



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: Primo Wind, Inc.

Address: 2725 Shelter Island Drive

Telephone No. and E-Mail Address: 619-793-5442 hvz@primowind.com

Website: www.primowind.com

Authorized Representative Name and Title: Hayden Van Zanten, Business Development

Representative's Original Signature: *Hayden Van Zanten*

Date Signed: 10/24/2016

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.

San Diego RFI

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.

Rooftop distributed wind using a light-weight aesthetically pleasing micro turbine that is comprised of a proprietary generator and patent-pending rotor design. Our solution is attractive for a market that has preventative barriers to entry for wind power – low wind speed power generation. San Diego has an average wind speed of 6.5 mph according to *WeatherDB*. This would render traditional small wind useless in an urban setting. With our technology, our turbines start generating power at 5mph. In addition, our systems are noiseless, lightweight and cause no harm to winged creatures (a report on this by wildlife biologists is available upon request).

Distributed wind will be an important concept for the City of San Diego in reaching its goal of 100% renewable power by 2035. According to the 2016 Maui Energy Conference, lofty mandates for renewable generation cannot be accomplished without distributed generation. One of the key reasons for distributed generation is eliminating transmission loss and further ensuring the resiliency of our grid. The concept of turning each commercial and industrial building in a virtual power bank is the mechanism needed for this. Our systems perfectly fit this type of electricity generation.

We have a variety of applications that are relevant to helping the city of San Diego achieve its renewable energy goal. We have remote applications, park/recreational area applications, urban applications and university applications. One of our installations was on an undisclosed ice float in the arctic that provided power to the Navy. There was recent footage of our system in a 60 minutes story called the Arctic Frontier. We provided all communications power to the camp.

Our generation systems are 2500 and 3000 and we also have a standalone charging station for parks and community settings that is 10000.

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.

Our project for deploying distributed wind satisfies the following goals of the Climate Action Plan:

1.1, 1.2, 1.3, 1.4, 1.5, 1.6 – Using our wind systems will make a direct impact on the city's goal to achieve 100% renewable power generation by 2035. Distributed wind effectively reduces the amount of electricity consumed by SDG&E, where a blend of generating sources for electricity is used.

Furthermore, we can set up community choice aggregations for power produced by our wind systems. Our technology has the resiliency to withstand adverse weather conditions – the systems have survived

both an Oklahoma microburst of 140mph winds and a San Diego windstorm that saw winds reach 87mph. Additionally, we have large upside in terms of succeeding generations of wind systems. Areas that we are already unrivaled in such as cut-in speed and capacity factor would also increase with more research and development. This would be accelerated by further cooperation with the City of San Diego.

2.2 – Our company is aware of the wind resource that exists in certain areas that is virtually untapped. As a complementary source of generation to solar, we have the interest of the surrounding communities that our systems are installed in because their lightweight, low profile, noiseless nature.

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

The project absolutely supports the city's renewable energy goals. By adding our technology to the mix, San Diego will have a plug-and-play resource for generating clean power in almost any architectural setting. Further, the ease of installation would translate to a simple training process for existing solar installers or those looking to become certified to do so. This would translate to more jobs in the energy industry.

Our systems also work best when paired with energy storage, which is a key component of energy efficiency measures in buildings. Having adequate ways of charging these batteries at any time of the day is crucial for ensuring electricity security. With a combination of solar panels and Primo Wind systems, this would easily be accomplished.

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.). There are no undiscovered/early stage technologies required for our proposed installations. Our cost per watt with installation is roughly 2.75/Watt. The type and source of funding is largely determined by the quantity, buyer, and end user. Since our units are economically feasible for cash purchase at 3-4 thousand dollars per unit, a customer could either pay cash or use a low cost lease mechanism. Larger customers would be suitable for power purchase agreements or structured financing.

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? After a green light is given, the installation would take approximately 60-90 days for a large scale installation (more than 50 turbines). Individual residential installations or small scale commercial installations would take approximately 15-30 days. Factors affecting time would mainly be quantity of turbines installed, type of structure used, and ancillary electronics required.

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

Solar installers – We have streamlined our installation process so that we may use the existing solar installer work force to install our wind systems of a variety of rooftops. This would lead to an increase in jobs for the region as well as transferable skills – our wind systems can use the same racking systems and mounting systems that solar photovoltaic power uses.

Cleantech San Diego – The trade alliance will be instrumental in facilitating discussions between energy consumers and technology companies such as Primo Wind. Their knowledge of the constantly evolving clean technology industry is crucial for a city looking to achieve 100% renewable energy use.

Universities – the University of San Diego’s Energy Policy Initiative Center is crucial for taking the pulse of California’s regulatory environment. Their direct involvement in the local cleantech ecosystem is advantageous for the City of San Diego.

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 to date has been focused primarily on energy efficiency measures like solar, LED lighting and HVAC improvements. We are not aware of any significant efforts to deploy micro wind on San Diego buildings. While some have been tested before in both horizontal and vertical axis, Primo Wind’s turbines are the first specifically designed for low wind speed power output.

The city has a multitude of projects where Primo Wind systems could be used as a part of the new buildings, parks being planned. Projects such as the redevelopment of Harbor Island, the East Village Park and potentially the new Charger stadium/convention center upgrades will all have mandates for integrated power generation.

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.

While some obstacles exist in permitting or other requirements, they should be easily overcome as these type of restrictions are not geared towards systems like ours.

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.? One of the immediate realized benefits for using distributed wind through Primo Wind is a reduction in transmission losses. With more localized power generation there is less power wasted through long transmission lines. Initially, the parties most positively impacted would be commercial

businesses, multi-family housing residents and industrial building owners. This is due to a few different factors. These stakeholders have the potential to capture savings quicker than single family residential stakeholders because of the larger amounts of power consumed, the favorable roof profiles, and the taller structure of the buildings.

Urban Wind Farming is very advantageous for coastal cities like ours. Combining our decent wind resources in San Diego with Primo Wind's design that captures lower wind speeds is a great complementary source of generation to meet our lofty goal.

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