AEP's Strategy for Managing Climate Change Risks

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Background

American Electric Power (AEP) is the largest generating company in the US with over 5 million customers in 11 states that the company serves. In the U.S., coal fired generation accounts for more than half of electricity generated. With AEP East's electricity generation concentrated in significant coal producing states such as Ohio, West Virginia, Virginia, Kentucky, and Indiana, it is not surprising that AEP is not only the largest electricity generator but also the largest consumer of coal in the U.S.

However over the past 6 years, AEP's generating portfolio though still dominated by coal-fired generation, has become increasingly diverse. With the merger of AEP with the former Central and Southwest (CSW) during the late 1990s, the company became one of the largest gas consumers in the U.S. and acquired the Western part of the service territory, where it became an active developer of wind power in West Texas (though still a small part of the overall generation mix). This increasing fuel diversity was part of the company's overall strategy to diversify its asset mix and serve broader geographies.

Despite this increasing fuel diversity, the company remains reliant on coal-fired generation for about 70 percent of its generation now and into the foreseeable future. Accordingly, AEP's environmental strategy and its greenhouse gas strategy are very important issues for the company.

AEP's Energy and Environmental Strategy

The company's energy and environmental strategy is characterized by three important principles:

•**Asset diversification and optimization---**The Company will continue to diversify and optimize its existing and future new generating assets. This will mean maximizing the efficiency of its assets as well as using a diverse source of fuels –coal, gas and renewable energy—to meet future demand for power.

•**Coal has an important long-run role**—Irrespective of the company's past and future diversification efforts, coal as a fuel will continue to play a dominant long term role in meeting our customers demands for low cost and affordable power. With anticipated future regulations/reductions in SO2, NOx and Hg emissions as well as possible greenhouse gas legislation in the U.S., AEP is planning substantial future investment in air emissions compliance. Approximately $5 billion in retrofit pollution controls (e.g. scrubbers and SCR) are planned thru 2020. Also, the company plans to build a new IGCC

power plant by the end of the decade, which will improve environmental performance of the fleet, and begin to position the company to address the growing challenges of greenhouse gas reductions in the future.

•**Integrated environmental/energy strategy—**The last principle is perhaps the most obvious. The future environmental investments and strategy for the company are closely linked with the company's energy strategy and vice versa and accordingly the strategy development for future power needs must be closely integrated with the company's environmental strategy.

AEP GHG/CO2 Strategy

The company's position statement on global climate change states that "enough is known about the science and environmental impacts of climate change for us to take actions to address its consequences." AEP has demonstrated this commitment by developing and implementing a broad portfolio of actions to reduce, avoid or sequester greenhouse gas emissions, beginning in 1995. A major part of the company's environmental strategy has been a conscious strategy to deal with the climate change issue and the linkage with the buildup of greenhouse gases in the environment. Today, the company also supports mandatory legislation in the U.S. to control greenhouse gases if it is part of an international agreement that includes major developing countries and trading partners such as China and India. Whether or not this comes to pass or not, AEP believes it will face mandatory legislation in the US in the future.

Our strategy is to be actively engaged in the GHG issue in supporting R&D on science and technology. We are also strong advocates for market mechanisms and flexibility and feel strongly the scope of the problem and the substantial costs to deal with it warrants ensuring the maximum flexibility possibility with the most cost effective reductions occurring across all greenhouse gases, sectors and reduction, sequestration and avoidance options. In the short run, this has led us to pledge and make voluntary reductions in our GHGs, which we are now making through our participation in the Chicago Climate Exchange and EPA's Climate Leaders, as well as other programs. In the long run technology development and deployment will be essential and in AEP's case, it will be advancements towards zero or low carbon emitting coal fired generation that will be the most critical developments. The bottom line is that we feel this is not only a good decision for the environment but for AEP's customers and shareholders alike.

AEP Board Subcommittee Emission Assessment Report to Shareholders

On August 31, 2004, the report of an independent subcommittee of AEP´s board of directors affirmed AEP's environmental strategy and confirmed that AEP is well positioned to effectively manage future proposed emission constraints because of prudent actions the company has taken. A three-member, ad hoc subcommittee completed the assessment and report as part of a previously announced agreement with The Connecticut Retirement Plans and Trust Funds and other shareholders in response to a shareholder proposal filed for consideration at AEP´s 2004 annual meeting.

AEP board members Robert W. Fri, visiting scholar, Resources for the Future; John P. DesBarres, investor and former chairman, president and chief executive officer of Transco Energy Co.; and Donald M. Carlton, retired president and chief executive officer, Radian International, LLC, completed the assessment and report. Fri chaired the subcommittee.

The report evaluated the impact of proposed federal legislation and regulations for reducing regulated emissions and carbon dioxide, including the Clean Air Interstate Rule, the Utility Mercury Reduction Rule, U.S. Sen. Thomas Carper's proposed Clean Air Planning Act of 2003, and U.S. Senators John McCain and Joseph Lieberman's amended Climate Stewardship Act of 2003. The document also reviewed the actions available to control those emissions, provides economic analysis of the various control scenarios, and recommends actions for AEP to take going forward.

Upon the release of the report, Bob Fri noted "Based on our evaluation, during which we met with nearly 30 individuals with diverse views and expertise on the issues of air emissions, we concluded that the actions AEP has taken and is taking to address its emissions, in anticipation of possible control requirements, constitute a solid foundation and put the company in a position to effectively manage the potential economic impact."

The report details the actions that AEP has undertaken to address regulated emissions and emissions of greenhouse gases, including:

- Development of the Multi-Emission Compliance Optimization model to analyze investments
- Co-founding the Chicago Climate Exchange (CCX)
- Investing in terrestrial carbon projects and geologic sequestration research
- Investing in renewables, such as wind generation and biomass (AEP is one of the largest wind generators in the U.S.)
- Planned investments of approximately $5 billion in its current generation fleet by 2020 to reduce emissions of sulfur dioxide (SO2), nitrogen oxides (NOx) and mercury

The report indicates that proposed legislation to cut greenhouse gases would not likely strand AEP´s near-term planned investments of $3.5 billion in emission control technologies by 2010 (part of an overall $5 billion planned investment by 2020). Such proposed legislation could materially alter the amount and manner of the anticipated $1.5 billion in additional investments after 2010.

As part of its future plans to mitigate the economic impacts of its emissions, AEP has committed to accelerating IGCC deployment by building one, or more, commercial-scale, base-load IGCC plants (up to 1,000 megawatts) as soon as 2010. IGCC technology converts coal into a gas and passes it through pollutant-removal equipment before the gas is burned. The process is more efficient and results in fewer emissions of NOx, SO2 and mercury, in addition to lower carbon dioxide emissions. Carbon capture is also expected to be easier from an IGCC plant than from pulverized coal plants.

In addition to suggesting that AEP take a leadership role in advancing IGCC technology and carbon capture research, the ad hoc subcommittee recommends that going forward AEP:

- Advocate fair and cost-effective emission-control policies
- Maintain excellence in plant operations
- Continue using sophisticated analysis and decision-making tools
- Make its actions to address emissions transparent and understandable
- Develop partnerships to leverage outside expertise

Overview of AEP's Portfolio of Current Greenhouse Gas Initiatives

As part of its greenhouse gas strategy, AEP has undertaken a portfolio of current activities as described in the shareholder report and noted above. These are listed and specifically described below:

Proactive participation in international and national policy discussions and debates and international programs-Through its actions to date, AEP has accumulated a significant amount of experience in the design of programs that would minimize the cost of compliance with reductions of greenhouse gases and other emissions. Notable among this experience are the company's leadership and participation in the Chicago Climate Exchange and the International Emissions Trading Association, its demonstrations of terrestrial sequestration projects and of cooperative projects with other countries, and its support of research by the U.S. Department of Energy, Pew Center for Global Climate Change (as a founder and member of the Business Environmental Leadership Council or BELC), the Electric Power Research Institute, and other organizations. AEP is a member of the board of directors of the International Emissions Trading Association (IETA), which has played an active role in the formulation of trading rules and procedures internationally. The companies is also one of nine power companies worldwide which is part of the e7 group, which is developing sustainable development power projects worldwide (e.g. wind projects in the Galapagos and Chile).

Chicago Climate Exchange (CCX)--The importance and value of both on and off-system greenhouse gas reductions to the company is represented by AEP's commitment to and participation in the Chicago Climate Exchange (CCX). As a founding member of this pioneering effort in greenhouse gas emissions trading, AEP has committed to reducing or offsetting its total greenhouse gas emissions by 4 percent over four years. These reductions began in 2003 with a 1 percent reduction from baseline emissions (average of 1998-2001) and will continue with an additional 1 percent reduction each year until the company has reduced its greenhouse gas emissions by 4 percent from the baseline in 2006. Through this commitment, the company expects to reduce or offset an estimated 18 million cumulative tons of carbon dioxide or carbon dioxide 'equivalent' emissions, based on current levels of emissions. AEP plans to meet its CCX commitment cost-effectively through a broad portfolio of actions, including both on-system actions

such as plant efficiency improvements and off-system projects such as reforestation projects and the purchase of emission reduction credits from other CCX participants. Already, the company is ahead of its 2003 and 2004 commitments, reflecting a variety of GHG reduction activities including the closing and/or mothballing of inefficient gas steam units in Texas, improved operation and utilization of its Cook Nuclear Plant, and continued investments in reforestation projects.

Renewables--Greenhouse gas reductions have come from a variety of activities at the company. In the renewable area, the company was the second largest wind generator in 2002, and owns 310 megawatts of wind power located in West Texas and plans to almost double its wind generation by 2006 through an RFP for additional wind capacity for its Oklahoma subsidiary. In addition, AEP is an industry leader in biomass co-firing with coal. Two large coal fired plants that AEP owned for several years in the United Kingdom, Fiddler's Ferry and Ferrybridge, utilized a substantial amount of co-firing with biomass. In addition, the company has had a successful biomass pilot project in the U.S. at its Picway Plant near Columbus, Ohio.

Forestry/terrestrial sequestration--The Company has also made substantial greenhouse gas reductions through its forestry activities such as its investment in the PowerTree Carbon Company, a voluntary consortium of 25 leading U.S. power companies. AEP has spent a total of $24 million in terrestrial carbon sequestration projects, which will sequester an estimated 18 million tons of CO2 over their lifetimes. These include AEP's investments in PowerTree, UtiliTree and Catahoula National Wildlife Refuge in the Mississippi River Valley, the Guaraquecaba Climate Action Project in Brazil, the Noel Kempff Mercado Climate Action Project in Bolivia and other plantings on company lands.

Business Roundtable Climate *RESOLVE* Initiative---AEP's Chairman, President and CEO Michael Morris serves as Vice Chairman of the Roundtable's Environment, Technology and the Economy Task Force. The Climate *RESOLVE (**R**esponsible **E**nvironmental **S**teps, **O**pportunities to **L**ead by **V**oluntary **E**fforts)* Program was developed to encourage companies of all sizes and in all sectors to take voluntary action to control greenhouse gas (GHG) emissions. Recently, a multi-faceted initiative was launched to help businesses improve energy efficiency in their commercial office buildings.

Coal IGCC and geologic sequestration ---IGCC technology has advantages both economically and for the control of regulated emissions that, in our opinion, justify this ambitious program. However, the technology would also be highly desirable in a carbon-constrained world, since its carbon dioxide stream should be much easier to capture than one from a pulverized coal plant. As part of its IGCC development program, the company has been active in research that would investigate and, if feasible, demonstrate the capture and disposal of carbon dioxide emissions from IGCC technology. AEP has supported research into the management of carbon dioxide, notably in the sequestration research that is being conducted at its Mountaineer plant, (a $4.2 million research project on geologic CO_2 disposal) In addition, AEP is one of the major sponsors of FutureGen, a

$1 Billion, 10-year demonstration project to create world's first coal based, zero-emission electricity and hydrogen plant with sequestration.

EPA Climate and SF-6 Programs

Last but certainly not least, AEP is an active participant in the U.S. EPA's climate programs. AEP is a member of EPA's Climate Leaders Program and has taken on a greenhouse gas reduction target (consistent with its commitment to the Chicago Climate Exchange). In addition, AEP is a member of the Natural Gas Star Program.

With respect to SF6 emissions, AEP has been a charter partner of EPA's SF_6 program since 1999 and has made significant progress in reducing its SF_6 emissions. In 1999, SF_6 emissions totaled 19,778 pounds (a leakage rate of 10 percent), but by 2003, emissions had been reduced to 12,929 pounds with the leakage rate reduced to 4 percent. Total SF_6 emissions prevented over the whole time period (1999-2003) was 32,538 pounds or 0.3 million metric tons of CO2-equivalent.

AEP took a series of actions that generated the SF_6 emission savings. This included (1) monitoring purchases of SF_6 (2) recycling/reusing SF_6(3) reviewing/implementing preventative maintenance (4) training on proper handling (5) replacing leaking circuit breakers (6) encouraging development of lower-leak breakers and (7) implementing best practices.

The bottom line is that these efforts have paid for themselves through avoided gas purchases. Annual savings exceed $50,000 in SF_6 gas purchases and subsequent activity will increase savings even more. Similar to many of AEP's other greenhouse gas programs, the SF_6 program not only benefits the environment but makes good business sense as well.