

Exhibit A WORK STATEMENT

TECHNICAL TASK LIST

Task #	CPR	Task Name
1	N/A	Administration
2		Inorganic Ion Exchange Materials for Potassium Extraction
3		Development of a Novel Fixed Bed Adsorbent
4		Selective Precipitation of Potassium
5		Liquid-Liquid Extraction of Potassium
6		Optimization of Preferred Potassium Extraction Process
7		Purification of Potassium Chloride Streams and Generation of Product
8	X	Cost Analysis
9	X	Laboratory Pilot Testing
10		Potassium Extraction Demonstration Plant at Simbol's Commercial Lithium Extraction Plant in Calipatria, California

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Dr. Stephen Harrison, Dr. Carol Bruton, Simbol, Inc.		
2	Dr. Brian Viani, Simbol, Inc.		
3	Dr. Samaresh Mohanta, Simbol, Inc.	Chemionex, Inc.	
4	Dr. Krishna Sharma, Simbol, Inc.		
5	Dr. Samaresh Mohanta, Simbol, Inc.		
6	Dr. Stephen Harrison, Simbol, Inc.		
7	Dr. Stephen Harrison, Simbol, Inc.		
8	Ajit Venkatraman and Dr. Randy Grow, Simbol, Inc.		
9	Dr. Brian Dougherty, Simbol, Inc.		
10	Ajit Venkatraman, Simbol, Inc.		EnergySource

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GLOSSARY

Term/ Acronym	Definition
CPR	Critical Project Review
GRDA	Geothermal Resources Development Account
Potash	KCl, potassium chloride
RD&D	Research, Development and Demonstration

Problem Statement:

No technologies for economically producing potassium and producing a commercial product such as KCl, potassium chloride (potash) have been developed for the geothermal brines in the Salton Sea geothermal field even though the field has the potential to be the largest potassium resource in the U.S. Potassium was extracted from brines in the Imperial Valley but the evaporation process used proved to be uneconomic and operations ceased. The tremendous economic benefits of California's potassium resource in its geothermal brines cannot be realized until these technologies are developed and demonstrated in the field, and proven to be commercially viable.

Goal of the Agreement:

The goal of this Agreement is to demonstrate that a marketable potassium product can be produced economically from Salton Sea geothermal brines. The goal will be met by continuous operation of a potash demonstration plant using live geothermal brine. Commercial extraction of potassium will increase the value of geothermal resources and increase the cash flow to geothermal operators, thereby accelerating the development of California's geothermal resources, especially in Imperial County.

Objectives of the Agreement:

The objectives of this Agreement are to develop one or more processes that will extract at least 50% of the potassium in geothermal brines and convert the potassium to potash that meets market specifications at a cost that is competitive with the low cost producers of potash. To meet these objectives, Simbol, Inc. will first develop processes for potassium extraction in the laboratory, conduct laboratory pilot testing of the best technologies, and produce samples of potash for market qualification at a demonstration plant to be located at Simbol's commercial lithium extraction plant, using feed brine from EnergySource's Hudson Ranch 1 geothermal power plant in California's Salton Sea geothermal field.

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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 California Energy Commission (Energy 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 Energy 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 Energy 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)

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

- The Energy 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 Energy 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)

Energy Commission Project Manager Product:

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- 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 Energy Commission Project Manager and as shown in the Technical Task List above. However, the Energy Commission Project Manager may schedule additional CPRs as necessary, and any additional costs will be borne by the Recipient.

Participants include the Energy Commission Project Manager and the Recipient and may include the Energy Commission Grants Officer, the Geothermal Resources Development Account (GRDA) Program Team Lead, other Energy Commission staff and Management as well as other individuals selected by the Energy Commission Project Manager to provide support to the Energy Commission.

The Energy Commission Project Manager shall:

- 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 Energy 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.

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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 Energy 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.

Energy 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)

Task 1.3 Final Meeting

The goal of this task is to closeout this Agreement.

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 Energy Commission Grants Office Officer, and the Energy 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 Energy 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 Energy Commission Project Manager will determine the appropriate meeting participants.

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

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- 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

Products:

- Written documentation of meeting agreements (no draft)
- Schedule for completing closeout activities (no draft)

Task 1.4 Monthly 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.

The Recipient shall:

- Prepare a Monthly Progress Report which summarizes 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 Energy 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.

Product:

- Monthly Progress Reports (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 objectives of the Final Report are to clearly and completely describe the project's purpose, approach, activities performed, results, and advancements in science and technology; to present a public assessment of the success of the project as measured by the degree to which goals and objectives were achieved; to make insightful observations based on results obtained; to draw conclusions; and to make recommendations for further RD&D projects and improvements to the GRDA project management processes.

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:

- Prepare an Outline of the Final Report.
- Prepare a Final Report following the approved outline and the latest version of the GRDA Final Report guidelines published on the Energy Commission's website at <http://www.energy.ca.gov/contracts/pier/contractors/index.html> at the time the Recipient begins performing this task, unless otherwise instructed in writing by the Energy Commission Project Manager. Instead of the timeframe listed in the Product Guidelines located in Section 5 of the Terms and Conditions, the Energy Commission Project Manager shall provide written comments on the Draft Final Report within fifteen (15) working days of receipt. The Final Report must be completed on or before the end of the Agreement Term.
- Submit one bound copy of the Final Report with the final invoice.

Products:

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

Task 1.6 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. Although the GRDA 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 GRDA funds for each task during the term of this Agreement. Match funds must be identified in writing and the associated commitments obtained before the

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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 Energy Commission Project Manager at least 2 working days prior to the kick-off meeting. 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. 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 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 Energy Commission Project Manager if during the course of the Agreement additional match funds are received.
- Notify the Energy 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 or stating that no match funds are provided (no draft)
- Copy(ies) of each match fund commitment letter(s) (if applicable) (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 GRDA 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 Energy 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 Energy Commission Project Manager.
- As permits are obtained, send a copy of each approved permit to the Energy Commission Project Manager.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the Energy 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

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- draft)
- A copy of each approved permit (if applicable) (no draft)
- 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 TASKS

TASK 2 INORGANIC ION EXCHANGE MATERIALS FOR POTASSIUM EXTRACTION

The goal of this task is to develop an ion exchange process using inorganic materials to extract at least 50% of the potassium from Salton Sea geothermal brines with purity suitable for use as an agricultural fertilizer.

The Recipient shall:

- Procure and/or synthesize at least four inorganic exchange materials, ranging from mined minerals to highly engineered synthetic phases, with the ability to selectively extract potassium. Selection will be based on prior research and literature.
- Prepare a test plan for laboratory testing. This plan shall include, but is not limited to, the following:
 - Subject
 - Objectives
 - Desired outcome
 - Methodology
 - Equipment
 - Data to be reported
- Conduct batch tests using geothermal brine to determine equilibrium adsorption isotherms for the selected materials over a range of relevant temperatures. This data will allow the Recipient to rank the materials on the basis of potassium extraction capacity, selectivity, and adsorption kinetics.
- Conduct batch tests to identify the most suitable fluid chemistries for stripping potassium from the ion exchange materials.
- Select two to four of the most highly ranked materials for further testing with small diameter columns (25 mm) to quantify the impact of temperature, brine and strip rates on process variables.
- Select two of the materials for accelerated long-term tests of the column dynamics and material stability over 1000 to 2000 loading/unloading cycles.

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- Devise a method to produce the best material in industrial quantities.
- Identify a manufacturing partner to produce the material in industrial quantities.
- Estimate the cost of production of the material in industrial quantities.
- Prepare a technical report for this task. This report shall include, but is not limited to, the following:
 - Goals
 - Description of approaches
 - List of activities performed
 - Description of results, including to what degree goal was achieved
 - Significant issues encountered and how they were addressed
 - Implications of the results
 - Figures and photographs as appropriate.

Products:

- Test plan for laboratory testing (no draft)
- Technical report for Task 2 (no draft)

TASK 3 DEVELOPMENT OF A NOVEL FIXED BED ADSORBENT

The goal of this task is the development of a novel ion exchange/adsorbent media to extract at least 50% of the potassium from Salton Sea geothermal brines with acceptable production costs. A compound with very high selectivity for potassium will be bound to commercially available polymeric substrates via a number of possible synthesis routes. The novel adsorbent will be used in a process similar to ion exchange to extract potassium.

The Recipient shall:

- Qualify a potassium selective compound supplier.
- Develop an adsorbent synthesis method.
- Produce the adsorbent in laboratory quantities.
- Prepare a test plan for laboratory testing. This plan shall include, but is not limited to, the following:
 - Subject
 - Objectives
 - Desired outcome
 - Methodology
 - Equipment
 - Data to be reported

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- Test the adsorbent's capacity and selectivity for potassium from geothermal brine.
- Modify the synthesis procedure as necessary based on testing results.
- Re-test the adsorbent's capacity and selectivity for potassium from synthetic brine as necessary.
- Devise a method to produce the adsorbent in industrial quantities.
- Identify a manufacturing partner to produce the adsorbent in industrial quantities.
- Estimate the cost of production of the adsorbent in industrial quantities.
- Prepare a technical report for this task. This report shall include, but is not limited to, the following:
 - Goals
 - Description of approaches
 - List of activities performed
 - Description of results, including to what degree goals were achieved
 - Significant issues encountered and how they were addressed
 - Implications of the results
 - Figures and photographs as appropriate

Products:

- Test plan for laboratory testing (no draft)
- Technical report for Task 3 (no draft)

TASK 4 SELECTIVE PRECIPITATION OF POTASSIUM

The goal of this task is to determine whether at least 50% of the potassium in Salton Sea geothermal brines can be selectively precipitated using inorganic or organic precipitating agents, and whether potassium can then be extracted from the precipitate and purified to produce a product of commercially acceptable standards. A technique for recycling the precipitating agent must also be developed.

The Recipient shall:

- Procure at least two organic compounds and inorganic salts with the ability to extract potassium.
- Prepare a test plan for laboratory testing. This plan shall include, but is not limited to, the following:
 - Subject
 - Objectives
 - Desired outcome
 - Methodology
 - Equipment
 - Data to be reported.
- Conduct screening tests of the ability of the agents to selectively precipitate potassium from synthetic Salton Sea geothermal brines.

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Precipitation tests will include determination of potassium ion selectivity and the purity, composition and structure of the precipitates.

- Determine methods for selectively extracting potassium salt from the precipitates and minimizing its impurities.
- Conduct long term stability tests of the best precipitating agents.
- Develop methods for recovering and recycling the precipitating agent for commercial application.
- Prepare a technical report for this task. This report shall include, but is not limited to, the following:
 - Goals
 - Description of approaches
 - List of activities performed
 - Description of results, including to what degree goals were achieved
 - Significant issues encountered and how they were addressed
 - Implications of the results
 - Figures and photographs as appropriate.

Products:

- Test plan for laboratory testing (no draft)
- Technical report for Task 4 (no draft)

TASK 5 LIQUID-LIQUID EXTRACTION OF POTASSIUM

The goal of this task is to evaluate different active ingredients for solvent extraction of potassium from geothermal brines that can extract at least 50% of the potassium and produce a saleable product.

The Recipient shall:

- Prepare a test plan and develop procedures for laboratory testing. The test plan shall include, but is not limited to, the following:
 - Subject
 - Objectives
 - Desired outcome
 - Methodology
 - Equipment
 - Data to be reported
- Conduct screening tests on solvent extraction mixtures via equilibrium tests at a range of pH's and temperatures.
- Conduct tests for the recovery of potassium salt.
- Evaluate the stability of the various solvent extraction mixtures.
- Select the best solvent mixtures that can be used in commercial applications.
- Conduct column solvent extraction tests on the best materials.
- Identify the optimum extraction/recovery process.

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- Prepare a technical report this task. This report shall include, but is not limited to, the following:
 - Goals
 - Description of approaches
 - List of activities performed
 - Description of results, including to what degree goal was achieved
 - Significant issues encountered and how they were addressed
 - Implications of the results
 - Figures and photographs as appropriate

Products:

- Test plan for laboratory testing (no draft)
- Technical report for Task 5 (no draft)

TASK 6 OPTIMIZATION OF PREFERRED POTASSIUM EXTRACTION PROCESS

The goal of this task is to identify and then optimize the best potassium extraction process through laboratory testing. A preliminary cost analysis will be used to identify the best process based on the results of tasks 2 through 5.

The Recipient shall:

- Carry out a preliminary cost analysis of extraction technologies tested in tasks 2 through 5 to identify the best technology for further testing.
- Prepare a letter report with results of the preliminary cost analysis.
- Prepare a test plan for process optimization. The test plan shall include, but is not limited to, the following:
 - Subject
 - Objectives
 - Desired outcome
 - Methodology
 - Equipment
 - Data to be reported
- Conduct optimization tests.
- Prepare a technical report for this task. This report shall include, but is not limited to, the following:
 - Goals
 - Description of approaches
 - List of activities performed
 - Description of results, including to what degree goal was achieved
 - Significant issues encountered and how they were addressed
 - Implications of the results
 - Figures and photographs as appropriate

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Products:

- Letter report with results of the preliminary cost analysis
- Test plan for process optimization (no draft)
- Technical report for Task 6 (no draft)

TASK 7 PURIFICATION OF POTASSIUM CHLORIDE STREAMS AND GENERATION OF PRODUCT

The goal of this task is to develop methods to purify the potassium chloride stream from the preferred extraction route studied in Task 6, and to generate commercial products by concentration and drying (e.g. potash) from the potassium chloride stream that meet market specifications. The potassium chloride stream will likely contain metal impurities that are not desired in the final product, so processes must be developed to remove them.

The Recipient shall:

- Prepare a test plan and develop procedures for generating products from the potassium chloride stream. The test plan shall include, but is not limited to, the following:
 - Subject
 - Objectives
 - Desired outcome
 - Methodology
 - Equipment
 - Data to be reported
- Produce potash and other desired products from the potassium chloride stream and determine their chemical and physical properties.
- Determine if the potassium chloride stream must be purified to limit impurities in the final product.
- Prepare a test plan and develop procedures for purifying the potassium chloride stream to ensure a marketable product. The test plan shall include, but is not limited to, the following:
 - Subject
 - Objectives
 - Desired outcome
 - Methodology
 - Equipment
 - Data to be reported
- Conduct purification and product generation tests to identify optimal processing routes.
- Prepare a technical report for this task. This report shall include, but is not limited to, the following:
 - Goals
 - Description of approaches

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- List of activities performed
- Description of results, including to what degree goal was achieved
- Significant issues encountered and how they were addressed
- Implications of the results
- Figures and photographs as appropriate

Products:

- Test plan for laboratory testing of product generation (no draft)
- Test plan for laboratory testing of purification (no draft)
- Technical report for Task 7 (no draft)

TASK 8 COST ANALYSIS

The goal of this task is to analyze the capital and operating costs associated with the most promising technologies developed in tasks 6 and 7. Cost estimates will be reviewed from a business perspective, including consideration of multiple product options. A Critical Project Review will be held towards the conclusion of this task to discuss project progress and justification for proceeding to task 9, laboratory piloting.

The Recipient shall:

- Determine and compare operating and capital costs of the best extraction technologies.
- Evaluate product options.
- Determine, in collaboration with the Energy Commission, whether work will proceed to laboratory pilot testing (task 9).
- Prepare a technical report for this task. This report shall include, but is not limited to, the following:
 - Goals
 - Description of approaches
 - List of activities performed
 - Description of results, including to what degree goal was achieved
 - Significant issues encountered and how they were addressed
 - Implications of the results
 - Figures and photographs as appropriate
- Participate in CPR meeting per task 1.2.

Products:

- Technical report for Task 8 (no draft)

TASK 9 LABORATORY PILOT TESTING

The goal of this task is to test the best potassium extraction, purification and product generation processes in laboratory pilot tests (geothermal brine flow rates of about 150

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mL per minute) incorporating a crystallizer system to produce a solid potassium chloride product from geothermal brines. The pilot plant will be operated until tens of kilograms of potassium chloride have been extracted and recovered. A Critical Project Review will be held towards the conclusion of this task to discuss project progress and justification for proceeding to task 10, the demonstration plant.

The Recipient shall:

- Design a lab pilot, procure components, rebuild existing lithium lab pilot and commission.
- Prepare a test plan for laboratory pilot testing. This plan shall include, but is not limited to, the following:
 - Subject
 - Objectives
 - Desired outcome
 - Methodology
 - Equipment
 - Data to be reported
- Operate continuously for extended periods to generate sufficient confidence in the process operations such as recycle loops and multi-column operation to appropriately operate at demonstration scale.
- Generate data for the design of the demonstration plant.
- Update cost analysis.
- Prepare a technical report for this task. This report shall include, but is not limited to, the following:
 - Goals
 - Description of approaches
 - List of activities performed
 - Description of results, including to what degree goal was achieved
 - Significant issues encountered and how they were addressed
 - Implications of the results
 - Figures and photographs as appropriate
- Participate in CPR meeting per task 1.2.

Products:

- Test plan for laboratory pilot testing (no draft)
- Technical report for Task 9 (no draft)

TASK 10 POTASSIUM EXTRACTION DEMONSTRATION PLANT AT SIMBOL'S COMMERCIAL LITHIUM EXTRACTION PLANT IN CALIPATRIA, CALIFORNIA

The goal of this task is to build and operate an integrated demonstration plant to extract potassium from live Salton Sea geothermal brine and convert it to potash for market qualification. Engineering data will be collected for scale up to the commercial plant. The demonstration plant will be installed at Simbol's commercial lithium extraction plant

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in Calipatria, CA which will be built adjacent to EnergySource's Hudson Ranch 1 power plant from which live geothermal feed brine will be piped at a rate of about six gallons a minute.

The Recipient shall:

- Design, procure components and reconfigure Simbol's existing lithium extraction demonstration plant for potassium extraction and crystallization
- Prepare a test plan for demonstration plant testing. This plan shall include, but is not limited to, the following:
 - Subject
 - Objectives
 - Desired outcome
 - Methodology
 - Equipment
 - Data to be reported
- Conduct cold and hot commissioning at Simbol's lithium extraction plant site.
- Operate the demonstration plant to produce potash product from geothermal brine piped from the adjacent Hudson Ranch 1 geothermal power plant.
- Optimize process operations and determine optimal equipment designs.
- Operate continuously for 1000 hours.
- Determine operating and capital costs of a full scale potassium extraction plant.
- Prepare a technical report for this task. This report shall include, but is not limited to, the following:
 - Goals
 - Description of approaches
 - List of activities performed
 - Description of results, including to what degree goal was achieved
 - Significant issues encountered and how they were addressed
 - Implications of the results
 - Figures and photographs as appropriate

Products:

- Test plan for demonstration plant testing (no draft)
- Technical report for Task 10 (no draft)