Date of Hearing: July 14, 2025

ASSEMBLY COMMITTEE ON REVENUE AND TAXATION
Mike Gipson, Chair

SB 419 (Caballero) – As Amended June 23, 2025

SUSPENSE

Majority vote. Tax levy. Fiscal committee.

SENATE VOTE: 36-0

SUBJECT: Hydrogen fuel

SUMMARY: Exempts, under the sales tax law, the state General Fund portion (3.9375%) of the Sales and Use Tax (SUT) tax rate on the sale or purchase of "hydrogen fuel", as defined. Specifically, **this bill**:

1) Provides the partial sales tax exemption from July 1, 2026, until July 1, 2030.

2) Defines all of the following terms:

   a) "Hydrogen fuel" is a fuel composed of molecular hydrogen intended for consumption in a surface motor vehicle or electricity production device with an internal combustion engine or fuel cell that meets any of the following criteria:

      i) The fuel is sold by a hydrogen fuel station;

      ii) The fuel is sold for use in a hydrogen fuel cell electric vehicle; or,

      iii) The fuel is sold for use in a hydrogen internal combustion engine vehicle;

   b) "Hydrogen fuel cell" is an electrochemical energy conversion device in which molecular hydrogen and an oxidant react to generate electricity as intended by the manufacturer;

   c) "Hydrogen fuel cell electric vehicle" is a vehicle that uses a hydrogen fuel cell for a means of propulsion;

   d) "Hydrogen fuel station" is a business selling hydrogen fuel by dispensing the hydrogen fuel directly into a consumer’s vehicle; and,

   e) "Hydrogen internal combustion engine vehicle" is a vehicle that is fueled exclusively by hydrogen by injecting hydrogen fuel into an engine which detonates the gaseous fuel for a means of propulsion.

3) Finds and declares the following for the purposes of satisfying the requirements of Revenue and Taxation Code (R&TC) Section 41:

a) The specific goals, purposes, and objectives of this bill are to provide to create immediate parity in the rate of taxation for zero-emission vehicles until California adopts a new future-facing transportation funding mechanism that contemplates hydrogen as a fuel source for mobility applications.

b) The detailed performance indicators to measure whether the expenditure meets the purposed outlined above are the amount of hydrogen fuel sold at retail in the state each fiscal year and the estimated gross receipts from the sale of hydrogen fuel in the state each fiscal year.

EXISTING LAW:

1) Imposes a sales tax on retailers for the privilege of selling tangible personal property (TPP), absent a specific exemption. The tax is based upon the retailer's gross receipts from TPP sales in California. (R&TC Section 6001 *et seq*.).

2) Imposes a complimentary use tax on the storage, use, or other consumption of TPP purchased out-of-state and brought into California. The use tax is set at the same rate as the state's sales tax and both must generally be remitted to the California Department of Tax and Fee Administration (CDTFA). (R&TC Section 6201 *et seq*.)

3) Exempts all of the following from the sales tax:

   a) Gas, electricity, and water, including steam and geothermal steam, brines, and heat, when delivered to consumers through mains, lines, or pipes;

   b) Liquefied petroleum gas (LPG), delivered to a qualified residence by the seller, that is sold for household use in the qualified residence, or LPG that is purchased for use by a qualified person to be used in producing and harvesting agricultural products, as specified;

   c) Water, when sold to an individual in bulk quantities of 50 gallons or more, for general household use in their residence if the residence is located in an area not serviced by mains, lines, or pipes; and,

   d) Exhaust steam, waste steam, heat, or resultant energy, produced in connection with cogeneration technology, as defined in Public Resources Code (PRC) Section 25134. (R&TC Section 6353.)

4) Imposes, as part of the Use Fuel Tax Law, an excise tax on the use of specified alternative fuels[1] when either of the following occur:

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[1] "Specified alternative fuels" include alcohol fuels, LPG, dimethyl ether (DME), and DME-LPG Blends, liquid natural gas (LNG), compressed natural gas (CNG), and kerosene, stove oil, and other fuels. Hydrogen used in hydrogen fuel cell vehicles, which use electrochemical conversion of hydrogen rather than combustion, is not currently subject to any fuel excise tax. However, the use fuel tax rate of $0.18 per gallon applies when hydrogen is used in a hydrogen internal combustion engine vehicle (HICEV).

a) Specified alternative fuel is placed into any receptacle on a motor vehicle from which fuel is supplied for the propulsion of the vehicle; or,

b) Specified alternative fuel that is brought into this state in any such receptacle is consumed in this state. (R&TC Section 8607.)

5) Requires any bill introduced on or after January 1, 2020, that authorizes a SUT exemption, to contain all of the following:

a) Specific goals, purposes, and objectives that the tax expenditure will achieve;

b) Detailed performance indicators for the Legislature to use when measuring whether the tax expenditure meets the goals, purposes, and objectives stated in the bill; and,

c) Specified data collection requirements to enable the Legislature to determine whether the tax expenditure is meeting, failing to meet, or exceeding those specific goals, purposes, and objectives. (R&TC Section 41(a).)

FISCAL EFFECT: The CDTFA estimates this bill would result in a revenue loss of $3.79 million in fiscal year 2026-27.

COMMENTS:

1) The author has provided the following statement in support of this bill:

> This bill will create greater tax parity between fuel cell electric vehicles and traditional fuel and vehicle types including electricity and alternative fuels with the goal of ensuring all viable options are available to drivers. This bill will encourage the deployment and adoption of more hydrogen powered vehicles across all vehicle classes and drive the development of more hydrogen fuel stations. SB 419 will support California's goal to reduce carbon emissions in the transportations sector and help encourage the production, consumption and proliferation of hydrogen fuel markets across the state.

2) Writing in support of this bill, the California Hydrogen Coalition notes, in part:

> According to the Air Resources Board's most recent Mobile Source Strategy and 2022 Scoping Plan, approximately 20% of light-duty electric vehicles will be hydrogen powered because of the many drivers needing "fast and convenient" refueling. According to the State Transportation Agency in its SB 671 report, more than 2,000 hydrogen fueling stations will be needed to support the medium and heavy-duty vehicle classes in 2035. SB 419 (Caballero) will go a long way to encourage early deployment in this industry critical to achieving California's climate goals.
>
> And unlike gasoline, diesel, alternative fuels and even electricity for battery electric vehicles, hydrogen, specifically zero carbon and renewable hydrogen, is a new entrant to the fuels market. California's first hydrogen production facilities are being built today and work building an adequate distribution network has not even begun. Nevertheless, there are +14,000 fuel cell vehicles on the road today paying more than $30 per kilogram for predominately renewable hydrogen fuel. SB 419 would provide an immediate but short-term boost to early adopters of this technology by reducing fuels costs at the pump.

3) Writing in opposition to this bill unless it is amended, Climate Action California notes, in part:

> Currently, most hydrogen not used in petroleum refining is used for ground transportation. Although we favor most policies that decrease costs of fueling zero-emission vehicles, our position is that incentives are best used to promote only the most efficient power technologies. Electric vehicles (EVs) have an overall efficiency of 77% (well to wheel), while hydrogen fuel cell vehicles (FCVs) have an overall electrical efficiency between 7% and 29%. Hydrogen FCVs have lower lifecycle emissions if they use green hydrogen. We recommend that the minimum standards for green hydrogen match those determined by the US Treasury Department.

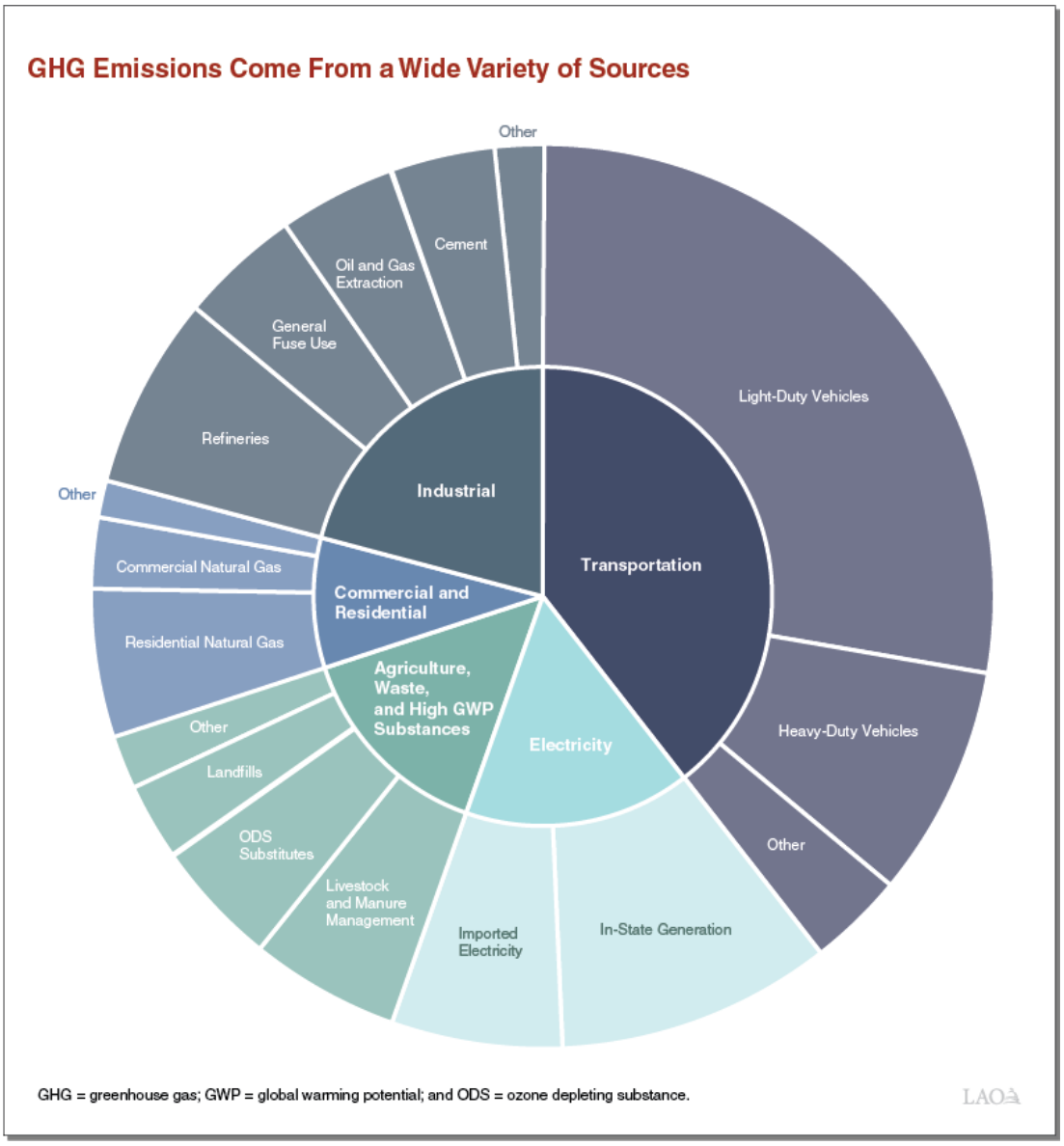
4) Committee Staff Comments:

   a) *What is a "tax expenditure"*? Existing law provides various credits, deductions, exclusions, and exemptions for particular taxpayer groups. In the late 1960s, U.S. Treasury officials began arguing that these features of the tax law should be referred to as "expenditures" since they are generally enacted to accomplish some governmental purpose and there is a determinable cost associated with each (in the form of foregone revenues).

      As the Department of Finance notes in its annual Tax Expenditure Report, there are several key differences between tax expenditures and direct expenditures. First, tax expenditures are typically reviewed less frequently than direct expenditures. Second, there is generally no control over the amount of revenue losses associated with any given tax expenditure. Finally, it should also be noted that, once enacted, it takes a two-thirds vote to rescind an existing tax expenditure absent a sunset date. This effectively results in a "one-way ratchet" whereby tax expenditures can be conferred by majority vote, but cannot be rescinded, irrespective of their efficacy or cost, without a supermajority vote.

   b) *Transportation is largest source of emissions*: Mobile sources of pollution and the fossil fuels that power them are the largest contributors of greenhouse gas emissions (GHG) in California. The majority of emissions of diesel particulate matter as well as smog- and particulate-forming pollutants such as oxides of nitrogen (NOx) come from mobile sources.

      Light-duty vehicles – e.g., cars, vans, SUVs, and pickup trucks with a gross vehicle weight rating (GVWR) less than or equal to 10,000 pounds – are responsible for most of the GHG emissions produced by the transportation sector. Medium-duty vehicles typically weigh between 14,001 and 26,000 pounds and are mostly used for transporting goods or people within the same state. Examples include box trucks, firetrucks, and school buses. Heavy-duty vehicles include any vehicle exceeding 26,000 pounds and includes examples such as city transit buses, mobile cranes, cement mixers, garbage trucks, and tractors designed to pull refrigerated trailers, dry vans, and other equipment.



Source: Legislative Analyst's Office. https://lao.ca.gov/Resources/Emissions.

c) *California's clean transportation goals & strategy*: California established the goal to reduce GHG emissions by 40% compared to 1990 levels no later than 2030, pursuant to SB 32 (Pavley) Chapter 249, Statutes of 2016. On September 23, 2020, Governor Newsom issued Executive Order (EO) N-79-20, committing California to the goal of 100% of light-duty vehicle sales being zero emission vehicles (ZEVs) by 2035. Additionally, the EO set a target of 100% of medium- and heavy-duty truck sales being zero-emission by 2045 for all operations where feasible and by 2035 for drayage trucks. Pursuant to SB 44 (Skinner), Chapter 297, Statutes of 2019, the California Air Resources Board (CARB) is required to update the Mobile Source Strategy (MSS) every five years, which attempts to describe an integrated approach for meeting California's clean air mandates by identifying the technology pathways and programmatic concepts needed for the numerous mobile source sectors into the future. The MSS has informed state policies relating to transportation, including the development of the multiple Advanced Clean

Cars (ACC) regulations, which are intended to drive the vehicle market in California towards greater adoption of ZEVs.

d) *A tale of two technologies*: Currently, ZEVs fall into two broad categories based on the technology they use: battery electric vehicles (BEVs) and hydrogen fuel cell electric vehicles (FCEVs). Both types of vehicles use electric motors to drive the wheels and propel the vehicle; however, how the energy is stored and accessed is very different.

Batteries store energy in the form of chemical energy and, when connected to a device, a series of chemical reactions occur involving a cathode, anode, and electrolyte that create a flow of electrical energy to the device. Rechargeable batteries are designed so that electrical energy from an outside source can be applied to the chemical system and reverse its operation, restoring the battery's charge. Batteries have existed for centuries and early BEVs competed with gasoline and steam-powered automobiles at the beginning of the 20th Century, but their utility has grown exponentially in recent decades due to advances in battery chemical technology. Lead-acid and cadmium-nickel batteries have been largely replaced by lithium-ion batteries, which are lighter, have higher energy density, and can be recharged many more times before the cells are depleted.

For much of the 20th Century, hydrogen was presumed to be "the fuel of the future," with electric vehicles limited to the niche of small, short-range urban or industrial use. In fact, General Motors debuted an innovative prototype in 1966 with a powertrain derived from technology first employed by NASA in the space race: a hydrogen fuel cell. Instead of a heavy battery pack, FCEVs use a fuel cell stack in which pure hydrogen (H_2) passes through a membrane to combine with oxygen (O_2) from the air, producing the electricity that turns the motors and wheels while emitting only water vapor (H_2O).[2]

FCEVs use high-pressure tanks to store the pure hydrogen and refill these tanks at retail hydrogen fueling stations in about five minutes, similar to refueling a gasoline-powered car. This more familiar process may appeal to drivers who cannot charge a BEV at home or who do not want to wait to recharge while taking longer trips. Hydrogen fuel is sold on a per kilogram – rather than per gallon – basis. FCEV fuel tanks usually hold up to five kilograms and provide an estimated range of between 250 and 350 miles depending on the make and model.[2]

e) *What about hydrogen internal combustion engine vehicles (HICEVs)*? Unlike FCEVs, HICEVs burn hydrogen fuel in an internal combustion engine and are an emerging technology primarily found in medium- and heavy-duty trucks. As pure hydrogen does not contain carbon, there are no carbon-based emissions, such as carbon monoxide (CO) or hydrocarbons, nor is there any carbon dioxide (CO_2) in the exhaust. However, as hydrogen combustion occurs in an atmosphere containing nitrogen and oxygen, it can produce oxides of nitrogen known as NOx. In this respect, the combustion process is much like other high temperature combustion fuels, such as kerosene, gasoline, diesel

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[2] Voelcker, *Hydrogen Fuel-Cell Vehicles: Everything You Need to Know*, Car and Driver (Updated April 29, 2024). https://www.caranddriver.com/features/a41103863/hydrogen-cars-fcev/.

and natural gas, and thus is not typically considered zero-emission.[3]

Under existing law, hydrogen fuel that is burned in a HICEV would be subject to both the SUT Law and the Use Fuel Law, which imposes an excise tax on compressed or liquefied gases that are burned in a combustion engine to propel a vehicle on public roadways. This bill would not exempt hydrogen fuel used by HICEVs from the Use Fuel Law excise tax, which is imposed at a rate of $0.18 per gallon. Exempt Bus Operator and User Use Fuel Tax Permit holders may choose to register for the flat rate fuel tax decal, which imposes an annual flat rate based on the weight of the vehicle.[4]

f) *A uniquely Californian experiment*: California is currently the only state that has any significant hydrogen refueling infrastructure and has been seen by the hydrogen industry as the critical test-case for this new economy. There have been numerous initiatives and programs in this state, including the Hydrogen Fuel Cell Partnership and the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES). In July 2024, ARCHES and the U.S. Department of Energy announced that California would be launching a renewable hydrogen hub, including a $12.6 billion agreement comprised of federal, state, and private matching funds.[5]

Since 2015, three hydrogen-powered cars have been offered for sale from three different car companies: the Honda Clarity Fuel Cell, the Hyundai Nexo, and the Toyota Mirai. Chevrolet, Mercedes, and Audi have also introduced FCEVs in recent years and there are multiple passenger buses powered by hydrogen fuel cells. According to the Hydrogen Fuel Cell Partnership, as of June 18, 2025, 18,671 fuel cell cars have been sold and leased in the United States, which are almost entirely located in California. Additionally, there are 66 fuel cell buses in operation in California. Currently, there are 50 retail hydrogen stations available in California, 9 retail stations are currently unavailable, and there are a total of 109 retail hydrogen stations in various stages of development. Currently, there are four truck hydrogen stations in operation in California with nine additional truck hydrogen stations funded but not yet in development.[6]

To encourage adoption of FCEVs, many sellers of these vehicles offered promotions that provided purchasers an allowance towards future purchases of hydrogen fuel. Toyota, for example, advertised that buyers of the Mirai would get $15,000 or three years of fuel as part of their purchase, whichever came first. These promotions were intended to help early adopters live with some of the challenges associated with owning a vehicle that could only be refueled at a few specific locations. Attracting new customers to the FCEV

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[3] Nebergall, *Hydrogen internal combustion engines and hydrogen fuel cells*, Cummins (January 27, 2022). https://www.cummins.com/news/2022/01/27/hydrogen-internal-combustion-engines-and-hydrogen-fuel-cells.
[4] *Use Fuel Tax – Getting Started*, CDTFA. https://cdtfa.ca.gov/taxes-and-fees/fuel-tax-and-fee-guides/use-fuel-tax/getting-started.htm.
[5] Carbullido, *California's renewable hydrogen hub officially launches*, Hydrogen Fuel Cell Partnership (July 17, 2024). https://h2fcp.org/content/californias-renewable-hydrogen-hub-officially-launches-0.
[6] *By The Numbers – FCEV Sales, FCEB, & Hydrogen Station Data*, Hydrogen Fuel Cell Partnership (June 18, 2025). https://h2fcp.org/content/numbers.

market was seen as essential to attracting investment so that more refueling stations could be built, which was hoped to then drive additional demand for FCEVs, ideally resulting in a positive feedback loop and growing the hydrogen industry.

g) *Challenges for FCEV adoption*: While there are less than 20,000 FCEVs on the road in California, over 1.7 million BEVs have been sold in this state and batteries have taken a clear lead over hydrogen as the preferred ZEV technology for passenger vehicles. While there are many factors that may have contributed to this reality, it is worth highlighting several challenges faced by proponents of a hydrogen-powered future.

   i) *Where does the hydrogen come from*? Hydrogen is the most abundant element in the universe, but it is never found naturally in its pure state. Creating pure hydrogen for FCEVs requires a great deal of energy because it requires breaking down larger molecules; most hydrogen is currently derived from fossil fuels like natural gas (CH_4). Thus, while FCEVs do not produce GHG emissions themselves, some object to the classification of FCEVs as a zero-emission technology at all because of how the fuel is currently produced.

      A similar argument could be made regarding BEVs that are charged by the power grid, which can also rely on fossil fuels, but California has made significant progress in expanding renewable electricity generation through solar and wind. Still, BEVs that are charged overnight – the most common practice among BEV owners – are being charged when the power grid is at its dirtiest and renewables are at their lowest output. Proponents of hydrogen fuels argue that increased uptake of FCEVs will help encourage additional investment in producing hydrogen fuel that is not derived from fossil fuels (often called "green hydrogen").

   ii) *Why is refueling still so limited*? As described above, proponents hoped that enough buyers would purchase FCEVs to trigger additional investment into the refueling network, which would then encourage additional uptake. The rapid advancement of BEVs, however, has led to much less investment in hydrogen as a fuel than was previously hoped.

      Additionally, the retail hydrogen refueling process in reality is not as similar to the familiar gas station experience that it was initially compared to. FCEV drivers have been frustrated by long lines at the limited number of hydrogen stations, which can become quickly overwhelmed if one or more stations in a region are taken offline for maintenance or upgrades. Compounding this problem, the hydrogen in the retail station tanks has to be compressed properly, which can make back-to-back refilling impossible and only contributing to long lines.

   iii) *Why did hydrogen fuel get so expensive*? A 2019 joint-agency report from the California Energy Commission (CEC), CARB, the Governor's Office of Business Development (GO-Biz), and the California Natural Resources Agency found that the average retail price of hydrogen was "relatively stable at around $16.50 per kilogram." This report also estimated that the price "should continue to decrease as hydrogen production costs fall" and that there would be roughly 48,000 FCEVs on

the road by 2025.[7]

In March of 2025, the average price of hydrogen in the United States was $34 per kilogram, closing the year with a clear upward trend, having increased by more than 30% through 2024.[8] In California, the price for hydrogen fuel has roughly doubled from just a few years ago. Additionally, this price increase is particularly noticeable for FCEV owners who have exhausted the fuel allowance that was bundled with the purchase of the vehicle. While it cost roughly $80 to fill the tank of a Toyota Mirai in 2019, it can cost roughly $180 today.

h) *What does this bill do*? This bill seeks to make hydrogen fuel cheaper for consumers by providing a partial sales tax exemption for the state General Fund portion of the sales tax. Portions of the sales tax allocated to local governments would not be exempted by this bill. Building on the example described above, this bill would result in a savings of approximately $7 for every $180 worth of hydrogen fuel purchased.

The author and proponents argue that exempting hydrogen fuel from the sales tax would provide parity with BEVs, which are not required to pay sales taxes on the electricity that is used to charge their vehicles. Existing law exempts gas and electricity that is sold through mains, lines, or pipes from the sales tax, so home-based chargers and public charging stations connected to the utility's power lines that sell electricity to BEV drivers would be exempt. Hydrogen fuel pumped through a retail station, however, does not qualify for this exemption, similar to how gas stations are not exempt for their sales of gasoline because it is not directly piped to the consumer.

i) *Committee's tax expenditure policy*: Both R&TC Section 41 and Committee policy require any tax expenditure bill to outline specific goals, purposes, and objectives that the tax expenditure will achieve, along with detailed performance indicators for the Legislature to use when measuring whether the tax expenditure meets those stated goals, purposes, and objectives. A tax expenditure bill will not be eligible for a Committee vote unless it has complied with these requirements.

In its current form, this bill states that the exemption is designed to create immediate parity in the rate of taxation for zero-emission vehicles until California adopts a new future-facing transportation funding mechanism that contemplates hydrogen as a fuel source for mobility applications. In addition, this bill provides that the exemption's effectiveness shall be measured by the amount of hydrogen fuel sold at retail and the estimated gross receipts from the sale of hydrogen fuel each fiscal year. The Committee may wish to consider whether hydrogen fuel sales, in and of itself, is a sufficient rubric by which to measure this exemption's effectiveness.

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[7] *Joint Agency Staff Report on Assembly Bill 8: 2019 Annual Assessment of Time and Cost Needed to Attain 100 Hydrogen Refueling Stations* (December 2019). https://www.energy.ca.gov/sites/default/files/2021-05/CEC-600-2019-039.pdf.

[8] *Hydrogen Prices at USA Stations*, GLPAutoGas.info. https://www.glpautogas.info/en/hydrogen-sale-price-united-states.html.

In addition to the R&TC Section 41 requirements, this Committee's policy also requires that all tax expenditure proposals contain an appropriate sunset provision to be eligible for a vote. According to this policy, an "appropriate sunset provision" means five years, except in the case of a tax expenditure measure providing relief to California veterans, in which case "appropriate sunset provision" means ten years. This bill, as currently drafted, complies with the Committee's policy on sunset dates.

j) *Prior legislation*:

i) AB 906 (Carrillo) of the 2021-2022 Legislative Session, would have exempted from the SUT all sales of zero-emission medium- and heavy-duty trucks – including hydrogen fuel cell trucks – and exempted those vehicles from the Vehicle License Fee, as specified. AB 906 was not heard by this Committee.

ii) AB 1312 (Rodriguez) of the 2021-2022 Legislative Session, would have provided tax credits under the Personal Income Tax Law and Corporation Tax Law to "green hydrogen" production facilities and hydrogen fueling stations, as specified. AB 1312 was not heard by the Assembly Committee on Natural Resources.

iii) AB 745 (Petrie-Norris) of the 2019-2020 Legislative Session, would have exempted sales of retail hydrogen vehicle fuel from the sales tax law, including the portions allocated to local governments. AB 745 was held on the Assembly Appropriations Committee's Suspense File.

iv) AB 3000 (Friedman), of the 2017-18 Legislative Session, contained provisions substantially similar to AB 745. AB 3000 was held on the Assembly Appropriations Committee's Suspense File.

v) AB 2673 (Harper), of the 2015-16 Legislative Session, would have, among other things, provided a SUT exemption for specified hydrogen refueling station equipment. AB 2673 failed passage in this Committee by a vote of 4 to 4.

REGISTERED SUPPORT / OPPOSITION:

Support

Air Products and Chemicals, Inc.
Alameda-Contra Costa Transit District (AC Transit)
California Hydrogen Business Council
California Hydrogen Coalition
County of Fresno
Green Hydrogen Coalition
Long Beach Area Chamber of Commerce
Sunline Transit Agency

Opposition

California Teachers Association
350 Bay Area Action (unless amended)
350 Humboldt: Grass Roots Climate Action (unless amended)

350 Sacramento (unless amended)
Climate Action California (unless amended)
Santa Cruz Climate Action Network (unless amended)

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