Decision 07-09-042 September 20, 2007

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Policies, Procedures and Rules for the California Solar Initiative, the Self-Generation Incentive Program and Other Distributed Generation Issues.	Rulemaking 06-03-004 (Filed March 2, 2006)

OPINION ESTABLISHING A RESEARCH, DEVELOPMENT, DEMONSTRATION AND DEPLOYMENT PLAN FOR THE CALIFORNIA SOLAR INITIATIVE

TABLE OF CONTENTS

TABLE OF CONTENTS (cont.)

OPINION ESTABLISHING A RESEARCH, DEVELOPMENT, DEMONSTRATION AND DEPLOYMENT PLAN FOR THE CALIFORNIA SOLAR INITIATIVE

1. Summary

In this decision, we adopt a plan for awarding $50 million in the form of grants to research, development, deployment and demonstration (RD&D) projects under the California Solar Initiative (CSI) program.[1] Our Adopted CSI RD&D Plan identifies the goals and objectives of the CSI RD&D program, sets forth allocation guidelines for the RD&D funds, and establishes criteria for solicitation, selection and funding RD&D projects. It also establishes RD&D program administration and RD&D program evaluation. The Adopted CSI RD&D Plan is attached as Appendix A to this order.

We recognize that opportunities exist for collaboration and coordination between our RD&D program and particularly the California Energy Commission (CEC) Public Interest Energy Research (PIER) and the Department of Energy's (DOE) solar research program and that the benefits would be greater if these opportunities are realized in our program. To that end, we design our Adopted CSI RD&D Plan to complement related research activities of these entities in order to maximize synergies among similar programs and to achieve a higher degree of success for our plan and for the funds paid by the ratepayers.[2]

[1] The CSI program runs through 2016. Therefore, our Adopted CSI RD&D Plan also runs through 2016.

[2] In this order, when we refer to ratepayers, we refer to the electric ratepayers of California's three largest investor-owned utilities (IOUs), namely Pacific Gas and Electric Company (PG&E), Southern California Edison Company (Edison) and San Diego Gas & Electric (SDG&E).

The overriding principle of the RD&D Plan will be to identify and support projects that would help achieve the CSI goal of 3,000 Megawatts (MWs) of installed solar capacity by 2016, followed by a self-sustaining solar market in the years beyond. In keeping with this principle, the RD&D program will focus on the following:

Improve the economics 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.

Take advantage of California's wealth of data from past, current, and future installations to fulfill the above.

Provide bridge funding to help promising solar technologies transition from a pre-commercial state to full commercial viability.

Support efforts to address the integration of distributed solar power into the grid in order to maximize its value to ratepayers.

To establish a robust portfolio of RD&D projects, the funds will be allocated across all stages of RD&D[3] with a relatively greater emphasis on demonstration. Research will receive 20% of the RD&D budget while development and deployment will each receive between 5-10%, and demonstration will be given 45-55% of the RD&D budget. RD&D funds will also

[3] We define these stages as research, development, demonstration and deployment. For detailed definitions of each, see the Adopted CSI RD&D Plan, Appendix A. Deployment is an element of demonstration as that term is used in Pub. Util. Code § 2851(c)(1).

be allocated across three high priority target activity areas identified in the CEC's PIER RD&D process:

> Support the commercialization of new Photovoltaic (PV) technologies;
>
> Improve the integration of PV with the distribution and transmission grid; and
>
> Focus on approaches to support the market and end users.

To ensure a diverse, yet balanced portfolio of projects, RD&D funds will also be allocated based on various levels of risk associated with project completion time frame.

We will grant $10 million of the CSI RD&D funds to support the construction of the Helios research facility (Helios), which will focus, in part, on developing low cost solar energy conversion technology using solar panels that use PV and successor materials. This project has the potential to significantly impact the on-site solar power market in California and benefit the ratepayers.

Project solicitations will be through multiple funding cycles and a competitive process. Project selection in the early rounds of solicitation will be limited to eligible technologies with a PV focus which have potential benefits specifically for California. The size of the individual grants will also be capped to allow funding a larger portfolio of eligible projects.

We direct the Commission's Energy Division[4] to select an RD&D Program Manager and seek Commission's approval of the selection through a resolution. The RD&D Program Manager's responsibilities, among other things, will be to

[4] When we assign tasks or responsibilities to the Energy Division, they are assigned to the Energy Division's Director or such staff as the Director designates.

work with staff to solicit, evaluate and recommend RD&D projects to the Commission for funding using our stated guidelines and criteria established in our Adopted CSI RD&D Plan. The RD&D Program Manager will be an entity with a team of experts who will assist the Commission in fulfilling its duties. To preserve a higher level of the RD&D budget for funding RD&D projects, we limit the RD&D program total administration and evaluation costs to 15% of the total budget of the RD&D program.

Finally, the Commission will make all final decisions on project funding and maintain oversight of the entire program. We believe the success of the program relies on our ability to periodically measure the effectiveness of the program and revise the program structure as necessary. We intend to keep a close watch on the program's overall progress to ensure that ratepayers' funds are spent efficiently and cost-effectively. An independent program evaluator, selected by the Energy Division, will provide comprehensive evaluation every three years of the RD&D Program Manager's performance, the results of the individual projects, and the entire program. The RD&D Program Evaluator will involve the stakeholders in this evaluation process.

2. Background

In Decision (D.) 06-01-024, the Commission, in collaboration with the CEC, created the CSI, an 11-year $3.2 billion incentive program with the goal of installing 3,000 MW of new distributed solar facilities on the homes and businesses of the customers of California's three largest investor-owned utilities (IOUs). In that decision, the Commission recognized that solar technologies may not be as cost-effective as other clean alternatives and committed to supporting the development of solar technology into a robust, and self-sustaining industry that can compete with more conventional technologies. To that end, the

Commission allocated up to 5% of each year's adopted CSI's budget "… to RD&D that explores solar technologies and other distributed technologies that employ or could employ solar for power generation and storage or to offset natural gas usage, as well as market development strategies."[5]

Following the adoption of D.06-01-024, the Commission opened Rulemaking (R.) 06-03-004 to develop CSI program policies and rules and identified solar RD&D as one of the issues in that rulemaking. The scoping memo, issued on April 24, 2006, designated solar RD&D for Phase II of the proceeding.

The CSI program was enacted into statute when the Governor signed SB 1 in August 2006. Pub. Util. Code § 2851(c)(1), as enacted by SB 1, states the Commission shall:

> ". . . not allocate more than fifty million dollars ($50,000,000) to research, development, and demonstration that explores solar technologies and other distributed generation technologies that employ or could employ solar energy for generation or storage of electricity or to offset natural gas usage."

A subsequent Assigned Commissioner Ruling (ACR) set a schedule for addressing solar RD&D. Following that ACR, the Commission's Energy Division's staff, in consultation with the CEC staff, published the "Draft Staff Proposal for Research, Development, and Demonstration Plan" (Draft RD&D Proposal) on February 14, 2007. This proposal recommended an RD&D strategy, criteria for selecting projects, and a timeframe for the CSI RD&D effort. Energy Division's staff held a public workshop on February 26, 2007 to discuss the Draft

[5] D.06-01-024, p. 36.

RD&D Proposal and to solicit informal comments from the parties. Following the workshop, the Energy Division issued a revised proposal (Proposed RD&D Plan)[6] and the assigned Administrative Law Judge (ALJ) issued a ruling on April 2, 2007 requesting parties' comments on the Energy Division's Proposed RD&D Plan. Comments were filed by PG&E, Edison, Americans for Solar Power (ASPv), The University of California, California Institute for Energy and Environment (UC/CIEE), San Diego Regional Energy Office (SDREO)[7], and Stanford University. Reply comments were filed by Edison, SDG&E, the Lawrence Berkeley National Laboratory (LBNL), and University of Southern California (USC).

3. The Adopted CSI RD&D Plan

The comments generally support the Proposed RD&D Plan, although some parties seek clarification on the proposed administration process and the IOUs' role. Several parties oppose the grant of RD&D funds to Helios.

We find that overall the principles, allocations, project selection guidelines and criteria, program administration, and the program evaluation process contained in the Proposed RD&D Plan are fair, informative, and provide a transparent and public process for awarding the CSI RD&D funds. We adopt the proposed RD&D Plan with several modifications as discussed below, and we refer to it as the Adopted CSI RD&D Plan. The Adopted CSI D&D Plan is set forth in Appendix A to this order.

---

[6] The Proposed RD&D Plan is attached as Appendix C to this order.

[7] On May 3, 2007, SDREO changed its name to the California Center for Sustainable Energy (CCSE). We refer to SDREO by its new name.

Because the solar industry is dynamic, a number of changes that cannot be envisioned presently could occur over the life of the program that may necessitate revisions to the program structure or require adjustments to the project funding. For example, development in technology or changes in market conditions may require reassessment of funding levels or priority targets to redirect funds within the $50 million to areas where more funding may be needed. The Adopted CSI RD&D Plan we adopt today, through the triennial evaluation process, will allow flexibility to make necessary adjustments as circumstances change.

3.1. Principles and Objectives

The Proposed RD&D Plan identifies the following principles for the CSI RD&D program:

> Improve the economics 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.
>
> Take advantage of California's wealth of data from past, current, and future installations to fulfill the above.

We agree with these principles and add the following two additional principles to help us advance the CSI goals as expeditiously and efficiently as possible. These additional principles are to:

> Provide bridge funding to help promising solar technologies transition from a pre-commercial state to full commercial viability.
>
> Support efforts to address the integration of distributed solar power into the grid in order to maximize its value to ratepayers.

To achieve widespread adoption of solar in future years, the Adopted CSI RD&D Plan will emphasize a funding strategy that focuses on supporting projects that address barriers to lowering cost and improving solar system performance. One of the important strategies laid out in this plan is to focus on funding different stages of RD&D activities. A goal of the Adopted CSI RD&D Plan is to attract a broad range of RD&D proposals and elicit projects with the greatest potential benefits to ratepayers. In addition, to the extent possible, the RD&D plan will take advantage of work done by other entities and past and current experiences in California and will integrate new research with existing research to maximize the benefits from the use of the ratepayer funds. Finally, the Adopted CSI RD&D Plan will allow us to examine and respond to changes as technology or market conditions evolve.

3.2. Allocation of CSI RD&D Funds

The Proposed RD&D Plan allocates the $50 million RD&D funds in the following way:

a) Various stages of RD&D:

Research	20%;
Development	10-15%;
Demonstration	50-60%;
Deployment 1	0-15%.

b) Specific target activities across the above RD&D stages:

Production technologies	-20%;
Grid integration, storage and metering	50-60%;
Business development and deployment	10-15%.

The Proposed RD&D Plan further proposes several specific milestones for each of the above target activities.

c) Risks and Results Timeframes

Project results in 8+ year horizon	20% (highest risk)
Project results in 4-7 year horizon	20%
Project results in 1-3 year horizon	60% (lowest risk)

d) Budget

Program Manager's budget	15-20%.

The Proposed RD&D Plan recommends the above allocations only as guidelines and not as strict requirements for funding projects. It further recommends committing the 20% of the RD&D funds to be devoted to research ($10 million) to help finance the construction of Helios, a multi-disciplinary and multi- investor project led by LBNL and University of California (UC) at Berkeley that focuses on developing break-thorough solutions to low-cost solar electricity generation.

Parties generally support the allocations of the funds among the various stages, particularly the higher allocation to demonstration, but some parties oppose the specific allocation of the research funds to the Helios. Several parties also suggest changes to the detailed elements of the three identified target activities.

3.2.1. Allocation of Funds to Various RD&D Stages

We find it is appropriate to give the highest priority in allocation to demonstration projects. While investment in project demonstration is extremely important to show the commercial viability of a given technology, because of the high risk and the low return, many viable projects may have a difficult time

attracting funding for project demonstration. As a result, these projects may never reach commercialization. Therefore, the Adopted CSI RD&D Plan will seek to prioritize funding to fill this gap.

Research and development each usually receives funding from the federal government and industry, and thus, we make a smaller allocation for these areas. Similarly, deployment also receives funding from other private and governmental funding sources, as well as from the CSI program in the form of financial incentives for solar installation, and as such, a smaller allocation is appropriate. In summary, we generally find the proposed funding allocations for various stages of RD&D to be reasonable. However, we slightly modify the percentages to correct an arithmetic error. The adopted allocations for the various stages of RD&D are as follows:

Research	20%
Development	5-10%
Demonstration	45-55%
Deployment	5-10%

As stated in the Adopted CSI RD&D Plan, the above allocations are only guidelines and not strict requirements for funding projects.

We now address the grant of research funds to Helios. ASPv, SDG&E, Stanford University, and USC argue that Helios should be subject to a competitive award process. SDG&E urges us to "…compare and select RD&D projects with the greatest potential value to California and its citizens."[8] USC submits that "…allowing all research funds to be sole sourced will diminish the

[8] SDG&E Reply Comments, p. 2.

quality and broad range of research opportunities and expertise the state can leverage."[9] Stanford University argues non-competitive awards are not in the best interests of the ratepayers and urges us to foster open competition for California funds in light of the uncertainty about the availability of DOE funds for basic solar research.[10]

Public Utilities Code Section 2851(c)(1) provides that the Commission shall not allocate more than $50 million to research, development, and demonstration activities to explore solar technologies. There is no legal requirement in the statute mandating competitive bidding; the only requirement is that any "grant awarded by the commission for research, development, and demonstration shall be approved by the full Commission at a public meeting." Pub. Util. Code Section 2851(c)(1).[11] From a policy perspective, we are interested in granting research funds to projects that have high potential for success, and that are focused on new solar materials and technologies. The Proposed RD&D Plan noted that the Helios Project is one such project that is consistent with the goals of the CSI program, and that could potentially provide great value.[12] Staff thus recommended that we commit $10 million to the Helios Project to help construct the Helios Energy Research Facility, a new energy research facility that will focus

[9] USC Reply Comments, p. 1.

[10] Stanford University Comments, April 13, 2007.

[11] Grants awarded by a State Agency, to promote or underwrite projects in the public interest, are not subject to Department of General Services' contract requirements (including competitive bidding), even when the grants are based on an agreement between a state agency and the grantee. 88 Op. Atty.Gen.Cal. 56 (May 10, 2005).

[12] Appendix C, pp. 5-6.

on developing cost-effective, clean energy alternatives, including solar energy technologies. We agree that allocation of this amount to construct the Helios facility is consistent with, and will advance, our goals to allocate funds expeditiously for solar RD&D to develop low-cost solar PV electricity production so as to help achieve the CSI goal of 3000 MWs of distributed solar capacity by 2016. To advance this goal, we intend to support projects that are needed to develop the solar technologies, have a statewide magnitude of impacts, and have a reasonable chance of success in improving the economics of solar technology.

As an initial matter, the Helios Project's goals dovetail with the Commission's goals under the CSI RD&D program. The Staff proposal notes that Helios will focus on developing low-cost solar PV for homes and businesses in California by exploring ways to increase the power efficiency of materials already used in solar cells, and solar storage solutions to transfer excess power during peak solar hours into fuels to produce electricity.[13] The Helios research facility will bring a team of scientists with a broad range of expertise in material science and electric production technologies together to work on this project and to find solutions for widespread use of distributed solar electrical applications in California. The RD&D funds will therefore support a large-scale and multi-disciplinary approach to research and development in the use of distributed solar generation in California.

Helios project leaders LBNL and UC Berkeley also have extensive experience and a strong track record in developing large scale research programs. Their partnership will likely ensure success for the project. The

[13] Appendix C, p. 5.

partnership will monitor progress and take necessary actions to alter the research path if they discover a more fruitful line of inquiry. The multiplicity of research embedded in Helios will also contribute to administrative effectiveness and lower administrative costs due to economies of scale.

Further, the state Legislature has already authorized $30 million in lease revenue bonds for the Helios Project for the 2007-08 fiscal year. The Helios Project also has potential to attract additional funding from other sources, including federal, industry, and foundation sponsors.[14] The grant will leverage by more than 10 to 1 the CSI contribution with other funds. One of the underlying goals of the CSI RD&D program is to create synergies between various sources of funding for a more effective RD&D program. The fact that the CSI RD&D funding can be combined with a number of other significant sources of funding to create Helios further advances this goal.

Given that the Helios Project has received significant state and private funding, and is well-staffed and equipped to research and develop low-cost solar production technologies,[15] the grant of RD&D research funds for the Helios facility will support the goals of the CSI program. Helios should be able to launch quickly and provide significant ratepayer benefits. Accordingly, we do

---

[14] British Petroleum has already granted Berkeley and LBNL and University of Illinois $500 million for a partnership on the Energy Bioscience Institute focused on alternative energy research, including biofuel technologies. See also Appendix C at p. 6.

[15] The Energy Division CSI RD&D Proposal notes that the Helios developers at a March 21, 2007 workshop noted that the Helios project is focused on building approaches "that will cut solar production costs to one-fifth or one-tenth of today's costs." Appendix C, p. 6.

not believe that a competitive selection process is necessary for this grant[16] and find it is in the public interest to grant $10 million, the funds allocated to the research stage, toward the construction of the host facility so that Helios can commence its research expeditiously.

3.2.2. Allocation of Funds by Target Activities

We adopt the three target activities and the specific milestones under each target activity that are identified as high priority in the Proposed RD&D Plan. The target activities represent specific areas for RD&D investment. The milestones represent a series of goals under each area. These activities are based on a draft consultant report[17] to the CEC PIER for solar PV prioritization plans, which surveyed solar energy industry experts and stakeholders to identify possible strategies for RD&D funding in California. This approach in prioritization coordinates our work with the CEC and contributes to greater overall solar RD&D expenditure efficiency.

With one minor modification, we also adopt the allocation percentages for the target activities. Among the three proposed target activities, the Proposed RD&D Plan allocates the greatest share of the RD&D funds to grid integration projects which focus on improving the integration of PV with the distribution

[16] As noted, the Commission's goals for expedited solar energy research and the simultaneous activities of Helios in this area support the grant of these funds to the Helios facility.

[17] See PIER Renewable Energy Technology Program, Solar PV Research Plan, Draft Staff Report, Prepared by Navigant Consulting, January 2007.

and transmission system.[18] We agree that these projects merit strong support, because unlike production technologies and business development projects that are broad and often receive federal funding or venture capital, grid integration projects are more specific to California and tend to receive less funding. Grid integration is of particular interest to California because of the potential value that solar technologies could create by addressing on-going grid congestion issues in the state. Therefore, additional financial support is necessary to encourage investment in this area. To that end, our Adopted CSI RD&D plan allocates a larger proportion of the RD&D financial resources to grid integration projects.

We note the proposed RD&D allocation percentages for the three target activities, even at the maximum do not add up to 100%. To correct this error, we increase the higher ranges of the allocations for all three target activities by 5%. The adopted allocations for the target activities are as follows:

Production technologies	10-25%
Grid integration, storage and metering	50-65%
Business development and deployment	10-20%

Several parties recommend revisions within the target activity areas. We decline to do so. ASPv asserts supporting projects that advance potential roles for utilities and utility business models under the Business Development and Deployment priority "… is inconsistent with the purpose of the CSI and inappropriate use of RD&D monies."[19] We disagree. Nothing in the CSI

[18] These projects include energy storage, PV minigrids and transmission and distribution regulation.

[19] ASPv's comments, p. 4.

indicates that it would be inappropriate to leverage the utilities' experience and knowledge with solar technologies to advance the CSI goals.

ASPv recommends adding specific examples to the Production Technologies and the Grid Integration priority target activities. It encourages the Commission to support the application of "solar secure" in schools and public buildings to address extended grid outages caused by disasters. We decline to adopt these recommendations because these specific examples fall within the Adopted RD&D plan. We do not need to list every example that may qualify under our plan, but we acknowledge ASPv's suggestion is not precluded. Nonetheless, the goal of our RD&D program is to support as many innovative ideas and technologies as possible that would provide value to the CSI and the California solar industry.

SDG&E recommends including energy storage and solar thermal technologies as additional RD&D target areas. Energy storage technologies are explicitly mentioned in the Proposed RD&D Plan as being one of the priority topic areas for the CSI RD&D within the larger Grid Integration target activity. The focus of the CSI's RD&D funds in the early rounds of solicitation will be primarily on PV technologies, but nothing prevents other technologies, such as thermal technologies, from applying.

3.2.3. Allocation of Funds to Program Administration and Evaluation

The Proposed RD&D Plan proposes 15-20% of the total RD&D budget be reserved for administration and evaluation of the program (pro-rated for the duration of the Program). Several parties argue that the proposed allocation is too high and a lower percentage for administrative costs should be adopted. They also recommend a budgetary review to determine if the allocation is

reasonable. SDG&E recommends a 15% cap with an annual review to determine if the 15% is adequate or can be reduced even further.[20] CCSE also suggests an annual review of the administrative expenditure to determine if the percent allocation for administration is reasonable.[21] CCSE also suggests we adopt an administrative structure with incentives to encourage efficient operation of the program regardless of the level of the cap.[22]

D.06-12-033 established that the administrative costs for RD&D program should be incorporated into the total RD&D budget.[23] We agree with the parties that the administrative cost of the program should be kept to a minimum so that a higher portion of the program's budget could be preserved for funding RD&D projects. We also believe that the administrative costs should be such that ratepayers are not exposed to unreasonable costs. Thus, we cap the total administrative costs of the program at 15% of the total RD&D budget. These administrative costs include the Program Manager's costs, the Program Evaluator's costs, the costs of performing all evaluations, the IOUs' cost of accounting (including entering into the co-funding agreement, contracting with

---

[20] SDG&E's Reply Comments, p. 1.

[21] CCSE's Comments, p. 3.

[22] CCSE's Comments, p. 3.

[23] D.06-12-033, Footnote 15 states:

"The administration budget of $189.71 is based on 10% of the budget for mainstream solar incentives, and does not include administrative costs for low income programs, RD&D, and the SDREO Pilot. Administrative costs for those programs shall be incorporated into their total budgets, which shall not exceed the figures in this table."

the RD&D Program Manager and issuing payments to individual RD&D grantees) and all other costs that either the CSI Program Administrators (PAs) or the IOUs may incur as a result of implementing this RD&D program. We order an annual review by the Energy Division to determine if the administrative costs can be further reduced and require any unspent administrative funds to be returned to the RD&D grantmaking budget for further allocation to RD&D projects. We also require the Program Manager and the Energy Division to ensure adequate funds are available for the triennial program evaluation and direct them to reserve up to 3% of the CSI RD&D budget for that purpose. As described later under the Program Manager's functions, the Program Manager will assist the Energy Division in the review of all RD&D program costs.

We do not adopt an incentive mechanism for program administration at this time. The above requirements, namely the cap on administrative expenditures and the annual review of the cap, along with the annual performance review of the program and the Program Manager should provide sufficient incentive to influence the RD&D Program Manager to perform well. Imposing an incentive mechanism could result in considerable complexity and higher administrative costs with no added value.

Table 1 below summarizes the RD&D budget allocations:

Table 1

RD&D BUDGET ALLOCATION GUIDELINES OVER THE LIFE OF THE CSI RD&D PROGRAM

	Allocation Guidelines	Budget Amount in million
Program Administration & Evaluation	15%	$7.5
Program Manager and associated IOU/PA cost of accounting	12%	$6
Reserved for program evaluation	3%	$1.5
Various Stages of RD&D:		
Research – Helios	20%	$10
Development	5% - 10%	$ 2.5 - $ 5
Demonstration	45% - 55%	$22.5 - $27.5
Deployment	5% - 10%	$ 2.5 - $ 5
Total RD&D Budget		**$50**
Target Activities within RD&D Stages:		
Production Technologies	10% - 25%	$5 $12.5
Grid Integration	50% - 65%	$25 - $32.5
Business development and deployment	10% - 20%	$5 - $10
Risks and Results Timeframes		
Project results in 8+ year horizon	20%	$10
Project results in 4-7 year horizon	20%	$10
Project results in 1-3 year horizon	60%	$30

3.3. RD&D Program Administration

3.3.1. Structure of RD&D Program Administration

The CSI RD&D program will have an RD&D Program Manager and an RD&D Program Evaluator to assist the Energy Division with the administration and evaluation of the entire program. The Energy Division will select the RD&D Program Manager and the RD&D Program Evaluator through an IOU's Request for Proposal (RFP) process and will seek final approval from the Commission through a resolution of the Energy Division's Program Manager's selection. The

Energy Division direct one of the IOUs to enter into contracts with the RD&D Program Manager and Program Evaluator and renew or extend the RFP as appropriate. The Energy Division will direct the Program Manager and the Program Evaluator throughout the life of the RD&D program. The selected IOU will also enter into a co-funding agreement with the other IOUs for the purpose of making all the necessary payments under the RD&D program from the RD&D funds. The co-funding agreement will govern all financial transactions among the IOUs on the RD&D program based on the Program budget described in D.06-12-033. The roles and responsibilities of the RD&D Program Manager and the RD&D Program Evaluator are described in the following sections.

3.3.2. RD&D Program Manager - Functions, Qualifications, and Selection Process

RD&D is a complex and specialized field and requires specialized staff to manage the day-to-day activities of the program. In order to establish an RD&D program and evaluate the individual proposals for RD&D grants, the Energy Division will select an RD&D Program Manager to perform the necessary functions of an administrator, and work with the Energy Division on all aspects of the program, from project solicitation and evaluation, to funding recommendation, report preparation and periodic evaluation of the projects and program costs. The Commission will make the final decision on the selection of the Program Manager and program funding and maintain oversight of the entire program. Assigning one Program Manager to administer the entire program is consistent with SB 1 and promotes efficiency in coordinating statewide projects

and funds.[24] The specific tasks and the desired qualifications of the RD&D Program Manager are discussed below and listed in Appendix A.

Carrying out the RD&D Program Manager's functions requires expertise in diverse engineering, technical areas as well as expertise in business development, financing, accounting, and legal matters related to grants and contracting. The Program Manager must have experience with successful delivery of similar programs and have highly qualified staff with knowledge and experience in the above areas. In order to perform its duties of administering the RD&D program with an appropriate level of staffing and as effectively and efficiently as possible, the Program Manager, with approval from the Energy Division, will hire or contract with additional specialists to supplement its personnel as needed.

Because one of the functions of the RD&D Program Manager would be to recommend projects for funding, it would be improper for the Program Manager to be affiliated with potential grantees. Thus to avoid any conflict, we require the RD&D Program Manager to be an entity with no affiliation with any potential grantees. Entities that might apply for the RD&D grants can respond to the Program Manager RFP. However, if selected, they are prohibited from applying for RD&D grants under this program. Although UC Berkeley and LBNL have been designated as grant recipients for the Helios, we do not believe

---

[24] Pub. Util. Code § 2851(c)(1) as enacted by SB 1 states:

"Any program that allocates additional moneys to research, development, and demonstration shall be developed in collaboration with the Energy Commission to ensure there is no duplication of efforts, and adopted by the Commission through a rulemaking or other appropriate public proceeding. Any grant

Footnote continued on next page

this fact should render them ineligible to be Program Manager. Provided they do not apply for additional grants, we believe the potential for conflict should not necessarily disqualify them. However, if they wish to become RD&D Program Manager, they should propose procedures that would permit them to dispense their duties as the RD&D Program Manager impartially. If selected, they, as all potential Program Manager candidates, would be prohibited from applying for RD&D grants under this program.

The Energy Division, in consultation with the IOUs and the CSI PAs as necessary, will develop and issue for comment, to the parties to this proceeding, a draft RFP for the RD&D Program Manager consistent with the above selection criteria and requirements. The Energy Division will consider the comments, revise the RFP as necessary, and direct one of the IOUs to issue the final RFP. The selected IOU shall issue the RFP within three months after the Energy Division has directed it to do so.

The Energy Division will review the proposals to the RFP and will select an RD&D Program Manager. The Energy Division shall seek final approval of its selection from the Commission through a resolution. As mentioned above, the selected IOU will contract with the RD&D Program Manager.

3.4. Guidelines for Project Solicitation, Selection, Funding, and Evaluation

To encourage greater participation in our program, the Adopted CSI RD&D Plan provides transparent, fair, reasonable, and flexible rules and process for project solicitation, selection, and funding.

---

awarded by the Commission for research, development, and demonstration shall be approved by the full commission at a public meeting."

3.4.1. Project Solicitation

RD&D grants will be made in several groups with each group offering multiple RFPs. The early groups will focus on PV projects. The RD&D Program Manager, under the direction of the Energy Division, will prepare and issue each draft project solicitation RFP according to the guidelines adopted in this order. The draft RFP will be published for comments. After reviewing the comments, the Energy Division will direct the Program Manager to make necessary changes and issue a final RFP. After the issuance of the final RFP, and prior to the solicitation deadline, the Program Manager will hold workshops or conference calls to provide information about the RFP and will subsequently accept proposals for receiving RD&D grants.

3.4.2. Project Selection

Staff proposes general guidelines and specific criteria for project solicitation, evaluation and selection.

We direct the RD&D Program Manager and the Energy Division to solicit projects in two or three cycles to allow a diverse set of proposals with various project risks and timeframes to be considered for funding. Proposals with PV focus will be given priority in the early rounds of solicitation to accelerate the development of solar PV technologies that could contribute to the achievement of the CSI goals. To the extent possible, priority will also be given to projects that are based in California or have a focus on California-specific issues in order to gain the most advantage for California ratepayers. In general, projects with a greater chance of success will receive a higher priority. To allow a larger portfolio of projects to receive RD&D funds, we limit the initial size of any individual grant to $3 million. We may also fund only a specific stage of a given project. Additionally, we anticipate project cost-sharing at various stages of

project development to encourage more efficient use of the funds as individual projects get closer to the market and end users. In general, funding for projects that are closer to commercialization should rely increasingly on support from the private sector and consider market needs as their product becomes more technically advanced. Specific cost-sharing requirements will be according to the Adopted CSI RD&D Plan and on a per-RFP basis. As a general matter, the extent to which project proposals leverage funding from sources other than the CSI will affect their priority, whether those sources are private sector entities or involve other organizations that support solar RD&D efforts. For example, projects with multi-investors or projects with higher than the minimum requirement cost sharing will be given priority. The CSI RD&D program will give priority to projects that promote collaboration between the Commission and other solar RD&D organizations.

Edison suggests we apply even more defined and prioritized criteria so that all projects can be numerically ranked. We decline to adopt Edison's proposal. In the interest of assisting the state to meet its RD&D goals, we intend to support as many eligible projects that could advance that goal as possible. While we believe some general guidelines are necessary for project selection, we do not believe the entire selection process should be strictly based on the adopted criteria alone. It is possible that an RD&D proposal may achieve the CSI goals without fully meeting all of the adopted criteria. Relying on the adopted criteria alone for project selection would eliminate such a project from being considered for RD&D funding. To assure that our adopted criteria do not limit the scope of the proposals or potentially eliminate worthwhile projects from being considered in our RD&D portfolio, and to increase the likelihood of receiving a greater variety of innovative proposals, we provide the selection

criteria to the RD&D Program Manager and the Energy Division only as general guidance and allow flexibility in negotiating the details during the solicitation process or at a later time as issues arise.

Upon review of the submitted proposals, the RD&D Program Manager will submit a report to the Energy Division with a recommend list of eligible projects for RD&D grants by Advice Letter process. The Program Manager shall give any requested information to Energy Division upon request. The Energy Division will review the RD&D Program Manager's recommendation and prepare a resolution for Commission consideration. The Commission will consider the Energy Division's resolution and select the final projects for RD&D grants.

3.4.3. Project Funding

Upon Commission approval of the RD&D grants to individual projects, the RD&D Program Manager will enter into Grant Agreements with the approved projects. However, as mentioned above, the Energy Division will direct one of the IOUs to enter into a co-funding agreement with the other IOUs, and make grant payments to the individual grantees in accordance with the co-funding agreement. This is strictly a ministerial function for the selected IOU and does not require the selected IOU to enter into contracts with the grant recipients. As such the selected IOU will not have access to the projects' records.

Appendix B shows a diagram of the above functions.

3.4.4. Project Evaluation

Staff recommends ongoing project evaluation for assessing individual grant's achievements. We adopt the staff's recommendation for ongoing project oversight. An ongoing evaluation is necessary to ensure that the RD&D funds are spent reasonably. As suggested by the staff, the ongoing oversight will be

part of the project management process carried out by the RD&D Program Manager and the Energy Division, and will consist of monitoring each individual grant's progress according to the contractual scope, milestones and the deliverable schedules for each grant. In assessing the individual grant's achievements, the project evaluation should focus on the principles, guidelines, and criteria for grant-making discussed above.

The Energy Division will coordinate its evaluation with other agencies or Commission programs as necessary. In addition, project evaluation will use as a model the Commission evaluation protocols established for the IOU energy efficiency programs in 2006-2008 funding cycle and modified as necessary to make them applicable to the CSI RD&D.[25]

3.5. Stakeholder Process

We believe a stakeholder process will ensure a more successful RD&D program. Therefore, we adopt staff's recommendation to receive input from the stakeholders, the CSI PAs, the IOUs, and the public on the RD&D program in the following areas:

> The RFP process for selecting the RD&D Program Manager, the RD&D Program Evaluator, and the individual projects solicitation.
>
> Semi-annual public workshops of joint Commission and CEC staff. The purpose of these workshops will be to provide a forum for dialogue among the RD&D Program Manager, the Energy Division, and the CEC to examine where program coordination may be beneficial. The Energy Division may invite selected RD&D entities

[25] http://www.cpuc.ca.gov/static/energy/electric/energy+efficiency/ee+policy/evaluatorsprotocols_final_adoptedviaruling_06-19-2006.doc

with RD&D programs and activities to these meetings as well to explore related RD&D strategies.

The development of the RD&D Program Evaluation Plan and the program evaluation as described in section 3.6 below.

3.6. RD&D Program Evaluation

Staff recommends that an independent evaluator conduct triennial evaluations of the entire program to assess the RD&D program's overall performance and recommend adjustments according to the specific evaluation criteria.

We adopt the staff's recommendation, including the evaluation criteria, for a triennial evaluation process. As suggested by the staff, the triennial reviews will provide an independent review of the entire program and the need for program adjustments. We also require the RD&D Program Manager's performance be reviewed as part of the triennial evaluation process. The RD&D program evaluation will use as a model the Commission evaluation protocols established for the IOU energy efficiency programs in 2006-2008 funding cycle and modified as necessary to make them applicable to the CSI RD&D.

Prior to the issuance of the first RFP for project solicitation, the RD&D Program Manager and the Energy Division should develop a comprehensive Program Evaluation Plan and seek comments from the parties to this proceeding before finalizing the evaluation plan. This plan should include evaluation protocols and recommendations on how the Program Evaluator will involve the stakeholders in the evaluation process and formally report its findings to the Commission.

We direct the Energy Division to select a program evaluator to assess both the Program Manager's performance as well as the RD&D program's progress. The Energy Division, in consultation with the IOUs and the CSI PAs as

necessary, will develop and issue for comment, to the parties to this proceeding, a draft RFP for the RD&D Program Evaluator according to the above selection criteria and requirements. The Energy Division will consider the comments, revise the RFP as necessary, and direct one of the IOUs to issue the final RFP. The IOU shall issue the RFP within three months after the Energy Division has directed it to do so. The Energy Division will review the proposals to the RFP and will select the RD&D Program Evaluator. As mentioned above, the Energy Division will direct the selected IOU to contract with the Program Evaluator and renew or extend the RFP as appropriate.

3.7. Intellectual Property Rights and Confidentiality of Information

Staff proposes we apply the same treatment granted to protect Intellectual Property (IP) rights and confidentiality of Information under the CEC's PIER program to the CSI RD&D projects. Edison suggests we postpone this issue until the scope of a research project is defined.[26]

We agree that various projects might require different treatment of IP and confidential information based on the scope of the research and the specifics of the project. Nevertheless, it is reasonable to apply some general rules to all projects at the outset to ensure fairness and consistency among projects and to decrease the likelihood of duplicative work that could be generated if a case by case review was always required. Accordingly, we adopt the IP rights as proposed in the Proposed RD&D Plan. We give the RD&D Program Manager the flexibility to propose revisions to our general rules as necessary and to tailor

[26] Edison's comments, p. 5.

the adopted guidelines to individual projects. The Energy Division will review and approve any recommended general changes to the general rules and incorporate them into the final proposal RFP.

4. Comments on Proposed Decision

The proposed decision of the Commissioner in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and Rule 14.3 of the Commission's Rules of Practice and Procedure.

Comments were filed by PG&E, SDG&E, Edison, The Greenlining Institute (Greenlining), Infinia Corporation, and The Solar Alliance[27] to the proposed decision on August 27, 2007 and replies were filed by SDG&E, Edison, and Greenlining. We make no substantive changes to the proposed decision in response to the comments but make minor changes to improve the discussion and correct typographical errors.

Greenlining has not participated in this portion of the proceeding during the comment period, and for the first time has raised new issues related to low-income communities in its comments to the proposed decision. It is not appropriate to make new proposals for the first time in the comments to the proposed decision. Moreover, the CSI program has committed to set aside 10% of the overall CSI funds for low-income customers and affordable housing projects and the Commission is reviewing CSI related issues for low-income communities in a separate track in this proceeding. Nothing in this decision precludes projects that may be suitable for low-income communities from applying for RD&D grants.

[27] The Solar Alliance is a new organization formed from the combination of PV Now and ASPv.

5. Assignment of Proceeding

President Michael Peevey is the assigned Commissioner and Maryam Ebke is the assigned ALJ to this portion of the proceeding.

Findings of Fact

1. The principles and objectives in the Proposed RD&D Plan and the two additional principles will help advance the CSI goals.
2. Private investors generally do not fund demonstration projects.
3. Research, development and deployment usually receive private and government funding.
4. Helios will focus on developing low-cost solar PV by exploring ways to increase the power efficiency of materials already used in solar cells.
5. Helios will have a strong potential to benefit ratepayers.
6. It is in the public interest to grant $10 million from the funds allocated to the research stage toward the construction of the research facility so that Helios can commence its research expeditiously.
7. The allocations of funds to various RD&D stages are reasonable.
8. The proposed target activities and the proposed specific milestones under each target activity are reasonable. The target activities are: production technologies, grid integration, and business development and deployment.
9. Grid integration projects often receive less funding from federal sources or venture capital, because unlike production technologies or business development projects which have a broader application, grid integration projects are specific to California.
10. The allocation percentages to target activities in the Proposed RD&D Plan do not add up to 100%.

11. D.06-12-033 established that the administrative costs of the RD&D program should be incorporated into the total RD&D budget.

12. D.06-12-033 established the IOU funding percentages for the CSI program.

13. It is reasonable to keep the administrative costs of the RD&D program to 15% so that a higher portion of the RD&D funds can be preserved for funding RD&D projects.

14. It is reasonable to reserve up to 3% of the budget for program review.

15. The cap on administrative costs and the performance review of the program and the Program Manager will provide sufficient incentives to the Program Manager to perform well.

16. RD&D is a complex and specialized field and requires specialized staff to manage the day-to-day activities of the program.

17. Because the RD&D Program Manager would recommend projects to receive RD&D grants, it would be improper for the Program Manager to be affiliated with any potential grantees whose proposals the Program Manager would have to evaluate.

18. The functions, qualifications, and selection process for the RD&D Program Manager as set forth in Section 3.3.2 of Appendix A are reasonable.

19. The guidelines for project solicitation, selection, funding, and evaluation as set forth in section 3.4 of Appendix A are reasonable.

20. A stakeholder process by which the stakeholders, the PAs, the IOUs and the public provide input about the RD&D program is appropriate.

21. The triennial evaluation process as set forth in Section 3.6 of Appendix A is reasonable.

22. It is reasonable to apply some general rules to all projects that receive CSI RD&D grants to protect confidentiality of information and intellectual property rights at the outset.

Conclusions of Law

1. The Adopted CSI RD&D (Appendix A) should be adopted.
2. The seven principles and objectives as described in this decision and Appendix A should be adopted.
3. The Adopted CSI RD&D Plan should seek to fill the funding gap for demonstration projects.
4. The CSI RD&D funds allocated to research should be granted to the construction of the Helios research facility so that Helios can commence its research expeditiously.
5. The allocations of funds to various RD&D stages as indicated in Table 1 should be adopted.
6. The allocation percentages for target activities as indicated in Table 1 should be adopted.
7. The target activities and the specific milestones under each target activity as specified in this decision and Appendix A should be adopted.
8. The administration and evaluation costs of the RD&D program should be kept at 15% so that a higher portion of the RD&D funds can be preserved for funding RD&D projects.
9. Up to 3% of the budget should be reserved for RD&D program review.
10. An incentive mechanism for program administration should not be adopted.
11. Unspent administrative funds should be returned to the RD&D grantmaking budget for further allocation to RD&D projects.

12. The RD&D Program Manager should have expertise in diverse engineering, technical, financing, business development, accounting and legal areas.

13. The RD&D Program Manager should not be affiliated with any potential grantees.

14. Entities that might apply for the RD&D grants can respond to the RFP for the RD&D Program Manager. If selected, they are prohibited from applying for RD&D grants under the RD&D program.

15. If UC Berkeley or LBNL wishes to become RD&D Program Manager, each should submit how it can dispense its duties as the RD&D Program Manager impartially.

16. The functions, qualifications, and selection process for the RD&D Program Manager and the RD&D Program Evaluator, as specified in this decision and Appendix A, should be adopted.

17. The guidelines for project solicitation, selection, and funding as specified in Appendix A should be adopted.

18. A stakeholder process by which the stakeholders, the PAs, the IOUs and the public provide input about the RD&D program should be adopted as specified in this decision and Appendix A.

19. A triennial evaluation process as set forth herein should be adopted.

20. The RD&D Program Manager and the Energy Division should develop a comprehensive RD&D program evaluation plan.

21. General rules to protect confidentiality of information and intellectual property rights for all projects should be adopted at the onset.

O R D E R

IT IS ORDERED that:

1. Appendix A is adopted.

2. The Energy Division, through the Energy Division's Director or the Director's designated staff and with the approval of the Commission through a resolution, shall select and direct the RD&D Program Manager according to the procedures, selection criteria and requirements in this decision and as specified in Appendix A.

3. The Energy Division, through the Energy Division's Director or the Director's designated staff, shall select and direct the RD&D Program Evaluator according to the procedures, selection criteria and requirements in this decision and as specified in Appendix A.

4. The Energy Division, through the Energy Division's Director or the Director's designated staff, shall select and direct one IOU to issue final RFPs for Program Manager and Program Evaluator as specified in this decision and Appendix A.

5. The IOU selected by the Energy Division shall issue an RFP for Program Manager within three months after the Energy Division directs it to do so.

6. The IOU selected by the Energy Division shall issue an RFP for Program Evaluator within three months after the Energy Division directs it to do so.

7. The Energy Division, through the Energy Division's Director or the Director's designated staff, shall select and direct one IOU to contract with the RD&D Program Manager and the RD&D Program Evaluator selected by the Energy Division.

8. The Energy Division, through the Energy Division's Director or the Director's designated staff, shall select and direct one IOU to enter into a

co-funding agreement with the other IOUs within one month after it being selected by the Energy Division, and as set forth in this decision and Appendix A.

9. The RD&D Program Manager shall solicit and recommend projects for RD&D grants according to the requirements in this decision and as specified in Appendix A.

10. Upon Commission approval of RD&D projects, the RD&D Program Manager shall enter into Grant Agreements with the individual projects as specified in this decision and Appendix A.

11. The Energy Division, through the Energy Division's Director or the Director's designated staff, and the RD&D Program Manager shall develop a comprehensive RD&D Program Evaluation Plan as specified in this decision and Appendix A.

12. The Energy Division, through the Energy Division's Director or the Director's designated staff, shall conduct an annual review to determine if the administrative costs can be further reduced.

13. Unspent administrative funds shall be returned to the RD&D grantmaking budget for further allocation to RD&D projects.

14. The RD&D Program Evaluator shall perform triennial evaluation as specified in this decision and Appendix A.

This order is effective today.

Dated September 20, 2007, at San Francisco, California.

MICHAEL R. PEEVEY
President
DIAN M. GRUENEICH
JOHN A. BOHN
RACHELLE B. CHONG
TIMOTHY ALAN SIMON
Commissioners

I will file a concurrence

/s/ JOHN A. BOHN
Commissioner

I reserve the right to file a concurrence

/s/ DIAN M. GRUENEICH
Commissioner

Concurring Opinion of Commissioners Bohn and Grueneich on Helios Grant

While we concur with the decision in this matter, and applaud the goals sought to be achieved thereby, we are concerned at the very limited inquiry that forms the basis for this decision. Notwithstanding the fact that this is a "grant" as distinguished from a contract and, therefore, does not require competitive bidding,[1] this Commission must nonetheless be mindful that we are committing ratepayer funds, not our own or those of the general taxpayer. Thus, care should be taken to assure ourselves that the money is to be spent in the most cost effective manner and for the benefit of the ratepayer.

In the process of considering most grant applications that the Commission evaluates there is some type of review of alternatives or options. Usually, a sole solicitation is favored by this Commission only when there is a single qualified applicant, an existing contract which may be amended to yield economies of scale and/or administration, or there is an urgent need to expedite the grant process. There may be other extenuating circumstances such as pre-eminent qualifications or a short window of opportunity within which the Commission must act. None of these justifications for sole solicitation are present with respect to the Helios grant.

The record is sparse as to any overpowering reason why this project to "…finance the construction of Helios…" is necessarily the best or most cost effective place to invest $10 million in order to address the

[1] Since this is a grant, and not a contract, it is not subject to state contracting rules relating to sole source procurement. Under SB 1, Pub. Util. Code § 2851(c)(1) does not address how we are to conduct the grant making process. The only legal requirement under Pub. Util. Code § 2851(c)(1) is that any grant awarded by the Commission for RD&D shall be approved by the full Commission at a public meeting. Thus the statute gives the Commission discretion on how to implement this section of the statute.

development needs faced by new technologies. While the recipients are clearly qualified to undertake a project such as this, it is a stretch to conclude that this is the only such opportunity, or why "construction" of a new facility is the best use of the funds. Surely there are existing facilities that could be made available in order to "… support projects that are needed to develop the solar technologies [that] have a statewide magnitude of impacts, and have a reasonable chance of success in improving the economics of solar technology."

Finally, "[g]iven that the Helios Project has received significant state and private funding, and is well staffed and equipped to research and develop low-cost solar production technologies…" it would seem at least reasonable to explore whether such a commitment as is made here could not be at least as well spent in another endeavor. Unfortunately, we did not evaluate whether other entities might be better suited to be beneficiaries of a portion or all of the $10 million Helios grant. We believe this oversight does a disservice to the entrepreneurial spirit that is so prevalent in the solar technology sector.

/s/ JOHN A. BOHN	/s/ DIAN M. GRUENEICH
John A. Bohn	Dian M. Grueneich
Commissioner	Commissioner