

**Exhibit A
SCOPE OF WORK**

TECHNICAL TASK LIST

Task #	CPR	Task Name
1	N/A	Administration
2		Review Existing Data/Literature and Develop Test Plans
3		Test PM Methods on an Industrial Scale Microturbine
4		Perform Verification Testing with Heavy-Duty Frame Turbines
5		Analyze Data and Finalize PM Test Method

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	W. Miller		
2	W. Miller		
3	W. Miller, D. Cocker, B. Welch, G. England, R. Finken		
4	W. Miller, D. Cocker, B. Welch, G. England, R. Finken		
5	W. Miller		

GLOSSARY

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

Acronym	Definition
AQMD	Air Quality Management District
CARB	California Air Resources Board
CPR	Critical Project Review
Energy Commission	California Energy Commission
EPA	United States Environmental Protection Agency
NG	Natural Gas
OM/OC	Organic Matter/Organic Carbon
PAC	Project Advisory Committee
PIER	Public Interest Energy Research
PM	Particulate Matter
QAPP	Quality Assurance Project Plan
SMPS	Scanning Mobility Particle Sizer
ToF-AMS	Time of Flight Atomic Mass Spectrometer
UCC.1	Uniform Commercial Code (Financing Statement)

Problem Statement

The California Energy Commission (Energy Commission) has the statutory responsibility for licensing thermal power plants 50 megawatts and larger. One of the challenging siting problems is that many populated centers in California are classified as non-attainment areas so emissions from new power sources are required to offset emissions from existing sources. Adding to this challenge are emission levels so low they are often at the lower detection limit of current measurement methods, leading to uncertainty in the actual measured values.

The uncertainty and inaccuracies in measurement of Particulate Matter (PM) can lead to decisions that limit the siting of plants. For example, in the South Coast Air Quality Management District (AQMD) each pound of PM emissions from a new source is very expensive to offset. Emission reduction credits in the South Coast AQMD were as much as \$350,000 per pound per day in 2009 and averaged over \$140,000. Clearly each excess pound of PM reported raises significant financial issues for a project. The accuracy of the PM measurement method needs to be improved.

Understanding analytical methods used to measure the PM emissions is a key element in determining how to apply the methods to the new Natural Gas (NG) plants. The path to that understanding will rely on delving into the details and answering a number of questions about the existing test methods with their prescribed protocols. An in-depth analysis is needed to determine whether the current analytical methods provide the required data for measuring PM with an acceptable range, sensitivity, accuracy, and precision. The current test methods were not developed to assess such low emission levels and need to be updated using the many recent advances in PM measurement methods to accurately reflect the low emission levels now being seen from NG power plants. Both the United States Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) are aware of the challenge to accurately measure low PM levels. Given this background, new test methods are proposed by the EPA but it believes that improved tests are needed. Furthermore new real-time instruments are capable of detecting very small concentrations at high exhaust gas velocities that need to be evaluated.

This research will lead to improved emissions estimates from NG plants and to a better understanding of the air quality impacts of NG power plants, and will ultimately help in obtaining permits to site new NG power plants.

Development of this project has been closely coordinated with the CARB. This project will include an advisory group with members from regulatory agencies (including CARB, EPA and the air districts), and academics.

Goals of the Agreement

The goal of this Agreement is to improve the understanding of the air quality impacts and uncertainty in the permitting levels used to cite NG power plants by improving the PM emissions estimates and measurement methods from NG plants.

Objectives of the Agreement

The objectives of this Agreement are to evaluate the accuracy and precision of current and proposed PM test methods, especially those methods aimed at the condensable PM. Specifically, this project will perform tests on natural gas turbines to:

- Evaluate CARB Test Method 5
- Evaluate EPA Methods 201A & 202
- Evaluate measurement of PM_{2.5} emissions by dilution sampling
- Determine whether new real time instruments can be applied

The performance measures that will be used to measure the success of this project will be:

- The extent that the true bias, precision and accuracy of current methods described above can be measured in this project
 - The extent that the true bias, precision and accuracy of the dilution sampling and other new methods described above can be measured in this project
- A statistically significant increase in accuracy of the new methods compared to the current methods

TASK 1.0 ADMINISTRATION

MEETINGS

Task 1.1 Attend Kick-off Meeting

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

The Contractor shall:

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

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

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

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

- The Energy Commission Contract Manager’s expectations for accomplishing tasks described in the Scope of Work;
- An updated Schedule of Deliverables

- Progress Reports (Task 1.4)
- Technical Deliverables (Task 1.5)
- Final Report (Task 1.6)
- Establish the PAC (Task 1.10)
- PAC Meetings (Task 1.11)

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

Contractor Deliverables:

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

Energy Commission Contract Manager Deliverables:

- Final Report Instructions

Task 1.2 CPR Meetings

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

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

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

The Energy Commission Contract Manager shall:

- Determine the location, date and time of each CPR meeting with the Contractor. These meetings generally take place at the Energy Commission, but they may take place at another location.
- Send the Contractor the agenda and a list of expected participants in advance of each CPR. If applicable, the agenda shall include a discussion on both match funding and permits.

- Conduct and make a record of each CPR meeting. One of the outcomes of this meeting will be a schedule for providing the written determination described below.
- Determine whether to continue the project, and if continuing, whether or not to modify the tasks, schedule, deliverables and budget for the remainder of the Agreement, including not proceeding with one or more tasks. If the Energy Commission Contract Manager concludes that the project needs a formal amendment or that satisfactory progress is not being made and the project needs to be ended, these conclusions will be referred to the Energy Commission's Research, Development and Demonstration Policy Committee for its concurrence.
- Provide the Contractor with a written determination in accordance with the schedule. The written response may include a requirement for the Contractor to revise one or more deliverable(s) that were included in the CPR.

The Contractor shall:

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

Contractor Deliverables:

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

Energy Commission Contract Manager Deliverables:

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

Task 1.3 Final Meeting

The goal of this task is to closeout this Agreement.

The Contractor shall:

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

This meeting will be attended by, at a minimum, the Contractor, the Energy Commission Contracts Officer, and the Energy Commission Contract Manager. The

technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the Energy Commission Contract Manager.

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

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

- What to do with any state-owned equipment (Options)
 - Need to file UCC.1 form re: Energy Commission's interest in patented technology
 - Energy Commission's request for specific "generated" data (not already provided in Agreement deliverables)
 - Need to document Contractor's disclosure of "subject inventions" developed under the Agreement
 - "Surviving" Agreement provisions, such as repayment provisions and confidential deliverables
 - Final invoicing and release of retention
-
- Prepare a schedule for completing the closeout activities for this Agreement.

Deliverables:

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

REPORTING

See Exhibit D, Reports/Deliverables/Records.

Task 1.4 Quarterly Progress Reports

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

The Contractor shall:

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

Deliverables:

- Quarterly Progress Reports

Task 1.5 Test Plans, Technical Reports and Interim Deliverables

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

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

The Contractor shall:

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

Task 1.6 Final Report

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

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

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

Task 1.6.1 Final Report Outline

The Contractor shall:

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

Deliverables:

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

Task 1.6.2 Final Report

The Contractor shall:

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

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

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

Deliverables:

- Draft Final Report
- Final Report

MATCH FUNDS, PERMITS, AND ELECTRONIC FILE FORMAT

Task 1.7 Identify and Obtain Matching Funds

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

The costs to obtain and document match fund commitments are not reimbursable

through this Agreement. While the PIER budget for this task will be zero dollars, the Contractor may utilize match funds for this task. Match funds shall be spent concurrently or in advance of PIER funds during the term of this Agreement. Match funds must be identified in writing, and the associated commitments obtained before the Contractor can incur any costs for which the Contractor will request reimbursement.

The Contractor shall:

- Prepare a letter documenting the match funding committed to this Agreement and submit it to the Energy Commission Contract Manager at least 2 working days prior to the kick-off meeting:
 1. If no match funds were part of the proposal that led to the Energy Commission awarding this Agreement and none have been identified at the time this Agreement starts, then state such in the letter.
 2. If match funds were a part of the proposal that led to the Energy Commission awarding this Agreement, then provide in the letter:
 - A list of the match funds that identifies the:
 - Amount of each cash match fund, its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied.
 - Amount of each in-kind contribution, a description, documented market or book value, and its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Contractor shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located.
 - A copy of the letter of commitment from an authorized representative of each source of cash match funding or in-kind contributions that these funds or contributions have been secured.
- Discuss match funds and the implications to the Agreement if they are significantly reduced or not obtained as committed, at the kick-off meeting. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide the appropriate information to the Energy Commission Contract Manager if during the course of the Agreement additional match funds are received.
- Notify the Energy Commission Contract Manager within 10 working days if during the course of the Agreement existing match funds are reduced. Reduction in match funds may trigger an additional CPR.

Deliverables:

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

Task 1.8 Identify and Obtain Required Permits

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

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

The Contractor shall:

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

- As permits are obtained, send a copy of each approved permit to the Energy Commission Contract Manager.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the Energy Commission Contract Manager within 5 working days. Either of these events may trigger an additional CPR.

Deliverables:

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

Task 1.9 Electronic File Format

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

The Contractor shall:

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

Deliverables:

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

PAC

Task 1.10 Establish the Project Advisory Committee (PAC)

The goal of this task is to create an advisory committee for this Agreement.

The PAC should be composed of diverse professionals. The number can vary depending on potential interest and time availability. The Contractor's Project Manager and the Energy Commission Contract Manager shall act as co-chairs of the PAC. The exact composition of the PAC may change as the need warrants. PAC members serve at the discretion of the Energy Commission Contract Manager.

The PAC may be composed of qualified professionals spanning the following types of disciplines:

- Researchers knowledgeable about the project subject matter
- CARB, Air Districts and EPA
- Members of the trades who will apply the results of the project (e.g., designers, engineers, architects, contractors, and trade representatives)
- Public Interest Market Transformation Implementers
- Product Developers relevant to project subject matter
- United States Department of Energy Research Manager
- Public Interest Environmental Groups
- Utility Representatives
- Members of the relevant technical society committees

The purpose of the PAC is to:

- Provide guidance in research direction. The guidance may include scope of research; research methodologies; timing; coordination with other research. The guidance may be based on:
 - technical area expertise
 - knowledge of market applications
 - linkages between the agreement work and other past, present or future research (both public and private sectors) they are aware of in a particular area.
- Review deliverables. Provide specific suggestions and recommendations for needed adjustments, refinements, or enhancement of the deliverables.
- Evaluate tangible benefits to California of this research and provide recommendations, as needed, to enhance tangible benefits.
- Provide recommendations regarding information dissemination, market pathways or commercialization strategies relevant to the research products.

The Contractor shall:

- Prepare a draft list of potential PAC members that includes name, company, physical and electronic address, and phone number and submit it to the Energy Commission Contract Manager at least 2 working days prior to the kick-off meeting. This list will be discussed at the kick-off meeting and a schedule for recruiting members and holding the first PAC meeting will be developed.
- Recruit PAC members and ensure that each individual understands the member obligations described above, as well as the meeting schedule outlined in Task 1.11.
- Prepare the final list of PAC members.
- Submit letters of acceptance or other comparable documentation of commitment for each PAC member.

Deliverables:

- Draft List of PAC Members
- Final List of PAC Members

- Letters of acceptance, or other comparable documentation of commitment for each PAC Member

Task 1.11 Conduct PAC Meetings

The goal of this task is for the PAC to provide strategic guidance to this project by participating in regular meetings or teleconferences.

The Contractor shall:

- Discuss the PAC meeting schedule at the kick-off meeting.
- Organize and lead PAC meetings in accordance with the schedule. Changes to the schedule must be pre-approved in writing by the Energy Commission Contract Manager.
- Prepare PAC meeting agenda(s) with back-up materials for agenda items.
- Prepare PAC meeting summaries, including recommended resolution of major PAC issues.

Deliverables:

- Final PAC Meeting Schedule
- PAC Meeting Agenda(s) with Back-up Materials for Agenda Items
- Written PAC meeting summaries, including recommended resolution of major PAC issues

TECHNICAL TASKS

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

Task 2 Review Existing Data/Literature and Develop Test Plans

The goals of this task are to: 1) review relevant literature and previous studies to determine, for power generation units, properties of their PM emissions, shortcomings of PM measurement methods and data gaps, and 2) develop test plans to improve test methods for measuring PM from natural gas power generation units.

The Contractor shall:

- Conduct a literature review of previous measurements of and research on emissions and characteristics of PM from NG power generation units and methods to measure those emissions. The review will include but not be limited to the following resources and studies:
 - Development of Fine Particulate Emission Factors and Speciation Profiles for Oil and Gas-fired Combustion Systems, Final Report, 2004
 - Source test data from the various regulatory agencies in order to shed additional light on characteristics of the various sources and their emissions

- Summarize relevant literature and prepare a chapter on literature review and findings for the Final Report.
- Using information compiled in the literature review, develop the Industrial Scale Microturbine Test Plan to be used in Task 3 for testing PM emissions from a NG power generation test unit. The Test Plan will address replicates, laboratory analyses, ranges of test conditions, methods to be used, how and what parameters will be varied, and data to be collected.
- Develop a Quality Assurance Project Plan (QAPP).
- Meet with the PAC to discuss the draft Industrial Scale Microturbine Test Plan and QAPP. Provide the Industrial Scale Microturbine Test Plan to the PAC at least one week before the meeting.
- Incorporate PAC comments into the Industrial Scale Microturbine Test Plan and QAPP as appropriate.
- Obtain written approval from the Energy Commission Contract Manager for the Industrial Scale Microturbine Test Plan and QAPP before starting the microturbine testing program.
- Using information compiled in the literature review and Task 3 testing, develop the Heavy-duty Frame Turbine Test Plan for testing PM emissions from NG power generation units, including details as to the Test Matrix, number of sources to sample, replicates, laboratory analyses, ranges of test conditions, methods to be used, how and what parameters will be varied, and data to be collected.
- Meet with the PAC to discuss the draft Heavy-duty Frame Turbine Test Plan. Provide the test plan to the PAC at least one week before the meeting.
- Incorporate PAC comments into the Heavy-duty Frame Turbine Test Plan as appropriate.
- Obtain written approval from the Energy Commission Contract Manager for the Heavy-duty Frame Turbine Test Plan before starting the testing program.

Deliverables:

- Chapter on literature review and findings, to be included in the Final Report (no draft)
- Quality Assurance Project Plan (QAPP)
- Industrial Scale Microturbine Test Plan
- Heavy-duty Frame Turbine Test Plan

Task 3 Test Various PM methods on an Industrial Scale Microturbine

The goal of this task is to test the robustness and sensitivity of the current PM measurement methods on an industrial scale microturbine fired by NG. The testing will identify the parameters that determine the accuracy and precision of the flow and concentration of PM_{2.5} measurements in the electricity generation unit. Finally, the Contractor will incorporate that understanding and knowledge into planning for the more expensive phase of the project, namely testing of the heavy-duty turbine frames.

The Contractor shall:

- Perform testing using the Energy Commission Contract Manager approved Industrial Scale Microturbine Test Plan developed in Task 2. It is expected that this testing will include the following:
 - Repeated measurements on the different PM test methods on an industrial scale microturbine.
 - A parametric study of the dilution factors, such as the dilution rate, humidity, temperature and aging time on the measured PM mass.
 - Use of a high resolution Time of Flight Atomic Mass Spectrometer (ToF-AMS) to learn more about the chemical nature for the ratio of Organic Matter/Organic Carbon (OM/OC) of the water-soluble organic fraction of PM mass.
 - Capturing significant data from the real-time *Scanning Mobility Particle Sizer* (SMPS) on the physical nature for the PM from the gas-fired combustor to learn more about the physical nature of the PM.
 - Comparing the PM Mass measured by different methods and analyzing to determine whether the statistical significance and confidence in the data will meet the accuracy and precision requirements of the siting agencies.
- Prepare a Test Results Summary

Deliverables:

- Test Results Summary (no draft)

Task 4 Perform Verification Testing with Heavy-duty Frame Turbines

The goals of this task are to verify what was learned in Task 3 on heavy-duty frame turbines and to develop a proposed PM test method.

The Contractor shall:

- Perform testing on at least four units on four measurement methods, as funding allows, using the Energy Commission Contract Manager-approved Heavy-Duty Frame Turbine Test Plan.
- Prepare a Test Results Summary

Deliverables:

- Test Results Summary (no draft)

Task 5 Analyze Data and Finalize PM Test Method

The goals of this task are to develop the repeatability and reproducibility figures for the various test methods and to develop a proposed PM source test method.

The Contractor shall:

- Prepare a Database of Analyzed Results.
- Analyze the data, including cataloging, post processing, computation of emission factors, and statistical analysis of the data.
- Finalize the proposed improved PM test method.
- Meet with the PAC to discuss the improved PM test method. Provide the test plan to the PAC at least one week before the meeting.
- Incorporate PAC comments into the proposed PM Test Method as appropriate.

Deliverables:

- Database of Analyzed Results (no draft)
- PM Test Method (no draft)