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News Release

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Basin Electric, Powerspan team up to bring the future of coal to North Dakota

Bismarck, N.D. – Basin Electric Power Cooperative and Powerspan Corp. have teamed up to advance a carbon capture technology in what may be the first commercial-scale application of its kind in the United States.

At the National Generation & Transmission Communicators meeting today, Powerspan CEO Frank Alix said a feasibility study for adding carbon capture controls at Basin Electric's Antelope Valley Station (AVS) has been completed, and the study results were very positive.

"Based on the study results, we're looking forward to the next step in this process, which is a FEED study," Alix said. FEED is an acronym for Front-End Engineering and Design.

Earlier this year, Basin Electric and Powerspan announced a partnership to commercially demonstrate carbon dioxide (CO₂) capture technology for conventional coal-based power plants.

Construction of the CO₂ capture system is scheduled to move forward late next year. It's expected to be operational in 2012.

"We are very excited about moving forward with this innovative project," said Ron Harper, Basin Electric CEO and general manager. "At a time when our nation is facing an energy crisis – increased demand and record-high gasoline prices – it's thrilling to be a part of a unique project that will use a home-grown, abundant energy source so we can meet our future energy needs in a pioneering green way."

U.S. Sen. Byron Dorgan, who chairs two key Energy subcommittees in the Senate, said "The effort by Basin Electric to use new and innovative technology to capture carbon from a coal-fired electric generating plant will help lead the way in developing new technology to allow us to use our coal in the future and protect our environment at the same time. This is a bold leadership step for Basin Electric that can provide benefits for our entire nation's energy future."

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N.D. Gov. John Hoeven, said “New, environmentally friendly technologies, like the CO2 capture technology Basin is applying at Antelope Valley, will help to secure the future of abundant, domestic energy for North Dakota and the nation. As with the Dakota Gasification plant, Basin Electric is leading the way forward with carbon capture and sequestration technology at the Antelope Valley plant, and the State of North Dakota is working with them to make it happen.”

The demonstration project would capture about one million tons of CO2 from a portion of the exhaust from Unit 1 at AVS, making this project among the largest in the world. As planned, the Powerspan technology would remove CO2 from the equivalent of a 120-megawatt slipstream. The captured carbon dioxide would then be fed into an existing CO2 compression and pipeline system owned by Basin Electric’s wholly owned subsidiary, Dakota Gasification Company (DGC), which has been in operation since 2000.

Harper underscored the need for the federal government to support the demonstration project. “We’re looking at a price tag of \$200 million-300 million for this project. If we’re going to revolutionize the way coal is used in the future, it’s imperative that the federal government help meet this challenge and share in the risk. We’re working closely with North Dakota’s congressional delegation and Governor Hoeven and we look forward to continued work in this arena.”

Powerspan’s CO2 capture process, called “ECO2[®],” is a post-combustion, regenerative process, which uses an ammonia-based solution to capture carbon dioxide from the flue gas of a power plant and release it in a form that is ready for further compression, safe transportation, and geological storage.

“Successful commercial demonstration of our post-combustion ECO2 process represents the fastest and lowest cost route to meaningful CO2 emission reductions from an existing power plant infrastructure,” Alix told the communicators group. “The commercial-scale demonstration at Antelope Valley will provide sufficient information to design, build, and guarantee performance for full-scale ECO2 systems. We are honored to be working with Basin Electric, given their environmental leadership and extensive experience in capturing and sequestering CO2.”

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DGC is the only company in the United States that captures CO₂ from coal and delivers it for enhanced oil recovery operations. The CO₂ is captured at the Great Plains Synfuels Plant near Beulah, N.D., and piped to oil producers in Saskatchewan, Canada.

The Antelope Valley Station consists of two coal-based electric generating units, each rated at 450 megawatts. The ECO₂ commercial demonstration will draw the equivalent of a 120-megawatt slipstream from Unit 1 and will be designed to capture 90 percent of the incoming CO₂. The captured CO₂ would then be delivered by pipe to an existing compressor station at the adjacent Synfuels Plant and then injected into a 205-mile pipeline system.

The ECO₂ process is a post-combustion CO₂ capture process for conventional power plants that is differentiated from other approaches by its simpler capital equipment design and significantly lower energy consumption. The technology is suitable for retrofit to the existing coal-based, electric generating fleet as well as for new coal-based plants.

The CO₂ capture would occur last, after other emissions of sulfur dioxide, mercury and fine particulate matter are captured. Once the CO₂ is captured, the ammonia-based solution is regenerated to release CO₂ and ammonia. The ammonia is recovered and sent back to the scrubbing process, and the CO₂ is in a form that is ready for geological storage. Ammonia is not consumed in the scrubbing process, and no separate by-product is created.

[About Basin Electric Power Cooperative](#)

Basin Electric is a consumer-owned, regional cooperative headquartered in Bismarck. It generates and transmits electricity to 126 member rural electric systems in nine states: Colorado, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, South Dakota, and Wyoming. These member systems distribute electricity to about 2.6 million consumers.

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A Touchstone Energy® Cooperative 

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Basin Electric's generating resources include: two coal-based power plants in North Dakota – the Antelope Valley Station, Beulah, and the Leland Olds Station, Stanton; a coal-based power plant in Wyoming – the Laramie River Station, Wheatland; three peaking stations – the Spirit Mound Station, Vermillion, S.D.; the Groton Generation Station 1, Groton, S.D., and the Wisdom Unit 2 Station, Spencer, Iowa; nine combustion-turbine generators (natural gas) in the Gillette, Wyo., area; four wind turbines – two near Minot, N.D., and two near Chamberlain, S.D.; the energy produced from four baseload waste-heat stations owned and operated by Ormat Technologies Inc. along the Northern Border Pipeline, and the output of three wind farms owned and operated by FPL Energy, Juno Beach, Fla. The wind farms are located near Wilton and Edgeley/Kulm, N.D.; the other is near Highmore, S.D. For more information, go to www.basinelectric.com.

About Powerspan

Powerspan Corp., a clean-energy technology company based in Portsmouth, New Hampshire, is engaged in the development and commercialization of proprietary multi-pollutant control technology for the electric power industry. The Company's patented Electro-Catalytic Oxidation, or ECO[®], multi-pollutant control process provides high removal of sulfur dioxide (SO₂), nitrogen oxides (NO_x), mercury, and fine particulate matter from coal-based power plants. Visit www.powerspan.com for more information.