

Application of SAN DIEGO GAS & ELECTRIC
COMPANY (U902-E) for Approval of SB 350
Transportation Electrification Proposals

Application No. _____
(Filed January 20, 2017)

PREPARED TESTIMONY OF
LINDA BROWN (ERRATA - CLEAN)
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY
CHAPTER 2

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

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1 **PREPARED TESTIMONY OF**

2 **LINDA BROWN**

3 **CHAPTER 2**

4 **I. INTRODUCTION**

5 San Diego Gas and Electric Company (“SDG&E”) proposes in this Application a
6 transportation electrification (“TE”) portfolio consisting of six priority review projects and one
7 standard review residential charging program (“TE portfolio”). The purpose of my testimony is
8 to describe how SDG&E’s proposed TE portfolio meets the statutory requirements and
9 regulatory guidelines set forth in the ACR,¹ including why the six priority review projects should
10 be expeditiously approved by the California Public Utilities Commission (“CPUC” or
11 “Commission”).

12 SDG&E would like to commend the Commission for creating a priority review
13 mechanism that allows for the exploration of near term opportunities to encourage the
14 widespread growth of TE. This pathway recognizes the urgency in advancing TE as a means to
15 reducing greenhouse gases (“GHGs”). It also creates an opportunity to continue the exploration
16 of various approaches to efficiently integrate electric transportation charging loads with
17 SDG&E’s grid through rate design and enabling technology. The priority review projects
18 proposed by SDG&E will help to inform the Commission about how best to advance grid
19 integrated charging within a broader range of electric transportation market segments. Of
20 significant importance, and something that cannot be overstated, is that the priority review
21 mechanism will allow for learning opportunities and build a more effective electric

¹ 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”).

1 transportation future. The importance of supporting early adopters is imperative to accelerating
2 the market.

3 The following is a brief overview of SDG&E’s proposed priority review projects, the key
4 learning opportunities, and expected outcomes to be gained from each:

5 • **Airport Ground Support Equipment**

6 ○ The Airport Ground Support Equipment (“GSE”) project proposes that
7 SDG&E install charging ports, metering equipment and data loggers in
8 partnership with the San Diego International Airport (“SDIA”) and its
9 tenants.

10 ○ Key Learnings: Collect data from load research meters and charging
11 equipment to better understand the impact of electric GSE adoption and
12 the interaction of solar and EV charging behaviors, as well as educate
13 stakeholders interested in electrifying GSE.

14 ○ Expected Outcomes: Increased electrification of GSE resulting in GHG
15 reduction benefits as described in the testimony of Mr. Martin.² A load
16 management plan for SDIA and its tenants that will educate them on
17 mitigating grid impacts while fully utilizing the onsite solar generation
18 facility.

19 • **Electrify Local Highways**

20 ○ The Electrify Local Highways project proposes to provide both Level 2
21 (“L2”) and Direct Current Fast Chargers (“DCFC”) charging infrastructure
22 to four Park-and-Ride locations owned by the California Department of

² See the direct testimony of J.C. Martin (Chapter 8) for further discussion on air quality impacts and benefit cost analysis.

1 Transportation (“Caltrans”) located in or near DACs. These proposed
2 locations have been identified in consultation with Caltrans and align with
3 Caltrans’ existing plans for new construction and renovation.

4 ○ Key Learnings: This project will: 1) monitor usage data to study charging
5 behavior at long-duration public locations, analyzing the different usage
6 and charging patterns between L2 and DCFC and the associated grid
7 impacts; 2) ascertain the cost to implement the National Institute of
8 Standards and Technology (“NIST”) Handbook 44 Section 3.4
9 requirements for public EV charging; and 3) test grid integrated hourly
10 pricing in the public domain and how best to communicate this pricing at
11 the charging station.

12 ○ Expected Outcomes: High utilization of L2 and DCFC. Determine the
13 cost to implement the National Institute of Standards and Technology
14 (“NIST”) Handbook 44 Section 3.4 requirements for public EV charging.
15 Show that when grid integrated hourly pricing in the public domain is
16 easily communicated, charging station utilization will increase. GHG
17 reduction benefits, as described in the testimony of Mr. Martin,³ resulting
18 in air quality benefits for DACs.

19 • **Medium Duty/Heavy Duty (“MD/HD”) and Forklift Port Electrification**

20 ○ In collaboration with the San Diego Unified Port District (“Port District”)
21 and the San Diego Port Tenants Association, the MD/HD and Forklift Port
22 Electrification project will provide support to the MD/HD electric vehicles

³ See the direct testimony of J.C. Martin (Chapter 8) for further discussion on air quality impacts and benefit cost analysis.

1 recently awarded through CEC and CARB grant funding.⁴ SDG&E
2 proposes to install charging infrastructure, load research meters, and data
3 loggers to collect consumption and operational data of this unique market
4 segment of vehicles. Expedited approval of this project is critical, as the
5 first MD/HD vehicle awarded from this grant funding is expected to be
6 delivered during the first half of 2017. Port tenant partners include
7 Terminalift, LLC, CEMEX and Dole Food Company.

- 8 ○ Key Learnings: Operational data will be collected and analyzed to better
9 understand the operational needs and feasibility of modifying charging
10 patterns in the MD/HD and off road markets for various commercial
11 industries. This data will help identify the optimal number of chargers per
12 vehicle and inform future grid integrated rate design. These learnings will
13 maximize asset utilization while minimizing installation costs and also
14 help enable and innovate technology for this market segment.
- 15 ○ Expected Outcomes: Accumulation of an operational data set that will
16 facilitate development of an optimized grid integrated solution in this
17 nascent market. GHG reduction benefits, as described in the testimony of
18 Mr. Martin,⁵ resulting in air quality benefits for DACS and surrounding
19 areas.

⁴ Grants: CEC PON-14-605 MD and HD Advanced Vehicle Technology Demonstration, CARB AQIP-GGRF Zero Emission Drayage Truck Demonstration, CEC GFO-15-604 Freight Transportation Projects at California Seaports.

⁵ See the direct testimony of J.C. Martin (Chapter 8) for further discussion on air quality impacts and benefit cost analysis.

1 • **Fleet Delivery Services**

- 2 ○ The Fleet Delivery Services project proposes to accelerate the
3 electrification of regional delivery vehicles by providing infrastructure
4 upgrades and utility owned charging facilities at approximately six
5 locations for up to 90 electric delivery vehicles. SDG&E has already
6 established a partnership with United Parcel Service (“UPS”).
7 Specifically, UPS will utilize the infrastructure to electrify a portion of
8 their fleet in the San Diego region and will provide access to three
9 locations for SDG&E to install L2 and DCFC charging infrastructure to
10 support electric delivery vehicles.
- 11 ○ Key Learnings: Gather data on usage patterns and operational needs that
12 are specific to fleet delivery vehicles. The data will be used to analyze the
13 usage patterns and effectiveness of DCFC and L2 chargers. The project
14 will provide data to inform a fleet delivery total cost of ownership
15 analysis. The project will also test grid integrated hourly pricing in the
16 commercial domain. There is strong potential to scale up adoption
17 statewide, nationally and potentially worldwide.
- 18 ○ Expected Outcomes: Annual accumulation of data to better understand the
19 operational needs of this market segment and its capabilities. GHG
20 reduction benefits, as described in the testimony of Mr. Martin,⁶ resulting
21 in air quality benefits for DACs and surrounding areas.
22

⁶ See the direct testimony of J.C. Martin (Chapter 8) for further discussion on air quality impacts and benefit cost analysis.

1 • **Green Taxi/Shuttle/Rideshare**

2 ○ The Green Taxi/Shuttle/Rideshare project proposes to partner with Taxi
3 Companies (“TC”), Transportation Network Companies (“TNC”), and
4 other transportation services such as shuttle bus companies to provide
5 charging infrastructure along with fuel and vehicle incentives to stimulate
6 this market.

7 ○ Key Learnings: This project will help inform SDG&E and vehicle
8 operators to understand the total cost of ownership for each of these
9 market segments, analyze the different charging patterns between DCFC
10 and L2 chargers, and help inform the optimal number of chargers per
11 vehicle. SDG&E will also examine the impact of providing incentives to
12 use a public charging grid integrated rate.

13 ○ Expected Outcomes: Increased transportation electrification in the taxi,
14 rideshare and shuttle markets which will jump-start the widespread
15 adoption of EV in future years. GHG reduction benefits, as described in
16 the testimony of Mr. Martin,⁷ resulting in air quality benefits for DACs
17 and surrounding areas.

18 • **Dealership Incentives**

19 ○ The Dealership Incentive project proposes to increase EV sales through
20 education, marketing and outreach, as well as incentives to dealerships and
21 their sales staff. Since dealerships are often the first point of contact for

⁷ See the direct testimony of J.C. Martin (Chapter 8) for further discussion on air quality impacts and benefit cost analysis.

1 consumers, it is important to utilize their knowledge and influence to
2 encourage EV sales and grid integrated rates.

- 3 ○ Key Learnings: Education and outreach activities combined with
4 performance metrics will provide insight into the impact of these efforts to
5 increase EV sales and adoption of grid integrated rates.
- 6 ○ Expected Outcomes: Increased EV sales and increased dealership
7 knowledge on EVs and grid integrated rates.

8 SDG&E's TE portfolio also includes the following program proposed for the CPUC's
9 standard review:

- 10 • **Residential Charging Program**

- 11 ○ The residential charging program proposes to incent widespread TE by
12 providing participants L2 chargers and subsidizing installation costs.
13 Customers will be enrolled in a whole-house grid integrated rate. L2
14 chargers will allow for increased charging flexibility and encourage
15 charging behavior that reduces customer costs and mitigates grid impacts.
- 16 ○ Key Outcomes: This project will provide insight into barriers to EV
17 adoption in the residential sector and acceleration of the light duty EV
18 market. Data will measure the ability to influence EV charging behavior
19 through rates and mitigation of grid impacts. Provide data on whole house
20 energy usage choices under a grid integrated rate.

21 Details of the six proposed priority review projects and the standard review residential
22 charging program are provided in Chapter 3 and Chapter 4, respectively.

1 **II. CONTENT REQUIRED FOR TRANSPORTATION ELECTRIFICATION**
2 **APPLICATIONS**

3 The ACR outlines the minimum content necessary to be included in the TE applications
4 to enable the CPUC’s review. The ACR specifies that TE applications are to meet the
5 objectives, legislative findings and declarations as defined by SB 350 and related California
6 Public Utilities (“P.U.”) Code §§740.12, 740.3 and 740.8. Specifically, under these statutory
7 requirements, the TE applications are required to:

- 8 (i) Propose projects or investments that will accelerate widespread TE;⁸
- 9 (ii) Describe how each project and investment will fulfill one or more of the findings
10 and declarations set forth in §740.12(a)(1);⁹
- 11 (iii) Describe how each project and investment will minimize overall costs and
12 maximize overall benefits;¹⁰
- 13 (iv) Describe for each project and investment the cost recovery mechanism that the
14 utility is seeking;¹¹
- 15 (v) Describe how each proposed project and investment does not unfairly compete
16 with nonutility enterprises;¹²
- 17 (vi) Include performance accountability measures for each proposed TE project and
18 investment to ensure they are timely contributing to TE adoption;¹³

⁸ P.U. Code §§740.12(b) and 701.1(a)(1).

⁹ Consistent with P.U. Code §740.12(a)(2) and (b). Additionally, the ACR at 14 states: “The TE applications need to demonstrate, with specific monitoring and evaluation criteria, how the projects and investments will align with the findings set forth in this code section.”

¹⁰ P.U. Code §740.12(b).

¹¹ *Id.*

¹² P.U. Code §§740.12(b) and 740.3(c).

¹³ P.U. Code §740.12(b).

- 1 (vii) Describe how each proposed project and investment are in the interests of
2 ratepayers;¹⁴ and
- 3 (viii) “[P]rovide testimony about the following: ‘current and future electric
4 transportation adoption and charging infrastructure utilization;’ any market
5 barriers that ‘prevent electric transportation from adequately utilizing available
6 charging infrastructure;’ and a ‘reasonable showing that the investments would
7 not result in long-term stranded costs recoverable from ratepayers.’”¹⁵

8 In addition to the requirements defined by statute, the ACR also provides that TE
9 applications should “seek to conform” to the following regulatory guidelines:

- 10 • Fit with the CPUC and IOU core competencies and capabilities;
- 11 • Address the multiple goals of widespread TE;
- 12 • Consider Commissioner-identified priority projects;
- 13 • Align with local, regional and broader state policies;
- 14 • Promote driver, customer and worker safety;
- 15 • Seek to leverage non-utility funding;
- 16 • Identify a vehicle-grid integration communication standard;
- 17 • Consider utility incentives or other regulatory mechanisms;
- 18 • Propose 2-5 year pilots and programs with a selection of 1-year pilots for priority
19 review; and
- 20 • Provide anonymous and aggregated data for evaluation.¹⁶

¹⁴ P.U. Code §§740.12(b), 740.8, and 740.3.

¹⁵ ACR at 14-15; P.U. Code §740.12(c).

¹⁶ ACR at 15-16.

1 In accordance with the ACR’s guidance, my testimony addresses the following:

- 2 • How SDG&E’s TE portfolio meets the above statutory requirements defined by
- 3 SB 350 and related P.U. Codes §§740.12, 740.3, and 740.8; and
- 4 • How SDG&E’s TE portfolio meets the above regulatory guidelines as outlined in
- 5 the ACR.

6 With regard to the statutory requirements, my testimony will first address how the six
7 priority review projects meet the statutory requirements outlined in the ACR. Addressing the
8 priority review projects together aligns with both the ACR’s directive allowing for a number of
9 small, short duration projects with limited budgets as well as its recognition that the portfolio as
10 a whole should “represent a diversity of objectives.”¹⁷ My testimony will then separately
11 describe how the standard review residential charging program meets these statutory
12 requirements. In addition to the testimony provided herein, and in accordance with the ACR’s
13 request,¹⁸ Table 2-1 below summarizes how SDG&E’s TE portfolio meets the statutory
14 requirements. Finally, my testimony will address how SDG&E’s TE portfolio (including both
15 the priority review projects and the standard review residential charging program) meets the
16 regulatory guidelines outlined in the ACR.

¹⁷ *Id.* at 14.

¹⁸ The ACR states:

The utilities should clearly indicate how each proposed project or program addresses the following code sections. This information should be summarized in a table or similar graphic and expanded upon in the narrative portion of the application. *Id.*

1 **III. ACR STATUTORY REQUIREMENTS**

2 **A. SDG&E’s Priority Review Projects Satisfy the Statutory Requirements**
3 **Defined by SB 350 and the ACR**

4 **1. SDG&E’s Proposed Priority Review Projects Accelerate Widespread**
5 **TE**

6 SDG&E’s proposed priority review projects will take initial steps necessary to accelerate
7 the adoption of TE. The California legislature and the CPUC regard the acceleration of
8 widespread TE as a vital tool in achieving environmental policy goals.¹⁹ SDG&E’s priority
9 review projects will help overcome barriers to EV adoption by studying the needs of a wide
10 range of customers and vehicle types, including commercial fleet, people movement and
11 individual customer segments covering the light duty, medium duty, heavy duty, and off road
12 transportation sectors. Lessons learned from the priority review projects will inform future
13 program design. It is important to understand the increased load, timing of the load, impacts to
14 the grid, operational needs of customers, and EV adoption metrics.

15 In addition to informing future program design, SDG&E’s priority review projects are
16 designed to educate and encourage early adopters. The partnerships and coordinated efforts
17 between the utility and the customer are critical to customer adoption in some key market
18 segments. Early adopters must consider the economic impacts on their operations. For example,
19 these economic impacts include the increased upfront costs of charging infrastructure and often
20 more expensive vehicles. If these early adopters have a positive experience, it will encourage
21 them to make similar investments in the future and increase public acceptance of EVs in general.

¹⁹ P.U. Code §§740.12(a)(2), 740.12(b), 701.1(a)(1).

1 **2. SDG&E’s Proposed Priority Review Projects Fulfill**
2 **Findings/Declarations Set Forth in P.U. Code Section 740.12(a)(1)**

3 SDG&E’s priority review projects each fulfill one or more of the legislative findings and
4 declarations set forth in P.U. Code §740.12(a)(1).²⁰ Each project supports the Legislature’s
5 conclusion that advanced clean vehicles and fuels are needed to reduce petroleum use, to meet
6 air quality standards, to improve public health, and to achieve GHG gas emissions reduction
7 goals. Further, each of the projects will result in reducing GHG emissions, which will not occur
8 if customers continue to use internal combustion engine vehicles. SDG&E targeted

²⁰ The legislative findings and declarations are as follows:

- (A) Advanced clean vehicles and fuels are needed to reduce petroleum use, to meet air quality standards, to improve public health, and to achieve greenhouse gas emissions reduction goals.
- (B) Widespread transportation electrification is needed to achieve the goals of the Charge Ahead California Initiative (Chapter 8.5 (commencing with Section 44258) of Part 5 of Division 26 of the Health and Safety Code).
- (C) Widespread transportation electrification requires increased access for DACs, low- and moderate-income communities, and other consumers of zero-emission and near-zero-emission vehicles, and increased use of those vehicles in those communities and by other consumers to enhance air quality, lower greenhouse gases emissions, and promote overall benefits to those communities and other consumers.
- (D) 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.
- (E) Widespread transportation electrification requires electrical corporations to increase access to the use of electricity as a transportation fuel.
- (F) Widespread transportation electrification should stimulate innovation and competition, enable consumer options in charging equipment and services, attract private capital investments, and create high-quality jobs for Californians, where technologically feasible.
- (G) Deploying electric vehicles should assist in grid management, integrating generation from eligible renewable energy resources, and reducing fuel costs for vehicle drivers who charge in a manner consistent with electrical grid conditions.
- (H) Deploying electric vehicle charging infrastructure should facilitate increased sales of electric vehicles by making charging easily accessible and should provide the opportunity to access electricity as a fuel that is cleaner and less costly than gasoline or other fossil fuels in public and private locations.
- (I) According to the State Alternative Fuels Plan analysis by the Energy Commission and the State Air Resources Board, light-, medium-, and heavy-duty vehicle electrification results in approximately 70 percent fewer greenhouse gases emitted, over 85 percent fewer ozone-forming air pollutants emitted, and 100 percent fewer petroleum used. These reductions will become larger as renewable generation increases.

1 disadvantaged communities (“DACs”) where feasible and practical. Promoting TE in DACs
2 within the priority review projects is discussed further in Chapter 3.

3 SDG&E focused on grid optimization and the efficient integration of charging loads as an
4 important aspect of many of its proposed priority review projects, consistent with P.U. Code
5 §740.12. This was done by utilizing a grid integrated rate where feasible. Rates are a powerful
6 tool to help efficiently integrate the increased load of vehicle charging and renewable energy
7 resources with the grid. Due to specific operational characteristics, not all of the priority review
8 projects rely on an hourly grid integrated rate at this time. The Electrify Local Highways, Fleet
9 Delivery Services and the Green Taxi/Shuttle/Rideshare projects all propose grid integrated rate
10 design. All of the priority review projects fulfill the declaration that TE should stimulate
11 innovation, competition, and increase consumer options through program design choices that
12 help create a more robust EV market and create quality jobs, as discussed on a project-specific
13 basis in Chapter 3 testimony.

14 **3. SDG&E’s Priority Review Projects Minimize Overall Costs and** 15 **Maximize Overall Benefits**

16 SDG&E’s proposed priority review projects strive to minimize costs and maximize
17 benefits in alignment with P.U. Code §740.12. The modest scope and size of the projects will
18 minimize overall costs. SDG&E also plans to leverage the Power Your Drive (“PYD”) Request
19 for Proposal (“RFP”) process (using existing resources and mechanisms) to contain costs.
20 Furthermore, SDG&E’s ownership of assets ensures that they are well maintained, used and
21 useful. Near-term GHG reductions along with data collection and analysis to inform future
22 program development are also key benefits. This approach aligns with SDG&E’s commitment
23 to act in the interests of the ratepayer. The benefits of “learning by doing” and data collection
24 are necessary components of a comprehensive, longer term TE vision. Chapter 3 provides the

1 details of the priority review projects, including benefits and costs. Chapter 8 provides an
2 overview of cost effectiveness from a qualitative perspective for the projects.

3 **4. SDG&E’s Priority Review Projects Propose a Reasonable Cost**
4 **Recovery Mechanism**

5 P.U. Code §740.12(b) addresses the cost recovery mechanism for TE investments.
6 SDG&E proposes to recover costs through a two-way interest bearing balancing account as
7 described in Chapter 7. This is a reasonable cost recovery mechanism because it protects the
8 utility from uncertainties in the scope of work that could impact costs and ensures ratepayers are
9 refunded any over collections.

10 **5. SDG&E’s Priority Review Projects Do Not Unfairly Compete with**
11 **Nonutility Enterprises**

12 P.U. Code §§740.3(c) and 740.12(b) require that utility investments do not unfairly
13 compete with nonutility enterprises. In Decision (“D.”) 11-07-029, and reaffirmed in D.14-12-
14 079, the Commission adopted a competitive balancing test that involves the weighing of
15 potential benefits offered by utility ownership of EV charging equipment against the potential
16 competitive limitations that could result from such ownership.²¹ The Commission stated that its
17 analysis of the benefits of utility ownership will “rely heavily” on statutory guidance related to
18 ratepayer interest.²²

19 SDG&E’s priority review projects provide a number of benefits that accrue to ratepayers
20 and EV industry stakeholders. Benefits include grid optimization benefits to customers,
21 enhanced public welfare through cleaner air, additional customer choice in electric pricing
22 through new rates, as well as choice of products and services from qualified third parties to meet
23 the grid integrated charging needs of these proposed projects. Moreover, these priority review

²¹ D.14-12-079 at 5.

²² *Id.* at 9.

1 projects are relatively small in size and intended to gather data that will help the Commission
2 better understand the potential benefits to ratepayers and the EV industry. The modest scope of
3 these projects limits the anticompetitive impacts on the market. In fact, SDG&E believes that
4 they will bolster the industry. The scope of the proposed projects is also limited and should
5 comprise minimum market share, as described in Chapter 3 testimony. Additionally, five of
6 SDG&E's priority review projects will go through an RFP process to help ensure adequate
7 competition among relevant third parties.²³ Moreover, each project should help grow the total
8 market, thereby increasing participation by third party service providers and fostering robust
9 competition and innovation in the market.

10 In light of the considerations noted above, and in concert with the oversight provided by
11 the Commission, SDG&E submits that its priority review projects satisfy the competitive
12 balancing test. The potential benefit to public and ratepayer welfare is significant, while the
13 potential for competitive harm is mitigated.²⁴

14 **6. SDG&E's Priority Review Projects Use Performance-Based** 15 **Accountability Measures to Track Progress**

16 P.U. Code §740.12(b) states that projects should include performance accountability
17 measures. Performance accountability measures are inherent in the priority review projects. As
18 noted above, they are limited in size and duration and emphasize data collection. As a result,
19 these projects cannot grow considerably without an examination of their performance by the
20 Commission. Key benefits of the proposed projects include opportunities for data collection and
21 analysis, grid management, and market development. The priority review projects will track

²³ The Airport GSE, Fleet Delivery Services, Electrify Local Highways, Dealership Incentives and Green Taxi/Shuttle/Rideshare projects will utilize an RFP process to acquire equipment and vendors.

²⁴ The Commission stated in D.14-12-079 (p. 5) that it will weigh (or balance) the issue of unfair competition against the potential public benefits under utility proposals. As articulated by the Commission, the goal of the balancing test is consistent with a policy of maximizing consumer welfare.

1 progress to ensure that they are contributing to the adoption of TE in accordance with
2 §740.12(b). Performance measurement, monitoring and evaluation methods are consistent with
3 D.16-01-023,²⁵ the ZEV Action Plan, and Load Impact Protocols in D.08-04-050.

4 SDG&E intends to collect and analyze project-specific data in each priority review
5 project. The specific data collection and/or analysis for each project includes activities such as
6 data logging vehicle activity, monitoring EV adoption, and evaluating retail electric fuel
7 metering and signage requirements per the needs and scope of each project. Data collection
8 methods and performance metrics are project-specific and detailed for each priority review
9 project in Chapter 3.

10 **7. SDG&E's Priority Review Projects Are in the Interest of Ratepayers**

11 The utility is obligated to act in the interests of ratepayers. The proposed initiatives
12 contained in this Application are consistent with that obligation. SB 350 modified P.U. Code
13 §740.8 to redefine ratepayer interests for the purposes of Section 740.3 and 740.12. Section
14 740.8 states the following:

15 As used in Section 740.3 or 740.12, interests of ratepayers, short- or long-term,
16 mean direct benefits that are specific to ratepayers, consistent with both of the following:

17 (a) Safer, more reliable, or less costly gas or electrical service, consistent with
18 Section 451, including electrical service that is safer, more reliable, or less
19 costly due to either improved use of the electric system or improved
20 integration of renewable energy generation.

21 (b) Any one of the following:

22 (1) Improvement in energy efficiency of travel.

²⁵ ACR at A3.

- 1 (2) Reduction of health and environmental impacts from air pollution.
- 2 (3) Reduction of greenhouse gas emissions related to electricity and
- 3 natural gas production and use.
- 4 (4) Increased use of alternative fuels.
- 5 (5) Creating high-quality jobs or other economic benefits, including in DACs
- 6 identified pursuant to Section 39711 of the Health and Safety Code.

7 SDG&E's priority review projects meet §740.8 (a) in large part through rate design and
8 load management plans. The projects either use a grid integrated rate or collect data that may
9 allow the market segment to move to a grid integrated rate in the future. In addition, some of the
10 projects use load management plans, which can be used to encourage behavior that mitigates
11 strains on the grid. The value of grid integrated rates is discussed more fully in Chapter 5 (direct
12 testimony of Cynthia Fang).

13 Additionally, each project fulfills at least one element of the criteria established in P.U.
14 Code §740.8(b). Generally, each project reduces GHG emissions through increased use of
15 electricity as a transportation fuel which, in turn, reduces air pollution and the associated health
16 and environmental impacts.²⁶ SDG&E's priority review projects also consider and attempt to
17 address the needs of DACs.²⁷ It should be noted that for the purpose of this Application,

²⁶ The legislature finds that:

According to the State Alternative Fuels Plan analysis by the Energy Commission and the State Air Resources Board, light-, medium-, and heavy-duty vehicle electrification results in approximately 70 percent fewer greenhouse gases emitted, over 85 percent fewer ozone-forming air pollutants emitted, and 100 percent fewer petroleum used. These reductions will become larger as renewable generation increases. (P.U. Code §740.12(a)(1)(I))

²⁷ The MD/HD and Forklift Port Electrification, Electrify Local Highways, Dealership Incentives, Fleet Delivery Services, and Green Taxi/Shuttle/Rideshare all have a DAC component.

1 SDG&E has applied the definition of DACs that was approved in D.16-01-045.²⁸ At a high
2 level, the Electrify Local Highways project, MD/HD and Forklift Port Electrification project,
3 Fleet Delivery Services Project, Green Taxi/Shuttle/Rideshare and Dealership Incentives project
4 all target locations within or adjacent to DACs. Chapter 3 provides the specific details of how
5 the priority review project addresses the needs and the impact of DACs.

6 **8. SDG&E’s Priority Review Projects Avoid Long Term Stranded Costs**
7 **and Comply with P.U. Code Section 740.12(c)**

8 The ACR highlights concerns about asset utilization and requires each utility to address
9 long-term stranded costs consistent with P.U. Code §740.12(c).²⁹ P.U. Code §740.12(c) states
10 that:

11 The commission shall review data concerning current and future electric transportation
12 adoption and charging infrastructure utilization prior to authorizing an electrical
13 corporation to collect new program costs related to transportation electrification in
14 customer rates. If market barriers unrelated to the investment made by an electric
15 corporation prevent electric transportation from adequately utilizing available charging
16 infrastructure, the commission shall not permit additional investments in transportation
17 electrification without a reasonable showing that the investments would not result in
18 long-term stranded costs recoverable from ratepayers.

19 SDG&E proactively mitigates stranded asset risk through program design. Assets will be
20 strategically located to provide optimal customer benefit based on customer needs and
21 commitments, rigorous site review and customer contributions. Also, program participants must
22 show they are committed to using these assets before infrastructure is installed by providing
23 vehicles, easements, or allowing SDG&E to collect additional operational information through
24 electric load research meters and data loggers. Utilizing utility owned meters on chargers

²⁸ In D.16-01-045 (p. 138), the Commission found that it was “reasonable to define eligible DACs as the top quartile of census tracts as identified by CalEnviroScreen on either a state-wide or a utility-wide basis, whichever is broader.” The Commission approved SDG&E’s Advice Letter (“AL”) 2876-E, in which SDG&E determined that the utility-wide basis was broader (approved April 28, 2016, effective March 31, 2016).

²⁹ ACR at 15.

1 ensures high quality data collection for asset utilization analysis. SDG&E’s proposed asset
2 ownership structure ensures that facilities are used and useful and mitigates the risk of
3 insufficient maintenance, supplier bankruptcy or local market contraction. Finally, SDG&E’s
4 reporting pursuant to D.16-01-045 and interaction with the Program Advisory Council (“PAC”)
5 has, and will continue to, provide data on electric transportation adoption and charging
6 infrastructure utilization.

7 **B. SDG&E’s Standard Review Residential Charging Program Satisfies the**
8 **Statutory Requirements of SB 350 and the ACR**

9 Light-duty vehicles comprise 97% of all registered vehicles in SDG&E’s service
10 territory.³⁰ The residential charging program aims to accelerate in-home TE adoption in support
11 of the Governor’s goal of over 1.5 million zero emission vehicles (“ZEVs”) on the road by
12 2025.³¹ Participants will opt in to a whole house, grid integrated rate, and will be able to choose
13 from qualified vendors of utility owned and maintained L2 EVSE to be installed on their
14 premises. California’s leadership and environmental stewardship at this scale is needed in order
15 to increase customer awareness and acceptance of EV technology and to increase the number of
16 miles driven in EVs. Widespread adoption in California has the potential to result in nationwide
17 benefits as individuals become more educated and aware of EV technology.

18 SDG&E’s residential charging program satisfies the statutory requirements of SB 350
19 and the related code sections as evidenced below.

20 **1. The Residential Charging Program Accelerates Widespread TE**

21 SB 350 requires TE proposals to accelerate widespread TE to “reduce dependence on
22 petroleum, meet air quality standards, achieve the goals set forth in the Charge Ahead California

³⁰ Proprietary IHS/Polk Data (April 2016) shows that 97% of vehicles in San Diego are Class 1 vehicles.

³¹ Executive Order (“EO”) B-16-2012 (2012), <https://www.gov.ca.gov/news.php?id=17472>.

1 Initiative [in the Health and Safety Code], and reduce emissions of greenhouse gases to 40
2 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050.”³² As
3 described in more detail in Chapter 4, the proposed residential charging program will accelerate
4 TE adoption by incentivizing new drivers with charging infrastructure. The residential charging
5 program of up to 90,000 EVs in San Diego by 2025 is estimated to decrease gasoline
6 consumption and annual GHG emissions by over 120,000 MT of CO₂, as detailed in the direct
7 testimony of J.C. Martin (Chapter 8). As discussed in further detailed in Chapter 4, SDG&E
8 chose the residential sector because it represents the single greatest source of potential GHG
9 reductions in the transportation sector today.³³

10 **2. SDG&E’s Residential Charging Program Fulfills**
11 **Findings/Declarations Set Forth in P.U. Code Section 740.12(a)(1)**

12 The residential charging program fulfills essentially every finding/declaration in P.U.
13 Code §740.12(a)(1). The residential charging program provides support to the Charge Ahead
14 California Initiative, facilitates the adoption of EVs, provides access to those in DACs and
15 increases access to the use of electricity as a transportation fuel.

16 SDG&E’s proposal to provide L2 charging infrastructure for up to 90,000 residential
17 customers will facilitate its alignment with the ZEV goals established by the Governor.³⁴
18 Installing L2 chargers ensures that customers have technology that affords the flexibility to
19 respond to grid integrated price signals in order to minimize grid impacts, maximize renewable
20 energy resource integration and reduce EV fuel costs. Level 1 chargers generally do not have the

³² P.U. Code §740.12(b).

³³ Proprietary IHS/Polk Data (April 2016) shows that 97% of vehicles in San Diego are Class 1 vehicles.

³⁴ EO B-16-2012 (2012) established California’s goal of over 1.5 million zero-emission vehicles on the road by 2025, <https://www.gov.ca.gov/news.php?id=17472>.

1 capability to fully charge an EV during super off-peak periods and therefore are not able to take
2 advantage of benefits associated with a grid integrated rate.

3 **3. The Residential Charging Program Minimizes Overall Costs and**
4 **Maximizes Overall Benefits**

5 As described in Randy Schimka’s direct testimony (Chapter 4), SDG&E plans to
6 minimize total costs by using a competitive bidding process to procure EVSE and services that
7 meet the program specifications. This competitive bidding process is already being successfully
8 employed in the current PYD program, and SDG&E intends to leverage this process in
9 implementing the current proposal. As described below and in Mr. Schimka’s direct testimony
10 (Chapter 4), the program provides a wide range of benefits including support of the TE benefits
11 identified in P.U. Code §740.8(b).

12 Offering customers incentives towards utility-owned charging infrastructure reduces
13 barriers to EV adoption, which increases the use of alternative fuels and provides GHG reduction
14 benefits to all communities, including DACs.³⁵ Replacing vehicle miles fueled by gasoline with
15 miles traveled by electricity improves the energy efficiency of travel and reduces the associated
16 health and environmental impacts.³⁶ The proposed rate design for program participants reduces
17 GHG emissions related to electricity by incentivizing grid integrated charging patterns which
18 will result in increased renewable energy integration and mitigation of adverse grid impacts. The
19 residential charging program will also provide opportunity for skilled, high quality jobs by

³⁵ See the direct testimony of Randy Schimka (Chapter 4) for further discussion on barriers to EV adoption.

³⁶ See the direct testimony of J.C. Martin (Chapter 8) for further discussion on air quality improvement and fuel impacts.

1 employing contractors affiliated with the International Brotherhood of Electrical Workers
2 (“IBEW”).³⁷

3 **4. The Residential Charging Program Proposes a Reasonable Cost**
4 **Recovery Mechanism**

5 P.U. Code §740.12(b) addresses the cost recovery mechanism for TE investments. A two
6 way balancing account is a reasonable way to track and recover costs in order to ensure that
7 utility costs can be recovered and over-collections can be returned to the ratepayer. The
8 proposed cost recovery mechanism is further described in Ms. Jasso’s direct testimony (Chapter
9 7).

10 **5. The Residential Charging Program Does Not Unfairly Compete with**
11 **Nonutility Enterprises**

12 P.U. Code §§740.3(c) and 740.12(b) require that utility investments do not unfairly
13 compete with nonutility enterprises. In D.11-07-029, reaffirmed in D.14-12-079, the
14 Commission adopted a competitive balancing test which involves weighing the potential benefits
15 offered by utility ownership of EV charging equipment against the potential competitive
16 limitations that could result from such ownership. The Commission’s analysis of the benefits of
17 utility ownership will “rely heavily” on statutory guidance related to ratepayer interest.³⁸ Based
18 on these measures, as outlined below, SDG&E believes that the residential charging program
19 will not unfairly compete with non-utility enterprises.

20 As discussed in Mr. Schimka’s direct testimony (Chapter 4), the investment and program
21 is modest in scope compared to the population of vehicles in SDG&E’s territory. It is also

³⁷ Contractors will have Electric Vehicle Infrastructure Training Program (“EVITP”) certification, and all work that is not performed by employees of SDG&E shall be performed by contractors signatory to the IBEW who hold a valid C-10 contractor’s license, as defined in the governing labor agreement between SDG&E and the IBEW.

³⁸ D.14-12-079 at 9.

1 modest with regards to the investments needed to meet the Governor’s and State’s ZEV and
2 GHG goals. Further, SDG&E will contract with and utilize a number of nonutility enterprises.
3 Similar to PYD, this program will help grow the EV charging market by allowing customers to
4 choose between multiple qualified EVSPs. Moreover, EVSP equipment, enabling technology,
5 and installation/maintenance skilled labor will be selected through a competitive RFP bidding
6 process that will encourage competition and grow these markets. Accordingly, the residential
7 charging program is designed to advance the industry as a whole. In sum, SDG&E submits that
8 the potential benefit to public and ratepayer welfare is significant, while the potential for
9 competitive harm is mitigated.³⁹

10 **6. The Residential Charging Program Uses Performance-Based**
11 **Accountability Measures to Track Progress**

12 Section III.A.6 above discusses the performance accountability measures, monitoring and
13 evaluation plan for the proposed priority review projects. The residential charging program will
14 be monitored by evaluating smart meter data which will provide insight into customer behavior
15 and distribution system impacts. Mr. Schimka’s direct testimony (Chapter 4) offers an in depth
16 explanation of the program’s monitoring and evaluation plan.

17 **7. The Residential Charging Program Is in the Interest of Ratepayers**

18 Section 740.8 states the following:

19 As used in Section 740.3 or 740.12, interests of ratepayers, short- or long-term,
20 mean direct benefits that are specific to ratepayers, consistent with both of the
21 following:

- 22 (a) Safer, more reliable, or less costly gas or electrical service, consistent with
23 Section 451, including electrical service that is safer, more reliable, or less

³⁹ The Commission stated in D.14-12-079 (p. 5) that it will weigh (or balance) the issue of unfair competition against the potential public benefits under utility proposals. As articulated by the Commission, the goal of the balancing test is consistent with a policy of maximizing consumer welfare.

1 costly due to either improved use of the electric system or improved
2 integration of renewable energy generation.

3 (b) Any one of the following:

4 (1) Improvement in energy efficiency of travel.

5 (2) Reduction of health and environmental impacts from air pollution.

6 (3) Reduction of greenhouse gas emissions related to electricity and
7 natural gas production and use.

8 (4) Increased use of alternative fuels.

9 (5) Creating high-quality jobs or other economic benefits, including in
10 DACs identified pursuant to Section 39711 of the Health and
11 Safety Code.

12 The residential charging program enables technology and includes a proposed rate
13 designed to provide price signals to improve the use of the electric system and integration of
14 renewable energy. In addition, the residential charging program will reduce air pollution, reduce
15 GHG emissions and increase the use of alternative fuels.

16 As described in the direct testimony of Ms. Fang (Chapter 5), the rate design for the
17 project is integral to the cost-benefit framework of the proposal. Specifically, the issue of “grid-
18 integration” as it relates to EV rates is central to the discussion of TE investments. Rate design
19 is one of the Commissioner-identified priority items⁴⁰ and one of the requirements of P.U. Code
20 §740.12(a)(1)(G).⁴¹ The residential charging program meets this criterion through the proposed
21 grid integrated rate, which results in the improved use of the grid and renewable energy
22 resources.

⁴⁰ ACR at 20.

⁴¹ P.U. Code §740.12(a)(1)(G) states:

 Deploying electric vehicles should assist in grid management, integrating generation
 from eligible renewable energy resources, and reducing fuel costs for vehicle drivers who
 charge in a manner consistent with electrical grid conditions.

1 One of the goals of grid integrated rate design is to send price signals that incentivize
2 charging behavior consistent with grid conditions and cost causation principles. As discussed in
3 Mr. Martin’s direct testimony (Chapter 8), grid integrated charging behavior will minimize
4 infrastructure additions required from incremental EV demand and incent the dispatch of the
5 most efficient and least polluting resources. SDG&E engaged E3 to estimate the incremental
6 load impact from the proposed projects under different rates, which is discussed in further detail
7 in Mr. Martin’s direct testimony (Chapter 8). Finally, the residential charging program proposes
8 to reserve at least 20% of the program’s enrollment to customers living in DACs.⁴²

9 **8. The Residential Charging Program Avoids Long Term Stranded**
10 **Costs and Complies with the Provisions of P.U. Code Section 740.12(c)**

11 Section III.A.8 above describes the statutory requirements for TE projects per P.U. Code
12 §740.12(c) related to avoiding long term stranded costs. For the residential charging program,
13 Mr. Schimka’s direct testimony in Chapter 4 explains how utility ownership of standard, widely
14 used technology mitigates stranded asset risk. Utility ownership helps ensure that the
15 infrastructure will remain used and useful by leveraging the abilities of the utility to provide
16 maintenance and repairs. Also, considering that an EV owner’s probability of purchasing
17 another EV in the future is approximately 92%,⁴³ providing standardized L2 chargers not only
18 ensures compatibility with all EVs currently on the market, but ensures that these assets will
19 continue to be used and useful well beyond the useful life of the car.

⁴² See the direct testimony of Randy Schimka (Chapter 4) for further discussion on the residential charging program and DACs.

⁴³ *10,000 EV Drivers Can’t Be Wrong... But They Can Be Different* (2015),
<https://cleantechnica.com/2015/08/09/ct-exclusive-interview-10000-ev-drivers-cant-wrong-can-different/>.

In summary, in accordance with the ACR’s request,⁴⁴ Table 2-1 below summarizes the narrative above regarding how SDG&E’s TE portfolio meets the ACR’s statutory requirements.

Table 2-1: SDG&E TE Portfolio and ACR’s Statutory Requirements

Statutory Requirements	SDG&E’s Proposed TE Portfolio of Proposals
Acceleration of Widespread TE (Consistent with PUC Code §§740.12(b) and 701.1(a)(1))	SDG&E’s proposed TE portfolio will reduce dependence on petroleum, help meet air quality standards, achieve the goals set forth in the Charge Ahead California Initiative, reduce GHG emissions by accelerating widespread adoption of TE. Analysis is provided above in Sections III.A(1) and III.B(1), and chapters 1,3,4, and 8.
Findings/Declarations in §740.12(a)(1) (Consistent with PUC Code §740.12(a)(2) and (b))	SDG&E’s proposed TE portfolio will help achieve ambient air quality standards and the state’s climate goals. The proposals will accelerate widespread TE to reduce dependence on petroleum, meet air quality standards and reduce emissions of GHGs. Analysis is provided above in Sections III.A(2) and III.B(2) and chapters 1,3, 4 and 8.
Minimize Overall Costs and Maximize Overall Benefits (Consistent with PUC Code §740.12(b))	SDG&E’s proposed TE portfolio seeks to minimize overall costs and maximize overall benefits. Analysis is provided above in Sections III.A(3) and III.B(3) and chapters 1,3,4 and 8.
Cost Recovery Mechanism (Consistent with PUC Code §740.12(b))	SDG&E proposes a reasonable cost recovery mechanism. Analysis is provided above in Sections III.A(4) and III.B(4) and chapters 5 and 7.
Does Not Unfairly Compete with Non-Utility Enterprises (Consistent with PUC Code §§740.12(b) and 740.3(c))	SDG&E’s proposed TE portfolio does not unfairly compete with non-utility enterprises. Analysis is provided above in Sections III.A(5) and III.B(5) and chapters 1, 3 and 4.
Performance Accountability Measures (Consistent with PUC Code §740.12(b))	SDG&E’s proposed TE portfolio includes performance accountability measures. Analysis is provided above in Sections III.A(6) and III.B(6) and chapters 3 and 4.

⁴⁴ ACR at 14 states:

The utilities should clearly indicate how each proposed project or program addresses the following code sections. This information should be summarized in a table or similar graphic and expanded upon in the narrative portion of the application.

1

<p>Interest of Ratepayers (Consistent with PUC Code §§740.12(b), 740.8, 740.3(c))</p>	<p>SDG&E’s proposed TE portfolio is in the interest of ratepayers due to safer, more reliable, or less costly gas or electrical service, consistent with Section 451, and the reduction of health and environmental impacts from air pollution, and GHG emissions related to electricity and natural gas production and use, and increased use of alternative fuels.</p> <p>Analysis is provided in above in Sections III.A(7) and III.B(7) and chapters 1, 3, 4 and 8.</p>
<p>Avoids Long-Term Stranded Costs (Consistent with PUC Code §740.12(c))</p>	<p>SDG&E’s proposed TE portfolio mitigates the possibility of long-term stranded costs through program design.</p> <p>Analysis is provided above in Sections III.A(8) and III.B(8) and chapters 3 and 4.</p>

2

3 **IV. ACR REGULATORY GUIDELINES**

4 **A. SDG&E’s TE Portfolio of Priority Review Projects and a Standard Review**
5 **Residential Charging Program Meets the ACR’s Regulatory Guidelines**

6 The Commission provided additional guidance for the SB 350 TE proposals by creating
7 complementary regulatory guidelines. The ACR states that the TE applications should seek to
8 conform to these guidelines. SDG&E discusses a number of those here as well as throughout the
9 testimony. SDG&E’s proposed TE portfolio of priority review projects and standard review
10 residential charging program aligns with the regulatory guidelines established in the ACR as well
11 as the spirit of the parameters.

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

13 SDG&E’s proposed TE portfolio is consistent with the core competencies and
14 capabilities of the Commission and SDG&E. The Commission has been a leader in efforts to
15 reduce GHG emissions and has positioned California as a leader in clean energy policy. It is
16 well within the Commission’s competency and capabilities to advance the use of electricity as a
17 transportation fuel.

1 SDG&E’s expertise in construction and operations is a natural fit for providing
2 infrastructure to deliver electricity for all needs, including those of TE. In addition, SDG&E has
3 vast knowledge in administering programs and providing a positive customer experience. It is
4 imperative that early adopters have a positive experience with regards to vehicle charging,
5 understanding bill impacts and are confident that equipment is safe and reliable. SDG&E’s long
6 history and proven track record will help ensure that SDG&E will be present and available to
7 provide and maintain charging equipment that is safe and reliable.

8 **2. Multiple Goals of Widespread TE**

9 SDG&E’s TE portfolio addresses the multiple objectives of widespread TE outlined by
10 SB 350, as described above in Section II (ACR Statutory Requirements) and in Mr. Schimka’s
11 direct testimony (Chapters 3 and 4). SDG&E’s TE portfolio will contribute towards meeting the
12 goals of supporting the ZEV Executive Order and GHG emissions reduction targets as discussed
13 in Mr. Martin’s direct testimony (Chapter 8).

14 **a. Alignment with Ongoing Proceedings**

15 SDG&E’s TE portfolio is designed to help achieve California policy goals by removing
16 barriers to implementing TE, a key tool to meeting the GHG emission reduction goals of Senate
17 Bill 350. In addition to removing barriers to TE, SDG&E’s TE portfolio also aligns with
18 Commission efforts to integrate distributed energy resources to help achieve the State’s GHG
19 emission reduction goals.

20 A number of ongoing efforts and proceedings are discussed below. SDG&E has
21 endeavored to advance these many objectives in a consistent manner through internal
22 coordination. SDG&E recognizes that these efforts overlap but must move in parallel in order to
23 achieve California’s ambitious goals. Approval of SDG&E’s TE portfolio will advance the TE
24 goal, in particular, and the broader goals in general.

1 As the ACR recognizes, the Commission is still in the formative stages of development
2 and implementation of protocols to evaluate the costs and benefits of distributed energy
3 resources.⁴⁵ Policies and procedures to incorporate distributed energy resources (which include
4 electric vehicles) into the electric utility’s distribution planning process and defining the
5 integrated planning processes dictated by SB 350 is ongoing.

6 The Integrated Resource Planning (“IRP”) proceeding is an “umbrella” planning
7 proceeding to consider all of the Commission’s electric procurement policies and programs and
8 ensure California has a safe, reliable, and cost-effective electricity supply. It is anticipated that
9 the IRP will provide general resource planning guidance that identifies the characteristics of
10 needed resources. The IRP will need to address the role of TE and account for the GHG
11 emission reduction benefits provided by TE. SDG&E anticipates that implementing its proposed
12 TE portfolio as well as other TE efforts submitted in future filings will provide valuable lessons
13 learned and data on costs and benefits to be used within the IRP proceeding.

14 The Distribution Resources Plan (“DRP”) proceeding and the Integrated Distributed
15 Energy Resources proceeding both focus on methodologies to integrate and value distributed
16 energy resources (“DER”), demonstrate DER operations and pilot a utility incentive mechanism
17 to competitively source third party DER to replace traditional “wires” solutions. Both
18 proceedings are still under development, but SDG&E envisions that its TE proposals contained
19 herein will help inform these proceedings through collection of cost and load data.

⁴⁵ ACR at 19.

1 **b. Grid Impact and Demand Forecasting**

2 The ACR asks the utilities to provide TE adoption, load growth, and GHG emission
3 forecasts⁴⁶ as well as demand forecasts to determine deferred or necessary infrastructure
4 upgrades.⁴⁷ Each project must also provide the grid impacts of the proposal (e.g., avoided
5 generation costs resulting from load shaping, renewable energy procured simultaneously, and
6 improved load factor).⁴⁸ The expected demand forecast and grid impacts for SDG&E’s TE
7 portfolio are discussed in Mr. Martin’s direct testimony (Chapter 8). As discussed in Ms. Fang’s
8 direct testimony (Chapter 5), the proposed rate design will minimize grid impacts from new EV
9 load.

10 **3. Alignment with State, Local, and Regional Efforts**

11 Michael Schneider’s direct testimony (Chapter 1) discusses the broad, state policies that
12 underpin the SB 350 projects. Table 2-2 summarizes how each proposal in SDG&E’s TE
13 portfolio aligns with approved and proposed transportation and environmental State policies.

⁴⁶ ACR at 18-19.

⁴⁷ *Id.* at A2.

⁴⁸ *Id.* at A3.

1
2

Table 2-2: SDG&E TE Portfolio with Approved and Proposed Transportation and Environmental State Policies

Proposal	Approved	Proposed
Airport Ground Support Equipment	California SB 32, ⁴⁹ California SB 350, ⁵⁰ 2016 ZEV Action Plan, ⁵¹ California EO B-30-15, ⁵² California EO B-16-2012, ⁵³ San Diego County Regional Airport Authority Air Quality Management Plan, Low Carbon Fuel Standard, Climate Change Scoping Plan, ⁵⁴ Diesel Risk Reduction Plan, In-Use Off-Road Diesel Fueled Fleets Regulation	CARB Mobile Source Strategy, 2030 Target Scoping Plan, 2016 State Strategy for the State Implementation Plan
Electrify Local Highways	California SB 32, California SB 350, 2016 ZEV Action Plan, California EO B-30-15, Climate Change Scoping Plan, California Transportation Plan 2040 ⁵⁵ , California EO B-16-2012	CARB Mobile Source Strategy, 2030 Target Scoping Plan, 2016 State Strategy for the State Implementation Plan
MD/HD and Forklift Port Electrification	California SB 32, California SB 350, 2016 ZEV Action Plan, California EO B-30-15, California EO B-16-2012, California EO B-32-15, Climate Change Scoping Plan California AB 628 ⁵⁶ , California Sustainable Freight Action Plan ⁵⁷ , Emissions Reduction Plan for Ports and Goods Movement in California,	CARB Mobile Source Strategy, 2030 Target Scoping Plan, 2016 State Strategy for the State Implementation Plan

⁴⁹ SB 32 (2006), Chapter 249.

⁵⁰ SB 350 (2015), Chapter 547.

⁵¹ 2016 ZEV Action Plan: An Updated Roadmap Toward 1.5 Million Zero-Emission Vehicles on California Roadways by 2025 (2016), https://www.gov.ca.gov/docs/2016_ZEV_Action_Plan.pdf.

⁵² EO B-30-15 (2015), <https://www.gov.ca.gov/news.php?id=18938>.

⁵³ EO B-16-2012 (2012), <https://www.gov.ca.gov/news.php?id=17472>.

⁵⁴ First Update to the Climate Change Scoping Plan (2014), https://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.

⁵⁵ California Transportation Plan 2040: Integrating California's Transportation Future (2016), <http://www.dot.ca.gov/hq/tpp/californiatransportationplan2040/Final%20CTP/FINALCTP2040-Report-WebReady.pdf>.

⁵⁶ Assembly Bill ("AB") 628 (2013), Chapter 741.

⁵⁷ California Sustainable Freight Action Plan (2016), <http://www.dot.ca.gov/casustainablefreight/>.

	Diesel Risk Reduction Plan, CARB Drayage Truck Regulation, In-Use Off-Road Diesel Fueled Fleets Regulation	
Fleet Delivery Services	California SB 32, California SB 350, 2016 ZEV Action Plan, California EO B-30-15, California EO B-16-2012, Low Carbon Fuel Standard, Climate Change Scoping Plan, Diesel Risk Reduction Plan	CARB Mobile Source Strategy, 2030 Target Scoping Plan, 2016 State Strategy for the State Implementation Plan
Green Taxi/Shuttle/Rideshare	California SB 32, California SB 350, 2016 ZEV Action Plan, California EO B-30-15, California EO B-16-2012, San Diego County Regional Airport Authority Air Quality Management Plan, Climate Change Scoping Plan	CARB Mobile Source Strategy, 2030 Target Scoping Plan, 2016 State Strategy for the State Implementation Plan
Dealership Incentives	California SB 32, California SB 350, 2016 ZEV Action Plan, California EO B-30-15, California EO B-16-2012	State Implementation Plan, 2030 Target Scoping Plan, 2016 State Strategy for the State Implementation Plan
Residential Charging Program	California SB 32 California SB 350, 2016 ZEV Action Plan, California EO B-30-15 California EO B-16-2012	State Implementation Plan, 2030 Target Scoping Plan, 2016 State Strategy for the State Implementation Plan

1
2 The role of the California utilities is an essential one in advancing State policies and
3 environmental goals, particularly in a budget-constrained environment. The expertise of the
4 utilities allows for the necessary investments to transform industries so that they can stand on
5 their own. In addition, utilities play an essential role in achieving regional policy objectives.
6 SDG&E is a trusted energy advisor, an educational resource, and a partner in helping customers
7 in SDG&E’s service territory achieve their environmental goals by enabling access to renewable
8 energy, distributed energy resources, and alternative fuel vehicles.

1 With regard to local and regional efforts, SDG&E’s TE portfolio will assist San Diego’s
2 regional associations advance their environmental goals and assist them in complying with
3 legislative goals. SDG&E’s TE portfolio collectively support the San Diego Association of
4 Governments’ (“SANDAG’s”) Regional Plan by decreasing transportation GHG emissions.
5 SANDAG’s Regional Plan identifies environmental stewardship as a key policy objective that
6 will be achieved through environmentally conscious transportation investments.⁵⁸ SANDAG
7 must reduce its territory’s per capita GHG emissions from cars and light trucks by 7% and 13%
8 of 2005 levels by 2020 and 2035, respectively.⁵⁹ Other local entities that SDG&E has reached
9 out to include the Port of San Diego, San Diego International Airport, Caltrans and the County of
10 San Diego.

11 SDG&E’s MD/HD and Forklift Port Electrification and Airport Ground Support
12 Equipment projects directly support and enable the Port District 2013 Climate Action Plan and
13 Port Master Plan. In 2006, CARB adopted the Emissions Reduction Plan for Ports and Goods
14 Movement in California, which identifies port emission reduction strategies.⁶⁰ Assembly Bill
15 628, approved by Governor Brown on October 11, 2013, authorizes the ports of California and
16 the publicly owned electric utilities serving the ports, to work collaboratively to prepare an
17 energy management plan to reduce air emissions and encourage economic stability and growth at
18 the port and surrounding areas. Assembly Bill 628 finds that, “utilities are in an optimal
19 position, and are encouraged to engage in joint projects with port and harbor districts to provide

⁵⁸ San Diego Forward: The Regional Plan (2015), at 24,
http://www.sdforward.com/pdfs/RP_final/The%20Plan%20-%20combined.pdf.

⁵⁹ *Id.* at 97.

⁶⁰ CARB Emissions Reduction Plan for Ports and Goods Movement in California, Chapter III,
https://www.arb.ca.gov/planning/gmerp/plan/final_plan.pdf.

1 and administer energy-related service alternatives.”⁶¹ Thus, AB 628 authorizes the Port District
2 and SDG&E to collaborate to reduce GHG emissions on Port District tidelands. SDG&E intends
3 to work towards this objective by leveraging its knowledge of its customers, its industry
4 knowledge regarding rates and available technology, and its ability to deploy infrastructure in
5 order to decrease barriers to TE.

6 The Port District has set aggressive GHG reduction goals in their 2013 Climate Action
7 Plan. The plan’s goals are to reduce GHG emission levels to 10% less than 2006 levels by 2020
8 and 25% less than 2006 levels by 2035.⁶² The Port District recognizes on-road and off-road
9 transportation are major sources of emissions which collectively are expected to reach 61% of
10 total Port District GHG emissions by 2020.⁶³ The Port District’s Climate Action plan also aims
11 to achieve 8% (9,019 MT CO₂e/yr.) of target emission reductions from Alternative Powered
12 Vehicles by 2020.⁶⁴

13 Clean fuel measures identified by the Port District in its Climate Action Plan include:

- 14 • Support and promote the use of alternate fueled, electric or hybrid Port District
15 owned vehicles and vessels (also includes cargo handling equipment, terminal and
16 stationary equipment);
- 17 • Support and promote port tenant owned vehicles and vessels to achieve the lowest
18 emissions possible, using a mix of alternative fueled, electric, or hybrid
19 technology; and

⁶¹ AB 628 (2013), Chapter 741, Sect. 1(f).

⁶² Port of San Diego *Climate Action Plan* (2013) at 4,
<https://www.portofsandiego.org/document/environment/climate-mitigation-and-adaptation-plan/documents-1/5515-port-of-san-diego-climate-action-plan.html>.

⁶³ *Id.* at 15.

⁶⁴ *Id.* at 16.

- Implement emissions reduction strategies at loading docks through electrification of docks or idling-reduction systems for use while at loading docks.⁶⁵

These Climate Action Plan goals align with the goals laid out in the Port Master Plan.⁶⁶

The Climate Action Plan is “designed to be a complementary planning and decision-support tool for the [Port Master Plan].”⁶⁷ The Port Master Plan establishes planning guidelines for land development within the Port District tidelands consistent with state goals. The Port Master Plan stresses the importance of minimizing the environmental impact on neighboring communities, some of which are disadvantaged. This document was adopted by the Board of Port Commissioners and certified by the California Coastal Commission per Section 30714 of the California Coastal Act.

4. Consideration of Commission-Identified Priorities

The ACR encourages utilities to consider Commissioner-identified priority projects.⁶⁸ As evidenced by the types of projects proposed, SDG&E has considered the Commissioner’s guidance. The proposed projects are consistent with the priorities identified in the ACR, including those related to: rate design, diverse sector focus, education and outreach, and leveraging results of previous projects.⁶⁹

⁶⁵ *Id.* at 20-21.

⁶⁶ Port of San Diego Master Plan (2015) at 8-10, <https://www.portofsandiego.org/environment/land-use/port-master-plan.html>.

⁶⁷ Port of San Diego *Climate Action Plan* (2013) at 9, <https://www.portofsandiego.org/document/environment/climate-mitigation-and-adaptation-plan/documents-1/5515-port-of-san-diego-climate-action-plan.html>.

⁶⁸ ACR at 15.

⁶⁹ *Id.* at 20-26.

1 In accordance with the ACR’s direction, SDG&E proposes innovative new rate designs
2 that, “encourage TE charging to maximize the use of renewable energy or to charge at times that
3 resolve conflicting capacity constraints at the transmission and distribution levels.”⁷⁰

4 SDG&E’s proposed rate design is described in Ms. Fang’s direct testimony (Chapter 5).

5 An overview of how SDG&E’s proposals cover a diversity of sectors was provided in
6 Mr. Schneider’s direct testimony (Chapter 1). The diversity of SDG&E’s TE portfolio with
7 regards to targeted customer segments demonstrates SDG&E’s intent to study and advance as
8 many customer segments as possible at an early stage. Some key vehicle types identified by the
9 assigned commissioner include light duty vehicles, port vehicles/equipment and short haul fleets,
10 all of which are addressed by the proposed projects.⁷¹ The diversity achieved through the
11 portfolio approach will help to enable nascent markets and increase access to EVs for a wide
12 range of customers. The project-specific details are described in Mr. Schimka’s direct testimony
13 (Chapter 3) for the priority review projects and Mr. Schimka’s direct testimony (Chapter 4) for
14 the residential charging program.

15 In addition, SDG&E’s TE portfolio will utilize education and outreach to the extent
16 practical in order to maximize the likelihood of success.⁷² Mr. Schimka’s direct testimony
17 (Chapter 3) describes the education and outreach efforts for the priority review projects and Mr.
18 Schimka’s direct testimony (Chapter 4) describes these efforts for the residential charging
19 program, including what existing resources SDG&E will leverage to avoid duplication, the

⁷⁰ *Id.* at 20.

⁷¹ *Id.* at 22-23.

⁷² *Id.* at 24.

1 targeted audience, the types of messaging to be provided to customers, the intended outcomes of
2 this outreach, and the means to measure the efficacy of these activities.⁷³

3 **5. Promotes Safety**

4 The ACR provides that projects and investments proposed in the TE applications must
5 meet the safety concerns expressed in the interests of ratepayers' sections §§740.12(b) and 740.8
6 and in §451. SDG&E is committed to providing safe, reliable service and equipment to support
7 TE. Mr. Schneider's direct testimony (Chapter 1) describes SDG&E's commitment to safety and
8 how the proposed programs align with the ACR's guidance regarding TE project safety.

9 **6. Public/Private Partnership Funding**

10 The ACR requests SDG&E to seek out and propose how its TE portfolio can leverage
11 non-utility sources of funding to alleviate some ratepayer costs.⁷⁴ As discussed in Mr. Schimka's
12 direct testimony (Chapter 3), SDG&E has explored and already obtained funding for some
13 priority review projects in the form of grants and electric vehicles. Chapter 3 describes in detail
14 SDG&E's leveraged funding efforts to date, but SDG&E continues to collaborate and work
15 diligently with its project partners in an effort to secure and utilize additional Federal, State and
16 private funding.

17 **7. Vehicle-Grid Integration ("VGI") Communication Standard**

18 The ACR recommends that the IOUs address the ISO/IEC 15118 vehicle and EVSE
19 communications standard.⁷⁵ SDG&E has concerns that setting standards prematurely, and too
20 narrowly, may inhibit innovation, pick winners unintentionally, and narrow the field of eligible

⁷³ *Id.*

⁷⁴ *Id.* at 16, 27.

⁷⁵ *Id.* at 29.

1 EVSPs and viable operating systems. Standards can help markets advance efficiently, but may
2 hurt market development during formative stages if hastily set.

3 It would be more constructive to start the analysis by first developing guiding principles
4 focusing on their purpose and “what” is to be achieved before discussing the “how” in the form
5 of standards. SDG&E has distilled three guiding principles from the requirements articulated in
6 the ACR on Appendix B pages B5 – B6. The three guiding principles for VGI Standards should
7 be:

- 8 1. Driver/operator/customer-oriented;
- 9 2. Help keep solution costs down; and
- 10 3. Allow smooth integration of plug-in EVs into the electric grid.

11 With these three guiding principles in mind, the Commission should direct the formation
12 of a technical working group to evaluate whether or not ISO/IEC 15118:

- 13 • provides for all the use cases envisioned for VGI;
- 14 • provides necessary cyber security and customer protections;
- 15 • may lead to unintended consequences such as creating a single entity “toll booth”
16 or containing innovation limiting constrains; and
- 17 • can be achieved with other existing standards.

18 Additional benefits of a technical working group would be to educate market participants
19 about the ISO/IEC 15118 standard and other existing standards that may enable VGI
20 communications.

21 **8. Consideration of Utility Incentives and Other Regulatory Mechanisms**

22 The ACR provides that utilities “may propose in their TE applications creative solutions
23 for how the utility can be incentivized for undertaking TE projects and investments, in

1 conjunction with maximizing the use of renewable sources of energy, while at the same time
2 minimizing the financial impact on utility ratepayers and encouraging competition in the TE
3 market.”⁷⁶ SDG&E considered this and determined that further research and data is needed to
4 inform the proper incentive mechanisms to apply in these nascent market segments. Perhaps
5 once sufficient knowledge is acquired, SDG&E can consider future application of incentive
6 mechanisms.

7 **9. Provides Anonymous and Aggregated Data for Evaluation**

8 As discussed in the Introduction section above and described in greater detail in Mr.
9 Schimka’s direct testimony (Chapters 3 and 4) for the priority review projects and standard
10 review program, respectively, every proposal in SDG&E’s TE portfolio has a data collection
11 plan that will ensure accountability. SDG&E will provide anonymous and aggregated data for
12 evaluation by the Commission.

13 **10. Cost and Duration**

14 The proposed priority review projects meet the short duration requirement established in
15 the ACR. Data collection efforts will be reported after one year of duration. The priority review
16 projects also meet the cost requirements in the ACR. The priority review projects total \$18.2M
17 in direct capital and O&M costs, while each individual project is no more than \$4.0M in costs.
18 The revenue requirement for each program is explained and itemized in Michael Calabrese’s
19 direct testimony (Chapter 6).

20 The proposed residential charging program’s cost is \$225.9 million in direct capital and
21 O&M costs. The revenue requirement is described in Mr. Calabrese’s direct testimony (Chapter
22 6), while costs are provided and itemized in Mr. Schimka’s direct testimony (Chapter 4).

⁷⁶ *Id.* at 31.

1 **11. Non-Controversial**

2 The proposed priority review projects are non-controversial because they meet the
3 statutory requirements outlined in the ACR, directly support state, regional and local policy
4 initiatives, and follow the regulatory guidance provided in the ACR. The projects are all modest
5 in size and scope and will not saturate the market. The priority review projects will expand the
6 market through acceleration of TE adoption, a robust RFP process and gathering of data in
7 nascent markets.

8 Prior to filing, SDG&E briefed a variety of stakeholders including environmental
9 advocates, consumer advocates, social justice organizations, labor, EVSPs, automakers, EV-
10 oriented non-profits and many potential partners and customers in San Diego.⁷⁷ Although
11 SDG&E did not seek, and stakeholders did not provide, their concurrence with this Application,
12 SDG&E listened carefully and incorporated their input where possible. It is SDG&E’s intent, to
13 the greatest extent possible, to align parties’ interests and roll out a portfolio that benefits a wide
14 range of stakeholders.

15 **12. Program Advisory Council**

16 SDG&E intends to continue discussions with parties throughout 2017 as future filings
17 take shape. In addition, SDG&E will solicit the participation of a broad and diverse stakeholder
18 advisory group as part of the existing Program Advisory Council (“PAC”) in planning and
19 implementing the SB 350 projects following approval by the Commission.

20 The PAC will include current members as well as the inclusion, if they choose to join, of
21 representatives from local and state government, Energy Division, industry, labor and other
22 stakeholder participants, ratepayer and environmental advocates, and representatives of DACs.

⁷⁷ See letters of support attached to Application as Appendix A.

1 To ensure that there is participation from the local and regional planning organization for
2 transportation in San Diego, SDG&E shall also seek the continued participation of SANDAG on
3 the PAC.

4 With guidance from the PAC, SDG&E will make changes as needed during the course of
5 project implementation. SDG&E will give careful consideration to all project modifications
6 recommended by the PAC and implement such changes deemed feasible and necessary. Project
7 changes will be made on an on-going basis, running concurrent with project implementation, so
8 as not to impact its overall progress. It is understood that certain project changes may require
9 Commission approval.

10 **V. CONCLUSION AND SUMMARY**

11 As discussed in detail above, SDG&E believes that its TE portfolio complies with the
12 statutory and regulatory guidelines set forth in the ACR and is a prudent step towards widespread
13 TE. Expedited approval of the priority review projects by the CPUC will help enable new
14 market segments throughout California and make substantial progress toward the State's climate
15 change and TE goals. Although standard review is requested for the SDG&E residential
16 charging program, SDG&E believes that an aggressive review schedule, as set forth in the
17 Application, is required to ensure that significant movement toward meeting the State's GHG
18 reduction goals can be met.

19 This concludes my direct testimony.

1 **VI. STATEMENT OF QUALIFICATIONS**

2 I am the Senior Director – Clean Transportation for SDG&E. I oversee the company’s
3 Clean Transportation business unit. My business address is 8306 Century Park Court, San
4 Diego, California, 92123. My educational background includes a Bachelor of Science degree in
5 Electrical Engineering from Southern Illinois University, Carbondale, Illinois. I am a licensed
6 Professional Engineer in Electrical Engineering in the State of California. I have more than 30
7 years of experience with SDG&E which includes various positions in distribution, operations,
8 transmission, supply management, generation, and regulatory affairs. I have testified numerous
9 times before the Commission, most recently on the Sunrise Powerlink. I have also been a subject
10 matter expert on the need for other transmission projects including Mission Miguel and Otay
11 Metro Powerlink.