

**Exhibit A  
SCOPE OF WORK**

**TECHNICAL TASK LIST**

<b>Task #</b>	<b>CPR</b>	<b>Task Name</b>
1	N/A	Administration
2		Scaled Deployment Of Pier Technologies
3		Field Tests, Demonstrations, And Special Technology Transfer Projects
4		Information Dissemination And General Technology Transfer

**KEY NAME LIST**

<b>Task #</b>	<b>Key Personnel</b>	<b>Key Subcontractor(s)</b>	<b>Key Partner(s)</b>
1	Karl Brown, California Institute for Energy and Environment (CIEE), Kostas Papamichael, University of California, Davis (UCD), Mark Modera, UCD		
2	Karl Brown, CIEE, Kostas Papamichael, UCD, Mark Modera, UCD		University of California (UC), California State University (CSU), and California Community College (CCC) Campuses
3	Karl Brown, CIEE, Kostas Papamichael, UCD, Mark Modera, UCD		UC, CSU, and CCC Campuses
4	Karl Brown, CIEE, Kostas Papamichael, UCD, Mark Modera, UCD		UC, CSU, and CCC Campuses

## GLOSSARY

*Specific terms and acronyms used throughout this work statement are defined as follows:*

<b>Acronym</b>	<b>Definition</b>
CAHES	California Higher Education Sustainability
CCC	California Community College
CLTC	California Lighting Technology Center
CPR	Critical Project Review
CPUC	California Public Utilities Commission
CSU	California State University
Energy Commission	California Energy Commission
GIS	Geographical Information Systems
IOU	Investor Owned Utilities
PAC	Project Advisory Committee
PIER	Public Interest Energy Research
R&D	Research and Development
RD&D	Research Development and Demonstration
SPEED	State Partnership for Energy Efficient Demonstrations
UC	University of California
WCEC	Western Cooling Efficiency Center
ZNE	Zero Net Energy

## Problem Statement

The Public Interest Energy Research (PIER) Program has conducted substantial Research and Development (R&D) to develop technology and practices to improve the efficiency of end-use energy systems such as those found on higher education campuses. Data centers and laboratory-type spaces are adding to traditional building energy loads. Before new energy technologies and practices can become cost-effective and widely accepted, products need to achieve economies of scale and be demonstrated and proven in real-world circumstances. Small firms and entrepreneurs have a difficult time getting noticed by institutional users who could specify their products and services. Well-studied large-scale installations are needed to understand cost-effectiveness and market acceptance. Funding for new construction, renovation, or retrofit projects is extremely limited. Newer technologies are perceived as presenting increased risks, including project budget risks. Creative approaches to facilitating scaled deployment are needed.

Many cost-effective, commercially available PIER technologies with proven efficacy have been demonstrated through the State Partnership for Energy Efficient Demonstrations (SPEED) program since the program began in 2004. These technologies are primed for wide scale deployment but need continued outreach effort to manifest this deployment. Scaled deployment refers to implementation and

installation of PIER-developed and other emerging technologies campus-wide, throughout multiple campuses or in multiple buildings.

## **Goals of the Agreement**

The goals of this Agreement are to:

- Accelerate the adoption of advanced end-use energy technologies and practices.
- Provide real-world feedback on PIER-developed technologies.
- Develop and participate in partnerships with utilities (e.g., those associated with the California Public Utility Commission (CPUC)) energy efficiency programs).
- Accelerate the trajectory toward zero net energy (ZNE) buildings and other goals of the Integrated Energy Policy Report and the California Energy Efficiency Strategic Plan through implementation of deep efficiency projects utilizing new or emerging technologies.
- Initiate scaled demonstrations and document successful methods for scaled deployment of proven PIER energy efficiency technologies.

## **Objectives of the Agreement**

The objectives of this Agreement are to:

- Demonstrate PIER technologies, applications knowledge, and information tools in strategic venues to the building design, operations, and maintenance professions—communicating program results through web-based and selected other information resources.
- Plan and coordinate PIER technology demonstrations and scaled deployments to meet the energy utility and customer, focusing on comprehensive deep efficiency retrofits and addressing new construction applications when possible.
- Provide cost and performance analysis of PIER technology in comparison with conventional equipment and make this information available in an easy-to-use resource to facilitate decisions by potential users. This includes documentation of ratepayer benefits (such as life cycle analysis of energy and cost savings, maintenance savings and costs) when compared to conventional equipment/ systems.
- Assess maintenance, replacement, renovation and new construction opportunities in consideration of customer cost and performance requirements, and develop business-case proposals for PIER product applications.
- Explore leveraging funding opportunities from other sources to help develop attractive customer business cases—such as Investor-Owned Utility (IOU) Partnership programs, utility rebates and incentive programs, applicable loan or bond financing opportunities, and federal grants.
- Develop and publish pre- and post-case technology fact sheets that describe the technology, measured performance, energy use and cost information (cost benefit analysis), and document occupant satisfaction.
- Inform Commission Contract and Project Managers about development and assessment of possible and actual projects at key project stages.

## **TASK 1.0 ADMINISTRATION**

### **MEETINGS**

#### **Task 1.1 Attend Kick-off Meeting**

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement.

#### **The Contractor shall:**

- Attend a “kick-off” meeting with the Commission Contract Manager, the Contracts Officer, and a representative of the Accounting Office. The Contractor shall bring their Project Manager, Contracts Administrator, Accounting Officer, and others designated by the Commission Contract Manager to this meeting. The administrative and technical aspects of this Agreement will be discussed at the meeting. Prior to the kick-off meeting, the Commission Contract Manager will provide an agenda to all potential meeting participants.

The administrative portion of the meeting shall include, but not be limited to, the following:

- Terms and conditions of the Agreement
- CPRs (Task 1.2)
- Match fund documentation (Task 1.7)
- Permit documentation (Task 1.8)

The technical portion of the meeting shall include, but not be limited to, the following:

- The Commission Contract Manager’s expectations for accomplishing tasks described in the Scope of Work;
- An updated Schedule of Deliverables
- Progress Reports (Task 1.4)
- Technical Deliverables (Task 1.5)
- Final Report (Task 1.6)

The Commission Contract Manager shall designate the date and location of this meeting.

#### **Contractor Deliverables:**

- An Updated Schedule of Deliverables
- An Updated List of Match Funds
- An Updated List of Permits

#### **Commission Contract Manager Deliverables:**

- Final Report Instructions

## **Task 1.2 CPR Meetings**

The goal of this task is to determine if the project should continue to receive Energy Commission funding to complete this Agreement and if it should, are there any modifications that need to be made to the tasks, deliverables, schedule or budget.

CPRs provide the opportunity for frank discussions between the Energy Commission and the Contractor. CPRs generally take place at key, predetermined points in the Agreement, as determined by the Commission Contract Manager and as shown in the Technical Task List above and in the Schedule of Deliverables. However, the Commission Contract Manager may schedule additional CPRs as necessary, and, if necessary, the budget will be reallocated to cover the additional costs borne by the Contractor, but the overall contract amount will not increase.

Participants include the Commission Contract Manager and the Contractor, and may include the Commission Contracts Officer, the PIER Program Team Lead, other Energy Commission staff and Management as well as other individuals selected by the Commission Contract Manager to provide support to the Energy Commission.

### **The Commission Contract Manager shall:**

- Determine the location, date and time of each CPR meeting with the Contractor. These meetings generally take place at the Energy Commission, but they may take place at another location.
- Send the Contractor the agenda and a list of expected participants in advance of each CPR. If applicable, the agenda shall include a discussion on both match funding and permits.
- Conduct and make a record of each CPR meeting. One of the outcomes of this meeting will be a schedule for providing the written determination described below.
- Determine whether to continue the project, and if continuing, whether or not to modify the tasks, schedule, deliverables and budget for the remainder of the Agreement, including not proceeding with one or more tasks. If the Commission Contract Manager concludes that the project needs a formal amendment or that satisfactory progress is not being made and the project needs to be ended, these conclusions will be referred to the Commission's Research, Development and Demonstration Policy Committee for its concurrence.
- Provide the Contractor with a written determination in accordance with the schedule. The written response may include a requirement for the Contractor to revise one or more deliverable(s) that were included in the CPR.

### **The Contractor shall:**

- Prepare a CPR Report for each CPR that discusses the progress of the Agreement toward achieving its goals and objectives. This report shall include recommendations and conclusions regarding continued work of the projects. This report shall be submitted along with any other deliverables identified in this Scope of Work. Submit these documents to the Commission Contract Manager and any other designated reviewers at least 15 working days in advance of each CPR meeting.
- Present the required information at each CPR meeting and participate in a discussion about the Agreement.

**Contractor Deliverables:**

- CPR Report(s)
- CPR deliverables identified in the Scope of Work

**Commission Contract Manager Deliverables:**

- Agenda and a List of Expected Participants
- Schedule for Written Determination
- Written Determination

**Task 1.3 Final Meeting**

The goal of this task is to closeout this Agreement.

**The Contractor shall:**

- Meet with the Energy Commission to present the findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement.

This meeting will be attended by, at a minimum, the Contractor, the Commission Contracts Officer, and the Commission Contract Manager. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the Commission Contract Manager.

The technical portion of the meeting shall present findings, conclusions, and recommended next steps (if any) for the Agreement. The Commission Contract Manager will determine the appropriate meeting participants.

The administrative portion of the meeting shall be a discussion with the Commission Contract Manager and the Contracts Officer about the following Agreement closeout items:

- What to do with any state-owned equipment (Options)
- Need to file UCC.1 form re: Energy Commission's interest in patented technology
- Energy Commission's request for specific "generated" data (not already

- provided in Agreement deliverables)
- Need to document Contractor's disclosure of "subject inventions" developed under the Agreement
- "Surviving" Agreement provisions, such as repayment provisions and confidential deliverables
- Final invoicing and release of retention
- 
- Prepare a schedule for completing the closeout activities for this Agreement.

**Deliverables:**

- Written documentation of meeting agreements and all pertinent information
- Schedule for completing closeout activities

**REPORTING**

**See Exhibit D, Reports/Deliverables/Records.**

**Task 1.4 Quarterly Progress Reports**

The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the research objectives of this Agreement.

**The Contractor shall:**

- Prepare progress reports which summarize all Agreement activities conducted by the Contractor for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due to the Commission Contract Manager within 10 working days after the end of the reporting period. Unless amended by the Commission Contract Manager, Exhibit A, Attachment A-2, Progress Report Format, provides the minimum information requirements and detailed project information..

**Deliverables:**

- Quarterly Progress Reports with Exhibit A, Attachment A-2

**Task 1.5 Test Plans, Technical Reports and Interim Deliverables**

The goal of this task is to set forth the general requirements for submitting test plans, technical reports and other interim deliverables, unless described differently in the Technical Tasks. When creating these deliverables, the Contractor shall use and follow, unless otherwise instructed in writing by the Commission Contract Manager, the latest version of the PIER Style Manual published on the Energy Commission's web site:

<http://www.energy.ca.gov/contracts/pier/contractors/index.html>

**The Contractor shall:**

- Unless otherwise directed in this Scope of Work, submit a draft of each deliverable listed in the Technical Tasks to the Commission Contract Manager for review and comment in accordance with the approved Schedule of Deliverables. The Commission Contract Manager will provide written comments back to the Contractor on the draft deliverable within 10 working days of receipt. Once agreement has been reached on the draft, the Contractor shall submit the final deliverable to the Commission Contract Manager. The Commission Contract Manager shall provide written approval of the final deliverable within 5 working days of receipt. Key elements from this deliverable shall be included in the Final Report for this project.

### **Task 1.6 Final Report**

The goal of this task is to prepare a comprehensive written Final Report that describes the original purpose, approach, results and conclusions of the work done under this Agreement. The Commission Contract Manager will review and approve the Final Report. The Final Report must be completed on or before the termination date of the Agreement. When creating these deliverables, the Contractor shall use and follow, unless otherwise instructed in writing by the Commission Contract Manager, the latest version of the PIER Style Manual published on the Energy Commission's web site:

<http://www.energy.ca.gov/contracts/pier/contractors/index.html>

The Final Report shall be a public document. If the Contractor has obtained confidential status from the Energy Commission and will be preparing a confidential version of the Final Report as well, the Contractor shall perform the following subtasks for both the public and confidential versions of the Final Report.

#### **Task 1.6.1 Final Report Outline**

##### **The Contractor shall:**

- Prepare a draft outline of the Final Report.
- Submit the draft outline of Final Report to the Commission Contract Manager for review and approval. The Commission Contract Manager will provide written comments back to the Contractor on the draft outline within 10 working days of receipt. Once agreement has been reached on the draft, the Contractor shall submit the final outline to the Commission Contract Manager. The Commission Contract Manager shall provide written approval of the final outline within 5 working days of receipt.

##### **Deliverables:**

- Draft Outline of the Final Report
- Final Outline of the Final Report

#### **Task 1.6.2 Final Report**

**The Contractor shall:**

- Prepare the draft Final Report for this Agreement in accordance with the approved outline.
- Submit the draft Final Report to the Commission Contract Manager for review and comment. The Commission Contract Manager will provide written comments within 10 working days of receipt.

Once agreement on the draft Final Report has been reached, the Commission Contract Manager shall forward the electronic version of this report for Energy Commission internal approval. Once the approval is given, the Commission Contract Manager shall provide written approval to the Contractor within 5 working days.

- Submit one bound copy of the Final Report with the final invoice.

**Deliverables:**

- Draft Final Report
- Final Report

**MATCH FUNDS, PERMITS, AND ELECTRONIC FILE FORMAT**

**Task 1.7 Identify and Obtain Matching Funds**

The goal of this task is to ensure that the match funds planned for this Agreement are obtained for and applied to this Agreement during the term of this Agreement.

The costs to obtain and document match fund commitments are not reimbursable through this Agreement. While the PIER budget for this task will be zero dollars, the Contractor may utilize match funds for this task. Match funds shall be spent concurrently or in advance of PIER funds during the term of this Agreement. Match funds must be identified in writing, and the associated commitments obtained before the Contractor can incur any costs for which the Contractor will request reimbursement.

**The Contractor shall:**

- Prepare a letter documenting the match funding committed to this Agreement and submit it to the Commission Contract Manager at least 2 working days prior to the kick-off meeting:
  1. If no match funds were part of the proposal that led to the Energy Commission awarding this Agreement and none have been identified at the time this Agreement starts, then state such in the letter.
  2. If match funds were a part of the proposal that led to the Energy Commission awarding this Agreement, then provide in the letter:

- A list of the match funds that identifies the:
  - Amount of each cash match fund, its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied.
  - Amount of each in-kind contribution, a description, documented market or book value, and its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Contractor shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located.
- A copy of the letter of commitment from an authorized representative of each source of cash match funding or in-kind contributions that these funds or contributions have been secured.
- Discuss match funds and the implications to the Agreement if they are significantly reduced or not obtained as committed, at the kick-off meeting. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide the appropriate information to the Commission Contract Manager if during the course of the Agreement additional match funds are received.
- Notify the Commission Contract Manager within 10 working days if during the course of the Agreement existing match funds are reduced. Reduction in match funds may trigger an additional CPR.

**Deliverables:**

- A letter regarding Match Funds or stating that no Match Funds are provided
- Letter(s) for New Match Funds
- A copy of each Match Fund commitment letter
- Letter that Match Funds were Reduced (if applicable)

**Task 1.8 Identify and Obtain Required Permits**

The goal of this task is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track.

Permit costs and the expenses associated with obtaining permits are reimbursable under this Agreement. Permits must be identified in writing before the Contractor can incur any costs related to the use of the permit(s) for which the Contractor will request reimbursement.

### **The Contractor shall:**

- Prepare a letter documenting the permits required to conduct this Agreement and submit it to the Commission Contract Manager at least 2 working days prior to the kick-off meeting:
  1. If there are no permits required at the start of this Agreement, then state such in the letter.
  2. If it is known at the beginning of the Agreement that permits will be required during the course of the Agreement, provide in the letter:
    - A list of the permits that identifies the:
      - Type of permit
      - Name, address and telephone number of the permitting jurisdictions or lead agencies
    - Schedule the Contractor will follow in applying for and obtaining these permits.
- The list of permits and the schedule for obtaining them will be discussed at the kick-off meeting, and a timetable for submitting the updated list, schedule and the copies of the permits will be developed. The implications to the Agreement if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in the progress reports and will be a topic at CPR meetings.
- If during the course of the Agreement additional permits become necessary, then provide the appropriate information on each permit and an updated schedule to the Commission Contract Manager.
- As permits are obtained, send a copy of each approved permit to the Commission Contract Manager.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the Commission Contract Manager within 5 working days. Either of these events may trigger an additional CPR.

### **Deliverables:**

- A letter documenting the Permits or stating that no Permits are required
- Updated list of Permits as they change during the Term of the Agreement
- Updated schedule for acquiring Permits as it changes during the Term of the Agreement
- A copy of each approved Permit

### **Task 1.9 Electronic File Format**

The goal of this task is to unify the formats of electronic data and documents provided to the Energy Commission as contract deliverables. Another goal is to establish the computer platforms, operating systems and software that will be required to review and approve all software deliverables.

**The Contractor shall:**

- Deliver documents to the Commission Contract Manager in the following formats:
  - Data sets shall be in Microsoft Excel file format.
  - PC-based text documents shall be in MS Word file format.
  - Documents intended for public distribution shall be in PDF file format, with the native file format provided as well.
  - Project management documents shall be in MS Project file format.
- Request exemptions to the electronic file format in writing at least 90 days before the deliverable is submitted.

**Deliverables:**

- A letter requesting exemption from the Electronic File Format (if applicable)

**TECHNICAL TASKS**

The Contractor shall prepare all deliverables in accordance with the requirements in Tasks 1.4 and 1.5. Deliverables not requiring a draft version are indicated by marking “(no draft)” after the deliverable name.

**Task 2 SCALED DEPLOYMENT OF PIER TECHNOLOGIES**

The primary goals of this task are to develop a plan for deployment of PIER developed and proven technologies, implement the plan at California public higher education campuses, and document successful methods for achieving large scale deployment of energy efficiency technology for deep energy savings.

**Subtask 2.1 Plans for Scaled Deployment of PIER Technologies**

The goals of this subtask are to: a) identify and verify the technical and economic viability of selected proven PIER energy efficiency technologies for scaled deployment at campuses, b) identify interested campus organizations, c) engage with utility program managers (e.g., Partnerships), d) plan scaled deployments of proven PIER energy efficiency technology; and e) identify methods for successful replication of PIER technologies in multiple buildings or campus-wide.

**The Contractor shall:**

- Identify a portfolio of proven PIER technologies most likely to achieve successful scaled deployment in the California higher education sector. The Contractor will work with the CCM and additional Energy Commission staff, the California Lighting Technology Center (CLTC), the Western Cooling Efficiency Center (WCEC), other

Principal Investigators, coordinators of the University of California (UC)/California State University (CSU)/Investor Owned Utilities (IOU) and California Community College (CCC)/IOU Energy Efficiency Partnerships, and select representatives of the UC, CSU, and CCC systems in developing the portfolio.

- Perform economic analysis of the selected technologies for installation in the California public higher education sector to verify that technologies will meet the technical and economic criteria of campuses and requirements of potential utility funding programs, including the UC/CSU/IOU and CCC/IOU Partnerships. This economic analysis shall include, but not be limited to:
  - Establishment of economic (e.g., life-cycle cost) models for the selected technologies
  - Preparation of a report on economic viability of select PIER technologies including business-case information useful to campuses in developing projects.
- Present results of economic analysis, models and business case to campus and funding program stakeholders.
- Identify the UC, CSU, and CCC campuses most suitable as venues for scaled demonstration and large scale deployment of proven PIER energy efficiency technology (ies), including but not limited to:
  - Identification of the main campus decision-makers, key supporters of emerging technologies within the campuses and initiatives involved in energy efficiency retrofit decisions on the target campuses and the utility account representatives serving the target campus.
  - Identification of the best communication scenarios for engaging with campus decision-makers, key supporters of emerging technologies, organizations, initiatives, and funding programs to facilitate large scaled deployment.
- Describe an overall approach or process for procuring select PIER technologies chosen for mass deployment through bulk purchasing or other arrangements.
- Provide updated technology transfer materials, as appropriate. These materials include but are not limited to case studies, guide specifications, and other targeted technology transfer materials for selected technologies.
- Develop and update a Plan for Scaled Deployment of PIER Technologies that includes, but is not limited to, all the information described in this section.

**Deliverables:**

- Updated Technology Transfer Materials (no draft)
- Plan for Scaled Deployment of PIER Technologies

**Subtask 2.2 Implement Scaled Deployment of PIER Technologies**

**The Contractor shall:**

- Engage with campus organizations and others identified in Subtask 2.1 and develop a plan to implement scaled deployments of proven PIER energy efficiency technologies, and identify replicable methods for facilitating scaled deployment of

PIER technologies in other market sectors. The plan shall be developed for each host site to include, but not be limited to, information described in the “Contractor Shall” section of this subtask and completion of the site specific active project information in Exhibit A, Attachment A-2 Quarterly Progress Reports.

- Assess the opportunities to leverage resources from the State IOU programs and other programs that can provide financial and technical resources that support the scaled deployment of PIER technologies.
- Implement small scale demonstrations if necessary to verify energy savings and technology feasibility to the host campus in conjunction with Task 3.
- Prepare a Case Studies Report that includes case studies of scaled deployment of PIER technologies and document lessons learned. The report also shall include campus-specific technical and economic analyses (including life cycle economic analysis of all costs and benefits) for the selected PIER technologies that covers opportunities to facilitate group/bulk purchasing opportunities, technical assistance and specifications.
- Prepare a Scaled Deployment Implementation Report that documents the process and assess the effectiveness, potential for replication, and transferability of the various methods employed (also to be included in the Final Report).

**Deliverables:**

- Draft Case Studies Report
- Final Case Studies Report
- Draft Scaled Deployment Implementation Report
- Final Scaled Deployment Implementation Report

**Task 3 FIELD TESTS, DEMONSTRATIONS, AND SPECIAL TECHNOLOGY TRANSFER PROJECTS**

The goals of this task are to: a) field test, demonstrate or prove the potential technical and economic efficacy of PIER energy efficiency technologies and applications at the host site, and b) increase knowledge about the technical and economic feasibility of the new PIER technology through operating experience in field tests and demonstrations, and provide feedback to PIER Research Development and Demonstration (RD&D) and other programs.

**Subtask 3.1 Identify Field Tests, Demonstrations, and Special Technology Transfer Projects**

The goal of this task is to prepare a plan that identifies strategic field tests, demonstration and special technology transfer projects for PIER energy efficiency technologies at California public higher education campuses, and other public facilities. Project host site selection criteria include but are not limited to:

- Need for early demonstration of newer technologies,
- Commitment for post-demonstration scaled deployment of PIER technology(ies),
- Commitment to timely project in a timely fashion,

- Potential to expand the use of PIER technology(ies) to other sites upon successful demonstration,
- Opportunities to leverage resources from utilities and other entities that facilitate large scaled deployment,
- Ability to replicate the project at other facilities and commitment to transferring the knowledge of the project to others,
- High potential for cost effective application including net reduction of energy costs and, energy use and/or peak load energy reductions,
- Potential to provide match funding for the demonstration and the post-demonstration scaled deployment, including the possible use of host site personnel to participate/conduct installation and monitoring,
- Representative nature of the project building, and
- Leadership potential of host organization.

**The Contractor shall:**

- Maintain a list of technologies suitable for field test or demonstration.
- Work with the CLTC, WCEC, and other Principal Investigators, and select representatives of the UC, CSU, and CCC systems and coordinators of the UC/CSU/IOU and CCC/IOU Energy Efficiency Partnerships to identify and prioritize strategic host sites for field tests, demonstrations, and special technology transfer projects for PIER energy efficiency technologies. Selection criteria will be based on those identified in Subtask 3.1, at a minimum.
- Develop and update a Field Test, Demonstration, and Special Technology Transfer Projects Plan that contains recommendations for project host sites and include it in each Quarterly Report.

**Deliverables:**

- Field Test, Demonstration, and Special Technology Transfer Projects Plan

**Subtask 3.2 Implement Field Tests, Demonstrations, and Special Technology Transfer Projects**

The goals of this task are to: a) implement field tests, demonstration or special technology transfer projects for PIER energy efficiency technologies in the California public higher education sector and other selected strategic venues, and b) obtain real world operating experience with newer PIER energy efficiency technologies, for feedback to RD&D efforts and derivative product development.

**The Contractor shall:**

- Conduct the research, development, and demonstration activities as identified in the Field Test, Demonstration, and Special Technology Transfer Projects Plan.
- Prepare plans for field tests, demonstrations, and special technology transfer projects at the host site, to include but not be limited to the following:
  - Implementation of pre-installation data collection including baseline energy use and peak energy demand information.
  - Installation or coordination of installation of PIER technologies

- Implementation of post-installation data collection including pre and post-energy use and other performance information and documentation of energy savings, peak load reduction, and other ratepayer benefits, as appropriate.
- Evaluation of PIER technologies including energy use, Greenhouse Gas Emissions, technical feasibility issues, and economic criteria (life cycle analysis of all costs and benefits, and simple payback).
- Prepare case studies, fact sheets and special technology transfer project reports on subjects including but not limited to energy performance, annual energy and cost savings, and technology cost information.
- Provide feedback to PIER RD&D programs.
- Maintain project records that include the following, at a minimum: 1) information on outreach efforts to potential sites, such as the number, nature and outcome of site visits, 2) preliminary assessments of baseline conditions and potential PIER technologies and results of the criteria used for selection for each site, 3) estimated material and labor costs to implement the demonstrations, 4) estimated savings estimates and payback from installing selected PIER technologies, and 5) post-installation monitoring details. Records for each active demonstration project should include plans and details for post-demonstration work with the host site(s). Active project information shall be included in the Quarterly Progress Report.

**Deliverables:**

- Draft Case Studies, Fact Sheets and Special Technology Transfer Project Reports
- Final Case Studies, Fact Sheets and Special Technology Transfer Project Reports

**Task 4 INFORMATION DISSEMINATION AND GENERAL TECHNOLOGY TRANSFER**

The goal of this task is to develop and disseminate information about PIER technology and practices to the California public higher education sector—with information also available to strategic market sectors. Technology transfer materials may include web-based information resources and Fact Sheets.

**The Contractor shall:**

- Maintain a list of demonstrated technologies suitable for widespread adoption.
- Prepare, develop, and update technology transfer materials based on results of Tasks 2 and 3, including fact sheets that document energy and cost savings and other benefits.
- Provide assistance to private and public sector entities for scaled deployments, field tests, demonstrations and other special technology transfer projects.
- Maintain and expand as appropriate the web content on the website [www.pierpartnershipdemonstrations.org—targeted](http://www.pierpartnershipdemonstrations.org—targeted).
- Provide screen shots of updated web-based information resources.
- Coordinate with statewide deployment programs and activities potentially including: codes and standards development; utility programs including partnerships, third and emerging technology programs, state, local and federal programs; and others.

- Summarize information dissemination and general technology transfer activities in each Quarterly Report.

**Deliverables:**

- Technology Transfer Materials
- Screen Shots (no draft)