Request for Proposal
The Wyoming Gas Injection Initiative:
Gas Foam EOR Pilot Projects

I. INTRODUCTION: Funding Opportunity Summary and Scope Overview

The Wyoming Gas Injection Initiative (WGII) has been approved to receive $22,000,000 matching funds from the State of Wyoming (State) to implement, in close collaboration with Oil and Gas Operators (Operator/s), multiple Field Pilot Projects in the State of Wyoming. The initiative involves field pilot testing of advanced enhanced oil recovery technologies such as foam-assisted gas injection using recovered hydrocarbon gases, carbon dioxide, or other gases for revitalization of oil fields as well as mitigation of greenhouse gas emissions by operations in the State. It also includes laboratory-scale de-risking of the recovery schemes, both research and technical services using site-specific rock and fluid samples under relevant field operation conditions, at the world-leading Center of Innovation for Flow through Porous Media (COIFPM) of the University of Wyoming (University) in close collaboration with the Dow Chemical Company.

The Initiative will fund projects over a 3-to-5-year period and its goal is to support developments with significant potential to enhance well productivity and recovery from existing fields/wells in the State that are in significant decline. Both field pilot testing and laboratory-scale studies will receive funding to advance implementation. Specifically, the WGII shall distribute the matching funds ($22,000,000 from the State) through the University to (i) Operators whose field pilot projects are selected and (ii) COIFPM to perform the necessary laboratory testing in support of the selected field pilot projects.

Of the $22,000,000 State matching funds, it is expected that approximately:

- $15,000,000 will be allocated to implementing multiple field pilot projects in the State;
- $3,000,000 will be allocated to performing advanced research on the related technologies at COIFPM to support the field pilots;
- $4,000,000 will be allocated to highly specialized technical services focused on de-risking the technologies through laboratory studies using site-specific rock and fluid samples at COIFPM's technical services branch in support of the implementation of the various field pilots.

The entire $22,000,000 will be used to match dollar-for-dollar the project funds committed by the Operators and Dow on project-specific bases. In-kind contribution from Dow will be up to $1,000,000 per project in the form of R&D and research material support and will be determined by each individual project scope.
II. **ELIGIBILITY**

This program is open to all Operators with at least one currently producing field in the State that have the capability to partner in cutting-edge research and development to enhance the output and recovery efficiency of the State’s existing oil fields. To be considered for the State match, all Operator proposals must provide a written and verifiable statement of commitment of their project funds in the form of a signed letter. In-kind contributions may be used for a portion of the funds, provided the amount is again verifiable, and approval is solely at the discretion of the University.

*Acceptable contributions.* All contributions, including cash and third-party in-kind contributions, must meet all the following criteria:

1. They are verifiable from the Operator’s records;
2. They are not included as contributions for any other project or program;
3. They are necessary and reasonable for the proper and efficient accomplishment of the proposed project objectives.

III. **AWARD AMOUNTS**

For each project, the total maximum estimated funding from the State is approximately $7,333,333, which will be distributed as follows:

- Up to $5,000,000 allocated to the Operator for field project expenses;
- Up to $1,000,000 allocated to performing advanced research on the related technologies at COIFPM in support of the implementation of the field pilot;
- Up to $1,333,333 allocated to technical services focused on de-risking the technologies through laboratory studies using site-specific rock and fluid samples at the COIFPM's technical services branch in support of the implementation of the field pilot.

Table 1 below presents an example of fund allocation per selected field pilot. The underlying assumption is that the field pilot execution will need 100% of the State matching funds (i.e., $7,333,333). In this scenario, the total project estimated cost is $14,666,666, whereby the State provides $7,333,333, the Operator $6,333,333, and Dow $1,000,000. The Operator and COIFPM receive $5,000,000 and $2,333,333, respectively.

Note that if the selected project has a smaller proposed field implementation budget, the State matching contribution will be reduced proportionally. The State matching funds must be used in proportion to the project expenses and spent within the same project period. Selected awardees will be required to document and verify their expenditures.

The University may issue multiple awards under this Request for Proposal (RFP), but not to exceed the $22,000,000 State matching funds in total ($15,000,000 allocated for Operators with at least one existing producing field in Wyoming, $7,000,000 allocated to COIFPM for advanced research and technical services for de-risking of the technologies through laboratory studies using site-specific rock and fluid samples).
Table 1: Sample Field Pilot Funding Contribution Breakdown

<table>
<thead>
<tr>
<th>Activity</th>
<th>Implementation Lead</th>
<th>Source</th>
<th>Amount (SMM)</th>
<th>Source</th>
<th>Amount (SMM)</th>
<th>Comment</th>
<th>Project Total (SMM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Pilot Implementation (In-kind + cash)</td>
<td>Operator</td>
<td>Operator</td>
<td>6.333</td>
<td>State of Wyoming (Cash)</td>
<td>5.000</td>
<td>to Operator (Not to Exceed)</td>
<td>11.333</td>
</tr>
<tr>
<td>Advanced Research</td>
<td>COIFPM</td>
<td>State of Wyoming (Cash)</td>
<td>1.000</td>
<td>COIFPM (Not to Exceed)</td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
<tr>
<td>Technology Application/De-risking</td>
<td>COIFPM (Technical Services)</td>
<td>State of Wyoming (Cash)</td>
<td>1.333</td>
<td>COIFPM (Not to Exceed)</td>
<td></td>
<td></td>
<td>1.333</td>
</tr>
<tr>
<td>Conformance Chemical Formulation R&amp;D  (in kind)</td>
<td>Dow</td>
<td>Dow</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
</tbody>
</table>

| Contribution Summary                  |                     |                            |              |                         |              |                  | 14.666              |

| Operator (In kind+ Cash)              | 6.333               |                            |              |                         |              |                  |                     |
| Dow (In kind)                         | 1.000               |                            |              |                         |              |                  |                     |

| State of Wyoming (Matching Fund)      | 7.333               |                            |              |                         |              |                  |                     |

### IV. PROPOSAL FORMAT

Operators in the State interested in participating in the WGII are invited to submit their applications using the following guidelines, along with all relevant supporting information and documents.

The proposal package should include the following materials:

1. **Main Proposal (Required):** The main proposal must include (i) a cover letter, (ii) a written proposal describing the operator profile in the State, the proposed project scope, reservoir candidate(s), candidate field operations, availability of laboratory data, proposed timeline and budget, expansion strategy, etc., and (iii) a signed letter verifying the funding commitment for the field pilot by the Operator.

2. **Completed Technical Data Spreadsheet (Required):** Applicants are required to complete and submit the Technical Data Spreadsheet provided on the WGII proposal submission website. This spreadsheet requests detailed technical data and information on the items listed in (1) above.

3. **Supporting Documents (Optional):** Applicants are encouraged to attach additional, relevant information to support their applications.

Main Proposal must conform to the following requirements:

- Must be submitted in Adobe PDF format. The file size should not exceed 10 MB.
- All pages must be formatted to fit on 8.5 x 11 inches paper with margins not less than one inch on every side. For the text of the proposal, use Times New Roman typeface (or equivalent), a black font color, and a font size of 11 point or larger and a minimum of 1.5 line spacing. Figures and tables may use 10-point font size with single spacing.
- The main proposal must not exceed twenty (20) page limit.
Additional guidelines – The proposal package must include information relevant to the following categories:

- **Operator Profile:**
  Existing presence, relevant data on the existing production footprint, and production development/enhancement strategy in the State of Wyoming

- **Project Summary:**
  Description of the scope of and potential enhancement from the proposed gas foam EOR project. Supporting information on the experience of the project personnel in gas injection-based EOR and their project roles.

- **Reservoir Candidates:**
  Detailed data on the following
  - Field/reservoir name and location
  - Reservoir
  - Rock and Fluids
  - OOIP
  - Production History and Current Forecast (Do Nothing Case)
  - Recoverable Volume Estimates (Do Nothing and Potential Upside)

- **Candidate Field Well and Facility Information**
  - Development well count, well completion detail
  - DSU details, well spacing/fracture data (Unconventional reservoir development)
  - Access to injection gas, gas composition, presence of gas pipeline, available injection facilities

- **Data from previous laboratory evaluations:**
  - Oil and gas PVT data
  - Oil viscosity
  - Formation water salinity
  - Availability of RCAL and SCAL data
  - Availability of reservoir rock and fluid samples for additional laboratory testing

- **Proposed timeline and budget:**
  Expected timeline for the field pilot, approximate proposed budget (with breakdown by major elements (in kind/monies)), any conditions on the release of funds, etc.

- **Expansion Strategy:**
  Description of an expansion strategy for future full field implementation, if WGII is a success; should include potential field/reservoir candidates for applying the technology. The ability to scale up is an important metric.

- **Signed letter(s) verifying the funding commitments for the field pilot by the Operator.**
Operators are further encouraged to attach additional relevant information to support their proposals, including information regarding categorization of the target reservoirs as conventional or unconventional.

V. EVALUATION CRITERIA AND AWARD

Proposals will initially be reviewed for compliance with Section IV (proposal format and contents), with special attention given to the verification of funding commitments for the pilot. Proposals that are found to comply with the requirements will be further evaluated according to the technical aspects of the project, including the potential well productivity and recovery enhancement impact, as well as the proposed commitment level by the applicant.

VI. AWARD NOTIFICATION

The selected applicants will be notified by November 30, 2023; however, no funds may be expended until the necessary final contract agreements have been fully executed.

VII. CONTRACT REQUIREMENTS

Once an application is selected, the parties shall work together to execute a standard contract based on the needs and requirements of the University and the contracting parties.

VIII. SUBMITTAL INFORMATION

Applicants must submit a completed proposal package no later 11:59 PM Mountain Standard Time on Friday, September 29, 2023. Completed proposals and supporting materials can be submitted through the WGII web portal using the following link: https://www.uwyo.edu/research/coifpm/index.html.

If applicants are unable to submit their applications through the above web portal, proposals may also be emailed directly to wgii@uwyo.edu. Should there be any questions, either about the submission process or the RFP, please send them also to wgii@uwyo.edu. Finally, should applicants encounter any technical difficulties while submitting proposals through the WGII website and wgii@uwyo.edu, applications can be e-mailed directly to Professor Mohammad Piri at mpiri@uwyo.edu.

IX. TIMELINE:

- RFP opens on Thursday, June 15, 2023
- RFP closes at 11:59 PM Mountain Standard Time on Friday, September 29, 2023 (Extended to October 13, 2023 per an Addendum to the RFP released on 09/19/2023)
- The selected applicant(s) will be notified by Thursday, November 30, 2023 (Extended to December 15, 2023 per an Addendum to the RFP released on 09/19/2023)