



Sustainable Energy & Economic Development Fund

Project Impact and Lessons Learned

CSI RD&D Webinar
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CSI RD&D Principles



- Improve the economies of solar technologies by reducing technology costs and increasing system performance
- Focus on issues that directly benefit California, and that may not be funded by others
- Fill knowledge gaps to enable successful, wide-scale deployment of solar distributed generation technologies
- Overcome significant barriers to technology adoption including market and deployment challenges
- Take advantage of California's wealth of data from past, current, and future installations to fulfill the above
- Support efforts to address the integration of distributed solar power into the grid in order to maximize its value to California ratepayers

The SEED Fund

Sustainable Energy and Economic Development Fund



SEED FUND

A group procurement program for solar PV for municipal agencies and special districts using a revolving fund mechanism to defray upfront costs for participants (for project planning, site assessments, procurement activities)

- SEED Fund (CSI Sol#3 Funding Opportunity: \$300K)
 - Primary project performance period: 2012 - 2014
 - North Bay: Sonoma, Marin and Napa Counties
 - Lead Agency: City of San Rafael
 - Designed & Implemented by: Strategic Energy Innovations and Optony

About Optony Inc.



Optony develops and deploys clean energy best practices across the entire project lifecycle for government agencies, schools, banks and commercial organizations. Optony has been involved in over 3GW of project activity globally from strategy to project commissioning.

Optony creates and manages national-scale projects for clean energy market transformation including a variety of projects for the Department of Energy under the SunShot Initiative.



**Award Winning
Pubic Sector Project**



**Award Winning
Pubic Sector Project**



**Multiple Grant-Winner for
Solar Market
Transformation**



**Best of Silicon Valley
Recognition for
Energy Services**

"Optony's consulting service is a must-have for any organization considering an investment in solar. Based on Optony's comprehensive analysis and recommendations, we now have a low-risk, high-return solar strategy."

About SEI

Strategic Energy Innovations is committed to actions that sustain our planet. We're a certified green business, community-based nonprofit organization *committed to empowering under-served markets:*

- ✧ Schools, colleges, and universities
- ✧ Local governments
- ✧ Small and rural communities
- ✧ Affordable housing providers and residents
- ✧ Small businesses

...to embrace a climate-friendly future through green building, clean energy, resource efficiency and support of a local and qualified green workforce.





Project Objectives I

Primary Goal

- Demonstrate the viability of an innovative PV procurement business model through implementation of collaborative solar projects
- Develop and share a financial mechanism (the SEED Fund) that will provide long-term fiscal sustainability
- Demonstrate how a collaborative model combined with the SEED Fund overcomes initial barriers to solar installation projects for public entities
- Save 10-12% of total solar project costs
- Reduce administrative effort by 50-70% for participants



Project Objectives II

Performance Objectives

- Collaborative Development: At least 10 public partners sign MOUs to participate
- Project Identification and Selection: At least 100 sites are pre-screened; up to 70 sites receive feasibility assessments; and at least 10 MW of viable solar projects are identified across all participants sites
- Solicit Proposals and Award Contracts: At least 5 MW of viable solar projects are included in a collaborative RFP; at least 5 qualified vendors submit bids on SEED Fund projects
- Establish SEED Fund Sustainability: At least 10 public partners express interest in participating in a second round



Project Objectives III

Cost Objectives

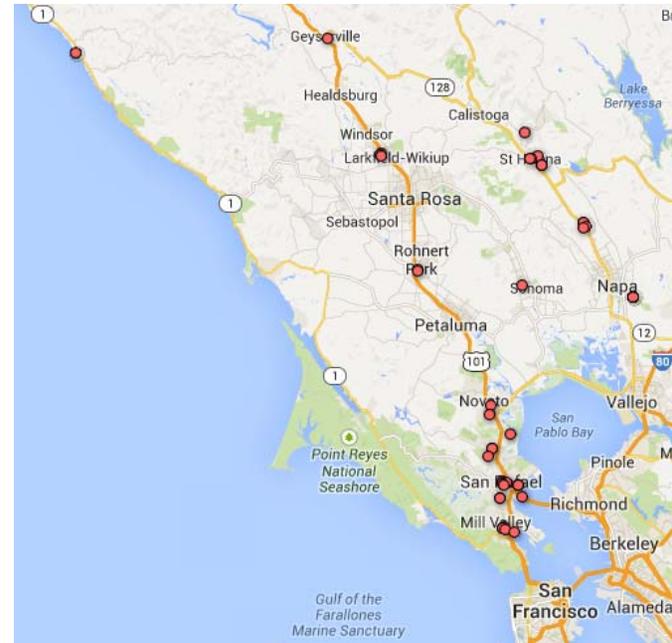
- At least 5 MW is contracted for, with a total project cost of at least \$20M based on a conservative \$4/W installed costs
- An average of at least 50% administration cost-savings for public participants
- Costs for contracted solar is at least 10% below market rates
- With inclusion of payback to SEED Fund, participants realize at least a net savings of 8% below market rates
- SEED Fund is able to provide private investors 10% annual rate of return

Project Outcomes Overview



Goal: 10 Agencies and 5MW

- An estimated total potential of 6.8MW of solar PV identified in Marin, Napa and Sonoma Counties
- 37 public participants engaged including 143 site assessments and 41 full feasibility studies
- Issued a joint RFP, involving 32 sites across 13 public agencies
- As of January 15, 2015, 25 sites amongst 12 public agencies are entering into purchase or PPA contracts with the selected vendor (PV capacity over 4.2MW signed or in contracting)



Barriers to Large Scale Deployment



- High Upfront Costs
 - Preliminary services such as site assessments, feasibility studies and project identification
 - PV system equipment and installation
- High Transaction Costs and Administrative Effort
- Information Gaps about the solar market, financing, and technology
- National solar industry lacks standardization and development is fragmented with many individual sites being pursued opportunistically
- Collaborative Procurement is emerging as a powerful means to tackle the costs and technical barriers and has already demonstrated great success
- But: Remaining barriers are still prohibitive for many public agencies



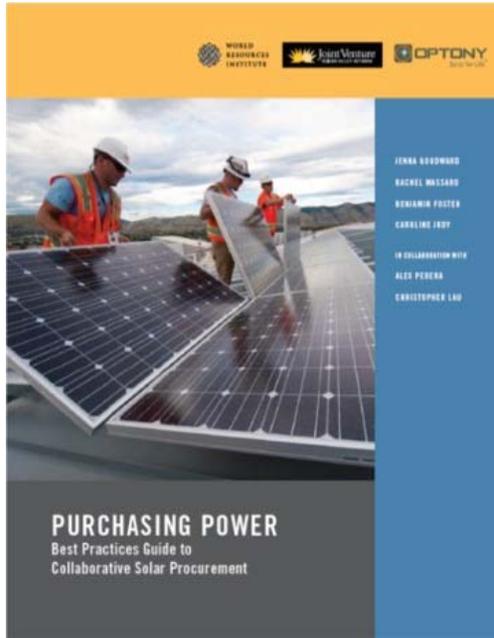
Solar Collaborative Procurement

Demonstrated Benefits

Based on successful initiatives and model in Silicon Valley and Washington DC Regions

- Achieve Strategic Sustainability Plans faster by working together and consolidate fragmented efforts regionally
- Aggregation yields greater market interest and better pricing and lowers project risks
- Dramatically reduce transactions costs and administrative effort
- Leverage regional initiatives for education and workforce development
- Demonstrate leadership locally, regionally and nationally
- Shorten the learning curve on new technologies and financing options

BUT: Still need to address barriers to entry...





Remaining Barriers

Even when utilizing Collaborative Procurement

- Upfront Costs are Still High
 - Preliminary services such as site assessments, feasibility studies and project identification have to be paid by individual agencies
 - Collaborative Procurement only yields better pricing of solar system equipment and installation
- Transaction Costs and Administrative Effort
 - The project organization and building of internal consensus for moving forward become more difficult with each joining participant
 - standardized site assessments across all participants

The SEED Fund was designed to build on previous success while addressing these needs



Pause for Questions

(Background, Overview, Goals)



SEED FUND

Quick Facts SEED Fund Round 1



SEED Parameter	Value
Primary Goal	Enable Public Participants to Adopt Solar Power
Mechanism	Durable Revolving Fund w/ Initial CSI Grant
SEED Fund Team	Strategic Energy Innovations (non-profit) and Optony Inc.
Region	Marin, Napa, Sonoma Counties
Funding	\$300k CSI Initial Grant + \$70k Private Support + \$155,537 In-Kind Match
Participants	14 Public Agencies (Counties, Cities, Special Districts)
Technical Assessments	143 Assessed Sites, 41 full feasibility studies, 32 sites in RFP process
Estimated Savings	10-12% Overall Savings
Reimbursement Fee	1.9% of the Solar System's Purchase Price

Project Tasks I



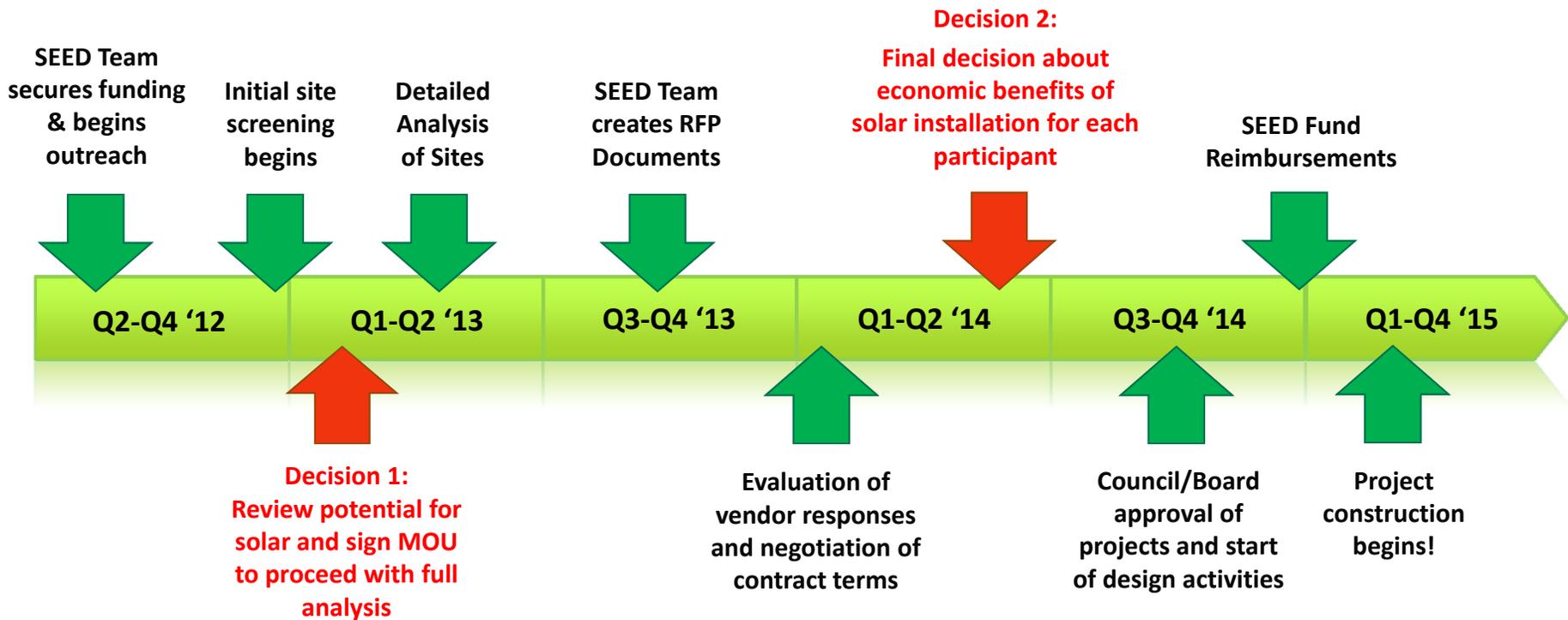
- Task 1 – Project management
- Task 2 – SEED Fund Mechanism Development
- Task 3 – Collaborative Development
 - Task 3.1 – Engage Public Participants
 - Task 3.2 – Confirm Participation
- Task 4 – Project Identification and Selection
 - Task 4.1 – Identify Potential Sites
 - Task 4.2 – Feasibility Studies w/ strategic bundle suggestions

Project Tasks II

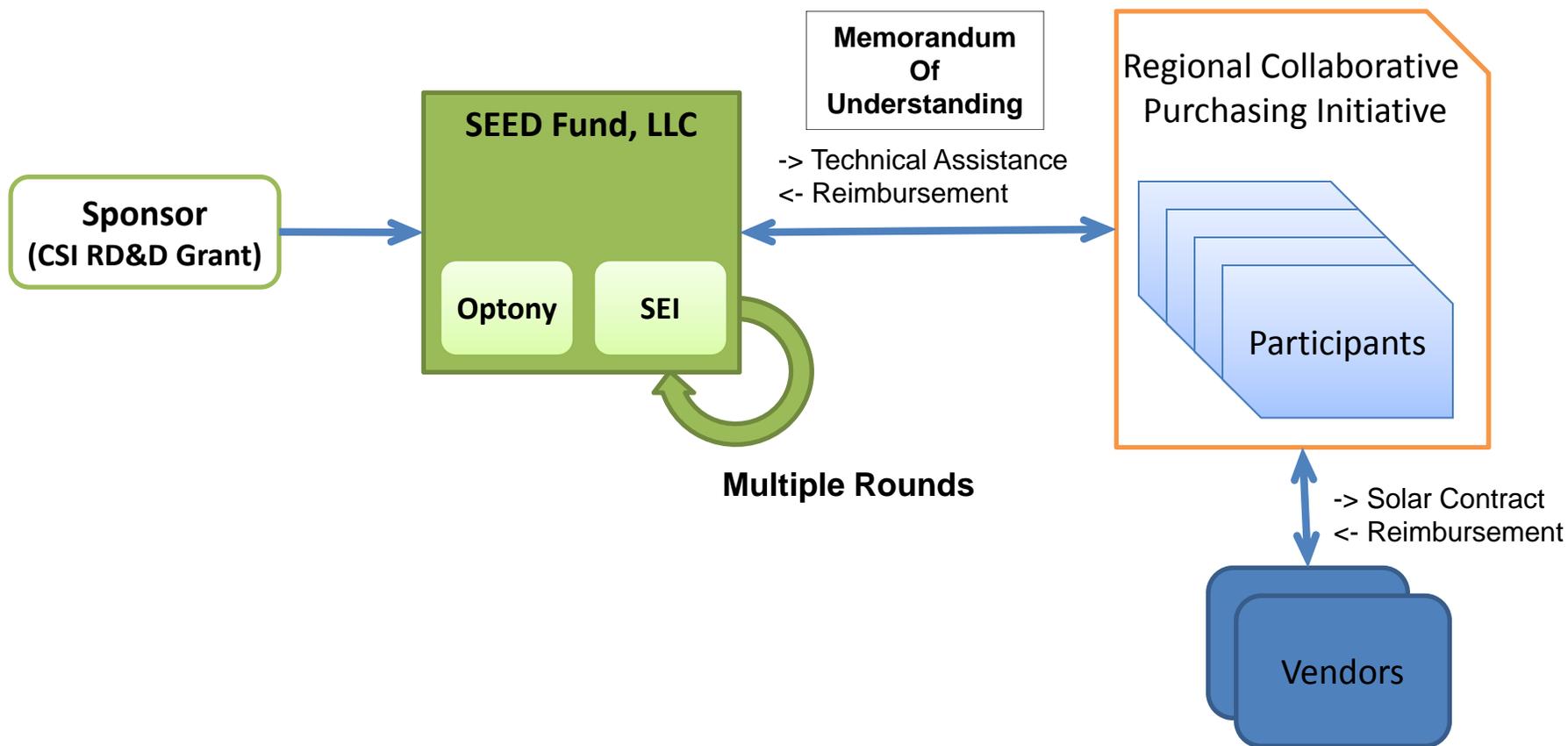


- Task 5 – Solicit Proposals and Award Contracts
 - Task 5.1 – Review and selection of financing options
 - Task 5.2 – Solicit Bids from Qualified Contractors
 - Task 5.3 – Negotiate and Approve Contracts
- Task 6 – Establish SEED Fund Sustainability
 - Task 6.1 – Engage new investors
 - Task 6.2 – Engage new public participants
 - Task 6.3 – Determine outcomes for fund

SEED Fund Program Timeline



SEED Fund Structure



Revolving Fund Mechanism

The Core of the SEED Fund



- CSI provided \$300k to seed the Revolving Fund which pays the upfront costs for:
 - Program management and support for participating agencies and up to 50 potential sites
 - Technical assistance throughout the education, evaluation and procurement phases
- The Fund is Replenished by Participating Agencies after contracts are signed (via vendor reimbursement for PPAs)
 - 1.9% of project value (ex: \$15M in projects, recovers \$285K)
 - Funding goes into future rounds of renewables and energy efficiency projects

The Revolving Fund guarantees long-term sustainability

Role of Lead Agency I

A Key Factor for the SEED Fund's Success



- Crucial Role
 - Takes the lead in administrative efforts across participating agencies
 - Takes the lead in designing the memorandum of understanding
 - Takes the lead in issuing and managing the Request for Proposals (RFP)
 - Leads the vendor selection committee
 - Takes the initiative in contracting negotiations with the selected vendor

The Lead Agency takes a lot of effort off all the other participants to achieve overall greater cost savings

Role of Lead Agency II

A Key Factor for the SEED Fund's Success



- Ideal Conditions
 - Strong commitment to move forward with adopting solar power
 - At least some experience in this sector
 - Enough free resources to play this role effectively
 - Desire to be recognized regionally
- Benefits
 - Lower pricing via aggregation than going alone
 - Expert technical support available from day-one through the entire process
 - Demonstration of commitment to clean energy leadership
 - Faster achievement of California State's energy goals



City of San Rafael Perspective



- Working with SEED Fund
- Acting as Lead Agency
- Project Experience and Lessons Learned
- Benefits to the City



Summary of Tasks & Deliverables

- Sign Lead Agency
- Recruit other Participating Agencies, Create and Sign MOU
- Conduct Pre-Screenings; Develop and Distribute Feasibility Studies
- Participant Webinars to Review economic, technical design and procurement process
- Vendor outreach and workshops
- Finalize and Release RFP – Requiring bids for PPA and Direct Purchase on “bundled” sites
- Evaluate and Summarize Vendor Proposals
- Finalize Vendor Awards
- Press Release(s) on Project Success
- Work with Participants to Negotiate and Complete Contracts
- SEED Fund Reimbursement
- Seek New Markets for SEED Fund



Project Outcomes Round 1

- 37 public participants engaged including 143 site assessments and 41 full feasibility studies.
- Issued a joint RFP, involving 32 sites across 13 public agencies with a potential of up to 6.8 MW in total
- Proposal from preferred vendor including a total system size of 3.9 MW and a 5% discounted price of \$ 3.44 per W-DC (\$4 estimated)
- Participants use purchase, PPA, and pre-paid (40%) PPA as financing types
- As of August 31, 2014, 25 sites amongst 12 public agencies are entering into purchase or PPA contracts with the selected vendor
- The estimated reimbursement in total about \$ 200k



Lessons Learned I

- Need a strong, regional convener to ensure project stays on timeline
- Must sign up the Lead Agency first as it is the best support for outreaching to other participants
- Develop clear messages to build awareness quickly and move forward without confusion
- Vendors should include a time-based discount to their proposals
- Sign up fewer agencies, with larger potential and in a regional cluster. Send out a survey to conduct high-level screening
- Host and support high-level political champions
- Arrange site tours for participating agency staff to visit finished projects



Lessons Learned II

- Financial business model with private investors still needs to be proven in the long run
- Add clarity around reimbursement invoicing process to MOU
- Conduct feasibility studies as soon as possible after signing MOU in order to maintain schedule and momentum
- Advertise RFP release with local construction clearinghouses
- During contract negotiations, have the lead agency legal counsel handle most of the document control
- Consider regularly-scheduled participant check-ins on a monthly basis
- Project timeline is longer than originally planned due to municipal processes
- Solar industry consolidation has a negative impact on transaction times



Summary of Outcomes

Objective	Outcome	
10 Agencies 100 Sites	14 Agencies 143 Sites	<u>Exceeded participation goals</u> <u>Over-delivered on site evaluations</u>
5 MW Solar PV	4.2 MW	<u>3.6MW Contracted</u> <u>0.6MW in process</u> <u>2.4MW Potential in development</u>
Reduce Transaction Costs	Significant Savings	<u>Reduced administrative burden</u> <u>Project cost reductions 5-15%</u>
Create Scalable Model for CA	Established Model	<u>Replicating in Monterey Bay in 2015</u>
Reimbursements For Round 2 \$200K	\$195K Expected	<u>Funds coming in to support expansion</u>



Outreach – Tech Transfer

- Local and Regional Outreach and Education
 - Seminar/Webinar series for participants
 - Press releases and outreach to regional installer networks
- Publication of materials and resources
 - www.SolarRoadmap.com/SEED
- External recognition and support
 - News articles
 - EPA Region 9
 - Central Valley and Monterey Bay regions
 - Department of Energy SunShot program
- Kick-off for “Round 2” to leverage lessons learned and funding model



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Flip the Switch On Local, Cleaner Power sonomacleanpower.org

RENEWABLE ENERGY WORLD.COM Monday, January 26, 2015

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City eyes solar panels on ut

San Rafael Leads Three Counties in Solar Group Purchasing Project

Chris Meehan
March 21, 2013 | 0 Comments

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Monday evening San Rafael's City Council unanimously decided to become the county group-purchasing project. The program will allow Marin, Napa and Sonoma to use their collective facilities as bargaining leverage to get discounts on solar panels and inverters.

Weather: San Rafael, CA

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San Rafael moves forward with plan to install solar panels on six buildings

By Megan Hansen

mhanzen@marinij.com @HansenMegan on Twitter

POSTED: 06/21/2014 04:38:04 PM PDT



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Cloverdale gives green light to solar project

Press Democrat, The (Santa Rosa, CA), 2014-12-19

Dec. 19 -- Cloverdale, one of Sonoma County's perennial hot and sunny spots, is known as a good place to grow tomatoes.

The city is moving forward with treatment plants, a project that will also enable the city to use solar energy.

The City Council on Wednesday unanimously approved the project, which will impact associated with the project.

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Consumer Reviews of Solar Companies, Solar Panels, and Inverters

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SolarReviews News - Solar Energy and Solar News >> San Rafael Leads Three Counties in Solar Group Purchasing Project



San Rafael Leads Three Counties in Solar Group Purchasing Project

by Chris Meehan on 03/21/2013 in Alternative Energy, Renewable Energy, Solar Energy, Solar Power

San Rafael's City Council unanimously decided on March 18 to become the lead agency for a three-county group-purchasing project.

The Press Democrat CA Energy Efficiency

PG&E and its partners are helping California save energy. Learn more.

54° Clouds and sun

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Cloverdale gives green light to solar project





Benefits to California Ratepayers

- Contribution to California State's energy goals in order to reduce Green House Gas Emissions and increase the amount of renewable energy sources in California State's utilities' power mix
- Free accessible research data of the SEED Fund durable financing mechanism
- Education of basic know-how in terms of financing, solar power systems and contracting among the solar market participants
- Demonstration of successful outreach to multiple public agencies
- Deployment of solar capacity over 4MW within replicable model with very low investment

Transition to SEED-Round 2

Estimated timeline: November 2014 – December 2015



11-2014 to 05-2015:

- SEED Fund team recruits Lead Agency and other participating agencies and secures participation agreements and signed MOUs.
- SEED Fund team provides high-level site reviews for agency consideration of participation in collaborative procurement.
- SEED Fund team performs full feasibility assessments on sites. Participants review assessments to determine sites for group RFP.

05-2015 to 12-2015:

- SEED Fund and Lead Agency begin RFP development. Hold participant webinars to on technical, economic and procurement considerations. Vendor workshop.
- Finalize and Release RFP. Evaluate and summarize vendor proposals. Work with selection committee of participant staff-members to determine preferred vendor(s).
- Work with participants to complete contracts with selected vendor(s). Initiate SEED Fund revolving fund reimbursement.



Questions & Discussion

Thank you!