New Coal Plant Underway near San Antonio, Texas

Preliminary construction begins on $1 billion coal-fired power plant from CPS Energy
SAN ANTONIO EXPRESS-NEWS (KRT)
via NewsEdge Corporation
Updated: 02-6-2009 12:21 pm

Mar. 22--CPS Energy officials Tuesday celebrated the start of construction on their new $1 billion coal-fired plant at Calaveras Lake, the first new coal plant to be built in Texas in 15 years.

When finished, Unit 2 of the J.K. Spruce Power Plant will be capable of generating 750 megawatts. CPS provides electricity to some 630,000 customers, and is adding more than 1,000 per month.

CPS will spend more than $200 million on environmental controls for the facility, and another $400 million to upgrade emissions controls on its other coal-fired power plants.

"All in all, CPS Energy is investing more than a half a billion dollars to have the best suite of qualified power plants in the U.S., or most likely anywhere else for that matter," said Milton Lee, general manager and CEO of the utility.

The last hurdle to build the plant was crossed when the Texas Commission on Environmental Quality approved its permit earlier this year. Environmental groups fighting the plant dropped their opposition after CPS agreed to step up its conservation and renewable energy goals.

CPS Energy has agreed to raise its target for energy efficiency and conservation to 65 megawatts by 2016 and for renewable energy to 15 percent of capacity by 2020. The old targets were 30 megawatts by 2011 and 10 percent of capacity by 2015.

"Spruce 2 is going to have the best available emissions control technology in the United States," said Mayor Phil Hardberger, who also serves on the CPS Board of Trustees. "And they did that in part because they listened to the community and the community's desires to have an environmentally friendly plant."

1 2 next

Longview Power Plant Steams Ahead of Schedule: VP Says It Will Begin Operating Several Months Earlier Than Planned

Wednesday, August 13, 2008 1:51 PM

The objective of Longview Power LLC, Huguenard said, is to provide "clean, reliable and sustainable power generation." The firm has spent $800 million so far on the local project.

It will be an advanced supercritical pulverized coal-fired power station, he said. It will use 2 million tons of coal per year, provided by Mepco, a Monongalia County-based coal company, and brought to the power plant by a 4.5-mile conveyor belt.

The plant will use low NOx burners and selective catalytic reduction (SCR) to reduce nitric oxide emissions; inject hydrated lime to drop out hydrochloric and sulfuric acid; a fabric filter baghouse to collect particulates, and flue gas sulfurization, using limestone, to remove sulfur oxide and mercury.

Pyles wants monitoring in place to make sure these clean air systems work.

"We will have to keep on the state to monitor them and make sure they do not exceed projections," he said.

Longview won't be able to take advantage of treated water from the underground mine pool for the plant's operation, Huguenard noted. It isn't the right quality. Instead, the company will pipe from the Monongalia River, connecting in Pennsylvania.

NYSE:AYE, NYSE:PPL,

Story Source: The Dominion Post (Morgantown, W.Va.)

Modern Power

Home
Media pack 2010
Events diary
Search
News
Planned projects and tenders
Recent features
Buyers Guide
Turbine Directory
HRSG & Power Boiler Directory
About MPS
Subscribe now
2010 editorial features
Contact us
Submit an article
International Water Power & Dam Construction magazine
Nuclear Engineering International magazine

Interr

What

Dia

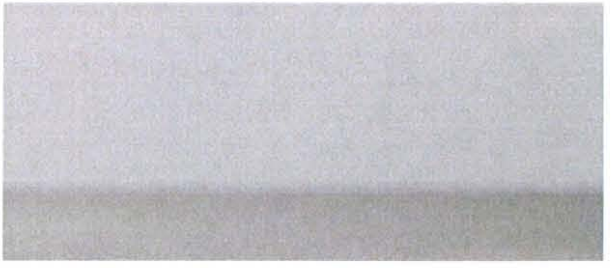
M

Company profiles

Click the company logos to view their profile

Turbotect Limited

Feature



coal power

Private investors take the Longview in West Virginia
01 June 2007

Construction is now underway at the Longview plant, one of the first of the USA's new wave of supercritical coal-fired plants. The project embraces a number of important innovations, not least in boiler design.

Longview is among the first half dozen or so of a new generation of supercritical coal-fired power plants to start construction in the USA after a long hiatus (others being CBEC 4, Weston 4, Comanche 3, Elm Road and Iatan 2, see MPS, April 2007, pp 14-18). The developers of the 700 MWe (net) (769 MWe gross) plant in West Virginia (on the border of western Pennsylvania), can also claim a number of other firsts.

One particularly noteworthy feature of Longview (formerly known as Robinson Run) is that it is the first supercritical pulverised coal (PC) plant in the world to employ a low-mass-flux vertical-tube Benson boiler, to be supplied by Foster Wheeler (under a $200 million contract) using technology licensed from Siemens. There is such a boiler in operation, retrofitted into the Yaomeng plant in China by Mitsui (now Doosan) Babcock (also a Benson licensee), but that is subcritical. There is also one under construction, again being supplied by Foster Wheeler, at Lagisza in Poland. This is supercritical, but CFB rather than PC.

Among the advantages of vertical, compared with spiral wound, tubing is that it is self supporting, simplifying structural design, facilitating installation and reducing costs (with, eg, less field welding needed and installation of support straps avoided).

Site Search

Site and archive search

Keyword Search
Search
GO

Click on Images

Location of the Longview site

The Longview site, as of end March 2007

Commercial structure of the Longview project

Longview consortium structure: scope split

Cross section of Longview boiler

Another major attraction is that it allows once-through operation down to 20% of full load.

The key to the low-mass-flux vertical-tube Benson boiler is its rifled (also called internally ribbed) evaporator tubing. The rifling is of special geometry developed by Siemens, with Benson-licensed boilermakers Doosan Babcock and Foster Wheeler the first users.

The rifling design improves heat transfer properties (notably avoiding deterioration of transfer with increased steam quality), allowing the boiler to operate with a low mass flux, comparable with that of drum boilers. This yields a number of advantages, including "natural circulation" or "positive flow" characteristics, basically meaning that increased heat input to a tube is automatically compensated for by increased flow (and vice versa). The concept was proven in a test section at the Farge coal-fired plant, Germany, and, at commercial scale, in the horizontal-exhaust-gas-flow vertical-tube HRSG of the Cottam combined cycle plant in the UK.

IPP and private equity

Other firsts claimed by the developers of the Longview project include: first US supercritical coal plant developed by an IPP; first greenfield coal plant in the north east of the USA for over 20 years; first major private equity participation in a new US coal plant project; and first Siemens "steam reference plant in the US." The plant's developers believe some form of carbon cap and trade system is inevitable in the future and have agreed to fund a non-profit organisation to handle carbon dioxide offsets, to the tune of $500 000. They have also undertaken to treat acid mine water in nearby abandoned mines, addressing a pre-existing environmental problem and providing the plant with a water supply, avoiding the need to take river water.

Longview, which is located on a greenfield site in a mine mouth location at Maidsville, north east of Morgantown, near the Monongahela River, some 70 miles south of Pittsburgh, will run on Eastern bituminous coal (to be supplied by conveyor). The efficiency will be 43.3% (LHV) (heat rate = 8600 Btu/kWh), with steam conditions of 250 bar and just under 600°C (ie supercritical but certainly not in the realm of ultrasupercritical, or to put it another way "leading edge not bleeding edge").

The project finally received all necessary permit approvals and commenced construction in February 2007, with financial close and notice to proceed. The construction period is 48 months, with about 1500 craftworkers employed at the peak. "Substantial completion"/power plant operation is slated for spring of 2011.

With a total cost of $1.83 billion (50% equity) the project represents one of the largest single private investments in the history of West Virginia.

The project is 100% owned by Longview Power, LLC, which is in turn 100% owned by GenPower Holdings, LP, an entity created in October 2006 to invest in power projects. It was set up by GenPower, LLC, a privately held Boston based power plant developer, and First Reserve Corporation, the oldest and largest private equity firm focused exclusively on energy investments with $12.5 billion under management. GenPower LLC contributed its portfolio of projects, which included Longview. First Reserve made a five-year commitment to support development activities, investing $500 million in Longview and setting aside $500 of equity for new projects.

The Longview investment thesis can be summarised thus: electricity demand growth will eliminate present oversupply by 2011, coal fired plants will retain dispatch advantage over gas fired plants for baseload, and new supercritical plants will have a distinct advantage over old coal units.

The plant will sell power and capacity through a five-year 300 MW power purchase agreement with PPL EnergyPlus, LLC. The balance of the project's generation will be sold on a merchant basis into PJM, said to be the largest and most liquid competitive wholesale electricity market in the USA.

The project will benefit from an attractive mine-mouth fuel supply contract that is estimated to significantly reduce fuel costs. As a result of this, combined with the technology to be employed, Longview expects to have a very competitive cost of dispatch.

Construction consortium

Construction will be guaranteed on a joint and several basis by a consortium of Siemens and Aker Kvaerner Songer, under a fixed-price, date-certain EPC contract, incorporating performance and completion guarantees, with a substantial completion date of 12 March 2011. The total consortium order volume is around $1.3 billion.

As well as licensing the boiler technology, Siemens, as EPC consortium leader, has a $405 million contract to provide turbine island design, as well as major turbine island equipment, including the steam turbine, generator, plant control system and, via its Wheelabrator subsidiary, an advanced air quality control system to reduce the emissions of particulates, sulphur dioxide, mercury, and sulphur trioxide. Burns and Roe are providing detailed engineering for the Siemens scope, under subcontract.

Aker Kvaerner Songer, under a contract valued at $654 million, will provide construction services and materials for the turbine island and boiler island. The power plant is located within about 50 miles of Aker Kvaerner Songer's Canonsburg campus.

Innovative environmental permitting

As part of the public comment process for its air permit application, Longview reached an innovative arrangement with US Federal Park and Forest Service land managers to purchase SOx allowances in excess of regulatory requirements under the Acid Rain Program to offset acid deposition impacts from Longview on Dolly Sods National Forest and Shenandoah National Park. This arrangement was incorporated as a requirement under Longview's air permit. The adopted permit condition also provides a mechanism for Longview to fund SOx controls on existing area SOx sources in lieu of allowance purchases, to achieve the same effect – no increase in acid deposition in Class I areas. Subsequent to issuance of its final air permit in March 2004, Longview reached agreement with the National Parks Conservation Association, Sierra Club and Trout Unlimited to amend several of the permit requirements, and perhaps more importantly, establish a non-profit 501(c)(3) corporation funded by Longview to investigate and fund efforts to mitigate acid deposition and CO2 emissions.

Dealing with mine water

In addition to minimising and mitigating the impacts of its air emissions, Longview has made a significant commitment to eliminating existing (and potential for) discharges of untreated acid mine water from abandoned underground coal mines in the area. In particular, Longview has contracted with AMD Reclamation, Inc (AMDRI), a non-profit 501(c)(3) entity established and operated by GenPower, to construct and operate water treatment facilities to pump and treat 10 million gallons per day of treated mine pool water. Without this economic commitment by Longview, the mine pool water would be discharged untreated into local rivers and streams. In particular an abandoned coal mine was in danger of overflowing due to the gradual rise of groundwater and the flooding of highly acidic mine water into Dunkard Creek, which flows into the Monongahela River, would have severe ecological impacts.

The water initially will be treated and released, but once Longview is operational, the water will be used for cooling at the power plant.

AMDRI has built and is now operating the first primary treatment plant, which has received grants and loans totalling $7.5 million from the Pennsylvania

Department of Environmental Protection and various state agencies, with a second facility to follow shortly.

In addition, Longview will be funding an ongoing programme to assist in the reforestation of West Virginia strip mining lands and assist in the treatment of waters through a foundation to be established with the Sierra Club and Trout Unlimited once the plant goes into comm ercial operation.

Archive
Turbine Directory

DESERTROCK™ **Desert Rock Energy Project**

4th Edition **www.desertrockenergyproject.com** **September 2007**

Welcome to the Navajo Nation Fair and Rodeo

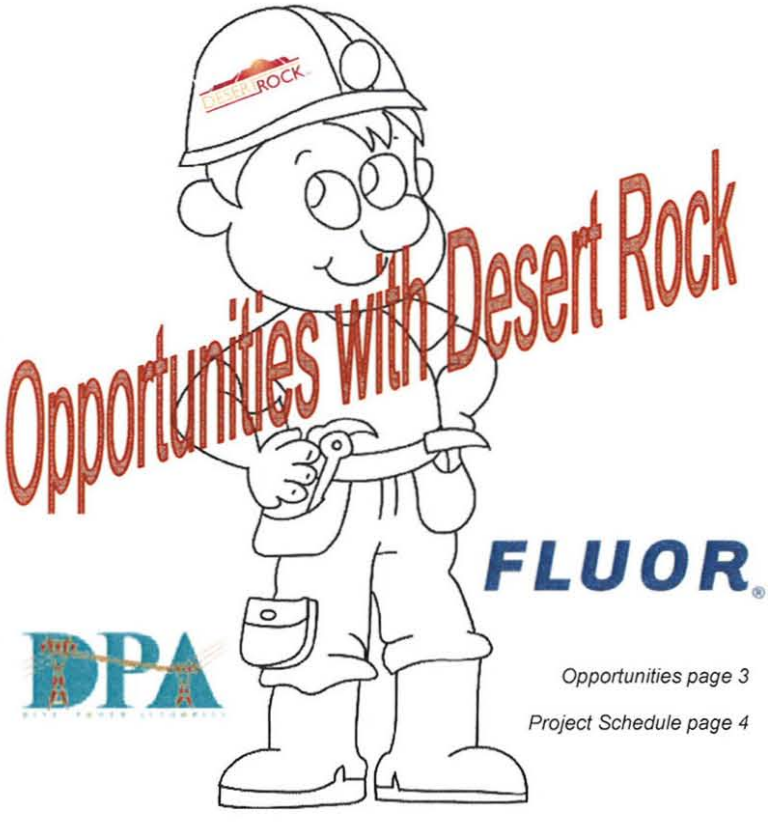
This edition of the Desert Rock Energy Project newsletter is presented in conjunction with the 60th Annual, 2007 Navajo Nation Fair and Rodeo in Window Rock, Arizona. At the Fair, the Honorable Joe Shirley, Jr., President of the Navajo Nation, announces the signing of a program management agreement with Fluor Corporation for the management of design, procurement and construction efforts for the two 750 MW units at Desert Rock in northwestern New Mexico, on the Navajo Nation. The signing of the program management agreement is an important step in kicking off the project construction effort. Described in this edition, on page 3, are the opportunities that will exist as the project is constructed and when it is operating. The Desert Rock Energy Project brings jobs and taxes to the Navajo Nation and will provide training in numerous trades associated with the construction and operation of a high-tech, modern power generation facility. With an average of 1,000 construction jobs over four years, Desert Rock will also bring 400 permanent, operating jobs with an average yearly salary of $60,000. This edition also describes Desert Rock's efforts to minimize pollutant emissions from the coal fired plant. A detailed description of some of the best technologies to be used at Desert Rock to accomplish this can be found on page 4.

Desert Rock Chooses Fluor

Fluor Corporation will be Desert Rock's program manager.

The Honorable Joe Shirley, Jr., President of the Navajo Nation, announced at the Navajo Nation Fair and Rodeo that Fluor Corporation had been awarded the contract to perform program management services for the design, procurement, and construction of the Desert Rock Energy Project. Fluor, who has been working with Desert Rock to finalize the details of the work, will begin to develop the scope of the components of the project and request proposals from major equipment suppliers before the end of 2007. The project is expected to cost $3 billion and will take 4 years to build after construction starts in 2008. For almost a century, Fluor has provided the experienced program and project leadership that has successfully delivered many of the

continued on page 3



Opportunities page 3

Project Schedule page 4

The Most Stringent Air Permit in the United States

"The emission limits required by the EPA's proposed permit for the Desert Rock power plant, planned by Sithe Global, Inc. and the Navajo Nation, are some of the most stringent in the country and would set a new level of performance for coal-fired plants in the United States." ***US EPA, July 19, 2006***

The proposed air permit for the Desert Rock Energy Project will be the most ***stringent*** of any permit issued in the U.S. The Project must receive its air permit (Prevention of Significant Deterioration permit) from the United States Environmental Protection Agency (the "EPA") in order to begin construction and operations. As part of the process to issue such a permit, Desert Rock had to demonstrate that it will be built and will operate with the best available emissions control technology as well as meet all federally mandated levels of pollutant emissions. The EPA prepared studies that examined the capabilities of existing technology for the control of pollutant emissions including those of Sodium Dioxide ("SO_2"), Nitrous Oxides ("NOx"), Carbon Monoxide ("CO"), Volatile Organic Chemicals ("VOC"), Fine Particulates ("PM"), Fluorides ("HF"), and Sulfuric Acid ("H_2SO_4"). In every pollutant category, Desert Rock's proposed air permit will allow smaller amounts of a pollutant to be emitted than what will be allowed by other air permits of three similar power plant facilities in the U.S, but one category in one of the permit. In some categories, other recent air permits will allow new coal facilities to emit ***4 times*** more pollutants than the Desert Rock proposed air permit will allow. The chart below demonstrates how clean Desert Rock will be compared to other coal fired projects that have received their air permit and have begun construction.

The Prairie State power facility in Illinois has ordered equipment and is starting site work. The Springerville Unit #4 is currently under constriction by Salt River Project (SRP) in Arizona. The Elm Road power facility is an expansion of an existing We Energies facility in Wisconsin and is being constructed on Lake Michigan. All of these facilities will have pulverized coal boilers; have successfully received their air permits; have withstood scrutiny (and sometimes law suits) from various regulatory arms, environmental groups and the US EPA; and are being constructed to meet start-up schedules in the next 4 years.

	Desert Rock	Prairie State	Springerville #4	Elm Road
SO_2	0.06 lb/mmbtu	0.182 lb/mmbtu	0.155 lb/mmbtu	0.15 lb/mmbtu
NOx	0.06 lb/mmbtu	0.07 lb/mmbtu	0.111 lb/mmbtu	0.07 lb/mmbtu
CO	0.10 lb/mmbtu	0.12 lb/mmbtu	0.15 lb/mmbtu	0.12 lb/mmbtu
VOC	0.003 lb/mmbtu	0.004 lb/mmbtu	.0475 lb/mmbtu	0.0035 lb/mmbtu
PM	0.01 lb/mmbtu	0.015 lb/mmbtu	.015 lb/mmbtu	0.018 lb/mmbtu
PM_{10}	0.02 lb/mmbtu	0.035 lb/mmbtu	.055 lb/mmbtu	0.018 lb/mmbtu
Fluorides	0.00024 lb/mmbtu	0.00026 lb/mmbtu	.00044 lb/mmbtu	0.00088 lb/mmbtu
Sulfuric Acid Mist	0.004 lb/mmbtu	0.005 lb/mmbtu	established at start-up	0.01 lb/mmbtu

Comparison of air permits for coal power projects currently being constructed in the United States to Desert Rock's proposed air permit.

continued from page 1

Navajo Employment Opportunities

Navajo Employment Preference and Navajo Business Preference

The Desert Rock Energy Project will create new employment opportunities for the Navajo Nation. The agreements structured with the Navajo Nation require that Desert Rock and its contractors implement Navajo Employment Preference and Navajo Business Preference. The project can generate an average of 1,000 jobs during the 4-year construction period. Long-term employment at the facility will employ up to 200 people at the power plant and an additional 200 people associated with employment at the mine expansion.

Working closing with organized labor councils, including the Southwest Regional Council of Carpenters and the New Mexico Building and Construction Trades Council, the project will provide hands-on, detailed technical training for all of its workers. The skills will be used to better the opportunity for employment by hundreds of local people. Desert Rock will train operators, electricians, instrumentation technicians, mechanics, welders, and others.

A project of this scale needs numerous local businesses to provide products and services that go to support its operation and the people working there. Jobs will be created indirectly from the creation of these businesses. With an average salary of more than twice the present average salary of Navajo workers, wages that do not exist now will be spent at local businesses creating a secondary economic boost to the Nation.❖

Fluor Corporation

world's most complex projects in a variety of industries across six continents. The diverse expertise of Fluor's project managers allows them to build the Desert Rock Energy Project on schedule and within budget.

The preliminary engineering and procurement efforts are already underway in Fluor's Greenville, South Carolina project execution office. Fluor estimates that the Desert Rock Energy Project will create, on average, approximately 1,000 per year construction jobs for the region.

"We are excited about the opportunity to work with the Navajo Nation to add quality jobs and utilize local businesses to make a positive economic impact in the community." says David Constable, Group President of Fluor Power. "We look forward to delivering a world-class, clean-coal facility at Desert Rock."

Now headquartered in Irving, Texas, Fluor is a FORTUNE 500 company with revenues of $13.2 billion in 2005. ❖

Desert Rock's Recent Accomplishments

The Project is progressing successfully.

Over the last three months the Desert Rock Energy Project has seen good progress.

- On July 25, hearings concluded for the Environmental Impact Statement by the Bureau of Indian Affairs ("BIA"). The comment period continues as the BIA considers comments from interested parties.
- On August 15, the San Juan County Commissioners unanimously approved a resolution allowing for the issuance of Industrial Revenue Bonds for the project.
- As, mentioned in this newsletter, Desert Rock has chosen Fluor Corporation as its program manager to lead the efforts to design, procure equipment and construct the 1,500 MW project.❖

Project Schedule

Construction will begin in early 2008 with the first unit on line in 2012.

With the signing of the program management agreement with Fluor Corporation, the Desert Rock Energy Project is on its way to starting the design and procurement process. Site work will begin in early 2008 to prepare the site for construction activities.

Desert Rock and its project contractors will inform the public of when hiring will take place. A Project Labor Agreement is being negotiated with local labor unions to set the ground rules for employing skilled workers to help build the power plant. In 2008 a contract will be executed with a reputable construction company who will be required to adhere to the guidelines of the negotiated Project Labor Agreement.

Steam turbine shipment from overseas

March 2008 – Begin Site Work

May 2008 – Begin Foundation Construction

June 2009 – Start Receiving Major Plant Components

February 2010 – Begin Boiler Construction

October 2010 – Begin Turbine Generator Construction

Late 2012 – Unit 1 Starts Operating

Early 2013 – Unit 2 Starts Operating ❖

Modern Technology Enables the Cleanest Coal Plant

Below is a partial list of pollutants, and the technologies utilized to remove them, which will make Desert Rock the cleanest coal power plant to date in the US.

CO_2

Carbon Dioxide is suspected to be a greenhouse gas causing global warming. The Desert Rock Energy project will utilize the most advanced super-critical, pulverized coal boiler available today. It will produce steam at very high pressures making the power plant very efficient. A high efficiency plant means the plant will burn up to 20% less coal than most coal power plants to make the same amount of electricity. Less coal means less CO_2.

Mercury

Mercury in our lakes and water ways gets into the fish and other marine animals we eat. Mercury, like CO_2, is a global issue. The mercury that is in our water comes from forest fires and power plants as far away as China. Desert Rock recognizes the problem and is installing bag house filters and wet flue gas desulfurizers to help remove the mercury. Carbon injection will be used if these other technologies fall short of removing between 80 and 90% of the mercury in the exhaust gas.

SO_2

Sulfur dioxide has been known to cause acid rain. It is formed by the combustion of sulfur contained in coal. To reduce the emission of SO_2, Desert Rock will employ low oxidation Selective Catalytic Reduction ("SCR"), a wet flue gas desulfurizer and a wet flue stack to remove 98% of SO_2.

NO_x

Nitrogen oxides are believed to aggravate asthma conditions, produce ozone and help cause acid rain. Desert Rock will employ low NO_x burners and SCR technologies. With the SCR, ammonia is injected in the boiler. As ammonia and exhaust gas flow through a catalyst, NO_x is converted into water and nitrogen. Nitrogen makes up most of the air we breathe, and is harmless. The SCR will remove 98% of the NO_x produced from the plant. ❖

SITHE GLOBAL

PROJECT MANAGER BIOS
PROJECTS IN OPERATION
PROJECTS IN CONSTRUCTION
PROJECTS IN DEVELOPMENT

Desert Rock Energy Project

The Desert Rock Energy Project is a proposed 1,500 MW mine mouth coal-fired electric power plant located southwest of Farmington, San Juan County, New Mexico. The projects is being jointly developed with the Dine' Power Authority, an enterprise of the Navajo Nation and chartered to promote and facilitate the development of energy projects on the Navajo Nation. The project would be fueled by low sulfur coal mined from the adjacent BNCC Navajo Mine, and will provide needed electrical power to utilities in the Southwest. The Navajo Nation, through the DPA, has the option to become an equity owner in the project.

Desert Rock is expected to have the lowest emissions of any power plant in the United States by combining a supercritical coal boiler, advanced flue gas treatment and low sulfur Navajo coal, it is also equipped with a hybrid natural draft dry cooling tower which reduces water consumption by 80 percent when compared to a typical wet cooled plant.

The Desert Rock Energy Project's Draft Environmental Impact Statement (EIS) has been released by the Department of Interior, Bureau of Indian Affairs and recommends approval of the Preferred Alternative which includes the 1,500 MW Desert Rock project and associated rights of ways. The Notice of Availability of the Draft EIS was published in the Federal Register June 22, 2007.

Using the most effective technology available, the project will be able to control over 90 percent of NOx emissions, 98 percent of SO2 emissions, and 80 percent of the mercury emissions. The project is designed to have a heat rate of less than 8,700 Btu/kWh, 15 percent more efficient than similar subcritical plants.

The construction of this $4 billion power plant will make the project one of the largest taxpayers on the Navajo Nation. The estimated annual benefits to the Navajo Nation will exceed $50 million annually, which is more than 30 percent of the current Navajo Nation's general budget. The plant will average 1000 employees during the 4 year construction period, and 200 full time personnel during normal operations.

Desert Rock will provide over $5 million dollars to impacted Navajo Chapters for capital improvements to Chapter houses, and Senior Centers, as well as Scholarships and job training. In addition to development activities with the Navajo government, Desert Rock Energy Company, LLC is becoming integrated into the Navajo community. As a major sponsor of the 2007 Navajo Nation Fair and Rodeo which showcases Navajo art, song and dance, fry bread competitions, and other activities that reflect the Navajo culture, Desert Rock is committed to the cultural, economical, and environmental stewardship of the community it serves.

Desert Rock Energy Project

- 1,500 MW mine mouth coal-fired electric power plant
- San Juan County, New Mexico
- Expected to have the lowest emissions rate of any coal-fired power plant in the US
- Estimated $4 billion investment will spur economic development for the Navajo Nation
- Developed jointly with the Dine' Power Authority

High Country News
For people who care about the West

The death of Desert Rock?

Sithe Global is going back to the drawing board on the proposed coal-fired power plant.
News - March 31, 2010 by Laura Paskus

The 1,500 megawatt coal-fired Desert Rock power plant – proposed for tribal land in the Four Corners region near Farmington, N.M. -- once seemed like a slam dunk. A joint venture of the Navajo Nation and energy company Sithe Global, the plant promised the tribe much-needed jobs, along with millions in revenue and coal royalties. In 2003, when it was launched, coal's star was rising: The Bush White House refused to acknowledge the existence of climate change, and regulatory agencies were generally more permissive.

Seven years later, though, Desert Rock looks all but dead. The economy is flailing, and investors worry how future climate change legislation will affect energy development. Meanwhile, electricity demand in the Southwest is declining, and with public utilities scrambling to keep up with statewide mandates to generate more power from renewable energy sources, nobody is currently seeking new sources of coal power.

So Sithe Global, which the tribe had expected to fund the $4 billion project, is going back to the drawing board, says Sithe Executive Vice President Dirk Straussfeld. Suddenly, everything is up for review – including the plant's design as a coal facility.

From the beginning, Desert Rock's developers cited California's growing demand for electricity. But in 2007, the state's Public Utilities Commission essentially banned utilities from signing contracts for electricity from coal-fired power plants. Instead, it required them to generate or purchase power with emissions comparable to or lower than modern natural gas facilities. And not one of the six Southwestern public utilities listed in Desert Rock's 2007 environmental impact statement is planning to add new coal power to its mix.

Uncertainty is the biggest challenge facing investment in coal right now, according to energy economist Jonathan Lester. No one knows whether Congress will eventually pass a cap-and-trade program or a carbon tax or perhaps something else entirely, any of which could impact coal plants in particular, since they're among the nation's largest source of greenhouse gas emissions. In some cases, investors may balk entirely, says Lester. In others, they're likely to demand higher returns to insulate plants against potential climate costs. "Right now, they are faced with the worst of all possible worlds: They just don't know. And that kills investment."

Before backpedaling on Desert Rock in late March, Sithe Global — 80 percent of which was purchased in 2005 by the investment firm The Blackstone Group — withdrew from two other coal-fired power plants it had planned in the United States.

In February, it abandoned a proposed 300 megawatt waste-coal plant in Pennsylvania. The following month, it altered plans for the Toquop Energy Project near Mesquite, Nev., which was originally envisioned as a natural gas plant but was switched to a coal-fired power plant in 2007. Now the pendulum has swung back again: The Blackstone Group plans to invest $1.4 billion in a 700 megawatt natural gas plant with a 100 megawatt solar component at the Toquop site.

Investors weren't the only problem; Desert Rock also recently came up against significant permitting setbacks. In September 2009, the Environmental Protection Agency revoked the plant's major air-

quality permit, originally granted under the Bush administration. In addition to the issue of greenhouse gas emissions, a number of other details required review, says Colleen McKaughan, associate director for the EPA's Region 9 Air Division. These included concerns related to fine particulate emissions, which can aggravate asthma and are major cause of haze.

The EPA's decision vindicated environmentalists and tribal activist groups -- including Dine Citizens Against Ruining Our Environment (Dine CARE) and Dooda (which means "No!") Desert Rock – who argued that the plant would have exacerbated the air-quality problems caused by the two massive coal plants already in the Four Corners region. Without the permit, declared Dooda Desert Rock's Elouise Brown, the plant was dead.

The Navajo Nation insists Desert Rock is still on track, however. Straussfeld says the company is now actively reviewing the project in order to take into account all the changes in the economy, in regulatory permitting and in electricity demand. It can only go forward if it has customers, he says, and much has changed: "Load growth pretty much went away. And investment in coal projects is being viewed very critically by the public utilities commissions."

For now, Sithe has no plans to resubmit its application to the EPA for the coal plant's air permit. Before it can make a decision, Straussfeld says, the company will have to figure out what Desert Rock's future might hold.

Laura Paskus is a freelance writer and former High Country News *editor based in Albuquerque, New Mexico.*

For an in-depth look at the rise and fall of Desert Rock, watch for Paskus's upcoming investigative story for HCN.

Add Comment

Desert Rock

This plant was a terrible idea from the start, embraced by interests married for a variety of reasons to the short, and willing to overlook the long, term impacts of this project on the environment. I suspect jobs were always a significant factor for supporters, but let's face it, at some time we must, collectively, say; enough is enough, or we won't have a livable planet to fight over. Kudos to Laura Paskus, who has illuminated the evolution of this tug-of-war from early on. Our unwitting citizenry would be blessed if we had more of her.
Peter Neils

Reply

False choice--Coal vs Gas

Coal is horrible, but gas is not better. See the documentaries, CRUDE, A Land Out of Time, Split Estate, and Gasland. No one is talking about cutting our individual energy footprints. Why not? No one is talking about the population explosion. Why not? We need renewable non-polluting energy, birth control, and conservation.

Reply

amazing

How far we have come. We are willing to promote unsustainable "green" policies to out weigh the requirements of our population. Californians want it all...every entitlement they can scrape up as long as it does not impact the all mighty "green" policy. It's not just them either....there's the prestigious Cape Cod family who wanted power for the people without the wind turbines in their picturesque view. My guess is that most of the readers of this article and the author live in an area where all they desires and wants are met.; lights at night, an air conditioner for cooling, a car to drive, money in their pocket for the a beer at the club. So what other recommendations are out there for the man who wants the dignity of a job for his family in the Four Corners region? Here's one for an article....establish personal accountability and a lack of hypocrisy. Get off the entitlement train America! It is unsustainable.... Oh to add to the rant...Climate change has been happening for years...we've call it the seasons and temperature fluctuations...Suppose you'll blame the dinosaurs or mammoths next for warming up the Ice Ages some centuries back. Have a nice day.

Reply

Desert Rock

This is an April Fool's joke, right? The writer should get serious. Miners' deaths. CEOs sucking the surviving miners dry and ruining their environment (check out the Google Earth pics of the Upper Branch mine). Air pollution. The list goes on.

The glorious Southwest has lots of wind and lots of sun. How 'bout developing those options for energy? Everything has drawbacks, but I can't think of those two as having anything that would approach coal's horrors.

No contest on CA's list of delusions, however....what kind of idiots would vote out property taxes (Prop. 13) and thereby gut the State's economy? Maybe only AZs idiots, which are 50th in per capita spending on students' education, are still cutting education funding, and just submitted a "Race To The Top" grant app to the Feds that placed 40th out of 40 states competing. Yikes. And the Governor doesn't even have a college education.

I do wish this was an April Fool's joke, believe me!

Reply

JUST THE **FACTS**

Walter Scott, Jr. Energy Center's New 790-Megawatt Unit

To ensure a long-term positive impact on Iowa's economy and a secure supply of electricity, MidAmerican Energy built a 790-megawatt coal-fueled electric generating facility at the existing Walter Scott, Jr. Energy Center.

Walter Scott, Jr. Energy Center Unit 4 is a $1.2 billion investment and is the largest electric generation project in Iowa.

- Construction began in September 2003 and employment numbers peaked at more than 2,000, with an estimated $300 million in construction payroll.
- With the addition of Unit 4, Walter Scott, Jr. Energy Center will employ 207 people with an annual payroll of $17.5 million.
- The plant was placed in service June 1, 2007.

Walter Scott, Jr. Energy Center Unit 4

Construction of the plant required approximately:

- 15,000 tons of structural steel in the boiler building alone,
- 92,000 cubic yards of concrete,
- 230,000 lineal feet of pipe (approximately 44 miles),
- 5 million lineal feet of wire (approximately 947 miles) and
- More than 28,000 boiler tube and piping field welds.

Annual Property Tax Payments

Walter Scott, Jr. Energy Center Unit 4 is expected to generate approximately $3.7 million in annual property tax payments. Approximately $1.8 million will be distributed to Pottawattamie County, the city of Council Bluffs, the Lewis Central School District and other local governmental bodies.

Walter Scott, Jr. Energy Center Units 1, 2 and 3 generate approximately $3.4 million in annual property tax payments. Approximately $2.7 million is distributed to Pottawattamie County, the city of Council Bluffs, the Lewis Central School District and other local governmental bodies.

Environmental Considerations

Consistent with MidAmerican's Environmental RESPECT Policy, the company operates the plant in an environmentally responsible manner. MidAmerican employs the best available control technology to control air emissions and meets or exceeds all required environmental standards for a new, coal-fueled generation plant. The plant features a supercritical boiler design which allows for coal to be burned more efficiently at higher pressures and temperatures, requiring less coal and resulting in fewer emissions for the same electrical output.

Walter Scott, Jr. Unit 4 uses low-sulfur Wyoming coal as a fuel source.

(continued on back)

MidAmerican ENERGY
OBSESSIVELY, RELENTLESSLY *AT YOUR SERVICE.*

August 2007

Environmental features of the new plant include:

- SCR – selective catalytic reduction system for reducing emissions of nitrogen oxides,
- Scrubber – spray dryer absorbers for reducing emission of sulfur dioxide,
- Baghouse – a large set of filters to collect more than 99 percent of particulates,
- Activated Carbon Injection – captures and removes mercury from flue gas and
- Low NOx burners and separated over-fire air system.

Background

MidAmerican is the developer and operator of the project. Several other power industry partners also are involved in ownership. Those joint owners include:

- Central Iowa Power Cooperative,
- Corn Belt Power Cooperative,
- Lincoln Electric System,
- Municipal Energy Agency of Nebraska
- and the following Iowa cities – Alta, Cedar Falls, Eldridge, Montezuma, New Hampton, Pella, Spencer, Sumner, Waverly and West Bend.

Transmission of Electricity

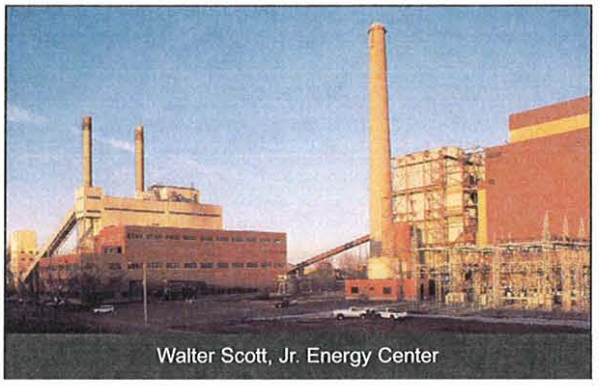
As part of the project, new transmission lines and substations were built to strengthen the existing transmission system and to enable the delivery of the new electric supply. A 124-mile, 345,000-volt electric transmission line was constructed between the Walter Scott, Jr. Energy Center and Des Moines, Iowa, and approximately 14 miles of 161,000-volt electric transmission was constructed between Walter Scott, Jr. Energy Center and Omaha, Neb.

JUST THE **FACTS**

Walter Scott, Jr. Energy Center Units 1, 2 and 3

Plant Ownership

Walter Scott, Jr. Energy Center Units 1, 2 and 3 are jointly owned by MidAmerican Energy Company, Central Iowa Power Cooperative, Corn Belt Power Cooperative and the cities of Atlantic and Cedar Falls, Iowa. MidAmerican is the principal owner and the operating partner of the facility. The Walter Scott, Jr. Energy Center is located four miles south of Council Bluffs, Iowa, along Interstate 29 and in close proximity to Interstate 80.



Walter Scott, Jr. Energy Center

Background

The Walter Scott, Jr. Energy Center began generating electricity in 1954 when the 43-megawatt Unit 1 was placed in service. A second unit, with a capacity of 88 megawatts, was completed in 1958; and a third unit, with a capacity of 690 megawatts, was completed in 1979.

The electric generating process begins with pulverized coal being blown into the water-wall boiler for combustion. The boiler heats the process water to a high-pressure, super-heated steam (up to 1,000 degrees Fahrenheit). The high-pressure steam drives three turbines and the power generator. The steam is then condensed back to process water in the condenser and the process water is then recirculated in a continuous, closed-loop process.

High voltage (345,000 volts, 161,000 volts and 69,000 volts) transmission lines carry electricity from the plant to substations where it is then distributed to customers throughout Iowa and the Midwest.

Walter Scott, Jr. Energy Center Units 1, 2 and 3 produce approximately 5.6 billion kilowatt hours of electricity per year.

Fuel Source

Coal offers MidAmerican Energy a cost-effective and reliable fuel source. The Walter Scott, Jr. Energy Center uses low sulfur western coal. Low sulfur coal achieves low emissions of sulfur dioxide. Boiler design and efficient operations minimize emissions of nitrogen oxides and particulate matter. The plant burns about 3.5 million tons of low sulfur western coal annually.

Environmental Considerations

Walter Scott, Jr. Energy Center Units 1, 2 and 3 use 550,000 gallons per minute of Missouri River water to cool steam into water. The water is pumped from the river, through the condenser and then back to the river. None of the river water is consumed by the power plants. Approximately 5 percent of coal is noncombustible ash. MidAmerican recycles most of its ash to be used in concrete or production of aggregates for road construction. Unsold ash is deposited into an on-site settling pond.

The on-site settling pond for ash provides successful nesting sites for two endangered bird species – the piping plover and the least tern. The birds nest in the shore of the ash ponds where ash deposits resemble river sandbars.

Economic Development Benefits

The Walter Scott, Jr. Energy Center employs 146 people and produces an annual payroll of about $7.8 million.

For more information, contact:

Walter Scott, Jr. Energy Center
7215 Navajo Street
Council Bluffs, IA 51501
712-366-5300

MidAmerican ENERGY
OBSESSIVELY, RELENTLESSLY *AT YOUR SERVICE*®

August 2007

JUST THE **FACTS**

MidAmerican Energy's Balanced Electric Generation Development – 2004-2008

MidAmerican Energy Company has an obligation to meet customers' energy needs with affordable electricity provided in an environmentally responsible manner.

Next year, MidAmerican Energy will complete the final year of a $3.35 billion investment in new electric generation infrastructure to meet a growing customer base with a larger appetite for electricity than it had 10 years ago. MidAmerican Energy had 644,000 electric customers in 1997 and 714,000 customers at the end of 2006, an increase of 70,000 customers. During that time, annual electricity consumption per customer has increased a total of 11 percent, from 8,463 kilowatt-hours in 1997 to 9,376 kilowatt-hours in 2006. That's an increase of a little more than 1 percent a year.

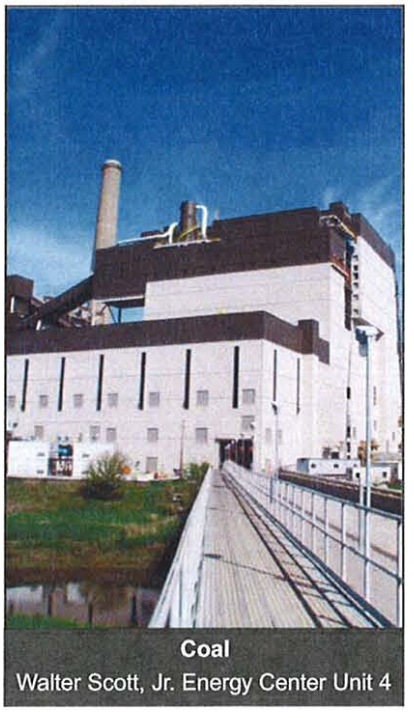
New Electric Generation Infrastructure – 2004-2008

Wind
Century Wind Project

1,000 megawatts

Natural Gas
Greater Des Moines Energy Center

573 megawatts



Coal
Walter Scott, Jr. Energy Center Unit 4

471 megawatts

In December of 2004, the Greater Des Moines Energy Center, a 573-megawatt natural gas-fueled, combined-cycle power plant was placed in service in Pleasant Hill.

That same month, MidAmerican Energy completed the Intrepid Wind Project in Sac and Buena Vista counties in northwest Iowa. The 107 1.5-megawatt wind turbines, located near the town of Schaller, have a 160.5-megawatt capacity. Since then, the company has built 216 more wind turbines and leads all regulated utility companies in the nation in ownership of wind energy generation. Next year, when MidAmerican Energy completes its wind expansion plan, the company plans to own more than 1,000 megawatts of wind energy in Iowa, which would be enough to provide power to 336,000 homes.

The combination of the company's existing wind turbines and planned wind expansion would bring the amount of MidAmerican Energy's electric generation capacity from renewable energy sources to approximately 18 percent. That amount of renewable energy generation is equivalent to removing approximately 682,000 cars – approximately 43 percent of the registered automobiles in Iowa – from the road and eliminating the emissions they place into the atmosphere.

(continued on back)

MidAmerican ENERGY
OBSESSIVELY. RELENTLESSLY. *AT YOUR SERVICE.*®

August 2007

On June 1, 2007, the Walter Scott, Jr. Energy Center Unit 4, owned by MidAmerican Energy and 14 public power entities, was placed in service. MidAmerican Energy's share of the 790-megawatt coal-fueled power plant is approximately 471 megawatts.

Walter Scott, Jr. Energy Center Unit 4 is the first of its kind power plant in the nation to employ advanced supercritical technology, which means less coal is required to generate an equivalent amount of energy produced by the last generation of coal-fueled power plants built in the 70s and 80s. As a result, there is a 15 percent reduction of carbon dioxide produced per megawatt of generated electricity.

The new electric generation totaling more than 2,000 megawatts from diverse fuel sources – 50 percent from wind, more than 25 percent from natural gas and less than 25 percent from coal – reflects MidAmerican Energy's approach to meeting customers' energy requirements with a balanced portfolio of electric generation assets.

At the same time that MidAmerican is investing in providing a reliable supply of energy, it continues investing millions of dollars in the company's 19 energy-efficiency programs to help customers be wise energy consumers. Since the inception of the company's energy-efficiency programs in 1990, more than $400 million has been invested in programs that provide financial incentives and demonstrate to customers how to use energy as efficiently as possible.

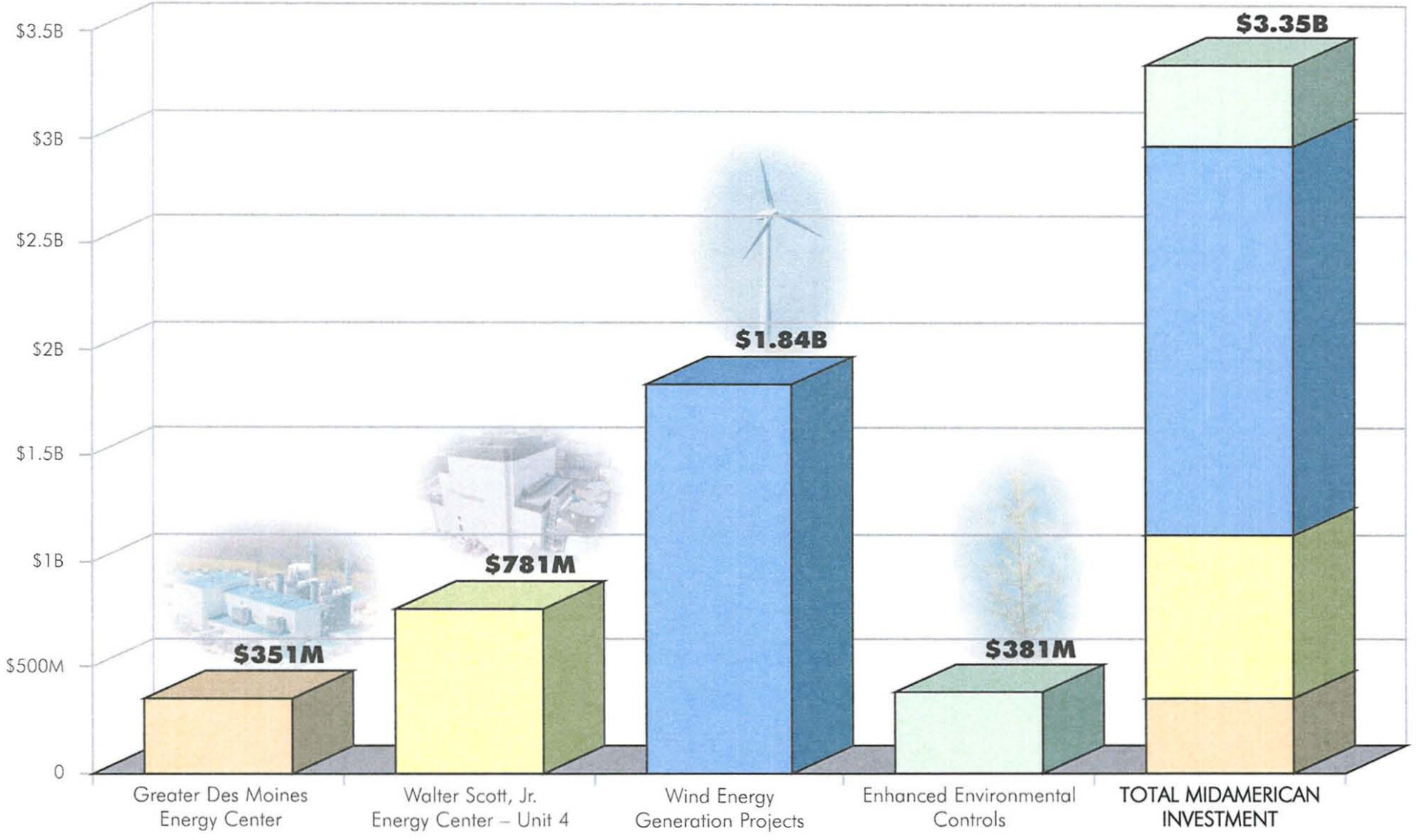
While taking responsible action to encourage customers to use electricity wisely, MidAmerican Energy also is taking responsibility for reducing emissions at its power plants. In the next two years, the company will complete an approximate $400 million investment in environmental upgrades at its coal-fueled power plants, which will reduce nitrogen oxides emissions by 44 percent, sulfur dioxide emissions by 35 percent and mercury emissions by 23 percent.

In addition to MidAmerican Energy's strong track record of following through on its commitment to provide customers with reliable energy in a manner that's respectful of the environment, the company also has a strong track record of keeping electric rates stable. The last electric rate increase MidAmerican Energy customers experienced was in 1995, and the company's has committed to keep electric rates stable until at least 2014 in Iowa. MidAmerican Energy's customers in Illinois and South Dakota will be pleased to know that the company does not have any plans for electric rate increases in those areas either.

MidAmerican Energy's investments – good for the environment, good for the economy and good for the company's customers.

MIDAMERICAN ENERGY COMPANY

MAJOR ECONOMIC DEVELOPMENT PROJECTS IN IOWA



MidAmerican ENERGY
OBSESSIVELY, RELENTLESSLY *AT YOUR SERVICE*®

August 2007

JUST THE **FACTS**

MidAmerican Energy Iowa Wind Power and Electric Generation

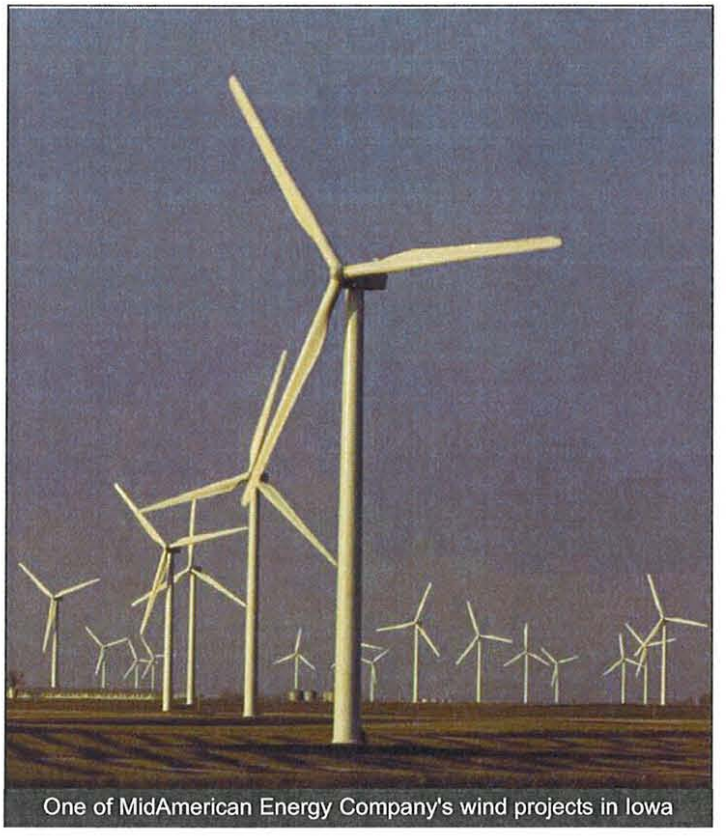
MidAmerican Energy Company is No. 1 in the nation in ownership of wind-powered electric generation among traditional regulated utilities, and the company has plans to further solidify its wind energy leadership by adding up to another 540 megawatts of wind energy in Iowa.

Avoided emissions from the new wind energy initiative combined with the company's current wind projects are equivalent to removing more than 682,000, or 43 percent, of Iowa's registered automobiles from the road.

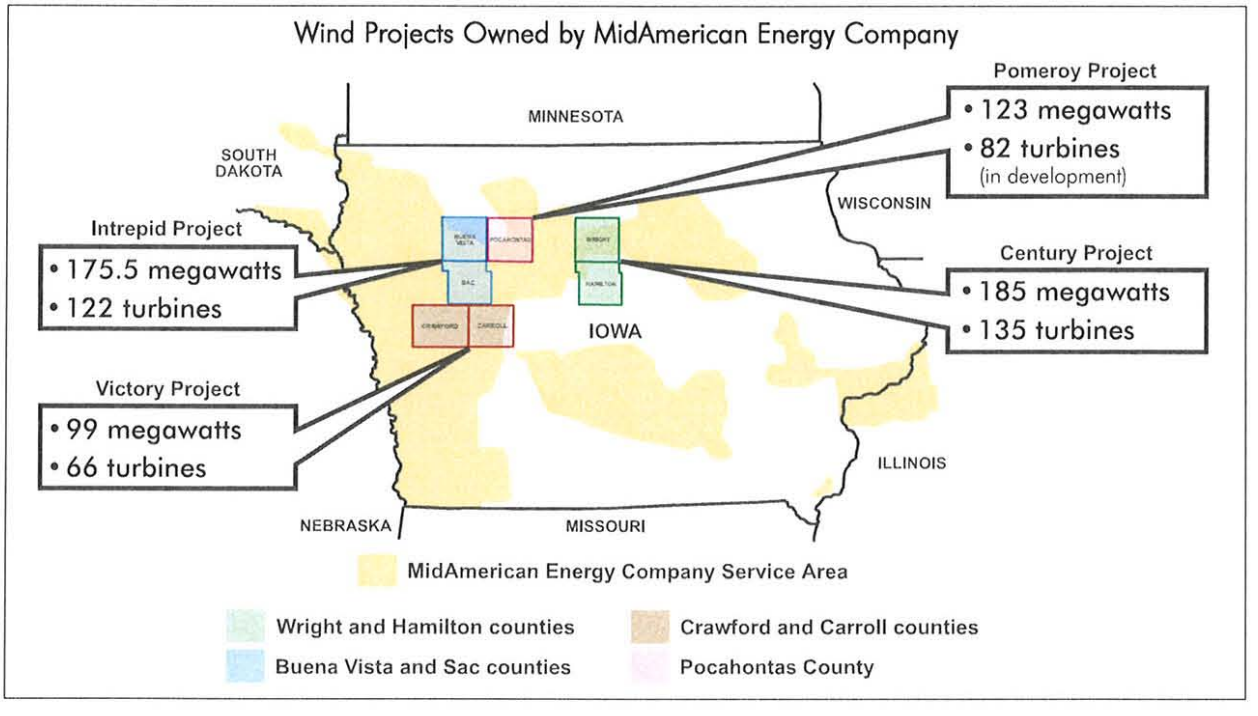
MidAmerican has 696 megawatts of wind energy facilities in operation, under construction and under contract in Iowa.

- 460 megawatts – owned and operated by MidAmerican Energy
- 123 megawatts – scheduled for 2007 completion
- 113 megawatts – power purchase agreement

(continued on back)



One of MidAmerican Energy Company's wind projects in Iowa



MidAmerican ENERGY
OBSESSIVELY, RELENTLESSLY *AT YOUR SERVICE*®

August 2007

The existing 460 megawatts of owned wind energy facilities are located at four sites in northwest, north central, west central Iowa and the Iowa State Fair wind turbine. The Intrepid Project in Sac and Buena Vista counties in northwest Iowa, the Century Project in Wright and Hamilton counties in north central Iowa and the Victory Project in Carroll and Crawford counties in west central Iowa have the capacity to produce enough electricity to power 144,000 homes.

An additional 123 megawatts of wind energy in Pocahontas County are scheduled to be completed by the end of 2007.

With this key addition of wind resources, MidAmerican Energy is proposing that customers will continue to have electric rate stability until 2014. The last rate increase MidAmerican Energy customers experienced was in 1995.

Approximately 10 percent of MidAmerican's existing electric generation capability comes from renewable resources, and by the end of 2008 approximately 18 percent of MidAmerican's electric generation capability will come from renewable resources based on current plans.

Go to www.midamericanenergy.com to take a guided virtual tour through a wind facility and experience how wind is used to generate electricity for homes and businesses.

JUST THE **FACTS**

Greater Des Moines Energy Center

The Greater Des Moines Energy Center is a natural gas-fueled, combined-cycle generation plant owned by MidAmerican Energy Company, a subsidiary of MidAmerican Energy Holdings Company. The $357 million plant was placed into service in December 2004.

Construction on the plant began in early 2002. The project required approximately:

- 14,000 cubic yards of concrete,
- 1,700 tons of structural steel,
- 10 miles of piping,
- 180 miles of electric cable and
- 250 construction jobs.

Greater Des Moines Energy Center

At full load, the plant produces approximately 540 megawatts of electricity, consuming approximately 159 million therms of natural gas per year. The plant employs a staff of 24 operations employees and provides $560,000 in annual taxes.

Major Equipment Components

Major equipment used by the plant includes:

- Two natural gas-fueled combustion turbine generators,
- Two heat-recovery steam generators to produce steam from waste heat generated from the combustion turbine exhaust,
- One steam turbine generator to produce electricity from the steam produced by the heat-recovery steam generators,
- A selective catalytic reduction system for reducing emission of nitrogen oxides,
- Emissions-monitoring equipment,
- Substation facilities to connect the plant to the electric power grid,
- Evaporative cooling equipment for cooling the plant's equipment and for condensing steam to reuse in the steam turbine generator,
- Support equipment for plant operations and
- Support facilities, such as offices, a storeroom and maintenance shop.

The Environment

MidAmerican minimizes the environmental impact of a large-scale electric generation facility by using clean-burning natural gas, state-of-the-art emission controls and a high-efficiency heat-recovery system that captures waste heat to produce additional electricity. Plant cooling is provided by closed-loop cooling systems.

This facility is designed to meet all existing standards for emissions and employs best available control technology.

MidAmerican ENERGY
OBSESSIVELY, RELENTLESSLY *AT YOUR SERVICE*®

August 2007