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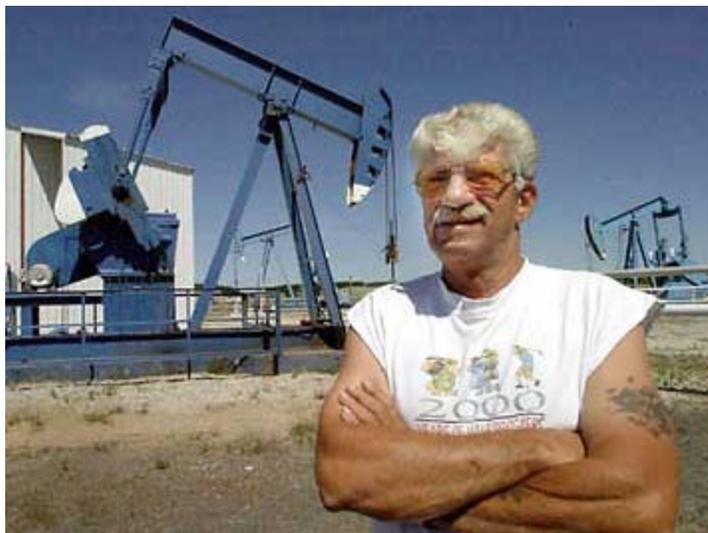
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Dale G. Young / The Detroit News

Bill Garland maintains the pumpjacks that lift oil from below the Great Lakes in Manistee wells. The state had hoped to expand energy exploration, but a two-year U.S. ban on shoreline drilling has dampened that effort.

## Thirst for energy taps Great Lakes

But new drilling ban threatens state plans

By Charlie Cain, and Jeremy Pearce / *The Detroit News*

**MANISTEE** -- Despite uncertain oil and gas deposits, the threat of surface leaks and federal legislation banning any new drilling for the next two years, Gov. John Engler is not yet willing to abandon his effort to expand energy exploration under the Great Lakes.

Engler was dealt a blow last week when President Bush signed a \$25-billion federal water and energy programs bill for next year, which has an amendment that halts Great Lakes drilling until September 2003.

The amendment was sponsored by Michigan's junior Sen. Debbie Stabenow, D-Lansing, who said she hopes the ban can be made permanent.

Engler is upset by the federal intervention -- the first time the national government has blocked the eight Great Lakes states' ability to set natural resources policy.

None of those states allow drilling from rigs in the water, though Michigan sanctions drilling from the

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shore angled to reach under the lake.

"Today it's the federal government telling us what to do with oil and gas, and tomorrow it could be them telling us to send our water to other states," said Susan Shafer, the governor's press secretary.

Shafer said she didn't know if the state would challenge the federal government's authority or try to issue drilling permits.

"We're looking at our options. I don't have a yes or no answer to that," she said. "But we will look at our options. This is a terrible precedent."

## Risks and rewards

Regardless of how any potential challenge ends, the debate over future Great Lakes drilling -- Michigan's most inflammatory environmental battle in memory -- is far from over. It's already an issue in next year's race to succeed the term-limited Engler.

But as emotions build and divisions widen, questions about the risks and rewards of shoreline drilling remain obscure or unanswered:

- \* Geologists lack thorough estimates of Great Lakes deposits. Federal scientists have attempted to survey only Lake Michigan and admit that estimates are loose, at best, with a range of 30 million to 500 million barrels of oil. State surveys do not exist, making it difficult to calculate royalties.

In comparison, Alaska's Arctic National Wildlife Refuge -- the center and symbol of the Bush administration's push for greater domestic drilling -- is believed to hold 3 billion to 16 billion barrels of oil.

- \* Michigan's inland wells leaked oil or gas at least 89 times last year, according to state Department of Natural Resources (DNR) records. The state issued 48 violation notices for unresolved spills, suggesting that some drillers' claims of complete safety merit a closer look.

- \* State environmental officials envision another 20 to 30 shoreline wells sometime in the future to join the 13 now in place -- though they admit nothing limits those numbers.

## Environmental concerns

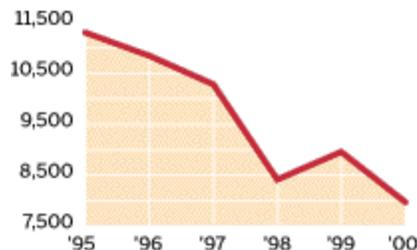
Activists and a growing band of politicians are alarmed by the specter of surface leaks from wellheads that could taint drinking water, harm public health and affect wildlife. Opponents also warn that drilling operations will spoil views and beaches key to Michigan's lucrative tourist industry.

For their part, drillers believe energy deposits under the lakes are large enough to ease the nation's energy woes and bring the state \$60 million to \$105 million

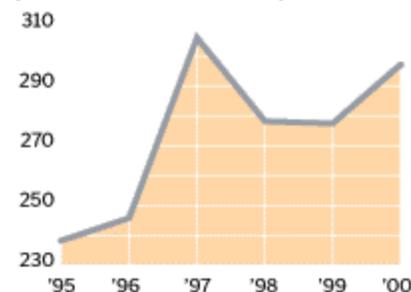
## Michigan crude

Oil production has fallen in Michigan, but the number of drilling sites has increased, driven by demand for natural gas supplies.

**Michigan oil production**  
 (In thousands of barrels)



**Michigan natural gas production**  
 (In billions of cubic feet)



Source: Michigan Department of Environmental Quality; Energy Information Administration

The Detroit News

## What's at stake

If expanded gas and oil drilling under the Great Lakes is approved, it could mean:

- \* Added sight pollution through the construction of well operations on key beaches.

- \* Increased threat of water and land pollution from well leaks and accidents.

- \* As many as 500 million barrels of oil to help reduce U.S. dependence on foreign oil.

- \* \$60 million to \$105 million in royalties to the state for environmental programs over the next 20 years.

## Oil and gas in Michigan

- \* Michigan has 16,700 active wells that produce 8.3 million barrels of oil and billions of cubic

in royalties over the next two decades. They point to decades of successful drilling in Ontario's Lake Erie waters by Canadian firms.

"The shoot-fish-in-the-barrel areas have already been drilled," said Dr. Lynn M. Walter, a University of Michigan petroleum geologist. "These (shoreline) places now in question are really just logical extensions of deposits already drilled on land."

Until the federal government acted, drillers were growing confident of victory.

In September, the Republican-led Michigan Senate delayed a vote to ban drilling until at least Jan. 30, 2002. The vote split cleanly on party lines, frustrating Democrats in the forefront for the ban.

Also in September, the Michigan Natural Resources Commission lifted a four-year suspension on shoreline operations, called directional drilling.

The state hadn't yet granted any new permits.

### Permits on hold

Four companies filed applications to leases oil and gas rights under the lakes -- now on hold because of Bush's move.

Mindy Koch, chief of the DNR's Forest, Mineral and Fire Management Division, said none of the companies would have been granted leases until at least spring. She's unsure what the next step will be, or what to tell other companies if they sought a lease for future underwater drilling.

"I don't have a definitive response. We need to look at the federal language to determine the implications and what our options are," Koch said.

Michigan's interior is already dotted with 16,700 active wells that produce 8.3 million barrels of oil each year and billions of cubic feet of natural gas. The state's wells have made it the nation's 11th-largest producer of gas and rank it 17th among oil-producing states.

"Politicians are looking at drilling as a drum to beat. They're spoon-feeding hysteria to their constituents," said Timothy M. Cowen, a petroleum geologist and manager of Aztec Producing Co. wells in Manistee. The company was hoping to get a permit so it could join a handful of drillers who have already bored under Lake Michigan from the shore.

### History of leaks

While Great Lakes waters continue to drop in a natural cycle not experienced since the 1960s -- and with public attention never more focused on the quality of shore life -- the conflict over future drilling will likely intensify.

"We feel the question should be: Why drill now?" asked James Clift of the Michigan Environmental Council, an East Lansing organization. "Why not revisit this issue 30 years from now, when the oil and gas will probably be even more valuable, and the drilling technology will be that much better?"

Last year, Michigan's largest accident left a spill of 400 gallons of oil, according to records, and is considered small in comparison to 4,000-gallon spills in past decades.

Even with recent interest, no state database yet exists to list the location, volume of leaks, damages that resulted from them or to compare annual leak totals.

"I acknowledge that we should do a more complete job of that," said Hal Fitch, Michigan's state geologist who had overseen drilling permits for the Department of Environmental Quality (DEQ).

feet of gas each year.

\* 89 gas or oil leaks were reported last year.

\* There are 13 shoreline wells that tap diagonally into one of the Great Lakes. Ten are in Manistee County; two are in Bay County; and one is in Alpena County.

\* Last year, wells boring into the Great Lakes from Michigan's shoreline yielded 26,000 barrels of oil and enough gas to heat 19,000 homes.

### How firms directionally drill

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"We don't have anything set up, but we probably should."

### **Ranging estimates of oil**

Independent geologists also have questions.

The state doesn't know what's under the Great Lakes, which could complicate efforts to direct and regulate shoreline drilling. DNR employees do keep tabs on oil and gas produced, but haven't estimated untapped reserves.

While critics of Great Lakes drilling dismiss the potential for rewards, Lake Michigan - at its brightest prospect -- has the potential to yield a volume nearly equal to the nation's Strategic Petroleum Reserves, cached in Louisiana and Texas.

"That shows you the uncertainty out there. For Lake Michigan, we show quite a range" of reserves, said Christopher Schenk, a top U.S. Geological Survey specialist in Denver.

Other scientists have been more blunt.

"When they start talking about how much Great Lakes gas and oil there might be out there, everybody is in left field," said James Fisher, a former Michigan State University professor of petroleum geology. "No estimate that I know of is reliable."

### **Prospecting for oil**

Michigan's exploration companies are convinced drilling would be profitable.

If the federal moratorium on new drilling is lifted, companies would likely seek mineral leases along Lake Michigan's shore, following a proven underground energy field known as the Niagaran reefs. The remains of an ancient sea some 325 million years old, the reefs are an effective trap for the hydrocarbons that make up oil and natural gas.

Tapping into the Niagaran calls for piercing soil, shale, limestone and past layers of salt, reaching down 3,500 to 4,000 feet before ever approaching pay dirt. Success varies and dry wells are common, with many drillers reporting successful strikes from one in five wells sunk.

"Michigan is not Saudi Arabia, but the risks here are small," said Robert E. Tucker, Jr., president of West Bay Exploration Co., based in Traverse City.

Tucker's company operates 40 wells statewide, some wells producing as much as 100 barrels of oil or 1 million cubic feet of gas daily. Those figures are considered healthy in terms of Great Lakes production, but pale beside Gulf of Mexico wells that yield 10,000 barrels of oil or 10 million cubic feet of gas each day.

Lake Huron's bottomlands, especially around Saginaw Bay, and western Lake Erie are also viewed as areas with drilling potential. Few companies have expressed interest in Lake Superior; its geology does not usually harbor hydrocarbons.

Of the 13 shoreline wells in existence, 10 are in Manistee County; two are in Bay County; and a single directional well sits in Alpena County on the state's eastern side.

When the holes are wet, oil or natural gas is drawn to the surface and often refined near the wellhead before being piped away to utilities and energy wholesalers.

Even entrenched opponents of drilling now agree that chances of oil leaking from lake floors, up through thousands of feet of rock and directly into lake waters, are tiny. The risks from spills, however, exists at the wellhead.

### **Well safety**

Marking public anxieties about safety raised by directional drilling, the DEQ set regulations for containing oil spills at the wellhead. For the past decade, the agency has required earthen dikes to trap leaks and impermeable liners to prevent chemicals from seeping into the water table.

Escaping natural gas is an entirely different issue. Since some gas wells inadvertently draw hydrogen sulfide, a deadly gas, regulations approved earlier this year specify that such wells must have air monitors and alarms to alert operators.

At the same time, Michigan set an official maximum standard for hydrogen sulfide at 0.2 parts per million. When detected, it is called "sour" gas. Similar standards are not in place for plain natural gas or its components.

"There are no containment rules for natural gas because it doesn't present the risk that hydrogen sulfide does," said Tom Wellman of the Michigan DEQ's geological survey division. "There is some potential for leaks."

### **Drillers respond**

Drilling proponents point to Lake Erie, where Canadian companies have been drilling in lake waters since 1913. Erie's waters within Ontario's jurisdiction contain 550 wells that pull out 10 billion cubic feet of natural gas annually.

By law, the same wells must be permanently capped if they begin to draw oil. Directional drilling for oil from the shoreline began in the 1990s and Ontario now has about a dozen wells.

"Yes, we've had spills of oil and leaks of gas occur," said Rudy Rybansky, chief engineer of petroleum resources for Ontario's Department of Natural Resources.

"Everything has been minor. We haven't had any problems. There's nowhere near the debate in Canada that you're seeing in the U.S.," Rybansky said. "That's your debate."

Few on either side of the controversy believe Great Lakes production can begin to slake the national thirst for more abundant energy.

Last year, Michigan's bottomlands yielded 26,000 barrels of oil and enough gas to heat 19,000 homes, a figure that state officials say is significant.

"Let's face it: The need for fuel is varied," said Jack Lynch, a Mt. Pleasant attorney who has practiced oil and gas law for four decades.

"Sometimes, we need fuel and drilling is encouraged. When there aren't lines at the gas stations, the view is that drilling is bad," Lynch said.

"This is what I say: If we aren't drilling now, we can't suddenly turn the valve on the next time we really need it."

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Dale G. Young / The Detroit News

**Pumpjacks operate next to new condominiums and homes off Lake Michigan in Manistee. Critics say oil drilling spoils lake views.**

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