



The Path to Net Zero

A DECARBONIZATION ROADMAP FOR CALIFORNIA



THE PATH TO NET ZERO OVERVIEW

SDG&E recommends a diversified approach to decarbonization utilizing clean electricity, clean fuels and carbon removal to achieve the state's 2030 and 2045 GHG goals

SDG&E's Diversified Approach to Decarbonization

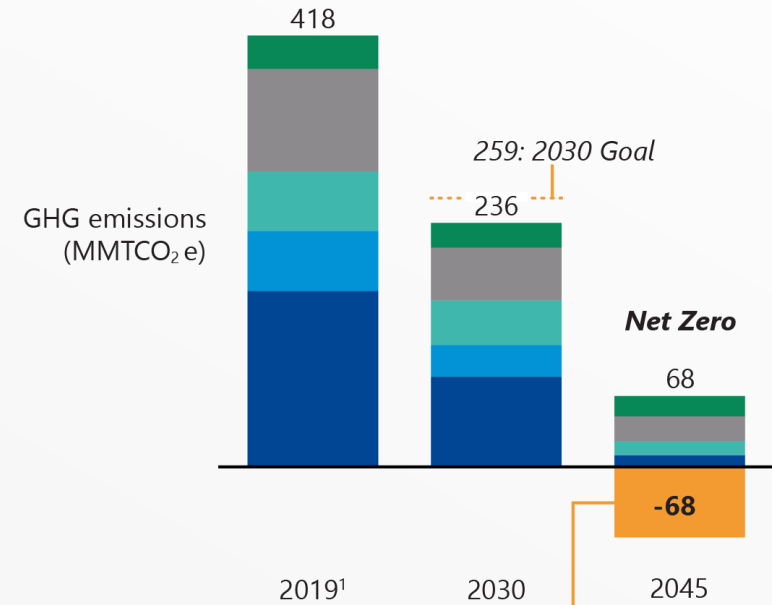
CLEAN ELECTRICITY

CLEAN FUELS



CARBON REMOVAL

California GHG Emissions



Roadmap envisions a role for carbon removal technology in addressing the **68 MMTCO₂e** that remain in 2045

- Transportation
- Electric Power
- Buildings
- Industrial
- Agriculture
- Carbon Removal

1) Actual emissions are based on CARB's 2019 Inventory (2021 Edition). California Senate Bill (SB) 32 requires a 40% reduction of 1990 economy-wide emissions by 2030. EO B-55-18 established a statewide goal to achieve carbon neutrality by 2045.

Key Takeaways

Clean & Reliable Electricity

- 1** This study is the first publicly available analysis to model California decarbonization through 2045 using the NERC⁽¹⁾ industry standard for evaluating electric system reliability, yielding new insights about the generation capacity, grid investments and technologies required to decarbonize reliably
- 2** A reliable, clean and diverse electric portfolio is critical to help enable economywide electrification. The pace of utility-scale solar and wind development is expected to significantly increase.
- 3** Significant electrification of transportation and buildings will need to occur, doubling SDGE's electricity consumption and increasing net peak demand to 1.8 times by 2045

Clean Fuels

- 4** A diverse approach is essential to reliable, affordable and equitable decarbonization. Clean electricity and clean fuels both play critical roles in every sector of the economy.
- 5** Clean fuels, especially hydrogen, will play a critical role in decarbonizing the electric sector, medium-duty and heavy-duty vehicles and portions of the industrial sector that cannot feasibly be electrified

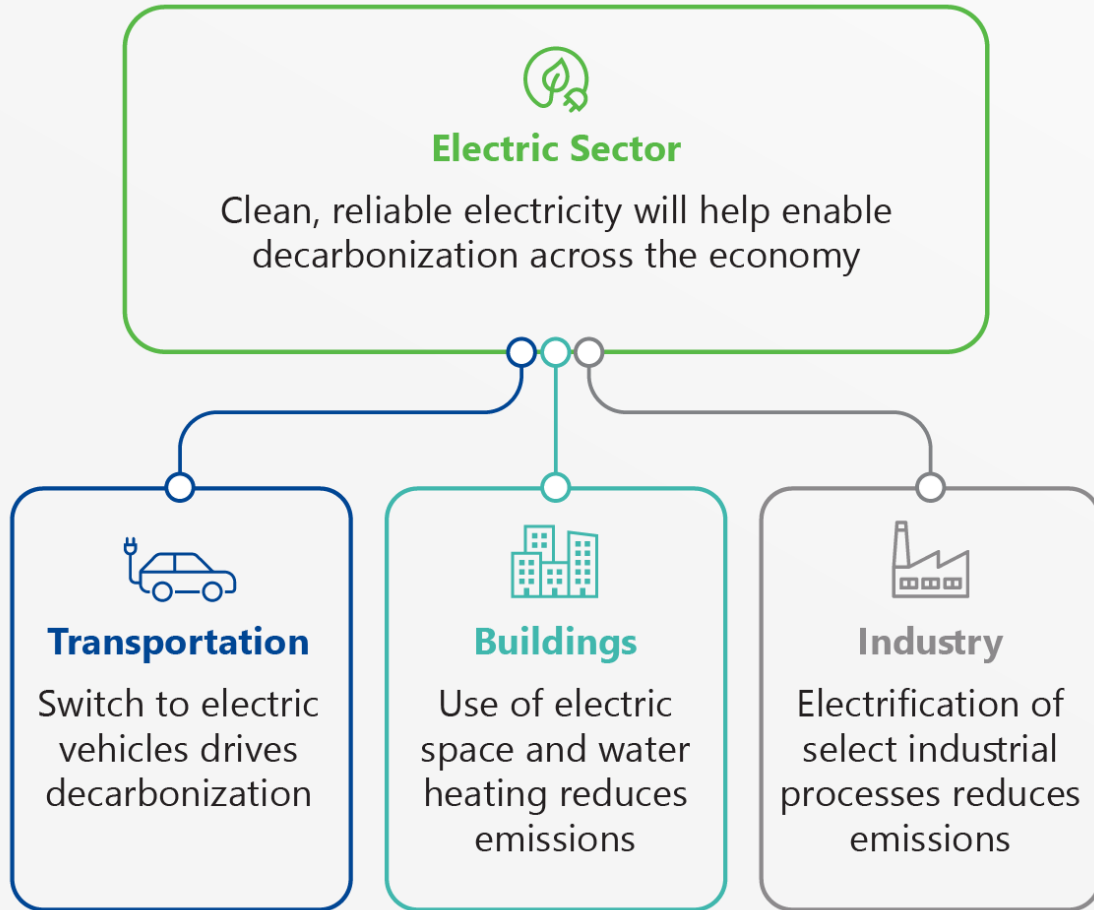
Affordability

- 6** Customers that electrify according to our Roadmap are projected to have similar ongoing energy costs in 2045.⁽²⁾ Successful decarbonization should ensure disproportionate costs are avoided and that everyone is able to adopt decarbonization technologies and benefit from the clean transition.

1) North American Electric Reliability Corporation
2) Does not account for impacts of inflation

CLEAN & RELIABLE ELECTRICITY

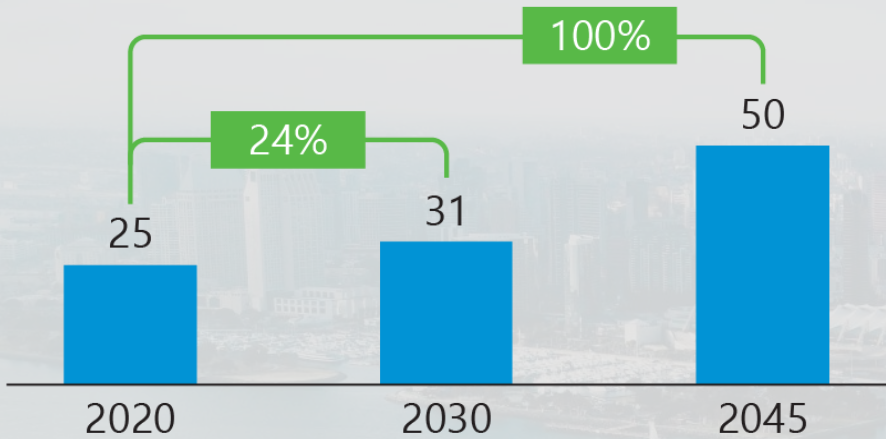
The electric sector is a key enabler to decarbonizing the California economy



ELECTRICITY CONSUMPTION & DEMAND

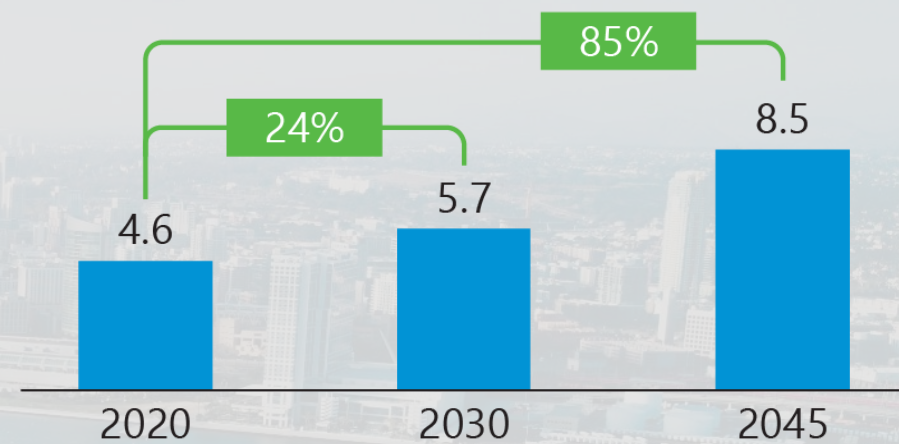
Electricity consumption & net peak demand are expected to increase significantly

SDG&E Electricity Consumption (TWh)



SDG&E's projected electricity consumption doubles from 2020 to 2045, primarily driven by transportation electrification

SDG&E Net Peak Demand (GW)⁽¹⁾

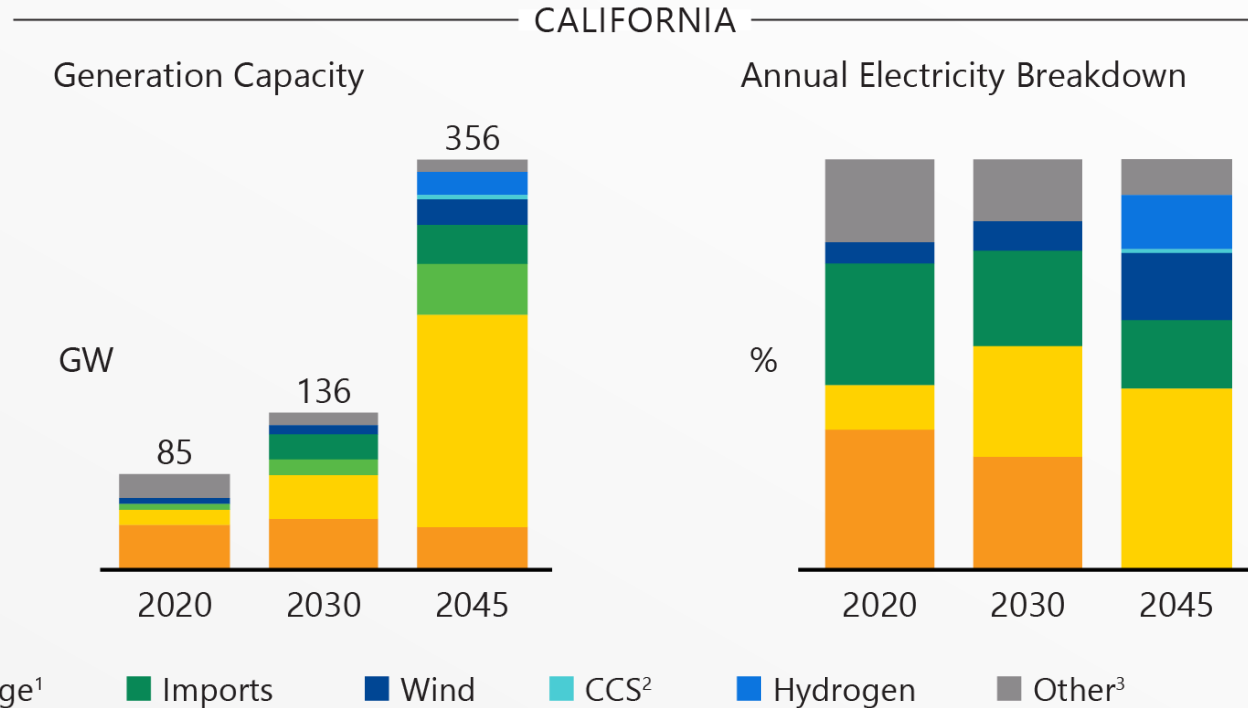
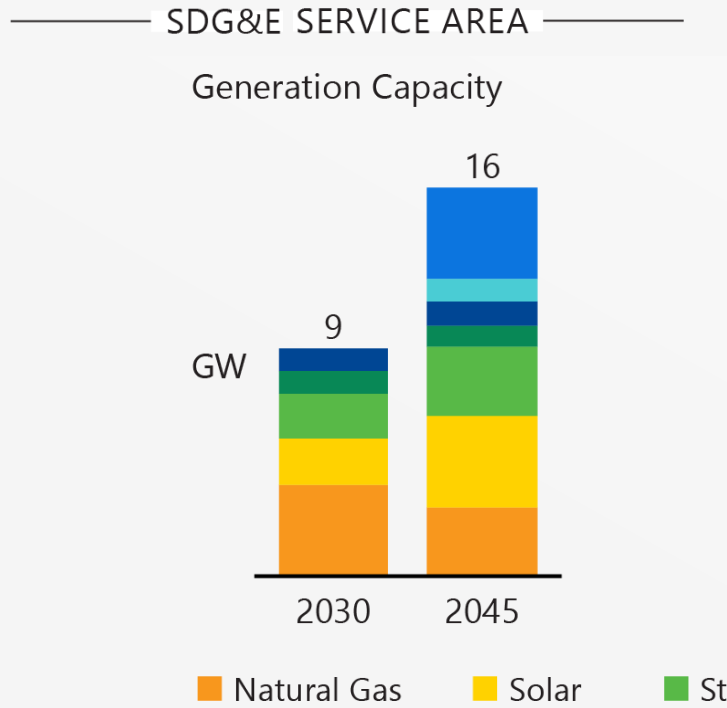


SDG&E's projected electric net peak demand grows by 85% from 2020 to 2045

1) Net peak demand = base load – behind the meter generation
2) See slide 14 for California electricity consumption and net peak demand

ELECTRIC SUPPLY PORTFOLIO

Incorporating robust reliability modeling reveals a greater need for clean dispatchable generation

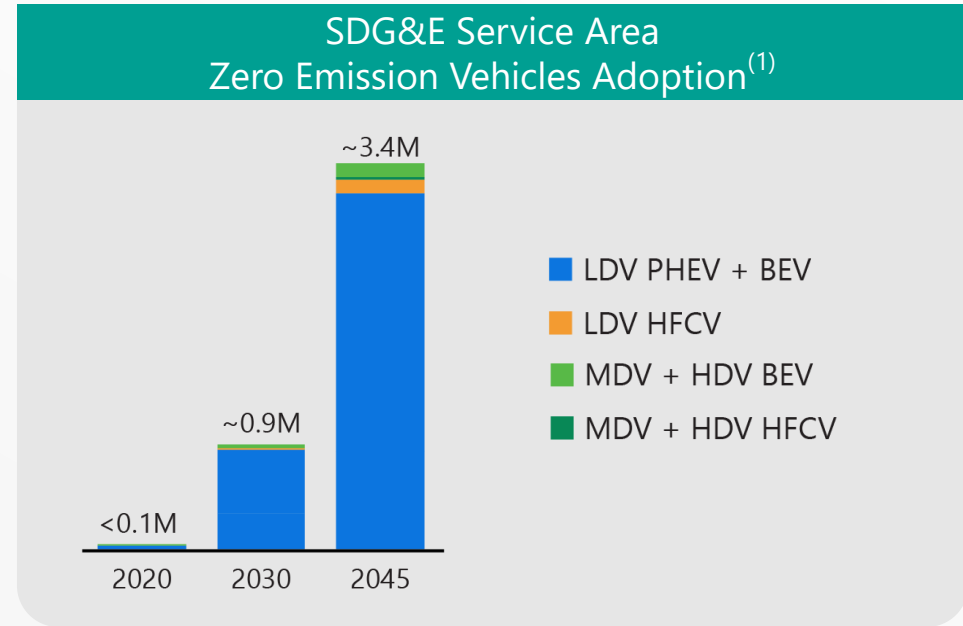
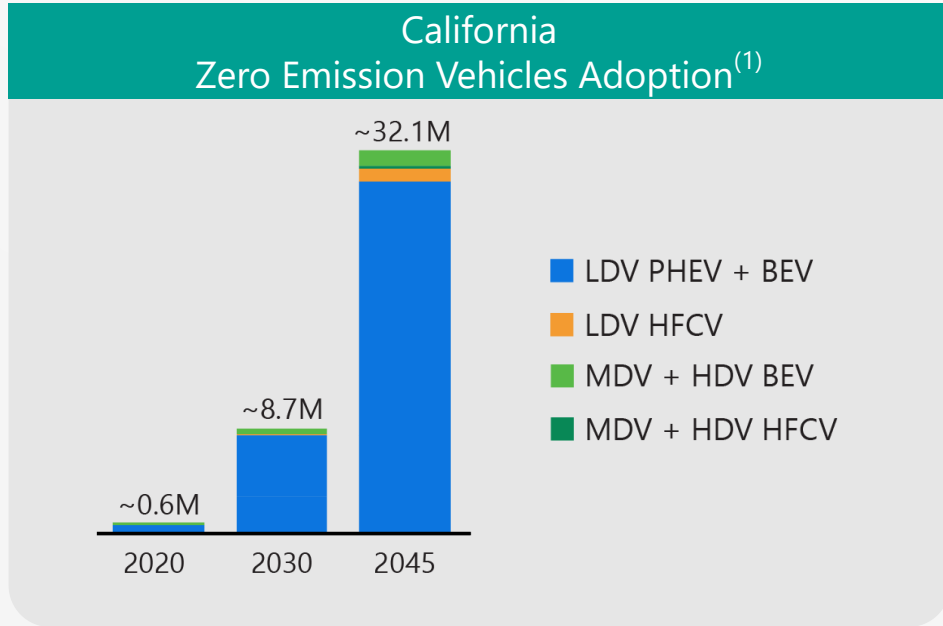


- The Path to Net Zero is the first in California to use the NERC industry standard for reliability through 2045
- A decarbonized and reliable electric sector is achieved through a combination of renewables, energy storage, and 100% clean hydrogen generation
 - While our modeling selected hydrogen-based generation to provide electric reliability, we support a technology inclusive approach
- Statewide, average annual growth ~8 GW of solar, and ~2 GW of battery storage, beginning in 2023

1) Includes both short- and long-duration battery energy storage and pumped hydro storage
 2) Natural gas generation with CCS. Includes new builds and retrofits
 3) Other includes oil, coal, geothermal, biomass, hydro, and nuclear

ELECTRIFYING TRANSPORTATION

A monumental transition to electric vehicles will be needed to decarbonize the transportation sector



SDG&E Service Area Chargers⁽²⁾

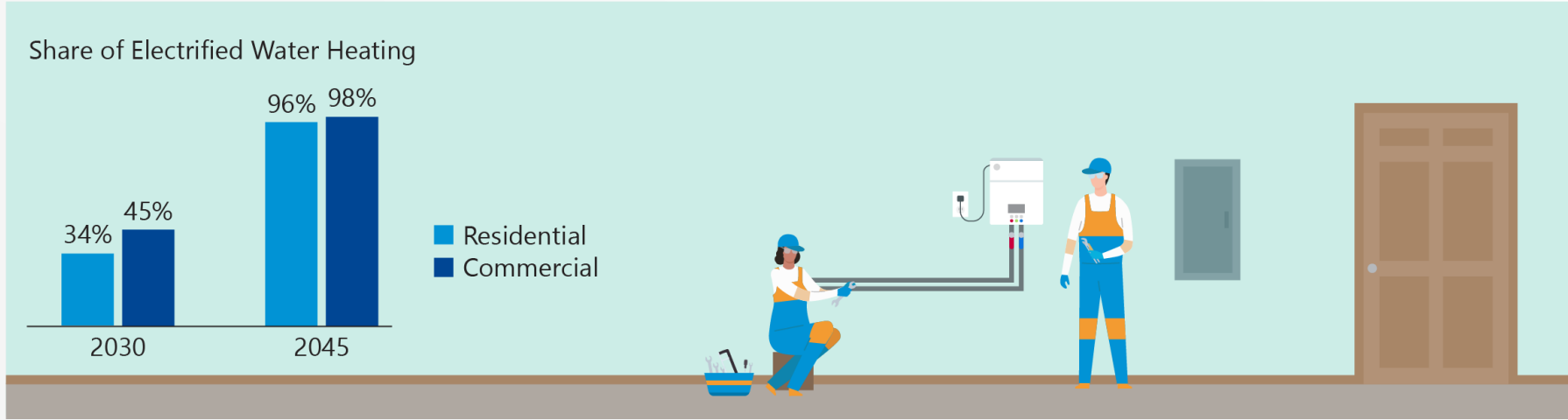
	2020	2030	2045
EV chargers	~7K	~180K	~640K

1) 2020 represents actuals based on CEC ZEV and Infrastructure Statistics (YE-2020, updated April 2021) for light-duty only, within California and the SDG&E service area. 2030 + 2045 shown are projected ZEVs for light-duty, medium-duty, and heavy-duty.

2) 2020 chargers represent actuals based on SDG&E's Accelerate to Zero study (San Diego County Only, reflects light-duty, medium-duty, and heavy-duty). 2030 + 2045 shown are projected for light-duty, medium-duty, and heavy-duty.

DECARBONIZING BUILDINGS

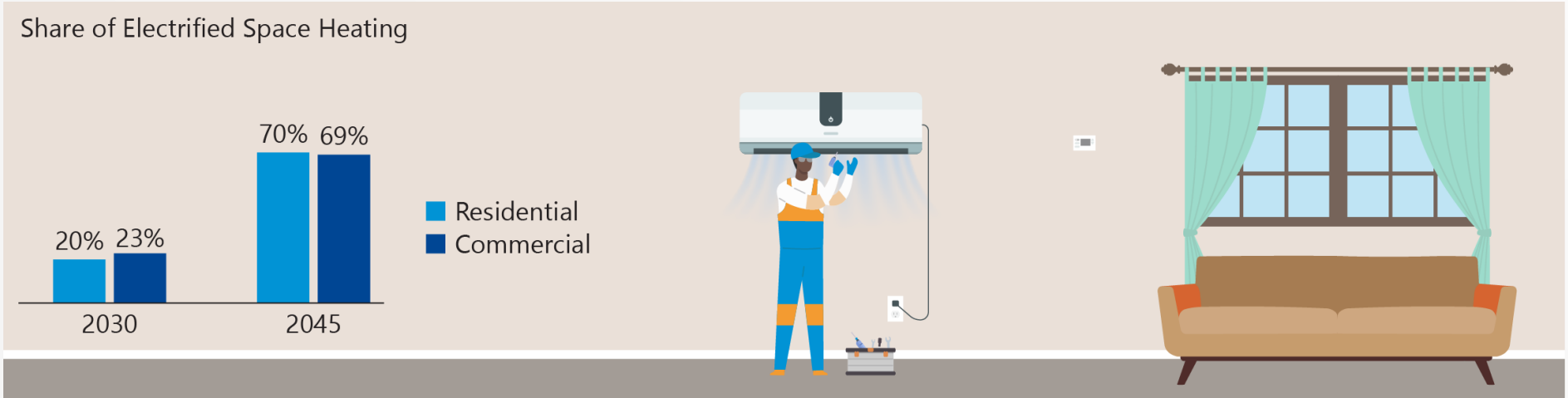
Building emissions can be decarbonized by electrifying space and water heating equipment or substituting the burning of natural gas with clean fuels



The share of electrified water heating appliances grows to 96% or higher for both residential and commercial applications



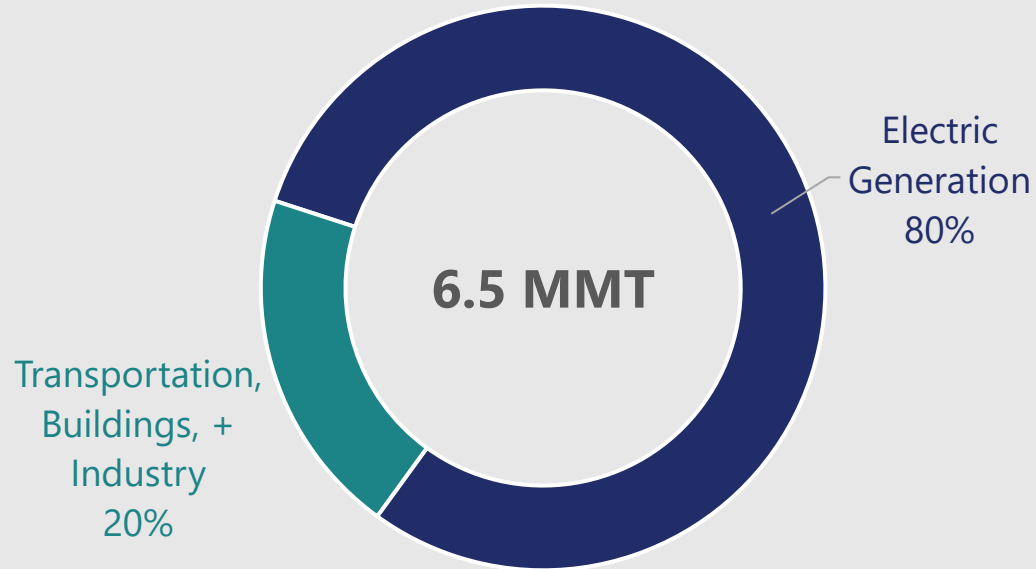
Electrified space heating grows substantially, albeit at a slower pace due to longer useful lives of gas furnaces



CLEAN FUELS ARE INTEGRAL

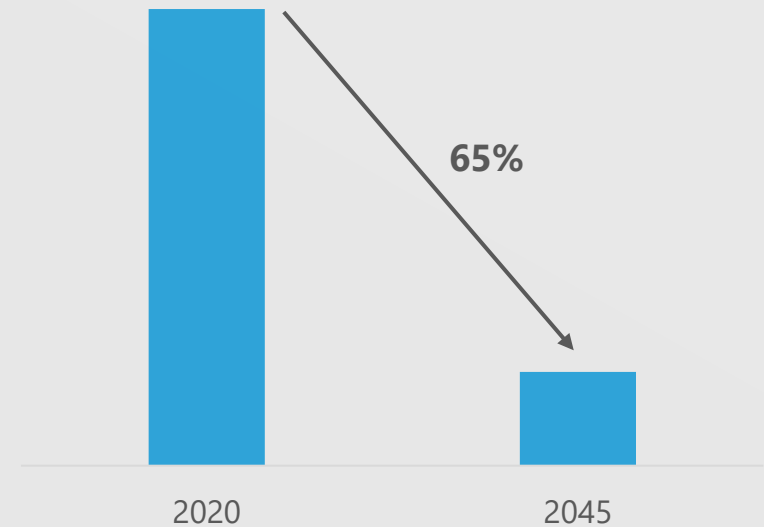
Clean fuels, in particular clean hydrogen, must be leveraged as a key decarbonization tool

2045 California Consumption of Clean Hydrogen



This amount of hydrogen represents 65% of U.S. hydrogen production today, which is not carbon free⁽¹⁾

Gas System Throughput⁽²⁾ (by Volume)



While gas system throughput is projected to decline 65% by 2045, the composition of the pipeline changes significantly, leveraging ~42% clean hydrogen and renewable natural gas

1) ~10MMT of hydrogen is produced nationally [Energy.gov hydrogen production estimates]
2) Pipeline mix serves residential + commercial buildings, the industrial sector, and natural gas electric generation

AFFORDABILITY & EQUITY CONSIDERATIONS

Decarbonization may have disproportionate impacts on different customer types



Overview | Annual Household Energy Spend is a snapshot of ongoing SDG&E residential customer energy costs, incorporating utility bills (electricity and natural gas) as well as gasoline costs



Key Findings | The state, energy providers and others will need to ensure customers are able to adopt and electrify to avoid disproportionate impacts and benefits from decarbonization

Customer Type Overview

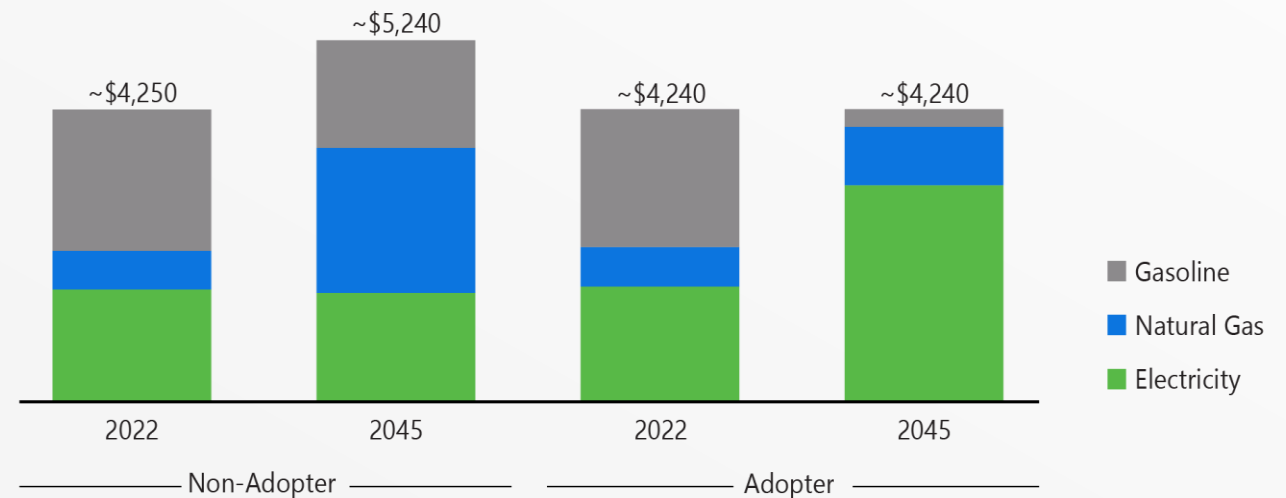
Non-Adopter makes no changes to their base 2022 electricity and natural gas consumption and owns gasoline vehicles

Adopter electrifies appliances + vehicles at the average rate of the Roadmap

Annual Household Energy Spend^{(1),(2)}

Key Assumptions:

- Figures shown are in real \$2021 (excludes future inflation effects)
- No changes in rate design (electricity + gas)
- Reflects ongoing costs only, excludes upfront costs to purchase electric appliances or vehicles

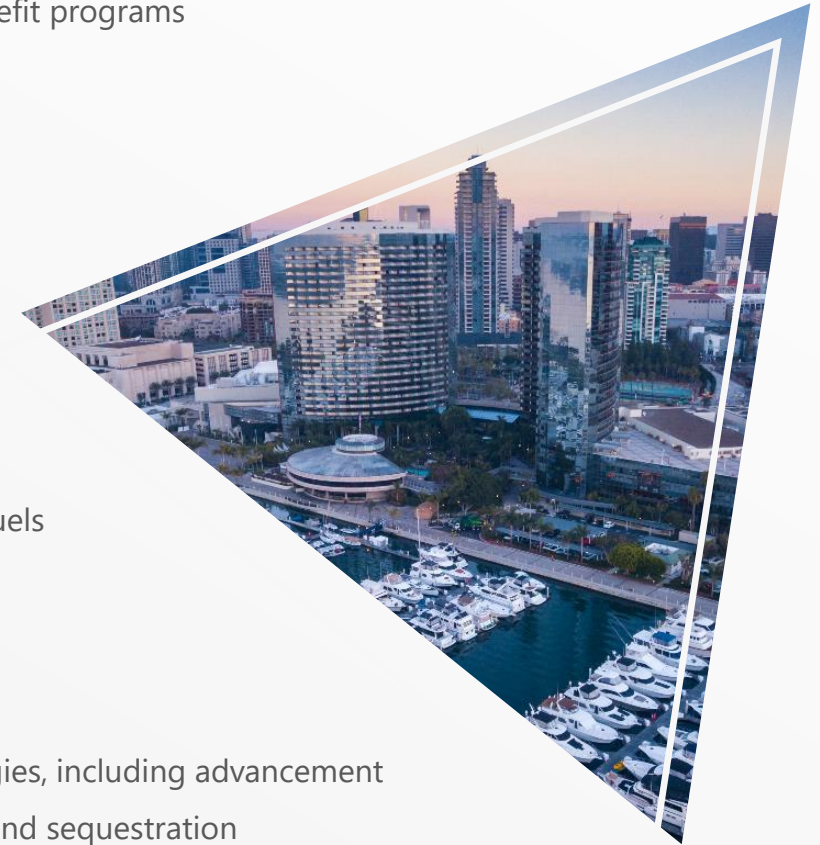


1) 2022 figures based on SDG&E approved 1/1/22 residential average rates, 2045 are projected. All figures represent an illustrative SDG&E bundled residential customer (delivery + commodity).
 2) Gasoline pricing methodology; Utilizing 2021 CEC data, gasoline pricing components were broken out (crude oil + other) for forecasting purposes. Crude oil prices are based on a real growth forecast utilizing 2021 EIA AEO data (consistent with economywide cost analysis). Other gasoline components were held constant.

POLICY & REGULATORY SUPPORT

The successful implementation of our Roadmap requires the following regulatory and political support:

- 1 Maintain Affordability and Enhance Equity**
 - Reform electric and gas rates and explore alternative funding and recovery mechanisms, including utilizing the state budget for funding state priorities, such as public purpose programs, net energy metering and other societal benefit programs
 - Pursue only the most cost-effective energy efficiency and demand response programs
 - Support low-income households so they can benefit from the clean energy transition
 - Support an equitable transition for affected workforces
- 2 Prioritize Electric System Reliability**
 - Incorporate more robust electric sector reliability into long-term state planning
 - Implement a regional transmission organization
- 3 Enable Deployment of Decarbonization Infrastructure**
 - Enable faster infrastructure development by updating planning efforts for clean electricity and clean fuels
 - Simplify and accelerate regulatory reviews
 - Centrally authorize land use for decarbonization technologies
- 4 Incentivize Innovation and Adaptability**
 - Encourage research, development and demonstration efforts for emerging decarbonization technologies, including advancement of clean hydrogen infrastructure, and developing the policy framework to encourage carbon capture and sequestration





Appendix

INFORMATION REGARDING FORWARD LOOKING STATEMENTS

This presentation contains statements that constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are based on assumptions with respect to the future, involve risks and uncertainties, and are not guarantees. Future results may differ materially from those expressed in any forward-looking statements. These forward-looking statements represent our estimates and assumptions only as of the date of this presentation. We assume no obligation to update or revise any forward-looking statement as a result of new information, future events or other factors.

In this presentation, forward-looking statements can be identified by words such as “believes,” “expects,” “intends,” “anticipates,” “plans,” “estimates,” “projects,” “forecasts,” “should,” “could,” “would,” “will,” “confident,” “may,” “can,” “potential,” “possible,” “proposed,” “in process,” “under construction,” “in development,” “opportunity,” “target,” “outlook,” “maintain,” “continue,” “goal,” “aim,” “commit,” or similar expressions, or when we discuss our guidance, priorities, strategy, goals, vision, mission, opportunities, projections, intentions or expectations.

Factors, among others, that could cause actual results and events to differ materially from those described in any forward-looking statements include risks and uncertainties relating to: California wildfires, including the risks that we may be found liable for damages regardless of fault and that we may not be able to recover all or a substantial portion of costs from insurance, the wildfire fund established by California Assembly Bill 1054, in rates from customers or a combination thereof; decisions, investigations, regulations, issuances or revocations of permits and other authorizations, renewals of franchises, and other actions by (i) the California Public Utilities Commission (CPUC), U.S. Department of Energy, U.S. Federal Energy Regulatory Commission, and other regulatory and governmental bodies and (ii) states, counties, cities and other jurisdictions in the U.S. in which we do business; the success of business development efforts and construction projects, including risks in (i) completing construction projects or other transactions on schedule and budget, (ii) the ability to realize anticipated benefits from any of these efforts if completed, and (iii) obtaining the consent or approval of partners or other third parties, including governmental entities and regulatory bodies; the resolution of civil and criminal litigation, regulatory inquiries, investigations and proceedings, and arbitrations; changes to laws; actions by credit rating agencies to downgrade our credit ratings or to place those ratings on negative outlook and our ability to borrow on favorable terms and meet our debt service obligations; the impact of energy and climate policies, legislation and rulemaking, as well as related goals set, and actions taken, by companies in our industry, including actions to reduce or eliminate reliance on natural gas generally and any deterioration of or increased uncertainty in the political or regulatory environment for California natural gas distribution companies and the risk of nonrecovery for stranded assets; the pace of the development and adoption of new technologies in the energy sector, including those designed to support governmental and private party energy and climate goals, and our ability to timely and economically incorporate them into our business; weather, natural disasters, pandemics, accidents, equipment failures, explosions, acts of terrorism, information system outages or other events that disrupt our operations, damage our facilities and systems, cause the release of harmful materials, cause fires or subject us to liability for property damage or personal injuries, fines and penalties, some of which may not be covered by insurance, may be disputed by insurers or may otherwise not be recoverable through regulatory mechanisms or may impact our ability to obtain satisfactory levels of affordable insurance; the availability of electric power and natural gas and natural gas storage capacity, including disruptions caused by failures in the transmission grid or limitations on the withdrawal of natural gas from storage facilities; the impact of the COVID-19 pandemic, including potential vaccination mandates, on capital projects, regulatory approvals and the execution of our operations; cybersecurity threats to the energy grid, storage and pipeline infrastructure, information and systems used to operate our businesses, and confidentiality of our proprietary information and personal information of our customers and employees, including ransomware attacks on our systems and the systems of third-party vendors and other parties with which we conduct business, all of which may become more pronounced in the event of geopolitical events and other uncertainties, such as the conflict in Ukraine; the impact on competitive customer rates and reliability due to the growth in distributed and local power generation, including from departing retail load resulting from customers transferring to Community Choice Aggregation and Direct Access, and the risk of nonrecovery for stranded assets and contractual obligations; volatility in inflation and interest rates and commodity prices, including inflationary pressures in the U.S., and our ability to effectively hedge these risks and with respect to inflation and interest rates, the impact on our cost of capital and the affordability of customer rates; changes in tax and trade policies, laws and regulations, including tariffs and revisions to international trade agreements that may increase our costs, reduce our competitiveness, or impair our ability to resolve trade disputes; and other uncertainties, some of which may be difficult to predict and are beyond our control.

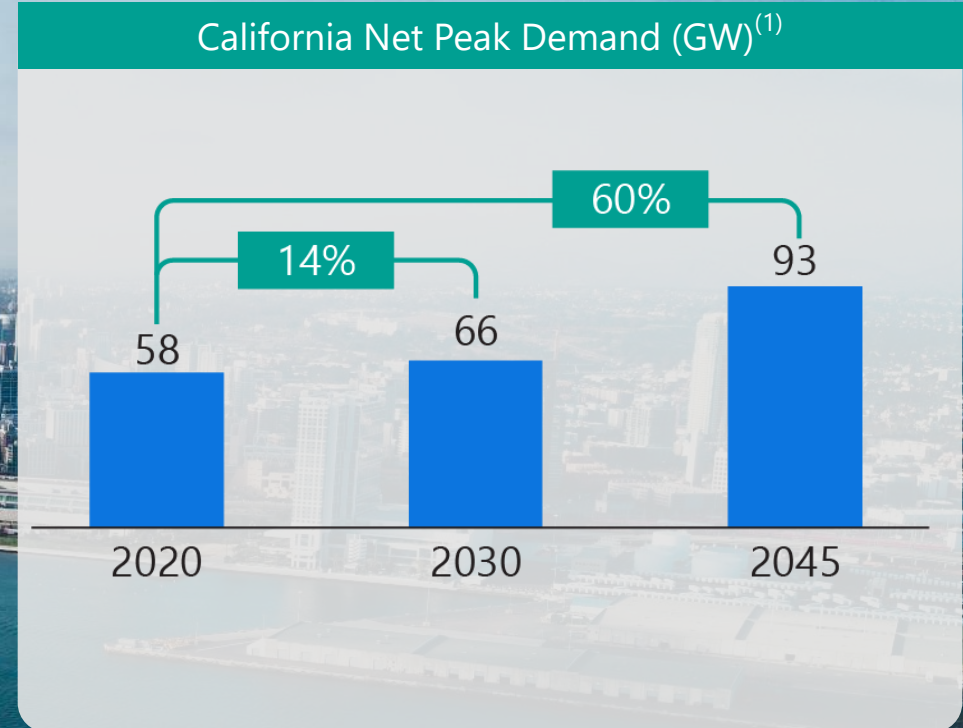
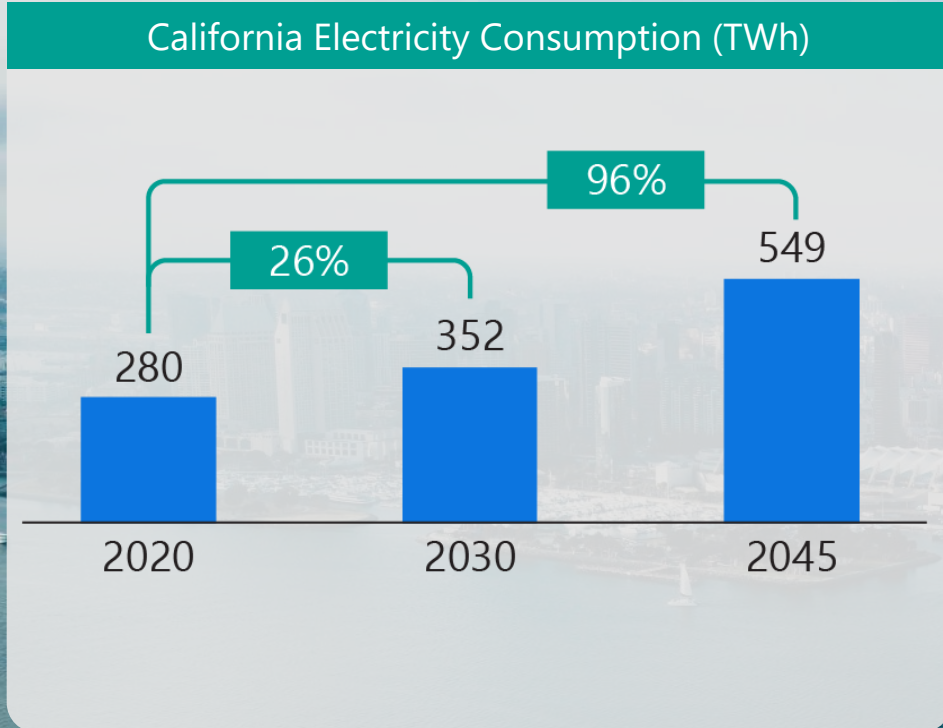
These risks and uncertainties are further discussed in the reports that the company has filed with the U.S. Securities and Exchange Commission (SEC). These reports are available through the EDGAR system free-of-charge on the SEC’s website, www.sec.gov, and on Sempra’s website, www.sempra.com. Investors should not rely unduly on any forward-looking statements.

This presentation may include market, demographic and industry data and forecasts that are based on or derived from independent industry publications, publicly available information, government data and other similar information from third parties. We do not guarantee the accuracy or completeness of any of this information, and we have not independently verified any of the information provided by these third-party sources. In addition, market, demographic and industry data and forecasts involve estimates, assumptions and other uncertainties and are subject to change based on various factors, including those discussed above. Accordingly, you should not place undue reliance on any of this information. This presentation also contains links to third-party websites that are not hosted or managed by Sempra or its family of companies, including SDG&E. We are not responsible for, nor do we recommend, endorse or support, any information contained on any such third-party websites.

Sempra Infrastructure, Sempra LNG, Sempra Texas Utilities, Oncor Electric Delivery Company LLC (Oncor) and Infraestructura Energética Nova, S.A.P.I. de C.V. (IEnova) are not the same companies as the California utilities, San Diego Gas & Electric Company or Southern California Gas Company, and Sempra Infrastructure, Sempra LNG, Sempra Texas Utilities, Oncor and IEnova are not regulated by the CPUC.

ELECTRICITY CONSUMPTION & DEMAND

Electricity consumption & net peak demand is expected to increase significantly



California's projected electricity consumption nearly doubles from 2020 to 2045, primarily driven by transportation electrification



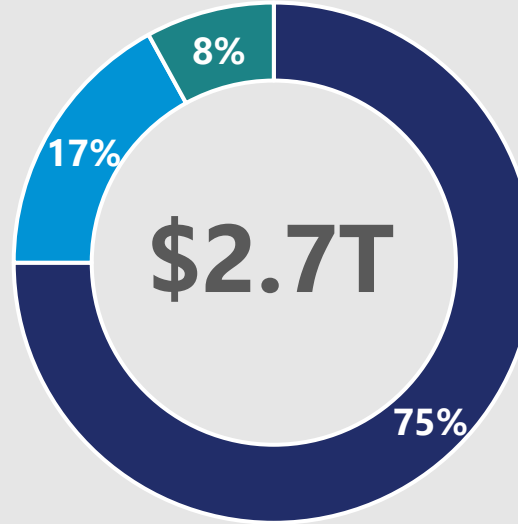
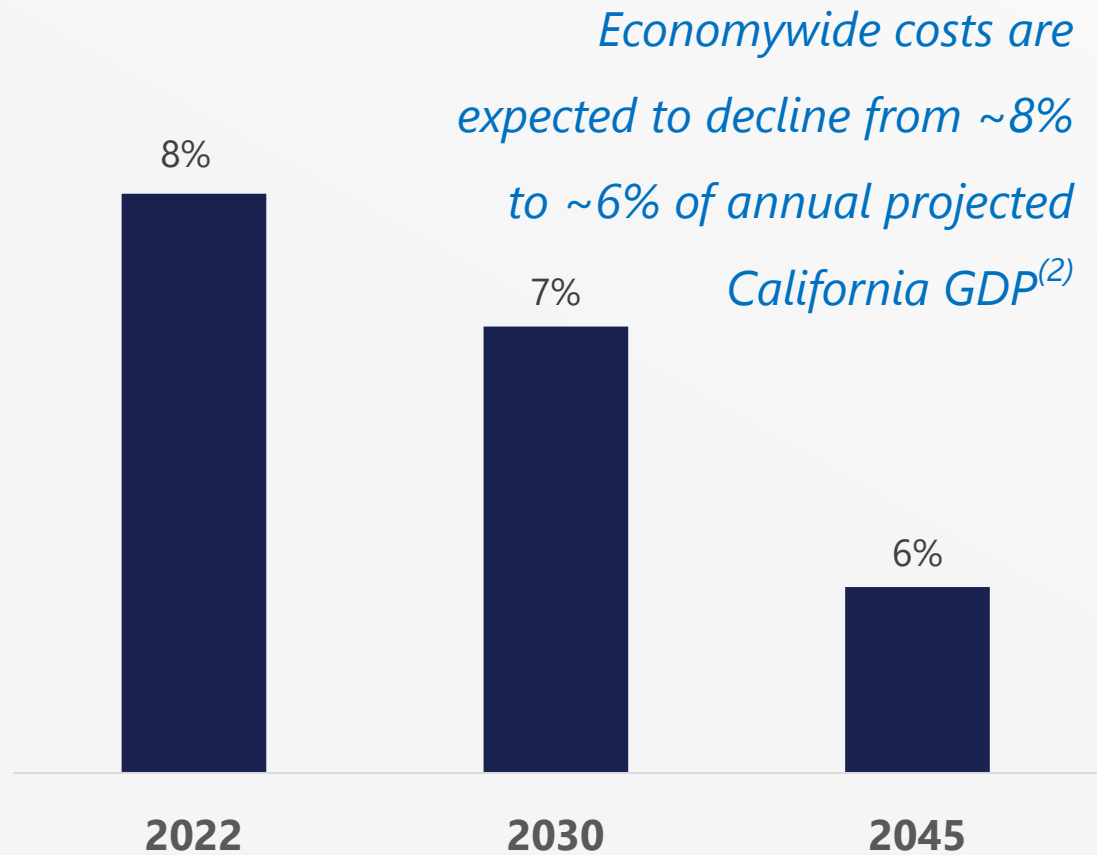
California's projected electric net peak demand grows by 60% from 2020 to 2045

1) Net peak demand = Base Load – BTM PV – CHP

CALIFORNIA ECONOMYWIDE COSTS⁽¹⁾

The Roadmap estimates California will need a relatively small share of state GDP on an annual basis through 2045 to reliably achieve its decarbonization goals

Economywide Costs % of CA GDP⁽²⁾



California Economywide Costs

Equipment Stock Costs | End-use technologies including zero-emission vehicles and electric appliances

Fuel Costs | Including hydrogen, gasoline, natural gas, etc.

Electric Generation | Including capital-related investments, related transmission and annual production costs

1) ~\$2.7T represents the Net Present Value (NPV) of costs calculated by utilizing cumulative full costs (stock costs, fuel costs, and levelized electric costs) in 2021 real dollars through 2045, discounted back to 2021 (utilizing a real discount factor of 10%, consistent with the factor used in PATHWAYS to levelized costs). Full costs represent all costs related to a scenario (not incremental to a reference case) so therefore include costs that are likely to be spent regardless of decarbonization efforts (e.g., purchasing a car or appliance, etc.)

2) California GDP was forecasted by using 2021 figures and applying a real growth rate of 2.7% annually through 2045. 2.7% represents 10-year historical real growth rate per U.S. BEA GDP by State.