

**Sixty-Seventh Legislative Assembly of North Dakota**

North Dakota Senate

Energy and Natural Resources Committee

Clean Sustainable Energy Legacy Authority - HB 1452

Eric P. Nelson Testimony

March 19<sup>th</sup>, 2021

Chairman Kreun, members of the committee,

Thank you for this opportunity to speak in favor of HB 1452 to create a Clean Sustainable Energy Authority. My name is Eric P. Nelson. I'm proud to serve as Technical Services Manager for Creedence Energy Services. Creedence is a North Dakota grown company that has evolved to become the Williston Basin's leading oil and gas production chemical provider. This is a competitive arena of technological development. R&D resources are allocated in a targeted fashion based on feasibility, potential profitability, and expected return on investment. I argue that HB 1452 can help tip the scales to favor investment in North Dakota.

Before I continue on HB 1452, you'll forgive me for taking the time to note that in that competitive environment, competing against companies with New York Stock Exchange tickers, Creedence has grown from three cousins founding the company in 2015 to a Creedence team now of over 70 team members with good, stable compensation in challenging and rewarding roles. With Creedence's recent recapitalization of ProChem Energy Services in the Oklahoma, Texas, and New Mexico area, the Creedence family now operates in geographic areas accounting for 90% of the shale oil production in North America.

Again, this industry is focused on technological development of chemical applications. Here's an exciting example relevant to this legislation. Creedence has recently made considerable strides into an emerging marketplace in North Dakota, enhanced oil recovery solutions, or EOR. With our partner, Locus Bio-Energy, we will be piloting two applications of our biosurfactant in horizontal Bakken wells to increase oil recovery. Briefly, this biosurfactant, a nanoparticle, with a size smaller than human DNA, is pumped into existing oil wells in a volume of a water. For the pilot wells next week, that will be 2700 barrels of freshwater with roughly 3-4% biosurfactant additive. The additive, with its smaller size, will penetrate the tight pore spaces of the Bakken reservoir rock and mobilize adhered oil. Not unlike you dishwashing soap mobilizing grease off dirty dishes.

Our minimum expectation based on results from other basins is an annual incremental production increase of 25%. For an older well making 25 BOPD, that increase would equate to an additional 2,174 barrels of oil in a year. A significant uptake from its projected 9,419-barrel forecast. These are quite conservative estimates.

I don't need describe how the last year has affected North Dakota's oil and gas industry. This group is quite aware of that and the corresponding decrease in both public and private revenues into the state. The time for emerging technologies to replace depleting oil production and find new revenue streams has come.

Currently, a re-frac of an existing well can cost upwards of \$4.5 million. The capital available to drill new wells is extremely limited and assets in the Williston Basin is in a tough competition with other oil plays for that money. Technology like this can mobilize oil in existing assets, without capital expenditure, at a fraction of the cost of re-fracking.

Innovation is needed now if we don't want to be idle passengers to regulation and foreign market pressures. We think technologies, like the one we are deploying next week, are a critical part to North Dakota maintaining its role as global leader in energy production.

Without grant funding from the NDIC through Oil and Gas Research Council, it is unlikely we would be piloting two wells next week. It would be months down the road. That funding was critical to accelerating development of this technology. It reduced the financial risks associated with trialing a technology new to the Bakken and Three Forks systems. It was a thoughtful, meaningful process in which the technical reviewers provided us valuable feedback and posed questions showing good stewardship of public money.

And it is a safe bet with the state's money. We know that because we have case studies from other basins. Those case studies exist, in part, because other states are incentivizing this kind of innovation. Texas offers a 50% tax reduction on oil operators using this same technology for a period of 10 years. Many of our relevant case studies are from the Permian. HB 1452 could help push North Dakota forward as a laboratory for innovation because I don't know about you, but I'm not interested in waiting for technology updates from other states.

HB 1452 would take the next step to making North Dakota an innovation leader by accelerating energy development and commercializing viable technologies. I can share what that would look like for our biosurfactant example. If these pilot wells prove successful, and a sufficient demand is created, it is quite feasible that a fermentation plant will be warranted in North Dakota. This fermentation plant would use consume North Dakota canola oil and North Dakota sugar beets to produce the biosurfactant that curb the production decline of North Dakota oil wells. Funds from HB 1452 could reduce the initial hurdle to move forward with such a plant.

While I have no doubt there are several other promising projects this would apply to, this could just be the beginning for this technology. Establishing a biosurfactant fermentation plant in the state could open doors to several other industries. Biosurfactants can be used in cosmetics, personal care products and probiotics. They can be used to boost agricultural crop production. They have been shown effective at delivering probiotics to livestock, even reducing methane emissions by cows by 80%. They are also used in delivering nanoparticle pharmaceuticals not all that dissimilar to technology used in the mRNA covid vaccines. So while we are focused on flattening the oil production decline curve, there are other curves biosurfactants can help flatten, as well.

I ask for a "Do Pass" recommendation on HB 1452, to help projects like our's come to commercialization in weeks and months instead of years.

Thank you for your time.