Project Pioneer Front End Engineering & Design (FEED) Study

Project type	Front End Engineering & Design (FEED) and Development Study
Project proponents	TransAlta Corporation, Capital Power L.P., Enbridge Inc.
CO_2 source	Keephills 3 electricity generation unit
Capture application	Coal-fired electricity generation
CO_2 storage type	Sequestration in saline formation and enhanced oil recovery
Project timeframe	April 1, 2009 to October 31, 2012
Project locations	Capture facility and sequestration: Wabamun-Lake area power plant, located 70 km west of Edmonton, Alberta, Canada EOR: Pembina Oil Field area, approximately 80 km southwest of capture facility
Funding	
Government of Canada	$16.2 million
Provincial government	$5.0 million
Other	$11.2 million
Total project cost	$32.4 million

Project description

The project, owned by TransAlta, Capital Power L.P. and Enbridge Inc., entailed the completion of a Front End Engineering & Design (FEED) Study for a large-scale carbon capture & storage (CCS) facility to be retrofitted onto the Keephills 3 coal-fired power plant. Producing 450 megawatts (MW) of power, and commissioned in 2011, Keephills 3 uses supercritical boiler technology, which features higher boiler temperatures, higher pressures and a high-efficiency steam turbine. TransAlta chose to use post-combustion retrofit technology because of its cost-effectiveness, potential for broad application and ability to affect global greenhouse gas emissions in the next 20 years. The study also included preliminary designs for the pipeline and two potential storage schemes, enhanced oil recovery (EOR) and injection for permanent storage in a geologic formation, as well as the necessary development agreements including a long-term knowledge transfer strategy.

Expected outcomes

On April 26, 2012, TransAlta and its partners announced that they would not proceed with the large-scale CCS project. Following the conclusion of the FEED Study, TransAlta and its partners determined that, although the technology works and capital costs are in line with expectations, the overall economics of the project were not favourable. This FEED Study, which included preliminary designs for the capture facility, pipeline, and surface injection facilities; characterization of a proposed geologic formation storage site; risk analyses, as well as economic models, was critical for determining the cost, schedule, and risks of the proposed large-scale CCS project. Project Pioneer partners are committed to sharing best practices in post-combustion system integration and environmental protection to advance the industry, globally.

Proponent profile

Founded in 1909 and producing power since 1911, TransAlta is Canada's largest publicly traded generator of electric and renewable power. The company generates electricity – fuelled by coal, natural gas, water, geothermal energy and wind – and sells it to wholesale customers in various regions of Canada, the United States and Australia.

Project Web sites

www.transalta.com

Aussi disponible en français sous le titre :
Étude d'ingénierie de base pour le projet Pioneer