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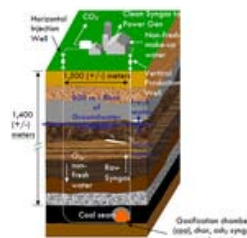
Alberta to Award C\$285M to Underground Coal Gasification with Carbon Capture Project for Power Generation; 75% Lower GHG Intensity Than Existing Coal-Fired Generators

1 December 2009

The Province of Alberta (Canada) has [executed](#) a letter of intent with Swan Hills Synfuels to provide a C\$285 million (US\$273 million) grant in support of a underground coal gasification (UCG) project that will reduce emissions by capturing and sequestering more than 1.3 million tonnes per year of CO₂. ([Earlier post.](#)) Swan Hills calls the process *in situ* coal gasification (ISCG).

The Swan Hills Synfuels project will manufacture synthetic gas from deep, unmineable coal seams near Swan Hills, Alberta. This gas will be used to fuel a new 300 MW power plant to be developed near Whitecourt, Alberta. Swan Hills says the project will result in 75% lower greenhouse gas intensity than that of existing coal-fired power generators current in Alberta today, and just over 50% of the greenhouse gas intensity of natural gas-fired combined cycle generation.

In the ISCG process, a well pair is drilled into the deep coal seam. A horizontal injection well is used to introduce oxygen and water into the seam; the oxygen supports a limited and controlled amount of combustion, raising the temperature of the coal and boiling the water to generate steam.



The naturally existing deep underground pressure, along with the elevated coal temperature and the presence of steam, together form the right conditions to gasify the coal. [ISCG Well Pair. Click to enlarge.](#) The vertical production well is used to conduct the raw syngas to the surface. Char and ash, which are remnants of the original coal, remain deep underground.

The coal seam for ISCG development at the Swan Hills Synfuels site is 1,400 m beneath the surface, approximately 800 m below the Base of Groundwater Protection (depth limit of fresh groundwater—below this depth, groundwater is saline), eliminating potential for fresh groundwater contamination, according to Swan Hills. Saline water is used for injection into the coal seam through the horizontal well, virtually eliminating the need for fresh water in the ISCG process.

The overall cost of the project is approximately C\$1.5 billion (US\$1.4 billion), with a planned in-service date in 2015.

Swan Hills Synfuels has entered into an agreement with PCL Industrial Management Inc. to construct the clean synthetic gas processing facility on a fixed price, schedule certain basis.

The power plant component of the project will be built, owned and operated by an experienced, major power generator partner, to be selected by Swan Hills Synfuels from a small number of parties who have been engaged in a competitive selection process for the last year.

The CO₂ captured by the project will be used in the Swan Hills area for enhanced oil recovery, increasing conventional oil production in Alberta while permanently sequestering the CO₂.

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