Application: _____

Exhibit No.: SDGE-_____

Witness: Linda P. Brown_____

PREPARED TESTIMONY OF

LINDA P. BROWN

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

CHAPTER 1

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

January 22, 2018

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PREPARED TESTIMONY OF
LINDA P. BROWN
CHAPTER 1

I. INTRODUCTION

San Diego Gas & Electric Company ("SDG&E") submits this proposal to reduce barriers and facilitate widespread transportation electrification ("TE") in the medium-duty and heavy-duty vehicle segments. The proposal is consistent with Senate Bill ("SB") 350, SB 32, California Public Utilities Commission ("CPUC" or "Commission") guidance and California Air Resources Board ("CARB") efforts. SB 350 focuses specifically on electricity as a transportation fuel to help meet California's goals. The Governor, Legislature and Commission have all recognized that widespread TE is required to meet greenhouse gas ("GHG") emission reduction goals.[1] This recognition is codified in state law and positions California as a national leader in electric vehicle adoption.

California's climate change policies are the most innovative and aggressive in the nation. To meet the goals established by Assembly Bill ("AB") 32 and accelerated in SB 32, California must continue to seek new ways to innovate, expand markets and reduce GHG emissions. As SB 350 recognizes, reducing emissions of greenhouse gases to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050 will require widespread transportation electrification.

According to CARB, the transportation sector accounts for 39% of all GHG emissions in the state.[2] In SDG&E's service territory, which has less manufacturing, mining and agriculture

[1] California Senate Bill 350, Stats. 2015-2016, Ch. 547, Clean Energy and Pollution Reduction Act of 2015.

[2] CARB, *Draft: The 2017 Climate Change Scoping Plan* (October 27, 2017) ("CARB 2017 Scoping Plan"), p. 15 (Figure I-3, "Emissions by Sector" illustrating 2015 Total Emissions).

electricity demand compared to the rest of the state,[3] transportation accounts for approximately 50% of all GHG emissions.[4] It is imperative that efforts to reduce GHGs from the transportation sector in SDG&E's service territory are pursued. Not only will TE help reduce GHG emissions it will also reduce local pollution and emissions from vehicle tailpipes such as particulate matter ("PM") and nitrogen oxides ("NOx"). Reducing local emissions provides benefits to residents of local communities and for all customers as described in Section III below.

SDG&E and California have taken important steps towards meeting GHG reduction goals but a continued commitment is necessary. California's "rate of decline of emissions reductions has slowed, and transportation emissions are up."[5] "In order for the state to meet its GHG reduction goals, developing cleaner ways to transport California's products and people will be critical."[6]

In past applications SDG&E primarily focused on the light-duty segment. However, SDG&E recognizes that action is needed across several market segments, including non-light-duty vehicles, if California is to improve local air quality, meet the Governor's electric vehicle ("EV") adoption goals and the state's GHG reduction goals. This sentiment has been expressed by stakeholders and local organizations.[7]

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[3] Compares California Energy Commission ("CEC") Mid-Case 2017 electricity consumption and electricity sales by sector SDG&E and Statewide, submitted 12/11/17. http://www.energy.ca.gov/2017_energypolicy/documents/2017-12-15_workshop/2017-12-15_middemandcase_forecst.php

[4] EPIC, *San Diego County Updated GHG Emissions Inventory* (March 2013), p. 3, http://catcher.sandiego.edu/items/usdlaw/EPIC-GHG-2013.pdf.

[5] Next 10, *California Green Innovation Index*, 9th Edition (August 2017), introduction page. Available at: http://next10.org/sites/next10.org/files/2017-CA-Green-Innovation-Index-2.pdf.

[6] *Id*., p. 22.

[7] Environmental Health Coalition ("EHC") statement, September 27, 2017 Chula Vista SB 350 Community Meeting. Reporter's Transcript (September 27, 2017), pp. 613:6 – 614:14; A.17-01-020, et al., *Opening Brief of CALSTART on the Standard Review Transportation Electrification Proposals*

As the report by the Union of Concerned Scientists and Greenlining Institute explains, "[h]eavy-duty vehicles, including trucks and buses, are one of the largest sources of harmful air pollution in California. The single largest source of nitrogen oxide pollution in the state, they also produce more particulate matter pollution than all of California's power plants combined."[8] Notably, disadvantaged communities are disproportionately impacted by these sources of harmful air pollution. This is a sentiment that was recently articulated by local stakeholder, the Environmental Health Coalition ("EHC"), during the September 27, 2017 Chula Vista SB 350 Community Meeting. EHC stated that "ample support" from SDG&E is needed to support local transit and freight agencies.[9] They further stated that without support and investment from

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from San Diego Gas & Electric, Southern California Edison, and Pacific Gas and Electric (November 17, 2017), p. 11.

[8] Union of Concerned Scientists and Greenlining Institute. *Delivering Opportunity: How Electric Buses and Trucks Can Create Jobs and Improve Public Health in California* (May 2017) ("Delivering Opportunity Report"), at p. 7. Available at: https://www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf.

[9] EHC statement, September 27, 2017 Chula Vista SB 350 Community Meeting. Reporter's Transcript (September 27, 2017), p. 613:1-614:19.

> [In] order for transit and freight agencies to comply with SB 350, they need ample support from SDG&E and building the infrastructure necessary to support a full fleet of zero-emission buses and trucks. So zero-emission buses especially are important to low-income communities of color, because these communities experience the greatest exposure to pollution from medium- to heavy-duty vehicles and transit and freight systems. So in San Diego, disadvantaged communities often live near freeways, roads, and the port. So this is where greenhouse gas emissions and other pollutants are concentrated… Further in San Diego, low-income people of color occupy the majority of transit riders. So this means that disadvantaged communities are both transit's most loyal customers and those facing the majority of the pollutant impacts from that same system that they rely on. And an electrified transit system would make a great impact for those people who use it most…As I said earlier, without the support and investment from SDG&E for charging infrastructure for these medium- and heavy-duty vehicles. These benefits that are so possible are impossible to realize.

SDG&E for charging infrastructure for medium-duty and heavy-duty vehicles the transition to zero-emission vehicles may not occur to the detriment of disadvantaged communities.[10]

In response to state policies, sentiment from stakeholders that SDG&E should help reduce local emissions, and customer concerns with upfront costs to adopt EVs,[11] SDG&E is submitting this proposal that includes a Medium-Duty and Heavy-Duty Electric Vehicle Charging Infrastructure Program ("MD/HD EV Charging Infrastructure Program" or "Program") and a Vehicle to Grid ("V2G") Electric School Bus Pilot ("V2G Pilot" or "Pilot"). The total direct costs of the Program and Pilot are $152.3 million.

This chapter provides a high-level overview of the Program and Pilot, states how they address specific needs in SDG&E's service territory and describes how these efforts meet the statutory requirements and regulatory guidelines set forth in the September 2016 assigned commissioner's ruling ("ACR").[12]

Direct testimony chapters are organized as follows:

- Chapter 1: (Linda P. Brown) provides an overview of SDG&E's vision regarding transportation electrification and policy support for its MD/HD EV Charging Infrastructure Program and V2G Pilot that utilizes electric school buses;
- Chapter 2: (Hannon J. Rasool) describes in detail SDG&E's MD/HD EV Charging Infrastructure Program to support approximately 3,100 Target Vehicles;

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[10] *Id*.

[11] A.17-01-020, et al., *Opening Brief of California Transit Association on the Priority Review Transportation Electrification Proposals from San Diego Gas & Electric, Southern California Edison, and Pacific Gas and Electric* (June 16, 2017), p. 4. *See also*, discussion on barriers in Hannon Rasool's direct testimony (Chapter 2).

[12] Rulemaking ("R.") 13-11-007, *Assigned Commissioner's Ruling Regarding the Filing of the Transportation Electrification Applications Pursuant to Senate Bill 350* (September 14, 2016) ("ACR").

- Chapter 3: (David M. Goldgraben) describes the specific details regarding the V2G Pilot;
- Chapter 4: (Kellen C. Gill) describes the proposed rate recovery for the transportation electrification proposals that are the subject of this application;
- Chapter 5: (Gregory D. Shimansky) identifies the costs associated with the proposals; describes the methodology used by SDG&E in determining the revenue requirements for the proposals; and identifies the resulting annual revenue requirements for the MD/HD EV Charging Infrastructure Program and the V2G Pilot;
- Chapter 6: (Norma G. Jasso) describes the balancing accounts requested for recovering the costs related to SDG&E's MD/HD EV Charging Infrastructure Program and the V2G Pilot; and
- Chapter 7: (J.C. Martin) describes the air quality impacts for SDG&E's MD/HD EV Charging Infrastructure Program and V2G Pilot.

A. Sustained Efforts to Reduce Greenhouse Gases and Local Vehicle Emissions are Necessary

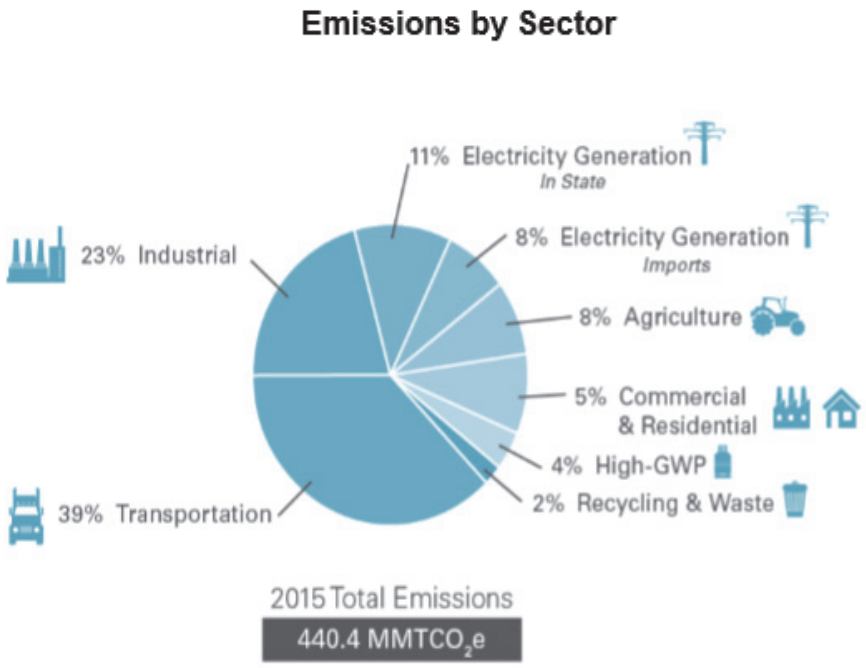
There is much enthusiasm and promise for EV technology. However, California will fall short of both its TE and GHG reduction goals without significant new investment and innovation. As stated in AB 1082 (October 2017), California is behind schedule in attaining the Governor's EV infrastructure goal and EV deployment goal.[13] The legislation states that more

[13] See AB 1082, Section 1 (c) at https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB1082 ("The state is behind schedule in attaining the Governor's goal that by 2015 all major cities in California will have adequate infrastructure intended to support the goal of 1.5 million zero-emission vehicles by 2025. The 2020 goal of establishing adequate infrastructure to support one million zero-emission vehicles is also behind schedule.").

needs to be done to install the EV charging infrastructure that will support and enable these critical EV goals.[14]

Similar to the EV goals, California is at risk of not reaching its GHG reduction goals. The following graphs illustrate key points expressed by CARB. First, transportation emissions continue to be the largest segment of emissions (see Figure 1). Second, incremental action must be taken to reduce GHGs to meet California's goals (see Figure 2).

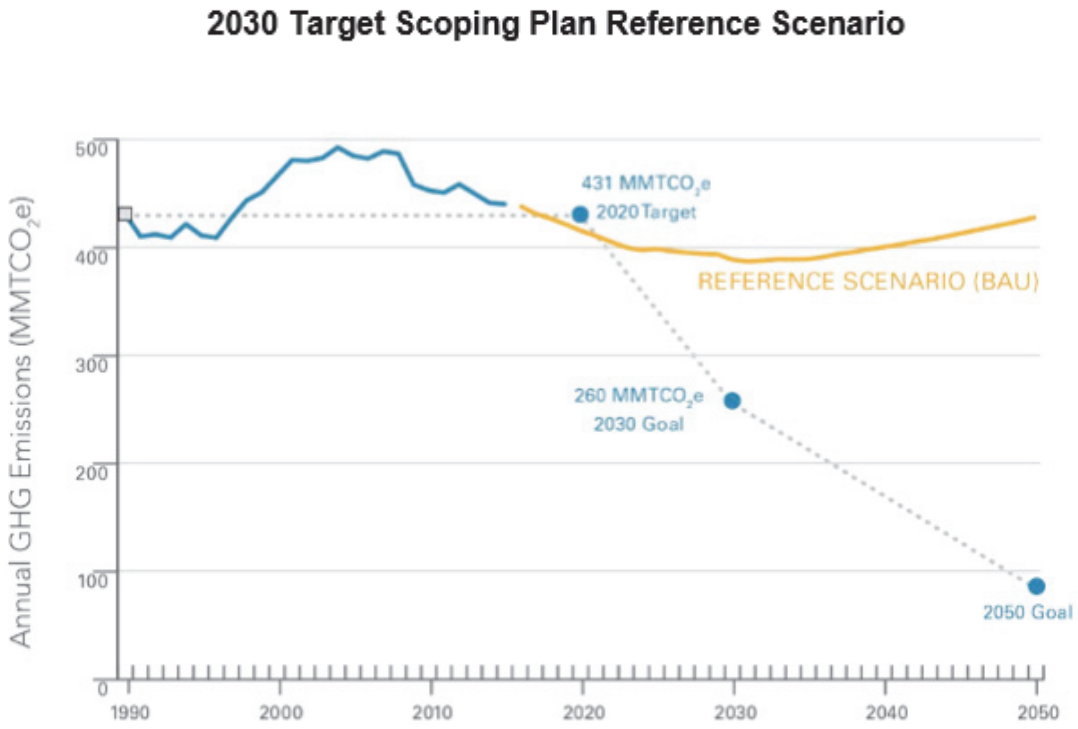
FIGURE 1[15]



[14] *Id.*

[15] CARB 2017 Scoping Plan, p. 15, available at: https://www.arb.ca.gov/cc/scopingplan/revised2017spu.pdf.

FIGURE 2[16]



While there is a cost to deploy charging infrastructure, there is also a cost if stakeholders do not act. The cost of inaction is not $0. The American Lung Association estimates that in 2015, the harmful impacts caused by passenger vehicles in the 10 ZEV States[17] totaled billions of dollars in health and climate costs combined.[18]

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[16] *Id*., p. 35. The Scoping Plan Reference Scenario is the forecasted statewide GHG emissions through 2030 with existing policies and programs, but without any further action to reduce GHGs. California will miss its 2030 GHG goals even after future "known commitments" are added to the Scoping Plan Reference business as usual ("BAU") values.

[17] American Lung Association, *Clean Air Future – Health and Climate Benefits for Zero Emission Vehicles* (October 2016) refers to the following states as the "10 ZEV States" - California, Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island and Vermont. The American Lung Association focused on the 10 U.S. states that have adopted a ZEV sales program. This report is available at: http://www.lung.org/local-content/california/documents/2016zeroemissions.pdf.

[18] *Id*., p. 5.

In order to advance California's commitment to reducing GHGs and accelerating transportation electrification, steps must be taken to reduce barriers to adoption. SDG&E's proposed program and pilot take steps in that direction.

II. SUMMARY OF SDG&E'S PROGRAM AND PILOT

SDG&E's program focuses on providing charging infrastructure to support the medium-duty ("MD") and heavy-duty ("HD") vehicle segments. At a high level, the Program will support Class 2 – Class 8 electric vehicles, forklifts and transport refrigeration units ("TRUs"). These vehicles are referred to as the "Target Vehicles." The Target Vehicles are used by businesses, transit agencies, and freight vehicles at the marine port and US/Mexico border. SDG&E's program invests in charging infrastructure, provides new opportunities for electric vehicle and charging station equipment and service providers, and supports businesses and entities seeking to deploy medium-duty and heavy-duty electric vehicles. A V2G pilot will also be deployed upon CPUC approval.

A new electric utility rate is not proposed at this time. Program participants will have the option to select from SDG&E's approved rates. In addition, the CPUC is considering SDG&E's Commercial Grid Integrated Rate as part of Application 17-01-020. The CPUC has indicated that the rate will be adjudicated as part of the standard review process.[19] Also, a new rate for medium/large commercial and industrial customers was approved in SDG&E's 2016 General Rate Case Phase 2 Decision.[20] In order to advance TE and be responsive to customers, SDG&E

[19] Decision ("D.") 18-01-024. *Decision on the Transportation Electrification Priority Review Projects*, dated January 11, 2018, p. 43.

[20] D.17-08-030, pp. 38-54.

will convene a forum after the prehearing conference in this proceeding to garner stakeholder input on potential new rate options for commercial EV operators.

A. Infrastructure Program

The MD/HD EV Charging Infrastructure Program is a multi-year program that will support approximately 3,100 vehicles.

The Program provides charging infrastructure to participants who procure and utilize electric vehicles as part of their business operations. SDG&E will install, maintain and own the charging infrastructure up to the electric vehicle supply equipment ("EVSE"). Program participants will have the option to own and maintain the EVSE or request that SDG&E own and maintain the EVSE. Under both scenarios, an allowance will be provided towards the cost of the EVSE. The Program is described in detail in the direct testimony of Hannon J. Rasool (Chapter 2).

B. Vehicle to Grid Pilot

SDG&E will also deploy a V2G pilot. EVs are essentially stationary batteries on wheels. These assets, which usually sit idle for large portions of the day, provide a unique opportunity to provide system level grid services and create revenue streams.

The V2G Pilot will utilize ten electric school buses at one location. The primary goal of the Pilot is to charge the vehicles mid-day to integrate renewables and discharge the batteries in the evening hours to assist with the grid's ramp up needs. The EV batteries will be bid into the California Independent System Operator ("CAISO") market in order to provide a system level grid resource. The Pilot is discussed in more detail in the direct testimony of David M. Goldgraben (Chapter 3).

III. ZERO-EMISSION MEDIUM-DUTY AND HEAVY-DUTY ELECTRIC VEHICLES REDUCE GREENHOUSE GASES AND REDUCE LOCAL POLLUTION IN NEIGHBORHOODS AND DISADVANTAGED COMMUNITIES

A. The Proposals Will Reduce Local Air Pollution in Disadvantaged Communities

Reducing local tailpipe emissions in the communities that SDG&E serves, as well as reducing statewide GHG emissions, is a key goal of the proposals. SDG&E's program provides infrastructure to accelerate adoption of MD and HD EVs and reduce GHGs, local air pollution and tailpipe emissions. An emphasis will be placed on deploying charging infrastructure to support vehicles stationed in or operating in disadvantaged communities ("DAC"). The Program will have a positive impact on local air quality and climate change by targeting trucks, buses and other MD and HD vehicles. This is especially true when diesel vehicles are replaced with advanced clean vehicles.

Air pollution impacts all ratepayers, however low-income communities, such as a DACs, are more likely to be located near ports, rail yards, warehouses, and busy roads, where they suffer disproportionally from the consequences of polluted air.[21] Evidence shows that people who have low incomes may face higher risk of health impacts from air pollution.[22]

According to the American Lung Association, San Diego County has received a grade of "F" in air quality in the organization's last two annual "State of the Air" reports.[23] Additionally, in the same study, San Diego ranks as the seventh most polluted city by ozone in the United

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[21] Delivering Opportunity Report, p. 1.

[22] American Lung Association website - http://www.lung.org/our-initiatives/healthy-air/sota/key-findings/people-at-risk.html.

[23] Report Card: California, American Lung Association, available at: http://www.lung.org/our-initiatives/healthy-air/sota/city-rankings/states/california/ (2017); State of the Air 2016, American Lung Association, available at: http://www.lung.org/assets/documents/healthy-air/state-of-the-air/sota-2016-full.pdf.

States.[24] Studies have linked air pollution to adverse effects to humans including cancer and respiratory damage.[25]

Electric vehicles are a powerful tool to combat these issues because they have zero tailpipe emissions. Therefore, the switch to zero-emission electric trucks and buses will benefit local populations. SDG&E will focus on deploying infrastructure to support these vehicles in disadvantaged communities by setting a DAC deployment goal of 40% of installations.

B. Electric Transit Bus and Electric School Bus Deployment Will Benefit Disadvantaged Communities

Transit agencies, such as North County Transit District ("NCTD") and San Diego Metropolitan Transit System ("MTS"), provide a public service available to SDG&E's ratepayers. Transit buses provide transportation options for those who may not have other means of travel. More than 600,000 Californians commute to work on the state's buses.[26]

Both NCTD and San Diego MTS have shown an interest in electrifying their fleets,[27] but the upfront cost of the bus and the charging infrastructure can be cost prohibitive. SDG&E's program will alleviate some of the upfront cost.

Transit buses spend a significant amount of time in operation on the road and idling. Emissions from transit buses impact bus riders, bus drivers and people who live near bus routes and bus depots. Battery electric transit buses have no tailpipe emissions; therefore, there is no

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[24] Available at: http://www.lung.org/our-initiatives/healthy-air/sota/city-rankings/most-polluted-cities.html.

[25] Delivering Opportunity Report, p. 7.

[26] *Id*., p. 8.

[27] North County Transit District Board Meeting, May 18, 2017; San Diego Metropolitan Transit System Board Meeting, October 19, 2017.

local tailpipe pollution created where the vehicles travel.[28] SDG&E's program will benefit the large segment of ratepayers that utilize public transportation or live in neighborhoods in which buses operate by reducing local pollution.

CARB recognizes that "[p]roviding clean transit and mobility options must include a long-term transition to zero-emission technologies while continuing to provide transportation options as part of Sustainable Communities Strategies, and ensuring service to people with limited transportation options."[29] SDG&E's program will help meet and accelerate progress towards these objectives.

School bus electrification complements recent state legislation, such as AB 1082, and provides an opportunity to meet air quality standards, achieve GHG reduction goals and reduce local tailpipe emissions. SDG&E's program will reduce barriers to adoption by providing charging infrastructure to support electric school buses.

Approximately half a million school buses carry 25 million children to school each day in the U.S. That amounts to more than half of the nation's school children, making the school bus industry the largest form of mass transit in the United States.[30]

According to CARB's own research, as well as studies funded by CARB and the National Institutes of Health ("NIH"), the short term and long-term impacts of pollution on developing bodies is of serious concern.[31] Children are often at greater risk from inhaled

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[28] Delivering Opportunity Report, p. 2.

[29] CARB, *Revised Proposed 2016 State Strategy for the State Implementation Plan* (March 7, 2017), p. 5. Available at: https://www.arb.ca.gov/planning/sip/2016sip/rev2016statesip.pdf.

[30] American School Bus Council website, available at: http://www.americanschoolbuscouncil.org/about-asbc/mission-statement ("Council members are committed to providing safe, effective, and efficient transportation for the more than 25 million schoolchildren who ride more than 480,000 school buses each day").

[31] Children and Air Pollution, CARB https://www.arb.ca.gov/research/children/children.htm.

pollutants than adults.[32] The Office of Environmental Health Hazard Assessment ("OEHHA") advises that "reducing children's exposures to environmental chemicals benefits Californians throughout their lifetime."[33]

IV. ACR STATUTORY AND REGULATORY REQUIREMENTS

The ACR outlines the content to be included in a TE application to enable the CPUC's review. This includes how the proposals meet the statutory requirements in accordance with the ACR's direction. This is addressed in Table 1-1 below.

A. ACR STATUTORY REQUIREMENTS[34]

Table 1-1:

Statutory Requirements	SDG&E's MD/HD EV Charging Infrastructure Program and V2G Pilot
Acceleration of Widespread TE (Consistent with PUC Code §§740.12(b) and 701.1(a)(1))	SDG&E's proposals will reduce dependence on petroleum, help meet air quality standards and reduce GHG emissions by accelerating widespread adoption of TE. The proposals will accelerate widespread TE by reducing the upfront cost of infrastructure and making transportation electrification more affordable.
Findings/Declarations set forth in §740.12(a)(1) (Consistent with PUC Code §740.12(a)(2) and (b))	SDG&E's proposals will help reduce petroleum use, meet air quality standards, improve public health and support the state's GHG reduction goals. The proposals will encourage transportation electrification as a means to achieve ambient air quality standards and the state's climate goals. The proposals will help reduce GHGs and local pollution. Local pollutants have harmful health impacts, especially in disadvantaged communities, that can be reduced under these proposals.

[32] *Id*.

[33] OEHHA's page on children's health, available at: https://oehha.ca.gov/risk-assessment/childrens-health.

[34] ACR, pp. 14-15.

Minimize Overall Costs and Maximize Overall Benefits (Consistent with PUC Code §740.12(b))	SDG&E's proposals seek to minimize overall costs and maximize overall benefits. SDG&E will minimize costs by utilizing a competitive solicitation.
Cost Recovery Mechanism (Consistent with PUC Code §740.12(b))	SDG&E proposes one-way balancing accounts for the Program and the Pilot. Analysis is provided in the direct testimony of Norma G. Jasso (Chapter 6).
Does Not Unfairly Compete with Non-Utility Enterprises (Consistent with PUC Code §§740.12(b) and 740.3)	SDG&E's proposals do not unfairly compete with non-utility enterprises. SDG&E's program is reasonable in size and scope and will not result in unfair competition. The Program targets 3% of the MD and HD vehicles in SDG&E's service territory. In fact, the Program will help accelerate TE in these markets and create opportunities for all stakeholders. The V2G Pilot is a narrowly tailored pilot at one location and will not impede competition.
Performance Accountability Measures (Consistent with PUC Code §740.12(b))	SDG&E's proposals include performance accountability measures such as reporting to the Program Advisory Council ("PAC") and annual reports to the CPUC. This is in addition to the CPUC's general oversight ability. SDG&E will establish performance metrics in collaboration with the PAC.
Interest of Ratepayers (Consistent with PUC Code §§740.12(b), 740.8, 740.3)	SDG&E's proposals are in the interest of ratepayers. The proposals reduce negative health and environmental impacts from air pollution, support improved use of the grid by adding flexible load, reduce GHGs and promote the development of infrastructure to support electric vehicles.
Avoids Long-Term Stranded Costs (Consistent with PUC Code §740.12(c))	SDG&E's proposals mitigate the possibility of long-term stranded costs through program design. SDG&E will provide infrastructure contingent on the program participant procuring an EV. Additional details on SDG&E's current transportation electrification programs are available through periodic reports to the CPUC and through established PAC meetings.

B. ACR Regulatory Guidelines

The ACR states that the TE applications should seek to conform to additional guidelines. Additional discussion is provided below.

1. Fit with the CPUC and IOU Core Competencies and Capabilities

SDG&E's core competencies include providing safe and reliable energy to customers, strong customer service, and providing safe and reliable interconnection to the distribution grid. Electric utilities provide energy services to end users for their multitude of needs, including fueling their electric vehicles.

Additionally, SDG&E has vast knowledge and experience in administering programs and providing a positive customer experience. It is imperative that early adopters have a positive experience with regards to vehicle charging, understanding bill impacts and are confident that equipment is safe and reliable. SDG&E will leverage the current programs, lessons learned and existing customer relationships to educate customers on TE.

The proliferation of EVs will inherently add new load to the utility distribution grid. It is important that electric utilities be proactive when it comes to integration of EV load. The proposals will accelerate TE but also allow SDG&E to educate participants on how and when to charge and encourage them to charge in a manner that is less detrimental to the grid, benefits ratepayers, and in a manner that manages their fueling costs. Planning with foresight will help integrate the new load in a manner that limits potential capacity upgrades.

2. Multiple Goals of Widespread TE

SDG&E's proposals are designed to help achieve California policy goals by removing barriers to MD and HD EV adoption, a key tool to meeting the GHG emission reduction goals of SB 350. In addition to removing barriers to TE, SDG&E's proposals align with Commission efforts to integrate distributed energy resources to help achieve the State's GHG emission

reduction goals. Further, the proposals support the ACR goals of reducing dependence on petroleum, meeting air quality standards, lowering GHG emissions, and achieving the goals set forth in the Charge Ahead California Initiative.

The proposals support the goal of 1.5 million ZEVs on California roads by 2025 and, importantly, sets California up to meet the GHG emission reduction goals of 2030 and 2050. Achieving GHG emission reductions of 40% below the 1990 level by 2030 and reducing GHG emissions 80% below the 1990 level by 2050 will take continued investments and sustained effort by all stakeholders.

3. Competition Concerns

SDG&E's proposals benefit stakeholders and do not unfairly compete with the private industry. To the contrary, the proposals will in fact support markets and increase opportunities for market participants. SDG&E's program is small in scope, comprising only 3%[35] of the MD and HD vehicle population in SDG&E's service territory. The Program will reduce barriers by lowering the upfront cost of TE, which benefits stakeholders, but will not unfairly compete with market participants.

SDG&E does not intend to manufacture EVSEs or develop the software to manage the EVSE. Rather, the goal is to enable the market and facilitate the deployment of charging infrastructure. SDG&E's program creates a platform and marketplace for market participants.

One of the biggest challenges for this market is the up-front cost of infrastructure and vehicles. The proposals presented here will relieve some of the costs by providing EV charging infrastructure. This will expand the market and create greater opportunities for EV supply equipment and service providers to sell their products and services. It will create competition

[35] Proprietary IHS/Polk Data (June 2016).

and encourage innovation. Reduction of up-front costs and reducing barriers will increase the customer base.

SDG&E will use a competitive request for proposals ("RFP") process to contract with third parties to install the EVSEs and will also use a competitive RFP process to procure equipment. The RFP will incentivize competition among market participants (both the EVSE and installation services). SDG&E has seen evidence in its Power Your Drive ("PYD") Program that the RFP process has driven competition and innovation in the market as vendors develop new products and capabilities in order to serve PYD customers. SDG&E believes that by creating an easily accessible marketplace for customers, the RFP process stimulates innovation and creates competition among EVSPs.

Program participants will have the option to select products from multiple vendors whose products are qualified for inclusion in the Program. Creating greater demand and a more robust market will encourage new market participants and reduce costs. Without sufficient demand, existing companies could fail and California's GHG reduction efforts adversely impacted.

The size of the Program impacts a small percentage of the population of MD and HD vehicles. However, the capital injection the Program provides acts as a stimulus to all participants in the charging market. The capital investment from the Program will enable growth and opportunity for these participants and stimulate competition while also providing benefits to ratepayers.

In light of these considerations and in concert with the oversight provided by the Commission, SDG&E believes its proposals are consistent with SB 350 and will expand opportunities rather than unfairly compete with providers in the marketplace.

4. Safety is a Priority

SDG&E is committed to the safety of the public and its employees. Safety is part of SDG&E's culture and mission statement. SDG&E actively manages risk by incorporating risk management principles and practices into daily operations and strives to continue including safety and risk management as a key aspect of organizational decision-making processes. SDG&E is dedicated to providing safe, reliable service and equipment to support widespread growth of TE.

SDG&E's safety efforts include complying with applicable safety requirements, utilizing certified equipment and compliance with electrical standards. Construction, installation and maintenance contractors will have Electric Vehicle Infrastructure Training Program ("EVITP") certification, and SDG&E will require that all construction, installation and maintenance of EVSE charging facilities that is not performed by employees of SDG&E shall be performed by contractors signatory to the International Brotherhood of Electrical Workers (IBEW) who hold valid C-10 contractor's licenses, as defined in the governing labor agreement between SDG&E and the IBEW. Installations will be designed in compliance with applicable codes.

Safety is not only the traditional safety measures exercised by SDG&E in safely and reliably delivering electricity. Public safety extends to include environmental safety and clean local air. Transportation electrification reduces GHG emissions, which is the crux of California's climate change policies, but it also significantly reduces other types of air pollution (e.g. particulate matter, NOx). TE directly benefits local communities. This is particularly valuable to DACs which are often located near freeways or rely heavily on public transportation and therefore most significantly impacted by air pollution from transportation.

Safety has been and will continue to be a priority in deployment of transportation electrification charging infrastructure. Safety is considered every step of the way from program

development, to construction and to operations. Operational and environmental safety are cornerstones in SDG&E's programs to enable and accelerate transportation electrification.

C. Alignment with Additional Legislation and Regulation

SDG&E's proposals align with and support the legislation and regulations listed in Table 1-2.

Table 1-2

Proposals	Legislation and Regulation
MD/HD EV Charging Infrastructure Program and V2G Pilot	California SB 350, California SB 32, California AB 32, California AB 1082 California EO B-30-15, California EO B-16-2012, California EO B-32-15 California Public Utility Code §740.8, California Public Utility Code §740.12 2016 ZEV Action Plan, First Update to the Climate Change Scoping Plan, CARB Mobile Source Strategy, California Sustainable Freight Action Plan

V. CONCLUSION

Upon Commission approval, SDG&E will begin taking the necessary steps to implement the proposals and advance TE in these market segments to reduce GHGs and reduce local pollution.

This concludes my prepared direct testimony.

VI. STATEMENT OF QUALIFICATIONS

I am the Senior Director – Clean Transportation for SDG&E. I oversee the company's Clean Transportation business unit. My business address is 8306 Century Park Court, San Diego, California, 92123. My educational background includes a Bachelor of Science degree in Electrical Engineering from Southern Illinois University, Carbondale, Illinois. I am a licensed Professional Engineer in Electrical Engineering in the State of California. I have more than 30 years of experience with SDG&E which includes various positions in distribution, operations, transmission, supply management, generation, and regulatory affairs. I have testified numerous times before the California Public Utilities Commission, most recently on SDG&E's Senate Bill 350 Transportation Electrification application submitted to the Commission on January 20, 2017.