



Alstom and Dow Dedicate New Pilot Plant to Capture CO₂

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Alstom and Dow have built and begun operating an advanced-amine pilot plant to capture carbon dioxide (CO₂) from the flue gas of a coal-fired boiler at the Dow's South Charleston, W. Va., site.

What has each company contributed?

- Alstom designed, constructed and operates the pilot plant, which is expected to capture approximately 1,800 tons per year of CO₂ from flue gas using Alstom and Dow's advanced amine technology.
- Dow provides the site and utilities for the project, as well as the chemicals and its amine technology expertise.

What are the objectives of the pilot?

This plant will be used to finalize the design information of the technology by piloting it on live coal flue gas. The overall drive is to reduce the costs of the entire system to make this CO₂ capture technology the most cost-effective technology in the industry.

What are the next steps for piloting and using this technology?

The next step after this pilot is to create a larger CO₂ capture plant. Dow and Alstom are already evaluating construction of a coal-fired power plant in Belchatow, Poland, which is being designed to capture 1.8 MM tons of CO₂ per year. Dow and Alstom are also currently working with various power plants to discuss opportunities for other potential sites worldwide.

How new is amine chemistry for capturing CO₂?

Amine technology has been used for more than 50 years to capture and remove CO₂ and H₂S out of natural gas streams under high pressure. This technology works, but the challenge is how to reduce the cost on such high flue-gas volumes at low pressure.

How does the CO₂ capture process work?

Coal is burned in a boiler to produce steam. The outlet gas of the combustion is called flue gas. This flue gas is typically treated to remove impurities before being released through a stack. This advanced-amine technology works by contacting the flue gas with an advanced-amine system in a packed column. The amine strips the CO₂ from the flue gas and holds onto it, letting the flue gas escape without the CO₂. The amine is then regenerated by boiling off the CO₂ in another column, generating a nearly pure CO₂ stream and an amine ready to pick up more CO₂.

For more information, please visit www.dow.com or www.alstom.com.