THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF SOUTH DAKOTA

= =

IN THE MATTER OF THE APPLICATION BY
OTTER TAIL POWER COMPANY ON BEHALF OF
BIG STONE II CO-OWNERS FOR AN ENERGY
CONVERSION FACILITY PERMIT FOR THE
CONSTRUCTION OF THE BIG STONE II PROJECT

EL05-022

= =

Transcript of Proceedings
September 13, 2005

= =

BEFORE THE PUBLIC UTILITIES COMMISSION,

GARY HANSON, CHAIRMAN
BOB SAHR, VICE CHAIRMAN
DUSTY JOHNSON, COMMISSIONER

COMMISSION STAFF

John Smith
Karen Cremer
Greg Rislov
Michele Farris
Steve Wegman
Pam Bonrud

APPEARANCES

THOMAS J. WELK and CHRISTOPHER W. MADSEN,
BOYCE, GREENFIELD, PASHBY & WELK,
Attorneys at Law, P.O. Box 5015,
Sioux Falls, South Dakota 57117,
appearing on behalf of Big Stone II;

BRUCE GERHARDSON,
OTTER TAIL CORPORATION,
Associate General Counsel, P.O. Box 496,
Fergus Falls, Minnesota 56538-0496,
appearing on behalf of Big Stone II.

Reported By Cheri McComsey Wittler, RPR, CRR

105 S. EUCLID AVE., SUITE E • PIERRE, SD 57501 • (605) 945-0573

THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF SOUTH DAKOTA

= =

IN THE MATTER OF THE APPLICATION BY OTTER TAIL POWER COMPANY ON BEHALF OF BIG STONE II CO-OWNERS FOR AN ENERGY CONVERSION FACILITY PERMIT FOR THE CONSTRUCTION OF THE BIG STONE II PROJECT — EL05-022

= =

Transcript of Proceedings

September 13, 2005

= =

BEFORE THE PUBLIC UTILITIES COMMISSION,

GARY HANSON, CHAIRMAN
BOB SAHR, VICE CHAIRMAN
DUSTY JOHNSON, COMMISSIONER

COMMISSION STAFF

John Smith
Karen Cremer
Greg Rislov
Michele Farris
Steve Wegman
Pam Bonrud

APPEARANCES

THOMAS J. WELK and CHRISTOPHER W. MADSEN,
BOYCE, GREENFIELD, PASHBY & WELK,
Attorneys at Law, P.O. Box 5015,
Sioux Falls, South Dakota 57117,
appearing on behalf of Big Stone II;

BRUCE GERHARDSON,
OTTER TAIL CORPORATION,
Associate General Counsel, P.O. Box 496,
Fergus Falls, Minnesota 56538-0496,
appearing on behalf of Big Stone II.

Reported By Cheri McComsey Wittler, RPR, CRR

TRANSCRIPT OF PROCEEDINGS, held in the above-entitled matter, at the Lantern Inn, Milbank, South Dakota, on the 13th day of September 2005, commencing at 7 o'clock p.m.

= =

I N D E X

CHAIRMAN HANSON: My name is Gary Hanson. I'm a Commissioner with the PUC. With me this evening, Bob Sahr and Dusty Johnson, Commissioners as well. We're going to ask you -- we're having a little challenge with the microphone here. I was going to ask you to use it, but that won't help us at all.

Please use your outside voice when you are chatting with us this evening. Make sure everyone can hear. We do have a court reporter. This is an official hearing. So she needs to be able to transcribe everything. In order to do that, she needs to be able to hear you. We do encourage you to address the Commission. We want you to have an opportunity to speak this evening. When you do so, please identify yourself, and if you are with an organization and you're representing that organization, please identify that organization. Otherwise, when we're reading transcripts we won't know who was speaking.

There is a sign-up sheet in the back. The purpose of that is so that we can send information to you if it's appropriate. So we would like you to sign the sign-up sheet. Put your name and address on that. That will be greatly appreciated.

I was going to use the microphone and sit over there to read this. I'll read it from this spot so you can hear a little bit easier.

This is a public hearing for a proposed energy conversion facility. The meeting will come to order for the public input hearing in Docket No. EL05-022, entitled In the Matter of the Application by Otter Tail Power Company on Behalf of Big Stone II Co-owners for an Energy Conversion Facility Permit for the Construction of the Big Stone II Project.

The date is September 13, 2005. The time is 7 p.m. The place of this hearing is Milbank, South Dakota. This hearing concerns an application for a permit for an energy conversion facility submitted by Otter Tail Power Company to the Public Utilities Commission on July 22, 2005. For those of you who are not familiar with the technology, an energy conversion facility simply means an electric generating facility. The energy conversion facility proposed in the application is a rated 600 megawatt coal fire electric generated facility and associated facilities which the project owners have named Big Stone II.

If approved, the proposed new generating

5

facilities will be located on an industrial site adjacent to the existing Big Stone Plant Unit 1 in Grant County, South Dakota near the town of Big Stone City. Otter Tail Power Company is the name for the utility division of Otter Tail Corporation, an investor-owned corporation headquartered in Fergus Falls, Minnesota. Otter Tail submitted the application on behalf of itself and its project co-owners who are Central Minnesota Municipal Power Agency, Great River Energy, Heartland Consumers Power District, Montana-Dakota Utilities Company, which is a division of MDU Resources Group, Incorporated, Southern Minnesota Municipal Power Agency, and Western Minnesota Municipal Power Agency.

The purpose of this hearing is to provide information to the public about Otter Tail's proposed project and to hear public comments regarding the proposed project. Interested persons have the right to present their views and comments regarding the application. And we encourage you to please do so.

A copy of the application is on file with the Grant County Auditor. The public may also access the application and all other nonconfidential

6

documents in the file on the Commission's website at www.puc.sd.gov under Commission Actions, Commission Dockets, 2005 Electric Dockets, and scroll down to EL05-022.

The parties to this proceeding at this time are Otter Tail and the Commission. Under South Dakota Law each municipality, county, and governmental agency in the area where the facility is proposed to be constructed, any nonprofit organization formed in whole or in part to promote conservation or natural beauty, to protect the environment, personal health or other biological values, to preserve historical sites, to promote consumer interests, to represent commercial and industrial groups, or to promote the orderly development of the area in which the facility is to be constructed, or any interested person may be granted party status in this proceeding by making a written application to the Commission on or before September 19, 2005.

We have applications available here this evening if you'd like to apply for party status. As of this time the only person or organization that has applied for intervener party status is Clean Water Action. Thank you very much for

7

allowing me to get through the formality that is required at the beginning of the hearing.

Mr. Welk, I understand you're the attorney representing Otter Tail Power Company. I'll allow you to certainly go first since it is your docketed item, and please introduce the members of your organization. Thank you.

MR. WELK: Thank you, Mr. Chairman, Commissioners, members of the public. My name is Tom Welk. I'm one of the attorneys for the project. With me, other attorneys are Chris Madsen from my law firm to the right and Bruce Gerhardson, who is the Associate General Counsel. You can tell us by our ties as the attorneys.

We have a number of witnesses tonight that we would like to utilize to present the project to the Commission and to the members of the public. We have it's approximately about -- if the timing is correct, about 50 to 60 minutes. It's a Power Point presentation. It will be divided through several witnesses.

Mark Rolfes, the project manager, is going to give us a background on the history of the project, the technologies we're considering, the site, why it was selected here. Then we're going to have

8

Stacie Hebert talk about the demand and why this facility is going to need to be there. Bill Swanson is going to talk about the facilities and what it's going to look like. Terry Graumann is going to talk about the emission control technologies. And John Lee, the consulting engineer, is going to go through the review of what the environmental community impacts have been and also what the community service is that might be affected.

We have these in various segments that we're going to have presented. We also have a couple of other engineers, Todd Sundbom from Burns & McDonnell, and Andrew Skogeland (phonetic). They're available here also for questions for members of the Commission or the staff or anyone, if there are some technical questions.

I don't know, Mr. Chairman, how you want to proceed, whether we want to hold the questions until the end, but that's just to kind of give you an overview of what we've got to present.

CHAIRMAN HANSON: Thank you, Mr. Welk. Generally what takes place is that we allow you to make your entire presentation, and then we can make comment afterwards. That way we

aren't asking questions that you will be covering. So we'd appreciate it if you go ahead with your presentation and then we will have questions and then we'll go to public comment.

MR. WELK: Okay. Thank you, Mr. Chairman. I'd call Mark Rolfes, and I'd ask each witness as they get up just to give a couple of minutes or half a minute on who they are and their background so the Commissioners and public know who they are.

MR. ROLFES: Commissioners, I'm Mark Rolfes, as Mr. Welk said. I'm a registered engineer in the State of South Dakota and Minnesota. I've been in the power generation business for 28 years, half of that time as the manager of the existing Big Stone I facility.

I really want to express my appreciation for the chance to address you tonight to tell you about the Big Stone II project. We feel we have an extremely good project that's going to be good for our customers, good for the communities that we serve, and very good for the environment.

With that, I'd like to just very briefly touch on the history of the Big Stone II project. The existing Big Stone I facility has been in operation

since 1975, and it's also a co-owned facility by three investor-owned utilities.

In 1995 Otter Tail began the study of its options for future generation resources, and in that study we came to the conclusion that Big Stone II was our best option for baseload resources and we've continued studies throughout the years until late in 2003 we knew that Otter Tail Power Company had need for baseload resources and we began the process of trying to see if there was the critical mass, so to speak, to do a baseload facilities.

Seven utility companies have come together to propose the Big Stone II project. And as the Petition said, they're Otter Tail Power Company, Heartland Consumers Power District, Montana-Dakota Utilities Company, Southern Minnesota Municipal Power Agency, Missouri River Energy Services, Great River Energy, and Central Minnesota Municipal Power Agency.

I'd like to point out that Otter Tail Power Company and MDU are investor-owned utilities. Heartland Southern Minnesota, Missouri River, and CMMPA are municipal associations, and Great River Energy is a generation transmission cooperative.

So this project is bringing together the three different types of utilities to get a better project. We've got investor-owned, municipals, and cooperatives working together to make a better project.

Now this is a baseload resource that we are proposing. It's not the only resource in these companies' energy mix, but this project we began by looking at the potential sources of energy for this baseload project. We considered wind, but wind is not suitable for a baseload resource. We need something that is there 24 hours a day, seven days a week.

We looked at the next three: Supercritical, atmospheric circulating fluidized bed, and integrated gasification combined cycle, which are really coal-based technologies. Of those, integrated gasification is heard -- you hear a lot in the media today, is not a commercially available technology. It's in the demonstration phase. So we ruled that out as we were not in an experimental mode. We needed commercially available technology.

The final one is combined cycle gas turbine. I think everyone's aware of what's happening to natural gas prices today and the question on the

pricing and availability, we felt that was not a good option. So that brought us back to the two coal options, the advanced -- the atmospheric circulating fluidized bed, and the pulverized coal supercritical boiler. Because of the fuel we're considering burning, Powder River Basin fuel, we felt the supercritical pulverized boiler is better as it is more efficient and better suited for the fuel that we will be burning.

All of my comments are very high-level. The people following will get down into more of the details.

After we had determined the technology, we needed to have a site for this facility, and as we did in 1995 and subsequent studies, we started with an open book and any place that had the right attributes, you know, of the water and the rail and transmission and all of the things to make this project successful were considered. And this study we looked particularly close at these sites, but after we considered all of the attributes needed for a good site for a baseload resource we came to the conclusion that the existing Big Stone I site because of its existing infrastructure, transmission, et cetera, was the best location for

13

this proposed baseload facility.

Now the final thing I'd like to point out, this is a rough map of the service territories of MDU, Otter Tail, and Great River, and the dots representing the communities served by the municipal associations. You'll see the proposed location for the Big Stone II is in the center of this geographical area. The plant will serve the communities and the farms and such that surround it.

This is an ideal setting for the communities that need the power. This is not a facility designed to move power to Chicago or Minneapolis. It's designed to serve the communities and the farms that surround the project.

With that, I will turn it over to Stacie to talk about the need for the facility.

MS. HEBERT: Commissioners, my name is Stacie Hebert. I'm with Otter Tail Power Company. I've been with the utilities for 13 years working in resource planning for 12 of those years, and in the last year and a half I've been working in fuel and freight. I'm a registered mechanical engineer in the State of Minnesota.

Can you hear me okay?

14

The purpose of this portion of the presentation is to talk about why there is a need for the Big Stone II facility. What this map shows, and I want you to focus on the blue states, it's an area called the MAPP Region. MAPP stands for the Midcontinent Area Power Pool.

It's a region where the utilities have joined together to enhance reliability, and it is the region that all of the Big Stone II project participants are located within. One of the services that this MAPP organization provides to the MAPP Region is that it does a survey, and it looks out 10 years to take a look at where we are in terms of forecasted demand and energy needs for the region.

And this is one of the charts that's put together by the MAPP Region. I'll kind of walk you through what this shows so hopefully it will make a little more sense.

On the left-hand side you've got capacity in megawatts. The MAPP Region is actually broken up into two regions. There's MAPP Canada and MAPP U.S.

You've got MAPP U.S. represented in the light blue bars, and MAPP Canada is represented in the

15

dark blue bars.

On this left-hand access there you'll see zero megawatts along the centerline. Anything above zero means that there is surplus capacity, there's excess capacity. Once you go below that line, you start to have deficits, meaning there's not enough capacity to satisfy the projected need for the MAPP Region.

You can see the MAPP U.S. in the light blue is projected to go deficit starting in 2010 with a 94 megawatt deficit that grows to 819 megawatts in 2011, just under 1,500 megawatts in 2012.

You can also notice that the MAPP Canada portion of the graph in the dark blue doesn't ever go deficit. It's tempting to say, well, why don't we just look north to Canada to help satisfy these resource needs?

Well, there's really two problems with that: Number one, Canada is predominantly a hydroelectric system. They plan for energy needs which a lot of times leads to surplus capacity. So there may be capacity available in Canada, but that may not be backed up with energy.

Secondly, the transmission lines between the United States and Canada are already fully utilized

16

so if we were to look at bringing down -- if there was surplus energy and capacity in Canada, if we wanted to bring it down to the United States, we would have to add significant amounts of transmission. So it's not a real viable option for us to just look north and think that we can solve our resource needs through Canada.

Again, the purpose of this graph is to just point out that the MAPP Region, those blue states, are forecasting to be capacity deficit in 2010.

CHAIRMAN HANSON: Could you stay up towards that so you project more towards the --

MS. HEBERT: The second chart actually talks about energy. On the left-hand side there we show -- this is actually gigawatt hours of energy. And it looks at that same planning period of 2005 through 2013, and it shows a growth rate of approximately 15 percent. We can see a 15 percent increase in the energy requirements for the region from 2005 to 2013.

The energy is what you're probably used to seeing on your electricity bill from your utility. You're billed on a kilowatt hour basis. So this is projecting gigawatt hours, which is one billion of -- a gigawatt hour is a billion watt hours.

Watt is maybe something if you think in terms of a light bulb. A 100-watt light bulb running for one hour would be 100 watt hours. Well, this is 1 billion watt hours, just to put that into perspective. And this represents all of the MAPP Region.

Mark had mentioned that the seven Big Stone II co-owners, project participants, are projecting a need for baseload resources. And I just wanted to talk a little bit, give you a little bit of background on what the different types of generating resources are.

Each of the utilities have identified internally in their own analysis a need for baseload resources. That doesn't mean that's the only resource they need, but because of that baseload resource, that has brought all seven of the utilities together to pursue a plant that is larger than they can do on their own so they can take advantage of some economies of scale.

Just walking through each of the types, the three types of generation, baseload generation and peaking have their own characteristics. I'll start talking about the peaking resources. And this is like an oil-fired combustion turbine, would be an

example. It's got typically a low capital cost. It doesn't cost a lot to build, but it's got a high fuel cost, a high operating cost.

And because of those characteristics, it generally does not run many hours during the year. It may run on the very hot days, it may run on the very cold winter days, or it may run when there's a system emergency, but generally it's very short-duration runs, a few hours during the year.

It fills an important role. It's a type of generation that is needed, but it's -- it's not the type -- it doesn't satisfy the baseload need that the Big Stone participants are looking for.

And I'll jump now to the baseload type of resource need. That typically -- baseload resource would have a high capital cost but a low operating cost. And because of those characteristics, what you see from a baseload generation resource is that it operates for the most part at or near its maximum point every day out of the year. It's there 24-seven, with the exception of maintenance periods and those kind of things. It provides not only capacity, but it also provides a significant amount of energy.

Now I've kind of skipped over this

intermediate type of generation. That really falls between peaking and baseload. As you can see as we look at the characteristics, it's got an immediate capital cost, immediate fuel cost, and typical energy production falls between the peaking and the baseload.

Just to kind of bring it together, we've got the seven Big Stone II co-owners, each identifying a baseload resource need. We've got the MAPP Region, which is forecasting a deficit and significant energy growth. We can't really look to the market to satisfy this need. We need to build a new facility to satisfy this need in the most economical way for our customers.

And I'll turn it over to Bill Swanson.

COMMISSIONER JOHNSON: Sorry to interrupt. What would be the intermediate fuel if gas is peaking and coal is --

MS. HEBERT: Mark gave a number of examples of baseload; coal-fired resources, natural gas combined cycle. Sometimes you would see natural gas combined cycle using an intermediate mode where it doesn't necessarily run all the time.

COMMISSIONER JOHNSON: Thanks.

MR. SWANSON: Good evening. My name

is Bill Swanson. I'm an employee of Otter Tail Power Company and registered engineer in the State of South Dakota. I've been an employee of Otter Tail Power Company for 11 years, and I'm lucky enough to work in the engineering department at the Big Stone Plant my entire career.

What I'm going to be talking about is some of the site-specific work we've done on the project, kind of laying out the site and the work we've done in identifying the facility. I'm going to be flipping to some different maps in the next few slides, and there's one identifiable thing that you can see from all of these and that's the cooling pond.

The cooling pond has this T in the center of it. At the base of that T is where the plant exists, and the plant is what you can see from Highway 12 from the area. So when you go to these different slides when you look and you try to identify a landmark the cooling pond can be seen in all of these slides so it helps orient you in all of these slides.

So this is the cooling pond and the plant area. The plant exists right here. Big Stone City is in this location. Big Stone Lake on the east

side of the plant property. The ethanol plant, Northern Lights Ethanol Plant, is just to the south of the plant building. And the rail facility coming into the site is this red line going through where we unload our coal.

One of the great things about this site is the opportunity to share in the existing infrastructure with the Big Stone I plant. The cooling water intake from Big Stone Lake, the pumping structure, the pipeline system, none of that has to change to satisfy the needs of Big Stone II. So we'll be reusing that facility.

Obviously the plant roads are in place to use to get access to the site as well as the rails will be the same rail spur to deliver coal to Big Stone II. The coal unloading facilities, we have a rotary dumper at the site so that is going to be remaining the same and handle the existing or new train loads of coal coming from Big Stone II. And then the solid waste disposal facility, we do have an ash disposal site on the property, and that will serve for both the ash disposal for Big Stone I and Big Stone II.

On the site work that we've done, again, this is the T in the middle of the pond structure that

you saw from the other map. This is the existing power plant that can be seen from a ways away. The new plant will be just to the southwest of the existing plant. So the turbine and the boiler building will be immediately adjacent to it. The pollution control system, the baghouse and wet scrubber will be just to this side.

We'll have a cooling tower. That's one difference from the new plant to the old plant is rather than the cooling pond, we'll be using a cooling tower. The cooling tower will be located down in this area. And this is the cooling tower blow down pond, and this is also a water source for the wet scrubber that we're going to be talking about in some future slides. This is also the coal storage area, and that area is sufficient enough to handle both units.

Okay. Water is an important part of a project. It's just as important as the fuel part of it. And the Big Stone I and Big Stone II site usage is going to go to about 10,900 acre feet. It's about twice as much as we're using currently.

This is the diagram showing where the pumping station is at on Big Stone Lake. Water is going to be pumped now, and it's going to be stored in what

we call the evaporation pond and holding pond. What the Big Stone site is is a zero liquid discharge facility, which means we don't discharge water away from our site. It only leaves through evaporation.

We're very proud of that environmental record that we've been able to maintain, and we want to continue that with the Big Stone II site. So the water balance is something we've put a lot of effort into looking at that and see how we can pump water from Big Stone Lake when it's available and maintain the water balance with all the chemistries on the site.

So one of the things that we are going to be doing is we're going to be building a large water storage pond so we can pump water up from Big Stone Lake when it's available. We're going to have a water storage capacity of about 9,900 acre feet, and that will also be some of the makeup supplied to the cooling ponds. From the cooling pond that will make up the supply to the Big Stone II cooling tower.

COMMISSIONER JOHNSON: Could you say that last sentence again, sort of walk through.

MR. SWANSON: You bet. From the

whole site this is the pumping station from Big Stone Lake. From there it will be pumping water from the evaporation pond or the holding pond or the new water storage pond -- this will be a new facility built from Big Stone II -- and from there back to the cooling pond. The cooling pond is used as cooling water for Big Stone I, and it's also the makeup water for the cooling tower for the Big Stone II.

COMMISSIONER JOHNSON: The makeup water, can you explain what makeup water is?

MR. SWANSON: Sure. There's an evaporation process. Using the cooling towers there is always waters that need to be made up into that process. So that's where that source of water comes from.

VICE CHAIRMAN SAHR: What time of the year would you be doing most of the pumping on the lake?

MR. SWANSON: Most of the pumping has been historically in the spring when the runoff goes into the lake and goes up. The same thing, we would likely want to take advantage of that period when the water levels are the highest.

VICE CHAIRMAN SAHR: Is there any

25

tangible effect on lake levels?

MR. SWANSON: Minimal effect.

VICE CHAIRMAN SAHR: Thank you.

CHAIRMAN HANSON: I know we said we would reserve and ask questions, but it's very appropriate to ask questions as we're going along obviously. I'm curious as well, do you have your water rights for the State permit?

MR. SWANSON: For the increased water usage for --

CHAIRMAN HANSON: 10,902 acre feet.

MR. SWANSON: No. We currently are using the -- we're under the water appropriations permit for Big Stone I, which is 8,000 acre feet per year.

CHAIRMAN HANSON: Thank you.

MR. SWANSON: With that, I'll turn it over to Terry Graumann.

MR. GRAUMANN: Good evening. My name is Terry Graumann. I'm the manager of environmental services for Otter Tail Power Company. I've been in that position for about 32 years, and all that while I've been located in Fergus Falls, Minnesota.

The purpose of my presentation this evening is

26

to describe the emission control technology. This is a schematic of the emission control technologies for Big Stone II. It does not show the turbine, does not show the generator. It doesn't show any of the other ancillary plant equipment.

It shows the boiler, which is located on the left, and then the stack on the right and then the emission control technologies are located in between those two.

Let's start with the boiler, the item in blue. Mark mentioned the supercritical pulverized boiler technology, and that's the technology we've chosen for Big Stone II. The advantage of that technology is it's 3 to 4 percent more efficient than other commercially available technologies. And in a practical sense what that means is that there's 3 to 4 percent less emissions, including carbon dioxide when using this technology as compared to other technologies.

The boiler also includes a provision for low NOx burners, and what those burners are is those burners are a special design to provide a combustion atmosphere that would minimize the amount of combustion nitrogen oxides that are formed during the combustion process.

27

Additional nitrogen oxide control occurs in this green section, which is a box essentially. It's called a selective catalytic reduction system. And it's much like the catalytic converter in your car. The flue gas flows through the catalytic reduction system. This is a box, again, flow with the catalyst.

But there's one exception, and that is that ammonia needs to be added to this box in order for the reaction to occur with the catalyst that essentially converts the nitrogen oxide emissions to elemental nitrogen and water.

The flue gas then flows into this device that we call it an air free heater. And it's simply an efficiency devise. It's an air-to-air heat changer, and that device heats the combustion air as it's going into the boiler.

From the air free heater the flue gas flows through the fabric filter baghouse. And this is just again another big box that's filled with a series of bags, fabric bags. The flue gas flows through those bags, and the ash collects on the outside.

Periodically there's a pulse of air. That's why they call it, although it doesn't show on here,

28

a pulse jet baghouse. A pulse of air that gently inflates the bags, shedding the ash. And as the ash is shed, it falls to the hoppers below the fabric filter baghouse, and from those hoppers then the ash is conveyed pneumatically to fly ash storage satellite.

This is an induced draft fan, and that pulls the flue gas again through the fabric filter into the wet flue gas desulfurization system. We commonly call this similarly a scrubber.

And the purpose of this device is to remove sulfur dioxide from the flue gases. And the way that it does that is limestone slurry -- limestone simply mixed with water, finely crushed limestone, is circulating throughout this tower in a very turbulent fashion, which creates a good contact between the flue gas and the limestone.

And in doing so the flue gas is cooled and the sulfur dioxide then reacts with the limestone in the flue gas desulfurization system forming, first of all, a calcium sulfite, and as a part of this process air is also injected so ultimately the end product is a calcium sulfate or gypsum.

Mercury control actually occurs in two areas in this project. Primarily -- first of all,

mercury control -- or mercury is collected in particulate form on the bags, and then from there it's collected and moves through with the ash.

The other control mechanism is the flue gas desulfurization system or the scrubber. Any oxidized mercury that leaves the system is collected in the flue gas desulfurization system simply because it's soluble in water.

Historically dry scrubbers and not wet scrubbers have been used to remove sulfur dioxide when burning subbituminous coal. And this is a different technology.

And you remember the fabric filter occurred first and then the scrubber. And in the dry scrubber there is a spray dryer mechanism, much like a milk dryer, if you will. Some of you might be familiar with that. The slurry is put in a liquid form. But the end product is dry, and it's mixed with the fly ash and from there it flows to the fabric filter which occurs after the spray dryer.

This is a very common technology. It meets all of the regulatory requirements, and it's still being permitted. Weston 4 out in Wisconsin is using the wet spray dryer. Council Bluffs is using

a spray dryer.

We've decided to use a wet scrubber. It is more expensive, about 18 percent more expensive, but there are some advantages. The wet scrubber gives us more efficient SO2 removal. And that's very important to the Big Stone II co-owners simply because Big Stone II does not receive any SO2 allowances under the -- allowance allocation under EPA's Clean Air Act Amendments of 1990.

What that means for us is that as owners we will have to, one, either get allowances from existing units or buy allowances. So it's important for us to have very efficient SO2 removal. And in this particular case the wet scrubber will typically give about 95 to 97 percent removal. A spray dryer, likely in the low 90s.

The wet scrubber also gives us more efficient mercury removal. In EPA's mercury rule that was published in March of this year they established standards based on the coal type as well as the type of emission control technology that a user was installing. And for a wet scrubber system the emission -- allowable emission rate is half of what it is for a dry scrubber, as compared to a dry scrubber.

Finally, the wet scrubber also gives us one additional advantage, and that gives us a salable fly ash. I just mentioned that the dry scrubber mixes the fly ash with the SO2 removal reagents, but in this particular case if we remember from the drawing, the fly ash comes out in the fabric filter first. That fly ash is available for sale. It's commonly used as a replacement for Portland Cemen and concrete mixtures and, in fact, the American Coal Ash Association, which is an industry group that tracks coal byproduct utilization in the United States, reported in 2004 that there were 14.1 million tons of fly ash that were used in concrete add mixtures.

Big Stone during our average conditions is expected to produce about 127,000 tons per year of fly ash. We'd like to get into that market rather than putting it into our ash disposal site.

The joint scrubber opens up some possibilities -- or we have a joint scrubber possibility because of the wet scrubber technology that wouldn't be available to us with a dry scrubber. We're able to double the size of the scrubber but with only an increase in cost of 60 percent. We're able to share equipment, and

other benefits of other redundant components, we're able to, for example -- the main spray tower -- there will only be one main spray tower instead of two.

As a result of all of this we will have lower per megawatt hour costs associated with the scrubbers, primarily because of capital cost savings and labor savings.

The Big Stone co-owners have also committed to add Big Stone II and not to increase nitrogen oxide emissions from the Big Stone Plant site. I described earlier the extraordinary steps that we're taking to reduce nitrogen oxides from the Big Stone II boiler, the low NOx burners, the selective catalytic system.

We're also going to be making some operational changes at Big Stone I to lower its NOx emissions. We may need to make some equipment changes, but that will be determined following additional testing at the site. We are not certain of that yet at this time.

In summary, our process or our approach, what we'll have is we will have sulfur dioxide, nitrogen oxide, and mercury emissions from both units that are targeted to be less than or equal to Unit 1's

emissions in 2004. We expect nitrogen oxide emissions by permit to be about equal to what they've historically had, and we expect mercury emissions to be less than or equal to those emissions as 2004 emissions as well.

Here's a graph showing our sulfur dioxide emissions. And let me point out a couple of items on this graph. On the left side that shows the capacity, the megawatt generating capacity, of the Big Stone Plant site for the various years. 1994, 2004, for both Big Stone I and II and then another bar that shows Big Stone I and II and the capacity is identified by the green bar.

Going back to 1994, the Big Stone Plant site had about 450 megawatts, which it is today. 2004, about the same megawatt capacity. Based on our proposal, in 2011 the site capacity would go to about 1,050 megawatts, and we would hope that that would be maintained into the future as 1,050 megawatts.

What this graph also shows is SO2 ton emissions. And going back to 1994, notice that dot, we had SO2 emissions at the Big Stone Plant site of about 44,000 tons per year. At that particular time we were burning North Dakota

Lignite. Since that time we switched to Western Low Sulfur Subbituminous Coal. And in 2004 our SO2 emissions dropped from about 44,000 tons down to roughly 14,400 tons.

We expect based on our proposed permit application that the site will have no more than about 13,300 tons once Big Stone II is permitted.

But in reality we expect our target operational level to be in the neighborhood of 2,000 tons per year. So within this particular time frame we've dropped our SO2 emissions from 44,000 tons to about 2,000 tons, which is roughly about a 95 percent reduction, even though our generating capacity went from 450 megawatts to slightly over 1,000 megawatts, 1,050 megawatts.

MR. WELK: Cost.

MR. ROLFES: Yes. The cost. It comes at a significant cost with these types of reductions, and it's about $160 million in capital costs.

CHAIRMAN HANSON: Are you complete?

MR. GRAUMANN: Yes.

CHAIRMAN HANSON: Could you tell us again repeat when you -- when the plant began the use of the low sulfur coal.

MR. GRAUMANN: It was late 1995 actually in the -- about the first of September 1995.

CHAIRMAN HANSON: And do you have similar information for us regarding carbon dioxide?

MR. GRAUMANN: No, I don't. Not with me.

CHAIRMAN HANSON: Could you provide us with that along with mercury and nitrogen?

MR. GRAUMANN: I can.

CHAIRMAN HANSON: Appreciate that. Thank you.

COMMISSIONER JOHNSON: 160 million at what stage in the process -- since '94, from '94 until the future target date or --

MR. GRAUMANN: The 160 million is essentially for the scrubber and the fabric filter that would evolve as a result of Big Stone II. So that has not been installed yet.

COMMISSIONER JOHNSON: So between bar 2 and bar 4 would be the $160 million investment.

MR. GRAUMANN: Yes. Correct.

VICE CHAIRMAN SAHR: With the sulfur

dioxide, mercury, and NOx that doesn't get scrubbed, where does that go? Where does it end up?

MR. GRAUMANN: Anything that passed -- anything that passes through the emission control equipment is exhausted from the stack, but the levels that we can emit those types of materials are all set by permit from the -- that would ultimately be issued by the South Dakota Department of Environment and Natural Resources.

We have to make a permit application to them. Not only do we have to meet, for example, like the new source performance standards which establish emission limits for each of these parameters for the NOx, for the SO2, and for mercury, there's a mercury-specific mercury emission limit for new units.

The other part of the Clean Air Mercury Rule that was adopted by the administration in March of 2005 limits the amount of mercury in terms of pounds that you can emit for various states. Now there's a certain allocation that goes to a state. You've got opportunities to buy allowances to emit more. But it's going to depend upon the efficiency of the control equipment whether or not we have to

buy allowances or not.

The level of allowances for the State of South Dakota is 144 pounds. And we would need to stay under that level, or else we would need to go out and buy additional mercury allowances.

VICE CHAIRMAN SAHR: I guess my question is more along the lines of -- I mean, use a lay -- I don't know if it would be a lay term, but what basically is a drop saw?

I mean, with these are they going up in the atmosphere and coming down in rain, or what's going on? I mean, what would be the zone of concern if -- about anything that might be going on through the stacks with the NOx and mercury and SO2?

MR. GRAUMANN: Most of the pollutants in terms of the evaluation process have to be modeled, and some of them would drop out close to the plant. Others might be farther away from the plant.

And we need to meet -- at least as far as the particulate matter, those kinds of things that are modeled specifically for this plant, we need to make sure that we meet all of EPA's air quality standards that are essentially established at the property line for the pollutants.

COMMISSIONER JOHNSON: With regard to the mercury and Big Stone I, currently, I mean, how much mercury is going up the stacks now, pounds per year?

MR. GRAUMANN: In 2004 we reported 189 pounds per year. And we have been up into the 300 pound.

COMMISSIONER JOHNSON: So you're currently purchasing allocations from other states then? The difference between 144 and 189 is being made up with allocations?

MR. GRAUMANN: The requirement to have mercury allowances goes into effect in 2010 at 144 pounds is a requirement in 2010. In 2018 that requirement drops to 58 for the State of South Dakota for their allocation because of the reduction requirements as a part of the Clean Air Mercury Rule.

COMMISSIONER JOHNSON: What is the projected mercury emissions for both plants once they're both on line?

MR. GRAUMANN: Like I mentioned, our target level is the 2004 level.

COMMISSIONER JOHNSON: Okay. 189.

MR. GRAUMANN: 189.

COMMISSIONER JOHNSON: Okay.

CHAIRMAN HANSON: Thank you.

MR. LEE: Hi. My name is John Lee. I'm an engineer from Barr Engineering Company. We're a regional consultant. I have been providing consulting services to the utility industry for over 25 years. And over the last 10 years or so I've been focusing on environmental issues related to power plant siting.

I'm going to review some of the community and environmental information that we've compiled and made an assessment of for the siting permit application.

As far as the environmental impacts, we looked at eight general categories of potential impacts from the project. Those are listed up here, and I'll go through each of them in turn. But in general we found that the impacts from the project will be minimal, and that's primarily because of a lot of things you've heard already, the employment of state-of-the-art technologies for air emissions and other equipment related to the power plant and also because of what Bill Swanson emphasizes, that we're taking advantage of a lot of the existing infrastructure at the current plant.

As far as the physical environment, we looked at the land forms and topography, geology, soils, and economic deposits. Economic deposits refer to gravel pits and sand pits, those types of resources and erosion and sedimentation.

Our conclusions from that assessment was that impacts would be very limited and primarily related to the new water storage pond that Bill talked about earlier that will take an area of about 500 acres and require some grading. That will impact some of the local land forms southwest of the plant but in a very limited area.

We looked at the hydrology issues. We looked at surface water drainage. Again, because most of the activity is taking place in the existing plant site, existing surface water drainage systems will be utilized, and they'll be enhanced where necessary to deal with additional storm water runoff that may occur.

And also as far as water needs for the plant, as Bill mentioned, we'll be -- and questions about the appropriations permit, we will be asking for an amendment to the water appropriations permit that currently allows for appropriation of up to 8,000 acre feet a year from Big Stone Lake.

41

The current permit has restrictions on when that water can be obtained from the lake based on water levels in the lake. There's a narrow range that if the lake level drops below a certain range, we are restricted from taking the water out of the lake at that time. That's why historically most of the water's been obtained in the spring of the year, and that's why we're looking for more water storage capacity, so we can store the water needs and still adhere to those water level restrictions on when water can be obtained.

We expect to ask for an amendment to the water appropriations permit that would allow an increased appropriation of the lake of up to about 15,000 acre feet. The actual needs of the plant as Bill mentioned are closer to 10,900 acre feet, but to allow some flexibility in operation and look at perhaps long-term drought conditions, we would look for a little cushion in that appropriations request.

We looked at terrestrial ecosystems. We looked at vegetation. In general there do not appear to be special vegetation around the project site, again, because most of it's in the existing industrial area and the area around the plant where

42

the new water storage pond will be constructed is tilled agricultural land. So we don't see any significant impacts to vegetation in the vicinity of the plant.

We looked at one specific threatened species, a plant, the Western Prairie Fringed Orchid. There was a potential that that could be present in this type of terrain. There was a detailed field reconnaissance of the plant site where we would be doing any intrusive activities, and that was completed this spring and none of those plants were observed.

But we'll continue to look at that as work continues at the site. But it does not look like that will be an issue.

COMMISSIONER JOHNSON: You said in the vicinity. Sorry to interrupt. You said in the vicinity. What was your area of study?

MR. LEE: We looked at the areas where we would be disturbing ground. So primarily immediately around the plant site and where the new storage pond, water storage pond will be constructed, and then in areas near there where there were existing vegetation communities that might support that vegetation, that particular

43

plant.

So, but it was very thorough, and we did that in conjunction with folks from the wildlife agencies.

One other threatened species that came up as a potential issue is the Bald Eagle. The Bald Eagle is a threatened species. There is -- again, as Bill mentioned, this is our kind of reference point, the T and the basin, the plant down here. This red dot represents location of an eagle's nest.

We identified that and observed it, but as you can see, it's quite a distance away from where the new plant work will be done. Again, most of the activity will be right in this area and then over to the southwest where the water storage basin will be. So we don't see any concerns about disturbing that potential nesting area.

COMMISSIONER JOHNSON: Does that look like a little over a mile?

MR. LEE: Yeah. I think this is from here to here it's a mile; right, Bill?

MR. SWANSON: Yep.

MR. LEE: So it's about a mile to a mile and a half from where most activity will be.

44

We also looked at the aquatic ecosystems. Fisheries are not a big issue. The Whetstone River runs to the south of this site, but there will be no impacts to that. As was mentioned earlier, this is a zero liquid discharge facility so there will be no direct discharges to that river.

The existing intake will be used on the Big Stone Lake for water appropriation so you won't see any impacts there with construction.

With regards to wetlands -- actually maybe I can back up briefly here. In this area this is the new storage pond. There will be approximately 58 acres of wetlands that will be inundated. They're kind of generally in this low point right in through here. Those will be inundated with the construction of that basin.

The mitigation of those impacts will be addressed through the U.S. Army Corps of Engineers' permitting process. It is likely that we'll be mitigating that through enhancement or construction or additional wetlands in the vicinity that would probably add a ratio of one and a half to one. So if we're taking out about 60 acres, we would likely have to enhance 90 acres of wetlands to address that.

45

That process has -- discussions have begun already with the Corps of Engineers on that, but the permit has not been obtained yet.

We don't see any real issues with land use and land use controls. Again the existing land uses for electric generation with the exception of the water storage pond, that will take out some agricultural land. But we don't see huge impacts to that.

We did look at noise under this umbrella category. There was extensive monitoring around the existing plant and then modeling of what the incremental noise impacts might be from the new plant, and the incremental noise impact was modeled as being insignificant. It would be barely perceptible to the nearest receptors.

COMMISSIONER JOHNSON: What is insignificant?

MR. LEE: I think about 3 decibels or less.

COMMISSIONER JOHNSON: Okay.

MR. LEE: As far as water quality, we talked about that quite a bit in some of the other areas. As I mentioned, Whetstone River, we don't anticipate any impacts to that river.

46

We did look at the pond water quality, the new water storage pond, what the water quality of that would be to see if there might be algal blooms or other issues within that 500-acre storage basin. Since the source of that is Big Stone, the water quality in that basin is expected to be very similar to Big Stone. There may be some algal blooms but in general the water quality in that pond is to be expected pretty good and be -- support water fowl and other wildlife.

I mentioned storm water. There will be a storm water pollution prevention plan that will be prepared for the construction period and for the postconstruction period that will address storm water management on the site.

Terry talked at length on the air quality air emissions control so I won't repeat that. I'll just say that, again, state-of-the-art technologies will minimize air quality impact.

And it's been mentioned a couple of times on solid waste there will be additional ash generated. Some of that will be marketed as concrete additive if possible, and the remainder would be disposed of in the existing ash disposal facility on site. There is expected ash generation rates. There's an

47

estimated about 10 years capacity remaining in the existing permitted facility.

Shifting a little bit to community impacts. We looked at impacts to the regional community. We looked at economic impacts, infrastructure impacts, potential strains on community services, what the effects might be on population, demographics, and cultural resources.

The primary study area was a 20-mile radius. The plant is right in here, and the circle represents the 20-mile radius around the plant. We focused our community impacts assessment surveys with local government officials were the primary source for this information. And talked to local folks. And in some areas that we looked at, as I'll get into, we broadened that area as it may be appropriate, but in general we focused on impacts within the 20-mile radius.

The economic impacts, as you can imagine, are generally positive and the four-year anticipated construction period there are expected to be peak at about 1,400 construction jobs in the area. That will have multiplier effects through other services throughout the local economy.

The new plant is expected to require an

48

additional 35 full-time employees, long-term impacts.

COMMISSIONER JOHNSON: I'm sorry, John. What was that number?

MR. LEE: 35. Impacts to agriculture are expected to be minimal. As we mentioned, we will take about an additional 500 acres of land out of agricultural production, but other than that, the impacts to agricultural economy are expected to be negligible.

The commercial and industrial sectors will benefit through servicing the construction process and the construction workers. Land values are not expected to be impacted significantly by this project. Otter Tail Power has already procured options on most of the parcels that will be necessary for the work, for the project.

And then, of course, taxes. There will be sales taxes, real estate taxes that will derive from the project and go to local and state government.

This is a graph of the construction labor requirements. And the time frame here is 48 months, four years from over here to here. And it's difficult to read the numbers, but this is

1,400 construction workers. And that's where, as I mentioned, the construction is expected to peak at about two and a half to three years into the project. But you can see there's a nice distribution of work ramping up and then gradually going down as the project progresses.

Concerns about potential infrastructure impacts are the availability of housing. It doesn't look like housing will be a major issue. This is one area where we expanded the study area to encompass a 60-mile radius assuming that construction workers are not averse to traveling 60 miles or more than an hour away to get to work on a temporary construction project. And there are over 2,200 hotel/motel beds within that 60-mile radius. There are also several trailer parks and campgrounds that would allow for temporary housing for the construction forces.

Energy needs are not expected to be an issue, nor are sewer and water. Solid waste management and transportation, all of these things were looked at, and we didn't see any pinch points where there may be specific problems related to the influx of workers primarily.

Similarly with community services, the

information that was gathered by calling and talking to local health facilities, school districts, and public safety officials to see if they had any concerns about this project and the additional strain that it may cause on their services, and there was a general consensus that the existing service would not be overtaxed by the project.

Population and demographics, again, the long-term impacts would be modest in this area, although it would create high-paying jobs as we mentioned earlier, an estimated additional 35 full-time jobs, but not a major change in the population or demographics of the region.

We also looked at cultural resources, historical and archaeological potential issues there. There was a historical architectural survey completed around the plant and several -- some historical buildings were identified, but the assessment was that they would not be adversely impacted by the project. Specifically, there were a few historical round barns in the area, but the judgment of the historian was they would not be adversely impacted by the project.

And then there also have been some

archaeological sites that have been identified in the area surrounding the plant, but, again, none of the intrusive activities, the excavation areas or where any of the construction lay down would be done encroaches on any of those previously identified sites. So we don't expect any impacts in that area.

I'll just summarize, as I mentioned in the beginning, on the environmental and community impacts, again, the environmental impacts appear to be minimal because of the use of existing infrastructure and the state-of-the-art technologies. And community impacts are generally expected to be positive.

VICE CHAIRMAN SAHR: John, I think one of the really interesting things about this is the employment prospects and I'll put you on the spot and maybe if you can't answer it, I'll bet somebody from one of the utilities here can.

Would the 1,400 construction jobs and the 35 long-term jobs at the plant, what's the typical wage for those type of jobs?

MR. LEE: I don't know the answer to that off the top of my head. I think the long-term jobs maybe someone from the utility can answer

that.

MR. WELK: Mark, go ahead.

MR. ROLFES: I guess a couple of things on the construction jobs to get -- attract the skilled labor we're looking at 10-hour days at least 50 hours a week. So not only are there going to be high-paying jobs, but there's going to be overtime on top of that.

These are all skilled people we expect to be paying 25 to $30 an hour. Plus for the power plant permanent employees I think our average loaded wage is -- you know, with benefits and everything is approximately $85,000 a year.

VICE CHAIRMAN SAHR: That's including like insurance benefits?

MR. ROLFES: Yes. That's all benefits. They're not taking home $85,000 in their pocket.

VICE CHAIRMAN SAHR: . Thank you.

MR. LEE: Okay. Mark will talk about scheduling.

CHAIRMAN HANSON: John, just one question, if I may, in case I missed it. Did you say how much F load there would be from the plant?

MR. LEE: There will be no waste

discharge from the plant.

MR. ROLFES: I'll try and quickly wrap up the project and turn it over to you for questions unless -- the schedule for the project going forward, we were in the project development phase early this year and now we've moved into the permitting phase and that's why we're here, of course, is to look at permits.

And the expectation is that we would complete the permitting effort by the fall of next year and by the fourth quarter in 2006 so that construction contracts could be let. It would be at financial close at that time. When we have all the permits we can go to the banks and get our money, so to speak. So we'd have financial close at the fourth quarter next year so that we could begin construction as early as we can in the spring of 2007.

It is a four-year construction period. We would be looking at commercial operation in the -- around April 1, 2011. It's a long process, but it's a big project.

The other bar on here that I didn't talk about is engineering, and, of course, there's been some engineering activity for a long time as we did the

studies and now the work to support the effort.

That concludes our formal presentation.

CHAIRMAN HANSON: Questions.

MR. WELK: I think to conclude the presentation I would like to mark in the record as Exhibit 1A, which is a CD of the Power Point presentation, and 1B, which are the actual slides that were used during the presentation, so we can record what the public and the Commissioners were able to see tonight.

And so I'd ask for that to be admitted as part of the record.

(Exhibits 1A and 1B are marked for identification)

CHAIRMAN HANSON: It will be admitted. Thank you.

MR. SMITH: 1A is the exact same slides that we saw tonight?

MR. WELK: Correct. It's an electronic format.

MR. SMITH: Just so you know, because nothing here was confidential, all of that will be available on the Commission's website so you can have access to it, members of the public, as soon as we get it up and on there.

CHAIRMAN HANSON: Any questions at

this time from Commission members?

VICE CHAIRMAN SAHR: I have a question for Mark. Mark, I think you guys did a good job talking about the energy mix choices or why you picked the plants you did. Can you talk about the needs to bring in baseload plants?

We've kind of gone through a number of years we haven't been out there building baseload plants in this region. And also I think probably a lot of people in the room already understand this, but just talk a little bit about why it makes sense to use coal as a fuel source here and touch a little bit more on that, please.

MR. ROLFES: Quickly, Big Stone I is baseload resource. Big Stone II is intended to be baseload resource. Baseload, like Stacie talked about and I did, that's the power that's there 24 hours a day seven days a week whenever it's needed.

The last major baseload facility to be built in this part of the country was 1987, and that was the Sherco III Unit south of St. Cloud, north of Minneapolis. So since 1987 until now there has not been a unit put into service. So, you know, being Big Stone II is looking at 2011 -- so, I mean,

we're way over 20 years without a baseload resource.

Just go back and think what has happened since 1987 to the communities of Sioux Falls and Pierre and Milbank, how much it has grown since that time, how many people now have computers, two refrigerators, three televisions in their home, and it's -- to me as a power professional, it's hard to believe that we've gone this long without a baseload facility.

I really believe our infrastructure is being taxed beyond where it should be. We're relying too much on old inefficient generating sources.

The question on why coal. You know, if you look at our energy mix in this country, almost half of our oil is imported. Natural gas, which, you know, most people use to heat their homes, we're getting more and more of that being imported. It's to the point that almost 20 percent of our natural gas is being imported, and we're using it faster than we're finding it.

Coal is the only domestic resource, fossil fuel resource, that the United States has and has in abundance. So for energy security I think coal has to be a cornerstone of our development.

You know, currently coal supplies over 50 percent of the electricity in this country, and it's going to have to continue to be a cornerstone in our energy mix.

VICE CHAIRMAN SAHR: Mark, with the existing plant what is the capacity on that? What percent of the time is that operating?

MR. ROLFES: It's a 450 megawatt plant. Its capacity factor runs in the high 80s to low 90 percent.

VICE CHAIRMAN SAHR: And other than being down for maintenance and those type of planned outages and certainly unexpected ones could happen, is it pretty much operating all the time that it can for the most part? Those are pretty high numbers.

MR. ROLFES: If you take out planned and scheduled outages, the plant's forced outage rate is very low. It's available usually over 98 percent of the time that it's scheduled to be there. So it is running. And it's producing heavily all the time.

VICE CHAIRMAN SAHR: And I think a lot of us have a real interest in wind energy and realize that certainly could be something important

for this region.

Could you just compare that to a typical wind form you might expect there?

MR. ROLFES: I don't want anyone to walk away with the impression the utilities are only looking at Big Stone. This is part of their generation mix. But, you know, I can speak a little bit more on the wind resources that Otter Tail has. It has some in Buffalo Ridge and some in North Dakota and the capacity factor on those resources is usually running in the 30 percents. So 30 percent versus 90 percent.

VICE CHAIRMAN SAHR: Thank you.

COMMISSIONER JOHNSON: Question for Stacie. When you were talking about the energy availability you're using MAPP figures.

Was there a reason you chose those as opposed to information on the seven partners?

MS. HEBERT: The application itself has information. It has those same two graphs for each of the co-owners. We just didn't want to bog down with 14 additional graphs. So those numbers are representative of what each of the co-owners sees for their individual utility, and I would welcome you to if you don't have a copy of the

application, you can certainly see that information in the application.

COMMISSIONER JOHNSON: In '05 and for the next few years it looked like a great deal of excess energy. Is that being sold as merchant power, or what are MAPP partners doing with that now?

MS. HEBERT: It was actually excess capacity.

COMMISSIONER JOHNSON: Capacity, yeah.

MS. HEBERT: Some of it's being sold within the MAPP regions. Some of it's being sold outside the MAPP regions. And it's really just the individual load at the utility level that starts eating away. There could also be some retirements of the generating units that would lower the capacity number during that period.

COMMISSIONER JOHNSON: Am I right assuming there are also some reserves in there?

MS. HEBERT: Correct. Each of the MAPP member utilities are required to maintain a 15 percent reserve. So you take your expected peak demand for your utility and you also have to have capacity for additional 15 percent. That's one of

the benefits of being in the power pool.

When everyone has that additional 15 percent -- if, for example, Big Stone I were to go down, we can rely on our neighbors, our co-members within MAPP to help supply that power when we lose our generator. So we don't have to provide our own backup. We can lean on our neighbors. Like I say, that's one of the benefits of MAPP membership.

COMMISSIONER JOHNSON: When you addressed the possibility of Canadian power, talked about the barrier the transmission costs would be, do you have any idea -- I mean, were any studies done on the costs of undertaking that?

MS. HEBERT: No. I'm not aware of any. There may have been studies. I'm not aware of anything done associated with the Big Stone II project. But that second factor is truly the energy situation in Canada and the way that they plan their system based on the energy that's produced by the hydroelectric generators. And they don't have an 80 or 90 percent capacity factor so they end up building more capacity than they need in order to guarantee that they've got the energy that they need to serve their customers.

COMMISSIONER JOHNSON: Good. Thanks. For Bill, you talked about the ability to use existing infrastructure. Will there need to be upgrades? I'm thinking about the rail. Will there be any upgrades needed to the railroad spur?

MR. SWANSON: No. The railroad spur will continue to be maintained exactly the same way it is. I'm sure with the existing traffic on it they're going to look at the maintenance of it and the existing rail and track bed, but as far as the rail spur goes, as far as the coal supply, it will be exactly the same.

COMMISSIONER JOHNSON: Big Stone I uses a cooling pond. Big Stone II uses a cooling tower. Can you talk a little about why a cooling tower is a better option for today?

MR. SWANSON: It really comes down to we actually like the cooling pond a lot. The cooling tower is a little easier to maintain the chemistries because you have a very small circuit of water you're able to control the chemistries.

The chemistries that build up in the cooling water can build up on the cooling surfaces inside the plant, the condensers, the various coolers, as the calcium gets high, has a smaller circuit you

can control the energies better.

COMMISSIONER JOHNSON: When I hear cooling water I'm thinking something that looked like a typical water tower. Is that about right? How big are we talking? Am I getting the right mental picture?

MR. SWANSON: No. I don't know that I would say -- it's about 200 -- it's probably shorter than a tower. It's about maybe 100 yards long, 200 yards long. And there are individual sells on that with a fan on top so there's a cooling plume that comes out of the top of that and that evaporation is where the cooling effect comes from. It's a little different style of tower.

COMMISSIONER JOHNSON: Somebody w talking about the joint scrubber. Was that -- is the adjective "joint" to indicate that it's being used for both plants?

MR. GRAUMANN: Yes. It will be used for both plants.

COMMISSIONER JOHNSON: There are efficiencies obviously to gain by that?

MR. GRAUMANN: Right. First of all, efficiencies in terms of we'll be able to increase the size of that scrubber by 100 percent. In other

words, we would serve both units with an increase in cost of only about 60 percent. So there's some cost efficiencies there using that approach.

COMMISSIONER JOHNSON: You talked o a couple of different instances about with various emissions, you know, wanting to maintain them basically at current levels even though we might be getting a second plant. And I thought you had a good chart to display sulfur dioxide for that.

I mean, is there new pollution control equipment being put into Big Stone I to also respond to mercury and NOx? And, if so, are those improvements part of the $160 million that you referred to?

MR. GRAUMANN: They wouldn't all be a part of that. The scrubber will be used for both sulfur dioxide removal and it would also aid in the mercury removal. So simply because there's a joint scrubber there will be some benefits from both units using that type of an approach.

The NOx changes for Unit 1 are simply operational changes. We haven't included in that budget estimate any capital costs, additions for Unit 1. Based on our current evaluation of that particular unit, we feel that we will be able to

make adequate reductions on Unit 1 just with operational changes so that the overall site NOx emissions will not increase.

COMMISSIONER JOHNSON: Could you give me an example of what an operational change might be that would have that kind of impact.

MR. GRAUMANN: What we'd be looking at doing, we have an over fire air system on Unit 1 right now that was installed as a part of the Title 5 requirements of the Clean Air Act. And that particular requirement required us to get down to about .86 pounds per million BTU of NOx as an annual emission, average emission limit.

And that technology, the over fire system can -- what that amounts to is essentially staging the combustion so you put in a little less air into the cyclones and a little more air above and what that does then is it changes the mix for the combustion air and so it results in a decrease in NOx emissions. And we are planning on running that over fire air system just a little harder to be able to accommodate the Big Stone II.

COMMISSIONER JOHNSON: Is there a reason that those operational changes haven't been implemented prior to, you know, this discussion?

MR. GRAUMANN: We haven't been doing that. We've started operating that system back in 2000. That was the first time that the system was actively used for extended periods of time. We've been working with that system during that time.

In the meantime, we've installed some other emission controls equipment, and we're just trying to figure out how to balance all of our plant operation and the testing of that over fire system will be ongoing between now and when we bring the Unit 2 on line.

COMMISSIONER JOHNSON: I thought th group collectively did a good job talking about the fact that emissions will be -- at today's levels are lower.

Have there been any studies, though, about the impacts, environmental, of emissions from Big Stone I?

MR. GRAUMANN: We haven't had any direct environmental impacts on Big Stone I, at least not anything recent. We had an ambient air monitoring station that was set up around the site. In fact, we had operated it for a while, and I believe the South Dakota Department of Environment and Natural Resources operated it for a period of

time. But that equipment I don't believe has been in operation for probably close to 20 to 25 years, something like that.

COMMISSIONER JOHNSON: Mr. Chairma that's all I've got. Thank you.

CHAIRMAN HANSON: I have just a few questions.

Stacie, I'm curious, when you're looking at MAPP, and I would assume that you also looked at -- have dealings with MISO at the same time and that you are looking at some potential constraints that we're often told about in transmission systems.

Can you tell us, are there hurdles there yet that you have to go through?

MS. HEBERT: Now are you talking in terms of where we could look to find additional generating capability be that purchases, that type of thing?

CHAIRMAN HANSON: Additional load and the ability to transmit the energy outside the region.

MS. HEBERT: MISO, of course, has a little different function than MAPP. MISO is a transmission organization.

I can tell you transmission constraints that

we see in this region do limit in Otter Tail's case where we can actually go out and buy capacity in energy. There are transmission constraints that will -- we've had times where we wanted to purchase energy from Canada, and there's a constraint down in Nebraska that makes that -- I'm talking a short-term transaction there but constraints in the transmission system down in Nebraska can cause it -- our transmission request can be denied.

CHAIRMAN HANSON: So there are still hurdles that you face in the transmission.

MS. HEBERT: Certainly. Certainly.

CHAIRMAN HANSON: Okay.

MS. HEBERT: We see those transmission constraints on a day-to-day basis. So certainly as we're looking out for a long-term resource, transmission constraints are an issue.

CHAIRMAN HANSON: Thank you. I'm not certain who would prefer to answer the question regarding transmission, but I'm curious on the additional transmission system that you plan to construct, and I recognize a lot of it's not going to be in South Dakota, although we would actually prefer that it be in South Dakota, we'd like to see some excess capacity for wind generation in this

state.

Could you fill us in a little bit perhaps, Mark, on how much of the excess capacity that you presently have that you're going to use to increase in transmission capacity that you plan to construct and if there is any potential for new excess capacity that may be married to renewable energies.

MR. ROLFES: Okay. I'll try and tie a couple of things together. One, that whole process is moving forward to the MISO process, and we do have interconnection requests and delivery service requests in with MISO. We didn't address that in this presentation because it's --

CHAIRMAN HANSON: Understood.

MR. ROLFES: With that said, just quickly, the existing Big Stone Plant has four transmission lines out of it. Two of them are 230,000 volts and one runs north and one runs south. They are not looked at to be changed at all.

There are two 115 kV lines that run north and east and south and east. One goes to Morris. One goes to Granite Falls. We have looked at what it would take to get the power generated by a 600 megawatt unit out into the system.

69

I'll begin with there's no excess capacity that exists today. So we're looking at additional construction to serve the new unit.

Our needs can be met by upgrading those two 115 lines to 230,000 volts. Then we're also looking at a couple of options, but to make it simple those could just be upgraded to 230 volts to take care of the needs for this project.

We are looking at the regional needs and regional plans and are very strongly considering building the south line at 345 kV. That line is looking at roughly half to be in South Dakota, half in Minnesota. If we go ahead and are approved by the Commission to build that 345, we expect to have an additional capacity that could come close to 1,000 megawatts.

Because of open access it's a first-come first-served so this would facilitate the ability for wind, but it wouldn't guarantee because, again, of open access, it's a first-come first-served. But we are strongly looking at the possibility of overbuilding transmission to facilitate regional needs.

CHAIRMAN HANSON: Thank you very much. I appreciate that. That's exciting to hear.

70

Could you perhaps -- Mark, you may also be the one to answer this, but obviously you'll feel free to pass it on.

We hear about the costs of natural gas. We see every day that it's climbed so tremendously over the past few months even. Coal certainly doesn't fluctuate nearly as much and we have, as I understand, 250 years worth of coal in North America.

What can we anticipate with the price of coal versus the price of natural gas? Do you have your soothsayer hat on?

MR. ROLFES: That's probably a good analogy. One of the long-range concerns is natural gas and coal are competing so if natural gas prices go through the roof, coal may want to take some of the gravy that goes with that.

But because we see competition -- there's a number of mines in the Powder River Basin all producing this similar type of fuel -- we believe that competition will minimize some of that impact. But if the cost of natural gas doubles and triples, we know there will be some influence on the coal price, but we expect it to be much, much, much smaller than what we see in natural gas.

71

CHAIRMAN HANSON: Thank you. I'm curious about the increase in rail traffic to the area. Perhaps I missed it in the presentation. Approximately how much additional traffic will there be, cars, trips through, things of that nature?

MR. ROLFES: These are real simple numbers. Currently the existing unit gets a train on the average every other day. When Big Stone I was built and operated on North Dakota Lignite, lignite is a less dense, lower BTU, higher moisture fuel, and we were using steel cars.

Because of that, when Big Stone was built and for the first 15 years of operation it got a train a day. Now because we're on better coal, we're getting a train every other day. With both units we expect the train traffic level to be back to the level it was in 1975 through 1990 roughly, and that is one train a day. So the area has seen train traffic, you know, that high for 15 -- for a 15-year period with one train a day instead of a train every other day.

CHAIRMAN HANSON: Are you a captive?

MR. ROLFES: Yes, we are.

CHAIRMAN HANSON: Okay. Thank you.

72

Any further questions?

COMMISSIONER JOHNSON: Mark, I thought you did a good job of explaining the potential -- again, this is a question on this particular plant so my apologies.

You talked about the potential overbuild for transmission on the south line. As you look at moving from 115 kV to 230 on the two lines going east, would there be excess capacity created there, first off?

MR. ROLFES: Well, going from 115 to 230 will not yield much, if any, excess capacity.

COMMISSIONER JOHNSON: What would the approximate, you know, approximate cost, marginal cost, of going from -- instead of 115 to 230, going from 115 to 345?

MR. ROLFES: I have the marginal costs roughly from going to 230 to 345, and that's in the neighborhood of $25 million.

COMMISSIONER JOHNSON: Chump chan really. And that would be for both lines, both the southeast and the northeast line?

MR. ROLFES: No. This is only looking at 345 for the south line. And the south line parallels the Coteau Hills and the north end

of the Buffalo Ridge. So it's the area where we would expect the region to need additional capacity.

The line that runs north to Morris is not a prime wind development. We don't expect the needs, the regional needs, to justify anything more than 230 on that line.

COMMISSIONER JOHNSON: Okay. Perfect. Thank you.

VICE CHAIRMAN SAHR: Mark, one last question. Have you looked at all -- obviously this is a major investment. Have you looked at any sort of potential rate impact?

For the investor-owned companies we do set the electricity rates. Do you see any expected increase, decrease, so on and so forth? We'll take a decrease but --

MR. ROLFES: I can probably assure that there won't be a decrease because of this. Each utility looks differently. I don't know, Stacie, if you are in a position to comment. I don't know, to be honest.

MS. HEBERT: Like Mark said, each utility is taking a look at that on an individual basis, and that's something that we're working on

as part of the Minnesota certificate of need process, but I don't have anything available for you right now.

VICE CHAIRMAN SAHR: Thank you.

CHAIRMAN HANSON: Thank you.

(A short recess is taken)

CHAIRMAN HANSON: Ladies and gentlemen, I have just a couple of announcements before we get on our way with public testimony. The first is that we do have a sign-up sheet as we explained earlier. You will need to place your address on the sign-up sheet if you wish to receive any of the mailings so please be sure to do that.

Right now, however, the sign-up sheet is up here with Cheri. You can go ahead and sign your name a second time with the address if you haven't already on a sheet back there in case you don't find your name back there.

When we take public testimony you will obviously need to use your outside voice. Pretend you're an auctioneer at an auction. You don't have to speak quickly. We prefer you enunciate, and we have an opportunity to hear you. We want everyone to have an opportunity to be a part of this and to hear what is being said.

Would you please -- if you are having trouble speaking loud enough, you may see a few folks like this (indicating). It's very important that the court reporter be able to hear what you're saying so if you're having problems projecting and you see some hands cupped to our ears, you will move up here, please, and speak in the general direction of the Council and the court reporter.

COMMISSIONER JOHNSON: I'd just make one other comment. Chairman Hanson did make a good point about the importance of signing in. I'd add one more reason. That's really our public record of who was here tonight, who in the community and the region felt it was important enough to come out.

Even if you don't say anything, we'd be interested in making sure we have your attendance noted.

VICE CHAIRMAN SAHR: Mr. Chairman, may I add one more thing? I'm just curious, show of hands for my sake how many people are in favor of the plant or feel good about it right now?

(Hands are raised)

VICE CHAIRMAN SAHR: The utility guys up front for the utility, you better raise

your hand. Thank you.

CHAIRMAN HANSON: I also noticed a number of elected officials who are in the audience, and I'd like to point out that Val Rausch and Steve Street, Representatives, are here, if you would raise your hand and say howdy.

Additionally, Jim Peterson, State Senator, I believe I saw him. And County Commissioners, I saw a group of them conspiring somewhere. We'd like to say hello. Acting Mayor Don Larson from Milbank. There you are. As well as Mayor Deb Wick from Big Stone. We appreciate very much having you here this evening.

Bruce Gerhardson would like to make a couple of comments, address the captive coal issue before we get in with the public testimony. You can fault me for asking that particular question.

MR. GERHARDSON: I'll actually -- if you don't mind, if you're not sick of Mark Rolfes, I'll have Mark speak to it. Mark is I think in many ways better than I. I will certainly fill in if you prefer.

CHAIRMAN HANSON: I was informed that you needed to address that issue. Thank you.

MR. ROLFES: When the question was

asked about captive rail and I just responded as yes but maybe a little bit more explanation so everybody understands what we're talking about and the process.

Right now the existing Big Stone I unit and the proposed Big Stone II unit can only receive rail deliveries from the Burlington Northern Sante Fe Railroad. So when we say we're captive it means we only have a single rail supplier we can go to. There is not competition.

Just a little sidelight to that. There is an organization referred to as the Surface Transportation Board. It's what used to be the Interstate Commerce Commission, but now it's the Surface Transportation Board that's supposed to regulate disputes when a customer feels that they are being overcharged by the railroad.

And currently we are involved in a Surface Transportation Board case that's pending. In fact, we expect a decision very soon. That is a very long and tenuous process that we have been at for many, many years. It's a very cumbersome process. That proceeding will set the tariff rate for a 20-year period for fuel shipments.

So we are captive, one supplier that does --

has the ability to have monopolistic tendencies, and our remedy is to go to the Surface Transportation Board for setting of our rates, which is a long, cumbersome process.

CHAIRMAN HANSON: Thank you very much, Mark. We'll give the public testimony portion of the hearing. We'll appreciate hearing from any citizens who wish to speak to the Commission at this time.

MR. SOKOLSKI: My name is Adam Sokolski. I represent the Izaak Walton League of America. We've got members all across the country, including several major chapters here in South Dakota as close as Watertown. I'm going to ask that my written comments be added to the record of today's hearing. I'm going to go ahead and insert some handwritten -- not notes but corrections to it.

I'm an energy associate for our Izaac Walton League's Midwest Office in St. Paul, Minnesota. I work on energy issues throughout the region together with our partners for Minnesota For Energy Efficient Economy, The Union Of Concerned Scientists, and -- excuse me. Intending to intervene in the South Dakota Public Utilities

Commission proceeding regarding the Big Stone II project.

We have concerns about the proposed Big Stone II power plant, not the least of which that it would be a substantial increase in carbon dioxide emissions over today's. This is an environmental issue and a financial issue. The world's emerging response to global warming will inevitably transform the regulatory climate in the years ahead. These new laws will in turn change the economics and the technology of electrical production.

This will make high carbon energy sources relatively more expensive than they are today, while low carbon energy sources become better and cheaper through technological advanced economies of sale and government initiatives.

The Big Stone II partners have proposed a high-risk, high-cost power plant when you consider the ratepayer costs that are likely under a carbon-capped regulatory scenario. Just this summer the United States Senate passed a resolution nonbinding supporting, "a comprehensive and effective national program of mandatory, market-based limits and incentives on emissions

of greenhouse gases." The regulatory path ahead puts a hefty price tag on proposals such as Big Stone II.

In fact, Otter Tail Power is one of the main proponents of the project. Their largest customers in Minnesota, Enbridge Energy Corporation, which is a large natural gas pipe line as well as an oil pipeline, is seeking to insulate itself from the high costs and risks of future fossil fuel regulation from investments such as Big Stone by seeking from Otter Tail a long-term contract that is keyed into the costs of a new wind power development in the other Dakota, North Dakota.

The Izaak Walton League, Minnesotans For An Energy Efficient Economy, and the Union Of Concerned Scientists appreciate the opportunity to participate in the South Dakota PUC's proceeding. Thank you.

And may I add this to the record?

CHAIRMAN HANSON: Yes.

(Exhibit 2 is marked for identification)

CHAIRMAN HANSON: Is there any further public testimony, please. You may also ask questions if you have any concerns.

MS. WHITE: Thank you for allowing

me to speak tonight. My name is Deanna White, and I am with the Sierra Club, and I'm here on behalf of the several thousand members in the Sierra Club that live in South Dakota and in Minnesota.

I had a couple of questions about the presentation that I'd like to I guess get into the record. My comments aren't as neatly typed and organized as other folks, but there were just a few thoughts and concerns that I wanted to make sure were part of the record.

Sierra Club has submitted official comments in writing as part of the scoping process, but I wanted to just hit some of the highlights and concerns and we'll make sure copies of our written comments were also submitted to the PUC for your perusal.

First, in terms of the questions on the presentation, I was a little confused and math isn't my strong suit and never has been but I noticed that on the MAPP deficit diagram there was an awfully sharp move from, you know, the plus side to the negative side. And I didn't see why that was, why all the sudden in, you know, 2007 I believe it was that number just suddenly became a deficit. So I'd be curious to know more about

that.

I'm also very encouraged to hear that some of the emissions might be cut by as much as 50 percent of current levels, and I would hope that efforts would be made in Big Stone I or the existing Big Stone Plant to cut those emissions with or without Big Stone II. I think that if that technology exists, which is what you're telling us this evening, I would hope that you would consider that option.

And the other concern that I had or question that I had when you were going through the environmental impact specifically as well as the community impacts that this proposed plant would have is it seemed like you were really looking just at the footprint for the actual building of the plant, and I think it's important for the Commissioners, for the public, and for the folks at Otter Tail to consider the broader impact. Because that is where most of the concerns that folks have with the building of this plant lie.

You're talking about, you know, more trains. You're talking about the effect that's going to have as those trains travel through communities well outside of your 20-mile radius. You're

talking about potential increases in other criteria pollutants including mercury which is going to spread far beyond the immediate community of the plant and the holding pond.

And, you know, we think that there are some real concerns about the impact that that's going to have on the health of folks that live within the area of those pollutants are going to be part of the air that they're breathing. That's going to have an impact on their health, going to have an impact on our economy, not just in terms of the increased costs in hospital visits and asthma and other problems that folks are going to be facing that are going to contribute to increased hospital visits and other problems, but, you know, I grew up in South Dakota. We hunt and fish. We're outdoors. Those rivers, streams, lakes are incredibly important to us. We're already seeing problems in Minnesota that are creeping into South Dakota with mercury pollution in our lakes and streams that has an impact not just on what I get to do on the weekend but it has a huge impact on the tourism that has a fundamental base for small communities in rural South Dakota.

I'd encourage you to really consider that

impact as well and the potential impact on tourism and our quality of life as well as the global warming impacts and all of the other things that I know folks are going to be talking about tonight.

I think just to keep it short because it's getting late, why are we committing, you know, another 40 years and another billion dollars to a technology that's already out of date? We need to be exploring other alternatives to coal and other alternatives to building new polluting coal fire power plants. We should be investing in alternative energy. We should be investing in energy efficiency, and we should be looking at other alternatives instead of trying to do the same thing over and over again.

Thank you for your time, thank you for your attention, and I'll make sure we get copies of our official comments for your record.

CHAIRMAN HANSON: Thank you, Diana (sic). And I think it's appropriate to have answers to those questions at this time. I believe the Commissioners didn't ask the question. It's a very good question about the reduction in generation. The Commissioners didn't ask that question because we knew the answer. Certainly

we'd like to hear from Otter Tail and -- excuse me, Big Stone, whomever.

MS. HEBERT: The question that Diana raised had to do with the steep increase in deficits that's seen in the MAPP power pool beginning in 2010. There's really three reasons, three drivers behind that decrease. One of them being load growth of the utilities. The second one could be retirement of existing generating plants that have reached the end of their useful life and so no longer are going to be generating electricity. And the third possibility, a lot of utilities in MAPP have capacity purchases from other utilities. So another factor is that they may have capacity purchases that expire in that 2010, 2011 time frame and out beyond that too. So those are three reasons why the amount of capacity available could be shrinking going forward.

CHAIRMAN HANSON: Stacie, is that a MAPP-generated graph that you presented?

MS. HEBERT: That is not a MAPP-generated graph. That's a Big Stone-generated graph. But that data is pulled from the Midcontinent Area Power Pool website, and that reference is included in the application.

CHAIRMAN HANSON: Thank you. Other questions for were emissions reductions and a desire to see additional emissions reductions and concern for environmental impact outside of the immediate area of the plant.

Could you address that for us, please.

MR. ROLFES: Just to make things as clear as possible, in our presentation we talked about a joint scrubber. What that is is a scrubber that will scrub the emissions from not only the new unit but the existing unit.

And I want everybody to be very clear that the rules and regulations and such in place today do not require that. All we would have to do is build Big Stone II to the standards that are applicable.

We are proposing to make this a better project by building a scrubber that is twice as big and taking the exhaust gases from Big Stone I to that. So even though the output from the site will more than double, SO2, which is the primary pollutant removed by the scrubber, will probably be roughly 15 percent of what it is today. We're reducing it by 85 percent.

The other pollutants that people are normally concerned about, nitric oxide and mercury, we're

making -- the scrubber and other changes will ensure that the emissions are no greater -- either less than or equal to what is coming out today.

So for SO2, NOX, and mercury the effect on the surrounding area can only be positive from where it is today.

CHAIRMAN HANSON: Thank you very much. Are there further questions or comment at this time? This is not necessarily just opponents by any means. We're interested in hearing what people have to say.

MR. KEEGEL: Commission members, thank you for coming down this evening. It's a long distance to be and a late evening. Concerned members of the community, thank you for taking a few moments here.

My name is DeWayne Keegel. I work for Missouri River Energy Services, otherwise known as -- our financing arm is Western Minnesota Municipal Power Agency, one of the owners of this potential project.

On behalf of Public Power I was asked to deliver, you know, a brief statement of our member communities. We represent 59 municipalities within the State of Minnesota, South Dakota, Iowa, and

North Dakota. Of that, 22 of our member communities are in the State of Minnesota, 12 in the State of South Dakota. We serve on their behalf. They are not-for-profit agencies, as we are, so we try and represent their interests.

Their three primary concerns are, number one, that we produce energy for them in a very environmentally friendly manner. Two, that we do that at a very cost-effective rate and that we do that in a very reliable format.

We're excited about the Big Stone opportunity because, number one, from an environmental standpoint we're more than doubling the generation from the existing site, and we're reducing the emissions output. That meets one of the criteria from our members. They're quite excited about that opportunity.

Back in 1980 we built our last generation resource in Wheatland, Wyoming in Laramie River Station. That unit has met our members' needs from 1980 until 2009, where in 2010 we go into our generation deficit which we see in the MAPP Region. So from our member communities we see the same types of things that have been reported as you'd expect as members of MAPP.

Currently we continue to build those types of reserves in the peaking power facilities where we're utilizing natural gas. That we see as a stopgap to meet our reserves. Our member communities also have integral programs for integrating wind resources into the community. We see the potential opportunities from the new transmission lines as also contributing to the further development of those types of resources.

So on behalf of Public Power what we'd like to state is that we see this as a very viable opportunity for providing cost-effective, reliable energy that takes into account the environmental issues well into the future.

We anticipate this resource to contribute to the needs of our members, those nonprofit people who elect the boards that direct us well into the future as much as 50 years. So on behalf of Public Power, that's what we'd like to state.

Thank you, folks.

CHAIRMAN HANSON: Thank you. Further comment?

MS. WERDEL: Good evening. My name is Nancy Werdel, and I work for Western Area Power Administration. The project applicants have come

to Western for an interconnection request, and as a result of that, Western will be preparing an Environmental Impact Statement under the National Environmental Policy Act, which is a federal law for federal projects. And because of their interconnection request this is part of a federal project.

I just would like to remind the members of the public who are in attendance and other organizations that there are actually five separate processes that they need to be engaged in for this project, including the PUC's plant siting process, as well as the State of South Dakota's transmission siting process. And the State of Minnesota has two processes for their certificate in need and also high voltage transmission project.

Some of those are in various stages of the permit processes, and please make sure that you engage in all of those processes so that you can provide your comments.

And Western has a website where we will be providing information on the EIS at www.wapa.gov, and look under the interconnection projects.

That's all. Thank you.

CHAIRMAN HANSON: Thank you, Nancy.

Further comment, please. Good evening.

MS. MEYERS: Good evening. My name is Nettie Myers. I'm the President of Utility Shareholders of South Dakota representing over 2,000 members of utility shareholders of the investor-owned utilities in South Dakota, and we wholeheartedly support this project.

Thank you.

CHAIRMAN HANSON: Thank you. Further comment, please.

MR. LIEBE: I'm a local resident. I'm also a member of the Board of Directors of Utility Shareholders. I'm not here in that capacity. I'm here as a consumer, a shareholder, and a concerned citizen.

I am definitely in favor of this project from the -- I was at the energy seminar that was put on at the PUC in Sioux Falls, and the demonstration of the need for power is great and if we're going to expand in our community, farm communities, rural communities are going to grow, I'd like to see people pushing for something rather than being against all the time. We're against this, we're against that.

We hear the most efficient electric energy

would be nuclear energy. And yesterday or the day before I heard on TV that the effects of Chernobyl, the accident that was so great, it was so great, is actually very minimal. It was a percentage of what they said it was going to be. And I'd like to see people be in favor of something rather than against it, against everything and cause everyone else a lot of extra expenses and stuff to get something through that we need for our community, our area, to grow economically. And I'm definitely in favor of this project.

CHAIRMAN HANSON: Further comment, please.

COMMISSIONER JOHNSON: If you gentlemen are the Three Musketeers, we're the Three Stooges.

MR. PETERSON: For those of you who don't know, I'll begin because I'm the senior member of this group. I'm Jim Peterson, State Senator, District 4. We want to welcome our PUC people. It's great to have you here. We really appreciate it.

And I just have to welcome Chris Madsen back. Chris and I sat one chair apart my first year in the house, and I really respect that gentleman. I

just wish that he would have stayed and he would have been our speaker, but he's a tremendous asset to whoever got him here.

You know, when we looked at this during the legislative session there were a couple of things that we were looking at. One was the economic development, and everybody has heard about the economic impact to the community. You've heard about the jobs. You've heard about the workers that are going to come in, how it's going to benefit the restaurants and everything else.

Tonight you heard about a potential development that can occur from Milbank and for 40 miles south. We have the Coteau Hills running through Grant County, Deuel County down into Brookings County, one of the prime wind areas of South Dakota. Mark told you that this is being overbuilt going south. There's a tremendous potential. Every megawatt of wind costs about $1.3 million dollars. A lot of farmers down in Deuel County are really excited about maybe being able to add wind generation on.

Another thing that we looked at was the environmental impact. And Mark explained tonight about how this is going to be a win-win situation

for our district, for our area, because the total emissions from both plants will be less than the current plant. The nitrous oxides, the sulfur dioxide, mercury, it's all going to be less.

It's a win-win deal. It had tremendous legislative support. There was almost unanimous support for the incentive bills that we came up with. And we feel it's great for the community. We feel that Otter Tail has been a tremendous asset, and we really want to see this project go forward.

I'll let the other guys speak. Go ahead, Val.

MR. RAUSCH: Get in between those two Democrats. They do look out for me. It's a wonderful working relationship that we have as Representatives of District 4 in the Senate and the House, and Senator Peterson is absolutely correct. It almost was complete unanimous. Statewide looking at this type of project, at the opportunities to bring more people into our state, not just to work, some will come to live, but just a -- in the future an extra value added to our property.

We always think of we're an ag state. We're an ag state, but we finally have another

opportunity for the largest private construction project in the State of South Dakota, $1 billion. And the revenue that that's going to generate for all of us in the state and the ones that are our neighboring states at least through the construction, just a great opportunity for us.

And Senator Peterson's right. Environmentally we looked at all of those things, and we just couldn't see where it was a lose situation.

Is there some downsides in big construction projects and a bunch of strangers coming in? Yeah, there is. But we did it 25, 30 years ago, and they've been a great neighbor for 30 years. They've been active in our communities, and they have treated us well.

They've continued to put money in that plant when the EPA and those things haven't required them to do so because they want to be a good neighbor. They want to run a good facility. We're glad to have them as a neighbor. We're here to support the project and give them whatever help we can from our roles and give our constituents what I think we all want and that's growth in our areas and a more sound economy. Thank you.

MR. STREET: I concur with the

gentlemen's statements. I speak as a neighbor. I live 18 miles south of the existing facility. My role as a state legislator, we've supported this project. I'd like to go on record as congratulating Mark Rolfes and his crew doing a wonderful job of creating a plan for a very environmentally friendly electrical plant. They've done a great job.

Really the relationship I can speak most about is our representing Northern Lights Ethanol. We exist on the property of Big Stone I. We lease our land from them. We've been in business with them for six years now. Over the course of those years, of course, we've run into some problems. And it's solving those problems -- that's where they really shine. The utmost professionalism when you have problems with them -- not with them, but when problems creep up they get solved in a very professional manner, and I think that speaks well of both parties. It's just been a good relationship.

And I'd just like to go on record again as congratulating Otter Tail for doing a wonderful job, Mark, and the rest of you. Way to go.

CHAIRMAN HANSON: Thank you.

Further comment, please.

MR. TUCHOLKE: After the team approach, this isn't going to be as exciting. I'm Clayton Tucholke, Gene Mann, Grant County Commissioners. We'd like to welcome you to Milbank and Grant County, appreciate you coming up.

We've been around I guess representing the Commission. We've been involved in this right before the start back before anybody else heard about it, the Commissioners do, and our questions have been answered. We're very supportive of what's happening, especially looking back the 30 years we've been involved and seeing the other one built and looking forward to this one here coming to Grant County for the need for the power. And it will be a great thing for our economy in the future.

MR. MANN: I'm Gene Mann and also a County Commissioner, and I guess one thing that has struck me tonight that I just really thought of, I've been a Commissioner for 15 years and Chairman of the Planning and Zoning Board for 15 years, 12 years previous to that on the City Council. And I have never heard a Complaint about the way the power plant out here has been operated.

And as far as I'm concerned, it's a classy outfit, and they bend over backwards to cooperate with everybody around.

Thank you.

CHAIRMAN HANSON: Thank you, gentlemen. Further comment this evening?

MS. STUEVE: I'd like to take up the challenge the gentlemen presented about can we push for something. Yes, we can, and I will push for something. We can do more. We can do better. We can do bigger. We can win bigger.

I am Mary Joe Stueve, S-T-U-E-V-E, and I am here in two capacities tonight. I just joined on with Clean Water Action South Dakota out of Sioux Falls. And I have information here that I would like for the record that I will present.

But I'm also here in the capacity -- I've raised my four children on a family farm in between Big Stone County and Traverse County in Minnesota 24 years. I have grandchildren. I have a home in Graceville, Minnesota. Me and my family and our children, we live there off and on. We come back. We intend to move back. I have a home there, I have land there, and I have an interest in what's going on here.

I will pass these down. I'll place extra copies in the back for those of you who want to pick them up. And, for the record, these are a synopsis of the comments we presented earlier as an intervening party. And here's contact information.

I'll be the first to admit I like my electricity and I use it. Four children. I'm on the farm. We had ice storms. We had power go out for four or five days and no way to get into town. I know what it is to have electricity, and I appreciate it. I will be the first to admit it.

Do we know that South Dakota is considered and has been rated as the Saudi Arabia along with the other Upper Midwest states, the Saudi Arabia of wind energy?

Fact: South Dakota has a potential power output of 117,200 megawatts. That's the equivalent of 195 coal plants the size of proposed Big Stone II. We have that capacity, that availability. Some will say it's not reliable.

Fact: There's a plant going up, the final report came in in June just this last year, and it's called Compressed Air Energy Storage. This plant is going up down in the Oklahoma, Texas, New Mexico area. They are putting this --

implementing this in. It's Compressed Air Energy Storage, CAES. It will go online in year three.

I spoke with Dick Kelly this morning, CEO of Xcel Energy. After he got done speaking I said, Do you know about this? What does Xcel think about this? Yes. He says, That's key. That's key.

South Dakota could tap this, could look into this Compressed Air Energy Storage. It a three-year time frame to get it on. We have the underground storage to be able to put the air in to bring it out at high market demand time and to be able to -- we have the coal plant. It's usually a dual operation.

I urge the Commission to look at Compressed Air Energy Storage. I can get you the report site, the document. It's titled The Economic Impact of CAES on Wind in Texas, Oklahoma, and New Mexico.

The other things I would like the Commissioners -- and I appreciate you coming tonight. I appreciate the opportunity to speak and to hear what everyone's talking about. Some concerns and questions I had with the earlier presentation:

On the mercury, correct me if I'm wrong, please. I heard you say we would be at the same or

lower levels of mercury emission with the two plants.

MR. GRAUMANN: That's correct. That's our target.

MS. STUEVE: I might ask at this point in time, please correct me again if I'm wrong, but Big Stone I was grandfathered in before the new emission guidelines came out with mercury emissions and the new guidelines are lower and the older plants operate at 4 to 13 times higher than the new required emissions for the plants that were not grandfathered in. So will we still be above the new guidelines if we are operating at 2004 levels?

MR. GRAUMANN: Your understanding of that isn't entirely correct. When EPA developed the new mercury rules in 2005, March of 2005, they did actually two things. They established emission rates for mercury for new plants. They also established the national cap and trade system for mercury. And they allocated allowances to each of the states as a part of that particular process.

South Dakota's allocation is about 144 pounds based on the standards for beginning in 2010. And in 2018 that drops to 58.

And so in absence of any controlled technologies, Big Stone I would have a choice of either, one, buying allowances, or, two, scrubbing or doing something to reduce the mercury emissions down to those levels because we -- that cap would apply then to our particular units. We couldn't do anything, we couldn't emit anymore mercury than the cap would allow, otherwise we'd be in violation of the rules.

And so there is an apples and oranges comparison, but to say that Big Stone I is not going to be controlled, that's incorrect because they will need to meet the new mercury levels either by buying extra allowances above the 144 or doing something to get down to the 144, if the allowances are all distributed to Big Stone I. And that's not our decision. That will be the State of South Dakota's.

MS. STUEVE: It will be contingent on the decision.

(Discussion off the record)

CHAIRMAN HANSON: Please, go ahead.

MS. STUEVE: Okay. Another concern and something I would like to be considered, total maximum daily load, TMLD. I'm certain South Dakota

and Minnesota guidelines are different, although we do share the same wonderful lake, Big Stone Lake.

And I'm not familiar with the rules and regulations. I would like that to be considered as part. In Minnesota we have a court case and development was halted down near the suburban metropolitan area. Development was supposed to occur, but it would impair a river down there that was already -- it would further impair it. And when it's listed as being impaired certain projects that would add to the pollution to it are not allowed to continue. That would need to be looked at. Big Stone, Little Minnesota, potential rivers coming out from there. And it has to be more than just the adjacent. It's at least a 50-mile radius.

The other one would be the job curve that you showed for the Big Stone Plant. And we do need jobs. We do need development. Any of you who have not been down to the Lake Benton area and seen what has happened to the local economy, the community down there, I urge you to take a look at that and see what has happened with the wind power development down there.

The job curve that you showed went up and down, the bell curve; correct? I would like the

Commission to consider and to be part of this study, economic impact. I have a guess that the job curve for the wind development potential would be a curve up and it would plateau and keep up.

We heard from the tour that for every one to 20 turbines there's at least three jobs and there's hundreds -- we have the potential for thousands of windmills across South Dakota and a development and sustainability of jobs.

I have many other things. I thank you for your time, though. Most of the other comments and concerns I have as a citizen and as Clean Water Action are in the written comments we submitted.

CHAIRMAN HANSON: Thank you, Mary Joe. And we will mark those as Exhibits 3A and 3B, 3C.

(Exhibits 3A through 3C are marked for identification)

COMMISSIONER JOHNSON: For anybody in the audience that just because you don't take an opportunity to speak tonight doesn't mean this is your last opportunity for input. Certainly we would welcome written comments at the Commission as well. That's it.

CHAIRMAN HANSON: Thank you. And, Nancy from WAPA, would you please make an attempt,

if you can -- if you cannot, just tell me -- as Mary Joe was stating some of her concerns pertaining to the environment and whether or not information would be provided outside of certain areas regarding certain specifics as she went into, will the Environmental Impact Statement that WAPA is entering -- is going through address those issues?

MS. WERDEL: One thing about the federal EIS is it looks at all of the different parts of the project rather than just the specific part. So it will look at the project as a whole and the impacts as a whole and provide a study of all the impacts throughout the general area.

CHAIRMAN HANSON: Will it also include the lakes, streams, river that she was referring to?

MS. WERDEL: It will have water quality impacts as part of that study. And I took a couple of notes, and we'll take those back and put those as part of our scoping as an inclusionary thing into the EIS.

CHAIRMAN HANSON: Thank you very much. Thank you very much.

MS. STUEVE: I will put extra copies

at the back table.

CHAIRMAN HANSON: Further public comment, please. Close to the auctioneer saying sold here. So if you have a desire to speak, this is the time.

Ladies and gentlemen, the Public Utilities Commissioners appreciate your attendance, and we know that this is a very important issue regardless of whether you're on the left side, right side, or you're walking down the fence on this issue, just attempting to learn more.

We recognize that sometimes it can be an emotional issue. We very much appreciate the dignified and respectful fashion in which you have testified here today. The information that's been provided we feel is very valuable, and at this time we will conclude the meeting.

Excuse me. Before I do that, Commissioner Johnson made an excellent point. Please be aware if you have additional information, you wake up at 3 o'clock tonight and think oh, I wish I had said this, please submit that to the Public Utilities Commission. We appreciate that.

That concludes the hearing.

(The hearing concluded at 9:45 p.m.)

STATE OF SOUTH DAKOTA)
:SS CERTIFICATE
COUNTY OF HUGHES)

I, CHERI MCCOMSEY WITTLER, a Registered Professional Reporter and Notary Public in and for the State of South Dakota:

DO HEREBY CERTIFY that as the duly-appointed shorthand reporter, I took in shorthand the proceedings had in the above-entitled matter on the 13th day of September 2005, and that the attached is a true and correct transcription of the proceedings so taken.

Dated at Pierre, South Dakota this 21st day of September 2005.

Cheri McComsey Wittler,
Notary Public and
Registered Professional Reporter

B

C

D

E

F

G

H

I

N

O

P

Q

R

S

T

U

V

W

Sign Up

Big Stone II Sept 13, 2005

[illegible signature]	George J Smith [signature]
Deanna White	deanna.white@sierraclub.org
Duane Ninneman	duaneninneman1@yahoo.com
Gwen Hill	eaglechild52@hotmail.com
Mary Jo Stueve	mjstueve@cleanwater.org
Bill Deb Wiik	dbwk@watmidco.net
Nancy Werdel	werdel@wapa.gov
Scott Schmidt [signature]	
Jay Skaba	jay.skaba@mdu.com
Kyrik Rombough	Kyrik.Rombough@state.sd.us
Thomas J. Welk	tjwelk@bgpw.com.
Ralph Stinson [signature]	Milbank, SD
Don Larson	DLARSON@DPLA.NET
Joel Foster	jfoster@sstel.net
Jim Waney	Milbank
Jim Peterson	Revillo
Adam Sokolski	asokolski@iwla.org
Roger McCulloch [signature]	Big Stone
[illegible signature]	Milbank
[illegible signature]	Milbank
[illegible signature]	Utility Shareholders of SD
Steve [illegible]	Revillo
[illegible signature]	Milbank
[illegible signature]	Milbank
[illegible signature]	Milbank
Jason Kettwig	kettwigj@sstel.net
Bill Even	bill.even@state.sd.us
Val Rausch	Rep. Dist 4 Big Stone City

6727

672

ARVID Liebe Milbank SD

TG. Kreniger 314 E 12th Ave Milbank SD

Mike MACH 511 S. 5th St. MILBANK SD

Jerome Kaiser 14291 485th Ave, Big Stone Cy S.D

ROGER McCULLOCH 48025 145 St Big STONE CITY S. DAK 57216

Jerry Hetle Milbank SD

Gwen Hill 11748 458th AVE SISSETON, SD 57262

Elsie Perrine 521 Stephens Ave. Ortonville, MN 56278

Clayton Tucholke 16221 477 Ave LaBolt SD 5724
ClaytonT@Tnics.com

6728

Cheri Wittler

From: Pam.Bonrud@state.sd.us
Sent: Monday, September 19, 2005 10:49 AM
To: cwittler.precisionreporting@midconetwork.com
Subject: FW: Milbank meeting

FYI
-----Original Message-----
From: Smith, John (PUC)
Sent: Monday, September 19, 2005 11:48 AM
To: Bonrud, Pam
Subject: RE: Milbank meeting

I would do that. I wonder if Sheri needs this? Her email address is cwittler.precisionreporting@midconetwork.com

-----Original Message-----
From: Bonrud, Pam
Sent: Monday, September 19, 2005 11:45 AM
To: Smith, John (PUC)
Subject: FW: Milbank meeting

I suspect we should print this to be a part of the official record for the meeting as they were there representing MRES???
-----Original Message-----
From: Deb Birgen [mailto:dbirgen@mrenergy.com]
Sent: Monday, September 19, 2005 11:17 AM
To: Bonrud, Pam
Subject: Milbank meeting

Pam,

Neither DeWayne Keegel or I were able to sign in before the sign in sheet was picked up. I don't know if you need to add us.

Deb Birgen
MRES

South Dakota Public Utilities Commission

Big Stone II
Energy Conversion Facility
Siting Permit
Public Hearing
September 13, 2005

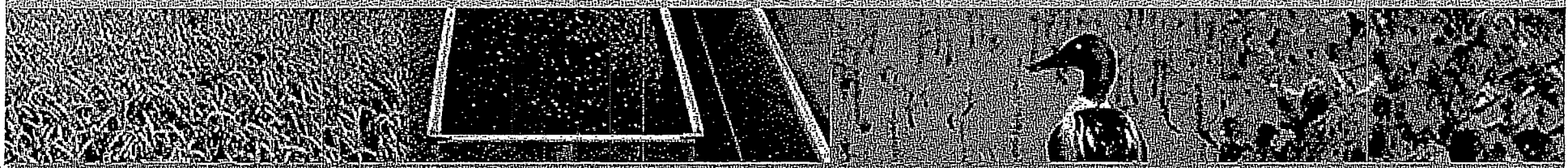


EXHIBIT
1B

6231

Big Stone II Co-owners

OTTER TAIL CORPORATION

MISSOURI RIVER ENERGY SERVICES

HEARTLAND CONSUMERS POWER DISTRICT

GREAT RIVER ENERGY

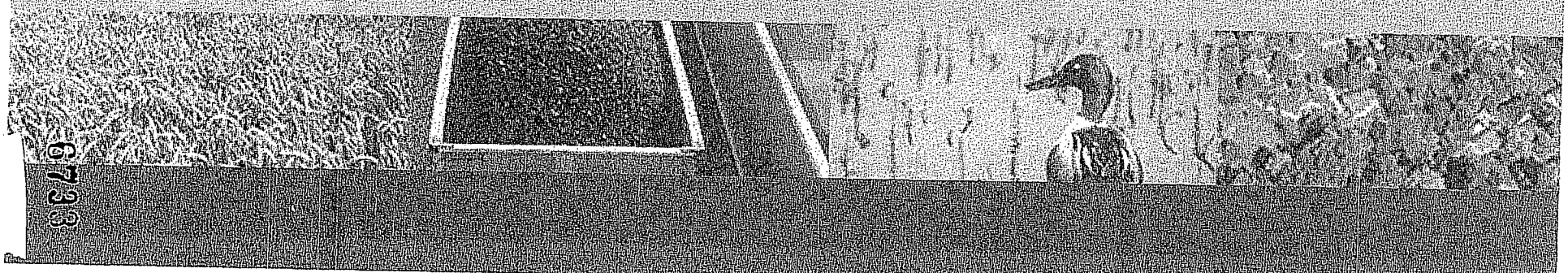
MONTANA-DAKOTA UTILITIES CO.
A Division of MDU Resources Group, Inc.

Southern Minnesota Municipal Power Agency

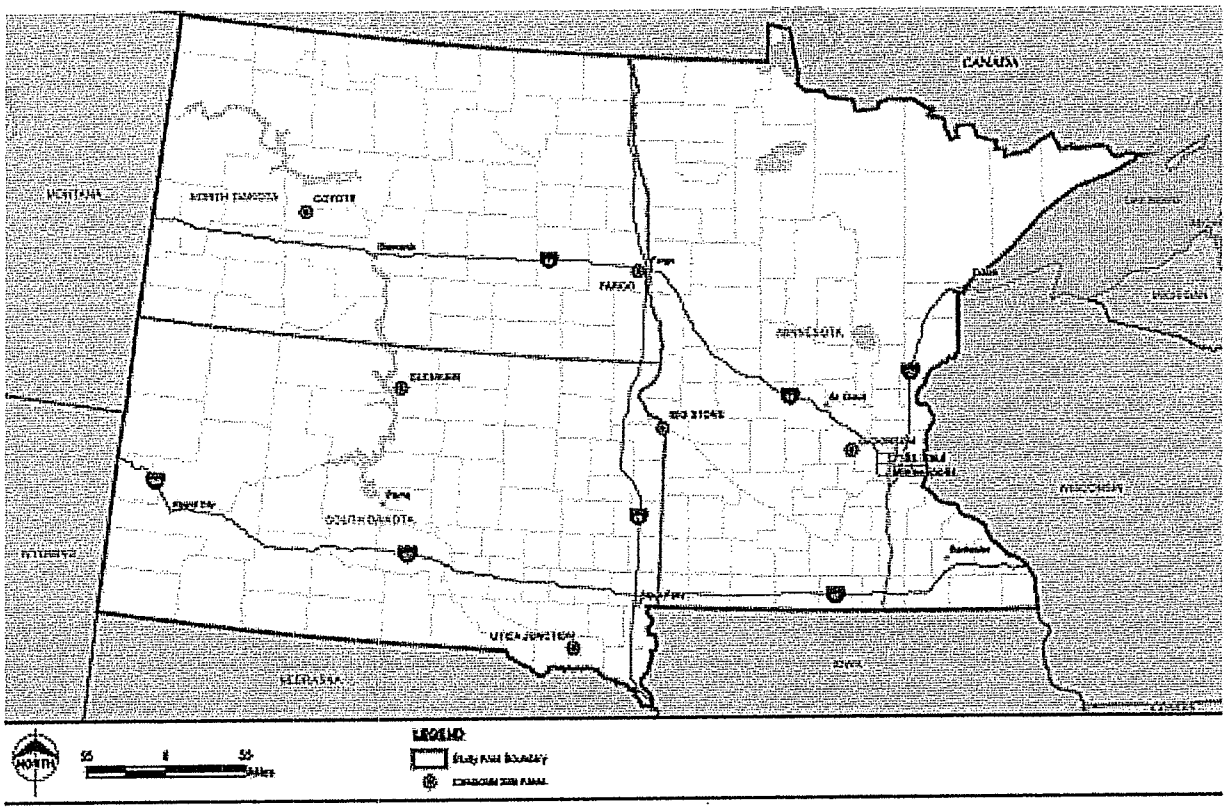
CLPA

Energy Sources Considered

- Wind
- Super-critical pulverized coal
- Atmospheric circulating fluidized bed
- Integrated gasification combined cycle
- Combined cycle gas turbine (natural gas)



Big Stone II Alternative Site Evaluation Study

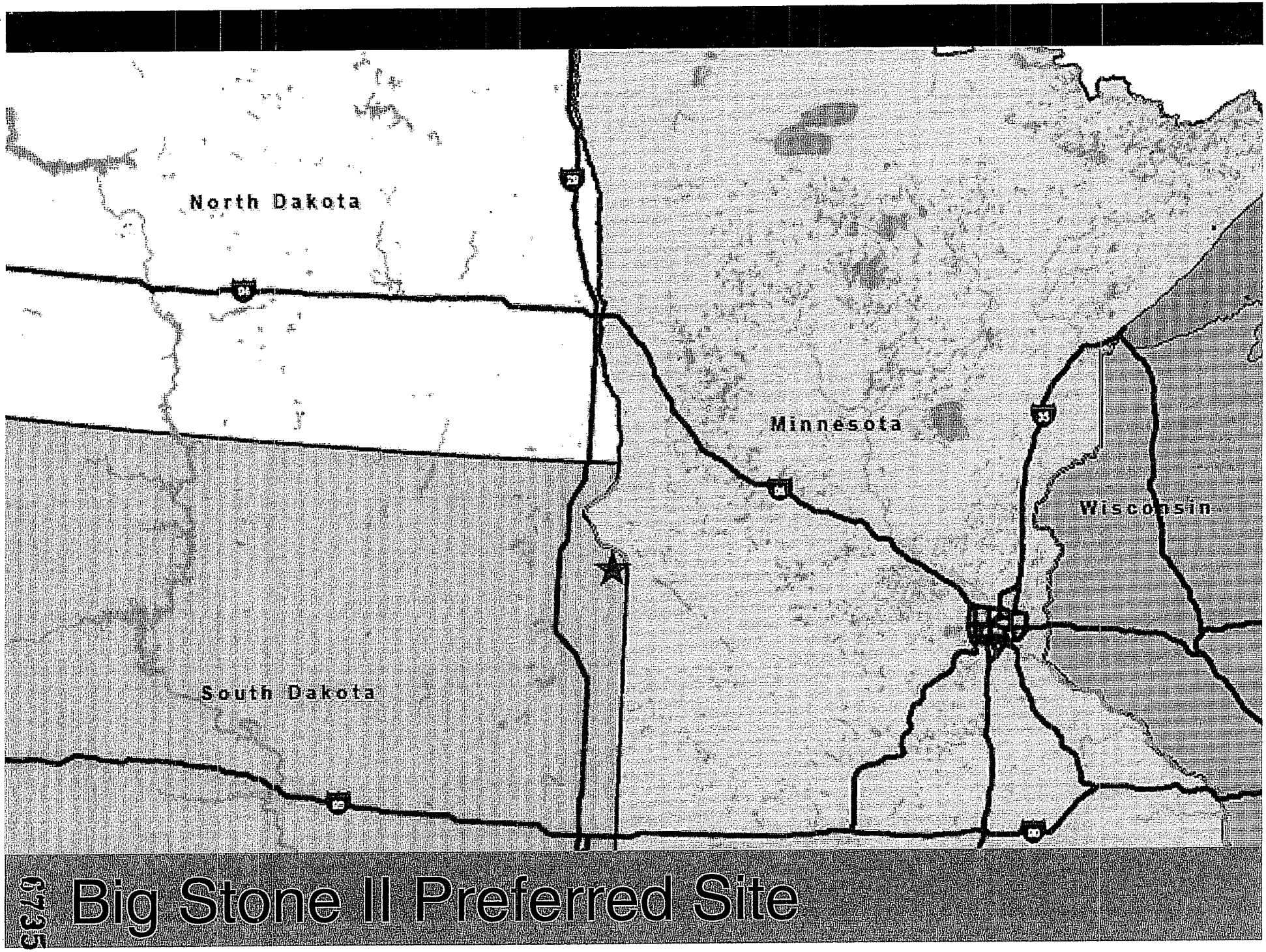


Candidate Sites

- Big Stone – Grant County, South Dakota
- Coyote – Mercer County, North Dakota
- Dickinson – Wright County, Minnesota
- Fargo – Cass County, North Dakota
- Glenham – Walworth County, South Dakota
- Utica Junction – Yankton County, South Dakota

Site evaluation criteria

- Air Impacts: Class I Area and Airspace Restrictions
- Water Supply: Surface Water Proximity and Water Supply Potential
- Environmental: Socioeconomics, Land Use Compatibility, Protected Species Impacts, Noise Impacts, and Wetlands
- Fuel Supply: Rail Line/Mine Proximity, Fuel Delivery Competition, and Reagent Delivery
- Transmission: Proximity to Interconnection Point and Expected System Impacts
- Other: Highway Access, Land Availability and Common Facilities/Staff


North Dakota
South Dakota
Minnesota
Wisconsin
29
94
35
90
Big Stone II Preferred Site

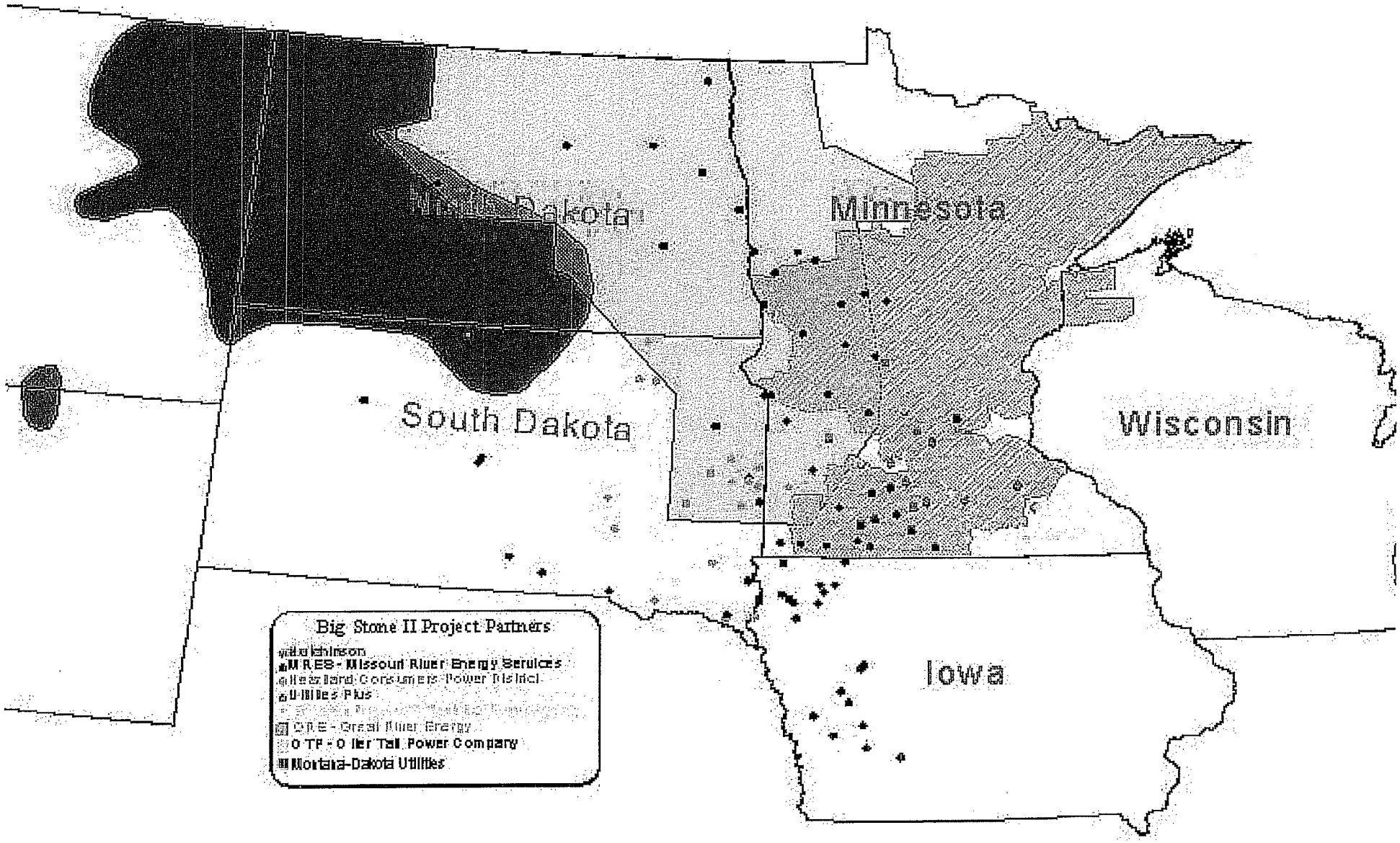


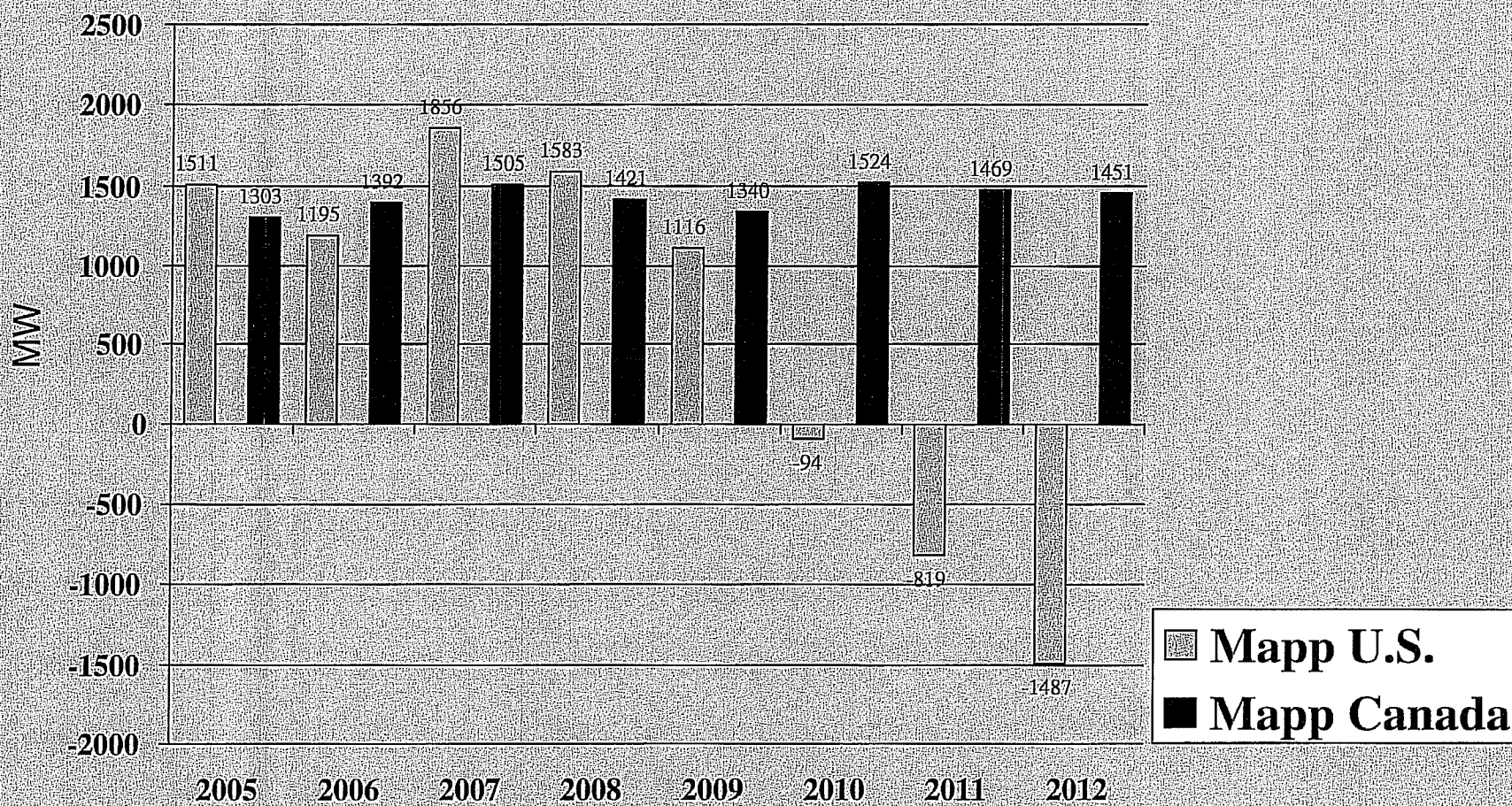
Fig. Co-owners' Service Territories

Facility Need

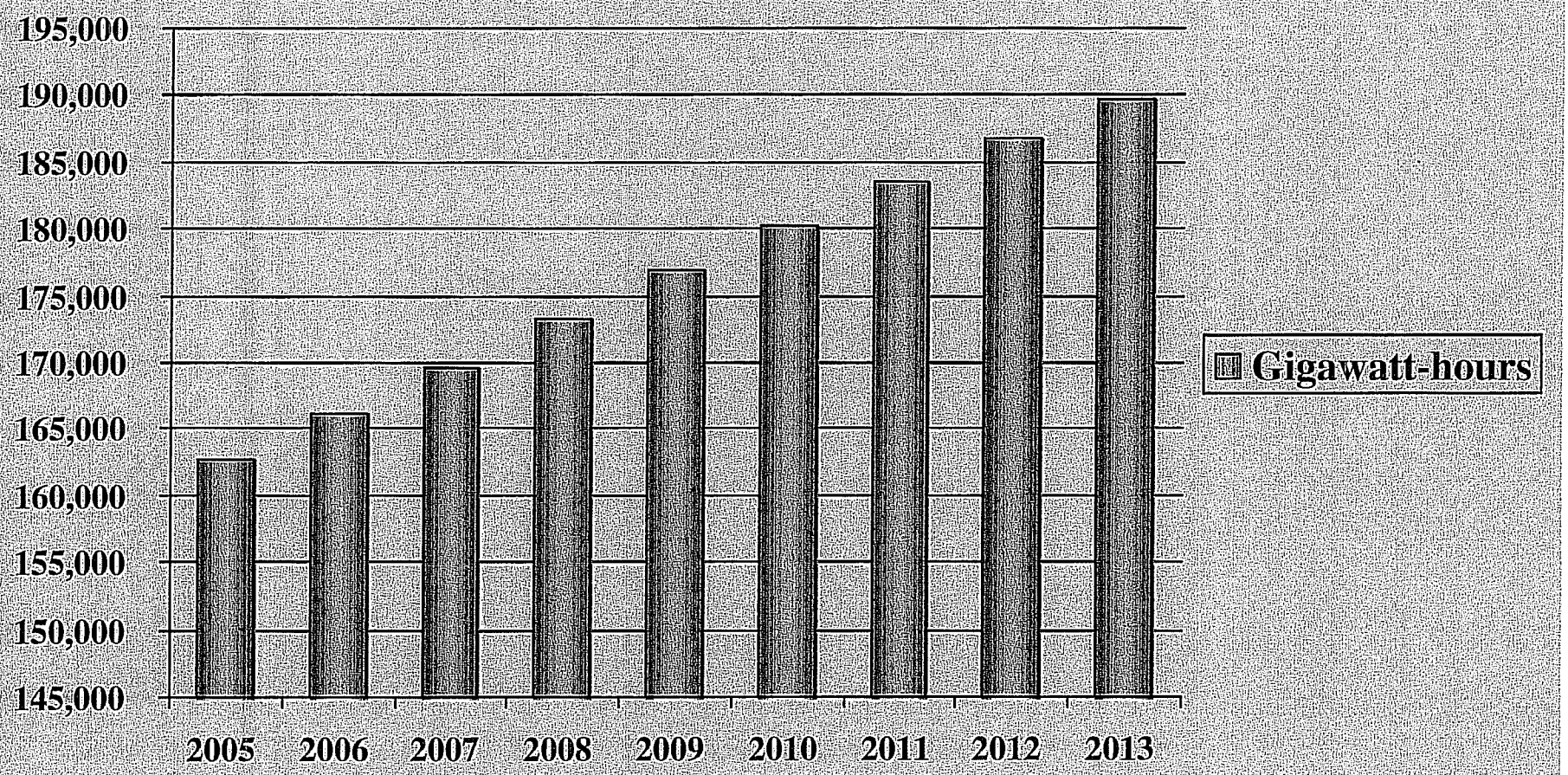
MAPP Region


Saskatchewan
Manitoba
Montana
North Dakota
Minnesota
Wisconsin
South Dakota
Wyoming
Nebraska
Iowa
Illinois
Colorado
Kansas
Missouri

MAPP Surplus/Deficit Forecast



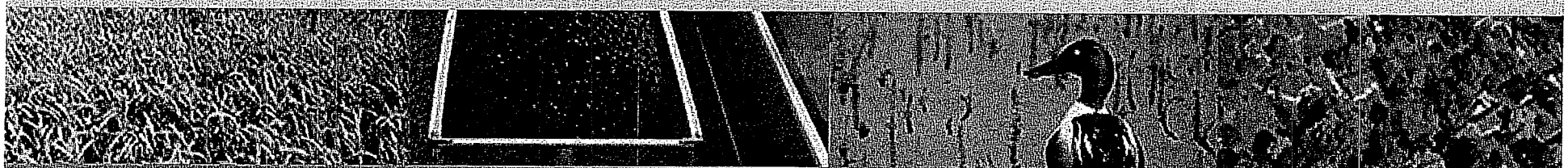
MAPP U.S. Annual Net Energy Forecast

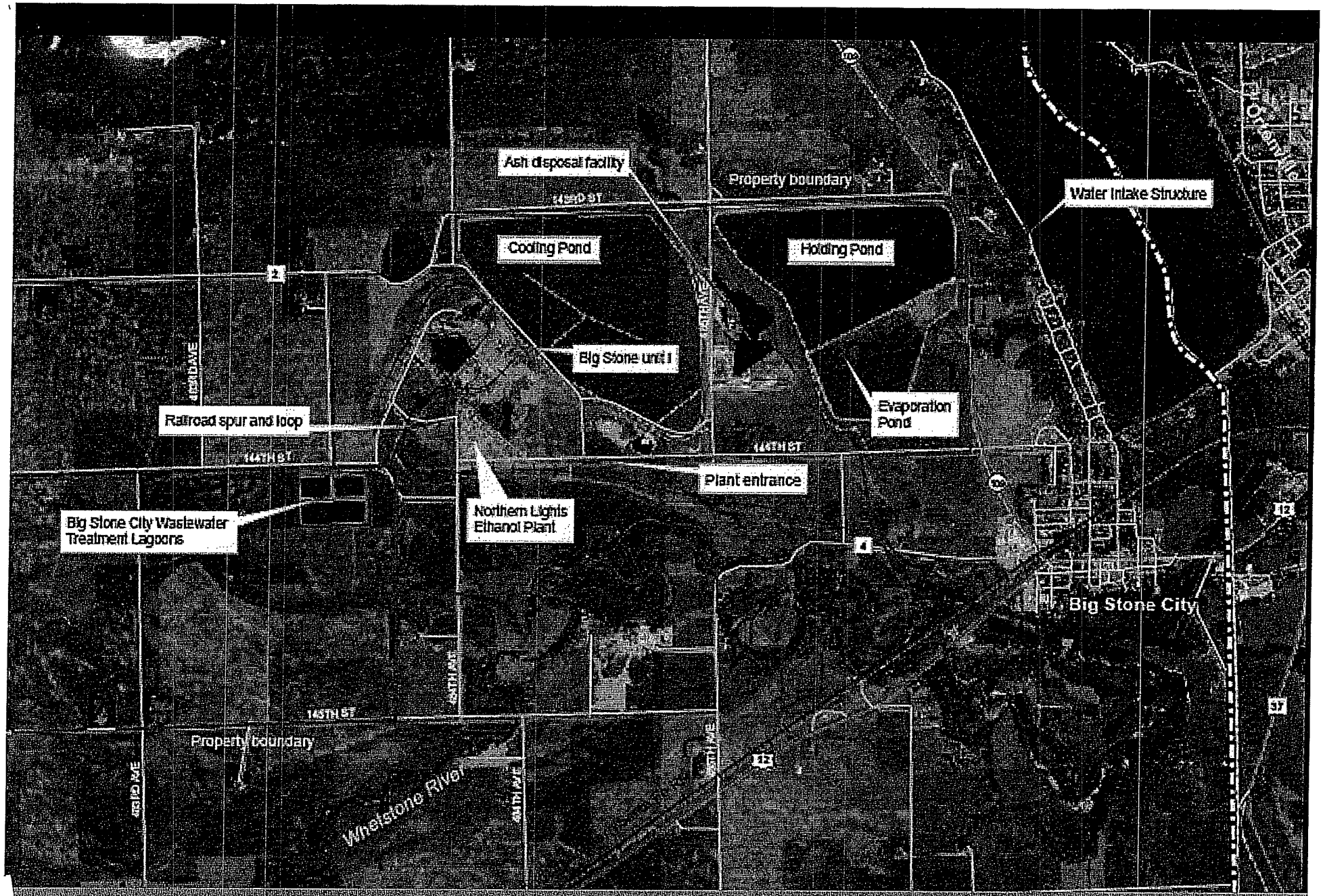


Baseload, Intermediate and Peaking Facility Relative Cost

Type of Generation	Capital Cost	Fuel Cost	Typical Energy Production
Peaking	Low	High	Low
Intermediate	Medium	Medium	Medium
Baseload	High	Low	High

Project Description





Existing Facility

Opportunities to Share Existing Infrastructure

- Cooling water intake structure, pumping system and delivery line
- Plant road and rail spur
- Coal unloading facilities
- Solid waste disposal facilities

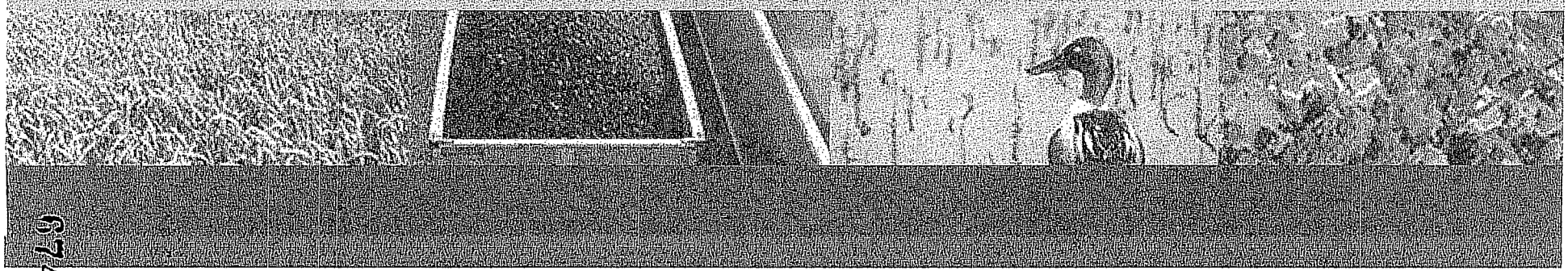
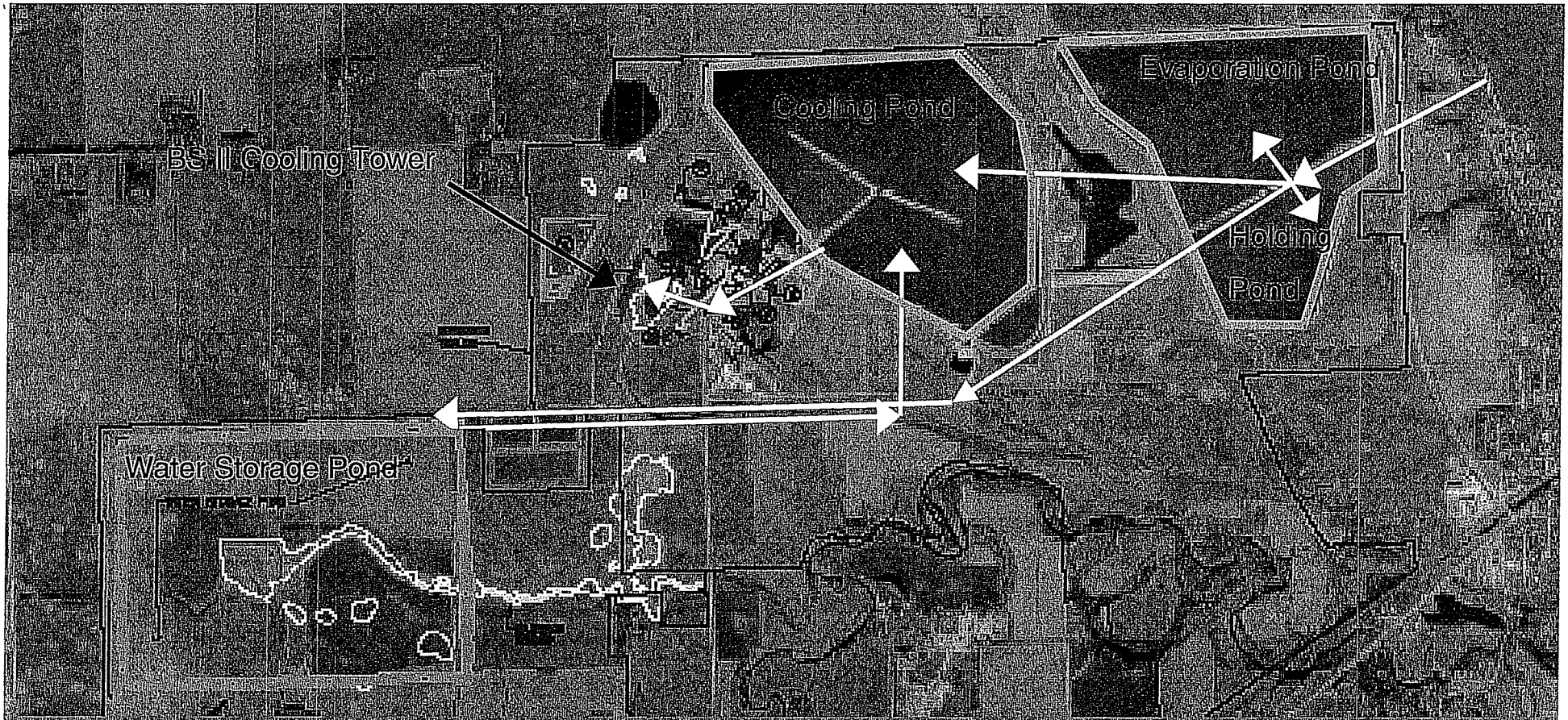


Exhibit 2-2

POWER PLANT SITE

Big Stone II Project
Big Stone II Co-owners

Big Stone Site

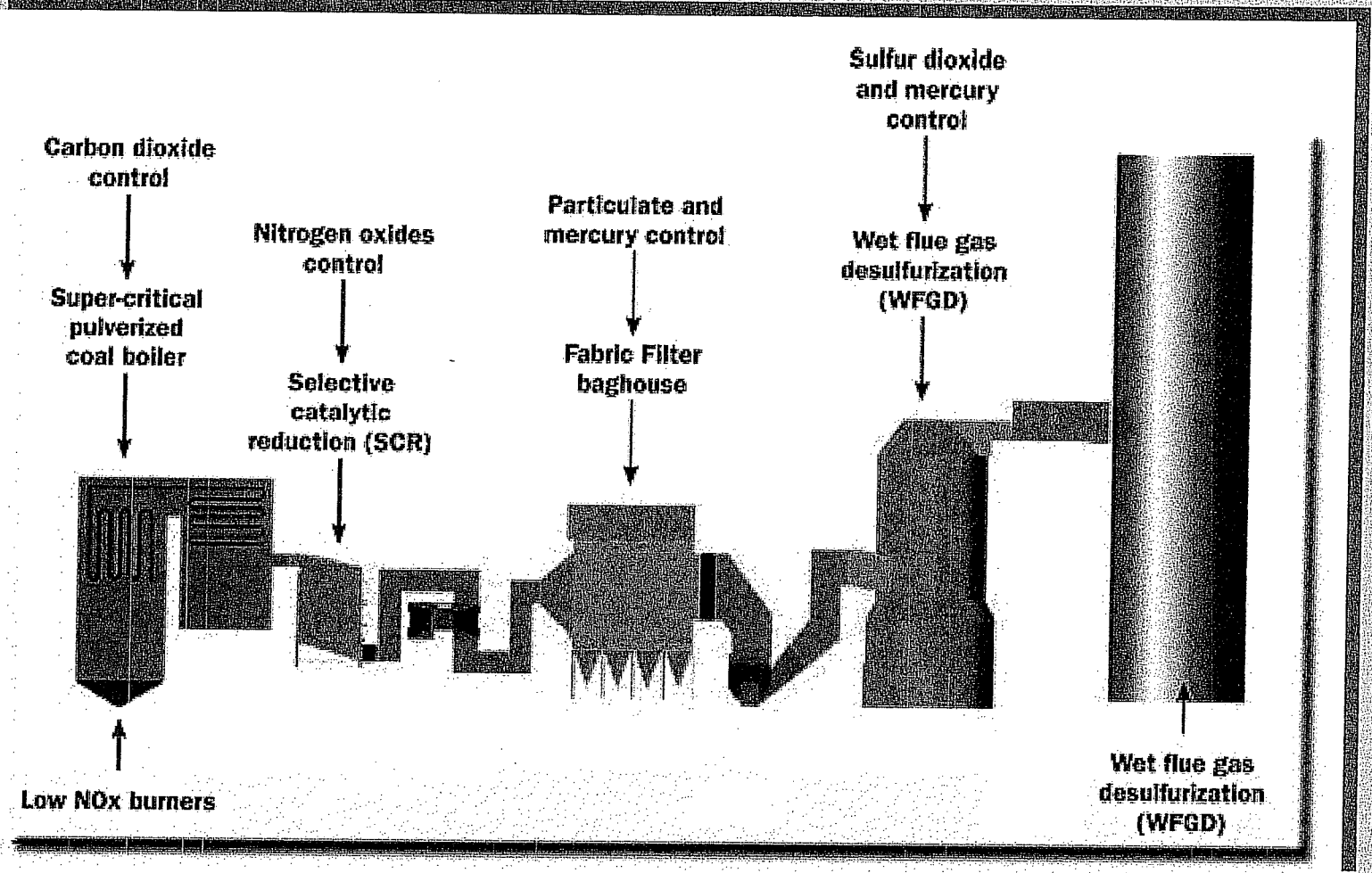


Big Stone Site – Water Appropriations and Storage

10,902 Ac*ft - design annual usage

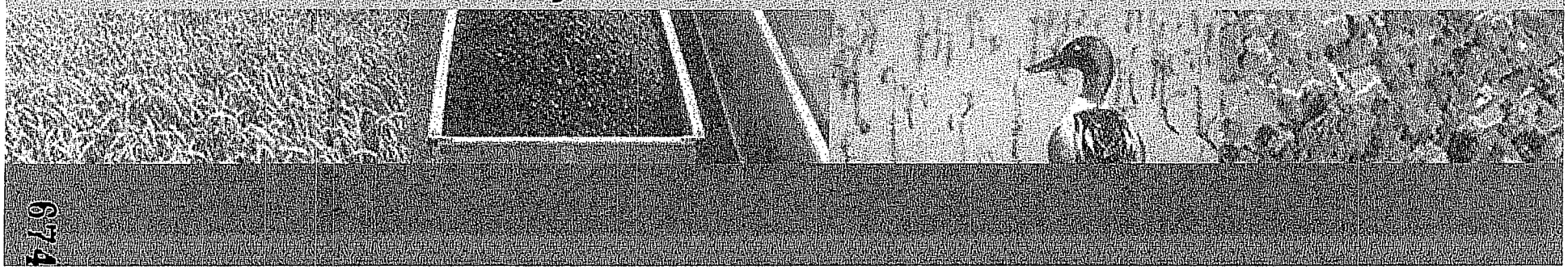
- Holding pond capacity: 965 Ac*ft
- Evaporation Pond Capacity: 1,436 Ac*ft
- Water storage pond capacity: 9,900 Ac*ft
- Cooling pond useable storage capacity: 3,000 Ac*ft (5440 ac*ft total)
- Total site useable storage capacity current design: 15,300 Ac*ft

Emissions Control Technology



Wet Scrubber

- Historically, dry scrubbers used to remove sulfur dioxide when burning subbituminous coal
- Wet scrubbers are more expensive
- However, wet scrubbers offer
  - More efficient SO2 removal
  - More efficient mercury control
  - Saleable fly ash

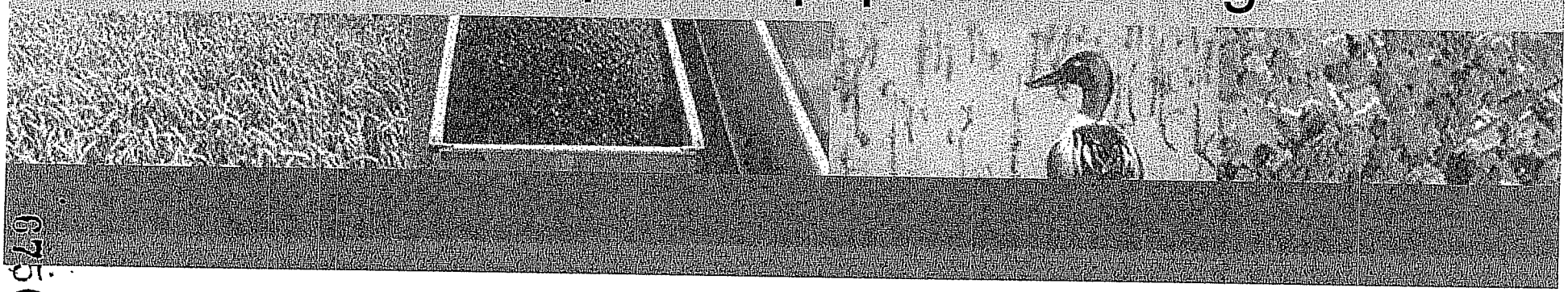


Joint Scrubber Possible Because of Wet Scrubber Technology

- Double the size of the scrubber but only 60% increase in cost
- Able to share some equipment and the benefits of redundancy of other components
- Lower per megawatt hour cost for common scrubber

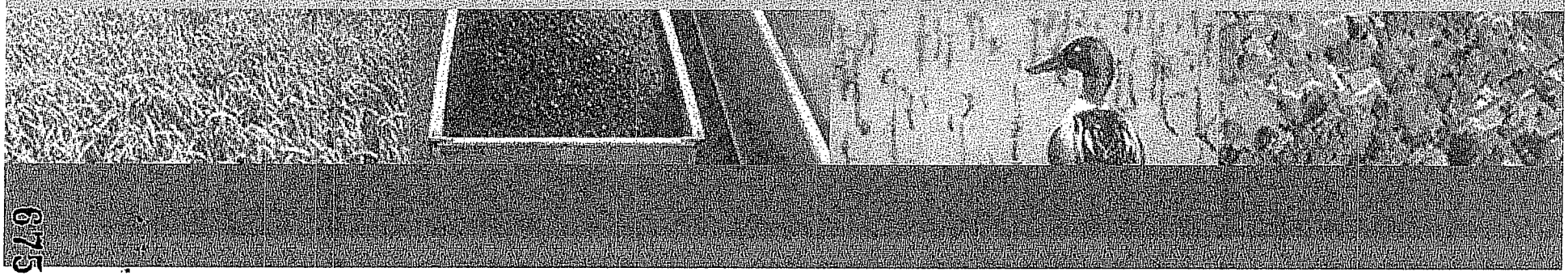
Nitrogen Oxides Control

- Commitment to add Big Stone II and not increase nitrogen oxides emissions from the Big Stone Plant site
- Make Big Stone Plant unit I operational changes to its lower nitrogen oxides emissions
- May also require equipment changes

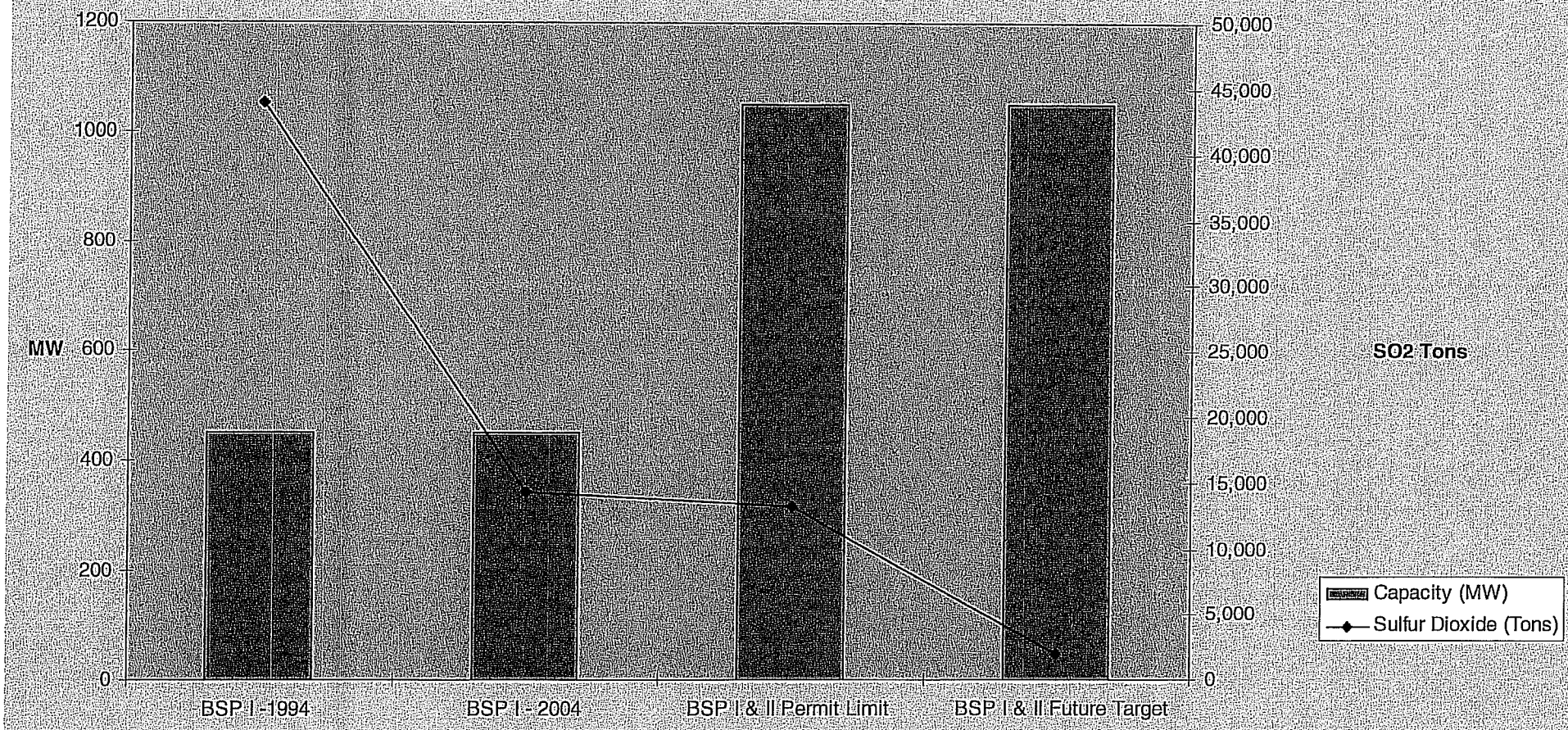


Emissions Control Summary

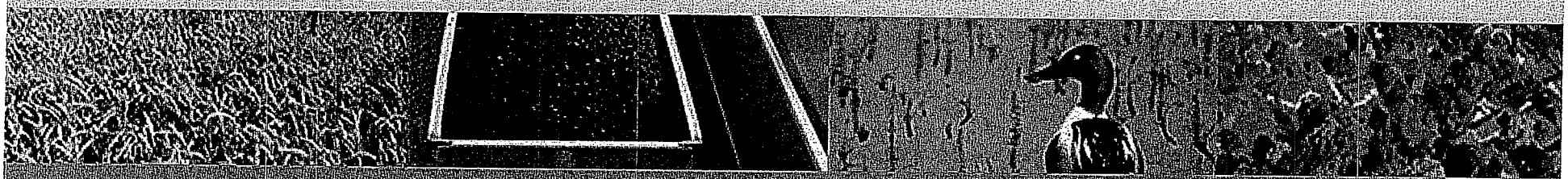
- Sulfur dioxide, nitrogen oxides, and mercury emissions from both units are targeted to be less than or equal to Unit I's emissions in 2004.



Sulfur Dioxide Emissions

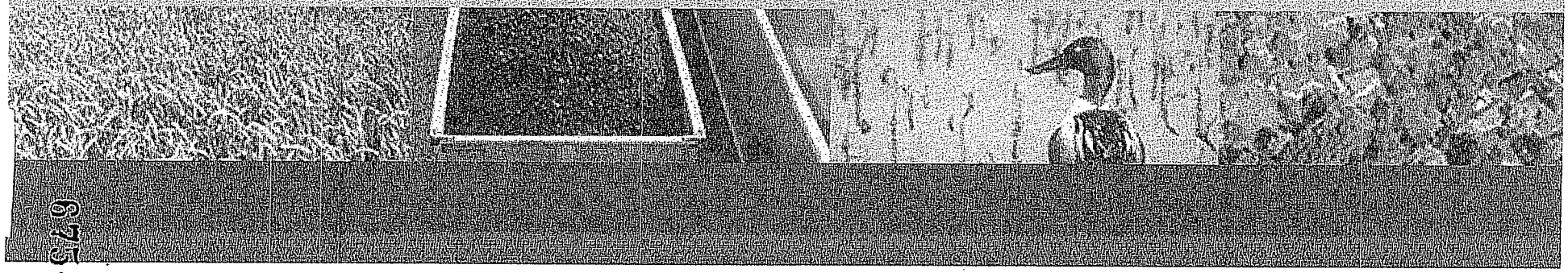


Environmental Information



Environmental Impacts

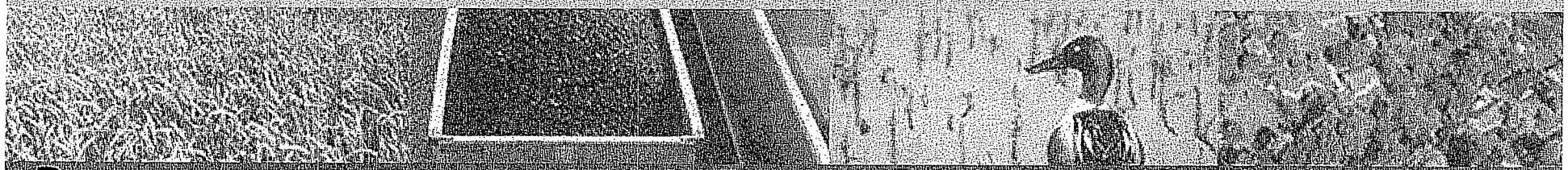
- Physical Environment
- Hydrology
- Terrestrial Ecosystems
- Aquatic Ecosystems
- Land Use
- Water Quality
- Air Quality
- Solid and Radioactive Waste



Environmental Impacts
Physical Environment

- Land forms and topography
- Geology
- Soils and Economic Deposits
- Erosion and Sedimentation

Impacts primarily limited to new storage pond area-most other activity within existing plant site

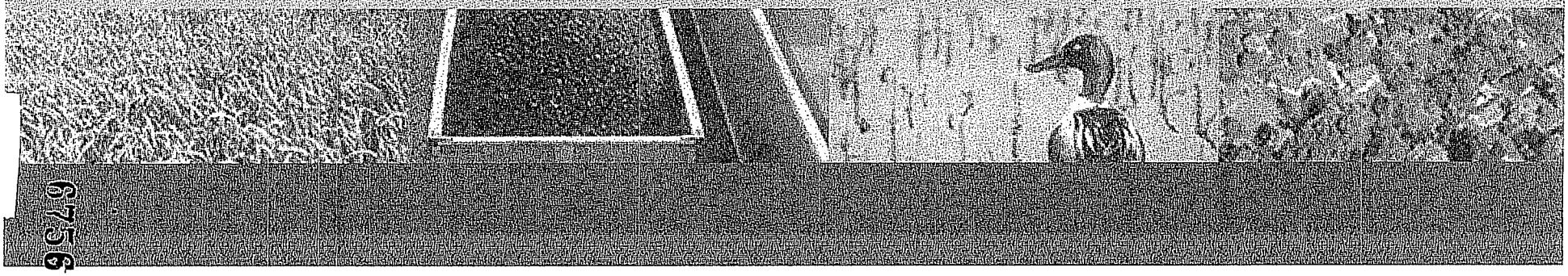


Environmental Impacts
Hydrology

- Surface Water Drainage
- Water Use and Sources

Impacts to drainage primarily limited to new storage pond area

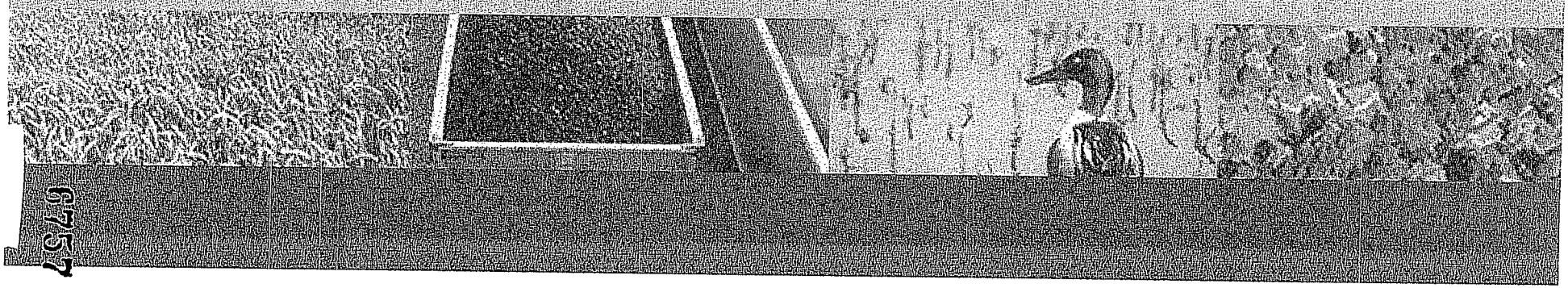
Increased water needs can be met within existing operational constraints on Big Stone Lake withdrawal

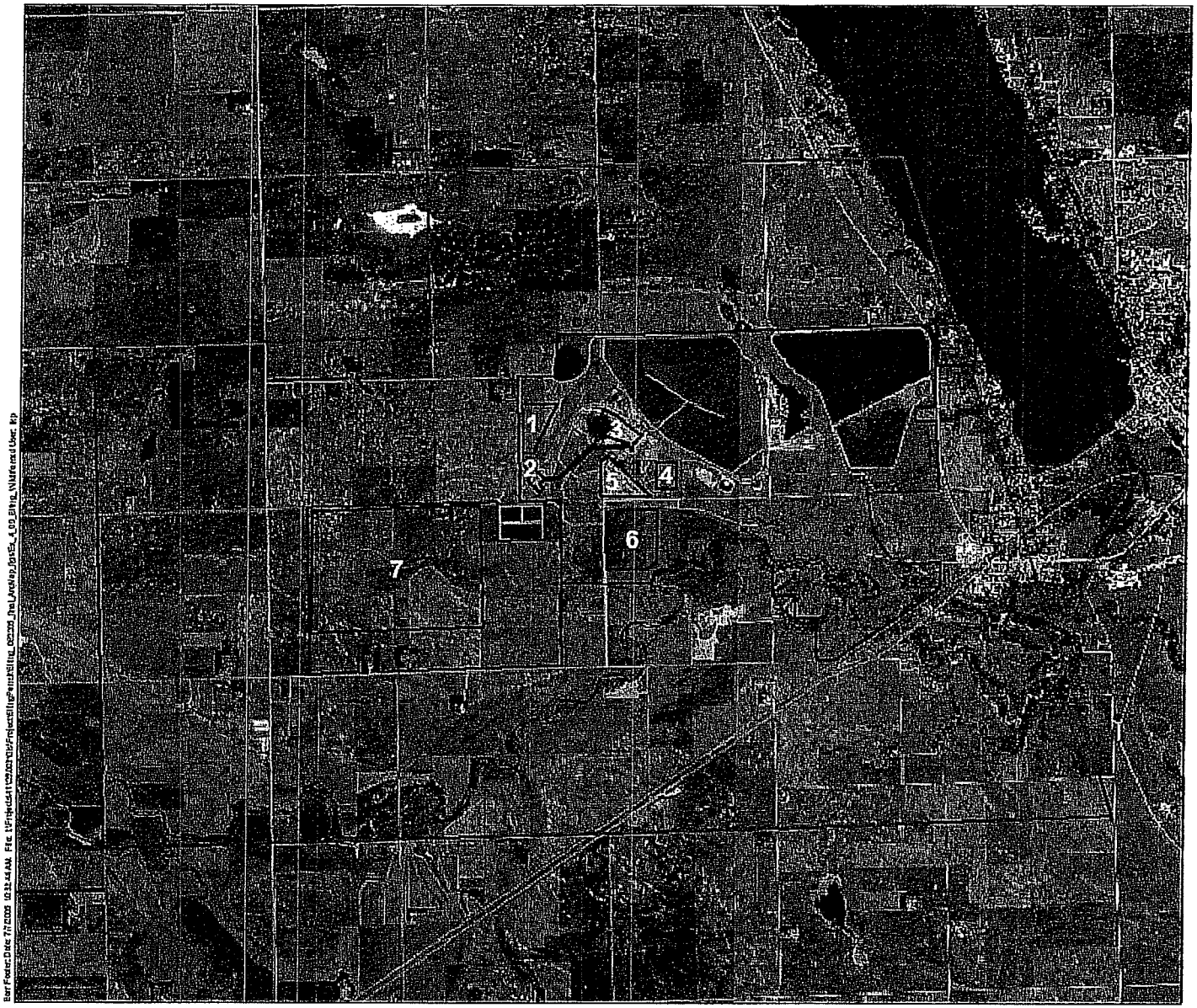


Environmental Impacts
Terrestrial Ecosystems

- Vegetation Communities
- Wildlife
- Threatened and Endangered Species

No adverse impacts are expected





Property Boundary
Extended Study Area

Project Features

ID
1 Cooling Tower Blowdown Pond
2 Cooling Tower
3 New Plant
4 Construction Parking
5 Ethanol Plant
6 Construction Laydown
7 Makeup Storage Pond
Bald Eagle Nest

Field observations made by Barr Engineering Company. South Dakota Natural Heritage Database query completed on September 24, 2004 by the SD Department of Game, Fish and Parks.

N

0.5 0 0.5 1 1.5
Miles

0 0.5 1 1.5 2 2.5
Kilometers

Exhibit 4-9

WILDLIFE
Big Stone II Project
Big Stone II Co-owners

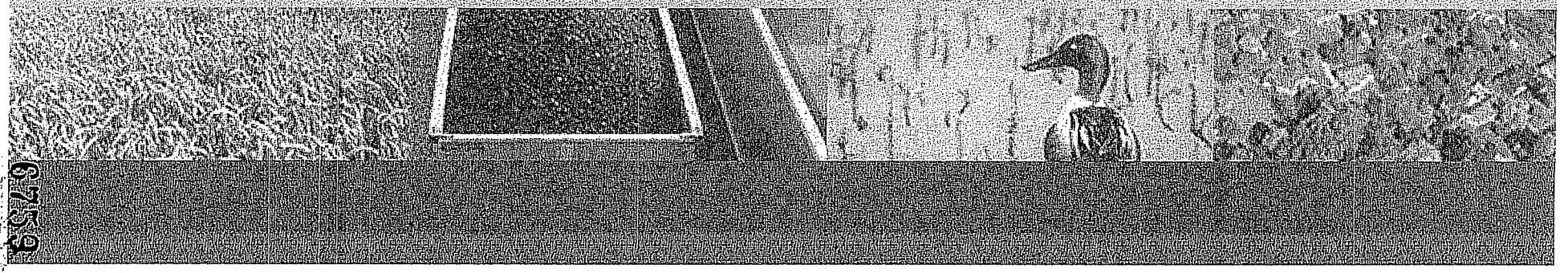
Big Stone II Wildlife

Environmental Impacts
Aquatic Ecosystems

- Fisheries
- Wetlands

No adverse impacts to fisheries are expected

Wetland impacts addressed through USACOE permitting process

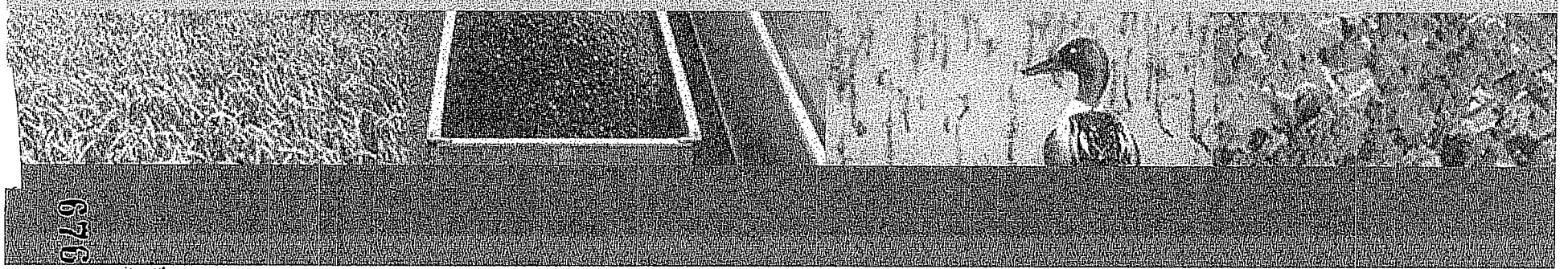


Environmental Impacts
Land Use and Land Use Controls

- Existing Land Use
- Noise

New unit takes advantage of existing industrial land use and infrastructure

Incremental noise impact modeled as insignificant



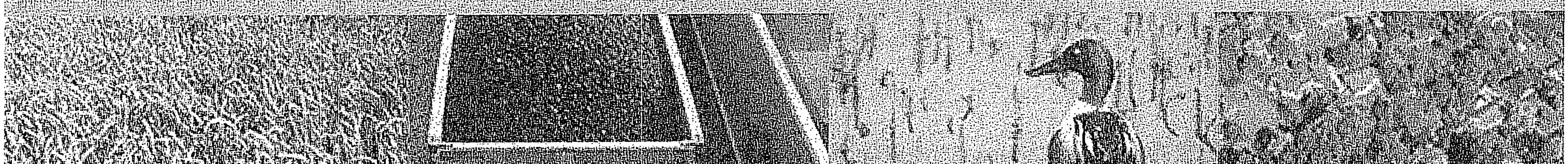
Environmental Impacts
Water Quality

- Whetstone River System
- New Makeup Storage Pond
- Stormwater Management

No impacts expected to Whetstone River

New pond water quality expected to be similar to area shallow lakes

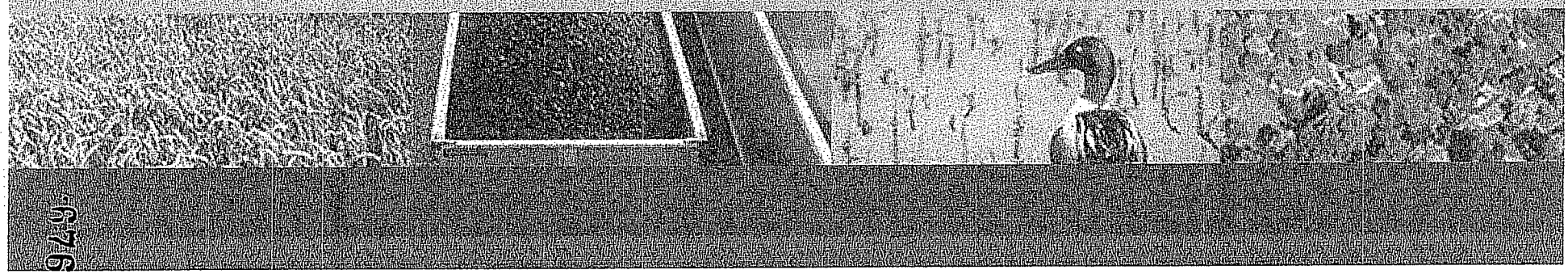
Stormwater will be managed through SWPPP



1761

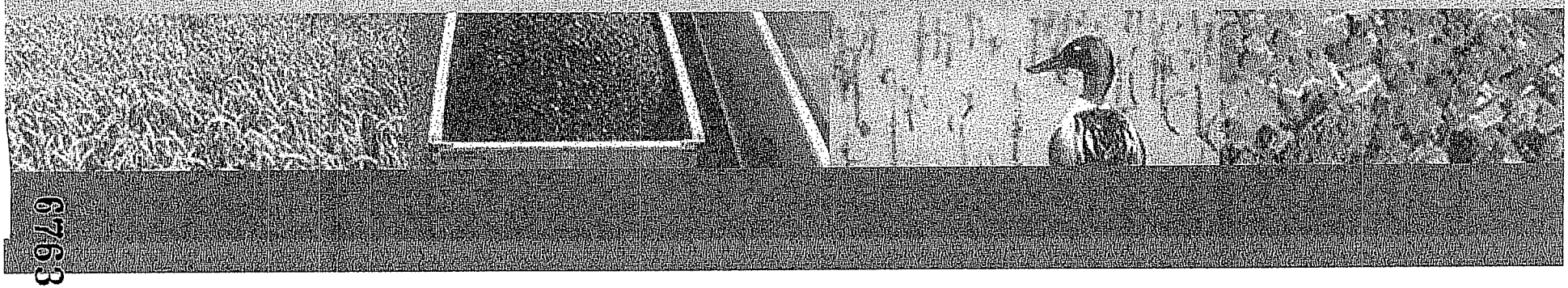
Environmental Impacts
Air Quality

- Common scrubber – no increase in sulfur dioxide emissions
- No increase in nitrogen oxide emissions
- Best available control technology for particulate matter emissions
- Targeted mercury emissions at 2004 levels



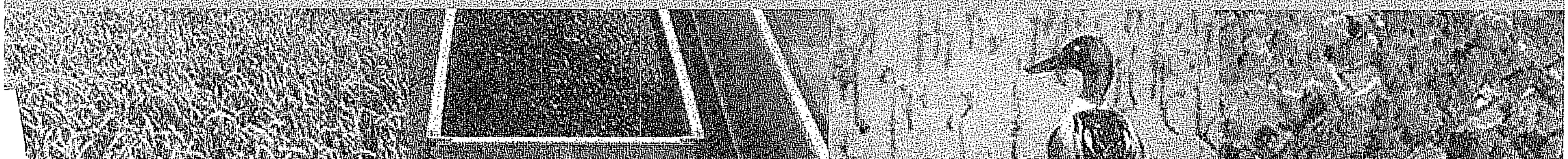
Environmental Impacts
Solid Waste

Propose to use existing permitted solid waste disposal facility



Community Impacts

- Economic Impacts
- Infrastructure Impacts
- Community Services
- Population and Demographics
- Cultural Resources



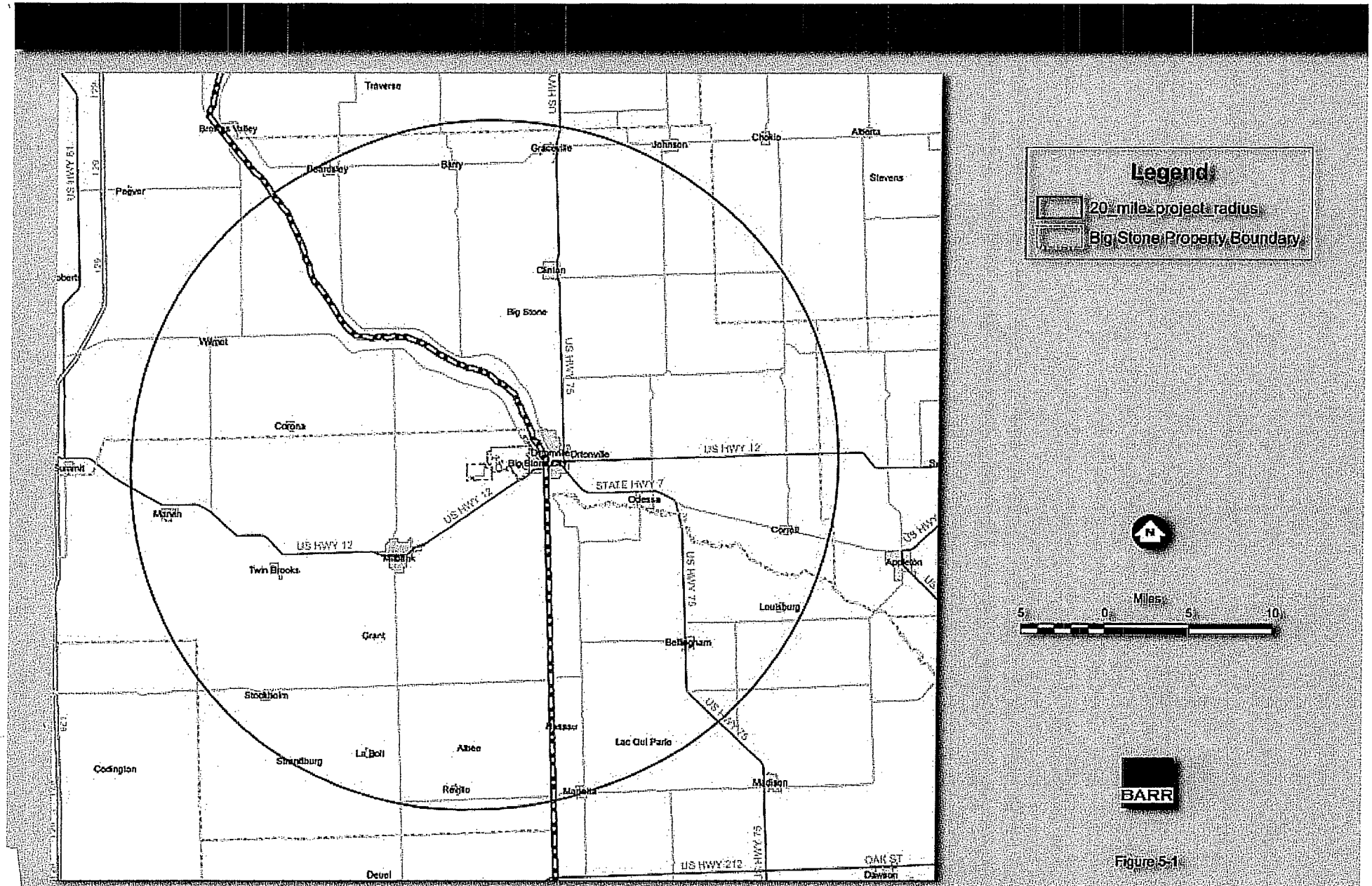


Figure 5-1

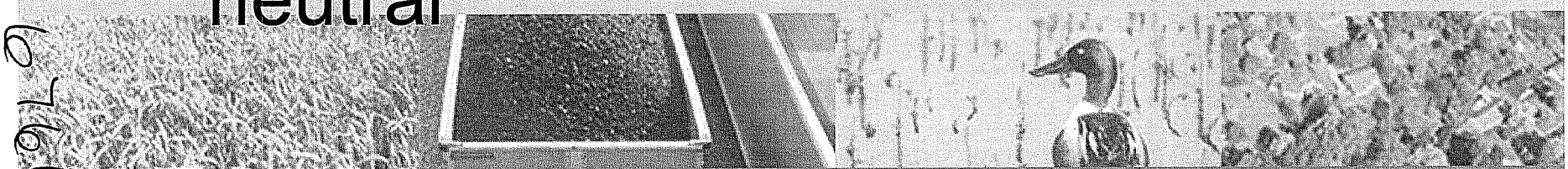
Community Impacts Study Area

Community Impacts

Economic Impacts

- Employment (temporary and permanent)
- Agriculture
- Commercial and Industrial Sectors
- Land Values
- Taxes

Impacts expected to be positive or neutral



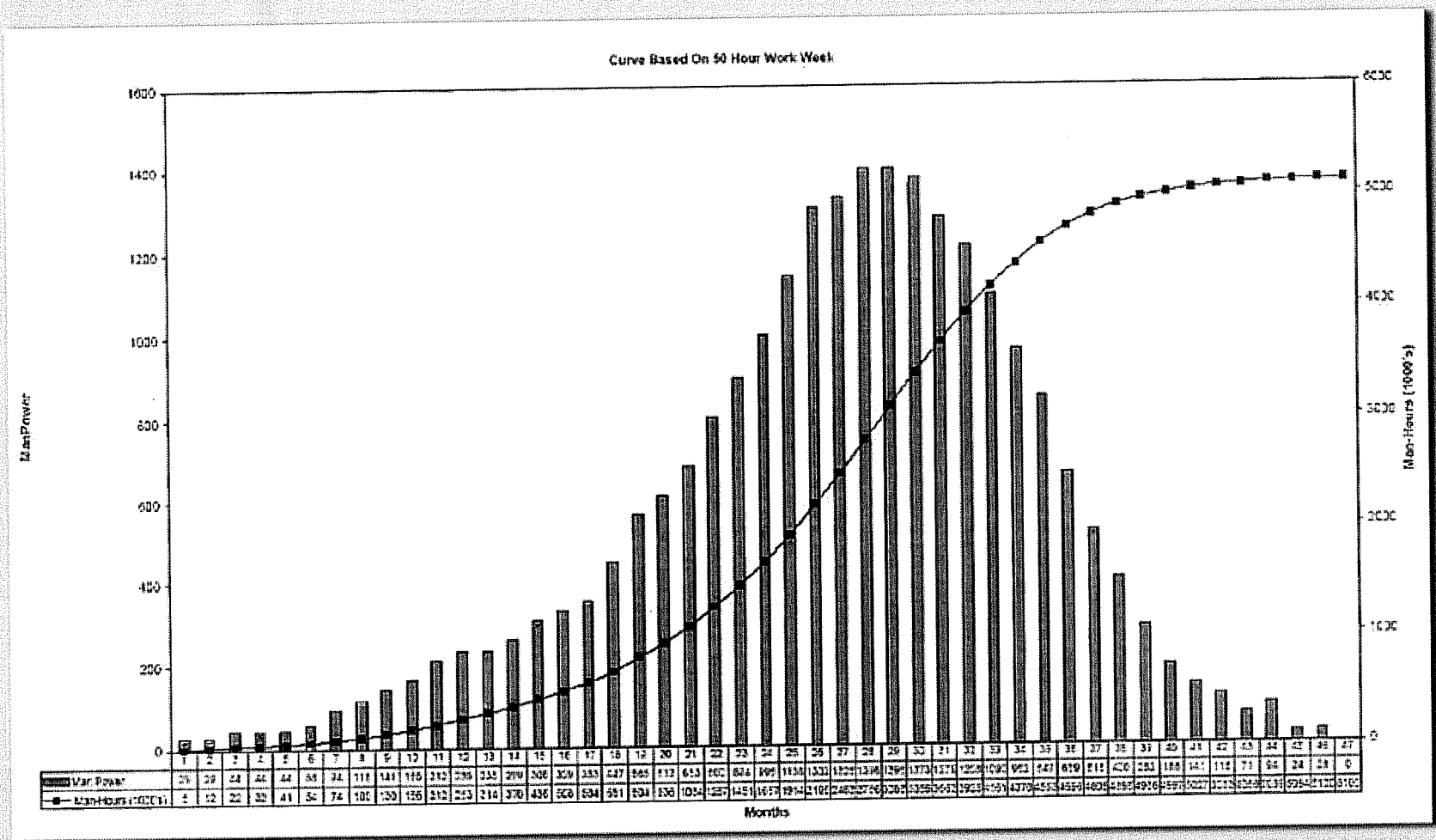


Exhibit 5-2

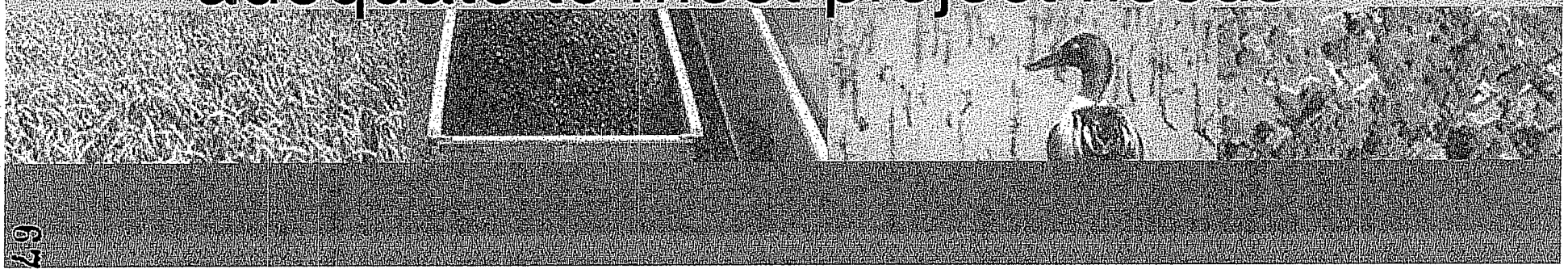
Estimated Construction Labor Requirement

Community Impacts

Infrastructure Impacts

- Housing
- Energy
- Sewer and Water
- Solid Waste Management
- Transportation

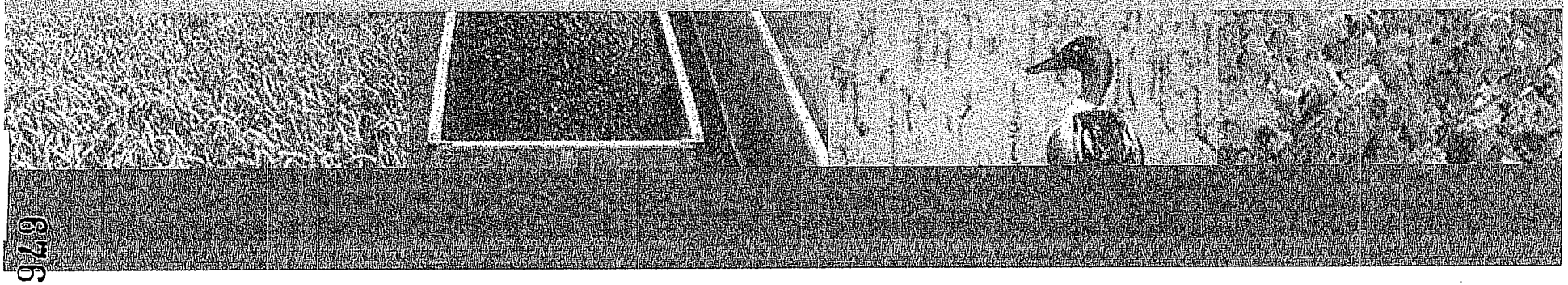
Existing infrastructure generally adequate to meet project needs



Community Impacts
Community Services

- Health Services and Facilities
- Schools
- Recreation
- Public Safety

Existing services not expected to be overtaxed by project

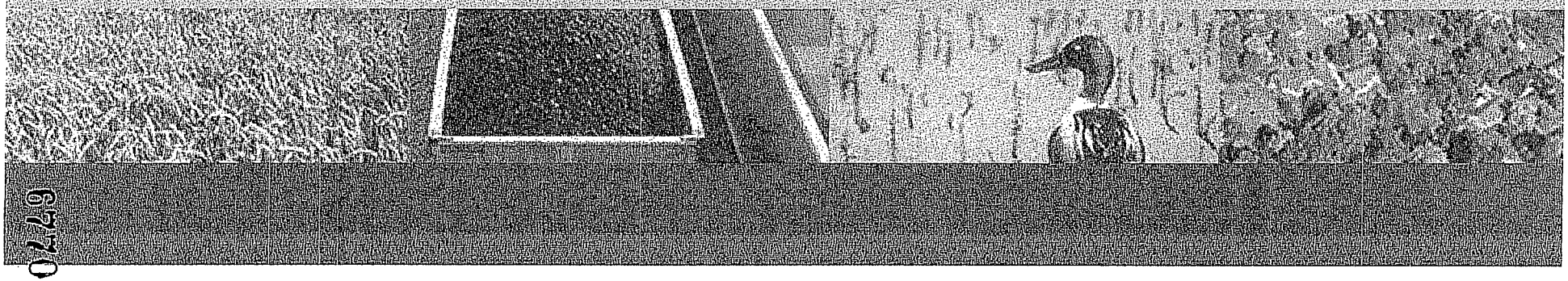


Community Impacts

Other Impacts

- Population and Demographics
- Cultural Resources

No adverse impacts expected



Project Schedule

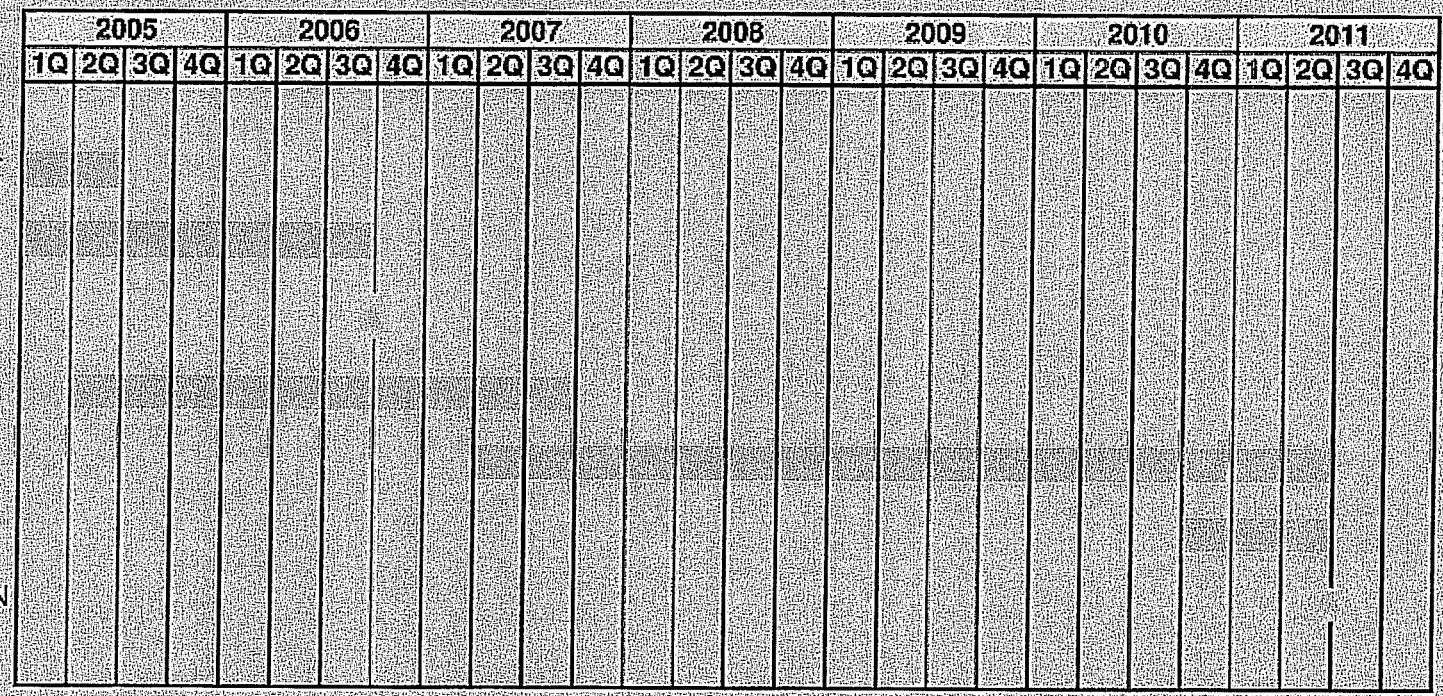
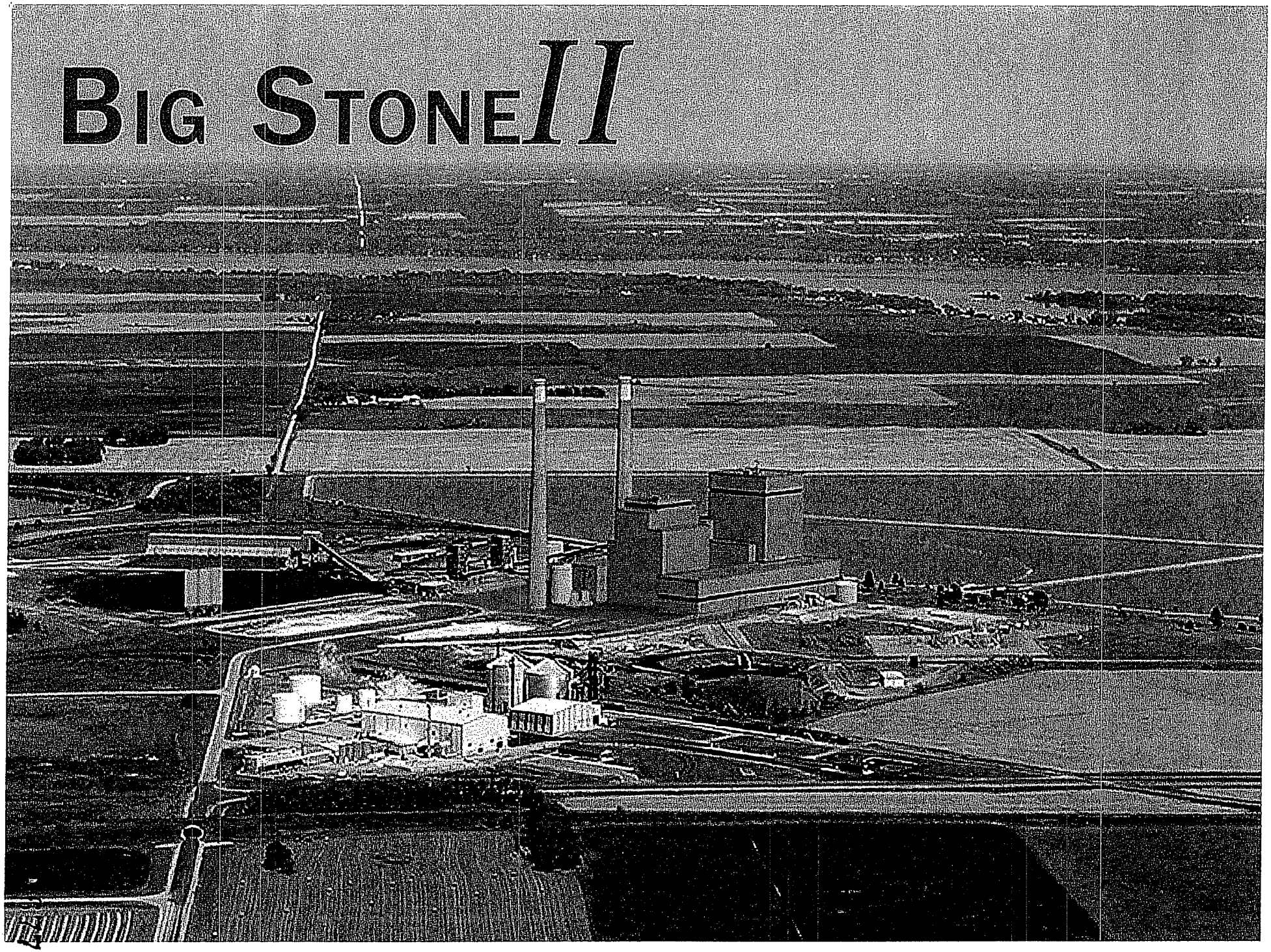


Exhibit 1-4

Big Stone II Project Schedule

BIG STONE II

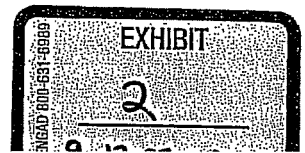


My name is Adam Sokolski, and I am an Energy Associate with the Midwest Office of the Izaak Walton League of America. The Izaak Walton League – together with our colleagues from Minnesotans for an Energy-Efficient Economy and the Union of Concerned Scientists – intends to intervene in the South Dakota Public Utilities Commission proceeding regarding the proposed Big Stone II power plant.

We have concerns about the proposed Big Stone II power plant – not the least of which is that it would be a substantial increase in carbon dioxide emissions. This is an environmental issue AND a financial issue. The world's emerging response to global warming will inevitably transform the regulatory climate in the years ahead. These new laws will in turn change the economics and the technology of electricity production and use, making high-carbon energy sources relatively more expensive, while low-carbon energy sources become better and cheaper through technological advances, economies of scale, and government incentives.

The Big Stone II partners have proposed a high-risk, high-cost power plant when you consider the ratepayer costs that are likely under carbon-capped regulatory scenarios. Just this Summer, the United States Senate passed a resolution supporting "a comprehensive and effective national program of mandatory, market-based limits and incentives on emissions of greenhouse gases." The regulatory path ahead puts a hefty price tag on proposals such as Big Stone II.

6774

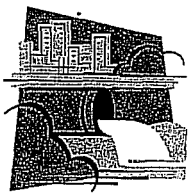


In fact, Otter Tail Power's largest industrial customer in Minnesota, Enbridge Corporation, is seeking to insulate itself from the high costs and risks of future fossil fuel investments such as Big Stone II, by seeking from Otter Tail a long term contract that is keyed into the costs of a new *wind power* development in the "other Dakota".

Izaak Walton League, Minnesotans for an Energy Efficient Economy and the Union of Concerned Scientists appreciate the opportunity to participate in the South Dakota Public Utilities Commission proceeding.

CLEAN WATER ACTION ALLIAN
of Minnesota

A statewide alliance of more than 50,000 households a organizations working on a wide array of issues affecting Min communities. *CWAA* has a long history of supporting citizen to protect water resources, of promoting sound solid management, of pushing for agriculture policies that strengthen communities, of working for a transition to clean renewable e and of promoting social values, policies and behaviors that re economic and environmental justice.



PREVENTING WATER POLLUTION

Clean Water Action Alliance is working, nationally and locally, through lobbying, ou efforts and organizing, to defend the p drinking water from contamination at the sou clean-up currently polluted waters, and to ensure that the Clean Wa continues to be enforced so that all of our waters are protected.

RENEWABLE ENERGY

Clean Water Action Alliance is working with its organizing citizens across the state to move fo on the transition to clean, renewable e Through the Mercury-Free Minnesota Cam *CWAA* is also working to increase public de for the reduction of mercury releases from coal-fired power plants.

RURAL COMMUNITIES & THE ENVIRONMENT

Clean Water Action Alliance is working with fa and rural residents to organize suppor agricultural production systems and practice ecologically and economically sustain farmers, rural communities and the environment.. *CWAA's* advocac outreach is pushing for changes that will protect against adverse air, and human health impacts from large-scale, industrial liv production and will connect consumers with locally and sustai grown food to directly support our family farmers and strengthen communities.

PROTECTING CHILDREN'S HEALTH

Clean Water Action Alliance and its allies are wo to protect children's health by reducing the pre of toxins, such as mercury, in the environ *CWAA* is advocating the use of a precauti approach in tackling this problem – preventing harm before it happe

MIDWEST REGIONAL OFFICES

CLEAN WATER ACTION ALLIANCE

Fargo/Moorhead
118 N Broadway #316
Fargo, ND 58102
(701) 235-5431

Twin Cities
308 E Hennepin Ave
Minneapolis, MN 55414
(612) 623-3666

Duluth
394 Lake Ave S
Duluth, MN 5
(218) 722-85

Sioux Falls
231 S Phillips Ave #250
Sioux Falls, SD 57104
(605) 978-9196

National Office
4455 Connecticut Ave NW
Washington, DC 2000
(202) 895-0420

La Crosse

www.cleanwateraction.org

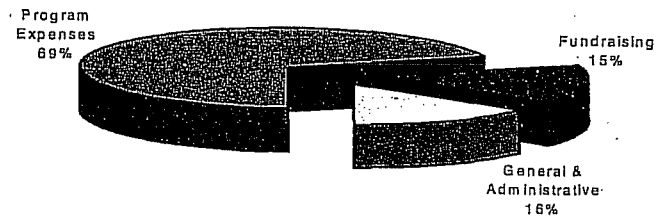
EXHIBIT
3A

CLEAN WATER ACTION ALLIANCE
of Minnesota

Clean Water Action Alliance has a track record of success building coalitions and involving citizens directly in winning environmental victories in Minnesota. With assistance from *CWAA*, many local organizations have grown stronger, started important environmental programs, and stopped destructive projects in their communities. Through public outreach, education, organizing, technical assistance, and public interest lobbying, *CWAA*—working in concert with Alliance members and allies—has improved protections for Minnesota's environment. Included among these successes are:

- Strengthening consumer protection in the federal Safe Drinking Water Act;
- Adopting better programs and policies at the federal, state and local levels to protect rural communities from the air and water pollution from factory livestock operations;
- Winning key renewable energy developments that make Minnesota a leader in national wind energy production;
- Requiring tougher penalties for polluters;
- Passing state law to reduce mercury emissions.

Clean Water Action Alliance receives most of its support from individuals who care. The pie chart below shows how contributions received in 2003 were spent:



MEMBERSHIP

Thank you for becoming a member of Clean Water Action. Contributions to Clean Water Action are not tax deductible, so that we can advocate effectively for or against legislation.* Clean Water Action's memberships are for a term of one year. We encourage you to give what you can!

Affirming Members: Contribute less than $5 per year
Supporting Members: $5 per year
Subscribing Members: $25 per year (Subscribing members will receive the national publication, *Clean Water Action News*)
Sustaining Members: $60 or more per year (Sustaining members will receive *Clean Water Action News* and state/regional updates)

When you join Clean Water Action at any of the above levels, all your family members residing in the same household are also included as members.

All members are entitled to vote on the organization's national program priorities and on the selection of the Board of Directors. If you would like to have input into the national program priorities or vote for the Board of Directors, please provide your e-mail address on our support statement, call 1-800-70-WATER or visit our website, www.cleanwateraction.org. For information about how to participate in elections for state leadership of Clean Water Action Alliance of Minnesota, you can call the Twin Cities office at (612) 623-3666.

PLEASE KEEP THIS AS A RECEIPT OF YOUR MEMBERSHIP!

DATE: _____

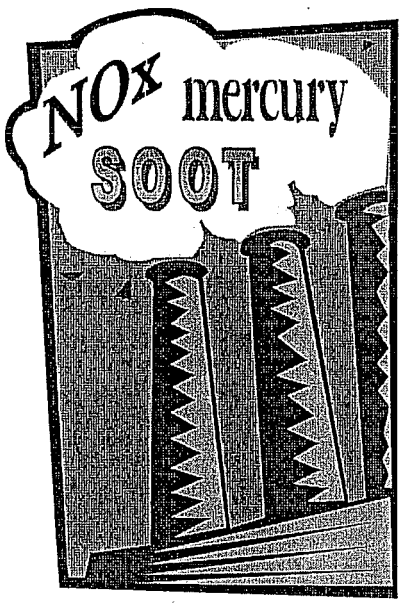
STAFF: _____

CONTRIBUTION AMOUNT: _____

6777

* Contributions to Clean Water Action are not tax deductible. Clean Water Action is a non-profit organization under section 501(c)(4) of the Internal Revenue Code

Replace Coal Power with Clean Wind Energy



Problem

Otter Tail Power Company, in conjunction with several other power companies, is proposing a major new source of air and water pollution for South Dakota and Minnesota. Otter Tail plans to more than double the output of the existing coal-burning power plant at Big Stone by building a new plant on the same site – Big Stone II. Coal pollution is a threat to our health and environment. Investing in a new coal-burning power plant wastes money and takes South Dakota away from safe, clean renewable energy from wind.

Toxic Coal Pollution

Coal-burning power plants are a significant source of air pollution. Coal-burning power plants emitted 3,762 thousand tons of carbon dioxide, 16 thousand tons of nitrogen oxides and 13 thousand tons of sulfur oxides in South Dakota in 2002.[1] Coal plants also emit significant amounts of lead and mercury. These pollutants are linked to serious health problems that lead to thousands of unnecessary deaths each year – more than from drunk driving or homicide.[2] Additionally, these health impacts often leave vulnerable populations -- like children and the elderly-- hardest hit.

Nitrogen oxides (NOx) combine in the presence of sunlight with other organic compounds to form ground-level ozone, or smog. Smog is a powerful lung irritant that can exacerbate asthma and other respiratory problems.[3]

Sulfur dioxide (SO2) is the primary component of particulate matter (PM), commonly known as soot. Some of these particles are so small they can travel deep into the lungs where they have adverse impacts on respiratory health. PM is especially dangerous for those with lung diseases (such as asthma and emphysema), for the elderly and for children. PM also contributes to haze, obscuring the visibility of our skylines and cherished recreation areas.[4]

Coal pollution can cause or aggravate lung problems like asthma.

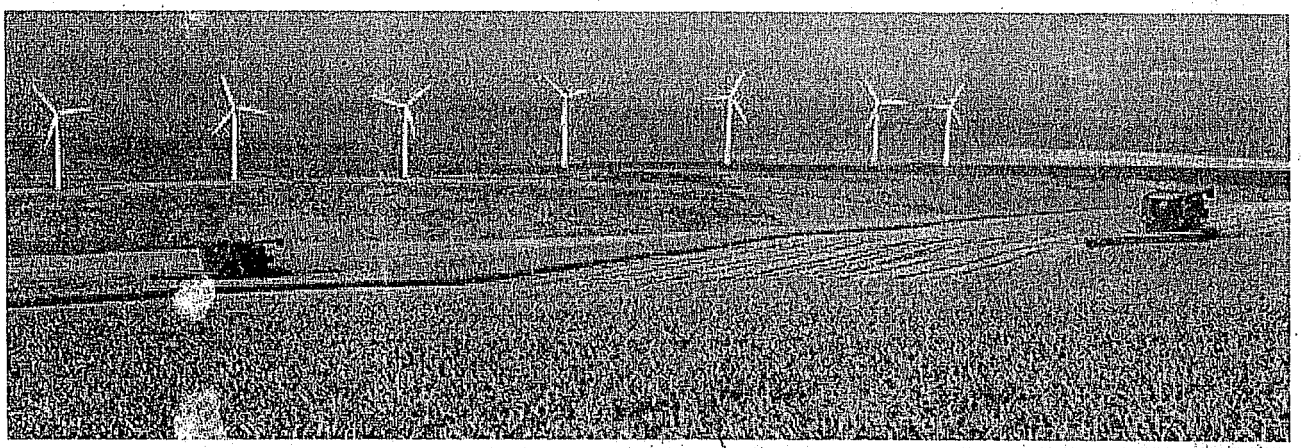
Mercury is a heavy metal and a potent neurotoxin that is emitted from power plants when coal is burned. Mercury is released into the air and settles downwind of power plants where it contaminates lakes, rivers and the fish we eat. Exposure to mercury pollution may be especially harmful to women of child-bearing age, fetuses and children because it interferes with the development of the nervous system and can lead to delayed mental development, learning disabilities, and deficiencies in language, motor function, attention and memory.[5]

The Solution to Coal Pollution: Clean Wind Power

Wind power can reduce pollution generated by fossil fuels such as coal, oil, and gas. Wind power generates electricity with no air emissions; no fuel to mine, transport, or store; no cooling water; no water pollution; and no wastes. Using responsible siting practices, wind projects now have minimal impacts on wildlife and natural resources.

The Midwest is blessed with such an abundance of windy terrain, especially in the Great Plains states of North and South Dakota, Iowa, Minnesota and Nebraska – so much so that it is sometimes referred to as the "Saudi Arabia of wind energy." South Dakota ranks fourth in the U.S. in renewable energy potential, with a potential power output of 117,200 MW.[6] That is the equivalent of 195 coal plants the size of the proposed Big Stone II.

South Dakota has just begun to tap its outstanding wind resources. As of January 2004, South Dakota had only 44.48 MW of installed and projected wind energy capacity, and no new wind projects planned.[7] South Dakota should harness its abundant wind resources, rather than investing money in a new coal-burning power plant.



South Dakota has incredible potential to generate renewable wind energy – improving our economy and environment.

Benefits of switching from coal to wind include:

- reduced air and water pollution and toxic wastes,
- health benefits from less air pollution – 54 fewer deaths, 1290 fewer asthma attacks and over 7000 fewer lost work days due to various illnesses caused by coal pollution, [8]
- improved electricity reliability, thanks to a diversified power portfolio,
- economic development and job growth through wind power "cash crops" for landowners and clean energy exports, increased business for wind turbine manufacturers and new skilled jobs in installation and maintenance of wind turbines.

Clean Water Action's Position

The Big Stone area is not the right place for a new coal plant. Although Big Stone II would be across the border in South Dakota, air pollution knows no boundaries. Airborne toxins would affect Big Stone Lake and Minnesota's Big Stone State Park. Known for fishing, recreation, and camping Big Stone Lake is already under fish consumption advisories for mercury.

Before South Dakota builds another polluting coal plant, the public health and economic development benefits of renewable energy options must be considered. Since coal plants can operate for at least 40 years, every time a new one is built we commit to dirty energy for generations to come. For the future health and economic well-being of the region, we should use clean, innovative renewable energy options, not polluting coal technology developed long ago.

---

[1] Energy Information Association, "State Electricity Profiles 2002," *www.eia.doe.gov/cneaf/electricity/st_profiles/south_dakota.pdf*
[2] Abt Associates, "Death, Disease and Dirty Power: Mortality and Health Damage Due to Air Pollution from Power Plants," Bethesda, MD, 2000.
[3] US EPA, "National Air Quality and Emissions Trends Report, 1999." Office of Air Quality Planning and Standards, EPA 454/R-01-004, 2001.
[4] Abt Associates, 2000.
[5] Minnesota Department of Commerce, "2001 Energy Planning Report," Appendix A: Dealing With Environmental Impacts of Electric Generation, 2001.
[6] Union of Concerned Scientists, "Plugging in Renewable Energy," 2003. *www.ucsusa.org/documents/Plugging_In_Renewable_Energy.pdf*
[7] American Wind Energy Association, "Wind Project Database- South Dakota," *www.awea.org/projects/southdakota.html*
[8] Abt Associates, "Power Plant Emissions: Particulate Matter-Related Health Damages and the Benefits of Alternative Emission Reduction Scenarios," June 2004.

For more information contact your local Clean Water Action office:

Midwest Regional Office
308 East Hennepin Ave.
Minneapolis, MN 55414
(612) 623-3666

South Dakota Office
231 S. Phillips Ave. # 250
Sioux Falls, SD 57104
(605) 978-9196

Duluth Office
394 Lake Avenue S. #312A
Duluth, MN 55802
(218) 722-8557

Fargo-Moorhead Office
118 North Broadway
#314 Fargo, ND 58012
(701) 235-5431

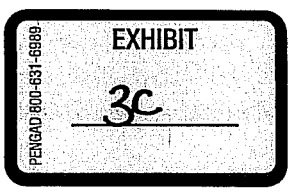
La Crosse Office
505 King Street, Suite 157
La Crosse, WI 54601
(608) 782-2012

Replace Coal Power with Clean Wind Energy

Concerned about the proposed new coal plant at Big Stone?
Ready to make your voice heard?

Here are some ideas for comments (in person or in writing) on the proposed Big Stone II coal plant to the South Dakota Public Utilities Commission. Please see the Clean Water Action fact sheet for additional information.

1. Costs on ratepayers and residents associated with increased healthcare, environmental, or economic costs from the impacts of air pollution
2. Impact of air pollution on the health of surrounding communities: global warming gases, ozone precursors that contribute to regional haze, particulate matter that increases the risk of respiratory and cardiovascular illnesses
3. Impact of mercury contamination on the health of surrounding communities
4. Effectiveness rates of various mercury control technologies
5. Costs on ratepayers and citizens of future carbon regulations to reduce global warming gases
6. Alternatives to coal-burning power plant: economic development opportunities of wind; real cost of new coal plant versus wind project; cost of burning biomass versus coal
7. Environmental, health, and economic impact of the disposal of coal waste ash
8. Thorough analysis of plant's impact on water: impact on fish and aquatic ecosystems of Big Stone Lake and Minnesota River
9. Economic impact on Big Stone Lake area: ability of the area to continue to attract sportspeople, hunters, birders, outdoor enthusiasts
10. Environmental and health impacts of coal dust from increased coal handling operations at plant
11. Impacts on state and federal endangered plants and animals from deposition of nitrogen, sulfur dioxide, mercury
12. Impacts on state and national parks or other special natural resource areas
13. Cumulative impacts from the old coal plant, the new one and any other pollution sources in the area.
14. Radioactive emissions from burning coal, which contains trace amounts of radionuclidides.
15. Transmission lines



6780

If you want to submit written comments to the South Dakota Public Utilities Commission, here is some information.

Mail your comments to:
Pamela Bonrud, Executive Director
South Dakota Public Utilities Commission
500 East Capitol
Pierre, SD 57501

Sample comments:
September 13, 2005

Pamela Bonrud, Executive Director
South Dakota Public Utilities Commission
500 East Capitol
Pierre, SD 57501

Re: In the Matter of the Application by Otter Tail Power Company on behalf of Big Stone II Co-Owners for an Energy Conversion Facility Permit for the Construction of the Big Stone II Project; Docket No. EL05-022

Dear Ms. Bonrud:

I'm very concerned that the proposed Big Stone II coal plant will be another major source of mercury pollution. I think the permit application process should look very carefully at the impact of mercury contamination on the health of surrounding communities. How serious is the mercury contamination in local lakes and rivers now? How much worse will it get? What will this do to local children or people who depend on fishing to live? What is the economic effect of damaging the fishing and recreation resources in the area? These questions must be answered!

Sincerely,

Your name
Your address

For more information, contact Clean Water Action at 605-978-9196.

6781