

First ever hybrid solar-coal power plant operating

July 12 2010, by Lin Edwards



Colorado Integrated Solar Project

(PhysOrg.com) -- The first ever hybrid solar-coal power plant is now operating at Unit 2 of the Cameo Generating Station near Palisade in Colorado. The demonstration project was built by Xcel Energy as part of its new Innovative Clean Technology (ICT) Program, and is designed to decrease the use of coal, increase the plant's efficiency, lower carbon dioxide emissions, and test the commercial viability of combining the two technologies.

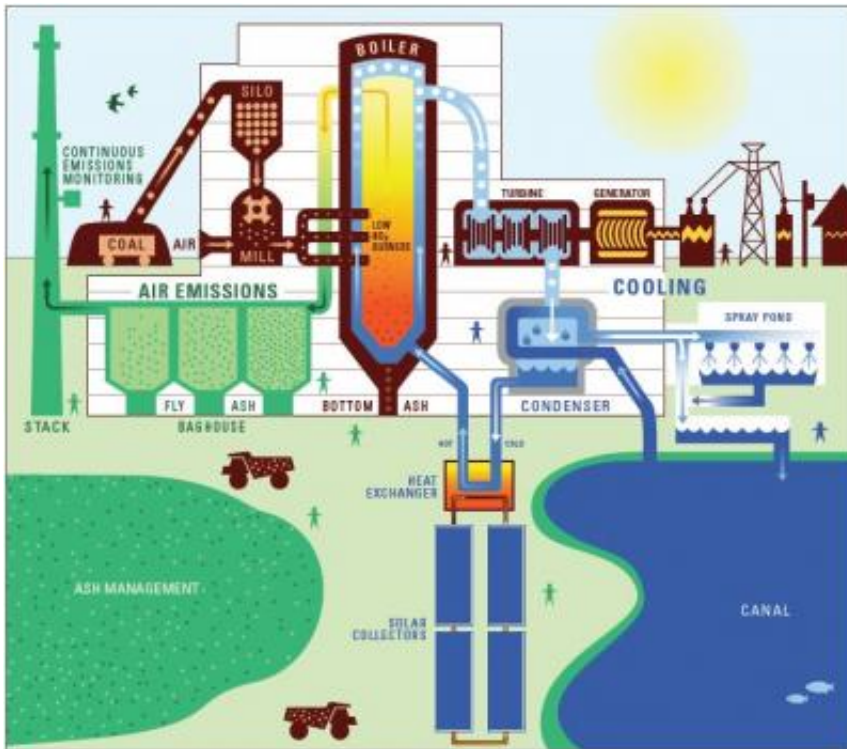
The project was developed by Xcel Energy in conjunction with Abengoa Solar, which developed the solar parabolic trough technology that

concentrates solar energy to produce heat. The demonstration project is expected to cut the use of coal at the power plant by around two or three percent, and could be scaled up to cut it by 10 percent.

The system works through a series of parabolic trough [solar collectors](#) made of glass mirrors. On sunny days the mirrors concentrate the [solar radiation](#) onto a line of receiver tubes filled with a heat transfer fluid (mineral oil). The solar energy heats the circulating oil to about 300°C (575°F). The heated oil is then fed to a heat exchanger where the heat is transferred to water to heat it to around 200°C (407°F) before it enters the boiler. Having hotter water entering the boiler means less coal is needed to heat it and produce the steam that turns the turbine to generate electricity.

Vice president of Xcel Energy, and chief supply officer, Kent Larson, said in a press release that if the project meets expectations it may help “move the use of solar energy one step closer to being a potential technology for improving the environmental performance of coal-fired [power plants](#).”

CEO of Abengoa Solar, Santiage Seage, said the company believed the solar-coal combination would provide a cost-effective way of delivering solar energy.



Xcel Energy's ICT Program is aimed at developing, commercializing and deploying new technologies for [electricity generation](#), [energy storage](#), and so on, to support the company's clean energy strategy. Xcel Energy is a major utility company in the US, servicing 3.3 million electricity customers and 1.8 million natural gas customers.

Other companies are also developing or evaluating hybrid power generation plants to see if the combination can provide environmental benefits at a commercially viable cost. For example a group of companies have joined with the Electric Power Research Institute to study the feasibility of hybrid coal-solar plants in North Carolina and New Mexico, while in Florida NextEra Energy is developing a hybrid solar-natural gas plant.

More information: [Colorado Integrated Solar Project](#)

© 2010 PhysOrg.com

Citation: First ever hybrid solar-coal power plant operating (2010, July 12) retrieved 25 April 2024 from <https://phys.org/news/2010-07-hybrid-solar-coal-power.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.