

1. Award Number: DE-EE0009444.0001; Attachment 2		2. Program/Project Title: Open Wave-Energy Control System Development Platform	
3. Recipient: Monterey Bay Aquarium Research Institute (MBARI)			
4. Reporting Requirements (see Attached "EERE Reporting Instructions"): I. PROJECT MANAGEMENT REPORTING ☒ A. Research Performance Progress Report (RPPR) (RD&D Projects) ☐ B. Progress Report (Non-RD&D) ☒ C. Financial Report (SF-425) ☒ D. Special Status Report ☒ E. Continuation Application ☐ F. Other (see Special Instructions) II. SCIENTIFIC/TECHNICAL REPORTING ☒ A. Final Scientific/Technical Report ☒ B. Accepted Manuscript of Journal Article ☒ C. Scientific/Technical Conference Paper/Presentation/Proceeding ☒ D. Scientific/Technical Software & Manual ☒ E. Scientific/Technical Dataset ☒ F. Other STI (Dissertation/Thesis, see Special Instructions) III. CLOSEOUT REPORTING ☒ A. Invention Certification (DOE F 2050.11) ☒ B. Final Property Report (SF-428 & SF-428B) ☐ C. Other (see Special Instructions) IV. OTHER REPORTING ☒ A. Intellectual Property Reporting ☒ B. Invention Utilization Report ☐ C. Project Management Plan (PMP) ☒ D. Annual Incurred Cost Proposal ☐ E. DOE For-Profit Compliance Audit ☒ F. Single Audit: States, Locals, Tribal Governments, and Non-Profits ☐ G. Annual Property Inventory (SF-428 & SF-428A) ☒ H. Property Disposition Request/Report (SF-428 & SF-428C) ☒ I. Uniform Commercial Code (UCC) Financing Statements ☒ J. Federal Subaward Reporting System (FSRS) ☒ K. Other (see Special Instructions)	Frequency	Addressees* *See attached "EERE Reporting Instructions" for complete submission instructions.	
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FREQUENCY CODES AND DUE DATES:

A - Within (5) calendar days after the event, or as specified.

F - Final; within 90 calendar days after expiration or termination of the award.

Y - Yearly; within 90 calendar days after the end of the annual reporting period.

S - Semiannually; within 30 days after the end of the reporting period.

Q - Quarterly; within 30 calendar days after the end of the quarterly reporting period.

Y180 - Yearly; within 180 calendar days after the close of the recipient's fiscal year.

O - Other: See instructions for further details.

5. EERE Special Instructions:

OTHER (SEE SPECIAL INSTRUCTIONS)

(1) Additional deliverables outlined in the SOPO.

(2) MHKDR; data; including any modeling outputs, visualizations, schematics, videos, code, software, raw data or other digital assets suitable for public release should be uploaded to DOE Marine and Hydrokinetic Data Repository (<https://mhkdr.openei.org>). For more information, see the MHK Data Repository Training Video online at <https://youtube.com/openei> or access tutorials and frequently asked questions (FAQs) under “Help” at <https://mhkdr.openei.org>.

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EERE Reporting Instructions

Throughout award negotiations and the performance of the project, it is important that you mark Protected Data/Limited Rights Data as described in Appendix A. It is equally important that you not submit Protected Personally Identifiable Information (Protected PII) to EERE. See Appendix A for guidance on Protected PII.

Report Templates Link: <http://energy.gov/eere/funding/eere-funding-application-and-management-forms>

I. Project Management Reporting

A. Research Performance Progress Report (RPPR) (RD&D Projects)

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within 30 calendar days after the end of the quarterly reporting period (January 30, April 30, July 30, October 30)

Every quarter, the prime recipient is required to submit a Research Performance Progress Report for the project – i.e., the entirety of work performed by the prime recipient, subrecipients, and contractors – to EERE. The Research Performance Progress Report must include the following information.

Standard Cover Page Data Elements and Reporting Categories

The standard cover page data elements and components shown below comprise the complete research performance progress report format. Each category in the RPPR is a separate reporting component.

1. Cover Page

- a. Federal Agency and Organization Element to Which Report is Submitted
- b. Federal Grant or Other Identifying Number Assigned by Agency
- c. Project Title
- d. PD/PI Name, Title and Contact Information (e-mail address and phone number)
- e. Name of Submitting Official, Title, and Contact Information (e-mail address and phone number), if other than PD/PI
- f. Submission Date
- g. DUNS Number
- h. Recipient Organization (Name and Address)
- i. Project/Grant Period (Start Date, End Date)
- j. Reporting Period End Date

- k. Report Term or Frequency (annual, semi-annual, quarterly, final, other)
- l. Signature of Submitting Official (electronic signatures (i.e., Adobe Acrobat) are acceptable)

2. Accomplishments:

What was done? What was learned?

The information provided in this section allows the agency to assess whether satisfactory progress has been made during the reporting period. The PI is reminded that the grantee is required to obtain prior written approval from the Contracting Officer whenever there are significant changes in the project or its direction. Requests for prior written approval must be submitted to the Contracting Officer.

a. What are the major goals and objectives of this project?

List the major goals of the project as stated in the approved application or as approved by the agency. Describe the proposed technical approach to obtain those goals. If the application lists milestones/target dates for important activities or phases of the project, identify these dates and show actual completion dates or the percentage of completion.

Generally, the goals will not change from one reporting period to the next. However, if the awarding agency approved changes to the goals during the reporting period, list the revised goals and objectives. Also explain any significant changes in approach or methods from the agency approved application or plan.

b. What was accomplished under these goals?

For this reporting period describe: 1) major activities; 2) specific objectives; 3) significant results or key outcomes, including major findings, developments, or conclusions (both positive and negative); and/or 4) other achievements. Include a discussion of stated goals not met. As the project progresses, the emphasis in reporting in this section should shift from reporting activities to reporting accomplishments.

c. What opportunities for training and professional development has the project provided?

Describe opportunities for training and professional development provided to anyone who worked on the project or anyone who was involved in the activities supported by the project. "Training" activities are those in which individuals with advanced professional skills and experience assist others in attaining greater proficiency. Training activities may include, for example, courses or one-on-one work with a mentor. "Professional development" activities result in increased knowledge or skill in one's area of expertise and may include workshops, conferences, seminars, study groups, and individual study. Include participation in conferences, workshops, and seminars not listed under major activities.

If the project was not intended to provide training and professional development opportunities or there is nothing significant to report during this reporting period, state "Nothing to Report."

d. How have the results been disseminated to communities of interest?

Describe how the results have been disseminated to communities of interest. Include any outreach activities that have been undertaken to reach members of communities who are not usually aware of these research activities, for the purpose of enhancing public understanding and increasing interest in learning and careers in science, technology, and the humanities.

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

e. What do you plan to do during the next reporting period to accomplish the goals and objectives?

Describe briefly what you plan to do during the next reporting period to accomplish the goals and objectives.

If there are no changes to the agency-approved application or plan for this project or if this is the final report, state “Nothing to Report.”

3. Products:

What has the project produced?

Publications are the characteristic product of research. Agencies evaluate what the publications demonstrate about the excellence and significance of the research and the efficacy with which the results are being communicated to colleagues, potential users, and the public, not just the number of publications. Many projects (though not all) develop significant products other than publications. Agencies assess and report both publications and other products to Congress, communities of interest, and the public.

List any products resulting from the project during the reporting period. Examples of products include: publications, conference papers, and presentations; website(s); technologies or techniques; inventions, patent applications, and/or licenses; and other products, such as data or databases, physical collections, audio or video products, software or NetWare, models, educational aids or curricula, instruments or equipment, research material, interventions (e.g., clinical or educational), new business creation or any other public release of information related to the project.

If there is nothing significant to report or if no products were developed during this reporting period, state “Nothing to Report.”

a. Publications, conference papers, and presentations

Report the publication(s) resulting from the work under this award. There is no restriction on the number. However, agencies are most interested in those publications that most reflect the work under this award in the following categories:

Please note: Recipients must use the EERE acknowledgement and legal disclaimer language as described in the Special Terms and Conditions (additional information can be found at the EERE Communications Standards website: <https://www.energy.gov/eere/communicationstandards/eere-branded-publications-developed-third-parties>).

The recipient is also reminded that all data produced under the award should comply with the award’s data management plan (DMP). The DMP provides a plan for making all research data displayed in publications resulting from the proposed work digitally accessible at the time of publication. This

includes data that are displayed in charts, figures, images, etc. In addition, the underlying digital research data used to generate the displayed data should be made as accessible as possible in accordance with the principles stated above. This requirement could be met by including the data as supplementary information to the published article, or through other means. The published article should indicate how these data can be accessed.

i. Accepted Manuscripts of Journal Article . List peer-reviewed articles or papers that have been submitted for publication in scientific, technical, or professional journals. Include any paper submitted for peer-reviewed publication in the periodically published proceedings of a scientific society, a conference, or the like. A publication in the proceedings of a one-time conference, not part of a series, should be reported under “Books or other non-periodical, one-time publications.”

Identify for each publication: Author(s); title; journal; volume: year; page numbers; status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no); legal disclaimer language (yes/no). Also see instructions under **II. Scientific/Technical Reporting** regarding the submission of accepted manuscripts and other STI as appropriate.

ii. Books or other non-periodical, one-time publications. Report any book, monograph, dissertation, abstract, or the like published as or in a separate publication, rather than a periodical or series. Include any significant publication in the proceedings of a one-time conference or in the report of a one-time study, commission, or the like.

Identify for each one-time publication: author(s); title; editor; title of collection, if applicable; bibliographic information; year; type of publication (book, thesis or dissertation, other); status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no); legal disclaimer language (yes/no).

iii. Other publications, conference papers and presentations. Identify any other publications, conference papers and/or presentations not reported above. Specify the status of the publication as noted above.

b. Website(s)

List the URL for any Internet site(s) that disseminates the results of the research activities. A short description of each site should be provided. It is not necessary to include the publications already specified above in this section.

c. Technologies or techniques

Identify technologies or techniques that have resulted from the research activities. Describe the technologies or techniques and how they are being shared.

d. Inventions, patent applications, and/or licenses

Identify inventions, patent applications with date, and/or licenses that have resulted from the research. Submission of this information as part of an interim report or Final Technical Report is not a substitute for any other invention reporting required under the terms and conditions of an award.

e. Other products

Identify any other significant products that were developed under this project. Describe the product and how it is being shared. Examples of other products are: Data or databases; Physical collections; Audio or video products; Software or NetWare; Models; Educational aids or curricula; Instruments or equipment; Research material (e.g., germplasm, cell lines, DNA probes, animal models); Interventions (e.g clinical, educational); new business creation; and Other.

4. Participants & Other Collaborating Organizations:

Who has been involved?

Agencies need to know who has worked on the project to gauge and report performance in promoting partnerships and collaborations. The following information on participants and other collaborating organizations during this reporting period must be provided:

a. What individuals have worked on the project?

Provide the following information for: (1) Project director(s)/Principal investigator(s) (PDs/PIs); and (2) each person who has worked at least 160 hours on the project during the reporting period, regardless of the source of compensation. Please note that such reporting does not constitute a formal institutional report of effort on the project, but rather is used by agency program staff to evaluate the progress of the project during a given reporting period.

i. Provide the name and identify the role the person played in this project.

Indicate the total number of months (including partial months) (Calendar, Academic, Summer) that the individual worked on this project. Using the project roles identified below, select the most senior role in which the person worked on the project for any significant length of time. For example, if an undergraduate student graduated, entered graduate school, and continued to work on the project, show that person as a graduate student, preferably explaining the change in involvement.

ii. Project Roles:

PD/PI

Co PD/PI

Faculty

Community College Faculty

Technical School Faculty

K-12 Teacher

Postdoctoral (scholar, fellow or other postdoctoral position)

Other Professional

Technician

Staff Scientist (doctoral level)

Statistician

Graduate Student (research assistant)
Non-Student Research Assistant
Undergraduate Student
Technical School Student
High School Student
Consultant
Research Experience for Undergraduates (REU) Participant
Other (specify)

iii. Describe briefly how this person contributed to this project.

If information is unchanged from a previous progress report, provide the name only and indicate “no change.”

iv. Identify the person’s state, U.S. territory, and/or country of residence.

State whether this person has collaborated internationally.

If the participant was U.S.-based, state whether this person collaborated internationally with an individual located in a foreign country, and specify whether the person traveled to the foreign country as part of that collaboration, and, if so, what the duration of stay was. The foreign country(ies) should be identified.

If the participant was not U.S.-based, state whether this person traveled to the U.S. or another country as part of a collaboration, and, if so, what the duration of stay was. The destination country should be identified.

Example:

1. Name: Mary Smith
2. Total Number of Months: 5.5
3. Project Role: Graduate Student
4. Researcher Identifier: 1234567
5. Contribution to Project: Ms. Smith has performed work in the area of combined error-control and constrained coding.
6. State, U.S. territory, and/or country of residence: Michigan, U.S.A.
7. Collaborated with individual in foreign country: Yes
8. Country(ies) of foreign collaborator: China
9. Travelled to foreign country: Yes
10. If traveled to foreign country(ies), duration of stay: 5 months

b. Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?

Describe active other support for the PD/PI(s) or senior/key personnel whose support has changed and what the change has been (e.g., a previously active grant that has closed, a previously pending grant that is now active). Active other support includes all financial resources, whether federal, non-federal, commercial or organizational, available in direct support of an individual’s research endeavors,

including, but not limited to, research grants, cooperative agreements, contracts, or organizational awards, (e.g., federal, state, local or foreign government agencies, public or private foundations, industrial or other commercial organizations). Annotate this information so it is clear what has changed from the previous submission. Other support does not include prizes or gifts.

Submission of active other support information is not necessary for pending changes or for changes in the level of effort for active support reported previously. EERE requires prior written approval if a change in active other support significantly impacts the effort on this award.

If there is nothing significant to report during this reporting period or no change from the previous reporting period, state “Nothing to Report.”

c. What other organizations have been involved as partners?

Describe partner organizations – academic institutions, other nonprofits, industrial or commercial firms, state or local governments, schools or school systems, or other organizations (foreign or domestic) – that have been involved with the project. Partner organizations may provide financial or in-kind support, supply facilities or equipment, collaborate in the research, exchange personnel, or otherwise contribute.

Provide the following information for each partnership:

1. Organization Name:
2. Location of Organization: (if foreign location list country)
3. Partner’s contribution to the project: (identify one or more)
 - i. Financial support;
 - ii. In-kind support (e.g., partner makes software, computers, equipment, etc., available to project staff);
 - iii. Facilities (e.g., project staff use the partner’s facilities for project activities);
 - iv. Collaborative research (e.g., partner’s staff work with project staff on the project);
 - v. Personnel exchanges (e.g., project staff and/or partner’s staff use each other’s facilities, work at each other’s site).
 - vi. Other
4. More detail on partner and contribution (foreign or domestic).

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

d. Have other collaborators or contacts been involved?

Some significant collaborators or contacts within the recipient’s organization may not be covered by “What people have worked on the project?” Likewise, some significant collaborators or contacts outside the recipient’s organization may not be covered under “What other organizations have been involved as partners?”

For example, describe any significant:

1. collaborations with others within the recipient's organization, especially interdepartmental or interdisciplinary collaborations;
2. collaborations or contact with others outside the organization; and
3. collaborations or contacts with others outside the United States or with an international organization.

Identify the state(s), U.S. territory(ies), or country(ies) of collaborations or contacts.

It is likely that many recipients will have no other collaborators or contacts to report.

If there is nothing significant to report during this reporting period, state "Nothing to Report."

5. Impact:

What is the impact of the project? How has it contributed?

Over the years, this base of knowledge, techniques, people, and infrastructure is drawn upon again and again for application to commercial technology and the economy, to health and safety, to cost-efficient environmental protection, to the solution of social problems, to numerous other aspects of the public welfare, and to other fields of endeavor.

The taxpaying public and its representatives deserve a periodic assessment to show them how the investments they make benefit the nation. Through this reporting format, and especially this section, recipients provide that assessment and make the case for federal funding of research and education.

Agencies use this information to assess how their research programs: increase the body of knowledge and techniques; enlarge the pool of people trained to develop that knowledge and techniques or put it to use; and improve the physical, institutional, and information resources that enable those people to get their training and perform their functions.

This component will be used to describe ways in which the work, findings, and specific products of the project have had an impact during this reporting period. Describe distinctive contributions, major accomplishments, innovations, successes, or any change in practice or behavior that has come about as a result of the project relative to: the development of the principal discipline(s) of the project; other disciplines; the development of human resources; teaching and educational experiences; physical, institutional, and information resources that form infrastructure; technology transfer (include transfer of results to entities in government or industry, adoption of new practices, or instances where research has led to the initiation of a startup company); society beyond science and technology; or foreign countries.

a. What was the impact on the development of the principal discipline(s) of the project?

Describe how findings, results, and techniques that were developed or extended, or other products from the project made an impact or are likely to make an impact on the base of knowledge, theory, and research and/or pedagogical methods in the principal disciplinary field(s) of the project. Summarize using language that a lay audience can understand (Scientific American style). How the field or

discipline is defined is not as important as covering the impact the work has had on knowledge and technique. Make the best distinction possible, for example, by using a “field” or “discipline”, if appropriate, that corresponds with a single academic department (i.e., physics rather than nuclear physics).

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

b. What was the impact on other disciplines?

Describe how the findings, results, or techniques that were developed or improved, or other products from the project made an impact or are likely to make an impact on other disciplines.

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

c. What was the impact on the development of human resources?

Describe how the project made an impact or is likely to make an impact on human resource development in science, engineering, and technology. For example, how has the project: provided opportunities for research and teaching in the relevant fields; improved the performance, skills, or attitudes of members of underrepresented groups that will improve their access to or retention in research, teaching, or other related professions; developed and disseminated new educational materials; provided scholarships; or provided exposure to science and technology for practitioners, teachers, young people, or other members of the public?

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

d. What was the impact on teaching and educational experiences?

Describe how the project made an impact or is likely to make an impact on teaching and educational experiences. For example, has the project: developed and disseminated new educational materials; led to ideas for new approaches to course design or pedagogical methods; or developed online resources that will be useful for teachers and students and other school staff?

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

e. What was the impact on physical, institutional, and information resources that form infrastructure?

Describe ways, if any, in which the project made an impact, or is likely to make an impact, on physical, institutional, and information resources that form infrastructure, including: physical resources such as facilities, laboratories, or instruments; institutional resources (such as establishment or sustenance of societies or organizations); or information resources, electronic means for accessing such resources or for scientific communication, or the like.

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

f. What was the impact on technology transfer?

Describe ways in which the project made an impact, or is likely to make an impact, on commercial technology or public use, including: transfer of results to entities in government or industry; instances where the research has led to the initiation of a start-up company; or adoption of new practices.

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

g. What was the impact on society beyond science and technology?

Describe how results from the project made an impact, or are likely to make an impact, beyond the bounds of science, engineering, and the academic world on areas such as: improving public knowledge, attitudes, skills, and abilities; changing behavior, practices, decision making, policies (including regulatory policies), or social actions; or improving social, economic, civic, or environmental conditions.

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

h. What percentage of the award’s budget was spent in foreign country(ies)?

Describe what percentage of the award’s budget was spent in foreign country(ies). If more than one foreign country is involved, identify the distribution between the foreign countries.

U.S.-based recipients should provide the percentage of the budget spent in the foreign country(ies) and/or, if applicable, the percentage of the budget obligated to foreign entities as first-tier subawards.

Recipients that are not U.S.-based should provide the percentage of the direct award received, excluding all first-tier subawards to U.S. entities. If applicable, provide separately the percentage of the budget obligated to non-U.S. entities as first-tier subawards.

6. Changes/Problems:

The PD/PI is reminded that the grantee is required to obtain prior written approval from the Contracting Officer whenever there are significant changes in the project or its direction. Requests for prior written approval must be submitted to the Contracting Officer. If not previously reported in writing, provide the following additional information, if applicable: Changes in approach and reasons for change; Actual or anticipated problems or delays and actions or plans to resolve them; Changes that have a significant impact on expenditures; Significant changes in use or care of animals, human subjects, and/or biohazards.

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

a. Changes in approach and reasons for change

Describe any changes in approach during the reporting period and reasons for these changes. Remember that significant changes in objectives and scope require prior approval of the Contracting Officer.

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

b. Actual or anticipated problems or delays and actions or plans to resolve them

Describe problems or delays encountered during the reporting period and actions or plans to resolve them.

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

c. Changes that have a significant impact on expenditures

Describe changes during the reporting period that may have a significant impact on expenditures, for example, delays in hiring staff or favorable developments that enable meeting objectives at less cost than anticipated.

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

d. Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents

Describe significant deviations, unexpected outcomes, or changes in approved protocols for the use or care of human subjects, vertebrate animals, biohazards and/or select agents during the reporting period. If required, were these changes approved by the applicable institution committee and reported to the agency? Also specify the applicable Institutional Review Board/Institutional Animal Care and Use Committee approval dates.

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

e. Change of primary performance site location from that originally proposed

Identify any change to the primary performance site location identified in the proposal, as originally submitted.

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

7. Special Reporting Requirements:

Respond to any special reporting requirements specified in the award terms and conditions, as well as any award specific reporting requirements.

8. Budgetary Information:

This component will be used to collect budgetary data from the recipient organization. The information will be used in conducting periodic administrative/budgetary reviews. Budgetary data identified and required by the Contracting Officer should be submitted in an Excel spreadsheet format.

B. Progress Report (Non-RD&D Projects)

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within 30 calendar days after the end of the quarterly reporting period (January 30, April 30, July 30, October 30)

The recipient must provide a concise narrative assessment of the status of work and include the following information and any other information identified under Special Instructions on the Federal Assistance Reporting Checklist:

1. Cover Page

- a. The DOE Award Number (as it appears on the award face page)
- b. Recipient Name (as it appears on the award face page)
- c. Project Title
- d. Project Director / Principal Investigator (PD/PI) Name, Title and Contact Information (e-mail address and phone number)
- e. Name of Submitting Official, Title, and Contact Information (e-mail address and phone number), if other than PD/PI
- f. Project Period (Start Date, End Date)
- g. Report Submission Date
- h. Reporting Period Start and End Date

1. Project Overview

A written comparison of the actual project accomplishments with the project goals and objectives established for the reporting period; if goals and/or objectives for the reporting period were not met, a detailed description of the variance shall be provided.

2. Accomplishments

A discussion of what was accomplished under these goals and objectives established for this reporting period, including major activities, significant results, major findings or conclusions, key outcomes, or other achievements. This section should not contain any proprietary data or other information not subject to public release. If such information is important to reporting progress, do not include the information, but include a note in the report advising the reader to contact the Principal Investigator or the Project Director for further information.

3. Budgetary Information

A comparison of the approved budget by budget period and the actual costs incurred during the reporting period shall be provided. If cost sharing is required, the cost breakdown shall show the DOE share, recipient share, and total costs.

4. Schedule Status

List milestones, anticipated completion dates and actual completion dates. If you submitted a project management plan with your application, you must use this plan to report schedule and budget variances. You may use your own project management system to provide this information.

5. Changes/Problems

Describe any changes during the reporting period in project approach and the reasons for these changes. Remember, significant changes to the project objectives and scope require prior approval

by the Contracting Officer. Describe any actual or anticipated problems or delays and any actions taken or planned to resolve them.

6. Participants & Other Collaborating Organizations

Describe any absence or changes of key personnel or changes in consortium/teaming arrangement during the reporting period.

7. Products

List and describe any product produced or technology transfer activities accomplished during this reporting period, such as:

- a. **Publications, conference papers, and presentations.** List peer-reviewed articles or papers that have been submitted for publication in scientific, technical, or professional journals. Include any papers submitted for peer-reviewed publication in the periodically published proceedings of a scientific society, a conference, or the like. A publication in the proceedings of a one-time conference, not part of a series, should be reported under “Books or other non-periodical, one-time publications.”

Identify for each publication: Author(s); title; journal; volume; year; page numbers; status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no); legal disclaimer language (yes/no). Also see instructions under **II. Scientific/Technical Reporting** regarding the submission of AM and other STI as appropriate.

Please note: Recipient must use the EERE acknowledgement and legal disclaimer language as described in the Special Terms and Conditions (additional information can be found at the EERE Communications Standards website:

<https://www.energy.gov/eere/communicationstandards/eere-branded-publications-developed-third-parties>).

The recipient is also reminded that all data produced under the award should comply with the award’s data management plan (DMP). The DMP provides a plan for making all research data displayed in publications resulting from the proposed work digitally accessible at the time of publication. This includes data that are displayed in charts, figures, images, etc. In addition, the underlying digital research data used to generate the displayed data should be made as accessible as possible in accordance with the principles stated above. This requirement could be met by including the data as supplementary information to the published article, or through other means. The published article should indicate how these data can be accessed.

- b. **Website(s)** (list the URL) that reflect the results of this project.

- c. **Networks or collaborations** fostered.

d. Technologies or techniques (Identify and Describe).

- e. Other products**, such as data or databases, physical collections, audio or video, software or NetWare, models, educational aid or curricula, instruments or equipment (Identify and Describe).

C. Financial Report SF-425 Federal Financial Report

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within 30 calendar days after the end of the quarterly reporting period (January 30, April 30, July 30, October 30) and within 90 calendar days after expiration or termination of the award

Every quarter, the prime recipient is required to submit a completed SF-425 for the project – i.e., the entirety of work performed by the prime recipient, subrecipients, and contractors – to EERE. A fillable version of the SF-425 is available at <https://www.energy.gov/eere/funding/eere-funding-application-and-management-forms>.

D. Special Status Reports

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within five (5) calendar days after the event, or as specified

Problems, delays, or adverse conditions which materially impair the recipient's ability to meet the objectives of the award or which may require DOE to respond to questions relating to such events from the public. The recipient must report any of the following incidents and include the anticipated impact and remedial action to be taken to correct or resolve the problem/condition.

The prime recipient is required to report the following events to EERE:

1. Any notices or claims of patent or copyright infringement arising out of or relating to the performance of the EERE award;
2. Refusal of a subrecipient to accept flowdown requirements in the Special Terms and Conditions and/or any Attachment to the EERE award;
3. Potential or actual violations of federal, state, and municipal laws arising out of or relating to work under the award;
4. Any improper claims or excess payments arising out of or relating to work under the award;
5. Potential or actual violations of the cost share requirements under the award;
6. Potential or actual noncompliance with EERE or DOE reporting requirements under the award;
7. Potential or actual violations of the lobbying restrictions in the award;

8. Potential or actual bankruptcy/insolvency of the prime recipient or subrecipient;
9. Potential or actual violation of U.S. export control laws and regulations arising out of or relating to the work under the award;
10. Any fatality or injuries requiring hospitalization arising out of or relating to work under the award;
11. Potential or actual violations of environmental, health, or safety laws and regulations, any significant environmental permit violation, and any incident which causes a significant process or hazard control system failure;
12. Any event which is anticipated to cause a significant schedule slippage or cost increase;
13. Any damage to Government-owned equipment in excess of \$50,000;
14. Developments that have a significant favorable impact on the project; and,
15. Any incident arising out of or relating to work under the award that has the potential for high visibility in the media.

E. Continuation Application

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within five (5) calendar days after the event, or as specified

A continuation application is a non-competitive application for an additional budget period within a previously approved project period. The continuation application should be submitted at least ninety (90) calendar days before the end of each budget period, or as specified in the Special Terms and Conditions of the award.

F. Other (see Special Instructions)

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within five (5) calendar days after the event, or as specified

II. Scientific and Technical Reporting

The dissemination of scientific and technical information (STI) ensures public access to the results of federally funded research. STI refers to information products in any medium or format used to convey results, findings, or technical innovations from research and development or other scientific and technological work that are prepared with the intention of being preserved and disseminated in the

broadest sense applicable (i.e., to the public or, in the case of controlled unclassified information or classified information, disseminated among authorized individuals). Access to and archival of DOE-funded STI are managed by the DOE Office of Scientific and Technical Information (OSTI). For information about OSTI see <http://www.osti.gov>.

For more information on STI submittals, see <http://www.osti.gov/stip/submittal>.

By properly notifying DOE OSTI about the published results, the information will be made publicly accessible and discoverable through DOE web-based products.

NOTE: SCIENTIFIC/TECHNICAL PRODUCTS INTENDED FOR PUBLIC RELEASE MUST NOT CONTAIN PROTECTED PERSONALLY IDENTIFIABLE INFORMATION (PII).

PII is defined as any information about an individual which can be used to distinguish or trace an individual's identity. Some information that is considered to be PII is available in public sources such as telephone books, public websites, university listings, etc. This type of information is considered to be Public PII and includes, for example, first and last name, address, work telephone number, e-mail address, home telephone number, and general educational credentials. In contrast, Protected PII is defined as an individual's first name or first initial and last name in combination with any one or more of the following types of information: social security number, passport number, credit card numbers, clearances, bank numbers, biometrics, date and place of birth, mother's maiden name, criminal, medical and financial records, educational transcripts, etc., which could be mis-used if made publicly available.

A. Final Scientific/Technical Report

Submit to:	DOE Energy Link System (E-Link) available at http://www.osti.gov/mlink-2413
Submission deadline:	Within 90 calendar days after expiration or termination of the award

The prime recipient must submit a Final Scientific/Technical Report to DOE for all projects.

The scientific/technical report is intended to increase the diffusion of knowledge gained by DOE-funded research, and all requirements shall be interpreted in that light.

Content: Research findings and other significant STI resulting from the DOE-sponsored projects shall be included in the final scientific/technical report, subject to the following provisions:

1. The scientific/technical report is to cover the entire project period. For Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards, a final scientific/technical report must be submitted after the completion of each phase, e.g., Phase I, Phase II, and sequential Phase II, as described in the Special Instructions.
2. STI that is publicly accessible need not be duplicated in the report if a citation with a link to where

the information may be found is included in the report. For example, articles found in PAGES (i.e., DOE's Public Access Gateway for Energy and Science, <http://www.osti.gov/pages/>) are accessible to the public.

3. Provide identifying information: the EERE award number; sponsoring program office; name of recipient; project title; name of project director/principal investigator; and consortium/team members.
4. Include the EERE acknowledgement and legal disclaimer language as described in the Special Terms and Conditions (additional information can be found at the EERE Communications Standards website: <https://www.energy.gov/eere/communicationstandards/eere-branded-publications-developed-third-parties>).
5. Include any limitations on public release of the report, if authorized by the award agreement. If the document being submitted contains patentable material or protected data (i.e., data first produced in the performance of the award that is protected from public release for a period of time by terms of the award agreement) as set forth in the award agreement, then (1) prominently display on the cover of the report any authorized distribution limitation notices, such as patentable material or protected data and (2) clearly identify patentable or protected data on each page of the report. Reports delivered without such notices or with restrictive notices not authorized by the award agreement may be deemed to have been furnished with unlimited rights, and the Government assumes no liability for the disclosure, use or reproduction of such reports. Any restrictive markings must also be noted in the distribution limitation section of the Announcement Notice (AN) 241.3. No protected PII should be included.
6. Provide an abstract or executive summary, which should be a minimum of one paragraph and written in terms understandable by an educated layperson. (Refer to <http://www.osti.gov/stip/standards> for ANSI/NISO guidance as needed.) The abstract included in an application may serve as a model for this.
7. Summarize project activities for the entire period of funding, including original hypotheses, approaches used, and findings. Include, if applicable, facts, figures, analyses, and assumptions used during the life of the project to support the results in a manner that conveys to the scientific community the STI created during the project. To minimize duplication, the report may reference STI, including journal articles, that is publicly accessible. See also #2.
8. For guidance offered by the National Information Standards Organization on typical attributes and content of a technical report, if needed, refer to ANSI/NISO Z39.18-2005 (R2010), Scientific and Technical Reports – Preparation, Presentation, and Preservation (see <http://www.osti.gov/stip/standards>).

Electronic Submission Process: The final scientific/technical report must be submitted via the DOE Energy Link System (E-Link) with a completed electronic version of DOE Announcement Notice (AN) 241.3, "U.S. Department of Energy (DOE), Announcement of Scientific and Technical Information

(STI).” The recipient can complete, upload, and submit the DOE AN 241.3 online via E-Link (<https://www.osti.gov/elink-2413>).

The recipient must mark the appropriate block in the “Intellectual Property/Distribution Limitations” Section of the DOE AN 241.3. Reports that are electronically uploaded must not contain any limited rights data (proprietary data), classified information, protected PII, information subject to export control classification, or other information not subject to release. During the upload process, the recipient must self-certify that no content of this nature is being submitted. For assistance with reports containing such content, contact the Contracting Officer.

Text documents must be submitted in Adobe Portable Document Format (PDF) and be one integrated PDF file that contains all text, tables, diagrams, photographs, schematics, graphs, and charts. Please refer to <http://www.osti.gov/stip/best-practices-portable-document-format-pdf-creation> for PDF document creation.

B. Accepted Manuscript of Journal Article

Submit to:	DOE Energy Link System (E-Link) available at http://www.osti.gov/elink-2413
Submission deadline:	No later than the published online date of the article

Public access to scholarly publications is enabled by providing the Accepted Manuscript (AM) of the Journal Article to DOE OSTI and is consistent with the U.S. Government's retained license to published results of federally-funded research. If the recipient has a journal article accepted for publication which includes information/data produced under the award, then the recipient must submit an AN 241.3, as described below, no later than the published online date of the article. .

The recipient is reminded that all data produced under the award should comply with the award’s data management plan (DMP). The DMP provides a plan for making all research data displayed in publications resulting from the proposed work digitally accessible at the time of publication. This includes data that are displayed in charts, figures, images, etc. In addition, the underlying digital research data used to generate the displayed data should be made as accessible as possible in accordance with the principles stated above. This requirement could be met by including the data as supplementary information to the published article, or through other means. The published article should indicate how these data can be accessed. The federal government’s right to use the data produced under a federal award is established in 2 CFR 200.315(d), U.S. Government’s retained license to published results of federally funded research.

Content. The recipient is to provide the final peer-reviewed AM, i.e., the version of a journal article that has been peer reviewed and accepted for publication in a journal. Do NOT submit the journal’s published version of the article, i.e., do NOT submit a copyrighted reprint. Do not submit the content of peer reviews or a commitment to publish. The recipient should provide only the AM content intended to be the published article.

DOE will make no additional review of the content of an AM because the AM is a version of the journal article with the content to be published (i.e., publicly released) by the journal publisher. The recipient is responsible for ensuring the suitability of the content for public release and ensuring proper EERE acknowledgement and legal disclaimer language as described in the Special Terms and Conditions (additional information can be found at the EERE Communications Standards website:

<https://www.energy.gov/eere/communicationstandards/eere-branded-publications-developed-third-parties>). The terms and conditions of award provide that submissions must not contain any Protected Personally Identifiable Information (PII), limited rights data (proprietary data), classified information, information subject to export control classification, or other information not subject to release.

The recipient must self-certify at the time of submission to EERE via E-Link that the content is appropriate and that it is not a copyrighted reprint, i.e., the final version of the published article. Recipients are reminded that the article is to include an acknowledgement of federal support and a legal disclaimer as required in the “Publications” Term in the award Special Terms and Conditions.

Electronic Submission Process. The AM of the Journal Article must be provided electronically via the DOE Energy Link System (E-Link) and must be accompanied by a completed DOE Announcement Notice (AN) 241.3 (<http://www.osti.gov/mlink-2413>).

Within the AN 241.3, provide relevant journal information (article title, journal name, volume, issue, and any other pertinent publication information). Also, provide a persistent link to the repository location of the AM. An example of a persistent link is a URL to the specific location of the Accepted Manuscript of Journal Article hosted on a public, openly accessible university research publications website. If a persistent link is not available or if the website has access restrictions (preventing public access), then the recipient should upload the full-text of the AM using the AN 241.3 and E-Link instructions.

Full-text of the AM must be in the Adobe Portable Document Format (PDF) and be one integrated PDF file that contains all text, tables, diagrams, photographs, schematic, graphs, and charts. Please refer to <http://www.osti.gov/stip/best-practices-portable-document-format-pdf-creation> for PDF document creation.

C. Scientific / Technical Conference Papers / Presentation /Proceeding

Submit to:	DOE Energy Link System (E-Link) available at http://www.osti.gov/mlink-2413
Submission deadline:	Within five (5) calendar days after the event, or as specified

The prime recipient must submit a copy of any scientific/technical conference papers/proceedings.

Content: The content should include: (1) name of conference; (2) location of conference; (3) date of conference; and (4) conference sponsor. Also include an acknowledgement of federal support and a legal disclaimer as described in the Special Terms and Conditions (additional information can be found at the EERE Communications Standards website:

<https://www.energy.gov/eere/communicationstandards/eere-branded-publications-developed-third-parties>).

Electronic Submission Process: Scientific/technical conference papers/presentations or proceedings must be submitted via the DOE Energy Link System (E-Link) with a completed DOE Announcement Notice (AN) 241.3 (<https://www.osti.gov/mlink-2413>).

DOE will not review conference papers or presentations prior to making publicly available via OSTI since they were already presented in a public setting during a conference. The recipient is responsible for ensuring the suitability of the content for public release. The terms and conditions of award provide that submissions must not contain any Protected Personally Identifiable Information (PII), limited rights data (proprietary data), classified information, information subject to export control classification, or other information not subject to release.

Scientific/technical conference papers or proceedings that are textual documents must be submitted in Adobe Portable Document Format (PDF) and be one integrated PDF file that contains all text, tables, diagrams, photographs, schematics, graphs, and charts. Please refer to <http://www.osti.gov/stip/best-practices-portable-document-format-pdf-creation> for PDF document creation. Audiovisual formats, such as PowerPoint (PPT) or video presentations, may be submitted as a Microsoft PPT file or audiovisual file by selecting the appropriate format on the AN 241.3 for the file to be uploaded or, in the case of videos posted on a publicly available website, by providing a link to the specific video. Format options and other instructions can be found at <http://www.osti.gov/stip/audiovisualsti>.

D. Scientific / Technical Software & Manual

Submit to:	Energy Science and Technology Software Center P.O. Box 62 Oak Ridge, TN 37831 OR E-Link: https://www.osti.gov/mlink/241-4.jsp OR DOE CODE: https://www.osti.gov/doecode/
Submission deadline:	Within five (5) calendar days after the event, or as specified

The prime recipient must submit all software deliverables created under the award, as well as any accompanying documentation or manuals. Recipients have two choices for submitting software to DOE:

1. Submission through the Energy Science and Technology Software Center (ESTSC).

Content. Unless otherwise specified in the award, the following must be delivered: source code, the executable object code and the minimum support documentation needed by a competent user to understand and use the software and to be able to modify the software in subsequent development efforts.

Submission Process. The software submission must be accompanied by a completed DOE Announcement Notice (AN) 241.4 “Announcement of U.S. Department of Energy Computer Software.” The form and instructions are available on E-Link at <http://www.osti.gov/elink/241-4.jsp>. The AN 241.4 may be filled online and submitted electronically with a printed copy or note accompanying the shipped software package.

Software (including user guide or manual) must be submitted on computer disk (CD) shipped via regular mail to:

Energy Science and Technology Software Center
P.O. Box 62
Oak Ridge, TN 37831

2. Submission through DOE CODE

DOE CODE is DOE’s new software services platform for submitting and searching for software resulting from DOE-funded research, and provides alternative to submitting software through ESTSC. Through submission to DOE CODE, users have the option to obtain a Digital Object Identifier (DOI) for the code, making it more easily discoverable, citable and shared.

Content. When a recipient submits software to OSTI through DOE CODE, a set of required metadata elements and a link to the software repository must be provided.

Submission Process. Recipients will submit software by going to <https://www.osti.gov/doecode/>. Before submissions can be made, the recipient will be required to create an account. The recipient may create an account by visiting the top right of the DOE CODE homepage. Once the account is created, submissions may be made through the submit software/code link on the homepage. For more information about DOE CODE please visit <https://www.osti.gov/doecode/faq>.

E. Scientific / Technical Datasets

Submit to:	DOE Energy Link System (E-Link) available at https://www.osti.gov/elink/241-6-submission.jsp
Submission deadline:	Within five (5) calendar days after the event, or as specified

Scientific/technical datasets (data-streams, data files, etc.) support the technical reports and published literature resulting from DOE-funded research. They are also recognized as valuable information entities in their own right that, now and in the future, need to be available for citation, discovery, retrieval, and reuse. The assignment and registration of a Digital Object Identifier (DOI) is a free service for DOE-funded researchers which is provided by OSTI to enhance access to this important resource. In order to obtain a DOI, provide to OSTI the specific data elements relevant to the dataset, as specified in DOE AN 241.6.

Content. If the recipient generates publicly available datasets resulting from work funded by DOE, they may announce these datasets to OSTI and have them registered with DataCite to obtain a DOI, which ensures long-term linkage between the DOI and the dataset's location. To register and publicly announce a dataset, the recipient must provide an AN 241.6, including the required data elements needed for describing the dataset. Note: Do NOT submit the dataset itself, only the metadata for registering the dataset, obtaining a DOI, and announcing its availability.

Electronic Submission Process. Notification of scientific datasets must be submitted electronically via the DOE Energy Link System (E-Link) and must be accompanied by a completed DOE Announcement Notice (AN) 241.6 (<https://www.osti.gov/mlink/241-6-submission.jsp>). Within the AN 241.6, provide relevant information about the dataset as well as the URL where the dataset can be accessed.

F. Other STI (Dissertation / Thesis, see Special Instructions)

Submit to:	http://www.osti.gov/mlink-2413
Submission deadline:	Within five (5) calendar days after the event, or as specified

Recipients are encouraged to announce other forms of STI especially if they are the primary means by which certain research results are disseminated or if they contain research results not already announced to DOE by the recipient in technical reports, accepted journal articles, or other STI.

Other types of scientific and technical information produced which may be for used for public dissemination of project results include: dissertation/thesis, patent, book, or other similar products. These types of STI may also be announced using DOE AN 241.3 by following instructions on the E-Link website (<http://www.osti.gov/mlink-2413>).

III. Closeout Reporting

A. Final Invention Certification DOE F 2050.11

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within 90 calendar days after expiration or termination of the award

The prime recipient is required to submit an Invention Certification DOE F 2050.11. The Invention Certification form is available at <http://energy.gov/eere/funding/eere-funding-application-and-management-forms>.

The Invention Certification must include a list of all subcontracts at any tier containing a patent rights clause (or state that there were none).

B. Final Property Reports SF-428 & SF-428B

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within 90 calendar days after expiration or termination of the award

The prime recipient must submit a final inventory of and request disposition instructions for any federally-owned property and/or property or equipment acquired with project funds with an acquisition cost above \$5,000, whether the property is/was in the possession of the prime recipient or subrecipients.

The prime recipient must complete an SF-428 and SF-428B, available at <http://energy.gov/eere/funding/eere-funding-application-and-management-forms>.

If disposition occurs at any time other than award closeout, the prime recipient must complete an SF-428 and SF-428C (see IV. Other Reporting H. Property Disposition Request/Report).

Only the EERE Contracting Officer has authority to approve disposition requests and issue disposition instructions.

C. Other (see Special Instructions)

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within 90 calendar days after expiration or termination of the award

IV. Other Reporting

A. Intellectual Property Reporting

Submit to:	http://www.iEdison.gov
Submission deadline:	Within five (5) calendar days after the event, or as specified

iEdison requires a login and password. If the recipient's organization does not already have an iEdison administrator account, the recipient may register for one at: [iEdison Registration](#)

In accordance with the patent rights clause of the award, the recipient and subrecipient(s), if any, must complete the following intellectual property reports in iEdison when applicable:

- (1) Disclosing a subject invention, including anticipated uses and sales (use iEdison's Invention Report);
- (2) Reporting publications, manuscript submissions, or other public disclosures concerning a subject invention (add documents to the Invention Report);

- (3) If authorized by the award agreement, electing (or declining) to retain title to a subject invention (modify the Invention Report and input “Title Election Date” or “Not Elect Title Reason”);
- (4) Disclosing the filing or termination of patent applications on a subject invention (i.e., patent applications disclosing or claiming a subject invention). Patent disclosures must be made (using iEdison’s Patent Report) for filing the following patent applications:
 - An initial domestic patent application (including provisional or non-provisional);
 - A domestic divisional or continuation patent application;
 - A domestic continuation-in-part application; and
 - A foreign patent application.
- (5) Discontinuing prosecution of a patent application, maintenance of a patent, or defense in a patent reexamination or opposition proceeding, regardless of jurisdiction (modify the Patent Report);
- (6) Requesting an extension of time to:
 - Elect (or decline) to retain title to a subject invention (modify the Invention Report); and
 - File an initial domestic or foreign patent application (modify the Invention Report).

Failure to submit Intellectual Property Reporting Forms in a timely manner may result in forfeiture of the recipient’s or subrecipient’s rights in the subject inventions and related patent applications.

B. Invention Utilization Report

Submit to:	http://www.iEdison.gov
Submission deadline:	Reports are due one year after the disclosure date of each subject invention and must continue to be provided for 10 years after the date of disclosure

The recipient and subrecipient(s), if any, must provide Invention Utilization Reports for any subject inventions made under the award. Reports are due one year after the disclosure date of each subject invention and must continue to be provided for 10 years after the date of disclosure. Failure to submit Invention Utilization Reports in a timely manner may result in forfeiture of the recipient’s or subrecipient’s rights in the subject inventions.

C. Project Management Plan (PMP)

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within six (6) weeks of the effective date of the EERE award

Iterations and Maintenance

The recipient is required to develop, update, and adhere to a project management plan. The purpose of the plan is to establish cost, schedule, and technical performance baselines, and to formalize the processes by which the project will be managed. These processes include considerations such as risk

management, change management, and communications management. While it is primarily the project recipient's responsibility to maintain the plan, federal staff may request changes. The plan is intended to be a living document, modified as necessary, and comprising the following iterations:

Application Draft

The recipient must submit a draft of the project management plan with the initial application for financial assistance.

Negotiation Draft

The selected recipient may be called upon by the selecting Office to revise its project management plan during the negotiation phase.

Active Plan

Following formal award of the financial assistance agreement, the recipient must submit an updated project management plan, to include any changes requested during negotiation and a timeline based upon the actual award date.

a. Revised Plan(s)

During the life of the project the recipient must submit a revised project management plan based on the following circumstances:

1. Developments that have a significant favorable impact on the project.
2. Problems, delays, or adverse conditions which materially impair the recipient's ability to meet the objectives of the award or which may require the program office to respond to questions relating to such events from the public. Specifically, the recipient must update the plan when any of the following incidents occur:
 - a) Any event which is anticipated to cause significant schedule or cost changes, such as changes to the funding and costing profile or changes to the project timeline.
 - b) Any change to Technology Readiness Level.
 - c) Any significant change to risk events (including both potential and realized events) or to risk management strategies
 - d) Failure to meet a milestone or milestones; any dependencies should be adjusted.
 - e) Any changes to partnerships.
 - f) Any significant change to facilities or other project resources.
 - g) Any other incident that has the potential for high visibility in the media.

b. Content of revised PMP:

Project Title: The DOE award number and project title

Recipient Organization: Official name of the recipient organization

Principal Investigator: The name and title of the project director/ principal investigator

Date of Plan: The date the plan or plan revision was completed

The revised PMP must describe changes to any of the following sections of the PMP as well as provide updated versions of any logs, tables, charts, or timelines.

1. **Executive Summary:** Provide a description of the project that includes the objective, project goals, and expected results. The description should include a high level description of the technology, potential use or benefit of the technology, location of work sites and a brief discussion of work performed at each site, along with a description of project phases (if the project includes phases).
2. **Technology Readiness Levels (TRLs):** Identify the readiness level of the technology associated with the project as well as the planned progression during the course of project execution. A detailed explanation of the rationale for the estimated technology readiness level should be provided. Specific entry criteria for the next higher technology readiness level should be identified. The following definitions apply:
 - a) **TRL-1. Basic principles observed and reported:** Scientific problem or phenomenon identified. Essential characteristics and behaviors of systems and architectures are identified using mathematical formulations or algorithms. The observation of basic scientific principles or phenomena has been validated through peer-reviewed research. Technology is ready to transition from scientific research to applied research.
 - b) **TRL-2. Technology concept and/or application formulated:** Applied research activity. Theory and scientific principles are focused on specific application areas to define the concept. Characteristics of the application are described. Analytical tools are developed for simulation or analysis of the application.
 - c) **TRL-3. Analytical and experimental critical function and/or characteristic proof of concept:** Proof of concept validation has been achieved at this level. Experimental research and development is initiated with analytical and laboratory studies. System/integrated process requirements for the overall system application are well known. Demonstration of technical feasibility using immature prototype implementations are exercised with representative interface inputs to include electrical, mechanical, or controlling elements to validate predictions.
 - d) **TRL-4. Component and/or process validation in laboratory environment- Alpha prototype (component)** Standalone prototyping implementation and testing in laboratory environment demonstrates the concept. Integration and testing of component technology elements are sufficient to validate feasibility.
 - e) **TRL-5. Component and/or process validation in relevant environment- Beta prototype (component):** Thorough prototype testing of the component/process in relevant environment to the end user is performed. Basic technology elements are integrated with reasonably realistic supporting elements based on available technologies. Prototyping implementations conform to the target environment and interfaces.

- f) TRL-6. System/process model or prototype demonstration in a relevant environment- Beta prototype (system): Prototyping implementations are partially integrated with existing systems. Engineering feasibility fully demonstrated in actual or high fidelity system applications in an environment relevant to the end user.
 - g) TRL-7. System/process prototype demonstration in an operational environment- Integrated pilot (system): System prototyping demonstration in operational environment. System is at or near full scale (pilot or engineering scale) of the operational system, with most functions available for demonstration and test. The system, component, or process is integrated with collateral and ancillary systems in a near production quality prototype.
 - h) TRL-8. Actual system/process completed and qualified through test and demonstration- Pre-commercial demonstration: End of system development. Full-scale system is fully integrated into operational environment with fully operational hardware and software systems. All functionality is tested in simulated and operational scenarios with demonstrated achievement of end-user specifications. Technology is ready to move from development to commercialization.
3. Risk Management: Provide a summary description of the proposed approach to identify, analyze, and respond to potential risks associated with the proposed project. Project risk events are uncertain future events that, if realized, impact the success of the project. At a minimum, include the initial identification of significant technical, resource, and management issues that have the potential to impede project progress and strategies to minimize impacts from those issues. The risk management approach should be tailored to the TRL. If a project or task is expected to progress to a higher TRL, then the risk plan should address the retirement of any risks associated with the first TRL and identify new risks related to moving to the next TRL. Additionally, the risk management approach should include risk opportunities that if realized, could benefit the project.
4. Milestone Log: Provide milestones for each budget period (or phase) of the project. Each milestone should include a title and planned completion date. Milestones should be quantitative (e.g., a date, a decision to be made, a key event) and show progress toward budget period and/or project goals. Milestones should also be important and few. Higher TRL projects (Demonstration and Deployment) typically have the most detailed milestone logs compared to lower TRL level projects (Research and Development). If applicable, milestones chosen should clearly reflect progress through various TRL stages.

Note: The Milestone Status must present actual performance in comparison with the Milestone Log, and include:

- a) The actual status and progress of the project,
- b) Specific progress made toward achieving the project's milestones, and,
- c) Any proposed changes in the project's schedule required to complete milestones.

5. **Funding and Costing Profile:** Provide a table (the Project Funding Profile) that shows, by budget period, the amount of government funding going to each project team member. Also a table (the Project Costing Profile) which projects, by month, the expenditure of both government and recipient funds for the first budget period, at a minimum. The Funding and Costing Profile should show the relationships with the Milestone Log (Item 4 above) and Project Timeline (Item 6 below); for example, Funding and Costing information could be shown as an overlay on milestone or timeline charts.
6. **Project Timeline:** Provide a timeline of the project (similar to a Gantt chart) broken down by each task and subtask, as described in the Statement of Project Objectives. The timeline should include a start date and end date for each task, as well as interim milestones. The timeline should also show interdependencies between tasks and include the milestones that are identified in the Milestone Log (Item 4 above). The timeline should also show the relationship to the Project Costing Profile (Item 5 above). If applicable, the timeline should include activities and milestones related to achieving succeeding TRLs.
7. **Success Criteria at Decision Points:** Provide well-defined success criteria for each decision point in the project, including go/no-go decision points and the conclusions of budget periods and the entire project. The success criteria should be objective and stated in terms of specific, measurable, and repeatable data. Usually, the success criteria pertain to desirable outcomes, results, and observations from the project. Key milestones can be associated with success criteria. If applicable, the success criteria should include exit criteria for progressing from one TRL to the next.
8. **Key Partnerships, Teaming Arrangements and Team Members:** Provide a list of key team members in the project as well as the role and contact information of each. A hierarchical project organization and structure chart should be provided along with a description of the role and responsibilities of each team member in terms of contribution to project scope. The section should also include key team members who fulfill single or multiple roles within a project as well as the contact information for each.
9. **Facilities and Resources:** Provide a list of project locations along with a discussion of capabilities and activities performed at each site in terms of contribution to project scope. The address of each work site should be provided.
10. **Communications Management:** Describe the communications needs and expectations for the project team members. The communications plan may be simple or detailed, depending on the complexity of the project. At a minimum, the plan should include contact information, methods of communicating and anticipated frequency.
11. **Change Management:** Provide a description of the process for managing change on the project. Describe how change will be monitored, controlled and documented within the project. This includes, but is not limited to, changes to the Scope, Schedule, and Budget. If applicable, Change Management should include assessing how changes impact TRLs.

D. Annual Incurred Cost Proposals

Submit to:	If DOE is the Cognizant Federal Agency, send the Annual Incurred Cost Proposal to: • CostPrice@ee.doe.gov (for awards administered by the Golden Field Office); or • PricingGroup@netl.doe.gov (for awards administered by NETL) Otherwise, submit the proposal to the Cognizant Federal Agency
Submission deadline:	Within 180 calendar days after the close of the recipient's fiscal year

The prime recipient must submit an Annual Incurred Cost Proposal, reconciled to its financial statements unless the award is based on negotiated fixed indirect cost rate(s) or a fixed amount for indirect or facilities and administration (F&A) costs. The prime recipient must submit an annual incurred cost proposal directly to the Cognizant Federal Agency for negotiating and approving indirect costs.

E. DOE For-Profit Compliance Audit

Submit to:	Send a copy of the annual DOE For-Profit Compliance Audit to: • DOE-Audit-Submission@hq.doe.gov and • The DOE Contracting Officer In addition: Email to: PricingGroup@netl.doe.gov (for awards administered by NETL)
Submission deadline:	Within the earlier of 30 days after receipt of the auditor's report(s) or 9 months after the end of the audit period (recipient's fiscal year-end)

As required by 2 CFR parts 910.500 through 910.521, a For-Profit entity which expends \$750,000 or more during their fiscal year in DOE awards must have a compliance audit conducted for that year.

The DOE For-Profit Compliance Audit must be conducted in accordance with the regulations at 2 CFR 910.500-521. It must also refer to the appropriate regulations used by the auditor in their examination.

The compliance audit report(s) must be submitted to DOE within the earlier of thirty days after receipt of the auditor's report(s) or nine months after the end of the audit period (recipient's fiscal year-end). The compliance audit report must be submitted, along with audited financial statements (if applicable).

F. Single Audit: States, Local Government, Tribal Governments, Institution of Higher Education (IHE), or Non-Profit Organization

Submit to:	Federal Audit Clearinghouse - https://harvester.census.gov/facweb/Default.aspx
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Submission deadline:	Within the earlier of 30 days after receipt of the auditor's report(s) or 9 months after the end of the audit period (recipient's fiscal year-end)
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As required by 2 CFR 200 Subpart F, non-federal entities that expend \$750,000 or more during the recipient entity's fiscal year in federal awards must have a single or program-specific audit conducted. The single audit must be conducted in accordance with §200.514 Scope of audit, except when it elects to have a program-specific audit conducted.

For most single audits, the requirement is for annual single audits. However, there are occasions where a single audit is not required annually. Per 2 CFR 200.504 - Frequency of audits, a state, local government, or Indian tribe that is required by constitution or statute to undergo its audits less frequently than annually, is permitted to undergo its audits biennially. Also, any nonprofit organization that had biennial audits for all biennial periods ending between July 1, 1992, and January 1, 1995, is permitted to undergo its single audits biennially.

For a program-specific audit, when a recipient expends federal award funds under only one federal program (excluding R&D) and the federal program's statutes, regulations, or the terms and conditions of the federal award do not require a financial statement audit of the auditee, the auditee may elect to have a program-specific audit conducted. A program-specific audit may not be elected for R&D unless all of the federal awards expended were received from the same federal agency, or the same federal agency and the same pass-through entity, and that federal agency, or pass-through entity in the case of a subrecipient, approves in advance a program-specific audit.

The single audit report (including audited financial statements) must be submitted, along with the data collection form to the Federal Audit Clearinghouse website within the earlier of thirty days after receipt of the auditor's report(s) or nine months after the end of the audit period (recipient's fiscal year-end).

G. Annual Property Inventory Report SF-428 & SF-428A

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within 90 calendar days after the end of the annual reporting period

The prime recipient must submit an annual inventory of federally-owned property (government-furnished) **where the award specifies that title to the property vests with the federal government**, whether it is in the possession of the prime recipient or subrecipient(s). The prime recipient must complete an SF-428 and SF-428A, available at <https://www.energy.gov/eere/funding/eere-funding-application-and-management-forms>.

H. Property Disposition Request/Report SF-428 & SF-428C

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within 5 calendar days of the event or as specified

The prime recipient must request disposition instructions for or report disposition of federally-owned property or equipment acquired with project funds, whether the property or equipment is/was in the possession of the prime recipient or subrecipient(s). Recipients may also be required to provide compensation to the awarding agency when acquired equipment is sold or retained for use on activities not sponsored by the federal government. Any equipment with an acquisition cost above \$5,000 must be included in the inventory.

If disposition occurs at any time other than award closeout (i.e., at any time throughout the life of the project or after project completion and closeout as long as the federal government retains an interest in the item), the prime recipient must complete an SF-428 and SF-428C, available at <https://www.energy.gov/eere/funding/eere-funding-application-and-management-forms>.

If disposition instructions are requested at the time of award closeout, the prime recipient must submit the SF-428 and SF-428B (see III. Closeout Reporting B. Closeout Reports).

Only the EERE Contracting Officer has authority to approve disposition requests and issue disposition instructions.

I. Uniform Commercial Code (UCC) Financing Statements

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within five (5) calendar days after the event, or as specified.

If a for-profit recipient or subrecipient desires to purchase a piece of equipment for their project, and the per-unit dollar value of said equipment is \$5,000 or more, and the federal share of the financial assistance agreement is more than \$1M, the recipient or subrecipient must file a UCC financing statement.

A UCC financing statement provides public notice that the federal government has an undivided reversionary interest in the equipment, and as such the equipment cannot be sold or used as collateral for a loan (encumbered).

The for-profit recipient or subrecipient must file the UCC financing statement(s) with the Secretary of State where the equipment will be physically located and must pay any associated costs for such filings.

The initial UCC financing statement may also be referred to as a UCC1. For additional pieces of equipment not specified in the award budget, TBD equipment, or equipment needed in future budget periods, the recipient can file an amendment to the original UCC1 financing statement, by submitting the UCC3 financing statement amendment.

Each UCC financing statement or amendment is to be filed with the appropriate Secretary of State office, where the equipment will be physically located.

Note: All costs associated with filing UCC financing statements, UCC financing statement amendments, and UCC financing statement terminations, are allowable and allocable costs which can be charged to the federal award.

At a minimum, the recipient must have stated in their UCC financing statement in block 4. (collateral) the following:

- 1) “Title to all equipment (not real property) purchased with federal funds under this financial assistance agreement is conditional pursuant to the terms of 2 CFR 910.360, and the federal government retains an undivided reversionary interest in the equipment at the federal cost-share proportion specified in the award terms and conditions.”
- 2) Federal Award Identification Number (e.g., DE-EE000XXXX)

J. Federal Subaward Reporting System (FSRS)

Submit to:	https://www.fsrs.gov/
Submission deadline:	The prime recipient is required to file a FFATA sub-award report by the end of the month following the month in which the prime recipient awards any sub-grant greater than or equal to \$25,000.

The Federal Subaward Reporting System (FSRS) is the reporting tool prime recipients use to capture and report subaward and executive compensation data regarding their first-tier subrecipients to meet the FFATA reporting requirements. Prime recipients will report against subrecipients’ awards. The subrecipient information entered in FSRS will then be displayed on [USASpending.gov](https://www.usaspending.gov) associated with the prime recipient’s award furthering federal spending transparency.

The prime recipient is required to file a FFATA sub-award report by the end of the month following the month in which the prime recipient awards any sub-award greater than or equal to \$25,000.

K. Other (see Special Instructions)

Submit to:	https://www.eere-pmc.energy.gov/SubmitReports.aspx
Submission deadline:	Within five (5) calendar days after the event, or as specified

Appendix A: Notice To Recipients (Prime Recipients And Subrecipients) Regarding Protected Data, Limited Rights Data And Protected Personally Identifiable Information

I. PROTECTED DATA AND LIMITED RIGHTS DATA

The recipient is required to mark protected data and limited rights data in accordance with the IP clause set of the award agreement. Failure to properly mark data may result in its public disclosure under the Freedom of Information Act (FOIA, 5 U.S.C. § 552) or otherwise.

A. Protected Data - Technical Data or Commercial or Financial Data First Produced in the Performance of the Award

The U.S. Government normally retains unlimited rights in any technical data or commercial or financial data produced in performance of Government financial assistance awards, including the right to distribute to the public.

However, under certain EERE awards, the recipient may mark certain categories of data produced under the award as protected from public disclosure for up to five years after the data is produced (“Protected Data”). If the award agreement provides for protected data and the recipient wants the data to be protected, the recipient must properly mark any documents containing Protected Data as set forth in the IP clause set of the award agreement.

B. Limited Rights Data - Data Produced Outside of the Award at Private Expense

Limited Rights Data is data (other than computer software) developed at private expense outside any Government financial assistance award or contract that embody trade secrets or are commercial or financial and confidential or privileged. Prior to including any Limited Rights Data in any documents to EERE, the recipient should review the award agreement. In most EERE awards, the recipient should not deliver any limited rights data to EERE if the recipient wants to protect the Limited Rights Data. If the EERE award does allow and require the delivery of limited rights data, then the recipient must properly mark any documents containing Limited Rights Data as set forth in the IP clause of the award agreement.

II. PROTECTED PERSONALLY IDENTIFIABLE INFORMATION

The recipient should not include any Protected Personally Identifiable Information (Protected PII) in their submissions to EERE. Protected PII is defined as any data that, if compromised, could cause harm to an individual such as identify theft. Protected PII includes, but is not limited to:

- Social Security Numbers in any form;
- Place of Birth associated with an individual;
- Date of Birth associated with an individual;
- Mother's maiden name associated with an individual;
- Biometric record associated with an individual;
- Fingerprint;
- Iris Scan;
- DNA;
- Medical history information associated with an individual;
- Medical conditions, including history of disease;
- Metric information, e.g., weight, height, blood pressure;
- Criminal history associated with an individual;
- Ratings;
- Disciplinary actions;
- Passport number;
- Educational transcripts;
- Financial information associated with an individual;
- Credit card numbers; and
- Security clearance history or related information (not including actual clearances held).

Appendix B: Research Performance Progress Report (RPPR)

DEMOGRAPHIC INFORMATION FOR SIGNIFICANT CONTRIBUTORS

Agencies may require that recipients provide demographic data about significant contributors for a variety of purposes, including the following:

- to gauge whether our programs and other opportunities are fairly reaching and benefiting everyone regardless of demographic category;
- to ensure that those in under-represented groups have the same knowledge of and access to programs, meetings, vacancies, and other research and educational opportunities as everyone else;
- to gauge and report performance in promoting partnerships and collaborations;
- to assess involvement of international investigators or students in work we support;
- to track the evolution of changing science, technology, engineering and mathematics (STEM) fields at different points in the pipeline (e.g., medicine and law demographics have recently changed dramatically);
- to raise investigator and agency staff awareness of the involvement of under-represented groups in research;
- to encourage the development of creative approaches for tapping into the full spectrum of talent of the STEM workforce;
- to respond to external requests for data of this nature from a variety of sources, including the National Academies, Congress, etc.; and
- to respond to legislatively-required analysis of workforce dynamics. Legislation requires at least one agency to routinely estimate scientific workforce needs. This analysis is accomplished through reviewing demographic data submitted for the existing workforce.

Demographic data (i.e., gender, ethnicity, race, and disability status) should be provided directly by significant contributors, with the understanding that submission of such data is voluntary. There are no adverse consequences if the data are not provided. Confidentiality of demographic data will be in accordance with agency's policy and practices for complying with the requirements of the Privacy Act.

Gender: Male
 Female
 Do not wish to provide

Ethnicity: Hispanic or Latina/o
 Not-Hispanic or not-Latina/o
 Do not wish to provide

Race (select one or more): American Indian or Alaska Native
 Asian
 Black or African American
 Native Hawaiian or other Pacific Islander

White
Do not wish to provide

Disability Status:

Yes (check yes if any of the following apply to you)

- Deaf or serious difficulty hearing
- Blind or serious difficulty seeing even when wearing glasses
- Serious difficulty walking or climbing stairs
- Other serious disability related to a physical, mental, or emotional condition.

No

Do not wish to provide

This measure is designed as a binary measure; it encompasses all self-reported disabilities. Please do not use it to report the number of individuals who have different types of disabilities (e.g., hearing impairments).

Note: This construct is not designed to be used at an individual-level (i.e., it should not be used for determining accommodation needs or disability status for particular individuals associated with the project).