

Huge geographic formation makes Illinois focus of carbon sequestration efforts

By KERRY L. SMITH

Geologists say research being conducted at a sophisticated drill site in Decatur will be crucial in supporting the development of the FutureGen project.

Robert J. Finley, director of the University of Illinois' Advanced Energy Technology Initiative in Champaign, says Illinois is already an exporter of electricity from existing power generation stations in the state. But the research being done in partnership with Archer Daniels Midland in Decatur - drilling deep for the proper locale in which to store CO₂, within the Mt. Simon formation - should produce results that are useful to FutureGen.

FutureGen - the first experimental coal gasification power plant in the U.S. - had been shelved a few years back but recently got a tentative recommitment from the Department of Energy. The project, slated for construction in Mattoon, has the potential of moving forward again if its private sector partners can trim costs and double the number of companies funding the work.

The Department of Energy and private industry have been pushing to create cheaper renewable energy and investigating increased nuclear-power options to reduce carbon emissions, carbon capture and sequestration remains an

attractive alternative to emitting CO₂ into the atmosphere during industrial processes. It would allow regions of the country like the southeast, which don't have Texas or California-level wind or solar resources, to continue burning coal without contributing to climate change.

Although carbon sequestration - capturing the plentiful gas emitted by industry processes and burying it deep within geological formations - is nothing new, it has not yet before been done on a commercial basis. In February, a landmark DOE project with industry partner ADM began by drilling a 7,300-foot hole deep into sedimentary rock about 40 miles from the FutureGen site. William Shilts, executive director of the Institute of Natural Resource Sustainability (of which the Illinois Geological Survey is a part), says the site is probably the most heavily instrumented in the world.

Shilts' extensive resume includes work for the Canadian government in diamond exploration.

"The Mt. Simon sandstone is a great aquifer," Shilts said. "It's a multi-state formation (Illinois, Indiana and Kentucky) and appears as a big basin, sort of like a casserole dish filled with different layers of sediment covered with shale, isolating it

from the rest of the geology above. What we're doing is displacing the water as we inject a liquid form of CO₂. Mt. Simon's structure provides Illinois with a valuable resource with regard to sequestration. One of the reasons Mattoon was chosen as the site for FutureGen is due to the formation of the sandstone there," he added.

"When it is operational, FutureGen could sequester up to one million tons per year."

The DOE-ADM drilling project's objective is to inject a million tons of carbon dioxide - gas that is bled out during ADM's ethanol process - into the ground over a three-year period, followed by two years of intense monitoring. The cost of the project is roughly \$100 million, according to Shilts. "It's the perfect partnership," he said. "To try to take CO₂ out of a regular coal-fired plant and separate it out would have been extremely expensive. The geology of the drill site is nearly identical to that at the Mattoon site."

Coincidentally, the FutureGen project and the DOE-ADM project were initially announced on the same day. Shilts says the timeline both projects are now on couldn't be better.

"The drilling project is going to be a very powerful driving force for the FutureGen

project," he said. "Chinese delegations have already visited both sites. China is keenly focused on carbon sequestration as a future energy source. They realize that both of these Central Illinois projects are developing expertise that can be exported all over the world."

The sequestration of natural gas has been done at more than 30 locations throughout Illinois since the 1960s, according to Rick Smith, manager of research and development for Ameren; sequestering carbon dioxide makes use of the same technologies.

"Having Mt. Simon as a resource is huge," said Smith. "While the cost of capturing the CO₂ and injecting it would have to be recovered somewhere along the line by our customers, the process is absolutely necessary and it's the right thing to do in terms of ensuring alternative energy sources for all of us well into the future. At some point, when the federal government's regulations on cap and trade become more clear, Ameren would definitely be interested in tying into this process. Probably we would start in Jasper County, east of Effingham or in Montgomery County (Greenville), where we have non-regulated power plants."

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Hardin specializes in land and commercial development in Southern St. Clair and Monroe counties.

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Granite City Housing Authority gets \$6 million grant

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Economists say public sector construction has picked up some, but recession lingers a bit longer

By ANGELA SHULTIS

Like every other economic segment in the nation, the construction industry has suffered its share of economic repercussions due to the lingering recession.

While there's been plenty of speculation about the effect that stimulus dollars might have on the construction industry in particular, economists say the reality is that the picture still looks bleak.

"Most contractors would tell you," said Associated General Contractors chief economist Ken Simonson, "times are getting tougher, and 2010 looks even bleaker."

It's not the news that industry watchers have hoped for, with pundits last year at this time projecting an upswing by mid 2009. "I think the recession proved to be significantly deeper than people expected a year ago," Simonson said.

Some indicators suggest that the national economy as a whole could be on the verge of firming up - the Federal Reserve Beige Book reports stabilizing economic activity in the month of July and August, particularly in areas such as Dallas, Boston, Cleveland and Philadelphia, with St. Louis reporting a moderating pace of decline. For the construction market, however, the news is less encouraging in the national picture, with residential construction at low levels overall and commercial real estate market demand remaining weak with few indications of a turnaround anytime soon.

According to experts, the much-lauded stimulus, thus far, is having little impact. "A trickle of stimulus money is coming out but most contractors haven't seen it," Simonson said, adding that contractors are currently finishing projects started in

2008 and aren't finding work to replace those projects. Most of the stimulus, of course, is funding public construction projects - meaning that private developers and potential manufacturing projects are not going to see the benefit, at least in the short term. "There will be some spillover as the stimulus puts more money into the economy," he added. "But we're so far over capacity in office space, hotel, manufacturing and retail new construction in those areas is at a very low level."

In the St. Louis region, the picture is much the same. The St. Louis Fed's Beige Book reports a 28 percent decline in building permits which, while mild in comparison to a 49 percent decline in the same period nationwide, is still having a big impact on local contractors.

According to St. Louis Regional Chamber and Growth Association chief economist Ruth Sergenian, the region is closely aligned to the national picture in terms of construction indicators on the whole.

"The region and the nation look very similar," Sergenian said. "Non-commercial construction, institutional construction, infrastructure... are the stronger components," she added, while commercial construction continues to suffer from weak demand.

In the region, the effect of stimulus money - or lack thereof - is essentially on par with what's being felt nationwide: in other words, a mild boost, but not a fix. Any stimulus dollars that find their way into the industry in the St. Louis region, Sergenian says, may "soften the decline in commercial construction" and help boost state and local government

project budgets, but at best the stimulus is expected to be a "cushion, not a big boost."

With the drop in demand, of course, has come a drop in construction employment. In a report released by the federal government in September, construction employment saw a significant decline in 48 states - with only North Dakota and Louisiana showing modest increases of four and three percent, respectively. The biggest losses were noted in Arizona with a loss of 27 percent; Nevada down 25 percent; and Connecticut, Kentucky and Tennessee reporting losses of 22 percent apiece.

One saving grace for the construction industry, Simonson says, is the fact that materials costs have held to a lower rate than previously expected, meaning project savings on the whole. The Illinois Department of Transportation, for example, has been able to award extra projects with bids coming in much lower than estimated due to less expensive materials. Even that positive factor could be temporary, however. "This is a limited-time sale," said Simonson. "Materials costs are down now, but they could jump again."

As contractors look for ways to weather the extended storm, many are finding diversification, on all levels, is the key to survival, according to Simonson.

"Contractors are spreading their reach in terms of types of clients they are going after - companies who have previously done only private work are bidding public jobs, companies who have only done larger jobs have smaller minimum bids they're going for and the geographic reach is growing," he said.

In St. Louis, Sergenian has seen a similar trend, as contractors look outside of the box to sustain business. "Some local firms have been able to find work in other parts of the country," she said. "I think we're all working to do things more efficiently and an emphasis on efficiency is going to spark activity," she added, including projects that emphasize green savings and retrofitting existing buildings to increase energy efficiency.

While the industry hasn't seen the upswing it's hoped for, there are bright spots, according to Simonson.

"I think there's a lot of evidence that single-family home construction is going to pick up steadily for the rest of this year and 2010," he said. "If I'm right, that should bring back some of the retail construction," in the form of shopping malls, neighborhood retail, home improvement stores and remodeling of existing stores. "It's not a huge piece of business, but it could provide contractors with some work."

Another possibility for growth, says Simonson, lies in the realm of hospitals and universities. "I'm hopeful that the lull we've seen in hospital and university work will come to an end," he said, with the stock market at an 11-month high and an improved bonding issuing ability.

In the big picture, however, growth and a return to a thriving construction picture could be a long way off - with some regions expected to recover quicker than others. "When a recovery appears," Simonson said, "Texas and the Washington D.C. area will do better than most other places. But we're not expecting a robust recovery for many quarters."

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