Technical Reviewers' Rating Summary

Proposal Number G-62-L Application Title "Large-Scale Hydrocarbon (Submitted By Chord Energy Request For $13,998,200.00 Total Project Costs $38,632,967.00

Section A. Scoring

Statement	Weighting Factor	G-62-L3	G-62-L1	G-62-L2	Average Weighted Score
1. Objectives	9	**4**	**4**	**4**	**36**
2. Achievability	7	**5**	**3**	**4**	**28**
3. Methodology	8	**4**	**4**	**3**	**24**
4. Contribution	8	**4**	**4**	**5**	**32**
5. Awareness / Background	5	**4**	**5**	**3**	**20**
6. Project Management	3	**3**	**4**	**3**	**9**
7. Equipment / Facilities	2	**3**	**4**	**5**	**8**
8. Value / Industry - Budget	4	**4**	**4**	**5**	**16**
9. Financial Match - Budget	4	**5**	**5**	**5**	**20**
Average Weighted Score		**206**	**202**	**202**	**203**
	Total: 50				**250 possible points**

OVERALL RECOMMENDATION

FUND			**X**
FUNDING TO BE CONSIDERED	**X**	**X**	
DO NOT FUND			

Section B. Ratings and Comments

1. The objectives or goals of the proposed project with respect to clarity and consistency with North Dakota Industrial Commission/Oil and Gas Research Council goals are:

   The objectives of this proposal align very well with the legislative intent in SB 2014
   - Reviewer: G-62-L3
   - Rating: 4

   The pivot from CO_2 to hydrocarbon injectate is well-explained and justified. The proposal aligns with NDIC’s EOR goals.
   - Reviewer: G-62-L1
   - Rating: 4

   The objective is very clear that the applicant wants to complete the necessary modifications, modeling, etc. to transition from what they originally thought would be a CO2 project to a hydrocarbon project. It would have helped to put an objective surrounding the actual application to the huff n puff process as it being a high priority result.
   - Reviewer: G-62-L2
   - Rating: 4

2. With the approach suggested and time and budget available, the objectives are:

   The proposed timetable and budget are based on extensive partner experience with previous projects. They are realistic and will deliver some injection rate and pressure results by the 2027 legislative assembly.
   - Reviewer: G-62-L3
   - Rating: 5

   The project is ambitious but feasible given Chord's scale and EERC's support. CO_2 supply constraints are a known risk.
   - Reviewer: G-62-L1
   - Rating: 3

   Most of the risk of not meeting the timeline and budget associated in the application comes down to equipment procurement, injectate procurement, permitting, and any unforeseen results with the lab testing and modeling that would be cause for concern leading to a reassessment of the project.
   - Reviewer: G-62-L2
   - Rating: 4

3. The quality of the methodology displayed in the proposal is:

   The applicant is leveraging lessons learned by EERC from previous projects to design a project methodology that increases the probability of success.
   - Reviewer: G-62-L3
   - Rating: 4

   The multiwell HnP design, reservoir surveillance, and modeling are sound. The adaptation to hydrocarbon injectate is pragmatic.
   - Reviewer: G-62-L1
   - Rating: 4

   There have been a number of huff n puffs that have been done throughout unconventional basins in the United States as well as some in the Bakken. Having a paragraph or even a few sentences on what Chord is doing differently to be successful or lessons learned from review of other huff n puff pilot projects would have helped differentiate Chord's project from the rest of the industry.
   - Reviewer: G-62-L2
   - Rating: 3

4. The scientific and/or technical contribution of the proposed work to specifically address North Dakota Industrial Commission/Oil and Gas Research Council goals will likely be:

   The scientific and technical information from this project could lead to large scale implementation of Bakken and Three Forks EOR. At a minimum the project will greatly improve future research projects. Project success will mean decades of additional oil and gas production in the state.
   - Reviewer: G-62-L3
   - Rating: 4

   The pilot could inform future CO_2 EOR deployment and extend Bakken production life. It leverages DOE funding effectively.
   - Reviewer: G-62-L1
   - Rating: 4

This could have a multi-billion barrel impact on the state of North Dakota if 1.) the pilot is successful and 2.) if it can be implemented across a sizeable portion of the Bakken.
- Reviewer: G-62-L2
- Rating: 5

5. The background of the principal investigator and the awareness of current research activity and published literature as evidenced by literature referenced and its interpretation and by the reference to unpublished research related to the proposal is:

   The project partner (EERC) has extensive experience in the area of this research project and can leverage lessons learned from previous projects to greatly increase the probability of success.
   - Reviewer: G-62-L3
   - Rating: 4

   Chord and EERC bring deep expertise. The team includes leaders in EOR, CCS, and Bakken development.
   - Reviewer: G-62-L1
   - Rating: 5

   There have been a number of huff n puff projects across the United States in unconventional reservoirs. This should have been referenced and discussed in greater detail. I would also imagine that the EERC has tested multiple injectates within a Bakken core at their lab to determine the best for EOR. If not, then this is needed from a research perspective to narrow down what injectate has the largest impact for recovering additional oil paired along with economics. More detail and background on what has been done, what is available, what needs additional testing research, etc. would have been helpful.
   - Reviewer: G-62-L2
   - Rating: 3

6. The project management plan, including a well-defined milestone chart, schedule, financial plan, and plan for communications among the investigators and subcontractors, if any, is:

   The project plans are based on EERC experience with similar projects. Extensive infrastructure has to be built and gas acquisition and marketing agreements have to be negotiated. Funding should be contingent on written confirmation from DOE that the hydrocarbon gas stream used for the pilot including a minor concentration of CO2 will satisfy the contractual obligation to DOE to evaluate the potential effects of CO2 injection on a Bakken reservoir. An alternative would be to partner with NDeV-Extiel to generate enough CO2 on site to satisfy the DOE requirements.
   - Reviewer: G-62-L3
   - Rating: 3

   The plan includes clear milestones, deliverables, and reporting. Integration between Chord and EERC is well-defined.
   - Reviewer: G-62-L1
   - Rating: 4

   The management plan, milestones, schedule, financial plan, and communications is straightforward. It was slightly less clear with the budget breakdown table if Chord is paying for the $24,634,767 and the NDIC-OGRP is paying an additional $13,998,200. Based on the commentary throughout the document, my assumption is Chord would be paying the difference of $24,634,767 - $13,998,200, which would leave Chord with $10,636,567.
   - Reviewer: G-62-L2
   - Rating: 3

7. The proposed purchase of equipment and the facilities available is:

   This proposal is based on EERC experience with previous projects. The budget should be adjusted to avoid NDIC purchase of gas for injection and the potential legal, royalty, tax, and ownership issues that could cause. I would like to see NDIC and applicant funds redistributed to reduce NDIC equipment/CAPEX purchases/ownership and increase NDIC share of equipment leases and OPEX.
   - Reviewer: G-62-L3
   - Rating: 3

   The budget includes detailed infrastructure needs, with rationale for each item. Hydrocarbon injectate costs are explained.
   - Reviewer: G-62-L1
   - Rating: 4

   With a huff n puff, the purchase of equipment is extremely well justified.
   - Reviewer: G-62-L2
   - Rating: 5

8. The proposed budget “value”1 relative to the outlined work and the commitment from other sources is of:

   The availability of lessons learned by EERC from the previous projects and EERC geological characterization work accelerate the project timeline and provide a very robust budget.
   - Reviewer: G-62-L3
   - Rating: 4

   The $38.6M budget is high, but the DOE funding and Chord’s match make it a strong value proposition.
   - Reviewer: G-62-L1
   - Rating: 4

   This is exceptionally good value given DOE funding and EERC backing. Field testing is needed in order to apply lab results and simulation/modeling to a real world scenario.
   - Reviewer: G-62-L2
   - Rating: 5

9. The “financial commitment”2 from other sources in terms of “match funding” have been identified:

   The experience of EERC along with the financial position of the applicant provide a very robust matching fund budget. Funding should be contingent on written confirmation from DOE that the hydrocarbon gas stream used for the pilot including a minor concentration of CO2 will satisfy the contractual obligation to DOE to evaluate the potential effects of CO2 injection on a Bakken reservoir.
   - Reviewer: G-62-L3
   - Rating: 5

   Chord provides over 63% of the total cost, exceeding match requirements.
   - Reviewer: G-62-L1
   - Rating: 5

   The support from other sources is of very high value. Chord and the DOE will contribute ~64% of the project costs with the NDIC-OGRP contributing the remaining ~36%.
   - Reviewer: G-62-L2
   - Rating: 5

1 “value” – The value of the projected work and technical outcome for the budgeted amount of the project, based on your estimate of what the work might cost in research settings with which you are familiar. A commitment of support from industry partners equates to a higher value.

2 “financial commitment” from other sources – A minimum of 50% of the total project must come from other sources to meet the program guidelines. Support less than 50% from Industrial Commission sources should be evaluated as favorable to the application; industry partnerships equates to increased favorability.

General Comments

The applicant has the scalability to improve the probability of success with this project. The partner EERC has the knowledge and experience to increase the probability of success. The location of the proposed project creates some uncertainty regarding the location and and availability of gas gathering, processing, and supply infrastructure in the area.
- Reviewer: G-62-L3

This proposal is strategically important, bridging the gap between current hydrocarbon EOR and future CO_2 deployment. It leverages federal funding, aligns with NDIC’s EOR initiative, and could unlock billions of barrels in the Bakken. The technical team is highly qualified, and the infrastructure plan is robust.
- Reviewer: G-62-L1

Projects like the one Chord has proposed are needed to gain the necessary data, analyze the data, and modify in a way that becomes commercially viable across industry. With dwindling inventory for new drills across the United States unconventional plays, industry needs to move to the next phase and utilize an existing assets and infrastructure to increase oil recovery. This project does exactly that and uses a strong technical framework to lab test injectates to find most viable, model/simulate, and then test and monitor. The small flaws in the application/project were: 1.) not expanding on what has been done by industry to date in either the Bakken or the broader United States unconventional plays, which may or may not have altered the approach to the project and 2.) not fully laying out the huff n puff wells, location in DSU, and pattern in map detail.
- Reviewer: G-62-L2