Monthly Progress Report

Riverside County Renewable Energy Planning Program

Floating photovoltaic solar array at Canoe Brook Water Treatment Facility (Short Hills, New Jersey).

Commission Agreement #: REN-13-002

Monthly Progress Report #: 07
Period Covered: April 1 through April 30, 2015
Attached to Invoice #: N/A

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Executive Summary

For April 2015, work continued on completing the contract to hire the Salton Sea subconsultant and the GIS analysis of the DRECP land use proposals and the Salton Sea region. In addition, several meetings were held with both agencies working on DRECP issues (BLM, CEC) and several interested outside parties (German solar investors and also new technology founders). The most promising development was new contacts made with private entities interested in the new "floatovoltaic" technology being introduced in Northern California and possibilities for its use in the Inland Empire.

Work Statement

This section briefly addresses the status of the project's approved tasks in the Work Statement. Discussion is split into three sections focusing on completed activities, ongoing activities and, lastly, activities with no new progress to report. Each subtask item includes a report on its status, including discussion of any products due and whether or not the project is progressing according to schedule. Where applicable the discussion also covers any problems encountered, proposed changes contemplated and anticipated results for the upcoming quarter. Unless noted otherwise, each subtask remains on track in terms of budgeted funds and hours at this time and will continue to be produced monthly as per Work Statement and schedule.

Agreement Activities Completed This Month

No specific tasks or subtasks were completed in April 2015; although both Task 1.7 and Task 2.3 are scheduled to be completed on May 19, 2015. See discussion under "Ongoing Activities," below, for details. All other activities and work products produced in the past month were part of on-going efforts and are described in subsequent sections.

Status of Ongoing Agreement Activities

The tasks listed below are ongoing and have had activity performed as indicated. Unless noted otherwise, each of these tasks will be reported on further in subsequent progress reports. Ongoing items will remain in this section unless concluded or there has been no activity during the reporting period. In such cases, the item will be discussed in the applicable other section instead.

A. Task 1.4 – Monthly Progress Report

The sixth progress report was submitted to the CEC electronically on April 6, 2015, and a hardcopy was mailed the same day. An invoice for the first six months of the project (July 21 through December 31, 2014) was attached (Invoice #01). The County is awaiting payment on that invoice and a second invoice for the first three months of 2015 accompanies this month's report.

B. Task 1.7 – Obtain and Execute Subcontracts

As noted in the prior monthly report, the subconsultant selection process has been completed. The resultant contract has been signed by consultant (RBF Consulting) and County representatives. It is scheduled for final approval and signing by the County Board of Supervisors at their May 19th public meeting.

C. Task 2.2 – Team Meetings

The eRED Project Manager (Cindy Thielman-Braun) met with several eRED team members either individually or in small groups in April 2015; mostly regarding County analysis of the Draft DRECP EIR/EIS. There were no formal agendas for these meetings.

D. Task 2.3 – RFP for Consultant Services

As noted above, the contract and budget negotiations were concluded for the RFQ process and a signed contract is scheduled to be approved by the Board of Supervisors at their May 19th meeting. Assuming the Board approves the contract, copies of the finalized documents will be submitted to the CEC with the next monthly report.

E. Task 3.1 – Assemble Existing eRED Data

This task has been initiated in association with the research and preparation the eRED Project Manager has performed in developing the initial project presentations (for example, for internal use, etc.). The eRED team has also begun researching and studying existing eRED data and related technical information providing background on the issues the County is facing.

F. Task 3.2 – Develop eRED Opportunities and Constraints Criteria

Mapping and additional analysis of the draft DRECP EIR/EIS released by the State continued in April, with the focus on BLM plans. With the proposed bifurcation of the federal and non-federal portions of the DRECP, current focus is on coordinating County plans with proposed federal plans (both DRECP and, secondarily, California Desert Conservation Area Plan (CDCA)). Thus, overall, this task remains ongoing.

G. Task 3.3 – Identify Areas Suitable for Additional eRED Study

Similar to Task 3.2, this task also continues with the focus on County land use and conservation plans relative to BLM proposals (for both DRECP and CDCA). Because roughly 80% or more of the eastern most desert area in Riverside County is under federal jurisdiction, continued work on consistency with federal plans will be fruitful for Riverside County, regardless of the ultimate fate of the non-federal lands within the DRECP. In all, this work effort remains ongoing.

H. Task 4.1 – Assemble Information/Data for Salton Sea eRED Study Region

Work on this subtask is ongoing. Work has begun with GIS staff, however much of this task will require work by the subconsultant. Thus, we expect this task to show significant progress in the next few months.

I. Task 4.2 – Analyze Salton Sea eRED Opportunities and Constraints

Work on this subtask is ongoing on conjunction with the Task 4.1 effort described above.

J. Task 4.4 – Outreach and Coordination with Salton Sea Authority

No new meetings were held with the Salton Sea Authority in April 2015. This task remains ongoing.

K. Task 4.5 – Technical Coordination with Utilities and Other Agencies in Salton Sea Region

No specific meetings or other actions not already mentioned related to this task were held in April 2015. This task remains ongoing.

L. Task 7.1 – Develop and Publish Project Webpage

The eRED Project website remains up with content added to the site as it becomes available, e.g., copies of the monthly reports to the CEC, new maps ready for public viewing, public meeting information, etc. Information and data will continue to be added to the site as it is developed. This task remains ongoing.

M. Task 7.2 – Public Agency and Stakeholder Coordination and Other Outreach Meetings

Several meetings occurred with interested private parties in April 2015. One introductory meeting occurred with a German engineering company interested in the potential for solar-powered clean water processing in the desert. Another series of calls and meetings have occurred with private companies interested in exploring the use of Floatovolatics® (floating PV solar installations) in the Inland Empire. See ***Attachment A***. Both of these new solar technologies show potential and opportunities will continue to be investigated as appropriate. In all, this task remains ongoing.

Tasks Not Yet Begun or With No Notable Changes

For this reporting period, no new work has been undertaken on the tasks listed below. In every case, unless noted otherwise, these tasks are those for which requisite prior actions are not yet complete. None of these tasks have any specific work product anticipated in the next three months (unless noted otherwise). Agendas and notes will continue to be forwarded for any meetings that do occur.

A. Task 1.2 – Critical Project Review (CPR) Meetings
B. Task 1.3 – Final Meeting
C. Task 1.5 – Final Report
D. Task 2.1 – Kickoff Meeting (Internal County)
E. Task 4.3 – Develop Salton Sea eRED Study Region Policies and Plans
F. Task 5.1 – Revise General Plan: Eastern Coachella Valley Area Plan
G. Task 5.2 – Revise General Plan: Multipurpose Open Space Element
H. Task 5.3 – Revise General Plan: Rest of Document

I. **Task 5.4 – Prepare General Plan Documents for Processing**
J. **Task 6.1 – CEQA Initial Study**
K. **Task 6.2 – Prepare Environmental Review Document**
L. **Task 6.3 – CEQA Consultations**
M. **Task 6.4 – Prepare Final CEQA Documents for Processing**
N. **Task 8.1 – General Plan Amendment Initiation Process (GPIP) Processing**
O. **Task 8.2 – Planning Commission Processing**
P. **Task 8.3 – Board of Supervisors Processing**
Q. **Task 8.4 – Final Documents (Post-Adoption Actions, if Applicable)**

Completed Tasks -- No Further Changes

The tasks below have been completed and were addressed under prior progress reports, as indicated. No further actions are planned or anticipated for these tasks.

A. **Task 1.1 – CEC Kickoff Meeting** (Completed July 22, 2014; see Progress Report #01.)
B. **Task 1.6 – Required Permit Information** (Completed July 31, 2014; see Progress Report #01.)

Work Product / Deliverables

Products are "any tangible item specified in the Work Statement." As per the conditions of REN-13-002 Exhibit C, item 5 ("Products"), "Unless otherwise directed, draft copies of all products identified in the Work Statement shall be submitted to the Commission Agreement Manager for review and comment. The Recipient will submit an original and two copies of the final version of all products to the Commission Agreement Manager." Thus, in accordance with this directive, the following work products are submitted for this reporting period.

A. **Attachment A:** Article on new Floatovoltaic® technology, Solar Outreach Partnership, dated February 23, 2015. (Task 7.2)

Financial Status

This section presents a brief narrative addressing costs incurred to-date in relation to the approved Budget. Also includes a discussion as to whether or not the project is progressing within the approved Budget, as well as identification of any proposed changes or adjustments being that may be considered. Invoice #01 was submitted with the prior monthly report (#06) and a second invoice (#02) accompanies this report. Assuming no changes are needed to the format or data submitted, the County will continue to submit invoices to the CEC monthly. At present there are no issues outstanding (in either the Work Statement or the Budget) that might necessitate amendment of the Agreement. No budget changes or alterations are requested at this time.

Additional Information

These items address any information in the Work Statement or Special Conditions not already covered in one of the above sections. Ministerial types of project information are also addressed, as well as the outlook for any significant future changes (i.e., amendments) and any issues not addressed elsewhere.

Amendments

Item 8 ("Amendments") of Exhibit C, Terms and Conditions of Non-Federally Funded Grants, of the Agreement notes that, "Changes to the Work Statement, changes to specific line items in the budget, or both, may be made under certain conditions." At present, there are no issues outstanding (neither in the Work Statement nor Budget) that would necessitate the proposal of an amendment to the Agreement other than, potentially, whatever changes may be necessary to clarify invoicing procedures, as noted above. Should any other issue arise with the potential to lead to an amendment request, the County will contact the CEC immediately.

Legal Notice

No product or report produced as a result of work funded by this program shall be represented to be endorsed by the California Energy Commission and all such products or reports shall include the following statement:

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Attachment A:

Solar Outreach Partnership, "Floatovoltaics," posted by NARC, Feb. 23, 2015

Floatovoltaics

Posted by NARC on February 23, 2015

It goes without saying that solar energy has its benefits, but one of the major complications to installation is figuring out where to put the panels. Rooftops are a viable option, but a substantial amount of land is usually needed for larger projects. In regions where unused land is scarce, how do you implement a utility-scale solar farm? The answer may lie with floating panels, or "floatovoltaics."

No, were not talking about destroying the natural beauty of our lakes, rivers, and ponds; there are other, less aesthetic bodies of water for solar panels. In the United States alone, the surface area of wastewater ponds, reservoirs, and sewage treatment pools totals in the hundreds of thousands of acres. These unused, open spaces are typically hidden from public view and provide an excellent opportunity for solar.

Photo Credit: The San Francisco Chronicle

Since 2007, photovoltaic systems have been installed on a small number of water bodies in Japan, France, India, the U.K., and the United States. The first of such systems was installed at a vineyard in Napa Valley, California. In an effort to both conserve vine acreage and expand on their existing 1,300-panel system, Far Niente winery placed 1,000 solar panels over an irrigation pond on the property. The panels were secured on 130 floating pontoons and connected to the land-based system to collectively generate 477 kW at peak output. Combined with the ground mounted system, the additional floating panels allow the facility to completely offset its electrical needs. By installing the panels over the pond, Far Niente was able to save more than ¾ of an acre of vines, equivalent to $150,000 worth of bottled wine annually.

Land conservation aside, floating panels offer benefits lacking in ground-mounted solar. For one, the water underneath provides an effective, natural cooling system. As solar panels continuously absorb sunlight throughout the day, they become very hot. The efficiency of a typical silicon-based solar panel is reduced by about .5% for every °C increase over the module's rated temperature (usually around 25° C). Because of water's cooler environment, floating panels do not experience a significant loss in power output when temperatures increase. In fact, one study found that solar panels were 8-10% more efficient when paired with water.

Many water utilities are transitioning to renewable energy sources to combat the high

Photo Credit: New Jersey American Water

costs of water treatment. According to the Environmental Protection Agency (EPA), 3-4% of national electricity consumption is used for wastewater services and to provide drinking water. The addition of a floatovoltaic system to a treatment facility can offset some of these costs and also provide a valuable shading structure. Reduced exposure to sunlight has the potential to decrease evaporation and algae growth in a water body. Evaporation limits water conservation while algae buildup clogs piping and causes other issues, increasing maintenance costs for treatment facilities.

Floating solar has advantages over ground-mounted panels, but the absence of land is the main reason for installation. The large percentage of underutilized municipal surface water in the United States presents a unique opportunity for renewable electricity generation. Below are a few notable projects involving floatovoltaics:

- New Jersey American Water installed 536 floating panels over a reservoir near their Canoe Brook treatment plant. The system generates 135,000 kilowatt-hours per year with an estimated annual energy savings of $16,000.
- Last year, Britain's first floating solar array was installed over a reservoir on a soft fruit farm. The 800-panel project has a 200 kW capacity and should generate a minimum profit of £620,000 over 20 years.
- Two Japanese companies recently announced a joint venture to cover the country's Yamakura Dam Reservoir with a 50,000-panel system. The project would produce 15,635 megawatt-hours per year, enough to power 4,700 homes. When completed, it will be the largest floatovoltaic system in the world.

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