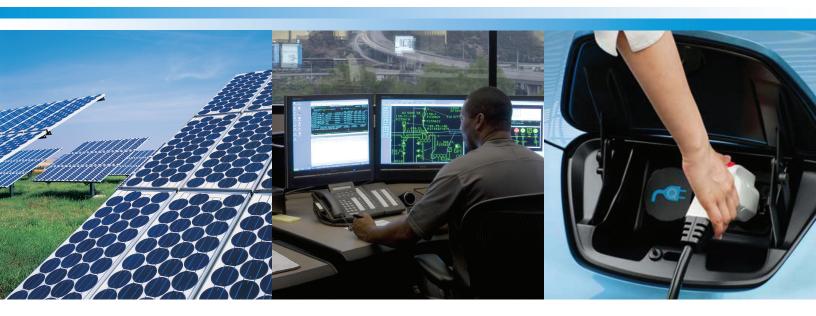
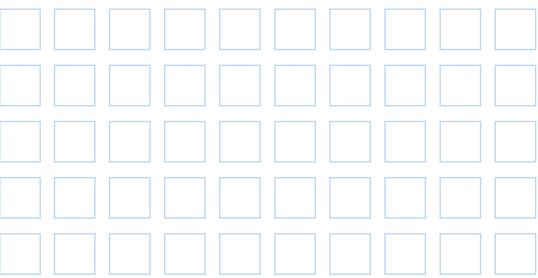


Proponent's Smart Grid Deployment Plan

for the

Smart Grid Deployment Plan Application Of San Diego Gas & Electric Company (U 902 E)







Smart Grid Deployment Plan 2011-2020

June 6, 2011

Smart Grid OIR R.08-12-009

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June 6, 2011

Commissioner Michael R. Peevey, President California Public Utilities Commission 505 Van Ness Avenue San Francisco, CA 94102

Dear President Peevey:

At SDG&E, we define the Smart Grid as an end-to-end transformation of our electric system that applies advances in technology to deliver a range of new benefits to all stakeholders. Our Smart Grid empowers customers, increases renewable generation, integrates plug-in electric vehicles (PEVs) and reduces greenhouse gas emissions. We expect to do this while maintaining or improving system reliability and operational efficiency, and ensuring security while protecting customer privacy. We anticipate that investments in a smarter grid will yield substantive and as yet unidentified benefits as the transformation progresses and our customers, employees, policy makers and the industry are able to leverage lessons learned and achieve the Smart Grid's full potential.

There is one observation that is crystal clear: Our customers are driving our deployment plan.

- Over 13,000 of our customers have installed a total of over 100 megawatts of photovoltaics.
- Our customers are adopting PEVs at rates that are among the highest in the nation –
 300 vehicles purchased and increasing by over 100 per month.
- Our customers are already leveraging real-time information about their energy usage from third-party software applications in order to make more informed decisions about how and when they use electricity.

Our customers and SDG&E support environment-friendly policies from the *California Global Warming Solutions Act* (AB 32) to a 33 percent renewable portfolio standard, to which we committed over two years prior to it being signed into law.

Our vision is to work collaboratively with key stakeholders to create the foundation for an innovative, connected and sustainable energy future. We have engaged the input of representative stakeholders from across our service territory and around the globe, including environmental, academic, business, municipal/regional government, ratepayer advocacy, consumer, large customer, and workforce development organizations. Their valuable insights have shaped our approach to the Smart Grid Deployment Plan. And we will continue to seek and incorporate their input as our plan develops.

Our connected grid will leverage technology advancements so that customers can manage their energy bills with minimal complexity and invested time. Products for the home such as appliances, air conditioners, plug-in electric vehicles, electric generation, and products yet to be developed or not widely available, such as home energy storage, will automatically work in concert with a grid enabled by advanced technology to improve reliability, while integrating the increasing variability produced by an evergrowing level of intermittent renewable generation.

The Smart Grid Deployment Plan was developed by SDG&E employees across the whole company, driving broad internal alignment around the exciting changes associated with the energy industry evolution. We are working with employees internally and partnering externally to ensure a Smart Grid-ready workforce. Outreach to Diverse Business Enterprises is another key element in our Smart Grid supplier selection process to ensure SDG&E continues to exceed state targets for supplier diversity.

SDG&E's Smart Grid activities over the past two decades have developed a baseline that is the foundation for the utility of the future. From automation and control technologies, to re-engineering operational processes, microgrids, our nearly-complete Smart Meter program, advanced sensing technologies and many others; our

investments are already benefiting our customers by improving safety, reliability, and efficiency. SDG&E's choice of open standards, where cost effective, available, and applicable allows the flexibility to incorporate new technologies, respond to evolving and new policy requirements and capture new benefits as opportunities arise.

Reliable electric service to customers is a key driver for SDG&E as evidenced by having been named "most reliable utility in the west" for the last five years and the honor of best reliability excellence in the nation for 2009. Our Smart Grid investments are intended to maintain or improve reliability as the grid is challenged by the two-way energy flow from distributed generation; the intermittent power generation of solar and wind generators; and the large, mobile and growing load imposed by electric vehicle charging. Ultimately, the Smart Grid will also enable a significant reduction in the environmental footprint of electricity generation and delivery in the region; reduce energy dependence on foreign sources; enhance the grid's resilience to natural and manmade threats; and most importantly meet our customers' needs and provide them with greater choice, convenience and value.

To ensure our customers trust an electric grid that relies on significantly more technology, privacy and security must be a foundational element of Smart Grid systems and solutions. Customer data must be protected by "designing in" privacy from the beginning and leveraging the security of our systems. We have partnered with global leaders in this area to develop a smarter approach to privacy and security.

SDG&E's roadmap for Smart Grid projects from 2011 – 2020 as well as associated cost and benefit estimates are structured around nine program areas: Customer Empowerment; Renewable Growth; Electric Vehicle Growth; Reliability and Safety; Security; Operational Efficiency; Smart Grid Research, Development and Demonstration; Integrated and Cross-cutting Systems; and Workforce Development.

While we have presented a detailed roadmap with specified estimated costs and benefits for our Smart Grid Deployment Plan, we plan to take an adaptive management

approach on an ongoing basis. We will continually evolve our roadmap to leverage and respond to future technology breakthroughs, changing state and federal policies, shifting stakeholder priorities and other unanticipated events that the utility considers as a given over the coming 10-year period.

Our plan today estimates the preliminary and conceptual costs of SDG&E's Smart Grid deployments for the years 2006–2020 at approximately \$3.5 to \$3.6 billion with the majority of the estimated costs attributable to previously authorized investments and active applications. These previously authorized programs include SDG&E's Smart Meter and Operational Excellence 20/20 programs. Active applications include our Test Year 2012 General Rate Case (GRC) as well as other programs such as SDG&E's proposed Demand Response and Dynamic Pricing projects. The estimated investments for projects incremental to these previously authorized and active applications are approximately 25 percent of the overall estimated costs.

The total benefits associated with the Smart Grid deployments discussed in this plan are estimated to be between \$3.8 and \$7.1 billion. This calculation includes estimated economic and reliability benefits as well as estimated societal and environmental benefits such as avoided emissions through the integration of renewable energy and PEVs as well as the estimated avoided fuel costs PEV owners realize by their successful integration.

The majority of benefits derive from societal and "soft" benefits such as maintaining or improving reliability in the face of a more complex grid, avoided costs, reduction of commodity cost, environmental and others, and so they minimally reduce operating costs and are not projected to significantly impact rates, although customers who leverage Smart Grid technologies and data will have the capabilities they need to manage and reduce their bills. Smart Grid technologies and applications will enable the future – and the exciting achievement of benefits to society.

SDG&E's Smart Grid Deployment Plan is not a request for funding. While many of the costs have been previously authorized or submitted as part of the 2012 GRC, we will not pursue funding requests for incremental projects in this plan until we can accurately project associated costs and benefits for a project.

We are pleased to submit this foundational industry plan and share our vision for the next decade of Smart Grid transformation in our region and beyond. While this document is already based on broad stakeholder input, we anticipate that its publication will attract additional input and help SDG&E continue to enhance and improve its Smart Grid plans and thought leadership, as evidenced by President Obama's recognition of SDG&E in the *U.S-Russia Bilateral Presidential Commission's Energy Working Group Joint Action Plan* and *Intelligent Utility Magazine's* most intelligent utility in the U.S. designation for the last two years. SDG&E is excited about the better customer service, reliability, efficiency and environmental benefits enabled by Smart Grid investments. We are proud to do our part to deliver these benefits to customers, to California and to society as a whole.

Sincerely,

SAN DIEGO GAS & ELECTRIC CO.

Michael R. Niggli, President and COO

Michael R. Shagili