Marin Energy Authority

Marin Solar Parking for Electric Drivers (M-SPEED)

Project Summary

The Marin Energy Authority (MEA) is a local government agency dedicated to bringing clean and local energy, advanced energy efficiency and smartgrid technologies to the eight cities and one county that it serves, and to serving as a model to communities throughout California and the United States. MEA is working in collaboration with the Marin Climate and Energy Partnership, which is coordinating implementation of the Marin EV Transition Plan, a robust effort to accelerate EV deployment countywide, build a state-of-the-art charging network, and make Marin the epicenter of the region's bid to become the "EV Capital of America." In partnership with the Transportation Authority of Marin, MCEP has identified a full range of strategies to accelerate EV adoption, including by means of accelerated build-out of PV solar charging stations, as emphasized in this proposal.

The County of Marin created a solar map for the full County and overlaid it with GIS parcel information to identify the best sites for solar parking lot shade structures. These sites were then evaluated to identify the most highly-traveled locations, best suited for vehicle charging. Using this information, MEA has identified eight strategic locations for solar-covered parking lot structures to directly power electric vehicles using 220 charging places a planned Phase One deployment.

This Marin-SPEED project will be paired with another MEA project (Net Solar) to fully cover each of the ten large-capacity parking lots with solar shade structures that will ultimately serve as a net producer of electricity for the grid. This will enable the project to achieve significant economies of scale which will bring down costs substantially. EV wiring will be available to expand to a Phase Two deployment of additional charging stations as electric vehicle use grows.

Specifically, the Marin-SPEED project will:

- execute a clean energy program that develops local businesses and local jobs by working with local businesses and using local installers;
- facilitate cost-effective clean energy projects by financing otherwise cost-prohibitive arrays;
- develop a competitively-trained local green-collar workforce and encourage competitive local green companies and industries;
- reduce strain on already-existing energy infrastructure to facilitate the continued economic growth of the Bay Area
- demonstrate the potential for "smart" vehicle-to-grid bidirectional power flows, which will complement the Marin Energy Authority ongoing Smart Grid demonstration and development program. (MEA's plan to produce up to 50% of its power from renewables by 2015 will be greatly strengthened by the proposed rapid and large-scale deployment of EVs, PV over parking lots, and "smart" chargepoint networks.

Employment

One of the key objectives MEA and the Marin-SPEED program is to develop and support local, green-collar jobs and green-collar workers capable of effectively implementing distributed energy, energy efficiency and smartgrid projects. The long-run competitiveness of the Bay Area workforce is sustained through job training, the use of local companies and technologies, and the self-sustaining nature of the program. To help install and service the proposed solar parking stations and related equipment, MEA will partner with the Marin City Community Development Corporation, an organization providing training in low-income neighborhoods for solar installation and other green collar jobs. This program, along with the Marin Employment Connection, which provides training for unemployed and underemployed workers, is optimally staged for immediate expansion to address the green workforce needs of the project. In addition, the College of Marin and its industry partners is developing new EV-focused automotive tech training programs to ensure that Marin's auto tech workforce is prepared to service the new EV technologies.

MEA will support local jobs and business by undertaking projects that use locally-developed technologies and local businesses to encourage cutting-edge technologies and methods. This project anticipates a variety of workers described with some detail below.

Within 0-6 months of project start-date approximately 34 people employed as follows:

- 2 MEA personnel
- 8 electricians, trenching laborers and PV installers
- 10 steel workers
- 10 concrete laborers, including manufacturers of domestically-produced concrete and trenching laborers
- 1 project manager
- 2 designers
- 1 superintendent / head contractor

Within 6-12 months following the project start-date approximately 48 people employed as follows:

- 2 MEA personnel
- 12 electricians, trenching laborers and PV installers
- 15 steel workers
- 15 concrete laborers, including trenching and manufacturing of domestically-produced concrete
- 1 project manager
- 2 designers
- 1 superintendent / head contractor

Within 12-24 months following the project start-date approximately 40 people employed as follows:

- 1 MEA personnel
- 12 electricians, trenching laborers and PV installers
- 10 steel workers
- 15 concrete laborers, including trenching and manufacturing of domestically-produced concrete

- 1 project manager
- 1 superintendent / head contractor

Economic Benefits

Although the initial cost of solar fuel stations are higher than conventional EV charge stations, Marin Energy Authority has evaluated and analyzed the net present value (including relevant multiplier effects) of the program to the California economy, taking into consideration the long-term reduction of energy costs, the employment of local workers (employees, contractors, installers and consultants), the use of California businesses to provide materials for the program, the increased value of local workers through training in green industries, reduced GHG emissions and criteria air pollutants above and beyond what is displaced by charging EVs from grid energy, and the improved health of the Bay Area workforce and general population. Specific economic benefits are as follows:

- **Increased Use of Renewable Energy**: MEA has a primary goal of achieving 100% renewable energy supply within the eight cities and one county it serves, reaching 80% renewable energy supply in 2014. This project is being undertaken with a broad range of renewable generation projects (e.g. solar, wind, biogas) and renewable energy procurement to increase the percentage of renewable energy used.
- **GHG Reductions**: This project, along with other MEA programs, will effect a 15% reduction in total GHG below 1990 levels by 2020.
- **Resource Efficiency**: Power usage will be reduced through use of local power, thus minimizing line losses.

Estimates of Cost Savings from Charging One PHEV from Solar Energy vs. Driving an ICE Vehicle:

Years	**10**	**20**	**25**[i]	**30**	**40**[ii]
Dollars Saved from Grid Energy Displacement[iii]	$6,478.75	$14,782	$19,618.75	$24,911.25	$36,865
Dollars Saved from Petroleum Displacement (over time)[iv]	$34,357	$86,217	$112,147	$138,077	$189,937
GHG Emissions Saved (in tons)[v]	46.9	93.8	117.25	164.15	187.9

Dollar Savings Associated with GHG Reductions[vi]	$844.20	$1,688.40	$2,110.5	$2,954.70	$3,382.20
Total Dollar Savings from PHEV Charged from Solar Fuel Station	$41,679.95	$102,687.40	$133,876.25	$165,942.95	$230,184.20

[i] Warranties on most solar systems cover the first 25 years.

[ii] Most solar providers estimate that solar systems can last up to 40 years.

[iii] Assumptions: 1) Currently, an A-1 commercial rate from Pacific Gas and Electric averages 15 cents per kWh per year (18 cents in summer months and 12 cents in winter months), regardless of the time of day. However, in 1999, just 10 years ago, average commercial electricity rates in California were 10.05 cents per kWh, 5 cents lower than today. If rates rise even 5 cents per kWh every ten years, namely half a cent per year, within 40 years electricity rates will more than double to 35 cents per kWh. This is a conservative estimate since there are likely to be attenuating circumstances such as a rapidly warming climate that will increase electricity usage and drive rates higher (source: Energy Information Administration). This incremental increase was taken into account in the calculations above. 2) Calculations assume a PHEV with 40 miles of range (a 10kwh battery), charged once per day at a station, 365 days per year.

[iv] Assumptions: 1) These calculations assume gasoline rises 75 cents per gallon starting in 2010 until it plateaus at $10 / gallon in 2019. At that point, we assumed gasoline prices stabilized at $10 per gallon given that demand may drop off, lowering prices or prices may grow as supply diminishes, driving up price. We assumed $10 / gallon as a rough average. The calculations hold VMT as stable. 2) According to the Marin Report, an average of 518.6 gallons of gasoline are currently used by the average Marin resident per year,(http://demographics.marin.org/PDFs/Marin_Profile_2007_final_all.pdf). 3) These calculations assume that if an average Marin resident consumes 518.6 gallons per year, that comes to an average of 1.4 gallons per day. A PHEV with a 10 kWh battery displaces almost exactly the same amount. 4) According to the Department of Energy, the average fuel economy (mpg) of a passenger vehicle in the United States is approximately 27 mpg (source: http://www.fueleconomy.gov/).

[v] Based on average U.S. driving habits and emissions factors provided by CARB: http://www.arb.ca.gov/cc/protocols/localgov/doc/draft_lgo_protocol_2008-08-12.pdf

[vi] Costs associated with GHG emissions are currently calculated at $18 per metric ton by the California Energy Commission.

Benefits to Disadvantaged Populations

The shift to a renewable energy supply will reduce the need for fossil-fuel fired power plants and gasoline refineries which are typically sited in low-income communities and communities of color. Specifically, in the Bay Area, the leading "peaker plant" is a dirty diesel generation station located in the heavily-minority Hunter's Point section of San Francisco. Increased use of distributed renewable power will reduce peak loads, and planned vehicle-to-grid and smartgrid capabilities will further levelize loads across daily and seasonal fluctuations. Further, MEA will utilize partnerships for job training targeted at underprivileged, unemployed and underemployed individuals. Individuals in Marin's low income communities, including the predominantly African-American Marin City neighborhood, and the predominantly Hispanic Canal District in San Rafael, will gain education and work experience in green technologies and professions, leading to increased entrepreneurship and participation in family-supporting green collar jobs.

Description of Project Team

The Marin-SPEED Project Team will be managed by MEA's Interim Director, Dawn Weisz. Other members of the project team will include MEA staff as well as partner organizations as follows:

- Richard Schorske, Marin Climate and Energy Partnership
- Jamie Tuckey, Marin Energy Authority
- Mike DiNucci, Coulomb Technology
- Matt Maguire, SPG Solar
- Makini Hassan, Marin City Community Development Corporation

The Marin-SPEED team is prepared to participate in future DOE merit reviews as needed. We believe that our experience in large-scale distributed solar deployment in concert with our locally-directly "Community Choice" energy authority, will be of particular interest to communities seeking to more rapidly transition to a green power supply AND a green transportation fuel infrastructure through the Marin-SPEED project.

MEA PROJECT PROPOSAL DESCRIPTIONS

Development of Solar Installations in Targeted High-Value Locations

Proposal Name

Development of Solar Installations in Targeted High-Value Locations

Provide a limited description of your proposal

The Marin Energy Authority (MEA) has identified highly cost-effective locations for solar-covered parking lot structures and large rooftops for net positive production of solar energy. MEA has created a solar map for Marin County and overlaid it with GIS parcel information to identify the most cost-effective applications. Seven large parking lots and three large rooftops have been targeted and approached as optimal candidates for medium-scale development of photovoltaic arrays to become net positive producers of solar energy. MEA would use the funds to implement the plans and procure $350 million in financing to install the structures and panels. In addition, a portion of each parking location would be deployed as electrical car charging stations.

Describe the overarching importance of your proposal to address the Bay Area's regional economic competitiveness and the strategic priorities outlined above

MEA is a local government agency dedicated to bringing clean and local energy and advanced energy efficiency and smart grid technologies to the eight cities and one county that it serves, and to serving as a model to communities throughout California and the United States.

Specifically, this distributed solar generation project will:

- execute a clean energy program that develops local businesses and local jobs by working with local businesses and using local installers;
- facilitate cost-effective clean energy projects by financing otherwise cost-prohibitive arrays;
- develop a competitively-trained local green-collar workforce and encourage competitive local green companies and industries; and
- reduce strain on already-existing energy infrastructure to facilitate the continued economic growth of the Bay Area.

What are the total costs of your proposal (in millions of dollars)?

Development Costs - $million

$1.0M ($1,000,000) -- Not Committed

Construction Costs - $million

$1.0M ($1,000,000) -- Not Committed

Describe how this proposal may relate to sustainable job creation and long term competitiveness of the Bay Area workforce.

One of the key objectives of MEA is to develop and support local, green-collar jobs and green-collar workers capable of effectively implementing distributed energy, energy efficiency and smart grid projects. The long-run competitiveness of the Bay Area workforce is sustained through job training, the use of local companies and technologies, and the self-sustaining nature of the program.

Job Training: MEA will partner with California Youth Energy Services, an organization targeting low-income neighborhoods in the region that train youth in green collar jobs. MEA will also partner with other existing programs training workers in low-income communities to install solar panels on rooftops. These programs, along with the Marin Employment Connection, which provides training for unemployed and underemployed workers, are optimally staged for immediate expansion to address the green workforce needs of the project.

Use of Local Companies and Technologies: MEA will support local jobs and business by undertaking projects that use locally-developed technologies and local businesses to encourage cutting-edge technologies and methods.

The estimated net economic benefit that your proposal may deliver to the California economy is:

$100-500 million

MEA has evaluated and analyzed the net present value (including relevant multiplier effects) of the program to the California economy, taking into consideration the long-term reduction of energy costs, the employment of local workers (employees, contractors, installers and consultants), the use of California businesses to provide materials for the program, the increased value of local workers through training in green industries, and the improved health of the Bay Area workforce and general population.

Describe the measures taken in your proposal that enhance environmental sustainability in the Bay Area and beyond. These measures would be beyond what existing State and Federal law require.

Resource Efficiency: Power usage will be reduced through use of local power, thus minimizing line losses.

Increased Use of Renewable Energy: MEA has a primary goal of achieving 100% renewable energy supply within the eight cities and one county it serves, reaching 80% renewable energy supply in 2014. This project is being undertaken with a broad range of renewable generation projects (e.g. solar, wind, biogas) and renewable energy procurement to increase the percentage of renewable energy used.

GHG Reductions: This project, along with other MEA programs, will effect a 15% reduction in total GHG below 1990 levels by 2020.

Describe the measures taken in your proposal to address the needs of disadvantaged communities in the Bay Area?

Reduced Pollution: The shift to a renewable energy supply will reduce the need for fossil-fuel fired power plants which are typically sited in low-income communities and communities of color. Furthermore, this project, along with other MEA programs, will effect a 15% reduction in total GHG below 1990 levels by 2020, improving air quality for individuals in the Bay Area.

Hiring, Training, and Access to Services: MEA will partner with Conservation Corps North Bay and with the Americorps Volunteer Program, both regional organizations targeting low-income neighborhoods with training for underprivileged youth in green collar jobs. The College of Marin, Marin City Community Development Corporation, and other local programs will be called upon to train workers in low-income communities in solar installation with real project interface.

Increased Educational Attainment and Entrepreneurship: Individuals who receive job training will receive certificates for their additional training and will gain education and work experience in green technologies and professions, leading to increased entrepreneurship.

Real Property-Based Financing and Support for Renewable Energy and Energy Efficiency Improvements

Proposal Name

Real Property-Based Financing and Support for Renewable Energy and Energy Efficiency Improvements

Provide a limited description of your proposal

Funding would allow the Marin Energy Authority (MEA) to launch a distributed generation, energy efficiency and water conservation program in Marin County. Once launched, MEA intends to procure $20 million in financing for an initial pilot project that would allow residential and commercial building owners to finance energy efficiency and renewable projects through property tax assessments paid over time by the property owners. This program would cultivate local businesses in the green sector and result in monthly energy savings for the property owner. Under California law AB811, the city of Palm Desert and the County of Sonoma have successfully launched programs allowing homeowners to finance solar installations (including solar hot water), energy retrofits and hot water heaters. The City of Berkeley has also use land-based tax financing for the same purpose. These financing structures allow the benefits and costs to run with the property rather than simply be placed on the first owner. MEA will also use the program to undertake energy audits and assist in the installation of distributed generation, energy efficiency and water conservation measures for buildings and structures that are excluded from AB 811 and other financing structures.

Currently, Marin communities have the institutional commitment but lack the start-up resources to launch the program in the present economy.

Describe the overarching importance of your proposal to address the Bay Area's regional economic competitiveness and the strategic priorities outlined above

The Marin Energy Authority is an agency dedicated to bringing clean and local energy, advanced energy efficiency and smart grid technologies to the eight cities and one county that it serves, and to serving as a model to communities throughout California and the United States.

Specifically, this project will execute cost-effective and self-sustaining energy efficiency and clean energy projects through deployment of a land-based financing program that develops local businesses and local jobs. The program will partner with and encourage competitive local green companies and industries to develop a competitively-trained local green-collar workforce. This program will reduce strain on already-existing infrastructure to facilitate the continued economic growth of the Bay Area on-site through energy efficiency and distributed clean energy projects, which reduce stress on the energy grid.

What are the total costs of your proposal (in millions of dollars)?

Development Costs - $million

$1.90M ($1,900,000) -- Not Committed

Training Costs - $million

$0.10M ($100,000) -- Not Committed

Describe how this proposal may relate to sustainable job creation and long term competitiveness of the Bay Area workforce.

One of the key objectives of the MEA and this project is to develop and support local, green-collar jobs and green-collar workers capable of effectively implementing energy efficiency and distributed energy installations. The long-run competitiveness of the Bay Area workforce is sustained through job training, the use of local companies and technologies, and the self-sustaining nature of the program.

Job Training: MEA will partner with California Youth Energy Services, an organization targeting low-income neighborhoods in the region that trains youth in energy efficiency audits and retrofits. MEA will also partner with other existing programs training workers in low-income communities to install solar panels on rooftops. These programs, along with the Marin Employment Connection, which provides training for unemployed and underemployed workers, are optimally staged for immediate expansion to address the green workforce needs of the project.

Use of Local Companies and Technologies: MEA will support local jobs and businesses by undertaking projects that use locally-developed technologies and local businesses to encourage cutting-edge technologies and methods.

While initial funding is required to start up the project, the project will be self-sustaining once it is off the ground, supporting efficient green businesses long into the future.

The estimated net economic benefit that your proposal may deliver to the California economy is:

$100-500 million

The Marin Energy Authority has evaluated and analyzed the net present value (including relevant multiplier effects) of the program to the California economy, taking into consideration the long-term reduction of energy costs, the employment of local workers (employees, contractors, installers and consultants), the use of California businesses to provide materials for the program, the increased value of local workers through training in green industries, and the improved health of the Bay Area workforce and general population.

Describe the measures taken in your proposal that enhance environmental sustainability in the Bay Area and beyond. These measures would be beyond what existing State and Federal law require.

Resource Efficiency: Implementation of a land-based financing program will result in a reduction in conventional power usage through retrofitting and increasing “negawatts”

while, at the same time, increasing clean energy generated locally. This will reduce the burden often placed on low income communities and communities of color where fossil-fuel powered energy sources are typically sited. Furthermore, increasing the use of locally-generated power will reduce distance to power sources, keeping supply near demand and resulting in minimal transmission losses.

Increased Use of Renewable Energy: MEA has a primary goal of achieving 100% renewable energy supply within the eight cities and one county it serves, reaching 80% renewable energy supply in 2014. This project is being undertaken with a broad range of renewable generation projects (e.g. solar, wind, biogas) and renewable energy procurement to increase the percentage of renewable energy used.

GHG Reductions: This project, along with other MEA undertakings, is projected to effect a 5% reduction in total GHG below 1990 levels by 2020.

Reduced Pollution Discharges: In addition to the reduction in pollution from reduced power usage, certain discharges will also be reduced.

Other: MEA will also develop "best practices" for zoning and energy auditing to enhance environmental sustainability.

Describe the measures taken in your proposal to address the needs of disadvantaged communities in the Bay Area?

MEA will bring job training and green-collar jobs, as well as clean energy and energy efficiency, to disadvantaged communities through partnerships with the private and non-profit sectors and through its program design. MEA will set aside 5% of all program revenue in a revolving loan fund to for affordable housing projects and non-profit organizations.

MEA has formed strategic partnerships with organizations that can undertake job trainings targeted at disadvantaged, unemployed and underemployed individuals. For example, MEA will partner with Conservation Corps North Bay to train youth in energy efficiency audits and retrofits. MEA will also utilize the Green Squad and College of Marin who train workers in low-income communities in solar installation with real project interface. These programs, along with the Marin Employment Connection, which provides training for unemployed and underemployed workers, are optimally staged for immediate expansion to address the green workforce needs of the project.

This project, along with other MEA undertakings, will effect a 15% reduction in total GHG below 1990 levels by 2020, improving air quality for individuals in the Bay Area, and making energy efficiency and clean energy projects attainable in low-income areas.

Marin Energy Authority Smart Grid Optimization Demonstration Project

Proposal Name

Marin Energy Authority Smart Grid Optimization Demonstration Project

Provide a limited description of your proposal

The core objective of the project is to dramatically increase energy efficiency programming along with customer-driven demand-response and grid optimization, while shifting 75% of all power supply in the region to local renewable sources. The ultimate result will be a dramatic decrease in peak load requirements due to technical grid interface and customer-choice driven efficiency.

The initiative will leverage an ongoing DOE-sponsored Marin Smart Grid pilot test program to install monitoring technology that integrates with the Grid to achieve energy storage, demand response, and energy efficiency. These technologies would be targeted at 83 schools, 500 public facilities, 8,000 homes and 2,000 businesses. Wireless control and demand response technologies would be installed to reduce energy use and demand, increase the value of customer-side renewable generation, and advance integration and optimization of technologies. In addition to the energy, financial and environmental benefits to the customers, this initiative will provide critical operational experience in integrating new technologies that will help accelerate the utilization of the smart grid when smart meter installation is completed in all homes and businesses in 2011. Customer education will be a key element of the program, delivering real-time energy price information from the California ISO to customers.

Describe the overarching importance of your proposal to address the Bay Area's regional economic competitiveness and the strategic priorities outlined above

The Marin Energy Authority (MEA) is a local government agency dedicated to bringing clean and local energy and advanced energy efficiency and smart grid technologies to the eight cities and one county that it serves, and to serving as a model to communities throughout California and the United States.

Specifically, this smart grid project will:

• develop local businesses and local jobs by implementing a large-scale program structured to advance new, yet proven, clean technologies;

• develop a competitively-trained local green-collar workforce and encourage competitive local green companies and industries; and

• reduce strain on already-existing infrastructure to facilitate the continued economic growth of the Bay Area through demand response and energy reduction.

What are the total costs of your proposal (in millions of dollars)?

Development Costs - $million

$1.50M ($1,500,000) -- Not Committed.

Other Costs (Hardware) - $million

$1.50M ($1,500,000) -- Not Committed.

Describe how this proposal may relate to sustainable job creation and long term competitiveness of the Bay Area workforce.

One of the key objectives of the Marin Energy Authority (MEA) is to develop and support local, green-collar jobs and green-collar workers capable of effectively implementing distributed energy, energy efficiency and smart grid projects. The long-run competitiveness of the Bay Area workforce would be sustained through job training, the use of local companies and technologies, and the self-sustaining nature of the program.

Job Training: MEA will partner with organizations targeting low-income neighborhoods in the region that train youth in energy efficiency audits and retrofits. These programs, along with the Marin Employment Connection, which provides training for unemployed and underemployed workers, are optimally staged for immediate expansion to address the green workforce needs of the project.

Use of Local Companies and Technologies: MEA will support local jobs and business by undertaking projects that use locally-developed technologies and local businesses to encourage cutting-edge technologies and methods.

The estimated net economic benefit that your proposal may deliver to the California economy is:

Under $25 million

Marin Energy Authority has evaluated and analyzed the net present value (including relevant multiplier effects) of the program to the California economy, taking into consideration the long-term reduction of energy costs, the employment of local workers (employees, contractors, installers and consultants), the use of California businesses to provide materials for the program, the increased value of local workers through training in green industries, and the improved health of the Bay Area workforce and general population.

Describe the measures taken in your proposal that enhance environmental sustainability in the Bay Area and beyond. These measures would be beyond what existing State and Federal law require.

Resource Efficiency: Power usage will be both reduced and optimized through use of smart grid technology, with the ultimate goal of increasing “negawatts.”

Conservation: Smart grid technologies to be employed by MEA will increase awareness of and reduce energy usage. This will reduce impacts to the environment and the community from fossil fuel-generated power.

Increased Use of Renewable Energy: MEA has a primary goal of achieving 100% renewable energy supply within the eight cities and one county it serves, reaching 80% renewable energy supply in 2014. This project is being undertaken with a broad range of renewable generation projects (e.g. solar, wind, biogas) and renewable energy

procurement to increase the percentage of renewable energy used in connection with this smart grid project.

GHG Reductions: This project, along with other MEA programs, will effect a 15% reduction in total GHG below 1990 levels by 2020.

Reduced Pollution Discharges: By reducing the volume of energy used by customers, ambient pollution will be reduced.

Describe the measures taken in your proposal to address the needs of disadvantaged communities in the Bay Area?

Reduced Pollution: The reduction in energy use will reduce the need for fossil-fuel fired power plants which are typically sited in low-income communities and communities of color. Furthermore, this project, along with other MEA programs, will effect a 15% reduction in total GHG below 1990 levels by 2020, improving air quality for individuals in the Bay Area while reducing our contribution to climate change.

Economic Benefit: MEA will utilize partnerships for job training targeting disadvantaged, unemployed and underemployed individuals. MEA will also extend the benefits of energy efficiency and smart grid technology to schools, non-profit organizations and lower income individuals.

Hiring, Training, and Access to Services: MEA will partner with organizations targeting low-income neighborhoods in the region and training youth in energy efficiency audits and retrofits. MEA will also utilize other regional programs that train workers in low-income communities.

Marin Renewable Energy Procurement Project

Proposal Name

Marin Renewable Energy Procurement Project

Provide a limited description of your proposal

The core objective of the proposed project is to offer the choice of a publicly contracted 100% renewable power supply to all residential, commercial and municipal customers in the region. The power supply would be primarily generated locally from renewable sources including solar, wind, methane, small hydroelectric, geothermal and biomass. The ultimate result will be a shift away from fossil-fuel powered energy supply.

Describe the overarching importance of your proposal to address the Bay Area's regional economic competitiveness and the strategic priorities outlined above

The Marin Energy Authority (MEA) is a local government agency dedicated to bringing clean and local energy and advanced energy efficiency and smart grid technologies to the eight cities and one county that it serves, and to serving as a model to communities throughout California and the United States.

Specifically, this clean energy procurement project will be the foundation for community choice aggregation in Marin County, will integrate clean energy, smart grid and energy efficiency elements in the energy procurement process, and will develop a competitively-trained local green-collar workforce encouraging competitive local green companies and industries.

What are the total costs of your proposal (in millions of dollars)?

Development Costs - $million

$1.50M ($1,500,000) - Not Committed

Describe how this proposal may relate to sustainable job creation and long term competitiveness of the Bay Area workforce.

One of the key objectives of MEA is to develop and support local, green-collar jobs and green-collar workers capable of effectively implementing distributed energy, energy efficiency and smart grid projects. The long-run competitiveness of the Bay Area workforce would be sustained through job training, the use of local companies and technologies, and the self-sustaining nature of the program.

Job Training: MEA will partner with organizations targeting low-income neighborhoods in the region that train youth in energy efficiency audits and retrofits. MEA will also partner with other existing programs training workers in low-income communities to install solar panels on rooftops. These programs, along with the Marin Employment Connection, which provides training for unemployed and underemployed workers, are optimally staged for immediate expansion to address the green workforce needs of the project.

Use of Local Companies and Technologies: MEA will support local jobs and business by undertaking projects that use locally-developed technology and local businesses to encourage cutting-edge technologies and processes.

Continuing MEA Programs: While initial funding is required to start up the project, the project will be self-sustaining once it is launched, supporting efficient green businesses long into the future.

The estimated net economic benefit that your proposal may deliver to the California economy is:

$25-50 million

MEA has evaluated and analyzed the net present value (including relevant multiplier effects) of the program to the California economy, taking into consideration the long-term reduction of energy costs, the employment of local workers (employees, contractors, installers and consultants), the use of California and Bay area businesses to provide materials for the program, the increased value of local workers through training in green industries, and the improved health of the Bay Area workforce and general population.

Describe the measures taken in your proposal that enhance environmental sustainability in the Bay Area and beyond. These measures would be beyond what existing State and Federal law require.

Increased Use of Renewable Energy: Through the implementation of this procurement project, MEA hopes to achieve its primary goal of 100% renewable energy supply within the nine cities and one county it serves, reaching 80% renewable energy supply in 2014 and 100% by 2017. This project is being undertaken with a broad range of renewable generation projects (e.g. solar, wind, biogas) and renewable energy procurement to increase the percentage of renewable energy used. This will dramatically reduce the negative impacts of fossil fuel-based power supply, resulting in strong environmental benefits.

GHG Reductions: This project will result in a 17-20% reduction in total overall GHG emissions in the County region.

Resource Efficiency: This project will also involve a reduction in electricity usage through retrofitting, use of smart grid technology, use of local power (including rooftop solar and wind installations) and redeployment of resources (such as currently flared landfill gas to fuel a biogas power plant) with the ultimate goal of in increasing "negawatts."

Reduced Pollution Discharges: In addition to the reduction in pollution from reduced power usage, other discharges will be reduced. For example, gas currently flared at Redwood Landfill will be cleaned and converted into energy.

Describe the measures taken in your proposal to address the needs of disadvantaged communities in the Bay Area?

Reduced Pollution in disadvantaged communities: The reduction in energy use and shift to a renewable energy supply will reduce the need for fossil-fuel fired power plants which

are typically sited in low-income communities and communities of color. Furthermore, this project will result in a 17-20% reduction in total GHG emissions in the Marin region, improving air quality for individuals in the Bay Area while reducing our contribution to climate change.

Hiring, Training, Access to Services: MEA will also utilize regional programs as appropriate that train workers in low-income communities in solar installation with real project interface. These programs, along with the Marin Employment Connection, which provides training for unemployed and underemployed workers, are optimally staged for immediate expansion to address the green workforce needs of the project.

Economic Benefit: MEA will extend benefits of energy efficiency and solar panel installations to lower income individuals.

Biogas Project Using Methane Captured From Redwood Landfill

Proposal Name

Biogas Project Using Methane Captured From Redwood Landfill

Provide a limited description of your proposal

Installation of high efficiency generators will result in approximately 10 MW of power from the only County landfill, Redwood Landfill, which is owned by Waste Management Inc. This landfill is currently flaring methane that can be harnessed to generate energy and reduce pollution. The gas-to-energy project has been explored at the site and is ready to implement once generators are installed and a 2-mile transmission connection is completed to direct power back into the utility grid.

In addition, an in-vessel food and yard waste-to-energy facility has completed the early stages of development and is ready for installation. This facility would create new jobs, reduce the waste stream, and generate energy and compost.

The Marin Energy Authority (MEA) is keenly interested in implementing these programs quickly to reduce the environmental impact of current practices, procure local green energy and reduce local energy costs.

Describe the overarching importance of your proposal to address the Bay Area's regional economic competitiveness and the strategic priorities outlined above

The Marin Energy Authority is an agency dedicated to bringing clean and local energy and advanced energy efficiency and smart grid technologies to the eight cities and one county that it serves, and to serve as a model to communities throughout California and the United States.

Specifically, this methane capture project will:

- execute a clean energy program that develops local businesses, local jobs and reduces the cost of power through a power purchase agreement;
- re-purpose currently-flared landfill gases for energy production, demonstrating GHG reducing energy generation technology;
- develop a competitively-trained local green-collar workforce and encourage competitive local green companies and industries;
- reduce strain on already-existing infrastructure to facilitate the continued economic growth of the Bay Area by reducing transmission distances; and
- expand regional infrastructure through construction of a transmission line to clean energy sources.

What are the total costs of your proposal (in millions of dollars)?

Construction Costs - $million

$7.00M ($7,000,000) - Not Committed

Describe how this proposal may relate to sustainable job creation and long term competitiveness of the Bay Area workforce.

In connection with the development of generation facilities, significant local green-collar job capacity will be built. This proposal will further develop already-existing green businesses, encourage the creation of new green-collar jobs and expand existing local government programs that are proven in their effectiveness.

One of the key objectives of MEA is to develop and support local, green-collar jobs and green-collar workers capable of effectively implementing clean energy projects. The long-run competitiveness of the Bay Area workforce is sustained through job training, the use of local companies and technologies, and the self-sustaining nature of the program.

Job Training: MEA will utilize the Marin Employment Connection, which provides training for unemployed and underemployed workers, as they are optimally staged for immediate expansion to address the green workforce needs of the project.

Use of Local Companies and Technologies: MEA will support local jobs and businesses by undertaking projects that use locally-developed technology and local businesses to encourage cutting-edge technologies and methods.

The estimated net economic benefit that your proposal may deliver to the California economy is:

$50-100 million

The Marin Energy Authority has evaluated and analyzed the net present value (including relevant multiplier effects) of the program to the California economy, taking into consideration the long-term reduction of energy costs, and the redirection of those dollars into the economy, the employment of local workers (employees, contractors, installers and consultants), the use of California businesses to provide materials for the program, the increased value of local workers through training in green industries, and the improved health of the Bay Area workforce and general population.

Describe the measures taken in your proposal that enhance environmental sustainability in the Bay Area and beyond. These measures would be beyond what existing State and Federal law require.

Resource Efficiency: Generated power will be reduced by minimizing line losses as energy will be consumed closer to its source. Currently wasted resources will also be redeployed by using flared landfill gas to fuel a biogas power plant.

Increased Use of Renewable Energy: MEA has a primary goal of achieving 100% renewable energy supply within the eight cities and one county it serves, reaching 80% renewable energy supply in 2014. This project is being undertaken with a broad range of renewable generation projects (e.g. solar, wind) and renewable energy procurement to increase the percentage of renewable energy used.

GHG Reductions: This project, along with other MEA undertakings, will effect a 15% reduction in total GHG below 1990 levels by 2020.

Reduced Pollution Discharges: In addition to the decrease in pollution from reduced power usage, certain discharges will also be reduced. For example, gas currently flared at Redwood Landfill will be cleaned and converted into energy.

Other: MEA will also develop "best practices"" for zoning and energy auditing to enhance environmental sustainability.

Describe the measures taken in your proposal to address the needs of disadvantaged communities in the Bay Area?

Reduced Pollution: The shift to a renewable energy supply will reduce the need for fossil-fuel fired power plants which are typically sited in low-income communities and communities of color. This project, along with other MEA undertakings, will effect a 15% reduction in total GHG below 1990 levels by 2020, improving air quality for individuals in the Bay Area.

Economic Benefit: This project will bring down the price of power through a power purchase agreement with a public entity. MEA will offer a subsidized rate for low income customers and seniors by locking in costs for customers, hedging against the fluctuating cost of fossil fuels, and setting rates that benefit disadvantaged customers.

Hiring, Training, and Access to Services: MEA will use and expand the Marin Employment Connection, which provides training for unemployed and underemployed workers to address the green workforce needs of the project.

Marin Energy Authority
Letter of Inquiry to Marin Community Foundation
April 22, 2009

Property-Based Financing for Energy Efficiency Improvements and Renewable Energy Installations

Overview

Buildings in Marin produce about one third of Marin's 3 million tons of greenhouse gas (GHG) emissions released annually. Energy efficiency retrofits are the fastest, most cost-effective means to reduce emissions. Renewable energy installations can further reduce or eliminate building-based GHG emissions. Property-based financing removes the need for cash up-front, assists property owners to offset the cost of their loan with energy savings, and encourages market demand for energy-conserving projects.

Assembly Bill 811, signed by Governor Schwarzenegger last year, allows all California cities and counties to offer property-based financing through low-interest loans for energy efficiency projects and solar panels to homeowners and small businesses. Home and business owners can then pay back the loans through assessments on their property tax bill. If the property is sold, any outstanding loan balance is taken over by the new owner. Several local governments in California are considering, or have already begun, using AB 811 or AB 811-like programs to offer energy-efficiency and solar loans to their residents.

The Marin Energy Authority is seeking funding to create and implement such a program to leverage private capital to allow residential and commercial building owners to finance energy efficiency and renewable projects through property tax assessments paid over time by the property owners. This program would allow the benefits and costs of the improvements to run with the property rather than simply being placed on the first owner. This program would grow local businesses in the green sector and result in monthly energy savings for the property owner. Under California law AB811, the city of Palm Desert and the County of Sonoma have successfully launched a similar program allowing homeowners to finance solar installations, energy retrofits and hot water heaters. The City of Berkeley has also used a similar land-based tax financing program for the same purpose. Currently, Marin communities have the institutional commitment but lack the start-up resources to launch the program in the present economy.

The Marin Energy Authority is an agency dedicated to bringing clean and local energy and advanced energy efficiency to the Marin region through public-private partnerships.

This project will execute cost-effective and self-sustaining energy efficiency and clean energy projects through deployment of a land-based financing program that would develop and bolster local businesses and local jobs, reduce the strain on already-existing infrastructure, and improve

Furthermore, the installers of the distributed generation and energy efficiency improvements will be local individuals and businesses, channeling those funds back into the local economy.

MEA will further support local jobs and business by undertaking projects that use locally-developed technologies and local businesses to encourage cutting-edge technologies and methods. While initial funding is required to start up the project, the project will be self-sustaining once it is off the ground, supporting efficient green businesses long into the future.

Project Funding

	MCF Requested Grant/Loan	**Matching Funds**
Legal/Contracting with Banks	$55,000	$45,000
Administration	$95,000	$75,000
Web development	$15,000	$15,000
Technical Assistance	$15,000	$50,000
Training:	$13,000	$20,000
Marketing	$7,000	$15,000
Total	**$200,000**	**$220,000**

Potential matching funds: California Energy Commission
U.S. Department of Energy
Marin Municipal Water District

Loan and bond financing is being arranged for the AB 811 program which will maintain the program once it is up and running. Once the initial start up expense is funded, MEA will undertake an initial program of $20 million in private loans and bonds to install distributed generation and energy efficiency improvements. The program will likely be expanded beyond the $20 million initial funding.