SEMPRA™

SHAPING THE FUTURE

A SUPPLEMENT TO OUR 2019 CORPORATE SUSTAINABILITY REPORT

Shaping the Future of Clean Transportation

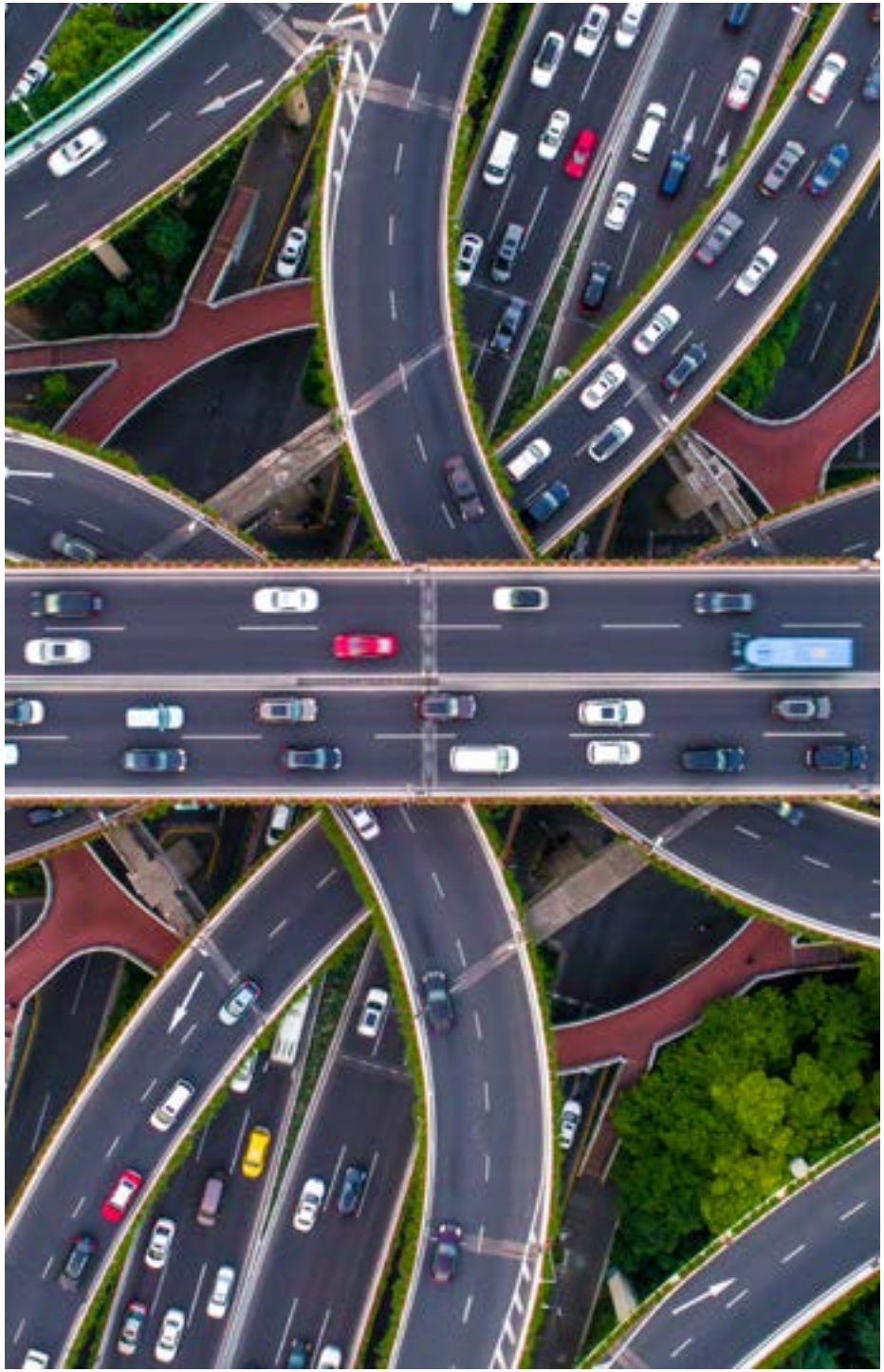
At Sempra, we deliver energy with purpose[1] to over 35 million customers. There is a critical need to build a new global energy system by the middle of the century and Sempra is well positioned to take a leadership role in the required energy transition, while capturing new opportunities to grow and scale its business in the service of others...this includes the transportation sector.

Transportation is the backbone of the U.S. economy. Goods worth more than 13 trillion[2] were transported by truck or rail in the U.S. in 2017, while demand for transportation-related goods and services accounted for $1.9 trillion[3], or 9.4 percent of U.S. GDP, in 2018.

Transportation also results in the release of significant greenhouse gas emissions. In the Unites States, transportation is responsible for nearly 30%[4] of the country's greenhouse gas emissions, more than any other economic sector. Worldwide, this figure is lower but still significant at 20%[5].

If the United States, as well as the world, is committed to lowering emissions, the transportation sector will be a vital component. To that end, this supplement to Sempra's corporate sustainability report discusses:

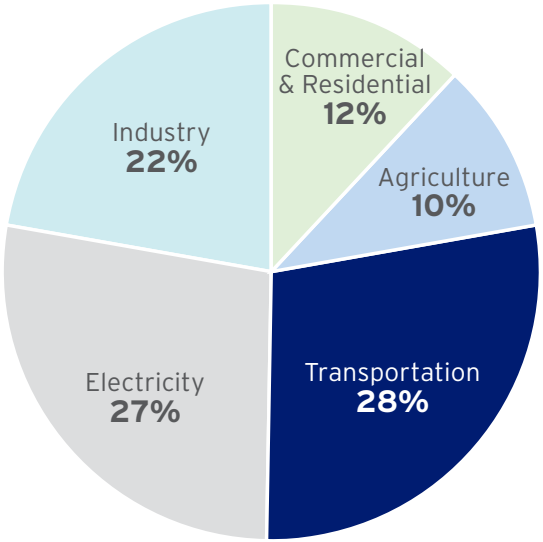
- **Clean transportation goals** being implemented domestically and globally;
- **Additional energy infrastructure** needed to achieve those goals; and
- The **crucial role utility infrastructure will play** in this transition.



Clean Transportation Goals

Policymakers in the U.S.[6] and around the globe[7] have set bold clean transportation goals. A 15-state memorandum of understanding[8,9,10] announced in July 2020 sets a goal that 100 percent of truck and bus sales be zero-emissions vehicles by 2050, with an interim goal of 30 percent by 2030. California Governor Gavin Newsom set an even more aggressive goal. His executive order[11] in September 2020 states that all new cars and passenger trucks sold in the state must be zero-emission vehicles by 2035. And in just his first few days in office, President Biden signed an executive order[12] that directs federal officials to devise a plan for converting all federal, state, local and tribal fleets, including 225,000 Postal Service vehicles, to "clean and zero-emission vehicles."

Total U.S. Greenhouse Gas Emissions by Economic Sector in 2018



According to the U.S. EPA, switching[3] to alternative fuels is one way to decrease emissions from the transportation sector, which generates more greenhouse gas emissions than any other sector.

Source: U.S. EPA[2]

Likewise, in Europe, decarbonization of transportation is a core theme and a long-term objective[13]. The European Commission's "Sustainable and Smart Transportation Strategy," released in December 2020[14], is expected to result in a 90 percent cut in emissions by 2050[15]. And in China, an important milestone was reached at the end of 2020 when nearly five million new energy vehicles (NEVs), including battery electric, plug-in hybrid, and fuel cell vehicles, were operating on China's roads.

These goals will be achieved through a mix of fuel sources rather than a reliance on any one source.

- In the medium- and heavy-duty sector electric vehicles will be the choice for some customers for cost-effective depot charging and regional haul applications. This sector will also look to alternative-fuel vehicles that rely on **compressed natural gas (CNG), liquified natural gas (LNG) and hydrogen** [16,17,18] for some regional- and long-haul applications. As discussed in more detail below, CNG and LNG vehicles can have a negative carbon intensity when renewable natural gas (RNG) is used.

- **Electricity** has proven applications in the passenger vehicle sector where range may be less of a factor, and convenient at-home charging a strong incentive[19]. Additionally, deployment of medium- and heavy-duty (MD/HD) battery electric vehicles (BEVs) for commercial fleets is accelerating. Commercial offerings of MD/HD battery-electric vehicles have increased, and medium to large scale vehicle purchases are beginning to occur in leading fleets. At the same time, local, state and federal policy and goal setting for zero emissions vehicle adoption is expanding.
  Source: https://www.atlasevhub.com/resource/california-heavy-duty-fleet-electrification/

Additional Energy Infrastructure

Energy infrastructure makes clean transportation possible. Today In the U.S., more than 78,000 electric chargers, 1,600 compressed natural gas (CNG) fueling stations, nearly 120 liquefied natural gas (LNG) fueling stations[20] and 45 hydrogen refueling stations are already in operation. But to meet the goals being set significant additional infrastructure investment will be needed:

- According to one projection[21], the global electric vehicle (EV) charging infrastructure market will reach $111.75 billion by 2027.

Electric transmission and distribution system upgrades will be needed to support this growth[22]. This includes "make-ready" work – the circuit-by-circuit changes needed to support the addition of as few as 2-3 electric vehicles on a street – as well as the upgrades needed to support large commercial or governmental fleets.

- Demand for natural gas and CNG as a transportation fuel is also projected to increase[23]. This will require **the upgrade and expansion of natural gas/CNG fueling infrastructure**[24,25] to support medium and heavy-duty vehicles.
- The need for **infrastructure to support the use of hydrogen** is expected to increase in Europe[26], Asia[27] and the U.S. where the fuel is a key component of President Biden's energy strategy[28].
- **The expansion of LNG infrastructure**, including fueling stations and liquefaction facilities, will be required to support the expected increase[29] in the use of LNG as a fuel in both road and maritime transport. More than 4,500 LNG trucks were registered and 80 LNG refueling stations were added in Europe in 2019[30].

The California Energy Commission projects that by 2025, 188,000 EV charging stations will be in use statewide. By 2030, there will be a need for 1.5 million.

Utility Infrastructure's Crucial Role

Electric and natural gas utilities are well-positioned to meet additional clean transportation infrastructure needs – they already operate the infrastructure that safely and reliably delivers electricity and natural gas to where they are needed. Across the Sempra family of companies, our utilities have a long history and strong track record of success[31,32,33] supporting clean transportation.

Supporting EVs, Piloting Vehicle-to-Grid Technology (SDG&E)

Through its Power Your Drive charging program[34], SDG&E has installed, owns and operates over 3,000 chargers at more than 250 workplaces and multi-unit dwellings. The utility is also installing 340 chargers at parks, beaches and schools[35] and is building the infrastructure to support more than 3,000 fleet vehicles[36] within its service territory. EV-charging pilot programs with Amazon, UPS and the Port of San Diego[37] are underway as well.

In addition to EV charging, SDG&E supports EV use by upgrading the electrical grid to meet increasing demand. The California Energy Commission projects[38] that by 2025, 188,000 charging stations will be in use statewide. By 2030, there will be a need for 1.5 million.

Looking to new technologies, SDG&E sees the potential to further maximize EVs by using EV batteries as a source of energy. SDG&E's Vehicle-to-Grid Integration Pilot Project[39] includes the use of school buses to demonstrate how this could work. Buses will prioritize charging their on-board batteries when energy prices are low and renewable electricity is most available, for example from 10:00 a.m. to 2:00 p.m. Then, in the late afternoon and evening, as use of home and office air conditioning units increases, the buses will be able to discharge their energy, supporting system-wide resilience. SDG&E expects to scale up and deploy these types of innovations across its service territory.

Preparing for EV Fleets (Oncor)

As the largest energy delivery company in Texas, Oncor is preparing to serve additional electric vehicles, particularly in the fleet vehicle space[40,41].

The Texas market is particularly suited to expanded adoption of electric and electric-hybrid vehicles[42], especially vehicle fleets. In fact, according to the U.S. Department of Transportation, Bureau of Transportation Statistics, nearly 13% of total U.S. freight by weight moves through Texas[43], most of it through Oncor's service area. This is about the same amount as the next two largest states combined.

Planning to meet this demand will be essential. There are roughly 22,000 fleets in Oncor's service area. The company has fielded inquiries from major commercial, municipal, school and transit customers about joint planning for charging opportunities and logistics. Planning to support more than 4,000 EVs by 2022-2024 is already underway, dependent on the ability of equipment manufacturers to meet expected availability, range and total cost of ownership. And Oncor is conducting a study of the prospects for fleet electrification to gather preliminary insights into the size, shape, and speed of the approaching wave of electrification. The results of this study will enable Oncor to better prepare to meet customer needs for anticipated charging capacity.

Serving commercial and industrial areas where tens of thousands of fleet vehicles will soon need electricity will likely require adding transmission assets, including higher-capacity electric lines, transformers and substations. Oncor has also developed the Green Fleet Growth Planning Tool[44], which identifies available substation and transformer capacity and predicts how population growth will impact that capacity through 2050. This unique tool utilizes fleet charging requirements, load shapes and expected fleet growth to help identify whether capacity is currently available and when upgrades will be needed to meet customer requirements.

Leader in low, zero, and negative carbon fuels like CNG, RNG and Hydrogen (SoCalGas)

SoCalGas is the largest natural gas distribution utility in the U.S., serving nearly 22 million customers in California. It supports the transition away from petroleum and diesel fuel, to the use of cleaner transportation fuels across its service territory, including the use of RNG and hydrogen.

Substantial gas-related transportation infrastructure is already in place, but additional infrastructure will be needed to support projected growth.

NGV

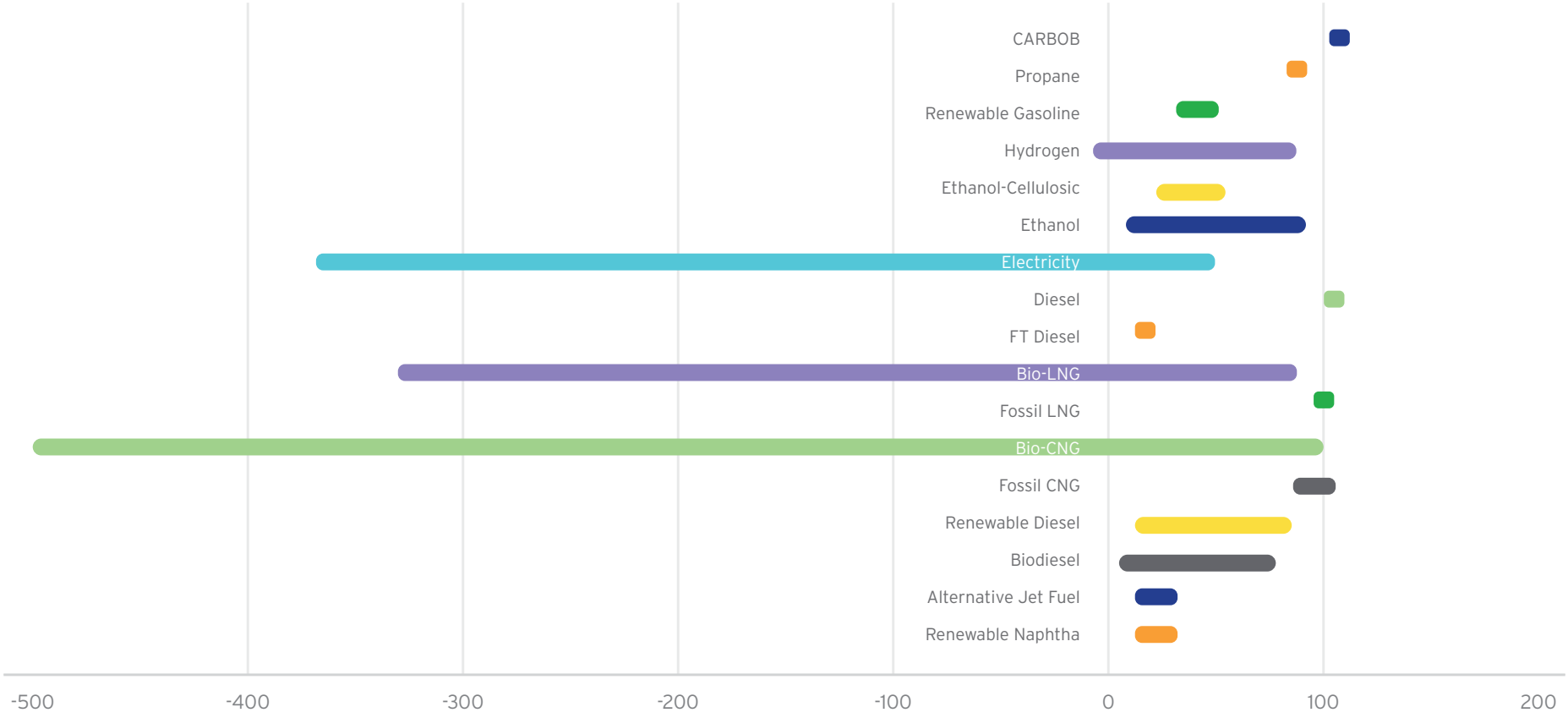
Based on the 2020 California Gas Report forecast[45], SoCalGas expects the natural gas vehicle market to grow and add over 80 NGV stations and almost 4 billion cubic feet within its service territory over the next 15 years. At an estimated station cost of $5 million dollars, this represents a third-party capital investment of over $400 million. SoCalGas will continue to invest in the additional pipeline capacity and NGV station service lines needed to meet this demand.

RNG

Nearly 80% of the natural gas vehicles in California are already being fueled with RNG[46], a fuel that can have a negative carbon intensity (see chart, below). Supply of and demand for this fuel are increasing: A recent study by ICF[47] estimates that by 2040, the Pacific region of the U.S. could produce between 193-372 billion cubic feet of RNG per year which would represent 66-126 percent of SoCalGas' projected 2035 core natural gas

Carbon Intensity Values of EER-Adjusted Certified Pathways (2020)

Renewable Natural Gas can have a negative carbon intensity, as outlined in this chart showing carbon intensity values of different fuels from the California Air Resources Board. source CARB[56]



consumption. As one example of increasing demand, SoCalGas currently has 15 NGV stations and is looking to add more to its system in 2021, all of which will be dispensing 100% RNG. Many sanitation management companies[48] have switched to CNG/RNG. Other large companies have purchased, and operates, NGV's with the use of CNG/RNG for their delivery vehicles[49] as well.

HYDROGEN

Hydrogen is rapidly emerging as a clean transportation fuel. Multiple companies are currently manufacturing hydrogen fuel cell electric vehicles[50,51,52] for the passenger vehicle sector. Recent hydrogen truck announcements include; 1) a joint venture between Daimler and Volvo[53], 2) plans for development of a hydrogen fuel cell powered big rig for the North American market by Toyota[54], and 3) Hyundai's launch of the world's first heavy-duty fuel cell truck in Europe[55].

The California Energy Commission (CEC) approved a plan[56] in December 2020 that will invest up to $115 million to significantly increase the number of hydrogen fueling stations in the state, nearly doubling the state's investments to date and will help California nearly achieve its goal to deploy 200 public hydrogen fueling stations. Transit agencies in particular, including Orange County Transit Authority[57], Foothill Transit[58,59] and Sunline[60], have indicated that they expect to transition to hydrogen. In addition, SoCalGas has completed preliminary site evaluations (PSE) for two major energy companies in response to their interest in hydrogen fueling stations.

The company recently announced plans[61] to field test a new technology that can simultaneously separate and compress hydrogen from a blend of hydrogen and natural gas. At scale, this would allow hydrogen to be transported easily and affordably via the natural gas pipeline system, then extracted and compressed at fueling stations that provide hydrogen for fuel cell electric vehicles (FCEVs).

To meet the challenges posed by climate change, a focus on reducing the emissions attributed to the transportation sector is essential. As the demand for clean transportation increases, so will the need for robust and varied energy infrastructure. Sempra's operating companies, SDG&E, Oncor and SoCalGas, each bring strong track records of customer service, innovation, safety and reliability to the clean transportation space. These utilities are exploring and investing in a wide range of new opportunities to support their combined 35 million customers as the drive toward cleaner transportation accelerates.

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[46] https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm, see data at http://ww3.arb.ca.gov/fuels/lcfs/dashboard/figure2_053120.xlsx, biomethane (row 23) as a percentage of natural gas used as an alternative fuel (row 23 plus row 24)

https://www.bioenergyca.org/wp-content/uploads/2020/07/GNA-Report-CA-RNG-Supply-Assessment-July-2020.pdf (page 8)

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For more information on Sempra's sustainability efforts, please visit sempra.com/sustainability or email us at sustainability@sempra.com.

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