

Breaking New Ground in Flaring Reduction

Submitted by:

University of North Dakota Energy &
Environmental Research Center (EERC)

Principal Investigator: Darren D. Schmidt

- Total Funding Request - \$2,566,341**
- Total Project Costs - \$5,132,682**
- Project Duration: 12 months**

PROJECT DESCRIPTION

The objective is to deploy 30 gas capture units on well pad facilities in North Dakota to reduce or eliminate gas flaring. The purpose is to achieve near-zero wellsite emissions and accelerate the adoption of state-of-the-art technology. An adequate sample size is proposed to assess gas capture performance for multiple operators including variations of wellsite facilities. Advancements include oilfree natural gas compression and new methods for facility integration that boost economics, simplify installation, and lower operational costs compared to conventional vapor recovery.

Polar Bear™ is a technology catalyzed and patented by the Energy & Environmental Research Center (EERC) designed to capture most of the remaining flared gas in North Dakota. Iconically named to symbolize robustness, adaptiveness, and environmental sensitivity, successful implementation can lower the carbon footprint of oil and gas production and is aligned with the industry's priorities for reducing methane emissions and achieving compliance with new U.S. Environmental Protection Agency (EPA) regulations. The EERC is partnered with Steffes LLC, a respected local manufacturer, and Advanced Flow Solutions Inc. to deploy the first Polar Bear™ systems within the Bakken. The project will capture flared gas and demonstrate that economically challenging circumstances for gas flaring can be overcome, resulting in cost-effective solutions.

Project results are anticipated to further the purpose of the Clean Natural Gas Capture and Emissions Reduction Program that was authorized in 2023 by Senate Bill 2089. The program is an incentive payment for projects that capture or utilize natural gas which would otherwise be flared and replaces a prior tax incentive for similar projects. The proposed Polar Bear™ gas capture technology is an equipment skid that is designed to capture and compress 50 Mcfd of low-pressure gas. Innovations of the technology include facility integration, hydrocarbon recovery, and eliminating compressor oil maintenance.

The goal is to tackle the present challenges associated with the remaining gas flaring in North Dakota, which will result in a cleaner barrel of oil, commensurate economic benefits, industry performance, and additional tax revenue.

TECHNICAL REVIEWERS' RATING SUMMARY

Statement	Weighting Factor	<u>TR G-61-01A</u>	<u>TR G-61-01B</u>	<u>Average Weighted Score</u>	
Objectives	9	4	4	36	
Achievability	7	5	4	28	
Methodology	8	4	4	32	
Contribution	8	5	4	32	
Awareness/ Background	5	4	5	20	
Project Management	3	3	4	9	
Equipment / Facilities	2	5	5	10	
Value/Industry- Budget	4	4	4	16	
Financial Match – Budget	4	5	3	16	
<i>Average Weighted Score</i>		218	203	210	
<i>Maximum Weighted Score</i>				250 possible points	

TECHNICAL REVIEWER TOTALS

- **G-61-01A**

Average Weighted Score: **218 out of 250**

FUND

- **G-61-01B**

Average Weighted Score: **203 out of 250**

FUND

TECHNICAL REVIEWER COMMENTS

Reviewer G-61-01A

Polarbear TM presents a unique, yet simplistic solution to emissions reduction and gas capture. The operators are essentially selected to provide diverse well site configurations that will provide significant data on capture of small emission sources. The ability to capture the remaining 5-6% of flared gas provides significant advancement in economics, and environmental protection. This methodology is needed to provide EPA Quad 0 b & c compliance. The tax revenue increase for the State of North Dakota is added bonus.

The continued improvements in gas capture for well operators is an important goal for North Dakota, with the ultimate results being lowering carbon footprint, lowering methane emissions and achieving environmental benefits. I applaud EERC, Advanced Flow Solutions Inc. and Steffes's efforts in this process.

Recommendation: FUND

Reviewer G-61-01B

The project has the potential to generate increase revenue for operators, royalty owners and investment partners, and increased tax revenues by sending more gas and gas liquids to sale. Additionally, the goal of reducing gas flaring to a minimum, particularly in stranded oil and gas wells without economic options for gas takeaway is an important part of the NDIC flaring reduction goals. The reduced methane release provided by the gas capture unit will minimize methane discharge fees and potentially reduce GHG emissions.

A particularly exciting aspect of this project is that the gas capture unit will be constructed here in North Dakota, and the design is a product of personnel and institutions also located within the state of North Dakota. It will be used to enhance the revenues of the operators, mineral and royalty owners, state and local tax coffers, create jobs for North Dakotans, etc. It is literally a win, win, win!

Recommendation: FUND

Director's Recommendation:

- ☐ Recommend funding the total \$2,556,341**