



California
Energy Commission
Research & Development

Pre-Application Workshop Next Wind Solicitation GFO-19-302

Energy Research and Development Division

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California Energy Commission, Sacramento
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Workshop Agenda

Time	Topic
10:00 a.m.	Welcome and Introductions <ul style="list-style-type: none">• Housekeeping• Commitment to Diversity• Connect with Us
10:15 a.m.	Solicitation Information <ul style="list-style-type: none">• EPIC Program and Next Wind Policy Drivers• Solicitation Purpose• Funding• Project Requirement• Administrative/Application Requirements• Scoring Criteria
11:15 a.m.	Application Submission Requirement and Guidelines
11: 25 a.m.	Key Dates
11:30 a.m.	Questions and Answers



Housekeeping

- Sign-in sheet / Business card sheet
- Facilities
- In case of emergency
- Muting of WebEx
- Updates on solicitation documents including this presentation will be posted at the Grant Funding Opportunity's webpage:
<https://www.energy.ca.gov/solicitations/2019-09/gfo-19-302-advance-next-generation-wind-energy-technology-next-wind>



Commitment to Diversity

The Energy Commission adopted a resolution strengthening its commitment to diversity in our funding programs. We continue to encourage disadvantaged and underrepresented businesses and communities to engage in and benefit from our many programs.

To meet this commitment, Energy Commission staff conducts outreach efforts and activities to:

- Engage with disadvantaged and underrepresented groups throughout the state.
- Notify potential new applicants about the Energy Commission's funding opportunities.
- Assist applicants in understanding how to apply for funding from the Energy Commission's programs.
- Survey participants to measure progress in diversity outreach efforts.



LinkedIn Networking Webinar

LinkedIn Networking webinars are prime opportunities for interested applicants to introduce themselves, identify their strengths, and describe what they're seeking from potential partners. Individuals are encouraged to participate.

A one-hour, moderated webinar will be held on **October 22 at 2 p.m.**

Go to **energy.webex.com** and enter Meeting Number: **925 066 638**.
No password is required.

Link to the Next Wind subgroup <https://www.linkedin.com/groups/13772174/>



NOTE:

Energy Commission staff will facilitate introductions. However, staff involved in development of the solicitation and scoring of proposals **will not** be present. Technical questions must be submitted to the Contract Agreement Officer.





EPIC Program Background

The Electric Program Investment Charge (EPIC) is funded by an electricity ratepayer surcharge established by the California Public Utilities Commission (CPUC) in 2011.

The purpose of EPIC is to:

- Benefit the ratepayers of the three largest electric investor-owned utilities, Pacific Gas and Electric Co., San Diego Gas and Electric Co., and Southern California Edison.
- Funds clean energy technology projects, encourage technological advancement and breakthroughs, and support California local's economies and business.
- Funding Areas: **Applied Research and Development**, Technology Demonstration and Deployment, and Market Facilitation.

<https://www.energy.ca.gov/programs-and-topics/programs/electric-program-investment-charge-epic-program>



EPIC 2018-2020 Triennial Investment Plan

Funded projects must lead to technological advancement and breakthroughs to overcome the barriers that prevent the achievement of the state's statutory energy goals.

Annual program funds total \$130 million.

Program Area: Applied Research and Development.

- **Strategic Objective 4.2:** Develop Technologies that Enable Increased Wind Capacity in California
 - **Funding Initiative 4.2.1** Advanced Manufacturing and Installation Approach for Utility-Scale Land-Based Wind Turbine Components
 - **Funding Initiative 4.2.2** Real-Time Remote Monitoring System for Offshore and Land-Based Wind Technologies
- **Strategic Objective 7.3:** Evaluate Strategies to Mitigate the Impacts of the Electricity System on the Environment and Public Health and Safety
 - **Funding Initiative 7.3.1** Find Environmental and Land Use Solutions to Facilitate the Transition to a Decarbonized Electricity System



Solicitation Purpose

The purpose of this solicitation is to fund applied research and development projects that facilitate the development of next-generation wind energy technologies. Funded projects must meet one of the following objectives:

- Develop advanced on-site manufacturing approaches and material science solutions for **land-based wind energy** projects in California.
- Increase of productivity and reduce the levelized cost of energy (LCOE) and wildlife impacts of **offshore wind energy** through real-time, remote monitoring and control systems.
- Increase understanding of how **offshore energy** deployments may affect sensitive species and habitats.

Project groups:

Group 1: Next-Generation Land-Based Wind Energy Technologies

Group 2: Real-Time Monitoring Systems for Next-Generation Offshore Wind

Group 3: Environmental Risk Assessment for Offshore Wind Energy Systems



Eligible Applicants

This solicitation is open to all public and private entities and individuals with the exception of local publicly owned electric utilities.

Applicants must accept the EPIC terms and conditions. By signing the Application Form (Attachment), each applicant agrees to enter into an agreement with the Energy Commission to conduct the proposed project according to the terms and conditions that correspond to its organization, without negotiation.

<https://www.energy.ca.gov/funding-opportunities/funding-resources>

Applicants are required to register with the California Secretary of State and be in good standing to enter into an agreement with the CEC.

<http://www.sos.ca.gov>

Applicant must not have severe performance issues in previous contracts, grants, or loans with the Energy Commission (see page 36)



Available Funding (Section I.F.1)

There is up to \$12,000,000 available for this solicitation.

Project Group	Available Funding*	Minimum Award Amount	Maximum Award Amount	Minimum Match Requirement
Group 1: Next-Generation Land-Based Wind Energy Technologies	\$8,000,000	\$2,000,000	\$3,000,000	0% (Optional)
Group 2: Real-Time Monitoring Systems for Next-Generation Offshore Wind	\$3,000,000	\$1,000,000	\$2,000,000	0% (Optional)
Group 3: Environmental Risk Assessment for Offshore Wind Energy Systems	\$1,000,000	\$500,000	\$1,000,000	0% (Optional)

*The Energy Commission reserves the right to increase or decrease the available funding and the group minimum/maximum award amounts, as well as to reduce funding to an amount deemed appropriate if the budgeted funds do not provide full funding for agreements.



Match Funding

- Match funding is optional.
- Applications that include match funding will receive additional points during the scoring phase.
- Match funding contributors must submit match funding commitment letters that meet the requirements of Attachment 11. **Failure to do so will disqualify the match funding commitment from consideration.**
- Refer to Section I.F.2 in the Solicitation Manual for more details on match funding.



Project Group 1: Next- Generation Land-Based Wind Energy Technologies

The purpose of this group is to develop and pilot demonstrate tall tower or blade prototypes built by using novel **on-site or hybrid manufacturing approaches** to address the technical, economic and logistical challenges.

Projects in this group must address **only one** of the following research objectives:

Objective 1: Development and pilot demonstration of prototypes using novel **on-site or hybrid manufacturing approaches** to address the technical, economic and logistical challenges of tall towers (> 120-meter height) for land-based wind turbines.

Objective 2: Development and pilot demonstration of novel **on-site or hybrid manufacturing approaches** to address the technical, economic and logistical challenges of super-sized blades (≥ 75 -meter length) for land-based wind turbines.

Technology pilot demonstration with a technology readiness level (TRL) either TRL4 or TRL5 at the beginning of the project.



Projects must include tasks to address at least two of the following requirements

- Evaluate supply chain and labor needs for commercial-scale manufacturing.
- Develop solutions for the end-of-life of next-generation wind energy technologies that consider a closed-loop cycle approach.
- Conduct an economic and environmental life cycle assessment, with a cradle-to-cradle perspective, and compare results with conventional technology.
- Demonstrate the viability of using the proposed advanced manufacturing approach also as a baseline for potential offshore wind energy projects in California.



Objective 1 must include tasks to address all of the following challenges:

- Develop a low-cost, advanced manufacturing approach for concrete, steel, or hybrid tall wind tower.
- Demonstrate how the proposed >120-m tall tower solution will achieve a cost of \$200/kW.
- Demonstrate that the functional prototypes meet the quality standard requirements and specifications for the proposed wind tower.
- Demonstrate through advanced lab testing or pilot demonstration the viability of using the proposed advanced manufacturing approach for developing functional prototypes.



Objective 2 must include tasks to address all of the following challenges:

- Advance material science to allow the use of high fiber stiffness materials suitable for structural blade elements, while reducing material costs.
- Develop solutions to reduce the cost of on-site/hybrid manufactured blades at a level to be competitive with off-site blade production costs, avoiding increase in LCOE.
- Demonstrate that the functional prototypes meet the quality standard requirements and specifications for the proposed wind-turbine blades.
- Demonstrate through advanced lab testing or pilot demonstration the viability of using the proposed advanced manufacturing approach for developing functional prototypes.



Table 1: Baseline and Targets for Next-Generation Wind Technologies (Group 1)

Technology	Baseline	Targets
Land-based wind projects	LCOE: 29-50/MWh ^{1,2}	LCOE ≤ \$25/MWh ^{5,6} >45% capacity factor
Tall towers	80-m tower cost = \$200/kW ^{3,4}	>120-m tower cost = \$200/kW

Reference

https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf

<https://www.lazard.com/perspective/levelized-cost-of-energy-and-levelized-cost-of-storage-2018/>

https://www.irena.org/documentdownloads/publications/re_technologies_cost_analysis-wind_power.pdf

<https://www.nrel.gov/docs/fy19osti/73629.pdf>

https://www.energy.gov/sites/prod/files/2018/08/f54/2017_wind_technologies_market_report_8.15.18.v2.pdf

[pdf](https://www.nrel.gov/docs/fy19osti/73629.pdf)

<https://www.nrel.gov/docs/fy19osti/73629.pdf>



Project Group 2: Real-Time Monitoring Systems for Next-Generation Offshore Wind

The purpose of this group is to develop next-generation monitoring systems that facilitate the competitiveness and deployment of offshore wind projects in California by providing tools that support LCOE reduction and knowledge about wildlife impacts.

The proposed monitoring systems will both reduce operation and maintenance (O&M) costs for offshore wind deployments and support detection and identification of species and habitats at risk due to offshore wind deployment.

- Technology pilot demonstration with a technology readiness level (TRL) four at the beginning of the project.

Projects **must address** the following area:

Development of a novel, integrated sensing and monitoring system that provides both real-time environmental and operational data and sends all the discrete signals to the turbine controller for an integrated assessment for offshore wind applications.



Examples:

Operational monitoring systems :

- Development of advancement of low-cost monitoring systems that improve the safety, minimize downtime, provide reliable power and lower O&M and logistics costs for offshore wind projects.
- Development of artificial intelligence/machine learning tools that help advance monitoring systems that provide a holistic picture of the turbine condition and facilitate increased power generation, cost-effectiveness, proactive maintenance, and longevity of the wind turbines.

Environmental monitoring systems :

- Refinement of early stage technologies that detect blade strikes by seabirds, and combinations of sensors to identify species in proximity to the turbines.
- Development of artificial intelligence/machine learning tools that advance monitoring systems that identify species flying in the vicinity or colliding with wind turbines to help predict species behavior and develop strategies to avoid wildlife impacts.

Table 2: Baseline and Targets for Next-Generation Real-Time Monitoring Systems (Group 2)

Technology	Baseline	Targets
Offshore wind O&M cost	LCOE: \$106/MWh ¹ ~ 30% LCOE is O&M cost ^{2,3}	LCOE < \$70/MWh ^{3,4} ≥21% O&M cost reduction ⁵

Reference

https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf

<https://ec.europa.eu/growth/tools-databases/kets->

[tools/sites/default/files/documents/analytical_report_nr8_sensing_monitoring_systems_offshore_final.pdf](https://ec.europa.eu/growth/tools-databases/kets-tools/sites/default/files/documents/analytical_report_nr8_sensing_monitoring_systems_offshore_final.pdf)

https://link.springer.com/chapter/10.1007/978-3-319-51159-7_4

<http://xn--drmstre-64ad.dk/wp-content/wind/miller/windpower%20web/en/tour/econ/oandm.htm>

<https://atb.nrel.gov/electricity/2018/index.html?t=ow>

<http://www.nrel.gov/docs/fy13osti/58774.pdf>



Group 3: Environmental Risk Assessment for Offshore Wind Energy Systems

Purpose: Assess the potential risks to sensitive species and habitats from offshore wind energy deployment on California's Outer Continental Shelf

Proposed research must address at least one of the following:

Develop approaches to model the effects of large offshore wind energy facilities on the coupled interactions of atmospheric and oceanic systems, e.g., leeward wind speed, cloud cover and fog, air and sea surface temperature, and currents. Applications should address a range of plausible wind energy technologies.

Optional: Investigate how those effects could alter upwelling in the California Current and the associated nutrient supply that feeds the marine food chain

Advance the understanding of the impacts of offshore wind energy development and operation on wildlife. *For example*, studies could include, but are not limited to:

Model 3D soaring bird behavior relative to turbine rotor-swept area under different wind conditions to estimate collision risk

Investigate the potential interaction of mooring lines, marine mammals, and derelict fishing gear and the likelihood of entanglement



Attachment Overview

Attachments 1-12 **are required** when submitting an application.

Attachments Required	
1. Application Form (<i>requires signature</i>) (.pdf)	7. Budget Forms (.xlsx)
2. Executive Summary Form (.docx)	8. CEQA Compliance Form (.docx)
3. Fact Sheet Template (.docx)	9. Reference and WorkProduct Form (.docx)
4. Project Narrative Form (.docx) (<i>See form for each project group</i>)	10. Contact List Template (.docx)
5. Project Team Form (.docx)	11. Commitment Letter Form (<i>letters require signature</i>) (.pdf)
6. Scope of Work Template (.docx)	11. Support Letter Form (<i>letters require signature</i>) (.pdf)
6A. Scope of Work Template: Project Schedule (.xlsx)	12. Applicant Declaration (<i>requires signature</i>) (.pdf)



Project Narrative (Attachment 4)

Project Narrative form follows proposed Scoring Criteria defined in Section IV of the Solicitation Manual.

Provide detailed description of the proposed project and technology, and provide the information requested in each of the following areas:

- 1. Technical Merit and Need:** justifies why the project is relevant and should be funded by CEC.
- 2. Technical Approach:** what is your approach, plan to address risks/barriers, technology transfer plan, and feasibility of the proposed technical work, M&V plan
- 3. Impacts and Benefits for CA ratepayers:** quantitative estimates of GHG emission and energy cost reductions job creation, and other benefits, robust assumptions
- 4. Team Qualifications, Capabilities, and Resources:** demonstrate the quality and experience of the team and resource available
- 5. Budget and Cost-Effectiveness:** justify the requested funds relative to the project goals, objectives, and tasks, as well as the category budgets and rates
- 6. Preference Points:** describe the information requested in these criteria



Scope of Work (Attachment 6)

All of the following tasks are mandatory:

Task 1: General Project Tasks – do not revise the description on the products
Technical Tasks – starts with Task 2 – provide information in the “Recipient Shall” section on how you will implement the technical tasks.

Hints:

- Complete Sections I.A, I.B, II.A, II.B, II.C, IV
- Tell us exactly what you are proposing to do in your project and in each task.
- This complement and support discussion in project narrative (Attachment 4)
- Identify what you will deliver to the CEC.

- Be sure to include in the Project Schedule (Attachment 6a):
 - Product deliverables that correspond with the Scope of Work.
 - Realistic dates for when product deliverables can be completed.



Budget (Attachment 7)

- All Applicants must fill out Attachment 7.
- Major Subcontractors must complete Attachment 7.
- Only complete the white cells.

Don't delete sheets or rows; use the hide/expand function
The Applicant must submit information on all budget forms

*Major subcontractors are those with a budget exceeding \$100,000 or 25% of CEC funds



CEQA Compliance (Attachment 8)

Completion of this form facilitates our evaluation of proposed activities under CEQA

- Requires state and local agencies in California to assess the potential environmental impacts of their proposed actions
- This form must be completed regardless of whether the proposed activities are considered a “project” under CEQA.
- Failure to complete the CEQA process in a timely manner after the Energy Commission’s Notice of Proposed Award may result in the cancellation of a proposed award



Commitment and Support Letter Form (Attachment 11)

Commitment Letters (Mandatory):

- A commitment letter commits an entity or individual to providing the funding described in the letter
- Letters that are not submitted by the deadline will not be reviewed and counted towards meeting the requirement specified
- Project involves **pilot testing/ demonstration activities**, the applicant must include a site commitment letter signed by an authorized representative of the proposed test/ demonstration site.
- Applicants must submit a match funding commitment letter signed by each representative of the entity or individual that is committing to providing match funding.

Note: If the match funds are provided by the applicant, a commitment letter from the applicant is needed.



Commitment and Support Letter Form (Attachment 11) (cont.)

Support Letters:

- A support letter details an entity or individual's support for the project
- Letters that are not submitted by the application deadline will not be reviewed and counted towards meeting the requirement specified
- Applicants may include support letters from project stakeholders (i.e., an entity or individual that will benefit from or be involved in the project) that:
 1. Describes the stakeholder's interest or involvement in the project;
 2. Indicates the extent to which the project has the support of the relevant industry and/or community based organizations; and
 3. Describes any support it intends (but does not necessarily commit) to provide for the project.



Applicant Declaration (Attachment 12)

This is a new form stating that the applicant is in good standing with both the state of California and the California Energy Commission.

- Not delinquent on taxes.
- Registered to do business in California with the Secretary of State.
- Not actively being sued by any public agency or entity.
- Not in active litigation with the CEC.
- Sign and date under penalty of perjury.

Note: The declaration must be signed under penalty of perjury by an authorized representative of the applicant's organization.



How will my Application be Evaluated?

Application Screening

Admin Screening Process

1. California Energy Commission staff screens applications per criteria in Section IV.E.
2. Criteria are evaluated on a pass/fail basis.
3. Applicants must pass all screening criteria or the application will be disqualified.

Some Reasons for Disqualification

- Application is not submitted by the specified due date and time.
- Applicant did not sign the Application Form (Attachment 1).
- Application with demonstration site does not include signed commitment letters.
- Application contains confidential material.



Application Scoring Scale (Section IV.F)

Refer to **Section IV.F** in the Grant Manual for explanation of the percentage points.



% of Possible Points	Interpretation
0%	Not Responsive
10-30%	Minimally Responsive
40-60%	Inadequate
70%	Adequate
75%	Between Adequate and Good
80%	Good
85%	Between Good and Excellent
90%	Excellent
95%	Between Excellent and Exceptional
100%	Exceptional



How will my Application be Evaluated?

Application Scoring

- **Evaluation Committee applies the scoring scale to the scoring criteria.**
- **New Scoring Criteria – Past Performance with California Energy Commission.**
- **Applications must obtain a minimum passing score of 6 points for Criteria 1 in order to continue evaluation.**

Scoring Criteria	Maximum Points
1. Project Team Past Performance with California Energy Commission	15
Severe performance issues (0-5 points)	
Moderate performance issues (6-12 points)	
No/minor performance issues (13-15 points)	
Total	15
Minimum Points to Pass	6



How will my Application be Evaluated?

Application Scoring

- **Applications must obtain a minimum passing score of 63 points for Criteria 1-5 in order to continue evaluation.**

Scoring Criteria	Maximum Points
2. Technical Merit and Need	15
3. Technical Approach	25
4. Impacts and Benefits for CA IOU Ratepayers	20
5. Team Qualifications, Capabilities and Resources	15
Total	90
Minimum Points to Pass	63



How will my Application be Evaluated?

Application Scoring

- **Applications must obtain a minimum passing score of 80.5 points for Criteria 1-8 in order to be considered for funding.**
- **Each Applicant must review the Evaluation and Award Process section of the solicitation and ensure your application provides a clear and complete response to each scoring criteria.**

Scoring Criteria	Maximum Points
6. Budget and Cost-Effectiveness	10
7. EPIC Funds Spent in CA	10
8. Ratio of Direct Labor to Indirect Costs	5
Total	115
Minimum Points to Pass	80.5



How will my Application be Evaluated?

Additional Bonus Points

- **Applications must meet all minimum passing scores (Scoring Criteria 1, 1-5, and 1-8) to be eligible for the additional points. Criteria for bonus points include:**
 - **Match Funding**
 - **Disadvantaged & Low-Income Communities**
 - **Underrepresented Groups in Technical Leadership**

Scoring Criteria	Maximum Points
Match Funding (Groups 1-3)	5
Disadvantaged & Low-Income Communities (Group 1-2)	5
Underrepresented Groups in Technical Leadership (Groups 1-3)	5
Total Bonus Points (Groups 1-2)	15
Total Bonus Points (Group 3)	10



Match Funding Points

Applicants may receive up to 5 additional preference points based on the criteria below:

- Up to 5 points will be awarded based on the level of commitment, type of match funding, dollar value justification, and funding replacement strategy described in the match funding commitment letter.
- Refer to Section IV.F in the Solicitation Manual for more details on the match funding scoring criteria.



Potential Grounds For Rejection at Any Time (Section IV.C)

The Energy Commission reserves the right to reject an application for any of the following reasons:

- Application contains false or misleading statements
- Application is intended to mislead the State in its evaluation
- Application does not comply with the solicitation requirements
- Applicant has received unsatisfactory evaluations from the Energy Commission or another California state agency
- Applicant is a business entity that is not in good standing with the California Secretary of State
- Existence of information demonstrates that the Applicant does not have the financial capability to complete the project
- Applicant fails to meet CEQA compliance within sufficient time for the Energy Commission to meet the encumbrance deadline



Next Steps After Grant Award

- **Agreement Development:** Proposal documents will be processed into a legal agreement.
- **Failure to Execute:** If the Energy Commission is unable to successfully execute an agreement with an applicant, it reserves the right to cancel the pending award*
- **Project Start:** Recipients may begin the project only after full execution of the grant agreement (i.e., approval at an Energy Commission business meeting and signature by the Recipient and the Energy Commission)

*Refer to the Solicitation Manual, Section IV.B



Application Submission Requirements

(for Electronic Submission)

Preferred method of Delivery is the Energy Commission Grant Solicitation System, available at:
<https://gss.energy.ca.gov/>

Electronic files must be in Microsoft Word (.doc format) and Excel formats, unless originally provided in solicitation in another format.

Attachments **requiring signatures** may be scanned and submitted in PDF format.

Attachment 6 must be in Excel format.

Completed Budget Forms (Attachment 7) must be in Excel format.

First time users must register as a new user to access GSS system.

Video on how to register and submit application:

<https://www.youtube.com/watch?v=nxrdS3KHSAA&feature=youtu.be>

Test and register to GSS system before 12/13/19 and don't wait until the last minute to submit your application.



Application Submission Requirements

(for Hard Copy Submittal)

Submit Applications with all attachments in the order specified by the due date and time listed in Section I.G of the manual.

Application documents should meet formatting requirements, page limit recommendations, and number of copies specified in Section III.A.

- **One** hard copy and **one** electronic copy.



Follow These Guidelines

- Read the Solicitation Manual
- Read the Application.
- **Sign the Application**– Attachment 1 .
- Submit Application by the due date and time specified in the solicitation (Section 1.G).
- Only request funds within the minimum and maximum range (Section I.F).
- Do not include a statement or otherwise indicate that you will not accept the terms and conditions.
- Provide one or more commitment letter(s) for match funding that meets the minimum match for each Tier specified in Section I.F.1 (Attachment 7). Commitment and support letters must be submitted by the due date listed in the schedule.
- If submitting multiple applications, make sure each application is for a distinct project and not duplicative of another application that you are submitting.



Key Dates

Activity	Action Date
Solicitation Release	9/30/2019
Pre-Application Workshop	10/9/2019, 10:00 AM PDT
Deadline for Written Questions	10/18/2019, 5:00 PM PDT
Anticipated Distribution of Questions and Answers	Week of 10/28/2019
Deadline to Submit Applications	12/13/2019, 5:00 PM PST
Anticipated Notice of Proposed Award Posting Date	1/31/2020
Anticipated Energy Commission Business Meeting Date	3/12/2020
Anticipated Agreement Start Date	4/01/2020
Anticipated Agreement End Date	12/31/2023

Questions and Answers



Please state your name and affiliation as an introduction.

Please note that our official response will be given in writing in the Q&A document. We encourage you to submit all questions in writing in addition to asking them today.



Additional Questions

Updates on solicitation documents including this presentation will be posted at the Grant Funding Opportunity's webpage:

<https://www.energy.ca.gov/solicitations/2019-09/gfo-19-302-advance-next-generation-wind-energy-technology-next-wind>.

Please send all questions related to GFO-19-302 to:

Andrea Hoppe

Commission Agreement Officer

1516 Ninth Street, MS-18

Sacramento, CA 95814

(916) 654-4423

Andrea.Hoppe@energy.ca.gov

Deadline to submit questions:

Friday, October 18, 2019 5:00 PM PDT