## Proposal for the City of San Diego's First Utility-Scale Photovoltaic Power Plant





One Step Closer to 100% Renewable Energy



## **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):** 

Questions/Comments Due Date:

**City Contact Name and Information:** 

Procurement Specialist, Mmedvedyev@sandiego.gov

October 21, 2016 at 3:00 p.m.

September 30, 2016 at 5:00 p.m.

Maureen Medvedyev, Principal

#### **Respondent's Information:**

Respondent Name:	Domiciles For A New America			
Address:	3422 Sterne St., San Diego, CA 92106			
Telephone No. and E-	Mail Address:	619-549-3826 hbrody@sbcglobal.net		
Website: www.DomicilesForANewAmerica.com				
Authorized Representative Name and Title: <u>Hal Brody, Owner</u>				
Representative's Original Signature:				
Date Signed:				

## **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.

Goods and Services RFI Revised: October 13, 2014 OCA Document No. 855607

### I. INTRODUCTION

#### A. <u>BACKGROUND</u>

The City of San Diego (City), with a total population of approximately 1.3 million and a land area of approximately 324 square miles, is the eighth largest city in the nation and the second largest city in California. The City offers a wide range of cultural and recreational services to both residents and visitors. Major components of the City's diversified economy include defense, tourism, biotechnology/biosciences, financial and business services, software, and telecommunications.

In December 2015, the City took a landmark step towards a cleaner and greener future with the adoption of a Climate Action Plan (CAP), which calls for reductions in greenhouse emissions and aims for all electricity used in the city to come from renewable sources by 2035. This goal addresses "all the electricity supplied to all customers within the City of San Diego boundary, including that supplied by behind-the-meter technologies such as rooftop solar.<sup>1</sup>" The CAP is attached as Exhibit A. Additional information (e.g. Plan Funding and Implementation Report, CAP Consistency Checklist, technical support documentation,...etc.) can be found by visiting http://www.sandiego.gov/sustainability.

### B. <u>REQUEST FOR INFORMATION</u>

This RFI is issued for purposes of gathering information and planning. The City does not intend to award a contract on the basis of information received in response to this RFI. The City may, in its sole discretion, consider the information submitted in response to this RFI during the development of a competitive solicitation.

In order to reach the goal of 100 percent renewable electricity, the City would like to examine all options to increase the use of renewable energy and limit the purchase of renewable energy credits (RECs). Currently, the renewable energy supply on the grid is approximately 33 percent with a small, additional amount provided through rooftop solar and other distributed systems.

Ultimately, the City would like to explore projects and programs that would help achieve the goals of the CAP, increase use of renewable energy Citywide, and increase program, project, and financing options available to the City, its residents, and businesses. Therefore, the City of San Diego is issuing this Request for Information (RFI) to obtain information from industry and other stakeholders regarding program(s) that could help the City achieve its 100 percent renewable electricity and greenhouse gas reductions goals by 2035.

Responses to the City's RFI should provide recommendations for new or enhanced renewable energy projects, requirements, technologies, financing, partnerships and/or programs. The City seeks responses from all entities involved in and supporting the renewable energy sector including, but not limited to, developers, generators, financial institutions, energy brokerages, and trade groups. The City is open to receiving responses from single entities or from entities that represent multi-ventures that could provide creative solutions to deliver or enable reliable and cost-effective concepts, projects and products for the City, its residents, and/or businesses to help meet our goals.

<sup>&</sup>lt;sup>1</sup> City of San Diego, Clmiate Action Plan, December 2015, Appendices, pg. A-5.

Goods and Services RFI

Revised: October 13, 2014

OCA Document No. 855607

## C. <u>CITY OBJECTIVES</u>

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;

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;

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

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

1.5 Spurring new renewable energy development;

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;

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

- 1.8 Increasing resources dedicated to local investment and economic development; and
- 1.9 Creating green jobs in San Diego above levels currently achieved.
- 2. The City is interested in ideas that:
  - 2.1 Are cost effective for the City and its communities, businesses and residents;
  - 2.2 Consider the effects on the City's communities, businesses and residents;
  - 2.3 Are innovative concepts and/or technologies;
  - 2.4 Ensure long-term greenhouse gas reductions; and
  - 2.5 Minimize the use of renewable energy certificates (RECs).

Any concepts submitted shall reflect transparency, accountability, and responsiveness to the community and financial and operational sustainability for the City of San Diego.

The City will use the RFI as the basis to determine if a subsequent Request for Proposals (RFP) will be issued to further explore new program concepts. There is no guarantee that a future RFP will be released. If a subsequent RFP is issued, it will be open to all parties, not just those responding to this RFI.

## D. <u>RFI QUESTIONS</u>

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.

1. 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.

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.

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

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.).

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?

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

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?

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.

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.?

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

### E. <u>SUBMITTAL REQUIREMENTS</u>

Respondents must submit one (1) original, two (2) hard copies, and one (1) electronic copy of their submittal. Respondents should not include or incorporate marketing or promotional materials in their response.

### II. RFI SUBMITTAL PROCESS

### A. <u>RFI SUBMITTAL</u>

1. <u>Timely Submission</u>. Responses must be submitted as described herein in a sealed envelope to the Purchasing & Contracting Department (P&C) located at 1200 Third Avenue, Suite 200, San Diego, CA 92101. The subject as described on the Cover Sheet and Closing Date must be referenced in the lower left-hand corner of the outside of the envelope.

2. <u>Questions and Comments</u>. Written questions and comments must be electronically mailed (e-mailed) to the City Contact identified on the Cover Sheet no later than the date specified on the Cover Sheet. Only written communications relative to the RFI shall be considered. E-mail is the only acceptable method for submission of questions. It is incumbent upon respondents to verify that the City has received their questions and/or comments. All questions will be answered in writing. The City will distribute questions and answers without identification of the inquirer(s) to all responders who are on record as having received this RFI. No oral communications can be relied upon for this RFI. Addenda will be issued addressing questions or comments that are determined by the City to cause a change to any part of this RFI.

3. <u>Future Competitive Solicitations</u>. Respondents are not prohibited from submitting one or more proposals should the City competitively bid the goods or services described herein.

4. RFI Opening and California Public Records Act. Responses to this RFI will not be opened in public. Note, however, that any information submitted in response to a RFI is a public record subject to disclosure unless the City determines that a specific exemption in the California Public Records Act (CPRA) applies. If a Respondent submits information clearly marked confidential or proprietary, the City may protect such information and treat it with confidentiality to the extent permitted by law. However, it will be the responsibility of the Respondent to provide to the City the specific legal grounds on which the City can rely in withholding information requested under the CPRA should the City choose to withhold such information. If the Respondent does not provide a specific and detailed legal basis for requesting the City to withhold the Respondent's confidential or proprietary information at the time a response is submitted, the City will release the information as required by the CPRA and Respondent will hold the City, its elected officials, officers, and employees harmless for release of this information. It will be the Respondent's obligation to defend, at Respondent's expense, any legal actions or challenges seeking to obtain from the City any information requested under the CPRA withheld by the City at the Respondent's request. Furthermore, the Respondent shall indemnify and hold harmless the City, its elected officials, officers, and employees from and against any claim or liability, and defend any action brought against the City, resulting from the City's refusal to release information requested under the CPRA which was withheld at Respondent's request.

### B. <u>REQUESTED INFORMATION</u>

1. To be considered responsive, Respondents' submission must provide all information requested in this RFI. All responses must be thorough and concise.

2. Respondents should address any other issues related to this RFI that Respondent deems important and relevant to City's goals and objectives as described herein.

3. Respondents should describe any technical, business, legal, and/or revenue specifications City should consider when structuring a competitive solicitation that accomplishes the City's goals and objectives.

5. The City may require Respondents to interview and/or make an oral presentation.

## **Request For Information:**

## Programs to Meet City's 100%

## **Renewable Energy Goals**

## **General Contractor:**

Domiciles For A New Ame	rica
Hal Brody, Owner	
Contractor's State License #904301	
3422 Sterne St.	
San Diego, CA 92106	
619.549.3826 Cell	
866.656.4017 Fax	
HalBrody@DomicilesForANewAmerica.com	

**Scope Of Work:** At no cost to the City of San Diego, Domiciles For A New America (DNA) will construct an approximately 40 MW DC photovoltaic (PV) power plant along both sides of SeaWorld Dr. between Interstate 5 and W. Mission Bay Dr. (See included maps.) These areas are closed municipal and industrial waste sites with no possibility of future construction. (See included boundary maps of dump site.) An alternative, or second-phase site could be South Miramar Landfill. (Please see included map and list of U. S. municipalities that have added non-polluting solar energy power-plants to their closed municipal waste dump-sites.)

High quality PV panels will be supported on non-penetrating (ballasted) racking to protect the dump-site cap membrane. (See list of manufacturers for examples.) PV panels, racking and inverters will be provided by industry-leading companies and will carry 25-year warranties.

This power-plant will generate approximately 65,000 MWh/yr—enough for the needs of about 10,800 homes in close proximity to the generation site. This amount of clean, renewable energy represents approximately 47,840,000 lbs of  $CO_2$  that would have been released from SDG&E's fossil-fuel generation. (Please

see sheet with PV Watts energy generation results for 40 MW dc PV plant in San Diego.)

We anticipate a six month design and permitting process, and a two year construction period to commissioning.

We will hire and train local labor from area apprentice/job training programs with benefits to the job market and local economy. The City's prevailing wage will be observed as a minimum.

The energy generated from this PV power plant will be sold to the City and/or the Community Choice Aggregation Program participants when this program begins. Delivery will be via SDG&E's grid network. This project, and hopefully the ones similar to it that follow, will meet each and every one of the City Objectives as listed in the current RFI, and be in direct support of the City of San Diego's Climate Action Plan. This project will also serve as a model for future utility-scale PV development in the San Diego area as well as across the nation.

## **RFI Questions**

- D. 1. The photovoltaic (PV) power plant proposed consists of PV panels mounted on ballasted racking set in closely spaced rows. (Concept pictures included.) DC electricity generated by the panels is fed to inverters which convert it to AC, which is what is used by homes and businesses. This is a long-proven technology with no moving parts, high reliability and very long manufacturers' warrantees. (Please see the partial list of U.S. municipalities that have successfully added clean, renewableenergy-producing PV power plants to their closed municipal waste dump sites.)
  - This project will fit perfectly with the City's CAP efforts by eliminating 736 pounds of CO<sub>2</sub> for each megawatt-hour (MWh) of electricity it produces. Each MWh of electricity produced by this PV system directly displaces an equal amount of electricity that would have been produced by fossil-fuel plants.
  - 3. Yes. Please see 2, above.
  - 4. PV technology is basically described in 1, above. Ball-park costs for the proposed system is \$1.50 per watt DC, or \$60M for the proposed 40 MW PV power plant. Costs will be incurred by a private finance company(s) anxious to take advantage of the federal 30% Investment Tax Credit (ITC) available for solar-power equipment. They also make use of the federal accelerated depreciation (five years) available to businesses that purchase solar-power equipment. After five years, they will sell the power plant to the developer, DNA, at a cost that reflects part of the tax benefits they've enjoyed. DNA will continue to operate the plant for the remainder of its usable life—twenty-five years at a minimum. The income from the sale of PV-produced electricity will be sufficient to cover the payments on the loan from the finance company as required to purchase the PV plant.
  - 5. This plant should be commissioned and ready to supply power to the area electrical grid within 2.5 years of development approval. Implementation time could be accelerated or slowed by permit approval delays and the number of assembly crews hired. It could be slowed by equipment and component delivery delays. DNA has decades of experience building product and constructing living, working environments while keeping supply lines flowing and crews working.

- Potential participants in the implementation and operation of this project are:

   a. The City of San Diego will have to approve the development project and the construction permits. The City will also provide a 25-year no-cost ground lease for the site.
  - b. An as-yet unnamed finance company will pay for the construction and own, for the first five or six years, then sell to DNA.
  - c. DNA will build, operate and maintain the site and own it after the initial five or six-year period.
  - 7. There are currently no privately owned utility-scale PV power plants operating in the City of San Diego. Using private money to build solar power plants is going to be the quickest way to increase the available clean-energy supply in this area. And at very little cost to the City since they will be built on closed municipal landfills. Integration with other clean-energy projects would be seamless as power from this plant would look like that of any other that would be added to the local grid.
  - 8. A potential obstacle to the Seaworld Dr. site is that it lies within the boundaries of Mission Bay Park. (Please see included map showing Mission Bay Park boundaries.) Traditionally, development within City park boundaries is limited to park use only. One solution would be to make the determination that the energy generated in this plant would be used for park purposes and that it would be clean, non-polluting energy, improving the park experience as it would for all of San Diego. Another solution would be to legislate a realignment of the park boundary to "cut out" the section that would be needed for the power plant. This is reasonable since those areas would never be used for park activities or enhancements.

For the Miramar site (Please see included map.) the potential obstacle could be the interconnection with the local grid. SDG&E would have to provide appropriate means of interconnection at the power plant site. But with all the industry just to the south of this site, across Highway 52, it's felt that the distance to heavy power interconnection equipment would be close enough for this proposed site to be financially feasible.

9. The results of a 40 MW DC PV power plant in San Diego would be the elimination of 47,840,000 lbs of  $CO_2$  per year that would have been released from fossil-fuel generation. This may decrease, linearly, to 80 -85% of this initial savings over the 25 year life of the equipment. This is due to the solar panels loosing efficiency over their life.

10. One major benefit of the Seaworld Dr. site is its visibility. This will be a strong message of the City's commitment to the goals of the CAP to visitors and residents alike. Another benefit is that there currently exists an interconnection point to the grid within the boundaries of the site. In the south-east corner of the 30 acre parcel (please see included map.) there exists an interconnection site currently not connected to any loads on the ground. It is connected, over interstate 5, to a large north-south power transmission line a short distance away to the east. This would dramatically reduce interconnection costs.

Miramar landfill, at 1,500 acres has a vast potential for PV power generation development. The South Miramar landfill alone at over 400 acres could support the long-term development of perhaps 140 MW DC of clean power generation. This proposal would consider 100 acres just north of hwy 52 just to the east of the entrance to the landfill via Convoy St. (Please see included map.) South Miramar Land fill was active from 1959 to 1973 when it was closed and capped.





## Closed Municipal and Toxic Waste Dump Sites Transformed to Solar Power Plants— A Partial List

- San Diego County/Camp Pendleton 1.5 Mw dc -- <u>http://greenfleet.dodlive.mil/files/2012/01/Camp-Pendleton-Landfill-Array-Currents-Summer-12.pdf</u>
- New Jersey 12.9 MW dc -- http://www.gamechangesolar.com/landfill

Western MA – 6.5 MW dc -- http://www.gamechangesolar.com/landfill

New York State – 2.5 MW dc -- http://www.gamechangesolar.com/landfill

- Putnum County, NY 1.2 MW dc -- http://www.gamechangesolar.com/landfill
- Rutland, VT 2.5 MW dc -- <u>http://patriotsolargroup.com/solar-projects/rutland-vt-utility-solar-installation/</u>
- Maynard, MA 1.2 MW dc -- <u>http://patriotsolargroup.com/solar-projects/1-2-mw-ballasted-ground-mount-maynard/</u>
- Brookfield MA 435 KW dc -- <u>http://patriotsolargroup.com/solar-projects/brookfield-solar-installation/</u>
- Meriden, CT 1.1 MW dc -- http://www.dcesolar.com/case-studies/meriden-landfill/
- Kearny, NJ 3 MW dc -- http://solarflexrack.com/projects/case-studies/
- Canton, MA 5.74 MW dc -- http://www.rbisolar.com/casestudy/case-study-2/
- Fairhaven, MA 487 KW dc -- http://patriotsolargroup.com/solar-projects/fairhaven-solar-installation/

## U. S. Manufacturers of PV Racking Specifically Designed For Placement On Closed Land-fills and Toxic Waste Dumps

Game Change Racking -- http://www.gamechangesolar.com/landfill

RBI Solar -- http://www.rbisolar.com/solutions/landfill-solar/

- Panel Claw -- <u>http://www.panelclaw.com/images/Support\_Docs/Brochures/Brochure-</u> <u>PandaBear.pdf</u>
- Patriot Solar Group -- http://patriotsolargroup.com/products/ballasted-ground-mount-375/

Schletter.US -- http://www.schletter.us/pvmax.html

DCE Solar -- <a href="http://www.dcesolar.com/ground-mount-systems/cap-rack/">http://www.dcesolar.com/ground-mount-systems/cap-rack/</a>

Solstice Manufacturing -- http://www.solsticemanufacturing.com/ballasted-solar.html

Solar Flex Rack -- http://solarflexrack.com/products/ballast/

Powers Solar Frames -- http://www.powerssolarframes.com/solar-ground-5p-ballast.html



## **PVWatts**<sup>°</sup> Calculator

My Location	92106 » Change Location			HELP FEEDBACK	ALL NREL SOLAR TOOLS
4		RESOURCE DATA SYST	EM INFO RESULTS		
<	RESULTS	64 95	6 <b>797</b> 🗤	/h nor Voor *	
Go to	Print Results System output may range from 62,436,468 to 65,366,020kWh per year near this location. Click HERE for more information.				
system info	Month	Solar Radiation ( kWh / m <sup>2</sup> / day )	AC Energy ( kWh )	Energy Value (\$)	
	January	4.22	4,127,069	557,567	
	February	4.59	4,092,974	552,961	
	March	6.02	5,888,836	795,582	
	April	6.79	6,395,653	864,053	
	Мау	6.61	6,436,207	869,532	
	June	6.85	6,407,118	865,602	
	July	6.84	6,552,290	885,214	
	August	6.95	6,637,406	896,713	
	September	6.12	5,683,858	767,889	
	October	4.60	4,417,167	596,759	
	November	4.50	4,229,273	571,375	
	December	4.20	4,088,936	552,415	
	Annual	5.69	64.956.787	\$ 8.775.662	

## **Boundaries of Mission Bay Dump Site**





Also see S.D. Reader article with in-depth coverage about this dump-site.

http://www.sandiegoreader.com/news/2000/jul/20/cover-something-stinks-mission-bay/#

# MISSION BAY PARK



**Controlled Speed Area** (Read Regulations for Details)



Hidden Anchorage Waterski Area (Permit Required for Use)

**Personal Watercraft Area** (Personal Watercraft only)

Swimming Area (No Vessels)



Sand Bar (Use Caution)



**5 MPH** 

**Closed Area - Keep Out!** 

- Lifeguard Station
- Navigational Buoy
- **λ Public Restroom**
- Public Dock (15 min. limit)  $\neg$
- **Public Launching Ramp**
- Ā R. V. Pump - Out
- Vessel Pump - Out
- Ĵ **Transient Vessel Anchorage**
- ? **Visitor Information Center**
- **Fuel Dock**
- **Private Moorings**
- **Bike / Walk Path**
- **Mission Bay Park Border**

	VERTICAL
Ventura Bridge	42 ft.
South Ingraham Street	43 ft.
North Ingraham Street	35 ft.
Depths: (At Mean Low Tide; C	).0 ft.)
Mission Bay Channel	<b>20 ft</b> .
Mariner's Basin	<b>20 ft</b> .
Quivira Basin	<b>20 ft</b> .
All Other Areas	8 ft.

Radio Beacon: (North Channel Jetty) 317 MHz "M B" -- ---



The San Diego Foundation

125 ft.

Ю.	LOCATION N	<b>MAP REFERENC</b>
1	Mission Point	I, 3
2	Hospitality Point	I, 3
3	Islandia/Quivira Poi	nt H, 3
4	Sunset Point	Н, З
5	Dana Basin	H, 4
6	Ventura Point	<b>G</b> , 3
7	Bahia Point	F, 3
8	El Carmel Point	E/F, 2
9	Santa Clara Point	D/E, 2
0	Perez Cove	H, 5
1	Stony Point	G, 5
2	Model Yacht Pond	<b>G</b> , 4
3	Enchanted Isle	F, 8
4	Information Cove	D, 9



SCALE: 1in. Equals Approximately 1,200 ft.





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Miramar Landfill

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