

CLEANS PARK

10/27/2016

RE: RFI SOLUTIONS TO SUPPORT THE CITY OF SAN DIEGO'S GOAL OF 100% RENEWABLE ENERGY

Delivery Information

City of San Diego
Purchasing and Contracting Division (P&C)
1200 Third Avenue, Suite 200
San Diego, CA 92101

Response Deadline

October 28, 2016 @ 3:00 PM PST

Respondent's Information

Respondent's Name:	CleanSpark LLC
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Telephone Number / Email:	919-962-6446
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Authorized Representative Name and Title:	Michael E. Firenze 
Representative's Original Signature:	_____
Date Signed:	10/27/2016

Submittal Requirements

- (1) Original Copy
- (2) Hard Copies
- (1) Electronic Copy

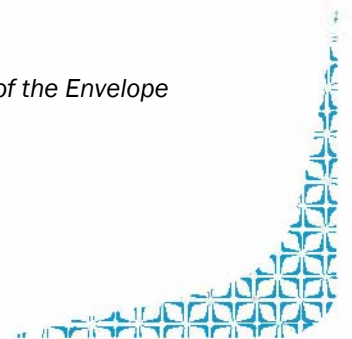
**Respondents should not include or incorporate marketing materials into their response*

Submission Details

Sealed Envelope Submission

City of San Diego
Purchasing and Contracting Division (P&C)
1200 Third Avenue, Suite 200
San Diego, CA 92101

**Include Cover Sheet Details and Closing Date In Lower Left Hand Corner of the Outside of the Envelope*



REQUEST FOR INFORMATION GUIDANCE AND COMMENTARY

Introduction

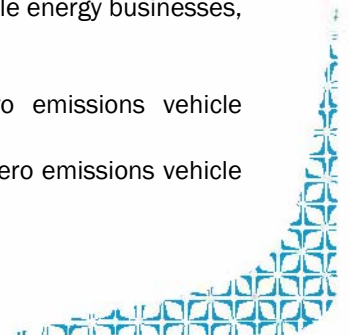
Overview

CleanSpark is proud to be a local San Diego CleanTech business and applauds our local community and its leaders for the aggressive and actionable Climate Action Plan that has been developed to ensure holistic strategies are employed to meet clear and concise goals as California and San Diego continue to be leaders in the fight against climate change. The fight against climate change also offers an immense opportunity for economic development and social equity as a function of these goals across a variety of industries. The CAP is quite comprehensive, and the 2035 target will benefit from several state policy drivers as well. As such, as context for the RFI response, an outline of applicable CAP and state policy drivers have been provided here to summarize what will and will not be addressed in the response.

The City has identified (5) bold strategies to reduce GHG emissions to achieve the 2020 and 2035 targets established by S-3-05, AB 32, and B-30-15. All strategies play a role in the realization of the CAP as well as the 100% renewable by 2035 goal addressed by this Request for Information, some of which are directly synergistic with the 100% renewable energy goal and are addressed herein.

CAP Summary

- Energy and Water Efficient Buildings (**APPLICABLE TO RFI**)
 - Goal: Reduce residential building energy consumption
 - Goal: Reduce daily per-capita water consumption
 - Goal: Outdoor Landscaping Ordinance
- Clean and Renewable Energy (**APPLICABLE TO RFI**)
 - Goal: Achieve 100% renewable energy by 2035
 - Complete a citywide Community Choice Aggregation Feasibility Study, which would include timelines for implementation and analyze potential costs.
 - Implement General Plan Policy CE-A.5 to achieve net zero energy consumption by employing sustainable or "green" building techniques for the construction and operations of buildings.
 - Support the State's implementation of the Green Tariff Shared Renewables Program.
 - Establish policies, programs, and ordinances that facilitate and promote siting of new onsite photovoltaic energy generation and energy storage systems.
 - Provide adequate funding and resources to meet increased demand for solar photovoltaic and energy storage permitting.
 - Encourage solar photovoltaic installation through implementation of a professional-certification permitting program.
 - NOTE: The City's renewable energy program should include presenting an ordinance to City Council to require new residential and non-residential construction to install conduit for future photovoltaics and electric vehicle (EV) charging stations, and to install plumbing for future solar water heating. Further, should the CCA Program or another program not be implemented, the City will explore the option of utilizing renewable energy credits (RECs) to contribute toward the 100% renewable energy target. Efforts should be local in nature to benefit local renewable energy businesses, create jobs, and increase resiliency for the City.
 - Goal: Increase municipal zero emission vehicles
 - Consider updating regulations for alternative fuel and zero emissions vehicle requirements for the City's vehicle fleet.
 - Consider an integrated transportation strategy that combines zero emissions vehicle deployment and infrastructure.



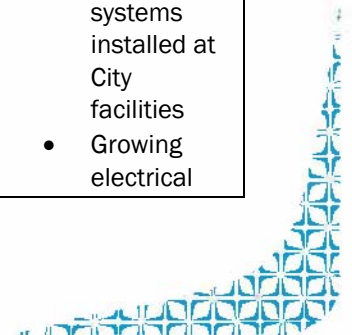
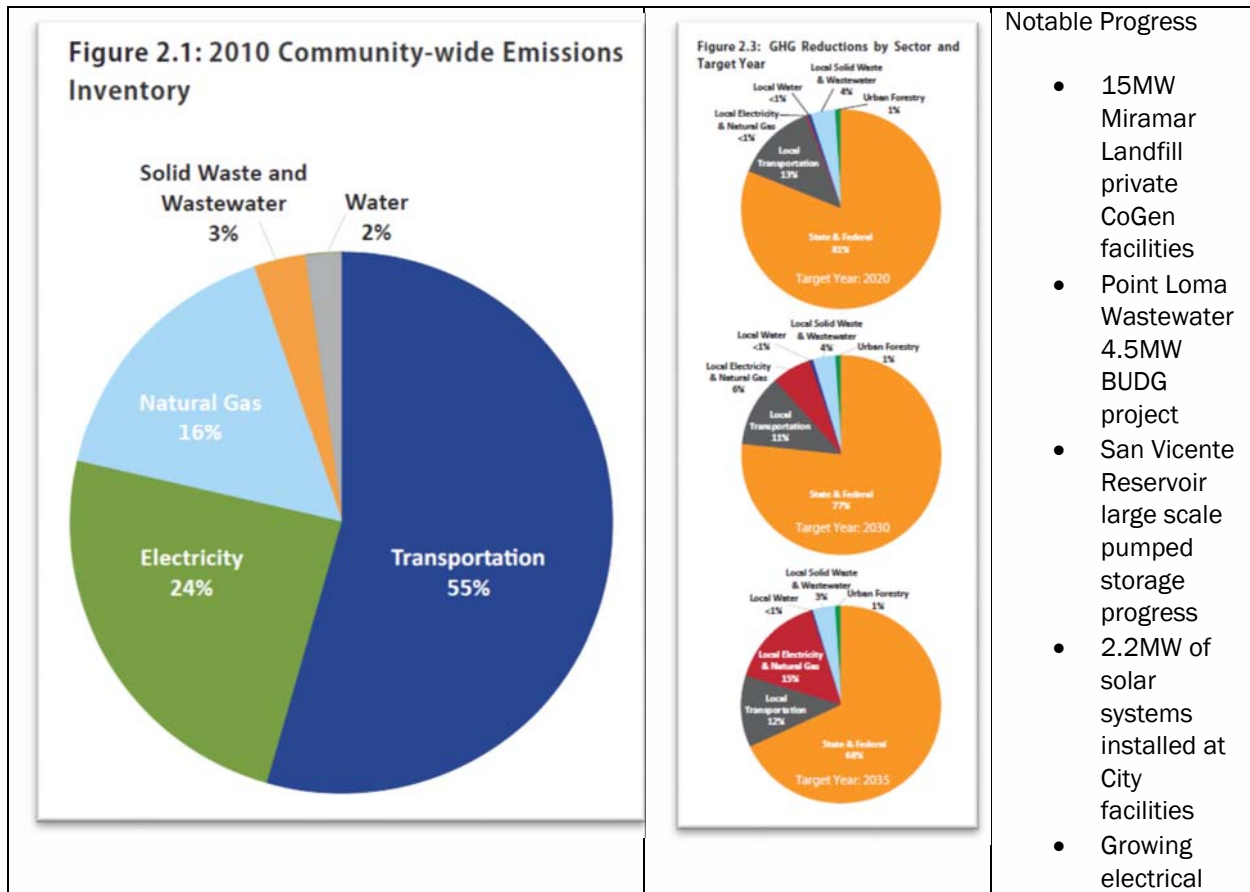
- Present to City Council for consideration an Electric Vehicle Charging Plan.
- Bicycling, Walking, Transit, and Land Use (**IMPORTANT, BUT NOT APPLICABLE TO RFI**)
 - Goal: Increase the use of mass transit.
 - Goal: Increase Commuter Bicycling Opportunities
 - Goal: Promote effective land use to reduce vehicle miles travelled.
- Zero-Waste (Gas and Waste Management) (**APPLICABLE TO RFI**)
 - Goal: Divert solid waste and capture landfill methane gas emissions.
- Climate Resiliency (**IMPORTANT, BUT NOT APPLICABLE TO RFI**)
 - Goal: Increase urban tree canopy coverage.

Utility Summary

Synergistic State Utility Policy: California Renewable Portfolio Standard also inform minimum local utility contributions to the power mix and are applicable to the RFI:

- Established in 2002 under SB 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2, California's Renewable Portfolio Standard (RPS) required investor owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy sources to 33 percent of total procurement by 2020 (California Public Utilities Commission, 2014).
- CAISO Energy Storage and Distributed Energy Resource Stakeholder Initiative Phase 2 ("ESDER 2" 09/19/2016) is showing progress in resolving aggregation of distributed energy resources to participate in the wholesale market.

CAP Relevant GHG Baseline and Approach to Reductions



		car charging infrastructure
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About CleanSpark

CleanSpark is a San Diego born and based CleanTech company that has developed The flex Power System (fPS). The fPS is an integrated and distributed Energy Operating Platform that includes a real-time decision support system and adaptive dynamic control solution driven by CleanSpark's mPulse™ Software and Controls Platform deployed within its FractalNode™ Microgrid Controller Product Line. The fPS offers a platform approach to energy and energy services that enables energy security and independence as well as cost reduction and stabilization. The fPS enables 100% renewable energy penetration by seamlessly integrating all Distributed Energy Resources (DERs) to provide energy management and security in real time free of cyber threats. Able to interoperate with new and legacy utility assets, the flex Power System is highly capable, cost effective, and flexible. fPS is ideal at the building and distribution grid levels.

The fPS utilizes the innovative FractalGrid™ topology that enables multiple DER systems and microgrids to work together to meet energy needs sustainably and with resilience. While the vast majority of power grids are still based on 100-year old technology, CleanSpark has reimagined the control mechanisms for its virtual power plants and microgrids by co-locating them with associated energy assets to provide rapid power deployment and response to wherever it is needed. As part of a FractalGrid™ topology, the systems' architecture enables nearly unlimited extensibility without increasing complexity.

The nation's current electrical infrastructure consists of aging transmission and distribution systems that typically employ large remote generating stations utilizing nuclear, coal, or natural gas technologies. The aging grid is becoming increasingly unstable with increased load growth and adoption of intermittent renewables at both utility and distributed scales. The industry is migrating to localized renewable generation and distributed energy storage to stabilize the grid during the renewable transition for increased efficiency, resiliency, and energy security. CleanSpark's fPS will facilitate this transition through mPulse™ intelligence driving strong business cases in a rapidly changing power market.

CleanSpark has developed and deployed its pilot technology to the Marine Corps Base Camp Pendleton in partnership with the California Energy Commission. This demonstration has been upgraded to the first commercial version of mPulse™ concurrent with the first commercial deployment at a resort in Borrego Springs, California. CleanSpark strives for continuous improvement and iterative development to create more capable and intelligent future releases expected early 2017.

CleanSpark's technology is driven by its team's passion for increasing the pace of renewable energy and energy storage integration that can be facilitated by Industrial Internet of Things (IIoT) technologies to deliver value, reliability, and energy security to our customers. Each deployed flex fPS can be accessed via web portal, mobile application, or on-site through touch-screen interfaces. Should the review panel wish, CleanSpark can coordinate a visit to the Marine Corps Camp Pendleton to experience the flex Power System in action.

RFI Response Focus

CleanSpark will focus on the following areas of the CAP within the RFI response:

- PRIMARY: Clean and Renewable Energy (**APPLICABLE TO RFI**)
- Energy and Water Efficient Buildings (**APPLICABLE TO RFI**)
- Zero-Waste (Gas and Waste Management) (**APPLICABLE TO RFI**)



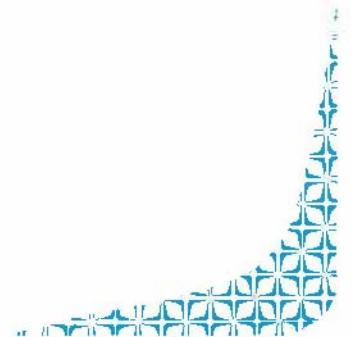
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In addition, given the roadmap already being considered for the 100% Renewable Energy by 2035 Goal and reflected in the CAP, CleanSpark will opine on the solutions already being explored and opine regarding threats and opportunities the City may wish to consider.

C. CITY OBJECTIVES

1. In addition to achieving the 2035 target, the strategies desired by the City and in the spirit of the CAP include, but are not limited to:

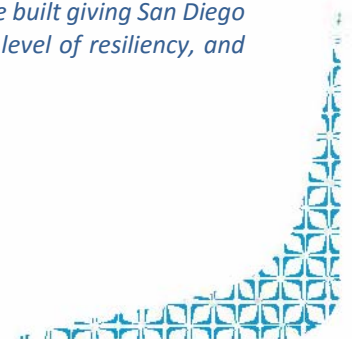
1.1 Contributing to the City's 100 percent renewable electricity goal by 2035;



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The goal of 100% renewable energy by 2035 is a lofty one, and achievement of this goal will require extensive public and private participation from various sectors. In addition, navigating the barriers of existing utility regulation will prove to be a hindrance. It is the opinion of this RFI response that special care must be given to the order in which contributing actions are explored and implemented.

- CCA
 - Strengths
 - *Has proven successful Massachusetts, New York, Ohio, California, New Jersey, Rhode Island, and Illinois despite staunch utility and regulatory challenges and delays.*
 - *Because it has been successfully implemented, this piece of the solution offers certainty of roadmap.*
 - *Communities have seen increased renewable penetration at costs rivaling or less than traditional utility service.*
 - Risks
 - *Time: Historically, CCAs have taken significant time to implement.*
 - *Impact on San Diego Businesses: CCAs are often used as a medium to authorize revenue bonds to finance power service through construction of new renewable operating assets. Historically in California, there is usually a small number of very large businesses whom emerge winners in the deal.*
 - Consider
 - *The shift from single point bulk brown power production to locally distributed renewable resources and energy storage is beginning; however, not surprisingly, policy is slowly developing on who these resources will be valued.*
 - *While CCAs give customer's a voice on what type of power they buy, it is one choice, and exclusive of potential participation in the energy market by more community members due to existing restrictive and time consuming state regulation.*
 - *Currently, only "behind the meter" resources such as solar and energy storage are given streamlined interconnection processes with limits on how the systems can be sized and operated per California Public Utility Commission rules, and the inability to participate in CAISO wholesale markets.*
 - *When completing San Diego's CCA study, the City is encouraged to work with SDG&E, CAISO, and the CPUC as to relax restrictions on Distributed Energy Resources such as those addressed in CAISO Energy Storage and Distributed Energy Resource Stakeholder Initiative Phase 2 ("ESDER 2" 09/19/2016) so business cases independent of the City can drive infrastructure development of distributed solar that will ultimately be purchased by the CCA on a distributed scale to help meet the 100% renewable goal. Perhaps a pilot could be negotiated with the support of SDG&E. CleanSpark would be happy to drive this pilot, at the City's request. This ensures San Diego residences, businesses, and industries that invest in renewable energy and dispatchable storage systems see better business cases due to wholesale market access, the CCA has local generators providing the power at competitive rates, smaller sized but greater quantity of systems are built giving San Diego clean energy companies increased participation, creating a deep level of resiliency, and the end customer gets cost-effective renewable power.*



- Due to access to the wholesale CAISO market distributed solar and energy storage infrastructure can be built using private funds in streamlined timeframes while the City completes its study and implementation of the CCA. This will ensure incremental progress during the long CCA process and ensure the CCA has adequate LOCAL resources at its disposal to reduce external power purchases.
- In addition, the City may consider in the CCA analysis to evaluate all City owned facilities and land for energy generating and ancillary service (energy storage) potential for a competitive procurement of standard or enhanced use leases to build CCA supporting infrastructure using private funds based on external business cases. Streamlined CAISO wholesale market access will also be required.
- Lastly, this approach would prepare San Diego to be a leader in Transactive Energy once regulation allows individual seller to provide power to individual purchasers.

Net-Zero Initiative: Reducing building energy consumption is truly a “low hanging fruit” as it relates to GHG. Net-Zero requirements for new construction are a great step yet most of our buildings are old. As such, the City could subsidize free energy audits by leveraging its resources and those of the SDG&E to ACTIVELY pursue efficiency measures for businesses. All buildings should be constructed in a manner that is ready to accept energy generation and storage through the requirement for such new constructions to include energy management and control systems (EMCS) that are ‘energy storage and microgrid ready’. Lastly, Net-Zero must be clearly defined and, if implemented as a code requirement, be prescriptive as to measurement, verification, and reporting. With the commentary above regarding distributed systems, should these Net-Zero facilities equipped with both renewable generation and energy storage have access to the wholesale CAISO markets in a streamlined fashion, the energy system is then an asset that offsets significant operational expense and can in fact generate revenue, which may calm some dissenter’s view that the Net-Zero initiative is too costly upfront.

- *Green Tariff Shared Renewables Program: This is a fantastic program; however, the City should consider taking the position that the cap of 600MW should be raised as this treatment will eventually be exhausted.*
- *Establish policies, programs, and ordinances that facilitate and promote siting of new onsite photovoltaic energy generation and energy storage systems as well as EMCS. The City code requires many facilities, including parking structures, to be “Solar Ready.” Previous commentary regarding streamlined access to external markets make building the solar or solar + storage projects unfeasible given current regulations. Should the City be able to relax these restrictions, the systems would get built. It is the recommendation of this response that Net-Zero initiatives should include solar+storage+EMCS for true Net-Zero. The addition of EMCS makes facilities smart and able to participate in the macrogrid and thus a new term, Smart Net Zero, may emerge.*
- *Provide adequate funding and resources to meet increased demand for solar photovoltaic and energy storage permitting.*
 - *The CCA will go a long way to providing credible backing of new build distributed projects for CCA off-take; however, given the timelines for implementation, some of the initial challenges rely on state policy driving wholesale market access which could perhaps be loosened for a pilot program in a San Diego neighborhood if supported by SDG&E and the CEC.*
- *Encourage solar photovoltaic installation through implementation of a professional-certification permitting program.*
 - *Solar permitting is a smaller “bottle-neck” compared to utility interconnection, and streamlining utility interconnection requirements would prove highly beneficial.*
- *“Solar Ready” and “Solar Hot Water Ready” infrastructure required by code: Agree with this program.*



The delivery mechanism that we suggest as a means to achieve the objective would be that of a widespread best-value develop-build-operate model of distributed energy resource (DER) and microgrid systems. These systems would have a built-in transfer option to the local distribution grid operator (SDG&E) or CCA. The mechanism we suggest via a fractal grid topology would allow for maximum renewable energy penetration in the most resilient and rapid manner.

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 Renewable Portfolio Standard;

Through tackling regulation that is deferring opportunities for renewable energy development based on external business cases, the phased approach of increased wholesale market access preceding CCA implementation provides for enabling infrastructure to reach the 100% goal. Subsequently, this delivery mechanism and system architecture, using the fractal grid topology that we suggest can enable renewable penetration of 100% utilizing local DER and microgrids within a transactive energy marketplace. This can be done at a cost savings and financed by third parties.

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

There are large opportunities within San Diego to move from a zero-waste initiative to a negative waste initiative. With large operating landfills and decommissioned landfills, San Diego has the opportunity to harness that power via landfill gas or mature gasification technology. Mature gasification technology turn Municipal Solid Waste into syngas, a synthetic gas with characteristics similar to natural gas. While emissions are not zero, waste-to-energy is considered renewable by California standards. CleanSpark's parent company, Stratean Inc., has developed gasification technology enabling this opportunity.

It is important to understand that there is no single solution to the challenge of reaching 100% renewables and technology implementations must have market drivers and associated predictable performance. For that reason, as CCA is implemented and San Diego becomes a CAISO Scheduling Coordinator, vetting and implementation of an Energy Operating Platform that interconnects and orchestrates all of these disparate renewable and energy storage resources is paramount. It will be important this technology is flexible and vendor agnostic.

The system of system fabric within our suggested architectural approach will require a tremendous amount of new and diverse sources of renewable energy supply, storage, distribution, control and intelligence and reduce local greenhouse gas emissions to zero (potentially) while simultaneously instigating a massive economic transformation for the San Diego region.

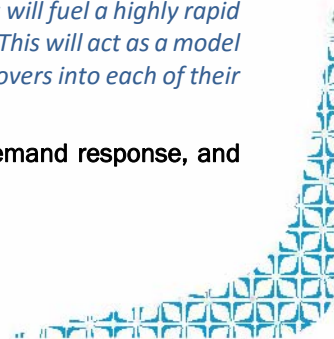
1.4 Ensuring reliable and sustainable energy services for both the near- and long-term;

Commercial and performance proven technologies required to meet the goal of 100% renewable consumption is available today and has been demonstrated locally and small scale. The challenges in scaling are regulatory and have been previously addressed. The fractal grid topology utilizing disparate DER and microgrid systems by way of multiple system of systems comprised of commercial off the shelf components utilizing proven and bankable technologies that ensure reliability in great depth with near infinite scalability. The plug and play system will evolve toward 100% sustainable will occur over time as technologies and techniques mature.

1.5 Spurring new renewable energy development;

A sophisticated enterprise platform for energy management can be put into place which will enable immediate optimization of new renewable energy developments. This, coupled with rapid interconnection at the distribution level will enable higher returns for project developers and profits for project constructions. This will fuel a highly rapid renewable development uptick and create a momentum that will last through transformation. This will act as a model for cities around the nation and the world. This will fuel the local businesses who will be first movers into each of their respective new and bustling clean tech industries.

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;



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The State's methodology of reduce and better manage instead of over-generate/over-power is perfectly harmonious with the DER and microgrid model. With the DER and microgrid model, nearly every building on a property can become its own microgrid where it is ideal to consume a little less than one produces on a given customer site on a majority of the time. Efficiency first, generate second, enabled with intelligent control wind wholesale market or CCA access enable this to happen.

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

The uncontrolled rise in greenhouse gas is a problem. With a DER and microgrid topology one or large groups of people can dial in their carbon footprint and take control of the emission of greenhouse gases produced from human civilization. In addition, with optimized distributed systems and creative incentive schemes lower income consumers can have access to the clean, predictable and affordable power that DERs and microgrids can offer.

1.8 Increasing resources dedicated to local investment and economic development; and

There is an immense economic opportunity with a program of this nature and San Diego being a first mover. In addition, with the military's focus on energy resiliency, which can only truly come from utilizing sustainable technologies, a 'ripe' test bed of cutting edge and industry leading (and creating, for that matter) technology firms reside and are headquartered in San Diego. Therefore, a widespread procurement program that provides hundreds of opportunities to develop, design, build and operate DER and microgrid systems will enable momentum to accelerate the overall CAP more rapidly. The ensuing grid transformation and in parallel economic transformation that San Diego will benefit from will be tremendous. As energy is the largest single industry on the planet, by far, the resulting local investment and economic impact is unfathomable. The City will need to be prepared to bolster its in house capabilities for the surge. A more secure, sustainable, clean and equitably balanced community will emerge.

1.9 Creating green jobs in San Diego above levels currently achieved.

The amount of jobs that will be created from the program CleanSpark would propose would be in the hundreds of thousands.

2. The City is interested in ideas that:

2.1 Are cost effective for the City and its communities, businesses and residents;

The business case makes sense now. All new systems will save money based off of current expenses and planned increases as of January 2016. Streamlined access to wholesale market would offer developers and owners additional revenue streams which could eventually be passed on to the CCA resulting in additional rate decreases.

2.2 Consider the effects on the City's communities, businesses and residents;

The effects of such a program would be increased employment opportunities, increased community infrastructure improvement spending, improved reliability and lower and more predictable power costs.

2.3 Are innovative concepts and/or technologies;



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The technology that is required to make such a transformational shift includes the following highly innovative and home grown technologies, to name a few:

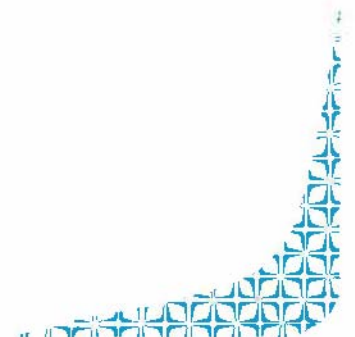
- *energy efficiency technologies*
- *advanced energy storage (storage)*
- *waste-to-energy generation technologies*
- *biofuel development technologies*
- *building level controls and automation systems (software and controls)*
- *enterprise level decision support systems (software)*
- *dynamic bi-directional power control technologies (power electronics)*
- *network communication technologies (sensors and communications)*

2.4 Ensure long-term greenhouse gas reductions; and

The DER and microgrid model enables the deepest levels of renewable penetration and therefore can have the biggest impact on greenhouse gas reduction goals. Through implementation of the proper Energy Operating Platform facilitating the interconnected nature of all of these distribute assets, GHG reduction and reporting could be directly implemented, auto-updated, and reported.

2.5 Minimize the use of renewable energy certificates (RECs).

RECs may not need to be utilized with the DER and microgrid model. All systems will be local. Given SGD&E has been slow to procure renewables beyond the stated RPS standards, should the CCA be implemented, opportunities for direct connected bulk renewables may be more in-line with the intent of this RFI as opposed to purchased RECs.



D. RFI QUESTIONS

Respondents must answer the following questions in their RFI submittal and ensure all objectives in section I.C above are addressed. While creativity is encouraged, only complete and realistic concepts will be reviewed. A proposed concept may be further explored by the City, depending on how well the submittal addresses the objectives in section I.C and the RFI questions in section I.D. For quantitative questions, reasonable and informed estimates are allowable.

Please provide a detailed description of the concept (project or program) you are submitting for consideration. Where not otherwise addressed below, please include discussions such as feasibility, impact/benefits, timeframe, costs, and examples of similar successes.

The concept we are proposing is a regional 'fractal grid' distributed energy resource and microgrid deployment concept ("the Program") that is aimed to transform the central, fossil fuel burning grid to a decentralized system-of-systems that is highly sustainable and resilient. The Program stems from decades of research at the university and federal level that was focused on how to practically enable and deploy such a transformation.

The feasibility of this approach has been studied and journaled about in universities and at the federal level (<http://smartamerica.org/teams/the-agile-fractal-grid/>) for nearly a decade. The National Rural Electric Cooperative Association (NRECA) hypothesized in detail about the system architecture and topology that would be most efficient for graceful decentralization. The result was published in 2014 under a paper named 'Achieving a Resilient and Agile Grid' and heavily favored the implementation of software enabled distributed energy resources and microgrid systems, from the load side (consumer side, located on-site), as the most effective topology. In addition, the software concepts have been theorized and studied in great depth here in the State of California since 2009. The timeframe would be 5 to 7 years for full deployment (near 100% sustainable and locally generated energy) with final optimization or maturation of the system in 9 years.

CleanSpark has a unique position as community members who are home grown working closely with our neighboring municipalities, private commercial and industrial, and defense clients. We have seen success in this approach, which as a function takes the path of 'crawl, walk, run' to allow for observation and course correction as the program takes hold. The Navy last week closed a similar RFI asking for a similar solution to their energy needs. Similarly, a distributed energy resource solution with a heavy emphasis on microgrid capabilities was requested. Similarly, a high penetration of renewables was requested within the desired solution.

For this effort, CleanSpark would propose on Program Management, Design & Engineering and Software & Control solicitations that the City would put out in support of this effort and approach. 2. The City is interested in how recommendations will fit into CAP efforts. For each proposed project or program, identify which goals of the CAP and objectives referenced in section I.C will be achieved, and how they will be achieved.

As we have indicated by briefly throughout the commentary above, our recommendations would hit to the very heart of the CAP efforts in a socially equitable and locally favoring manner. All of the goals would be precisely addressed with plans for implementation and the groundwork already initiated. Because of our work with regional defense installations, we have been working at the state and federal level to call attention to the need for these solutions in our exact location. We have been honored to be part of a group of organizations driving for this change in the name of regional energy resiliency and economic growth.

It is our core mission and focus to bring as many people and groups together to drive for the changes outlined in the CAP.3. Does the project or program support the City's renewable energy goals? How?



Yes, precisely. The Program would enable a high penetration of DER and microgrid systems that have high levels of renewable generation. High penetration of DER and microgrid systems is the mechanism. This Program would allow for proliferation in the most risk adverse manner that would also be the quickest path to success.

4. What are specific technologies and estimated costs required to implement recommendations, and what might be appropriate funding mechanisms? Identify parties that may incur the costs (e.g., City, residents, businesses, ...etc.).

The technologies required would include renewable generation (solar, wind, waste-to-energy, geothermal, etc.), advanced energy storage (chemical and kinetic energy storage), and dynamical bi-directional software and control systems. These solutions can all be deployed via a cost savings mechanism whereas customers sign up to save and/or stabilize their power bills against the current rates and baseline escalators. This promotes an equally enormous financial market and multiple ancillary financial related industries (insurances, billing systems, transactive energy, etc.)

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

The estimated timeframe for implementation is 5 to 7 years. If there is zero friction that could be brought in to be quicker. The capabilities and technologies are there. A year of planning with signed contracts is all that would be required for the firms located in this region.

The high level definable features of work for this effort are as follows:

Year 1

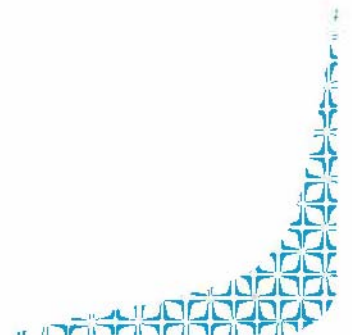
- *Final deployment strategy and program*
- *Final business case planning*
- *Final feasibility studies*
- *Draft solicitations*
- *Public comment & participation*
- *Core stakeholder group establishment*

Year 2

- *First wave of RFPs*
- *Refine deployment strategy and program*
- *Refine business case planning*
- *Refine feasibility studies*
- *Refine solicitations*
- *Public comment & participation*

Year 3 on, until substantial completion

- *Develop, Design & Construction selected projects*
- *Subsequent waves of RFPs*
- *Refine deployment strategy and program*
- *Refine business case planning*
- *Refine feasibility studies*
- *Refine solicitations*
- *Public comment & participation*



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A core stakeholder group needs to be established that will decide and preside over the effort that has absolute authority, other than Executive Order (Mayoral), to make immediate decisions to aid in the flow of the effort. A network of respondents that represent the communities and businesses within the City and the adjoining areas will need to be established to provide quick feedback to the core stakeholder group. The respondents need to be working with their constituents. All access at all levels shall be available in an organized manner. The core stakeholder group shall include the CEO of SDG&E or their designated Executive Representative, the California Energy Commission, the CPUC and the ISO. This will ensure utility, state level and ISO participation. A representative from the Department of the Navy shall be considered as well.

Lack of communication, getting mired down in administrative processes and inability to make decisions will slow the pace of the program.

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

Participants include the following:

- *Sempra*
- *San Diego Gas & Electric*
- *California Independent System Operator (CAISO)*
- *California Energy Commission (CEC)*
- *National Institute of Science and Technology (NIST)*
- *The City of San Diego*
- *Cities immediately adjoin San Diego*
- *The United States Department of the Navy and Marine Corps*
- *UCSD and other Universities, Colleges and School Districts*
- *Cleantech San Diego*
- *Renewable Energy & DER System Developers*
- *Engineering Industry (IEEE, NEC, AIA, etc.)*
- *Construction Industry (AGC, ABC, LEED, etc.)*
- *Technology Companies (hardware and software firms)*
- *OEMs (local manufacturing providers)*
- *California Energy Commission (CEC)*
- *California Public Utilities Commission (CPUC)*
- *California Independent System Operator (ISO)*
- *The State of California*
- *Local Land Owners (Real Estate Owners & Developers)*
- *Other local agencies and organizations (energy, food, water, industry)*
- *The Republic of South Africa*

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?



The City has not yet provided for a specific group of local procurements, incentives, and regulations, that are coordinated with Sempra, SDG&E, CEC, and CAISO that allows business cases to enable individuals and/or groups to begin to make a transition to more localized and sustainable power solutions. This would be that Program. There would be specific requests of the community to look at other alternatives, either as individuals or within the larger group, and a specific set of local, regional, state and federal incentives lined up to make the transition a win for those who choose to do so. The approach is consistent with a future CCA and begins the build while the CCA is still maturing. The new system-of-systems will then be supported at the transmission level by current assets. An appropriate mix will need to be constantly balanced. This will open up a transactive energy marketplace and new economic innovation. The City will have the level of command and control desired to drive the policy as well as have insight into the real-time state of readiness of the local energy grid(s).

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.

The last hurdles toward realization of such a transformative effort are as follows:

- *Regulatory Framework – creating a framework of regulation to move away from the central model toward a distributed model that is coordinated, embraced and jointly driven by the local utility. No one knows how to do it in this location better.*
- *Tariffs – tariff structures and schemes need to be established to promote high IRRs to system developers and owners.*

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

Estimated, and approximate, results would be as follows:

- *Greenhouse gas from electricity consumption can be reduced to near-zero levels.*
- *All residents and businesses will have access to the cleaner, more resilient, cost effective and cost predictable power*
- *300,000 potential new or refocused jobs over the next decade*
- *Significant capital investment in sustainable infrastructure by 3rd parties driven by existing markets (CAISO) and future programs (CCA).*
- *Tremendous and sustained increase in local GDP by localizing development and participation through deployment of more smaller systems in lieu of very large generating stations outside the City limits.*

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

We are extremely dedicated and passionate about this transformation. Our extended group that have been in support of this initiative have been working toward these programs with the likes of your esteemed administration for years. We are comprised of lifelong San Diegans, local citizens and activism organizations, local businesses and economic contributor, and our local defense sector. We have worked to bring attention to the needs specified in this RFI at a grand scale to ensure success as we see the great service that will be done to the local community. In whatever way that makes sense to The City of San Diego we look forward to serving you and this great City.

