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First Major New U.S. Oil Refinery Since 1977 Targets Bakken Shale Crude



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Energy



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The silhouettes of pumpjacks are seen above oil wells in the Bakken Formation near Dickinson, North ... [\[+\]](#) © 2018 BLOOMBERG FINANCE LP

Many years have passed since the last large greenfield refinery was built in the continental United States. It has been 43 years, in fact, since **Marathon**

Petroleum opened its spanking-new 200,000 barrel of oil per day (bopd) refinery in Garyville, Louisiana in 1977.

Since that time, growing environmental restrictions have made obtaining permits for new refining operations from state and federal government agencies increasingly difficult and costly. The inevitable raft of litigation that follows the issuance of any permits also increases the costs and adds to time delays. Many such projects have tried to get off the ground during those intervening 43 years, but the planners of them have all ended up losing what has become a strategic war of attrition.

Onto this often-tedious battlefield now steps William Prentice, Chairman and CEO of [Meridian Energy Group](#), who I interviewed early in July after his company had received word that the North Dakota Supreme Court had upheld the air quality permit, originally issued in June, 2018, enabling MEG to proceed with the building of a new, 49,500 bopd capacity refinery smack in the middle of the Bakken Shale play in North Dakota. Ok, well, he actually stepped onto the battlefield way back in 2013, a year after MEG was started, and the permitting effort was kicked off five years ago.

“Yeah, we’re having fun now,” Prentice laughed when I asked him to talk about the concept behind his refinery project. “We took the long way around to get where we are.”

The concept behind MEG’s refinery is simple: Put the refinery in the middle of a massive oil play area, and specialize in processing the grade of crude that comes out of those thousands of wells. As simple as that sounds, it represents a pretty radical departure from the U.S. refining business of the 20th century. “The refinery model for most of the last century was to put increasingly complex refining operations on the Gulf coast, where you could grab whatever tanker was going by and make a buck or two,” Prentice explained, “and that was fine. There seemed to be this growing assumption during the middle part of the century that most of the oil was going to be coming from offshore anyway, so why try to put anything inland?”

“But the shale industry changed all of that virtually overnight. It wasn’t too long ago – I think it was November/December of last year – one industry leader was quoted as saying that ‘any additional barrel of shale oil coming online would have to be exported.’ There was just no refining capacity that could handle the lighter grades of crude.

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“So, our concept is to build refineries that are very capital efficient because they are rifle-shot designs that target a local shale resource. And we’ll process that local crude oil and serve that regional market. We’ll get the crude at a better price, and also have lower operating and capital costs per barrel. And you save all the transportation of moving the crude down to the Gulf and then bringing it back again in the form of refined product.”

Simple, right? Seemingly so, but this concept, if widely applied, would help to resolve a growing imbalance between the U.S. volume of light, sweet crude being produced from the nation’s big shale plays and the lack of capacity in the U.S. refining business to process that crude. That imbalance is what created the need to export millions of barrels of domestic crude each day to be refined in other countries. Prentice and MEG hope to target that imbalance with a series of greenfield refineries in the coming years.

“The Davis [Bakken] Refinery is our first, but we are also looking at a site for a second one in the Permian area,” he told me. “We have also been looking at a site near Cushing, Oklahoma. So, we’re going to be sort of the serial killers of the refinery industry.”

Well aware of how many proposed new refining plans had died on the vine without being built since 1977, Prentice knew that he and his team would have to settle on a model that not only satisfies all regulatory environmental requirements at the state and federal levels, but also sets a new environmental paradigm for the industry. One complicating factor in the permitting process for the North Dakota refinery is its close proximity to the Theodore Roosevelt National Park. Prentice said choosing that site was intentional.

“Being so close to the Teddy Roosevelt National Park, in my innocence, I thought that was a way to demonstrate something that needed to be proven in the industry,” he said. “By being in that area we are forced to meet the Class I attainment standards for air quality, and we had already decided to make this refinery the cleanest in the world. So, I thought, let’s do this at that location and we will prove that you don’t have to kick refineries off into some industrial area – you can put them where they need to be, and they can just be clean plants.”

Prentice said the anticipated lawsuits materialized immediately after the company received its air quality permit from the state of North Dakota. “We started the permitting process in 2015, submitted the air quality permit application in October 2016. We got that air quality permit after making several design changes to further reduce emissions in June of 2018. The first lawsuit was filed about 15 seconds after we got that permit, and we have been litigating on four different permit issues for the last two years.”

MEG won the final Supreme Court decision on the air quality permit in June. “Part of the deal was that we would build a grassroots full-conversion refinery that would meet the requirements for a synthetic minor source,” Prentice told me, “which enables us to do all our permitting at the state level. The North Dakota Air Quality Division consulted with EPA, but EPA was not in the decision-making capacity, though they did provide technical support.

“But we went through the ringer, especially since all the controversy around the Dakota Access Pipeline had been going on at the same time, with all of those big demonstrations. When we got the draft permit and it was put out for comment, they got back more than 10,000 comments, and each one of them had to be answered. That took a long time.”

Keeping the permitting process as simple as possible and at the state level was also the driving force behind the project permitted capacity. “We sized the North Dakota plant at 49,500 bopd because anything 50,000 barrels or above has to get an additional permit from the Public Service Commission similar to a power plant siting. So, we decided 5 years was long enough to be permitting, let’s just knock that out.

“Actually, there is still a lawsuit before the North Dakota Supreme Court that is trying to get the Court to change the math and pretend like we’re over 50,000 barrels per day. But I’m comfortable the Court knows how to add, so we’re pretty confident about that.”

With the permits in place, Prentice and his team now move into the funding phase of the project, which he expects to take about 6 months. The satisfying of ESG considerations applied by financial institutions inevitably complicates any major funding effort in the energy space today, and this refinery effort is no different. But Prentice is confident, in part because the Davis Refinery makes such a leap in the control of emissions.

“Total emissions from our plant will be about 1/10th of the industry average on a per-barrel basis, and greenhouse gases coming off the refinery are less than half of the industry average,” he said. “So, ESG is a pretty important consideration these days, and many of the institutions we are going to be accessing for this project have signed onto the [Equator principles](#) which govern ESG types of considerations for an energy project.

“We went through the ringer with both our investment bankers in the last year, documenting that we are fully in compliance with the Equator

Principles. It was almost like getting another permit, and we passed with flying colors. When you're a startup company developing a refinery, you not only have to cultivate a market for your product, you also have to cultivate a market for your securities."

Once the project funding is complete around the first of 2021, Prentice says the actual construction of the plant itself will take about 3 years, allowing America's first new greenfield refinery in almost half a century to kick off operations in early 2024, a dozen years after the planning phase began. While the completion of the Davis Refinery will represent a huge achievement for his company, Prentice also views it as a much-needed success for the industry as a whole.

"The industry's got to change," he said. "The power business went through a spasm of reorganization 30 years ago, all for the benefit of consumers. It's the way American industry is supposed to work. When you're talking about everybody wanting to develop their shale assets and none of that can be processed in the United States, it just seems crazy."

"So, here we are."

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