

# Education, research help create success

BY BRIAN BURTON, POSTMEDIA NEWS MAY 20, 2015



SaskPower's carbon capture operation at Boundary Dam captures 1.2 million tonnes of carbon dioxide a year.

**Photograph by:** Supplied, Saskatchewan Mining Association

Alberta couldn't do it — but Saskatchewan did. Today it's home to the world's first carbon capture and storage (CCS) operation at a coal-fired power plant.

Alberta approved three coal-based CCS projects and saw proponents back away from all of them. Meanwhile, SaskPower completed its \$1.5-billion CCS unit at the Boundary Dam coal-fired power plant in 2014 and now captures 1.2 million tonnes of carbon dioxide a year, equivalent to removing 250,000 cars from the road. Captured carbon dioxide is mostly injected into Weyburn and Midale oil reservoirs; earning a revenue on CCS, boosting oil production, prolonging oilfield life and raising provincial crude royalties.

While some jurisdictions, notably Ontario, have turned their backs on carbon-heavy coal, Saskatchewan is making the technical and environmental case for continued use of a resource that provides about 70 per cent of its electric power.

"It enables the continuation of coal use in the generation of electric power," says David Grier, chief strategist with Innovation Saskatchewan.

Without CCS, he says, new carbon dioxide limits could have spelled the end of coal mining in the

province.

The project also stands as a testament to Saskatchewan's commitment to innovation and support for its mining industry.

But it takes more than motherlodes of ore to become a mining giant, says Engin Özberk, executive director of the new Saskatoon-based International Minerals Innovation Institute (IMII).

Özberk says Saskatchewan needed mining-specific education and research — and that required systematic, industry-led planning and development. The provincial government and leading mining companies agreed and in 2012 they announced the formation of the Saskatoon-based IMII.

Saskatchewan has world-class reserves of potash and uranium mines that are based on “incomparably richer ore bodies” than anywhere else in the world, Özberk says.

Still, for long-term success in hyper-competitive world markets, he says Saskatchewan must develop a mining culture, turning out homegrown engineers, scientists and technologists equal to the best in the world, while conducting research that gives the province's mining companies renewable cost advantages.

“It's easy to say we're going to be innovative,” Özberk says. “It doesn't happen just like that. It takes infrastructure and a culture of innovation.”

He sees IMII as the first step in creating the necessary foundation.

The IMII education and training panel is already reactivating a mining engineering program in the province, involving geological, chemical and mechanical engineering faculties, hiring three new professors and initiating eight new third- and fourth-year courses, so far.

“It's happening,” he says. “We wanted it in six months but universities can't hire professors that fast.”

As well, a Centre of Minerals Innovation is being developed at Saskatchewan Polytechnic in Saskatoon. It will identify and deliver the training needs of the mining industry through certificate, diploma and degree programs at four campuses around the province.

In addition, four community colleges in northern Saskatchewan have also received IMII funding for expanded programs in mining education.

“The mines are in their communities,” so it only makes sense to train local people for those jobs, rather than trying to recruit people from elsewhere, Özberk says.

Meanwhile, the research and development panel has approved two projects and is evaluating two others. To help build safety into mining culture, Saskatchewan Polytechnic and the University of Saskatchewan are reviewing and benchmarking safety systems at IMII-participating companies to identify best practices.

And the University of Saskatchewan is working on improving the removal of salts from mining effluent.

Institute chairman Dwight Percy says each company chooses the research projects it wants to support with funding and expertise.

“They work on projects that one company probably wouldn’t do on its own,” Percy says. “It’s simply a case of economy of scale. Sharing the cost three, four, five or six ways makes them more globally competitive.

“It’s also about the time frame,” he says. “The institute has been able to launch a number of education-and-training and research-and-development projects years ahead of when it otherwise would have happened.”

And ongoing industry oversight helps educational institutions “hit the mark” with new programs.

“The mining industry has fundamentally changed the psychology of the province,” Percy says. “It’s the single most important thing in changing Saskatchewan from a have-not to a have province. Instead of all our kids leaving, they’re staying and others are coming here.

“I would hope and expect the existence of the IMII will create a favourable reputation for Saskatchewan,” Percy says, both as a place to invest and as a place to work and live.