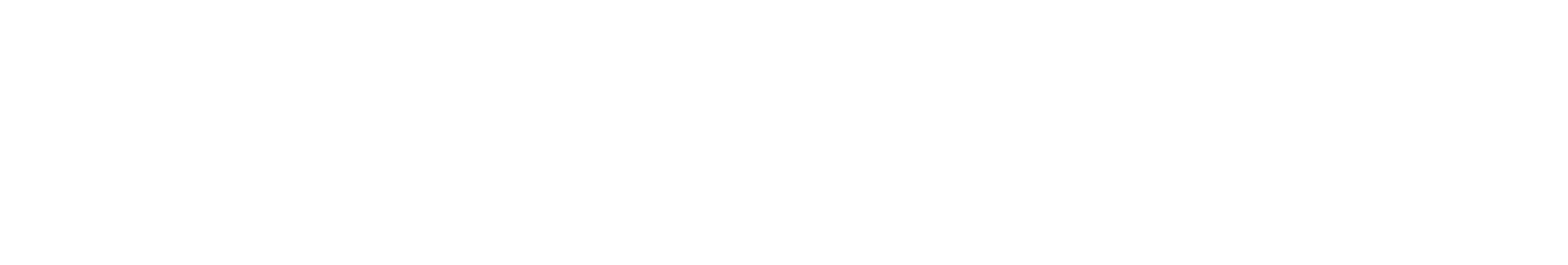
**A picture containing water, swimming

Description automatically generated**



**AMERICAN-MADE GEOTHERMAL LITHIUM EXTRACTION PRIZE**

**Phase 3 Submission**

***Team Name + Project Name***



# PROJECT NAME

## Innovation tagline (e.g., your mission in a few words)

Keyword tags

# TEAM

Names, geographic locations, contact info, and LinkedIn profiles

# PARTNER SUPPORT

Key project partners and organizations (if any)

# PHASE 3 TECHNICAL NARRATIVE

##### Your technical narrative should answer each of the following questions:

1. **Fabricating—**How has your team fabricated a solution to the problem?
2. **Testing & Validation—**What steps has your team taken to test and validate the solution?
3. **Next Steps—**What are the next steps to scale your solution?

For convenience, these questions are provided in the headings of the tables starting on page 4, along with suggested content (and corresponding judging statements) to help guide your responses. You decide where to focus your answers.

The individual answers to the three questions do not have a word limit; however, the aggregate response to these questions **must not exceed 20 pages** when printed using standard 8.5 x 11 paper with 1” margins (top, bottom, left, and right) and 12-point or larger font size.

Images, figures, graphs, footnotes, and cited references must be included in the 15-page limit of your Technical Narrative. Expert reviewers will score the questions based on the content you have provided that conforms to the previously described limits.

Save the Technical Narrative in a single PDF file using the following convention for the title: “TeamName\_TechnicalNarrative”.

**Responses should not be entered into the existing table format for each question** (Question tables may be deleted prior to submission).

|  |  |
| --- | --- |
| Question 1: *Fabricating*  How has your team fabricated a solution to the problem? | |
| **Suggested content:**   * Describe the process of fabricating your final prototype, and include all steps and assumptions made. * Describe any barriers your team overcame in fabricating your technology. * Provide final design drawings and design notes. * Describe instructions for how to assemble the prototype and any special expertise or tools that are required. * Describe your design process. How did you settle on the final design? What other designs did you consider? How did different members of your team or outside support influence the design process? How did you select materials (if applicable)? | **Each statement will be scored on a 1–6 scale according to the following criteria:**   * The competitor has advanced and fabricated a solution to their Phase 2 innovation. * The competitor has detailed a process that includes all assumptions, and barriers to their designs. * The competitor has detailed an assembly plan of their prototypes. |

##### Response to Question 1:

|  |  |
| --- | --- |
| Question 2: *Testing & Validation*  What steps has your team taken to test and validate the solution? | |
| **Suggested content:**   * Describe and demonstrate your progress on your team’s DLE innovation, including documentation of proof-of-concept design (see special instructions). * Describe how you worked with your IAP member to advance your design, how their mentorship was important, and how the feedback changed your design process. * What steps did you take to test your prototype, and what documentation can you provide? * What testing acceptance criteria did you use? * What type of brine did you use? What is the composition of the brine? | **Each statement will be scored on a 1–6 scale according to the following criteria:**   * The solution represents an innovative approach, built on reasonable assumptions, valid technical foundations, and lessons learned from other notable efforts in this space. Competitors provided necessary figures, models, tables, assumptions, and documentation used in their approach. * The planned innovation is reasonably ambitious and validates critical assumptions needed to advance the proposed solution. * A considerable amount of high-quality effort was put into defining and advancing the proposed concept. * The competitor has demonstrated a clear path to lowering overall DLE costs. |

#### Special Instructions for Question 2

Although design documentation will be application-specific, documentation should clearly show the  
functionality and performance benefits of the proposed innovation over conventional technology.  
This documentation should include the design engineering steps taken that support the submitted  
design basis. Example design engineering content includes computer-aided design (CAD) model  
renderings, engineering calculations, finite element analysis along with a description of the  
calculation basis, and other approaches that credibly quantify potential impacts.  
All design documentation must be included in the 20-page limit as described in the Final Technical  
Report elements listed in Table 17, and in the same readable PDF format. CAD drawings or other  
modeling content that requires specific software licensing will not be judged.

##### Response to Question 2:

|  |  |
| --- | --- |
| Question 3: *Next Steps*  What are the next steps to scale your solution? | |
| **Suggested content:**   * What steps, assumptions, and alterations to your design will be needed to test your solution in the field at a geothermal power plant or an operating geothermal field at the Salton Sea? * How will your technology operate in varied brine flow states of the geothermal power plant? * Where will your technology be installed or incorporated into an operating geothermal power plant or operating geothermal field at the Salton Sea? What design alterations will be needed? What impacts to the power plant operations may occur? How would you suggest addressing those impacts? * How durable is your technology? How long will it operate before needing maintenance or replacement? * If you used a synthetic brine for testing and validating, in what ways does your design need to be modified to accommodate real- world brines? * What are the next steps for scaling up and manufacturing your prototype? What manufacturing methods will you consider? What are the next steps for scaling up and manufacturing your prototype? What manufacturing methods will you consider? * What are the barriers, if any, to scaling your solution to field operations? How can those barriers be overcome? What additional testing and validation may be needed? What are the key performance indicators to validate your prototype? * What is the vision for your prototype after the prize? What success metrics and timeline goals has your team outlined? * What are the plans to work with an industry partner and/or university technology transfer office to advance your prototype? | **Each statement will be scored on a 1–6 scale according to the following criteria:**   * The stated Phase 3 goals are ambitious, reduce risks related to technology demonstration and deployment, and show a commitment to an accelerated development cycle. * The proposed plan is appropriate and logical to achieve the stated goals. * Meeting the stated goals demonstrates critical progress toward next steps in scaling up and manufacturing the functionality of the innovation in a real- world setting. |

##### Response to Question 3:

|  |  |
| --- | --- |
| Technology Demonstration Video | |
| **Suggested content:**   * Brief introduction of the team and university lead organization. * Working demonstration of your technology in a laboratory or real-world setting. * Real-time explanation of process with voice-over or transcription in the video. * Evidence of lithium extraction and analysis. * Visual evidence of related metrics and values being validated. * Clear visual information or voice-over of the size of the system and scale relative to commercial lithium extraction processes.   **Required submission format:**   * Videos should be uploaded to YouTube, on July 3, 2023, by 5 p.m. EST using the following convention for the title: “TeamName\_TechDemoVideo”. * The video should not exceed 5 minutes. * The video needs to be accessible to view by other users by setting permissions to “public”. | **The video will be scored on a 1–6 scale according to the following criteria:**   * Clearly demonstrated and provided a detailed step-by-step explanation of the technology. * Provided evidence of lithium extraction and clear explanation of metrics and values being evaluated.   If a team does not submit a video, they will be disqualified and ineligible to win. |