rationales involve avoiding certain administrative costs and complexities associated with collecting the tax. Examples of SUT-related exemptions and exclusions include food, medicines, occasional sales, and purchases of certain capital goods by manufacturers.

Underlying Rationale for the SUT. The traditional public finance rationale for the SUT is that the provision of public services by governments facilitate, either directly or indirectly, the conduct of economic activity, including the buying and selling of goods. Thus, this rationale holds, levying a tax on the exchange of goods is an appropriate manner in which to fund governmental costs. An important element of this rationale is the presumption that final goods purchased by Californians will also be used in California, and California's existing SUT provisions generally reflect this philosophy. For example:

- Final purchases by California individuals and businesses for in-state use are taxed unless specifically exempted. Even in instances where the SUT is not collected or paid—for example, on mail-order and Internet sales—this technically is due to the failure of taxpayers to remit the tax, not the state's failure to impose the tax.

- Conversely, exemptions are often allowed under the SUT when it is presumed that a good's "first substantial use" will occur out of state. For example, an exemption is granted for the sale of new or manufactured trucks for out-of-state use, and for the sale of fuel to airlines for international flights.[1]

[1]Administrative complexities can often prevent a strict adherence to this rule. For example, fuel purchased by California motorists is fully subject to the SUT, regardless

As discussed later, this basic SUT principle of consumption within California is an especially important consideration when determining an appropriate SUT policy regarding bunker fuel sales. A second important consideration involves comparing how bunker fuel and other fuels are taxed under the SUT, which we discuss next.

Past and Current Sales and Use Taxation of Bunker Fuel

A Partial Exemption Existed Before 1991. Prior to July 1991, water, air, and rail "common carriers" operating in California all benefitted from special treatment under the SUT.[2] Namely, the sale of bunker fuel and petroleum products to these common carriers for immediate out-of-state shipment was partially exempt from the SUT. Under this special treatment, only fuel purchased in the state by common carriers and consumed *between* California and the first out-of-state destination was subject to the SUT. In contrast, the purchase of fuel in California consumed after the first out-of-state destination was exempt from the SUT under the program.

The Exemption Disappeared in 1991. During the early 1990s, California's economy fell into a prolonged deep recession, resulting in multibillion dollar state budget shortfalls. To address these fiscal problems, a wide variety of expenditure cutbacks and tax increases were adopted by the Legislature. These included Chapter 85, Statutes of 1991 (AB 2181, Vasconcellos), and Chapter 88, Statutes of 1991 (SB 179, Deddeh), which repealed the partial SUT exemption on the purchase of fuel by all common carriers. This repeal resulted in the entire amount of bunker fuel purchased in California being subject to the SUT, irrespective of where the fuel was to be consumed. This tax treatment remained in effect from July 15, 1991 through December 31, 1992.

The Exemption Returned in 1993. In 1992, the Legislature passed Chapter 905 (AB 2396, Elder), which reinstated the partial SUT exemption for bunker fuel sales to water common carriers that had existed prior to its elimination in 1991. (The legislation did *not* reinstate the exemption for other common carriers.) As before 1991, the sale of bunker fuel for consumption by water common carriers after the first out-of-state destination became exempt from the SUT, and only the portion of the fuel consumed between California and the first out-of-state destination was subject to taxation.

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of where consumption occurs. Thus, travelers going from California to the East Coast are taxed on the full amount of any fuel purchased in Truckee, even though on an eastbound route they would use most of the fuel outside of the state.

[2] Common carriers are companies which operate under governmental authority and are required to serve all people. Examples include commercial airlines, shipping companies, and local telephone companies. Common carriers are distinguished from *charter* carriers, *private* carriers, and *contract* carriers.

The calculation of the taxable portion is based on the standard inventory method of "first-in, first-out" (commonly known as FIFO). For example, if 2,000 tons of bunker fuel were required for a ship to reach its first destination outside of California, and it had 1,000 tons of fuel on board before it reached California, the first 1,000 tons of fuel purchased in California would be subject to the SUT, regardless of the total amount of fuel it bought in the state. Without the specific exemption, the *entire* amount of fuel purchased in California would be subject to the SUT. Chapter 905 also established a sunset date of January 1, 1998, for the bunker fuel exemption.

The Exemption Now Runs Through 2002. Chapter 615, Statutes of 1997 (AB 366, Havice) extended the above sunset date to January 1, 2003, at which time the exemption is scheduled to be removed and the entire amount of bunker fuel sold in California will once more be subject to the SUT. Chapter 615 also requires the LAO to report to the Legislature on the effect of the tax exemption.

The Sales and Use Taxation of Other Fuels

Figure 1 summarizes the SUT treatment of other types of fuels used in commercial transportation, and compares it to bunker fuel. As with bunker fuel, sales of other fuels also are theoretically subject to the SUT in a manner generally similar to the treatment of other types of tangible goods, but important exemptions exist. Specifically:

- ***Air Common Carriers.*** The sale of aircraft fuel to air common carriers on international flights is completely exempt from the SUT, even if the flight includes an intermediate domestic destination. The rationale for this exemption is that it ensures equitable treatment of domestic producers of aircraft fuel (the sale of which would otherwise be subject to the SUT) and foreign producers (which can ship fuel to California under customs bond, and not be taxed on its sale according to federal law). An additional rationale is that a portion of the fuel purchased in California would be consumed outside of the state. However, this latter rationale is not consistently applied. For example, fuel sales to air common carriers on domestic flights are entirely subject to the SUT, even though a portion of the fuel is consumed outside of California.

- ***Other Fuel Sales.*** Other types of fuel sales are treated in a variety of ways.

  — Certain SUT exemptions apply to the sale of motor vehicle fuel sold for use in airplanes. This is based on the rationale that since a portion of the SUT is used for land-based transportation purposes, use of fuel by airplanes should be at least partially exempt from the tax.

  — Prior to 1991, the purchase of fuel by air and rail common carriers for consumption after the first out-of-state destination was exempt from the SUT. As noted previously, however, the SUT exemption reinstated for water common carriers in 1993 did not include air and rail industries. As a consequence, the

entire amount of fuel purchases in California for air and rail transit is subject to the SUT (except as noted above).

— Trucking firms are subject to the SUT on all fuel sales made in the state, although the combined excise tax and SUT—that is, the so-called "wrapped" rate—is allocated among states pursuant to the International Fuel Tax Agreement based on the place of consumption. Overall, an attempt has been made to administer the sales tax on fuel in a manner which is consistent with where the fuel is consumed.

Figure 1

Comparative Treatment of Fuel Sales Under the SUT

Consumer	Tax Base
Water Common Carriers	Amount consumed to first out-of-state destination.
Air Common Carriers (Domestic)	Full amount of fuel purchased.
Air Common Carriers (International)	Untaxed, even if flights include a domestic landing.
Rail Transport	Full amount of fuel purchased.
Truck Transport	Full amount of fuel purchased initially, but allocated based on consumption through international tax agreement.

Effects of the Bunker Fuel Exemption

The economic and fiscal effects of the bunker fuel SUT exemption—including its impacts on jobs and on state and local tax revenues—depend largely on how it affects the amount and location of bunker fuel sales occurring in California. This, in turn, depends primarily on how the exemption affects bunker fuel prices and the response of shipping companies to price changes. These responses are determined by the relative importance of fuel costs to overall operating costs as well as the flexibility that such shippers have in buying fuel at California versus non-California locations. Understanding these factors requires knowledge about the bunker fuel market's characteristics and how it functions.

How the Bunker Fuel Market Works

The Market Is Relatively Competitive

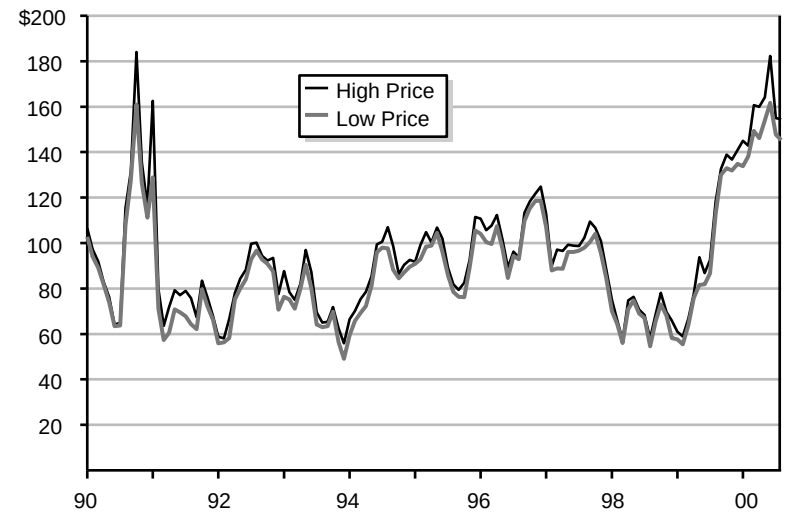
The bunker fuel market is a global market characterized by a standardized product and a generally high degree of price competition among suppliers. As shown in Figure 2, prices at various ports generally fluctuate in a fairly narrow band—although

small differences in prices can occur due to supply issues, costs associated with different ports, and other market factors. While some quality differences do exist among different types of bunker fuels, these differences generally are either minimized through the refining or blending process, or more typically are clearly identified in the contract process and accounted for in the pricing.

Figure 2

Average Monthly Bunker Fuel Prices[a]

Dollars Per Metric Ton



[a]Based on Bunker C grade bunker fuel at Los Angeles area and Seattle area ports.

The market is characterized not only by the fairly significant number of industry competitors that are involved, but also from the competitive uses that exist for the residual fuels from which bunker fuel is derived. For example, the residues from the refining process are used to produce various types of fuel oil, only one version of which is bunker fuel. If other types of fuel oil increase in price relative to bunker fuel, bunker fuel production typically declines until the net returns to bunker fuel refinery activities rise and are thereby brought into equilibrium.

In addition, the oil residues can be further distilled, through a more expensive process known as “cracking,” which converts these residues into gasoline or other higher-end products. Again, if price ratios for the different products shift, refineries can adjust their production of the various petrochemical products accordingly. For example, if heavy fuel oils (such as bunker fuel) compare favorably in price to other products, refineries will of course tend to produce more of these fuels rather than less. Alternatively, given opposite circumstances, refineries will typically crack the residues and “squeeze” more light-end products from the crude oil.

Cost Structure of the Shipping Industry

The shipping industry is highly capital intensive and has substantial fixed costs. (These are costs that are incurred regardless of the exact volume of business undertaken—such as for the ships and related capital equipment.) The industry's major variable or operating costs are labor and fuel.

- *Labor costs* are a relatively small portion of overall operating costs for the industry (approximately 22 percent according to industry sources) and are rather inflexible. This lack of flexibility results from both labor agreements and established international standards regarding the number and qualifications of ship crews. A medium-sized ship for the industry, capable of carrying 2,500 cargo containers, typically carries a crew of between 20 and 30.

- *Fuel costs* are typically a much larger component of operating costs than are labor costs, representing on average approximately 40 percent of the total. Because of their fuel capacity and cruising distance, ships have a high degree of flexibility in choosing when and where to refuel. While the fuel capacity of ships varies substantially, ships of relatively recent vintage have fuel capacities on the order of 15,000 to 20,000 metric tons. For these large vessels, a bunkering stop might result in a purchase of between 3,500 and 4,000 metric tons. Typically, ships will maintain a fuel reserve good for approximately five days of travel.

Because of the substantial contribution that fuel costs make to the overall expense of ship operations, decisions regarding when and where to bunker are made with close attention to relative fuel prices at different ports. For example, based on prices that prevailed in September 2000, the purchase of 4,000 metric tons of bunker fuel would result in a total cost of approximately $600,000. Although bids from various suppliers can often result in differences of as much as a few dollars per ton, often as little as 25 cents to 50 cents / ton can separate losing and winning bids. The shipping industry has traditionally floated on fairly narrow operating margins, and thus relatively small swings in fuel prices can result in large changes in the financial performance of the shipping industry and its individual companies.

Flexibility in Bunker Fueling

To a large extent, decisions to purchase fuel are made weeks prior to the actual loading of the fuel. The delivery date, the price, and the location of the fuel delivery are generally locked in by the shipping company and the supplier well in advance of fuel delivery. However, on occasion, shorter commitments can be made—sometimes as close as two to three days prior to delivery. This flexibility exists due to the large fuel capacity of the ships. Should fuel prices be extremely volatile or vary substantially from port to port, ships can shift their fueling activities among ports and suppliers to the extent their schedules permit. In the short run, this response may be somewhat limited.

However, should price differentials exist for a more extended time period, more substantial shifts in the location of bunker activities could occur.

- ***An Example.*** A good example of fueling flexibility can be seen from a typical California-to-Asia shipping route run by APL. This company operates several Pacific routes which run from the North American West Coast to points in Asia, coupled with a return to the West Coast. As shown in Figure 3, of the eight ports included in a typical itinerary, five ports offer bunker fuel at competitive prices. (These are Seattle, Los Angeles, Singapore, Kaohsiung, and to a lesser extent Port Kelang. In contrast, Yokohama is not currently a cost-effective bunkering alternative, and fuel is generally not available in Hong Kong or Yantian.) The combination of multiple bunkering ports and long cruising ranges give shipping companies considerable flexibility in fueling. Larger loaded ships use on the order of 180 tons to 200 tons per day of bunker fuel. Assuming a ship has a fuel capacity of 15,000 tons, this would allow it to cruise for 70 days without refueling, while maintaining a five-day cushion. The entire route from Seattle to Port Kelang and return takes on the order of 40 days. This suggests that ships have the capability of selecting which ports would make the best bunker sites, paying particular attention to where the lowest fuel prices can be found in making this choice.

Of course, not all ships or routes have this cruising capacity or flexibility between fueling stops. For example, smaller ships generally have fewer bunkering choices due to their shorter range. However, larger ships with more fuel capacity and bunkering flexibility are increasingly becoming the industry standard. Thus, all things considered, considerable bunkering flexibility characterizes the industry.

Figure 3

Sample Itinerary for a Typical Shipping Run

(In Days)

Port	Port Time at	Sail Time to	Westbound Stops	Eastbound Stops	Fuel Availability
Seattle (USA)	3.0	8.0	x	x	x
Los Angeles (USA)	4.0	2.0	x	x	x
Yokohama (Japan)	0.5	8.0	x	—	—
Hong Kong (China)	1.0	3.5	x	x	—
Yantian (China)	1.0	2.5	x	x	—
Singapore	1.5	2.4	x	x	x
Port Kelang (Malaysia)	1.0	0.5	x	x	x
Kaohsiung (Taiwan)	1.5	1.0	—	x	x

California Bunkering Activity During the 1990s

Experience Has Varied by Port

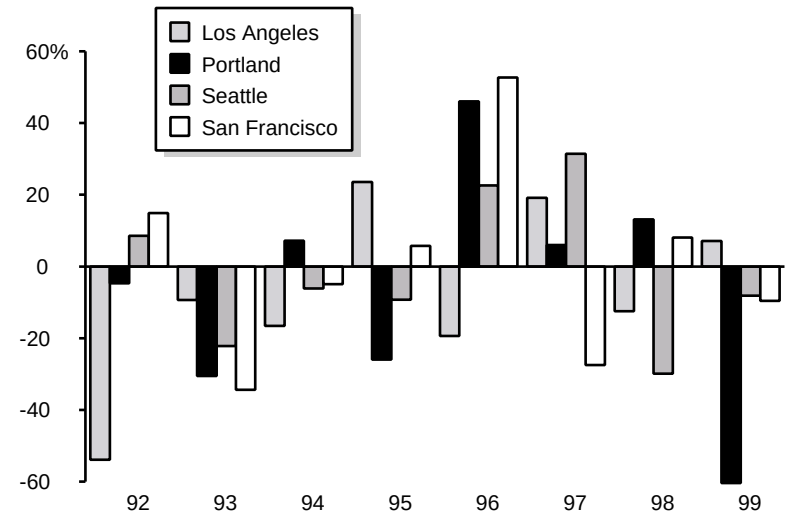
The imposition beginning July 1991 of the SUT on the full amount of bunker fuel purchased in California roughly coincided with a steep drop in bunker sales in certain ports in California. For example, Figure 4 shows that bunker sales in the Los Angeles customs area dropped by over 50 percent in 1992. As the figure also indicates, however, during this period *increases* actually occurred in bunker fuel deliveries in the San Francisco customs area (as well as in Seattle). The Portland area, where California's tax change would if anything be expected to boost sales, also experienced declines in bunker sales—although not as severe as those experienced by Los Angeles customs area ports.

The differing performance of the individual West Coast ports throughout the 1990s shown in Figure 4 indicates that deliveries of bunker fuel can vary tremendously from site to site, and result in large percentage year-to-year shifts in market shares. In 1993, for example, all four ports showed large percentage declines. In contrast, three of these four ports displayed strong growth by 1996, with only Los Angeles continuing to lag (discussed below).

Figure 4

Bunker Fuel Deliveries at West Coast Ports[a]

Annual Percent Change



[a]Based on port custom districts.

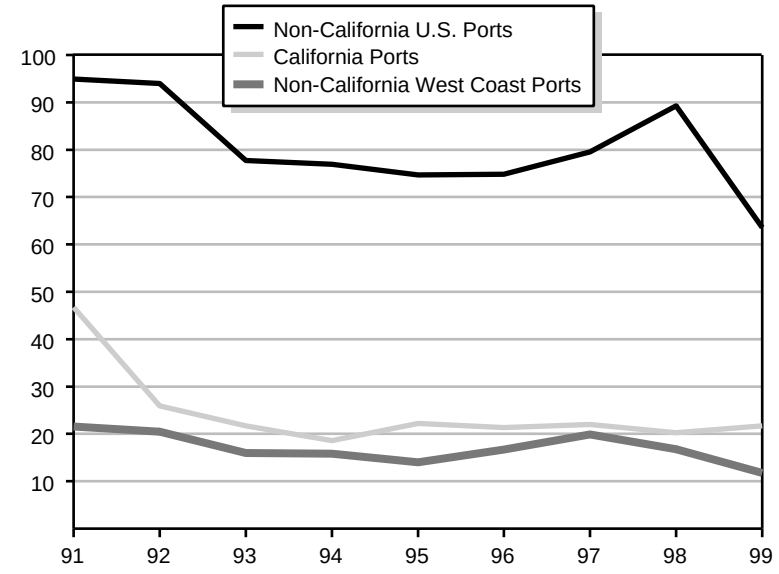
Declines Occurred Due to Weak Economic Conditions

Aggregate data indicate that declines in bunker fuel activity were not limited to California. As shown in Figure 5, the decline in bunker fuel sales beginning in the early 1990s was a nationwide phenomenon, and occurred at virtually all ports in the U.S. Nationally, deliveries dropped from approximately 140 million barrels in 1991 to fewer than 100 million barrels in 1993. West Coast ports in general also showed sharp decreases in bunker fuel deliveries during these years. However, it is apparent from the data that the declines in California were more severe than in other areas—primarily due to the steep decline for Los Angeles area ports. Between 1991 and 1992, California share of west coast bunker fuel deliveries slipped from over 68 percent to 56 percent.

Figure 5

Bunker Fuel Deliveries

Barrels, In Millions



These declines coincided with a general slowdown in overall port shipping activities, as reflected in available data on the value of gross foreign trade (exports plus imports). While the value of trade through both California and U.S. ports continued to increase during the early 1990s, the rate of growth dropped sharply. In California, for example, growth in foreign trade dropped from 18 percent in 1988 to about 6 percent in 1991, while trade growth at all U.S. ports dropped from about 16 percent to 2 percent for this period. California's compound annual rate of growth in foreign trade between 1990 and 1993 was only 7.8 percent compared to 11.9 percent for the 1987 through 1990 period.

This slowdown in trade was largely tied to the national recession in the early 1990s, as well as major weaknesses in a number of different foreign economies—especially certain major U.S. trading partners in Asia and Europe. Indeed, domestic and international recessionary factors are the chief explanation for the early 1990s' decline in shipping activity and resulting fall off in bunker fuel sales in California, the West Coast generally, and other U.S. customs districts.

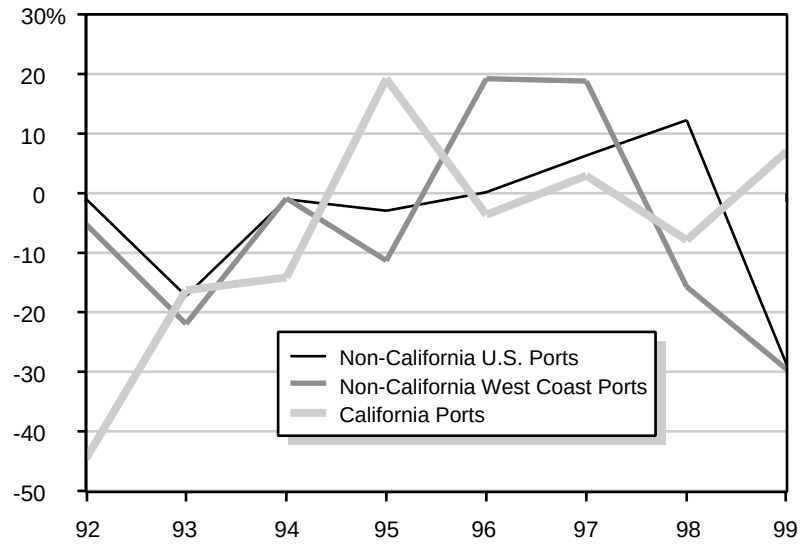
Why Were California's Declines Greater Than Elsewhere?

Although bunker fuel sales declined generally during the 1990s, they fell off more severely in California than elsewhere. In 1992, for example, Figure 6 shows that bunker fuel deliveries dropped by about 1 percent for non-California U.S. ports, approximately 5 percent for non-California West Coast ports, and 45 percent for California ports. Steeper declines for non-California ports followed in 1993.

Figure 6

Bunker Fuel Deliveries

Annual Percent Change



What Explains California's Relatively Worse Experience?

Three primary factors were involved in the decline of bunkering activity in California.

- ***California's Severe Recession.*** The first and most important factor is that California's recession was far more severe and prolonged than the nation's, leading to an overall decline of 1.8 percent in the gross state product in 1991 and additional

declines of 0.5 percent in both 1992 and 1993. By comparison, the change in the U.S. gross domestic product during these three years was -0.5 percent, 3 percent, and 2.7 percent, respectively. In addition to this, the state's recession was the deepest in Southern California, which served as the state's principal place of bunkering-related activity.

- ***Industry Changes.*** Certain changes in the refining industry in Southern California undoubtedly reduced the region's demand for fuels and thus, the ability of Los Angeles ports to be as competitive a bunker fuel supplier as previously. Between 1985 and 1995, many smaller refiners in the Los Angeles area chose to cease operation, instead of retrofitting their facilities in order to meet air quality standards. According to the California Energy Commission, ten refineries closed in California during this period, resulting in a 20 percent decline in production.

- ***Sales Tax Policy.*** Finally, there is the imposition in 1991 of the sales tax on the full amount of California bunker fuel sales. The discussion presented above indicates that this policy change is almost certain to have had some effect on bunker fuel activity given the level of competition in the industry and the technological flexibility possessed by shipping companies. As we discuss below, however, it is likely that the effects are not as important as the larger macroeconomic and regional changes that occurred during the early 1990s.

Effect of Changes in SUT Treatment

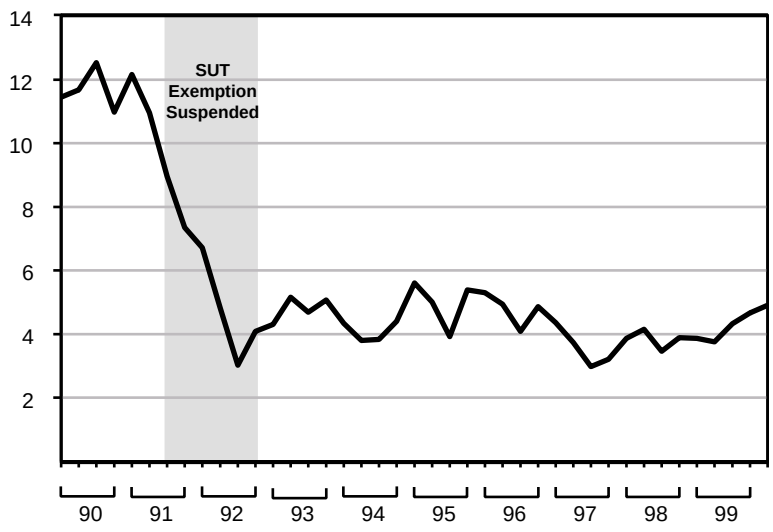
The evidence regarding likely effect of the revocation of the SUT exemption on bunker fuel is somewhat mixed, with some data suggesting a SUT impact and other giving no indication of an effect. Overall, economic, sales, and shipping data suggest that the change in the SUT treatment of bunker fuel sales is most likely to have had a somewhat smaller effect on bunker fuel activities in the state *than certain other factors.* This is suggested by the following:

Declines in Los Angeles Area Bunker Fuel Sales Preceded the Revocation of the SUT Exemption in 1991 and Continued Well After the Exemption Was Reinstated. Figure 7 (see next page) shows the volume of bunker deliveries in San Pedro Bay ports (generally, Los Angeles area ports) from 1990 through the first half of 2000. Although monthly data show that deliveries did, in fact, drop steeply during 1991 and 1992 (when the partial bunker fuel SUT exemption had been suspended), the decline in deliveries actually *preceded* by several months the actual revocation of the SUT exemption. To be exact, deliveries of fuel barrels had already declined from 12.2 million in the fourth quarter of 1990 to 10.9 million by the second quarter of 1991 when the tax change occurred. Monthly deliveries began to steadily decline from approximately four million barrels in January of 1991 to the three million barrel range by July (that is, just prior to the SUT change).

Figure 7

Bunker Deliveries at San Pedro Bay Ports

Barrels in Millions



Bunker Sales in California Continued to Fall—Although Not as Sharply—in 1993 and 1994, After the SUT Exemption Had Already Been Reinstated. As shown earlier in Figure 6, the California recovery in the bunker fuel industry did not occur until economic growth in California and the U.S. resumed following the recession. In California, deliveries continued to decline in 1993 and 1994 and did not resume until 1995.

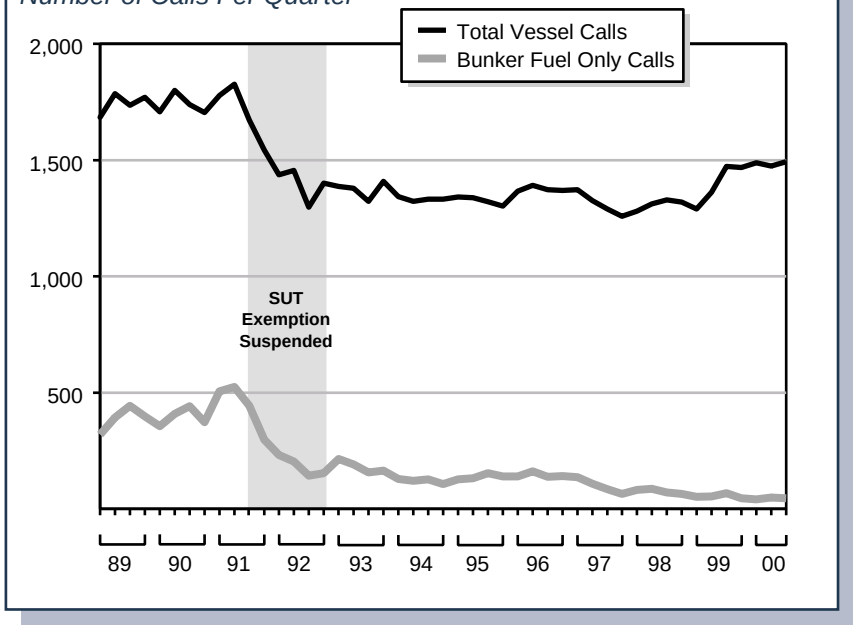
The Slight Recovery in Bunker Fuel Deliveries at San Pedro Bay Ports Did Not Coincide With the Reinstatement of the SUT Exemption. Bunker fuel deliveries did recover somewhat for San Pedro Bay ports during this time, but the timing of this recovery does not appear linked to the reinstatement of the SUT exemption. For example, Figure 7 indicates an uptick in bunker fuel deliveries in the fourth quarter of 1992, but the SUT exemption was not reinstated until first quarter of 1993. Although deliveries continued to increase in the next two quarters, the timing raises perplexing issues about the cause and effect relationship and suggests reasons other than the SUT exemption are probably at work.

The Los Angeles Market Area Has Not Completely Regained the Bunker Activity That it Lost in the Early 1990s, Even Though the SUT Exemption Was Reinstated. Figure 8 clearly shows that there is a continuing reduced level since 1991 of bunkering activity in terms of total vessel calls (including fueling, maintenance, cargo activities, crew leave, and other activities) and bunker fuel-only calls at San Pedro Bay ports. While the decline in total vessel calls is likely to be related to the steadily increasing capacity of ships and the development of alternative ports, the permanent decline in

bunker-only calls is related to both the increase in capacity of ships and structural changes in the industry. Our review indicates that the impairment in the Los Angeles area stemmed more from localized factors related to refinery closures (discussed earlier) and a steeper economic downturn in that area of the state. Finally, it seems that in aggregate, customs districts throughout the U.S. did not reattain their former prerecession level of sales throughout much of the 1990s (see Figure 5). For example, total sales dropped from 141.7 million barrels in 1991 to 85.3 million barrels in 1999. Thus, to the extent California's bunkering industry in aggregate declined between 1991 and 1993, it is likely that this resulted from factors other than simply the removal of the SUT exemption.

Figure 8

Vessel Calls at San Pedro Bay Ports



Despite the Revocation of the SUT Exemption in the Early 1990s, Los Angeles Had Bunker Fuel Prices That Were on Average Below Those of Competitive Ports. Los Angeles vicinity bunker fuel prices were on average *below* those at other ports for both the July 1991 through December 1992 period and the January 1993 through September 2000 period, as shown in Figure 9. While it may have been necessary for California fuel prices to be even lower than this in order for California ports to remain competitive—due to higher costs for their other port-related activities[3]—the ability of Los An-

[3]Environmental regulations, for example, are generally more expensive to comply with in California than in many competing port areas.

geles sellers to maintain lower prices suggests that the exemption should not have contributed much to the decline in sales.

Figure 9

Average Bunker Fuel Prices at Selected Ports

(Per Metric Ton)

Port	July 1991-December 1992	January 1993-September 2000
Los Angeles	$76.77	$93.19
Seattle	79.11	95.57
South Korea	86.86	100.20
Panama	85.79	99.40
San Francisco	N/A	98.65

Employment and Revenue Effects

The decline in the bunker fuel industry in the early 1990s was related to several factors, one of which was the revocation of the partial SUT exemption. Although the major cause of the decline was due to macroeconomic factors related to the recession and localized impacts on the Los Angeles area, it is likely that there was some marginal response to the revocation of the SUT exemption. We believe it is possible that employment losses of 100 to 200 full-time positions occurred due to the application of the SUT to bunker fuel sales. In addition, revenue increases for state and local SUT are likely to have been in the range of $20 million to $30 million. These revenue increases would have been partially offset by declines in other associated fees.

Why Wasn't a Larger Impact Detected?

Given the nature of the industry, economic theory would suggest that there would be a reasonably strong negative response to the revocation of the SUT exemption. To the extent that the effective increase in costs to bunker fuel suppliers is passed on to shipping companies, the competitive nature of the market and the geographic flexibility of shippers would tend to result in a reduction in California bunker sales relative to other fuel sites. While some delay might characterize this response, any change in bunker fuel sales would likely become apparent in the medium to longer term.

The evidence presented suggests that while this may have been so, the data are far from clear. The tax change may not have been in place long enough to generate a detectible response. More importantly, other factors may simply have overwhelmed any response to the SUT change. Unfortunately, the existence of various influences on fuel sales makes it difficult to determine their relative importance using available data. However, the weight of evidence does seem to indicate that the most important factors

for the decline in the industry were influences other than the SUT—specifically, the nature of the recession in the state and other localized factors.

What Should the Legislature Do?

The partial SUT exemption on bunker fuel sales is scheduled to sunset on December 31, 2002. Even though the evidence of the link between the SUT exemption and fuel sales was not particularly strong in the early 1990s, we believe that a reimposition of the SUT on the full amount of bunker fuel sold would generate more of a negative response under current conditions. This is because the flexibility of fuel for ships (which has been a factor all along) has continued to increase, resulting in larger fuel capacities and longer duration between fuelings. In addition, ports around the world have added to their own bunkering capabilities, increasing the level of competition among ports. Thus, we would anticipate a more significant decline in industry activity (and consequently smaller revenue increases) than occurred earlier if the partial SUT exemption were not continued.

While the Legislature clearly must consider the revenue and economic impacts of any changes in the manner in which it taxes bunker fuel, we believe it is equally important for such treatment to be consistent with the conceptual basis of the SUT in general. On tax policy grounds, we believe a strong argument can be made for subjecting such sales only to partial sales and use taxation. As we discussed earlier, items purchased in California that are subject to the SUT are generally presumed to be used in the state, while sales for export are usually exempt from the SUT. Bunker fuel purchases fall somewhere in between, since bunker fuel purchases are used both outside of and within state boundaries. Consequently, a partial SUT bunker fuel exemption—in our view—approximates the treatment given to most other tangible goods and constitutes appropriate tax treatment.

On this tax policy basis, we recommend that the Legislature remove the existing sunset for the current partial SUT exemption for bunker fuel sales, and make the exemption permanent. This would result in the SUT being levied in the future *only* on the portion of the fuel purchased in California which is consumed between California and the first out-of-state destination (as is currently the case). This action would result in treating bunker fuel sales similarly to other export sales and place California ports on par with other U.S. out-of-state ports.

We also recommend that the Legislature review the appropriateness of current SUT treatment of fuel sales to common carriers other than vessels, including air and rail common carriers. California fuel purchases by such other carriers (other than for international flights) are fully taxed, and thus, treated differently than vessels. The Legislature should consider developing a more uniform and consistent SUT treatment for them.

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This report was prepared by Mark A. Ibele and reviewed by Jon David Vasché. The Legislative Analyst's Office (LAO) is a nonpartisan office which provides fiscal and policy information and advice to the Legislature.

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