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Ethanol expansion could hinge on water

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Associated Press

BISMARCK, N.D. - Ethanol plants need more than corn: If all the proposed factories in North Dakota were built, they would use more than 1 billion gallons of water.

Drought in future years could curtail North Dakota's burgeoning ethanol industry or at least limit potential plant sites, particularly in the Red River Valley, officials say.

Ethanol plants are big water users. The Sioux Falls, S.D.-based American Coalition for Ethanol says it takes at least 3 gallons of water to produce 1 gallon of ethanol fuel.

"One of the things plants look for when they locate, they want to be somewhere where they won't impact the water supply," said Ron Lamberty, a coalition vice president. "They usually try to locate at places where there is plentiful water."

In South Dakota, Lamberty said, "We've seen plants where they said, 'we can't build here because we don't have the right quantity or quality of water.'"

That has not yet happened in North Dakota, industry officials say, but it could if the state experiences a stretch of dry years.

"If we're in a drought, there's lots of places that have the potential" to be prohibitive to new industrial plants, said Doug Emerson, a hydrologist in Bismarck with the U.S. Geological Survey. "Even if water exists, it might be appropriated for some other use."

North Dakota has ethanol plants in Walhalla and Grafton, in the northeastern part of the state. Plants are under construction at Richardton, in the southwest, and at Underwood, in central North Dakota. Plants also have been talked about in the Wahpeton, Williston and Jamestown areas.

If all of those plants were operating at maximum capacity, they would

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require about 1.1 billion gallons of water annually under the American Coalition for Ethanol's water use estimate.

Put in perspective, officials say, that amount of water is not large. For example, Emerson said, on a low-flow day, that amount of Missouri River water would flow by Bismarck every four hours.

But the amount is still significant.

Ray Christensen, manager of the Southwest Water Authority, said the city of Dickinson uses on average 620 million gallons of water annually from the Southwest Water Pipeline, which brings Missouri River water to the region.

The Red Trail Energy ethanol plant at Richardton, which also will get its water from the pipeline, would use about 315 million gallons yearly at maximum capacity, Christensen said.

"(Ethanol plants) do use a significant amount of water," he said. "They would be our second-largest customer. We do have enough capacity in the system to handle that request."

Christensen said that at maximum capacity, the plant's annual water bill would be \$772,000.

Frank Kirschenheiter, the plant's project coordinator, said Red Trail initially considered getting its water from an aquifer but was worried about quality.

"It's a big issue," he said. "Using 20 million bushels of corn - that's a lot of water."

The plant at Underwood, which will be similar in size to the Richardton plant, will get its water from the Missouri River, said Sharon Madden, director of investor relations for Utah-based Headwaters Inc. Headwaters will be the ethanol factory's majority owner.

The Missouri River basin has been mired in drought in recent years. The Lake Sakakawea reservoir behind Garrison Dam hit a record low level last year. Still, "The Missouri has a fair amount of water available," Emerson said.

Bob Shaver is director of the State Water Commission's water appropriation division, which regulates the withdrawal of both ground and surface water around North Dakota. He also said he sees no problems with the Missouri River being able to supply new industrial plants.

"It would depend on volume (but) the Missouri, I'm sure, on a typical ethanol plant should certainly accommodate that," he said.

The Red River might be a different story, Shaver and Emerson said.

State officials say that during the 1930s, the Red River virtually dried up when a severe drought hit. The U.S. Bureau of Reclamation says that extreme droughts hit the region about every 60 years.

The State Water Commission has endorsed a plan to deliver Missouri

River water to the Red River Basin as a water supply backup and is holding hearings on the proposal, which still must go through federal review.

Wahpeton-based Gold Energy LLC is considering building an ethanol plant either in Richland County or Minnesota.

Board member Terry Goerger declined to say whether the company is considering the Red River as a water source. Under the American Coalition for Ethanol formula, the plant at peak capacity would need at least 300 million gallons of water a year.

Officials in other parts of the state say they have no industrial water worries.

"It's an advantage for us," said Tom Rolfstad, Williston's economic development director. "We've got the (Missouri) river, we've got aquifers, we're water rich."

Vancouver, Wash.-based Makad Corp. announced plans nearly three years ago for an ethanol plant in Williston. State and local officials say they no longer believe the project will happen, but Makad spokeswoman Tawni Camarillo said it is still in the company's plans. She said the delay has been caused by finances, not water issues.

Emerson said that meeting the water needs of ethanol plants, such as the potential 1.1 billion gallons a year, depends on where plants locate.

"If you look at the Missouri, it's not a large amount," he said. "If you go to the Red River Valley, it really depends on how they spread those out, and what those (water) sources would be."
