



CITY OF SAN DIEGO
PURCHASING & CONTRACTING DEPT.
1200 Third Avenue, Suite 200
San Diego, CA 92101-4195

REQUEST FOR INFORMATION (RFI) COVER SHEET
PROGRAM(S) TO MEET CITY'S 100% RENEWABLE ENERGY GOALS

Subject: Solutions to Support the City of San Diego's Goal of 100% Renewable Energy

Date Issued: September 23, 2016

Response Date and Time (Closing Date): October 21, 2016 at 3:00 p.m.

Questions/Comments Due Date: September 30, 2016 at 5:00 p.m.

City Contact Name and Information: Maureen Medvedyev, Principal
Procurement Specialist, Mmedvedyev@sandiego.gov

Respondent's Information:

Respondent Name: San Diego Gas & Electric

Address: 8306 Century Park Court, CP42D, San Diego, CA 92123

Telephone No. and E-Mail Address: (858) 654-1745 | TCahill@semprautilities.com

Website: sdge.com

Authorized Representative Name and Title: Todd J. Cahill, Director of Business Services

Representative's Original Signature: 

Date Signed: October 28, 2016

TO BE CONSIDERED, RESPONDENT MUST :

- 1) Provide all requested information identified in this Cover Sheet.
- 2) Submit all requested information described in the RFI.
- 3) Submit all requested information on or before the Closing Date.

Achieving the City of San Diego's Climate Action Plan Goals

October 28, 2016



A  Sempra Energy utility®



October 28, 2016

Ms. Maureen Medvedyev
City of San Diego Purchasing and Contracting Department
1200 Third Avenue, Suite 200
San Diego, CA 92101

Dear Ms. Medvedyev:

San Diego Gas & Electric Company (SDG&E) is pleased to respond to the Request for Information (RFI) to meet the City of San Diego's (City) 100 percent renewable energy goal. SDG&E appreciates the City's invitation to SDG&E to present this information. SDG&E is committed to continuing our partnership with the City and pleased to describe several customer initiatives that directly support the City's greenhouse gas (GHG) objectives. SDG&E's efforts are grounded in our aspiration to improve the lives of those in the communities that we serve and to ultimately be the cleanest, safest, and most reliable electric utility in America.

In our response to this RFI, you will find information about new renewable commodity options to reach higher levels of renewable energy deliveries, as well as information on Energy Efficiency (EE) and clean transportation programs we can enhance in line with the City's interests. We discuss our EE programs because the cleanest and most efficient kilowatt (kW) used is the one that isn't. We discuss our clean transportation programs not only because they can enable higher levels of renewables on the grid, but also because transportation accounted for 55 percent of the City's 2010 GHG emissions inventory. In sum, it is the combined benefit associated with all three initiatives, *i.e.*, renewable commodity, clean transportation and EE, that we believe brings unique value to our potential offerings.

We have focused our responses to Questions 1 through 9 on our renewable commodity initiatives. In Question 10, we address EE and clean transportation in more detail. Before addressing the specific RFI questions, we want to emphasize key benefits of our long-standing partnership for this effort.

Clean Energy Leadership

Through the City's Climate Action Plan (CAP), the City has been applauded nationwide for its leadership in tackling climate change. Similarly, SDG&E is the State's clean energy leader. SDG&E was the first investor-owned utility in California to have delivered 33 percent renewable power to its customers. SDG&E achieved the State's 33 percent Renewable Portfolio Standard (RPS) target more than 5 years early and expects to achieve 45 percent RPS by 2020. SDG&E is also actively supporting growth in distributed renewable resources and has safely connected more than 100,000 private solar rooftops to the power grid.

Our leadership extends to the arena of Energy Efficiency. SDG&E has built a large portfolio of EE offerings that, over the past three years alone, have resulted in electric savings of over 750 million kilowatt-hours (kWh) and natural gas savings of nearly 4.5 million therms. In addition to helping

customers save money, save energy, and live more comfortably, these savings have reduced CO2 by over 607,000 tons, the equivalent of removing over 116,000 cars from the road.

Another major focus of our Company is to reduce GHG emissions by making electric vehicle (EV) charging more accessible to hundreds of thousands of residents living in multi-family residences and disadvantaged communities throughout the region. Here in San Diego, there are more than 22,000 electric vehicles on the road – which is 300 percent more than any other comparable U.S. city. However, a key obstacle for widespread adoption of EVs has been lack of charging infrastructure. SDG&E is one of the first utilities in America to be granted authority to install 3,500 EV charging stations with special rates that encourage drivers to charge their cars when renewable energy is most abundant. The goal: to reduce harmful air emissions, promote the use of EV charging with power from the wind and sun, and to establish San Diego as America's EV and clean energy capital.

Ability to Leverage Existing Investments

SDG&E's leadership in RPS procurement delivers several advantages that can be leveraged to support the City's efforts to reduce its carbon footprint. SDG&E has developed a deep understanding of the local permitting environment for renewable projects, both small and large, and the appropriate siting of local renewables to maintain grid reliability. SDG&E's renewables portfolio exhibits diversity in supplier and resource mix, reducing customers' exposure to counterparty risk and project failure. Additionally, SDG&E has developed experience in designing novel contracting terms to address the challenges of intermittency and negative pricing that occurs when the timing of renewable generation does not match the timing of customer demand. In addition to the value from our commodity investments, lessons learned from our clean transportation pilots and years of experience in providing EE programs will be invaluable to expanding the number of participating customers.

SDG&E also offers the unique potential to integrate the management of increased renewables and energy efficiency with advanced, innovative technologies, such as battery storage. SDG&E lends its expertise from its Borrego Springs microgrid, from the largest battery storage facility of its kind currently under construction in Escondido, and as the inventor of the Renewable Meter Adapter, which significantly lowers the cost of installing rooftop solar systems on mostly older homes.

Proven Track Record in Providing Safe and Reliable Energy

Providing safe and reliable energy is a foundational value for SDG&E. Every year, for nearly a decade, the company has been expanding its fire preparedness and public safety toolkit, adding new technologies and bringing in new partners to help enhance the safety of our communities. Recently, the company developed a wildfire risk reduction model that will help the company make smart, cost-effective decisions about infrastructure investments that can have the greatest impact on safety. This model is in addition to operating the largest and densest utility-owned weather network in America to assist the National Weather Service, fire agencies, other emergency agencies and the public. And, SDG&E is classified as high performing in employee safety when ranked amongst 500+ companies nation-wide according to survey results conducted by the National Safety Council.

The company also takes a tremendous amount of pride in the fact that it has been the most reliable utility in the West for a decade. SDG&E was awarded the 2015 ReliabilityOne™ Award for Outstanding Reliability Performance among utilities in the western states and Canada for the 10th straight year and has

twice received the ReliabilityOne™ National Reliability Excellence Award.¹ Importantly, maintaining reliability depends not only on transmission and distribution operations, but also on a dependable and market-savvy energy supply function.

In closing, as the CAP indicates, achieving the City's GHG goals will require a host of complementary efforts. SDG&E has tailored its response to the RFI to exhibit a suite of complementary tools to meet GHG reduction goals. Included in our response is information pertaining to programs that could be further utilized today. In addition, we discuss potential for new or expanded offerings to reach deeper GHG reductions over time. SDG&E has a proven track record of experience in these areas, with the added protection to the City of having these services come from a regulated utility. As you will see, SDG&E's response includes a number of ideas that can be explored and developed in conjunction with the City. SDG&E would be very pleased to work with the City to develop a specific and concrete plan that meets the City's needs and may ultimately be approved by the California Public Utilities Commission (CPUC).

Most important, SDG&E stands ready to support the City in meeting our mutual objective of improving the lives of those in our communities through a cleaner energy future.

Sincerely,

Todd J. Cahill

Director, Business Services

¹ ReliabilityOne Awards are given annually to the utilities that have excelled in delivering the highest levels of reliability to their customers, and are widely considered one of the most prestigious honors in the electric utility industry. <http://www.prnewswire.com/news-releases/pa-consulting-group-honors-north-american-utilities-for-excellence-in-reliability-at-the-2015-reliabilityone-awards-ceremony-300165366.html>. See Also, <http://www.sdge.com/newsroom/press-releases/2015-10-27/SDGE-receives-best-in-west-reliability-award-10th-straight-year>

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Program Descriptions

1. Detailed description of the concepts (projects or programs) SDG&E is submitting for consideration.

Renewable Commodity

SDG&E has two new renewable commodity initiatives that would allow City of San Diego electricity customers (residential, commercial, and city/municipal) to receive a higher percentage of renewable generation than is currently forecasted for SDG&E's bundled service. Of the energy SDG&E currently delivers to its customers, 35 percent is from renewable sources, and by 2020, SDG&E is forecasted to meet a 45 percent RPS. For energy consumed by those participating in our renewable commodity options, this percentage could increase in line with the City's CAP and up to 100 percent by 2035.

The first offering described below is SDG&E's EcoChoiceSM program, which is available today.² This is a CPUC-approved program that enables interested customers to enroll and receive up to 100 percent of their energy from local renewable sources. This program has a capacity limit and is currently authorized for customer enrollment through December 2018, with the offering provided on a first come, first served basis.³ In order to extend the offering to authorize enrollment beyond 2018 and expand potential participation to all of the City's energy consumers, the second initiative is a potential offering described below called *Expanded EcoChoice*. The *Expanded EcoChoice* initiative design, timing, and mechanics could be developed jointly through coordination between the City and SDG&E to include the flexibility and program parameters the City desires.

EcoChoice Summary (Currently Effective):

- CPUC-authorized opt-in program through December 2018 that allows subscribing customers to receive up to 100 percent of energy from local renewable sources.⁴
- SDG&E is authorized to procure up to 59 MW of renewable energy for enrolled customers from new projects located in SDG&E's service territory or the Imperial Valley. To date, SDG&E has procured 20 MW. Until the resources procured are operational, customers will be served from an interim pool of local solar projects currently in operation.
- Total program limit is 59 MW and there is a single entity limit of 4 MW.⁵ The program is offered on a first come, first served basis and once enrolled, customers may remain on the program indefinitely.⁶
- SDG&E retires the Renewable Energy Certificates (RECs) on the customer's behalf.
- Green-e Energy certified (Green-e Energy is North America's leading voluntary certification program for renewable energy).⁷

² The EcoChoice program is SDG&E's green tariff program that the CPUC authorized in D.15-01-051 (the "Green Tariff Shared Renewables" Program). SDG&E's EcoChoice program would assist the City in meeting Action 2.1 on page 35 of its Climate Action Plan by supporting the State's implementation of the Green Tariff Shared Renewables Program.

³ Customers who enroll will be allowed to remain on the program for at least 20 years.

⁴ More information can be found at: http://regarchive.sdge.com/tm2/pdf/ELEC_ELEC-SCHEDS_GT.pdf

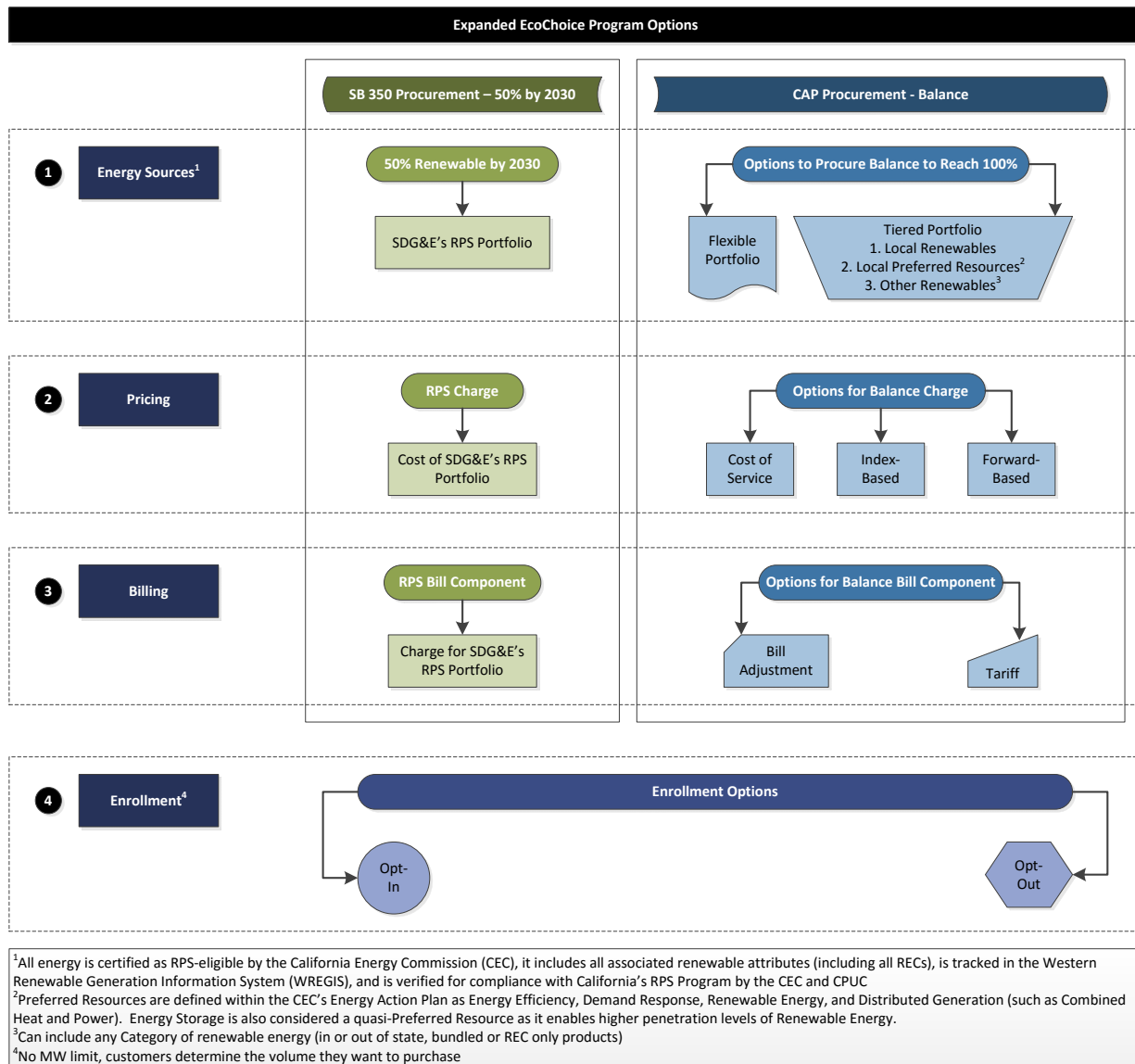
⁵ The single entity limit is 4 MW for government entities, 2 MW for residential and commercial. See SB 43.

⁶ Termination fees apply for enrollment lasting less than one year. Termination Fee = (\$0.03550/kWh) x (Average Monthly Subscribed kWh) x (Number of Months Remaining in Initial 1 Year Term)

⁷ It is a required certification for the U.S. Green Building Council's LEED standard, allowing customers to use EcoChoice to reduce Scope 2 emissions and earn LEED points for the use of green power.

Expanded EcoChoice (potential future renewable commodity offering):

- A proposed renewable commodity option that would be subject to CPUC approval, and that could further enhance the EcoChoice program to meet the City's needs.
- A proposed program could allow additional customers to receive up to 100 percent of energy from renewable sources and could extend beyond January 2019 (EcoChoice is currently only authorized through 2018).
- Program design, timeframes, and approval process could be done jointly through coordination between the City of San Diego and SDG&E to include flexibility desired by the City.
- Program enhancements and/or options under Expanded EcoChoice could include (see graphic below):



⁸ This is a bundled or "Content Category 1" renewable. Tradable RECs are referred to as "Content Category 3" products and only include the renewable attribute that is decoupled from the underlying energy. Tradable RECs can be generated out-of-state [see California Public Utilities

San Diego's Climate Action Plan Goals

2. How do SDG&E's offerings meet the goals of San Diego's Climate Action Plan and the objectives in section I.C to the RFI?

City Objectives listed in I.C.:

1.1: Contributing to the City's 100 percent renewable electricity goal by 2035

As summarized in the Project Description, SDG&E's renewable commodity initiatives could directly meet this goal by providing an opportunity for all electric consumers within the City to be served by 100 percent renewable energy by 2035.

See response to question 3 below for additional detail.

1.2: An energy portfolio with lower carbon content than is currently provided, and lower than that required per California SB 350 and the State's RPS

SDG&E's renewable commodity initiatives would support the City in reducing its carbon footprint. According to the CAP, the City's goal is to reduce emissions below the 2010 baseline by 40 percent by 2030 and 50 percent by 2035. Achieving renewable energy deliveries at a level higher than required in SB 350 is needed for this goal, since as the City estimated, only 68 percent of the 2035 GHG reductions would be met with actions already mandated by State and Federal regulation. Since electricity accounted for 24 percent of community-wide emissions in 2010, increased investment in clean, renewable energy is essential to achieving the City's GHG goal.

SDG&E's analysis strongly suggests that increasing the renewable intensity of electric generation is a cost-effective means of reducing GHG emissions. For illustrative purposes only, assuming a \$60/MWh levelized cost of energy for renewables⁹ and the CPUC-adopted statewide marginal emissions factor of 0.35 MT/MWh for renewable generation, the estimated cost-effectiveness of GHG reduction costs for renewable generation is approximately \$21/MT CO₂.¹⁰ Since the energy to serve customers under SDG&E's renewable commodity initiatives would be focused on new renewable projects to be built and operated under long-term contracts (e.g. 20 years), the City's carbon footprint would be reduced for years to come.

In the immediate and near-term, the City can utilize the EcoChoice program for municipal facilities (subject to the cap outlined in the EcoChoice summary). While municipal emissions contribute only 1 percent of the City's emissions, enrollment in EcoChoice would provide an opportunity for the City to take a leadership role by reducing its own impacts now.

Code Section 399.16(b)(3) for a definition]. SDG&E's reliance on tradable RECs to meet renewable energy goals is minimal - 0.01% in the 2014 to 2016 Compliance Period [Compliance Period 2, see page 5 of SDG&E's attached 2015 RPS Compliance Report].

⁹ http://www.eia.gov/forecasts/aeo/pdf/electricity_generation.pdf

¹⁰ \$60/MWh * .35 MT CO₂/MWh = \$21/MT CO₂

1.3: Identifying new and diverse sources of renewable energy to supply electricity and/or reduce greenhouse gas emissions

SDG&E's renewable commodity initiatives prioritize procurement from new, dedicated resources constructed in SDG&E's service territory or the Imperial Valley. As SDG&E relies on competitive solicitations for its procurement and mitigates risk through diversification, SDG&E's renewable commodity initiatives would incentivize wide and diverse participation from both existing and new local developers. In addition, SDG&E is exploring innovative ways to invest in local energy storage in order to incorporate higher levels of renewable energy into our portfolio.

1.4: Ensuring reliable and sustainable energy services for both the near and long-term

The CAP is particularly interested in the reliable and sustainable provision of renewable electricity. Regarding reliable service, SDG&E's operations include this objective at every level. First, activities relating to running competitive solicitations, developing and negotiating contracts for new technologies, overseeing project development and operation, and settlements are extremely complex. Over the long history that SDG&E has served the local community, it has invested millions in developing its internal procurement infrastructure and expertise.

Second, SDG&E's commodity strategy is forward-looking, constantly forecasting and monitoring demand, and procuring resources that can be called upon to ensure continued service under multiple scenarios. As a key participant in several State reliability efforts, SDG&E is highly integrated into the statewide processes that support forward-looking commodity procurement and that ensure reliable service:

- SDG&E participates in the California Independent System Operator's (CAISO) Transmission Planning Process (TPP) which identifies transmission requirements crucial to maintaining reliable transmission service and that eventually determine timing and feasibility for renewable project interconnections.
- SDG&E participates in the California Energy Commission's (CEC's) Integrated Energy Policy Report (IEPR) process which culminates in the adoption of electric and gas demand forecasts, including projections of customer-located generation resources (distributed generation) that can impact local procurement plans.
- SDG&E participates in the CPUC's Long-Term Planning Process (LTPP) process which sets forth the company's plan to provide reliable and cost-effective commodity services for SDG&E's bundled customers while simultaneously meeting the State's preferred Loading Order and reducing GHG emissions.

Third, providing reliable and sustainable service requires having robust risk mitigation measures in place. In general, a provider of electricity faces all the risks that exist in commodity markets. These risks may include but are not limited to:

- Price risk: the price of electricity can increase or decrease in both the near-term and the long-term;
- Forecasting/Demand Risk: the supplier often needs to make long-term commitments of 10 years or more based on its best customer load forecast at the time, which may be materially higher or lower than actuality depending on the number of customers, the type of customers, changes in technology, changes in regulations, and market needs;
- Supply/Counterparty Risk: the quantity of power available can vary depending upon project performance, fuel, and technology;
- Credit Risk: there are risks of customer non-payment and supplier non-performance. Also, the provider's credit-worthiness can be impacted by the extent and quality of long-term contracts in the portfolio;
- Unanticipated Changes in Market Conditions: risks associated with unanticipated changes in the market; and,
- Regulatory Risk: unanticipated changes in regulation.

SDG&E has instituted policies, structures and processes to manage the above-mentioned risks.¹¹ SDG&E's procurement practices, hedging plans, and long and short-term planning processes consider parameters such as portfolio resources, commodity price forecasts, load forecasts, market information, and dispatch systems. SDG&E conducts systematic portfolio risk assessments, including assessing value-at-risk, position exposures, credit exposures, and monitoring and mitigating credit risks on an ongoing basis.

1.5: Spurring new renewable energy development

SDG&E is committed to encouraging the development of renewable resources through the execution of long-term contractual commitments.¹² SDG&E is developing two of its own renewable projects within its distribution service territory, and 35 of 62 operating renewable projects (11 of which were developed by SDG&E) are located within San Diego County. Between the development and delivery of local projects, SDG&E's current portfolio contains a total local capacity of approximately 146 MW.

Under SDG&E's renewable commodity initiatives, with procurement prioritized for local renewable projects (rather than procurement of RECs associated with generation from other parts of the State or Country), significant additional capacity would need to be constructed. For example, over 800 MW of additional renewable capacity is estimated to be required to increase the percent of City of San Diego renewable deliveries from 50 percent to 75 percent alone.¹³ SDG&E's general project development and contracting expertise are valuable tools to support the City in encouraging such development.

1.6: Following the State of California's loading order for buildings in the City above levels currently achieved

SDG&E's energy efficiency proposals, addressed later in the document, are designed to increase the amount of energy efficiency above business-as-usual and assist City residents and businesses with additional incentives, financing, and workforce training in alignment with the State of California's loading order. Please see question 10 for additional detail.

1.7: Considering social equity in efforts to reduce greenhouse gas emissions

SDG&E's EcoChoice program actively solicits environmental justice (EJ) projects of up to 1 MW in size (EJ project parameters, including size, determined by statute) that are located in communities identified by the California Environmental Protection Agency (CalEPA) as the most impacted and disadvantaged. SDG&E's proposed *Expanded* EcoChoice initiative, as it is developed in coordination with the City, could also target these types of facilities in a broader manner by removing the size restriction and providing preference to projects constructed in EJ areas.

¹¹ We file a biennial Long Term Procurement Plan with the CPUC to establish achievable standards and criteria for SDG&E's procurement activities and cost recovery, consistent with California Public Utilities Code 454.4. Additional information on our latest Long Term Procurement Plan can be found at <http://www.sdge.com/node/761>

¹² The majority of SDG&E's current portfolio, which met the 2020 renewable energy target of 33% in Q3 2015, is composed of long-term contracts (only 1 has a term of 5 years, while 26 have terms between 10-15 years, and 35 have terms between 20-30 years), and only four of SDG&E's 62 operating contracts are located out-of-state, which provides important geographic supply diversity.

¹³ This assumes the loads for the City of San Diego remain relatively flat, an assumed capacity factor of 30% for renewable generation, and incremental renewable generation above that provided by SDG&E to meet CPUC RPS targets.

1.8 and 1.9: Increasing resources dedicated to local investment and economic development and creating green jobs

By their very nature, SDG&E's long-term contractual commitments have inherently created green jobs within the State. Although SDG&E has not historically tracked the increase in green jobs as a result of its portfolio of renewable resources, this information will become available for future executed contracts as a part of the solicitation process and can be incorporated into renewable commodity initiatives proposed in this RFI. SDG&E has seen great success in its Diverse Business Entity (DBE) energy procurement, and its 2015 Supplier Diversity Report included the following:

1. SDG&E contracted with a 20 MW solar facility being developed by a Native American DBE in the Imperial Valley which came online in 2015. Additionally, pursuant to its power purchase agreement with SDG&E, a separate 20 MW solar project procured over 50% of their construction costs from CPUC certified DBEs.
2. SDG&E posted another successful year in 2015 by purchasing over \$100 million in natural gas from DBEs.

SDG&E's Draft 2016 RPS Plan, submitted August 8, 2016, addresses the CPUC's request for a proposed methodology to assess a project's ability to contribute to employment growth both in the construction and operational phases. SDG&E proposes to add a Workforce Development Assessment as a qualitative factor within its project valuation process, which can then be used to inform the final bid ranking, similar to all other qualitative factors. The information used in this Assessment will be gathered as part of the required bid information for any solicitations which include renewable resources. If approved by the CPUC, SDG&E would then be able to utilize this information to estimate the additional green jobs created by any new renewable contracts it executes.

Support of City's Renewable Energy Goals

3. Does the project or program support the City's renewable energy goals? How?

SDG&E's renewable commodity initiatives could directly meet the City's renewable energy goal by providing an opportunity for all electric consumers within the City of San Diego to be served by 100 percent renewable energy by 2035. As SDG&E is already forecasted to meet a 45 percent RPS by 2020, incremental renewable procurement could occur at the level and timing deemed optimal by the City— including before 2035. In addition, if desired, SDG&E's future renewable commodity options could prioritize procurement of renewable energy directly generated from local projects rather than prioritizing procurement of RECs associated with generation from other parts of the State or Country. SDG&E envisions working in partnership with the City to tailor these projects to fit the needs of the City and achieve the goals of the CAP.

Specific Technologies and Estimated Costs

4. What are the specific technologies and estimated costs required to implement recommendations, and what might be appropriate funding mechanisms?

SDG&E's currently-effective EcoChoice program is forecasted to be a very cost competitive method for achieving GHG reductions. Through a competitive solicitation, SDG&E has already procured 20 MW of solar energy for the program through the Renewable Auction Mechanism (RAM) program, which has yielded competitive pricing.¹⁴ Until the projects procured become operational, customers will be served from an interim pool of operating renewable projects located in and around the San Diego area. Using illustrative examples for 2016, our forecast shows that large commercial customers would pay a small premium (see example below).

EcoChoice Rate ¹⁵	\$0.00541 per renewable kWh (Large commercial rate)
Estimated Annual EcoChoice Cost ¹⁶	\$2,070 (Includes \$160 in City of San Diego franchise fees)
Estimated Annual Bill Increase	2.9% (Historical - \$71,820/year; with EcoChoice - \$73,890/year)

This estimate relies on past energy usage for a generic commercial facility to estimate what a 100 percent renewable energy subscription through EcoChoice will cost.¹⁷ Actual program charges going forward will vary based on:

- The amount of electricity used each month;
- The current EcoChoice rate at the time the electricity is used; and
- Selected subscription level at the time of EcoChoice enrollment.

While the above is an illustrative example for a commercial customer, the additional premium for residential customers signing up for EcoChoice is expected to be similarly small. The average SDG&E residential customer will pay about \$2 more per month for a 100% renewable energy subscription through EcoChoice.¹⁸ An EcoChoice cost calculator can be found here: <https://www.sdge.com/environment/connected-to-the-sun/ecochoice-calculator>

¹⁴ See CPUC's RPS Quarterly Report for 1st Quarter 2014.

¹⁵ The quoted EcoChoice Rate is for the 2016 program year only, and is subject to change annually as approved by the CPUC.

¹⁶ EcoChoice charges are in addition to a customer's normal SDG&E charges.

¹⁷ Available EcoChoice subscription levels are 50%, 60%, 70%, 80%, 90%, and 100% of facility energy usage.

¹⁸ Typical residential premium estimated using current EcoChoice prices and average residential energy consumption of 487 kWh per month.

Under an *Expanded* EcoChoice program developed in coordination with the City, there are additional factors that could support a cost-effective offering:

- **Declining technology prices:** Competition and continued market development are contributing to a reduction in the price of solar and other renewable resources. In addition, over the past few years, SDG&E has run numerous solicitations for other preferred resources, including energy efficiency, demand response, and energy storage. SDG&E has seen material price declines for these resources and expects this trend to continue. Running an effective competitive solicitation, however, is an important requirement to achieving cost savings and SDG&E has significant experience with this responsibility.
- **Developments in renewable integration:** Another area that could produce meaningful cost advantages pertains to the cost of renewable integration (e.g. costs for incorporating intermittent resources onto the grid). SDG&E is continuing to enhance its capacity to schedule intermittent resources, to develop contract terms that mitigate over-generation, and to explore matching renewable resources with energy storage.
- **Economies of scale:** Since SDG&E is the largest energy procurement entity in the region, we can leverage economies of scale and our existing procurement infrastructure to achieve cost savings into the future.
- **Potential flexibilities:** To the degree the City of San Diego wants to leverage financial tools, such as REC purchases and sales, additional cost reductions could be obtained. This flexibility and any associated trade-offs in terms of local GHG reductions would be a program design feature that could be coordinated between the City and SDG&E.

Depending on how the City/SDG&E structure the program, the primary funding mechanisms for the renewable energy could be through a specific tariff and or surcharge for enrolled customers.

Estimated Implementation Timeframe

5. *What is the estimated timeframe for implementation of projects or programs, and what factors may contribute to accelerating or slowing the implementation timeline?*



SDG&E's EcoChoice program is currently available and will be available through December 2018. For the *Expanded* EcoChoice initiative, SDG&E proposes to work with the City to develop the initiative, and request the necessary regulatory approval/s by the end of 2017 for the program to be effective in January 2019. The procurement for these new, dedicated resources would be done at intervals matched with customer participation, but leveraging SDG&E's existing investments toward meeting the state's 50 percent RPS (rather than starting from a base of zero) could help the city reach its targets sooner, faster and cheaper.

The current regulatory authorization for the EcoChoice program provides an accelerated and simplified approval process for extending the program without material modification. However, SDG&E suggests a coordinated approach with the City in filing an *Expanded* EcoChoice program with the CPUC. While this process would likely take longer, a partnership with the City of San Diego will strengthen the application, could facilitate approval on a timelier basis, and could include additional design features.

Potential Program Participants

6. Who are the potential participants in the implementation and operation of the proposed programs?

An important benefit to SDG&E's renewable commodity initiatives is that all electric customers within the City could participate, irrespective of whether they rent or own their property, whether they have a south facing roof, or their level of energy consumption. Participants can include residential customers, large institutional customers, schools, colleges, universities, local governments and municipalities, and both small and large businesses.

SDG&E implements the program and local developers are responsible for building and operating renewable energy projects. As mentioned above, SDG&E encourages the development and construction of renewable energy projects in disadvantaged communities, as appropriate and welcomed by those communities. SDG&E's existing EcoChoice program already solicits these types of projects, and this program structure can be leveraged by utilizing information from CalEPA to identify the most impacted communities to ensure that these projects are placed for maximum benefit in both the EcoChoice and Expanded EcoChoice initiatives going forward.

Specific Program Differences

7. How is the specific project or program new or different than what the City is currently doing, and how can it potentially be integrated with existing or future projects or programs?

Currently, the customers of the City receive their energy from a combination of resources. With the currently-effective EcoChoice, and an *Expanded* EcoChoice initiatives, the energy delivered to the customers can be, for the first time, 100 percent renewable.

Potential Implementation Obstacles

8. What are potential obstacles to implementation, including compliance requirements, regulatory barriers, technological or market feasibility, financing limitations and/or other parameters? Identify potential solutions for each.

As a regulated entity, SDG&E must obtain regulatory approval for programs not currently authorized by the CPUC. Since SDG&E already has approval for EcoChoice (along with the alternative fuel vehicle and EE programs detailed in the response to question 10), there is a good foundation for the expansion and the tailoring of these programs. Opt-in programs, in particular, are consistent with a long history of regulatory approval. If the City were interested in an opt-out approach, additional regulatory and legislative efforts may be required.

Other important compliance requirements include those associated with SB 350. In particular, beginning in 2021, at least 65% of the procurement a retail seller counts toward the RPS requirement must be from long-term contracts (i.e. contracts of 10 years or more in duration).¹⁹ SDG&E is well positioned to meet and exceed this requirement with its portfolio. In addition, when a customer departs from bundled service, SDG&E's remaining bundled customers, by law, must not experience any cost increases as a result of bundled customers electing to receive service from other providers. The Power Charge Indifference Adjustment (PCIA) charge is levied for this purpose and will apply to the bill of customers who enroll in EcoChoice. Filing with the CPUC for an *Expanded* EcoChoice would also require some sort of a PCIA charge.

Finally, intensive renewable development in the City will likely require a streamlined permitting environment. SDG&E has developed 11 projects which are now operational, and is in the process of developing two additional projects. As a result, SDG&E is familiar with the project development process in San Diego, including permitting, and can leverage this expertise to file and execute on an Expanded EcoChoice initiative.

¹⁹ California Public Utilities Code Section 399.13(b).

Estimated Results of Proposed Concepts

9. What are the estimated results of the proposed concept(s), including the potential for GHG reductions, number of residents and/or businesses accessing the program, economic impacts, ...etc.?

For GHG and economic impacts associated with all of our initiatives, refer to Q 1.2, 1.5, 1.8 and 1.9.

Additional Comments

10. Include any other comments that you would like to offer that were not previously addressed.

As mentioned in our cover letter, achieving the City's GHG goals will require a host of complementary efforts. In addition to our renewable commodity initiatives, we have expanding Energy Efficiency (EE) programs and a developing clean transportation infrastructure. The combined benefit of these efforts brings unique value to the services we can provide.

Energy Efficiency (EE)

SDG&E has reviewed its current EE portfolio to identify potential enhancements and new solutions to achieve the City's CAP goals and reduce the amount of energy consumed by the City and its residents and businesses. These enhancements are built around the natural touchpoints for residential customers and are the main drivers for changes at the municipal level. SDG&E is partnering with all customer groups (residential and commercial) to provide programming and resources to enable them to become more energy efficient; these programs, which the City has taken advantage of in the past, can be tailored and created to fit the specific needs of the City and its residents. SDG&E has even developed an online resource, the SDG&E Marketplace,²⁰ where customers can quickly and easily shop for energy saving products offered by third-party retailers. These new solutions and proposals are described further below.

SDG&E's EE business plans will be filed in January 2017 and will present an opportunity to enhance and tailor programs to the unique needs of public sector customers. SDG&E also offers a suite of core EE programs that are currently available to all qualified customers. These programs can specifically address many of the objectives described in the CAP; including financing options, auditing programs, direct incentives for projects and energy efficient products. Advice Letters with the CPUC can also be filed for minor program changes and represent a streamlined approval process. If the City is interested in pursuing a clean energy solicitation, SDG&E is open to and suggests working collaboratively with the City in filing a joint application to the CPUC for approval.

Enhanced Incentives:

Per Assembly Bill 802, SDG&E will soon not only be able to offer customers incentives based upon energy savings above code, but also savings based upon energy consumption of existing equipment. Such incentives will improve the economics of EE projects. By offering these improved project paybacks, SDG&E expects an increase in the replacement of inefficient equipment that achieves additional energy savings and GHG reductions. Reinvestment in local buildings and infrastructure will also provide additional opportunities for skilled trade professional services as well as promoting local economic growth (supports City Objectives 1.6 - Following the State of California's leading order by considering energy efficiency, demand response, and other alternatives to generation for buildings in the City above levels currently achieved, 1.8 – Increasing resources dedicated to local investment and economic development, and 1.9 – Creating green jobs in San Diego above levels currently achieved).

²⁰ <https://marketplace.sdge.com/>

Additional Workforce Education and Training Programs:

SDG&E is exploring ways to enhance existing EE workforce education and training programs, including proposing a new initiative to provide career preparation and readiness for disadvantaged workers and members of disadvantaged communities to enter core education or a job/career pathway. If approved by the CPUC, this initiative would supplement funding for organizations that provide soft skills, job development, workforce training and potentially job placement offerings to disadvantaged workers that are not fully prepared to enter a traditional energy higher education or career path. This initiative will benefit disadvantaged communities and increase the number of qualified contractors to perform EE services in our region. (Supports City Objective 1.7 – Considering social equity in efforts to reduce greenhouse gas emissions).

Local Reach Codes:

SDG&E proposes to partner with the City to support development of new EE reach codes that exceed the State’s Title 24 building standards ((supports SDCAP strategy 1.1 Residential Energy Conservation and Disclosure Ordinance, and City Objective 2.4 – Ensure long-term greenhouse gas reductions). Additionally, SDG&E proposes to work with the city on Action 1.1 Residential Energy Conservation and Disclosure Ordinance to perform analytics and provide citizens with actionable information that will help over 6,000 of them implement EE projects with deep savings by 2020.

Enhanced Financing Options:

SDG&E’s On-Bill Financing program has seen strong participation but there are limitations to the amount and who is eligible to receive loans, as well as a finite number of funds that SDG&E is able to provide.

SDG&E proposes to enhance its On-Bill Financing program to accommodate longer payback periods for local government projects. SDG&E will also be launching new financing pilots for both residential and commercial customers over the next several months. These pilots will enable customers to access third party capital at subsidized rates for qualifying energy efficiency projects, and in many cases allows customers to pay back the loan on their SDG&E bill (supports SDCAP measure to pursue additional financial resources and incentives for implementing energy and water efficiency measures, see SDCAP p.34). The launch of the new financing pilots will expand the pool of third party capital available to fund new EE projects, and the proposed enhancements to public sector On-Bill Financing loans will allow more municipal projects to qualify for 0 percent financing.

Clean Energy Solicitation:

SDG&E proposes to include EE as part of an overall clean energy procurement solicitation for the City. This RFO process would be modeled after SDG&E’s existing Preferred Resources RFOs, but could be tailored to the needs of the CAP. For example, SDG&E could solicit bids to assist with a comprehensive retro-commissioning effort for the City’s portfolio of municipal buildings (supports SDCAP strategy 1.2 - City’s Municipal Energy Strategy and Implementation Plan). This clean energy solicitation approach will also ensure that the City selects the most cost-effective method to reducing GHG emissions as EE will compete head-to-head against other types of clean energy resources (supports City Objectives 1.6 – Following the State of California’s loading order by considering energy efficiency, demand response, and other alternatives to generation for buildings in the City above levels currently achieved, and 2.1 – Are cost effective for the City and its communities, businesses and residents).

Clean Transportation/Alternative Fuel Vehicles

SDG&E is building a clean transportation infrastructure through multiple initiatives (described further below) that will directly target the City and State's GHG reduction goals. Since the transportation sector accounts for the largest source of GHG emissions, it can also be the largest source of GHG reductions, such as 4,200 metric tons per year through SDG&E's new EV charging station program, up to 600 metric tons per year for a recommended green car sharing program, and by an additional 752,238 metric tons in 2035 by changing compressed natural gas vehicles to renewable natural gas.

Power Your Drive:

SDG&E's Power Your Drive electric vehicle (EV) charging station program is a vital and meaningful initiative that will reduce the number of fossil fuel vehicles on San Diego's roads by making the necessary infrastructure for EV use and adoption more easily available to customers. Power Your Drive is an approved program with authorization to install 3,500 charging stations in 350 apartments, condos and business locations and will propel transportation electrification in the region, with an estimated GHG emission of 4,200 metrics tons per year. The CPUC calls this the largest transportation electrification program in the country, and there are already 350 hand-raisers on our interest list that would like to participate in the program. At least 10 percent of the charging stations will be installed in disadvantaged communities. SDG&E will install, own, operate and maintain the charging stations and can bill the drivers directly for the energy they use on their SDG&E bill, or the host facility can provide charging as a service to users. Any City facility that adopts Power Your Drive EV charging station, as well as business, apartment or condo owners are all eligible to sign up on the interest list and be considered for a program.

Under Power Your Drive, the first charging stations will be installed in June 2017. Stations will be installed in the order of executed contracts, after site walks are completed. This program will also be at no cost for properties located within the CPUC's definition for disadvantaged communities, which includes both air quality and income. Ongoing operations and maintenance of the charging station is covered for the life of the program.

SDG&E has already begun working with the City of San Diego to assess the possibility for at least 20 city-owned or leased locations that include employee and fleet EV charging. While Power Your Drive is available to all communities within SDG&E's service territory, many of the 350 "hand-raisers" on the interest list are located within the limits of the City of San Diego. This will provide 50 percent of our region's residents who live in apartments or condos access to electric vehicles. SDG&E has performed nine site walks with the City of San Diego's Fleet Services team for fleet vehicles and Economic Development team for employee parking, and has five more site walks scheduled for employee parking lots in early November 2016.

The Power Your Drive Program will introduce an innovative hourly time-variant rate and associated grid-beneficial charging infrastructure for EVs. These two components will help to:

- Better determine the benefits to all customers of efficient integration of EV charging loads with the grid, such as increasing EV cost-saving opportunities through alternative fuel choice availability and a time-variant rate;
- Promote EV driver "range confidence," leading to increased adoption of EVs and alternative fuel usage increasing demand for EV charging stations;
- Increase zero emission miles driven per EV; and
- Examine and measure vehicle grid integration (VGI) benefits.

The Power Your Drive program includes a special dynamic electric rate that offers car-sharing entities the opportunity to reduce operating costs by avoiding charging the EVs during on-peak periods of the day, while also

integrating available renewable energy resources to fuel the EVs. Additional information on car-sharing entities is provided below.

If other customers sign contracts before the City signs theirs, the program could become fully subscribed. Working closely with SDG&E to ensure site walks and contract execution is performed before the program is fully subscribed will help to fulfill the needs of the City and assist them in meeting their CAP goals. The following components are also part of the program:

Green Car-Share Project:

Car-sharing entities provide a viable alternative to the traditional owner-driver model. Given the large volume of displaced petroleum consumption by electric fuel, this represents an attractive alternative for addressing GHG reduction in support of state and regional climate change goals.

SDG&E's Green Car-Share project is currently funded by the Power Your Drive program, with a nominal participation payment from the car-sharing entity or property owner/manager. Where applicable and of interest to the City (as with any participating property owner/manager), the City would sign an easement and contract to allow SDG&E to install, operate and maintain the EV charging facility, at no cost to the City.

The average EV passenger vehicle in the Green Car-Share Project is estimated to reduce 2 to 3 metric tons of CO₂ per year. It is expected that a fully utilized car-sharing program will achieve 3 to 4 times more GHG reduction. If we assume a car-sharing fleet of 200 EVs are attracted to San Diego, this would yield a reduction of 400 to 600 metric tons per year, or 2,800 to 4,200 metric tons over a seven-year period. When car2go announced that it was discontinuing its EV fleet in favor of internal combustion engine based fleet, it boasted 40,000 members in San Diego. This indicates that there is plenty of market share available to a car-sharing entity entering the region. In light of this, the economic impacts should be positive, and by utilizing the resources of the Power Your Drive program, operating costs very manageable.

SDG&E's Green Car Share Project proposes the following:

- **Partners:** Car share entities sign a contract with SDG&E to participate in its Power Your Drive program committing to have SDG&E install, own, operate and maintain grid-integrated charging infrastructure to support Car Share services in the greater San Diego region.
- **Charging locations:** Locations will have to be secured by the auto manufacturer; these could be throughout the region, with a special emphasis on placement within disadvantaged communities and villages.
- **Timeline:** This program will be implemented within the Power Your Drive program timeline; the three-year sign-up period is expected to commence in Q4 2016.
- **Funding:** Currently funded by the Power Your Drive program, with a nominal participation payment from the car-sharing entity or property owner/manager. SDG&E will install, operate and maintain the EV charging facility, at no cost to the City.²¹
- **Operating costs:** The Power Your Drive program includes a special dynamic rate that offers car-sharing entities the opportunity to reduce operating costs by avoiding charging the EVs during on-peak periods of the day, and integrating available renewable energy resources.

Both Power Your Drive and the Green Car-Share Project can be implemented immediately, once a car-sharing entity decides to deploy EVs in San Diego. Beyond this critical tipping-point, the next key contributing factor is the identification of site hosts willing to participate in the program by allowing SDG&E to install, own and operate

²¹ Please see Decision 16-01-045, pages 29, 137, and Attachment 2 (page 7, paragraph 15); <https://www.sdge.com/sites/default/files/documents/461232896/VGI%20FD.PDF?nid=17366>

charging facilities on their properties. SDG&E does have a three-year sign-up period commencing late 2016, so this represents a near term opportunity for the City.

Renewable Natural Gas (RNG):

A Renewable Natural Gas program would reduce the City's GHG emissions by an additional 752,238 metric tons of CO2 equivalents in 2035. This is equivalent to 8.8 percent in the total CAP estimated GHG reductions in 2035 or 16.8 percent of total CAP transportation related GHG reductions. Potential participants of the Renewable Natural Gas Program are all industry partners who operate trucks, haulers and buses. Other partners could include the San Diego Air Resources District to ensure we are getting the maximum air pollution reduction. No purchase of new technologies or vehicles is needed for the Renewable Natural Gas Vehicles program. It would apply to the existing 140 city-owned solid waste collection vehicles, 472 privately-owned solid waste collection vehicles, the 672 transit buses, 496 drayage trucks, and 10,758 goods movement trucks.