Summary of Testimony of Michael W. Rencheck
Senior Vice President – Engineering, Projects & Field Services
American Electric Power

American Electric Power (AEP) is one of the nation's largest electricity generators with over 5 million retail consumers in 11 states. AEP has a diverse generating fleet – coal, nuclear, hydroelectric, gas, oil and wind. But of particular note, AEP is one of the largest coal-fired electricity generators in the U.S.

Over the last 100 years, AEP has led the Industry in developing and deploying new technologies beginning with the first high voltage transmission lines at 345 kilovolt (kV) and 765 kV to new and more efficient coal power plants starting with the large central station power plant progressing to supercritical and ultrasupercritical power plants. During the past decade, American Electric Power has implemented a portfolio of voluntary actions to reduce, avoid or offset greenhouse gases (GHG). During 2003-05, AEP reduced its GHG emissions by 31 million metric tons of CO_2 by planting trees, adding wind power, increasing power plant generating efficiency, and retiring less-efficient units among other measures.

We also continue to invest in new clean coal technology that will enable AEP and our industry to meet the challenge of reducing GHG emissions for the long term. This includes plans to build two new integrated gasification combined cycle (IGCC) plants and two state-of-the-art, ultrasupercritical plants. These will be the first of the new generation of ultrasupercritical plants in the U.S. AEP plans to take a lead role in commercializing carbon capture technology. We signed a memorandum of understanding (MOU) with Alstom for post-combustion carbon capture technology using its chilled ammonia system. Starting with a "commercial performance verification" project in mid to late 2008 in West Virginia, we would move to the first commercial-sized project at one of our 450-megawatt coal-fired units at Northeastern Plant in Oklahoma by late 2011. This would capture about 1.5 million metric tons of CO_2 a year, which will be used for enhanced oil recovery. Additionally, we signed a memorandum of understanding with Babcock and Wilcox to participate in a oxy-coal pilot project. This project will be used to refine the process and eventually determine if the combustion technology can be retrofit into existing plants.

Over all, AEP supports the adoption of an economy-wide cap-and-trade type GHG reduction program that is well thought-out, achievable, and reasonable. We believe legislation can be crafted that does not impede AEP's ability to provide reliable, reasonably priced electricity to support the economic well-being of our customers, and includes mechanisms that foster international participation and avoids harming the U.S. economy. A pragmatic approach for phasing in GHG reductions through a cap-and-trade program coincident with developing technologies to support these reductions will be critical to crafting achievable and reasonable legislation.

The development of these technologies will be facilitated by and are dependent on public funding through tax credits and similar incentives. AEP is doing its part as we aggressively explore the viability of this technology in several first-of-a-kind commercial projects. We are advancing the development of IGCC and other necessary technologies as we seek to build two IGCC plants and two state-of-the-art ultrasupercritical power plants. In addition, we are a founding member of FutureGen, a groundbreaking public-private collaboration that aims squarely at making near-zero-emissions coal-based energy a reality. Simply put, however, commercially engineered and available technology to capture and store CO_2 does not economically exist today and we strongly recommend that any legislation you adopt reflect this fact.

Testimony of

Michael W. Rencheck
Senior Vice President – Engineering, Projects & Field Services
American Electric Power

Before the House Committee on Science and Technology
Subcommittee on Energy and Environment
May 15, 2007

Good morning Mr. Chairman and distinguished members of the House Committee on Science and Technology, Subcommittee on Energy and Environment.

Thank you for inviting me here today. Thank you for this opportunity to offer the views of American Electric Power (AEP) and for soliciting the views of our industry and others on climate change technologies.

My name is Mike Rencheck, Senior Vice President – Engineering, Projects & Field Services of American Electric Power (AEP). Headquartered in Columbus, Ohio, we are one of the nation's largest electricity generators -- with over 36,000 megawatts of generating capacity -- and serve more than five million retail consumers in 11 states in the Midwest and south central regions of our nation. AEP's generating fleet employs diverse sources of fuel – including coal, nuclear, hydroelectric, natural gas, and oil and wind power. But of particular importance for the Committee members here today, AEP uses more coal than any other electricity generator in the Western hemisphere.

AEP's Technology Development

Over the last 100 years, AEP has been an industry leader in developing and deploying new technologies beginning with the first high voltage transmission lines at 345 kilovolt (kV) and

765kV, to new and more efficient coal power plants starting with the large central station power plant, progressing to supercritical and ultrasupercritical powers plants. We are continuing that today. We have implemented 14 selective catalytic reactors (SCRs), and 10 Flue Gas Desulphurization units, with others currently under construction, and we are a leader in developing and deploying mercury capture and monitoring technology. In addition, we continue to invest in new clean coal technology plants and R&D that will enable AEP and our industry to meet the challenge of significantly reducing GHG emissions in future years. For example, AEP is working to build two new generating plants using Integrated Gasification Combined Cycle (IGCC) technology in Ohio and West Virginia, as well as two highly efficient new generating plants using the most advanced (e.g. ultrasupercritical) pulverized coal combustion technology in Arkansas and Oklahoma. We are also providing a leading role in the FutureGen project, which once completed, will be the world's first near-zero CO_2 emitting commercial scale coal-fueled power plant. We are also working to progress specific carbon capture and storage technology.

AEP's Major New Initiative to Reduce GHG Emissions

In March, AEP announced several major new initiatives to reduce AEP's GHG emissions and to advance the commercial application of carbon capture and storage technology and Oxy-coal combustion. Our company has been advancing technology for the electric utility industry for more than 100 years. AEP's recent announcement continues to build upon this heritage. Technology development needs are often cited as an excuse for inaction. We see these needs as opportunities for action.

AEP has signed a memorandum of understanding (MOU) with Alstom, a worldwide leader in equipment and services for power generation, for post-combustion carbon capture technology using Alstom's chilled ammonia system. It will be installed at our 1300-megawatt Mountaineer Plant in New Haven, West Virginia as a "30-megawatt (thermal) commercial

performance verification" project in mid to late 2008 and it will capture up to 100,000 metric tons of carbon dioxide (CO_2) per year. Once the CO_2 is captured, we will store it. The Mountaineer site has an existing deep saline aquifer injection well previously developed in conjunction with the Department of Energy (DOE) and Battelle. Working with Battelle and with continued DOE support, we will use this well (and develop others) to store and further study CO_2 injection into deep geological formations.

Following the completion of commercial verification at Mountaineer, AEP plans to install Alstom's system on one of the 450-megawatt coal-fired units at its Northeastern Plant in Oologah, Oklahoma, as a first-of-a-kind commercial demonstration. The system is expected to capture approximately 1.5 million metric tons of CO_2 per year and be operational in late 2011. The CO_2 captured at Northeastern Plant will be used for enhanced oil recovery.

AEP has also signed an MOU with Babcock and Wilcox to pursue the development of Oxy-coal combustion that uses oxygen in lieu of air for combustion. The Oxy-coal combustion forms a concentrated CO_2 post combustion gas that can be stored without additional post combustion capture processes. AEP is working with B&W on a "30-megawatt (thermal) pilot project." The results are due in mid-2007 and then these results will be used to study the feasibility of a scaled up 100 – 200MW(electric) demonstration. The CO_2 from the demonstration project would be captured and stored in a deep saline geologic formation or used for enhanced oil recovery application.

In March, AEP also voluntarily committed to achieve an additional five million tons of GHG reductions annually beginning in 2011. We will accomplish these reductions through a new AEP initiative that will add another 1000 MW of purchased wind power into our system, substantially increase our forestry investments (in addition to the 62 million trees we have

planted to date), as well as invest in domestic offsets, such as methane capture from agriculture, mines, and landfills.

AEP has also implemented efficiency improvements at several plants in its existing generation fleet. These improvements include new turbine blading, valve replacements, combustion tuning, and installation of variable speed drives on rotating equipment. Such improvements are currently reported through the Department of Energy's 1605 (b) program to the extent they produce creditable reductions in greenhouse gas emissions. However, we are limited in the efficiency improvements we can make due to the ambiguities in the existing New Source Review program, and support further clarification and reform of this program to encourage efficiency improvements.

AEP Perspectives on a Federal GHG Reduction Program

While AEP has done much, and will do much more, to mitigate GHG emissions from its existing sources, we also support the adoption of an economy-wide cap-and-trade type GHG reduction program that is well thought-out, achievable, and reasonable. Although today I intend to focus on the need for the development and deployment of commercially viable technologies to address climate change and not on the specific policies issues that must be addressed, AEP believes that legislation can be crafted that does not impede AEP's ability to provide reliable, reasonably priced electricity to support the economic well-being of our customers, and includes mechanisms that foster international participation and avoid creating inequities and competitive issues that would harm the U.S. economy. AEP supports reasonable legislation, and is not calling for an indefinite delay until advanced technology to support carbon capture and storage (CCS), among others, is developed. However, as the requirements become more stringent during the next ten to twenty years, and we move beyond the ability of current technology to deliver

those reductions, it is essential that requirements for deeper reductions coincide with the commercialization of advanced technologies.

Phased-in Timing and Gradually Increasing Level of Reductions Consistent with Technology Development that is facilitated by Public Funding

As a practical matter, implementing climate legislation is a complex undertaking that will require procedures for measuring, verifying, and accounting for GHG emissions, as well as for designing efficient administration and enforcement procedures applicable to all sectors of our economy. Only a pragmatic approach with achievable targets, supported by commercial technology, and reasonable timetables – that does not require too many reductions within too short a time period – will succeed.

AEP also believes that the level of emissions reductions and timing of those reductions under a federal mandate must keep pace with developing technologies for reducing GHG emissions from new and existing sources. The technologies for effective carbon capture and storage from coal-fired facilities are developing, but are not commercially engineered to meet production needs, and cannot be artificially accelerated through unrealistic reduction mandates.

While AEP and other companies have successfully lowered their average emissions and emission rates during this decade, further substantial reductions will require the wide-scale commercial availability of new clean coal technologies. AEP believes that the electric power industry can potentially manage much of the expected economic (and CO_2 emissions) growth over the course of the next decade (2010-2020) through aggressively deploying renewable energy, achieving further gains in supply and demand-side energy efficiency, and implementing new emission offset projects. As stated above, AEP supports reasonable legislation, and is not calling for an indefinite delay of GHG reduction obligations until advanced clean coal

technology is developed. However, as the reduction requirements become more stringent, and move beyond the ability of current technologies to deliver those reductions, it is important that those stringent requirements coincide with the commercialization of advanced technology. This includes the next generation of low- and zero-emitting technologies.

Significantly, today's costs of new clean coal technologies with carbon capture and storage are much more expensive than current coal-fired technologies. For example, carbon capture and storage using current inhibited monoethanolamine (MEA) technology is expected to increase the cost of electricity from a new coal fired power plant by about 60-70 percent. Even the newer chilled ammonia carbon capture technology we plan to deploy on a commercial sized scale by 2012 at one of our existing coal-fired units will result in significantly higher costs.

Additionally the MEA technology has limitations under existing plant retrofit conditions. CO2 capture requires a large volume of steam to regenerate the amine used to capture the CO_2. Review of several of our existing PC units indicates they can only supply enough steam from the power generation cycle to regenerate the amine necessary to capture about 50% of the CO_2, without jeopardizing the steam cycle.

It is only through the steady and judicious advancement of these applications during the course of the next decade that we can start to bring these costs down, in order to avoid substantial electricity rate shocks and undue harm to the U.S. economy.

IGCC technology, for example, integrates two proven processes – coal gasification and combined cycle power generation – to convert coal into electricity more efficiently and cleanly than any existing uncontrolled power plant can. Not only is it cleaner and more efficient than today's installed power plants, but IGCC has the potential to be retrofitted in the future for carbon capture at a lower capital cost and with less of an energy penalty than traditional power plant technologies, but only after the technology has been developed and proven. Our IGCC

plants will incorporate the space and layout for the addition of components to capture CO_2 for sequestration.

Our IGCC plants will be among the earliest, if not the first, deployments of large-scale IGCC technology. The cost of constructing these plants will be high, resulting in a cost of generated electricity that would be twenty to thirty percent greater than that from pulverized coal (PC) combustion technology. As more plants are built, the costs of construction are expected to come into line with the cost of PC plants.

To help bridge the cost gap and move IGCC technology down the cost curve, there is a need for continuation and expansion of the advanced coal project tax credits that were introduced by the Energy Policy Act of 2005. All of the available tax credits for IGCC projects using bituminous coal were allocated to only two projects during the initial allocation round in 2006. More IGCC plants are needed to facilitate this technology. AEP believes an additional one billion dollars of section 48A (of the Internal Revenue Code) tax credits are needed, with the bulk of that dedicated to IGCC projects without regard to coal type.

Along with an increase in the amount of the credits, changes are needed in the manner in which the credits are allocated. Advanced coal project credits should be allocated based on net generating capacity and not based upon the estimated gross nameplate generating capacity of projects. Allocation based upon gross, rather than net, generating capacity potentially rewards less efficient projects, which is antithetical to the purpose of advanced coal project tax incentives. AEP also believes that the Secretary of Energy should be delegated a significant role in the selection of IGCC projects that will receive tax credits.

On a critical note, the inclusion of carbon capture and sequestration equipment must not be a prerequisite for the allocation of these additional tax credits due to the urgent need for new electric generating capacity in the U. S. AEP also believes that this requirement is premature and

self-defeating to advancing IGCC technology. The addition would require yet-to-be developed technology and/or would cause the projected cost of a project to increase significantly, making it that much more difficult for a public utility commission to approve.

AEP also believes that additional tax incentives are needed to spur the development and deployment of greenhouse gas capture and sequestration equipment for all types of coal fired generation. We suggest that additional tax credits be established to offset a significant portion of the incremental cost of capturing and sequestering CO_2. These incentives could be structured partly as an investment tax credit, similar to that in section 48A (of the Internal Revenue Code), to cover the upfront capital cost, and partly as a production tax credit to cover the associated operating costs.

In summary, AEP recommends a pragmatic approach for phasing in GHG reductions through a cap-and-trade program coincident with developing technologies to support these reductions.

Technology is the Answer to Climate Change

The primary human-induced cause of global warming is the emission of CO_2 arising from the burning of fossil fuels. Put simply, our primary contribution to climate change is also what drives the global economic engine.

Changing consumer behavior by buying efficient appliances and cars, by driving less, and other similar steps, is helping to reduce the growth of GHG emissions. However, these steps will never be enough to significantly reduce CO_2 emissions from the burning of coal, oil and natural gas. Such incremental steps, while important, will never be sufficient to stabilize greenhouse gases concentrations in the atmosphere at a level that is believed to be capable of preventing dangerous human-induced interference with the climate system, as called for in the U.S.-approved U.N. Framework Convention on Climate Change (Rio agreement). For that, we need

major technological advances to effectively capture and store CO_2. The Congress and indeed all Americans must come to recognize the gigantic undertaking and significant sacrifices that this enterprise is likely to require.

CCS should not be mandated until and unless it has been demonstrated to be effective and the costs have significantly dropped so that it becomes commercially engineered and available on a widespread basis. Until that threshold is met, it would be technologically unrealistic and economically unacceptable to require the widespread installation of carbon capture equipment. The use of deep saline geologic formations as primary long-term CO_2 storage locations has not yet been sufficiently demonstrated. There are no national standards for permitting such storage reservoirs; there are no widely accepted monitoring protocols; and the standards for liability are unknown (as well as whether Federal or state laws would apply). In addition, who owns the rights to these deep geologic reservoirs remains a question.

Outstanding technical questions for CO_2 storage include: What is the number of injector wells needed? What is the injector well lifespan? What is the injector well proximity to other wells? What measurement, monitoring, and verification of storage in the geologic reservoirs is needed? What is the time span of post-injection monitoring? Much work needs to be done to ensure that the potential large and rapid scale-up in CCS deployment will be successful.

Underscoring these realities, industrial insurance companies point to this lack of scientific data on CO_2 storage as one reason they are disinclined to insure early projects. In a nutshell, the institutional infrastructure to support CO_2 storage does not yet exist and will require time to develop. In addition, application of today's CO_2 capture technology would significantly increase the cost of an IGCC or a new efficient pulverized coal plant, calling into serious question regulatory approval for the costs of such a plant by state regulators. Further, recent studies sponsored by the Electric Power Research Institute (EPRI) suggest that application of today's

CO_2 capture technology would increase the cost of electricity from an IGCC plant by 40 to 50 percent, and boost the cost of electricity from a conventional pulverized coal plant by 60 to 70 percent, which would again jeopardize state regulatory approval for the costs of such plants.

Despite these uncertainties, I believe that we must aggressively explore the viability of CCS technology in several first-of-a-kind commercial projects. AEP is committed to help lead the way, and to show how this can be done.

As described earlier in this testimony, AEP will install carbon capture controls on two existing coal-fired power plants, the first commercial use of this technology, as part of our comprehensive strategy to reduce, avoid or offset GHG emissions.

AEP is also building two state-of-the-art advanced ultrasupercritical power plants in Oklahoma and Arkansas. These will be the first of the new generation of ultrasupercritical plants in the U.S. The more efficient turbine cycle on these ultra supercritical units results from increased steam temperatures (greater than 1100 °F). This improved efficiency reduces fuel (coal) consumption and thereby reduces emissions. The long-term goal for ultrasupercritical technology is to develop "super alloys" which can withstand operating temperatures of 1400 °F. This increased steam temperature will improve efficiency by about 20 percent relative to today's supercritical units that are operating in the 1000 °F to 1050 °F range.

AEP is also advancing the development of IGCC technology. IGCC represents a major breakthrough in our work to improve the environmental performance of coal-based electric power generation. AEP is in the process of permitting and designing two of the earliest commercial scale IGCC plants in the nation. Construction of the IGCC plants will start once traditional rate recovery is approved.

AEP is also a founding member of FutureGen, a groundbreaking public-private collaboration that aims squarely at making near-zero-emissions coal-based energy a reality.

FutureGen is a $1.5 billion, 10-year research and demonstration project. It is on track to create the world's first coal-fueled, near-zero emission electricity and hydrogen plant with the capability to capture and sequester at least 90 percent of its carbon dioxide emissions.

As an R&D plant, FutureGen will stretch -- and indeed create -- the technology envelope. Within the context of our fight to combat global climate change, FutureGen has a truly profound mission – to validate the cost and performance baselines of a fully integrated, near zero-emission coal-fueled power plant.

The design of the FutureGen plant is already underway, and we are making great progress. The plant will be on-line early in the next decade. By the latter part of that decade, following on the advancements demonstrated by AEP, FutureGen, and other projects, CCS technology should become a commercial reality.

It is when these technologies are commercially demonstrated, and only then, that commercial orders will be placed on a widespread basis to implement CCS at coal-fueled power plants. That is, roughly around 2020. Widespread deployment assumes that a host of other important issues have been resolved, and there is governmental and public acceptance of CCS as the proven and safe technology that we now believe it to be. AEP supports rapid action on climate change including the enactment of well thought-out and achievable legislation so that our nation can get started on dealing with climate change. However, the development of technology must coincide with any increase in the stringency of the program.

A huge challenge that our society faces over the remainder of this century is how we will reduce the release of GHG emissions from fossil fuels. This will require nothing less than the complete reengineering of the entire global energy system over the next century. The magnitude of this task is comparable to the industrial revolution, but for this revolution to be successful, it must stimulate new technologies and new behaviors in all major sectors of the world economy.

The benefits of projects like FutureGen and the ones AEP is pursuing will apply to all countries blessed with an abundance of coal, not only the United States, but also nations like China and India.

In the end, the only sure path to stabilizing GHG concentrations over the long term is through the development and utilization of advanced technologies. And we must do more than simply call for it. Our nation must prepare, inspire, guide, and support our citizens and the very best and the brightest of our engineers and scientists; private industry must step up and start to construct the first commercial plants; and our country must devote adequate financial and technological resources to this enormous challenge. AEP is committed to being a part of this important process, and to helping you achieve the best outcome at the most reasonable cost and timelines possible. Thank you again for this opportunity to share these views with you.

AEP
AMERICAN ELECTRIC POWER

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FOR IMMEDIATE RELEASE

AEP TO INSTALL CARBON CAPTURE ON TWO EXISTING POWER PLANTS; COMPANY WILL BE FIRST TO MOVE TECHNOLOGY TO COMMERCIAL SCALE

As climate policy advances, 'it's time to advance technology for commercial use,' CEO says

COLUMBUS, Ohio, March 15, 2007 – American Electric Power (NYSE:AEP) will install carbon capture on two coal-fired power plants, the first commercial use of technologies to significantly reduce carbon dioxide emissions from existing plants.

The first project is expected to complete its product validation phase in 2008 and begin commercial operation in 2011.

"AEP has been the company advancing technology for the electric utility industry for more than 100 years," said Michael G. Morris, AEP chairman, president and chief executive officer. "This long heritage, the backbone of our company's success, makes us very comfortable taking action on carbon emissions and accelerating advancement of the technology. Technology development needs are often cited as an excuse for inaction. We see these needs as an opportunity for action.

"With Congress expected to take action on greenhouse gas issues in climate legislation, it's time to advance this technology for commercial use," Morris said. "And we will continue working with Congress as it crafts climate policy. It is important that the U.S. climate policy be well thought out, establish reasonable targets and timetables, and include mechanisms to prevent trade imbalances that would damage the U.S. economy."

Morris will discuss AEP's plans for carbon capture during a presentation today at the Morgan Stanley Global Electricity & Energy Conference in New York. A live webcast of the presentation to an audience of investors will begin at 12:10 p.m. EDT and can be accessed through the Internet at

http://www.aep.com/go/webcast. The webcast will also be available after the event. Visuals used in the presentation will be available at http://www.aep.com/investors/present.

AEP has signed a memorandum of understanding (MOU) with Alstom, a worldwide leader in equipment and services for power generation and clean coal, for post-combustion carbon capture technology using Alstom's Chilled Ammonia Process. This technology, which is being piloted this summer by Alstom on a 5-megawatt (thermal) slipstream from a plant in Wisconsin, will first be installed on AEP's 1300-megawatt Mountaineer Plant in New Haven, W.Va., as a 30-megawatt (thermal) product validation in mid-2008 where up to 100,000 metric tons of carbon dioxide (CO_2) will be captured per year. The captured CO2 will be designated for geological storage in deep saline aquifers at the site. Battelle Memorial Institute will serve as consultants for AEP on geological storage.

Following the completion of product validation at Mountaineer, AEP will install Alstom's system on one of the 450-megawatt (electric) coal-fired units at its Northeastern Station in Oologah, Okla. Plans are for the commercial-scale system to be operational at Northeastern Station in late 2011. It is expected to capture about 1.5 million metric tons of CO_2 a year. The CO_2 captured at Northeastern Station will be used for enhanced oil recovery.

Alstom's system captures CO_2 by isolating the gas from the power plant's other flue gases and can significantly increase the efficiency of the CO_2 capture process. The system chills the flue gas, recovering large quantities of water for recycle, and then utilizes a CO_2 absorber in a similar way to absorbers used in systems that reduce sulfur dioxide emissions. The remaining low concentration of ammonia in the clean flue gas is captured by cold-water wash and returned to the absorber. The CO_2 is compressed to be sent to enhanced oil recovery or storage.

In laboratory testing sponsored by Alstom, EPRI and others, the process has demonstrated the potential to capture more than 90 percent of CO_2 at a cost that is far less expensive than other carbon capture technologies. It is applicable for use on new power plants as well as for the retrofit of existing coal-fired power plants.

AEP has signed an MOU with The Babcock & Wilcox Company (B&W), a world leader in steam generation and pollution control equipment design, supply and service since 1867, for a feasibility study of oxy-coal combustion technology. B&W, a subsidiary of McDermott International, Inc. (NYSE:MDR), will complete a pilot demonstration of the technology this summer at its 30-megawatt (thermal) Clean Environment Development Facility in Alliance, Ohio.

Following this demonstration, AEP and B&W will conduct a retrofit feasibility study that will include selection of an existing AEP plant site for commercial-scale installation of the technology and cost estimates to complete that work. Once the retrofit feasibility study is completed, detailed design engineering and construction estimates to retrofit an existing AEP plant for commercial-scale CO_2

capture will begin. At the commercial scale, the captured CO_2 will likely be stored in deep geologic formations. The plant, with oxy-coal combustion technology, is expected to be in service in the 2012-2015 time frame.

B&W, in collaboration with American Air Liquide Inc., has been developing oxy-coal combustion, a technology that utilizes pure oxygen for the combustion of coal. Current generation technologies use air, which contains nitrogen that is not utilized in the combustion process and is emitted with the flue gas. By using pure oxygen, oxy-coal combustion excludes nitrogen and leaves a flue gas that is a relatively pure stream of carbon dioxide that is ready for capture and storage. B&W's and Air Liquide's collaborative work on oxy-coal combustion began in the late 1990s and included pilot-scale development at B&W's facilities with encouraging results, burning both bituminous and sub-bituminous coals.

The oxy-coal combustion process, as envisioned, uses a standard, cryogenic air separation unit to provide relatively pure oxygen to the combustion process. This oxygen is mixed with recycled flue gas in a proprietary mixing device to replicate air, which may then be used to operate a boiler designed for regular air firing. The exhaust gas, consisting primarily of carbon dioxide, is first cleaned of traditional pollutants, then compressed and purified before storage. B&W, working with Air Liquide, can supply the equipment, technology and control systems to construct this new value chain, either as a new application or as a retrofit to an existing unit.

The Alstom technology provides a post-combustion carbon capture system that is suitable for use in new plants as well as for retrofitting to existing plants. It requires significantly less energy to capture CO_2 than other technologies currently being tested.

The B&W technology provides a pre-combustion boiler conversion option for existing plants that promotes the creation of a pure CO_2 stream in the flue gas.

Both pre- and post-combustion technologies will be important for companies facing decisions on carbon reduction from the wide variety of coal-fired boiler designs currently in use.

AEP anticipates seeking funding from the U.S. Department of Energy to help offset some of the costs of advancing these technologies for commercial use. The company will also work with utility commissions, environmental regulators and other key constituencies in states that have jurisdiction over the plants selected for retrofit to determine appropriate cost recovery and the impact on customers.

"We recognize that these projects represent a significant commitment of resources for AEP, but they are projects that will pay important dividends in the future for our customers and shareholders," Morris said. "Coal is the fuel used to generate half of the nation's electricity; it fuels about 75 percent of AEP's generating fleet. By advancing carbon capture technologies into

commercial use, we are taking an important step to ensure the continued and long-term viability of our existing generation, just as we did when we were the first to begin a comprehensive, system-wide retrofit program for sulfur dioxide and nitrogen oxide emissions controls. We have completed the sulfur dioxide and nitrogen oxide retrofits on more than two-thirds of the capacity included in the program and we are on schedule to complete all retrofits by shortly after the end of the decade.

"By being the first to advance carbon capture technology, we will be well-positioned to quickly and efficiently retrofit additional plants in our fleet with carbon capture systems while avoiding a potentially significant learning curve."

AEP has led the U.S. electric utility industry in taking action to reduce its greenhouse gas emissions. AEP was the first and largest U.S. utility to join the Chicago Climate Exchange (CCX), the world's first and North America's only voluntary, legally binding greenhouse gas emissions reduction and trading program. As a member of CCX, AEP committed to gradually reduce, avoid or offset its greenhouse gas emissions to 6 percent below the average of its 1998 to 2001 emission levels by 2010. Through this commitment, AEP will reduce or offset approximately 46 million metric tons of greenhouse gas emissions by the end of the decade.

AEP is achieving its greenhouse gas reductions through a broad portfolio of actions, including power plant efficiency improvements, renewable generation such as wind and biomass co-firing, off-system greenhouse gas reduction projects, reforestation projects and the potential purchase of emission credits through CCX.

American Electric Power is one of the largest electric utilities in the United States, delivering electricity to more than 5 million customers in 11 states. AEP ranks among the nation's largest generators of electricity, owning nearly 36,000 megawatts of generating capacity in the U.S. AEP also owns the nation's largest electricity transmission system, a nearly 39,000-mile network that includes more 765 kilovolt extra-high voltage transmission lines than all other U.S. transmission systems combined. AEP's utility units operate as AEP Ohio, AEP Texas, Appalachian Power (in Virginia and West Virginia), AEP Appalachian Power (in Tennessee), Indiana Michigan Power, Kentucky Power, Public Service Company of Oklahoma, and Southwestern Electric Power Company (in Arkansas, Louisiana and east Texas). AEP's headquarters are in Columbus, Ohio.

This report made by AEP and its Registrant Subsidiaries contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934. Although AEP and each of its Registrant Subsidiaries believe that their expectations are based on reasonable assumptions, any such statements may be influenced by factors that could cause actual outcomes and results to be materially different from those projected. Among the factors that could cause actual results to differ materially from those in the forward-looking statements are: electric load and customer growth; weather conditions, including storms; available sources and costs of, and transportation for, fuels and the creditworthiness of fuel suppliers and transporters; availability of generating capacity and the performance of AEP's generating plants; AEP's ability to recover regulatory assets and stranded costs in connection with deregulation; AEP's ability to recover increases in fuel and other energy costs through regulated or competitive electric rates; AEP's ability to build or acquire generating capacity

when needed at acceptable prices and terms and to recover those costs through applicable rate cases or competitive rates; new legislation, litigation and government regulation including requirements for reduced emissions of sulfur, nitrogen, mercury, carbon, soot or particulate matter and other substances; timing and resolution of pending and future rate cases, negotiations and other regulatory decisions (including rate or other recovery for new investments, transmission service and environmental compliance); resolution of litigation (including pending Clean Air Act enforcement actions and disputes arising from the bankruptcy of Enron Corp. and related matters); AEP's ability to constrain operation and maintenance costs; the economic climate and growth in AEP's service territory and changes in market demand and demographic patterns; inflationary and interest rate trends; AEP's ability to develop and execute a strategy based on a view regarding prices of electricity, natural gas and other energy-related commodities; changes in the creditworthiness of the counterparties with whom AEP has contractual arrangements, including participants in the energy trading market; actions of rating agencies, including changes in the ratings of debt; volatility and changes in markets for electricity, natural gas and other energy-related commodities; changes in utility regulation, including the potential for new legislation or regulation in Ohio and/or Virginia and membership in and integration into regional transmission organizations; accounting pronouncements periodically issued by accounting standard-setting bodies; the performance of AEP's pension and other postretirement benefit plans; prices for power that AEP generates and sell at wholesale; changes in technology, particularly with respect to new, developing or alternative sources of generation; other risks and unforeseen events, including wars, the effects of terrorism (including increased security costs), embargoes and other catastrophic events.

BACKGROUND: American Electric Power's Actions to Address Climate Change

GHG Reduction Commitment

American Electric Power (AEP) was the first and largest U.S. utility to join the Chicago Climate Exchange (CCX) and make a legally binding commitment to gradually reduce or offset its greenhouse gas emissions to 6 percent below the average of 1998-2001 emission levels by 2010.

As a founding member of CCX, AEP committed in 2003 to reduce or offset its emissions gradually to 4 percent below the average of 1998-2001 emission levels by 2006 (1 percent reduction in 2003, 2 percent in 2004, 3 percent in 2005 and 4 percent in 2006). In August 2005, AEP expanded and extended its commitment to a 6 percent reduction below the same baseline by 2010 (4.25 percent in 2007, 4.5 percent in 2008, 5 percent in 2009 and 6 percent in 2010). Through this commitment, AEP expects to reduce or offset approximately 46 million metric tons of greenhouse gas emissions.

Operational Improvements

AEP has been able to reduce its carbon dioxide (CO_2) emissions by improving plant efficiency for its fossil-fueled plants through routine maintenance and investments like turbine blade enhancements (installing new turbine blades) and steam path replacements that improve the overall heat rate of a plant and, in turn, reduce CO_2 emissions. A one-percent improvement in AEP's overall fleet efficiency can reduce the company's greenhouse gas emissions by 2 million metric tons per year.

AEP has also reduced its CO_2 emissions by improving the performance and availability of its nuclear generation. AEP's D.C. Cook Nuclear Plant in Michigan set plant records for generation and capacity factor in 2005. The plant had a capacity factor (energy generated as compared to the maximum possible) of 96.8 percent in 2005 and generated 17,471gigawatt-hours (GWH) of electricity. Additionally, AEP will invest $45 million to replace turbine motors in one unit at D.C. Cook in 2006, which will increase that unit's output by 41 megawatts.

As a member of the US EPA's Sulfur Hexafluoride (SF6) Emissions Reduction Partnership for Electric Power Systems, AEP has significantly reduced emissions of SF6, an extremely potent greenhouse gas, from 1999 levels of 19,778 pounds (a leakage rate of 10 percent) to 2004 emissions of 1,962 pounds (a leakage rate of 0.5 percent).

Managing Forests and Agricultural Lands for Carbon Sequestration

To reduce carbon dioxide (CO_2) concentrations in the global atmosphere, AEP has invested more than $27 million in terrestrial sequestration projects designed to conserve and reforest sensitive areas and offset more than 20 million metric tons of CO_2 over the next 40 years. These projects include protecting nearly 4 million acres of threatened rainforest in Bolivia, restoring and protecting 20,000 acres of degraded or deforested tropical Atlantic rainforest in Brazil, reforesting nearly 10,000 acres of the Mississippi River Valley in Louisiana with bottomland hardwoods, restoring and protecting forest areas in the Sierra Madres of Guatemala, and planting trees on 23,000 acres of company-owned land.

Deploying Technology for Clean-Coal Generation

AEP is focused on developing and deploying new technology that will reduce the emissions, including greenhouse gas emissions, of future coal-based power generation. AEP announced in August 2004 its plans to build a commercial-scale Integrated Gasification Combined Cycle (IGCC) plants to demonstrate the viability of this technology for future use of coal in generating electricity. AEP has filed for regulatory approval in Ohio and West Virginia to build a 629-megawatt IGCC plant in each of these states. The plants are scheduled to be operational in the 2010 to 2011 timeframe and will be designed to accommodate retrofit of technology to capture and sequester CO_2 emissions.

Developing Technology for CO_2 Capture and Storage

AEP's Mountaineer Plant in New Haven, W.Va., is the site of a $4.2 million carbon sequestration research project funded by the U.S. Department of Energy, the Ohio Coal Development Office, and a consortium of public and private sector participants. Scientists from Battelle Memorial Institute lead this climate change mitigation research project, which is designed to obtain data required to better understand and test the capability of deep saline aquifers for storage of carbon dioxide emissions from power plants.

AEP is a member of the FutureGen Alliance, who, along with the Department of Energy, will build "FutureGen," a $1 billion, near-zero emission plant to produce electricity and hydrogen from coal while capturing and disposing of carbon dioxide in geologic formations.

Additionally, AEP funds research coordinated by the Massachusetts Institute of Technology Energy Laboratory and the Electric Power Research Institute that is evaluating the environmental impacts, technological approaches, and economic issues associated with carbon sequestration. The MIT research specifically focuses on efforts to better understand and reduce the cost of carbon separation and sequestration.

Renewable Energy and Clean Power

AEP strongly supports increased renewable energy sources to help meet our nation's energy needs. AEP is one of the larger generators and distributors of wind energy in the United States, operating 311 megawatts (MW) of wind generation in Texas. The company also purchases and distributes an additional 373.5 megawatts of wind generation from wind facilities in Oklahoma and Texas. Additionally, AEP operates 2,285 megawatts of nuclear generation and 884 megawatts of hydro and pumped storage generation.

More than 125 schools participate in AEP's "Learning From Light" and "Watts on Schools" programs. Through these programs, AEP partners with learning institutions to install 1 kW solar photovoltaic systems, and uses these systems to track energy use and demonstrate how solar energy is a part of the total energy mix. Similarly, AEP's "Learning From Wind" program installs small-scale wind turbines to provide wind power education and renewable energy research at educational institutions.

Biomass Energy

Until the company sold the plants in 2004, AEP co-fired biomass in 4,000 MW of coal-based power generation in the United Kingdom (Fiddler's Ferry and Ferry Bridge). AEP has been evaluating and testing biomass co-firing for its smaller coal-fired power plants in the United States to evaluate potential reductions in CO_2 emission levels.

Energy Conservation and Energy Efficiency

AEP is implementing "Energy Efficiency Plans" to offset 10 percent of the annual energy demand growth

in its Texas service territory. In 2003 alone, AEP invested more than $8 million to achieve over 47 million kilowatt-hours (kWH) of reductions from installation of energy efficiency measures in customers' homes and businesses. Total investments for the four-year program will exceed $43 million, achieving more than 247 million kWh of energy efficiency gains.

2005 EPA Climate Protection Award

In May 2005, the EPA selected AEP to receive a 2005 Climate Protection Award for demonstrating ingenuity, leadership and public purpose in its efforts to reduce greenhouse gases. EPA began the Climate Protection Awards program in 1998 to recognize outstanding efforts to project the earth's climate.