

Exhibit A WORK STATEMENT

TECHNICAL TASK LIST

Task #	CPR	Task Name
1	NA	Administration
2		Other Well Work Funded by DOE
3		Re-Drill and Deepen Prati 5 as necessary

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1 – 3	Mark Walters	ThermoSource	DOE
1 – 3	Julio Garcia	Kelly Pipe	DOE
1 – 3	Paul Graham	Redwood Coast Fuels	DOE
1 – 3	Joe Beall	Northern Truck & Crane	DOE
1 – 3	Melinda Wright	Tecton Geologic, Inc.	DOE
1 – 3	Keshav Goyal	Reynolds Truck & Crane	DOE
1 – 3	Corky Bracisco	Hughes Christensen	DOE
1 – 3	Bruce Carlsen	Weatherford	DOE
1 – 3	Alison Mannwieler		

GLOSSARY

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

Term/ Acronym	Definition
ARRA	American Recovery and Reinvestment Act
CPN	Calpine Corporation
CPR	Critical Project Review
CCPA	Central California Power Authority
DOE	United States Department of Energy
DOGGR	Division of Oil, Gas and Geothermal Resources
Energy Commission	California Energy Commission
EGS	Enhanced Geothermal System
MW	Megawatt
PAC	Project Advisory Committee
PIER	Public Interest Energy Research
RD&D	Research, Development and Demonstration

Problem Statement:

The Caldwell Ranch Project area was developed as the steamfield for the 130 Megawatt (MW) Central California Power Authority (CCPA) No. 1 steamfield in 1989. Due to severe reservoir pressure decline, an insufficient water supply to supplement condensate injection, and falling energy prices, the CCPA No. 1 Power Plant was shut down in July 1996. It was abandoned along with the steamfield wells, pipelines, and leases in 2000. Calpine acquired the Caldwell Ranch leases in 2004.

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rates of the Caldwell Ranch reservoir, and to obtain data on fluid and rock chemistry. Since 1996 when the CCPA No.1 Power Plant was shut-in, the reservoir characteristics may have changed. The nearby Prati 9 well was reopened (from previous abandonment) in 2008. A new well bore was kicked off from the original at a depth of 4800'. The Redrill through the reservoir section remained close to the original well bore yet failed to find any of the eight steam entries encountered in the original well between 7200' and 7900'. Therefore, the conditions in Prati 5 may have changed since it was abandoned in 1996.

Goals of the Agreement:

The goal of this agreement is to determine if Prati 5 can be restored to its former commercial steam production capacity of approximately 2 MW.

Objectives of the Agreement:

The objectives of this Agreement are to re-open, re-drill (if needed), sample, and test to determine the present economic viability of Prati 5. The re-drilling of Prati 5 will be done in Task 3, if necessary. This confirmation project will characterize the present reservoir condition in order to determine the feasibility of re-developing a steam supply.

Product Guidelines:

For complete product guidelines, refer to Section 5 in the Terms and Conditions.

TASK 1 ADMINISTRATION

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 Recipient shall:

- Attend a "Kick-Off" meeting with the Commission Project Manager, the Grants Officer, and a representative of the Accounting Office. The Recipient shall bring its Project Manager, Agreement Administrator, Accounting Officer, and others designated by the Commission Project Manager to this meeting. The administrative and technical aspects of this Agreement will be discussed at the meeting. Prior to the kick-off meeting, the Commission Project 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:

- Discussion of the terms and conditions of the Agreement
- Discussion of Critical Project Review (Task 1.2)
- Match fund documentation (Task 1.6)
- Permit documentation (Task 1.7)

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

- The Commission Project Manager's expectations for accomplishing tasks described in the Scope of Work
- An updated Schedule of Products
- Discussion of Progress Reports (Task 1.4)
- Discussion of Technical Products (Product Guidelines located in Section 5 of the Terms and Conditions)
- Discussion of the Final Report (Task 1.5)

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

Recipient Products:

- Updated Schedule of Products (no draft)
- Updated List of Match Funds (no draft)
- Updated List of Permits (no draft)

Commission Project Manager Product:

- Kick-Off Meeting Agenda (no draft)

Task 1.2 Critical Project Review (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 to identify any needed modifications to the tasks, products, schedule or budget.

CPRs provide the opportunity for frank discussions between the Energy Commission and the Recipient. CPRs generally take place at key, predetermined points in the Agreement, as determined by the Commission Project Manager and as shown in the Technical Task List above. However, the Commission Project Manager may schedule additional CPRs as necessary, and any additional costs will be borne by the Recipient.

Participants include the Commission Project Manager and the Recipient and may include the Commission Grants Officer, the Public Interest Energy Research (PIER) Program Team Lead, other Energy Commission staff and Management as well as other individuals selected by the Commission Project Manager to provide support to the Energy Commission.

If DOE is conducting similar meetings, the Recipient shall notify and invite the Commission project manager to participate, either by teleconference or by actual meeting attendance. The DOE required meetings can be used in place of the Commission's CPR meetings, at the discretion of the Commission project manager.

The Commission Project Manager shall:

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- Determine the location, date, and time of each CPR meeting with the Recipient. These meetings generally take place at the Energy Commission, but they may take place at another location.
- Send the Recipient 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 modifications are needed to the tasks, schedule, products, and/or budget for the remainder of the Agreement. Modifications to the Agreement may require a formal amendment (please see the Terms and Conditions). If the Commission Project Manager concludes that satisfactory progress is not being made, this conclusion will be referred to the Energy Commission's Research, Development and Demonstration (RD&D) Policy Committee for its concurrence.
- Provide the Recipient with a written determination in accordance with the schedule. The written response may include a requirement for the Recipient to revise one or more product(s) that were included in the CPR.

The Recipient 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 products identified in this scope of work. The Recipient shall submit these documents to the Commission Project 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.
- Recipient will provide copies of any DOE correspondence (emails, reports, letters, etc.) that relate to the project status. This includes copies of project performance reviews on Recipient work and summaries and results of project review meetings with DOE.

Commission Project Manager Products:

- Agenda and a list of expected participants (no draft)
- Schedule for written determination (no draft)
- Written determination(no draft)

Recipient Product:

- CPR Report(s) (no draft)
- DOE correspondence and reporting (no draft)

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Task 1.3 Final Meeting

The goal of this task is to closeout this Agreement. If DOE is conducting a similar final meeting, the Recipient shall notify and invite the Commission project manager to participate, either by teleconference or by actual meeting attendance. The DOE required meeting can be used in place of the Commission's final meeting, at the discretion of the Commission project manager. However, all items listed in this task will need to be covered in the meeting.

The Recipient shall:

- Meet with Energy Commission staff 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 Recipient, the Commission Grants Office Officer, and the Commission Project Manager. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the Commission Project Manager.

The technical portion of the meeting shall present an assessment of the degree to which project and task goals and objectives were achieved, findings, conclusions, recommended next steps (if any) for the Agreement, and recommendations for improvements. The Commission Project Manager will determine the appropriate meeting participants.

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

- What to do with any equipment purchased with Energy Commission funds (Options)
- Energy Commission's request for specific "generated" data (not already provided in Agreement products)
- Need to document Recipient's disclosure of "subject inventions" developed under the Agreement
- "Surviving" Agreement provisions, such as repayment provisions and confidential Products
- Final invoicing and release of retention
- Prepare a schedule for completing the closeout activities for this Agreement.
- Copies of all correspondence and reports discussing DOE's findings on the project, and future disposition of the project, if applicable. When directed by the Commission project manager, recipient will provide copies of any DOE correspondence (emails, reports, letters, etc.) that relate to project performance.

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Products:

- Written documentation of meeting agreements (no draft)
- Schedule for completing closeout activities (no draft)
- DOE correspondence on project findings and results (no draft)

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 on time and within budget.

The objectives of this task are to summarize activities performed during the reporting period, to identify activities planned for the next reporting period, to identify issues that may affect performance and expenditures, and to form the basis for determining whether invoices are consistent with work performed.

With Commission Project Manager approval, the Recipient can submit a DOE Progress Report in lieu of the required Commission report if it contains the information listed in Attachment 1 of the Terms and Conditions.

The Recipient shall:

- Prepare Quarterly Progress Reports which summarize all Agreement activities conducted by the Recipient for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due to the Commission Project Manager within 10 days of the end of the reporting period. The recommended specifications for each progress report are contained in Exhibit A, Attachment A-2.
- Unless otherwise directed by the Commission project manager, each Progress Report must contain any reports made to DOE, including summaries of meetings with DOE, as it that relates to the project outcome and performance. Include names and contacts of DOE representatives.

Product:

- Quarterly Progress Reports (no draft)
- Copies of DOE reporting and meeting summaries (no draft)

Task 1.5 Final Report

The goal of the Final Report is to assess the project's success in achieving its goals and objectives, advancing science and technology, and providing energy-related and other benefits to California.

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The final report shall describe the following at a minimum: a) original purpose, approach, activities performed, results and conclusions of the work done under this Agreement; b) how the project advanced science and technology to the benefit of California's ratepayers and the barriers overcome; c) assessment of the success of the project as measured by the degree to which goals and objectives were achieved; d) how the project supported California's economic recovery in the near term and number of jobs created or sustained; e) how the project results will be used by California industry, markets and others; f) projected cost reduction impact and other benefits resulting from the project; g) discuss the project budget, including the total project cost and all the funding partners and their cost share; h) discuss how the Energy Commission funding was spent on the project, including any unique products and benefits; i) observations, conclusions and recommendations for further RD&D projects and improvements to the PIER project management process.

If a final report is required by DOE, the Recipient will include a copy of it along with the Energy Commission's final report requirements. In addition, the Recipient shall submit the draft final DOE report to the Energy Commission for review at the same time it submits it to DOE.

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

The Recipient shall:

- Provide a draft copy of the Final Report including a copy of the draft submitted to the U.S. DOE in response to the American Recovery and Reinvestment Act Funding Opportunity Notice for which an award was received. The Final Report must be completed on or before the end of the Agreement Term.
- Submit written correspondence from DOE regarding acceptance of the final report.

Products:

- Draft Final Report, including a copy of the draft report submitted to DOE (no draft)
- Final Report, including a copy of the final report submitted to DOE (no draft)
- Written correspondence from DOE regarding acceptance of final report (no draft)

Task 1.6 Identify and Obtain Matching Funds

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

The Recipient shall:

- Prepare a letter documenting the match funding committed to this Agreement and submit it to the Commission Project Manager at least 2 working days prior to the kick-off meeting. The letter needs to identify the following at a minimum:
 - 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 Recipient shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located.
- Provide 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 reduced or not obtained as committed, at the kick-off meeting. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide the appropriate information to the Commission Project Manager if during the course of the Agreement additional match funds are received.
- Notify the Commission Project Manager within 10 days if during the course of the Agreement existing match funds are reduced. Reduction in match funds must be approved through a formal amendment to the Agreement and may trigger an additional CPR.

Products:

- A letter regarding match funds (no draft)
- Copy(ies) of each match fund commitment letter(s) (no draft)
- Letter(s) for new match funds (if applicable) (no draft)
- Letter that match funds were reduced (if applicable) (no draft)

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Task 1.7 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 not reimbursable under this Agreement. Although the PIER budget for this task will be zero dollars, the Recipient shall budget match funds for any expected expenditures associated with obtaining permits. Permits must be identified in writing and obtained before the Recipient can make any expenditures for which a permit is required.

The Recipient shall:

- Prepare a letter documenting the permits required to conduct this Agreement and submit it to the Commission Project Manager at least 2 working days prior to the kick-off meeting. If there are no permits required at the start of this Agreement, then state such in the letter. 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
 - The schedule the Recipient will follow in applying for and obtaining these permits.
- Discuss the list of permits and the schedule for obtaining them at the kick-off meeting and develop a timetable for submitting the updated list, schedule and the copies of the permits. 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, provide the appropriate information on each permit and an updated schedule to the Commission Project Manager.
- As permits are obtained, send a copy of each approved permit to the Commission Project Manager.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the Commission Project Manager within 10 days. Either of these events may trigger an additional CPR.

Products:

- Letter documenting the permits or stating that no permits are required (no draft)
- A copy of each approved permit (if applicable) (no draft)

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- Updated list of permits as they change during the term of the Agreement (if applicable) (no draft)
- Updated schedule for acquiring permits as changes occur during the term of the Agreement (if applicable) (no draft)

TECHNICAL WORK TASKS

The objective of the overall project is to re-open three abandoned wells (Prati 38, Prati 14, and Prati 5) and characterize the reservoir production flow rates, temperature, pressure, thickness, permeability, and fluid chemistry. The wells and information are necessary for Calpine to finance, develop and contract future pipelines and re-develop the subject project leases. Only a part of the entire project (Prati 5 re-drilling will be funded with Energy Commission funds.

TASK: 2 Other Well Work Funded by DOE

Task 2.1 – Prepare Wellhead Location, Drilling Activities, and Collect Drilling Data

- Prepare Prati 38, Prati 14 and Prati 5 wellhead location for drilling. This task includes installation of cellar and raising the existing casing which is now cut-off and abandoned below ground level for new wellhead equipment.
- Mobilize rig and re-open, clean-out and deepen Prati 38, Prati 14, and Prati 5 wells. Air drilling will be used to drill through the reservoir once the abandonment plugs have been removed from the casing. A production liner is planned through the reservoir section of each re-opened well. This task will include work on Prati 38, Prati 14, and the re-opening of Prati 5 that is not funded by the Energy Commission. The re-drilling of Prati 5 will be done in Task 3, if necessary.
- Collect drilling data, cuttings, and spot cores for analyses to characterize the target reservoir.
 - Collect a spot core and drill cuttings from Prati 38, Prati 14 and Prati 5, (reservoir conditions allowing) to characterize a 300' reservoir interval to characterize and confirm reservoir matrix permeability, porosity and lithology and reservoir matrix microstructures in the deepened and/or redrilled portions of the Caldwell Ranch Project reservoir.
 - Use rock isotope analyses of cutting samples of cutting to determine the pore volumes of meteoric water that have isotopically exchanged the target reservoir rocks.

Task 2.2 – Flow Testing

Conduct isochronal flow testing of each subject re-opened well to determine the deliverability, permeability, and static pressure of the steam reservoir. During isochronal flow testing, hydrogen sulfide in the steam will be abated in accord with the requirements of the Northern Sonoma County Air Pollution control District (NSCAPCD).

Task 2.3 – Log, Sample and Monitor Fluids during Flow Testing

Logs will include high temperature-pressure (PT) and pressure-temperature-spinner

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(PTS) logs in the Caldwell Ranch reservoir whenever temperature and wellbore conditions allow; and use of a tested high-temperature, downhole sampler to collect both conventional geochemical samples and noble gas isotope samples for analyses. Noncondensable gas (NCG) and condensate samples will be collected during the reservoir testing. Samples will be analyzed for steam and gas constituents. The NCG concentrations are used for the design criteria to reduce NCG concentrations before the steam reaches the turbine, and the air emissions abatement equipment to meet Air Pollution Control District standards. Condensate chloride concentrations will be characterized to determine the design parameters for Chloride Mitigation Facilities (CMF's) used to scrub the steam supply.

Task 2.4 – Validation of Testing

An independent expert (hired directly by DOE) will validate reservoir testing the Caldwell Ranch reservoir as required by DOE. The costs of the independent expert will be incurred by the DOE and are not included in the project costs. Calpine will provide personnel including its reservoir engineering staff to assist the independent expert where necessary.

Task 2.5 – Data Integration and Validation

Interpret test data from the Caldwell Ranch reservoir, integrate well test results from Prati 38, Prati 14, and Prati 5 with previously collected data, and validate exploration technology/methods. Integrate project data into the newly developed reservoir model to help transfer technology methods and guide future exploration.

Task 2.6 – Assess Resource

Assess reservoir capacity of the Caldwell Ranch Project area for generating electrical power (megawatts).

The Recipient shall:

- Submit the Final Report to the DOE to include:
 - A summary of the findings of the reservoir capacity of the wells by an independent expert
 - Results from all well tests, including flow rate and pressures at the surface, and down-hole measurements (PT and PTS) in the production zone;
 - Data and interpretations based on representative reservoir fluids collected for chemical analysis, including analyses of fluid samples collected by the downhole sampler

Products:

- Final report prepared for DOE

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TASK 3: Re-Drill and Deepen Prati 5 as Necessary

Prati 5 will be “un-abandoned” (i.e. “re-opened”) by drilling out abandonment plugs and reentering the well. The re-opening includes the use of a production liner within the production zone of the well. Corrosion and the general lack of production liners caused as many as 50% of the wellbores in the Caldwell Ranch Project to collapse and required subsequent workovers. Liners in the production zones should allow the possibility of using the proposed wells as either future production or injection wells if the reservoir is re-developed. This task is described in Task 2 above and is not funded by the Energy Commission.

If lost coiled tubing “fish” cannot be removed from the wellbore, the well may need to be re-drilled to restore flow rate. Re-drilling Prati 5 is the Energy Commission scope of work and is partially funded by the Energy Commission.

The Recipient shall:

- Provide to the Project Manager the data and information from re-drilling Prati 5, and the final report to the DOE. The Recipient will include the following data for the DOE National Geothermal Data System:
 - Daily drilling reports;
 - Drilling and casing program;
 - Well history;
 - Lithologic (“mud”) log;
 - Lost circulation amounts and depths;
 - Well pressure and temperature data as measured at the wellhead during drilling;
 - Any logs run in wells while drilling rig is on site;
 - Core testing laboratory analysis results (permeability, porosity, and microstructures);
 - Chemical analyses and data; and
 - All ARRA documentation as required

- All other data collected during the drilling and of these wells (e.g., chemical abatement records, bit records) will be available upon request for submission to the Energy Commission and the National Geothermal Data System. All drilling and logging data will be open-filed with the California Division of Oil, Gas and Geothermal Resources as required, and will be made publicly available on its website.

Products:

- Submit copies of all reports submitted to DOE for the project