

THE PUBLIC UTILITIES COMMISSION

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OF THE STATE OF SOUTH DAKOTA

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===== **SOUTH DAKOTA PUBLIC  
UTILITIES COMMISSION**

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

**ORIGINAL**

COMMISSION STAFF

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

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BOYCE, GREENFIELD, PASHBY & WELK,  
Attorneys at Law, P.O. Box 5015,  
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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

**PRECISION REPORTING**  
**L I M I T E D**

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## 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

<u>Exhibit Nos.</u>	<u>M</u>	<u>O</u>	<u>R</u>
1A - Big Stone II CD	54	54	54
1B - Big Stone II paper presentation	54	54	54
2 - Sokolski comments	80	80	80
3A - Stueve comments	104	104	104
3B - Stueve comments	104	104	104
3C - Stueve comments	104	104	104

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

1 facilities will be located on an industrial site  
2 adjacent to the existing Big Stone Plant Unit 1 in  
3 Grant County, South Dakota near the town of  
4 Big Stone City. Otter Tail Power Company is the  
5 name for the utility division of Otter Tail  
6 Corporation, an investor-owned corporation  
7 headquartered in Fergus Falls, Minnesota.  
8 Otter Tail submitted the application on behalf of  
9 itself and its project co-owners who are Central  
10 Minnesota Municipal Power Agency, Great River  
11 Energy, Heartland Consumers Power District,  
12 Montana-Dakota Utilities Company, which is a  
13 division of MDU Resources Group, Incorporated,  
14 Southern Minnesota Municipal Power Agency, and  
15 Western Minnesota Municipal Power Agency.  
16 The purpose of this hearing is to provide  
17 information to the public about Otter Tail's  
18 proposed project and to hear public comments  
19 regarding the proposed project. Interested persons  
20 have the right to present their views and comments  
21 regarding the application. And we encourage you to  
22 please do so.  
23 A copy of the application is on file with the  
24 Grant County Auditor. The public may also access  
25 the application and all other nonconfidential

6

1 documents in the file on the Commission's website  
2 at [www.puc.sd.gov](http://www.puc.sd.gov) under Commission Actions,  
3 Commission Dockets, 2005 Electric Dockets, and  
4 scroll down to EL05-022.  
5 The parties to this proceeding at this time  
6 are Otter Tail and the Commission. Under  
7 South Dakota Law each municipality, county, and  
8 governmental agency in the area where the facility  
9 is proposed to be constructed, any nonprofit  
10 organization formed in whole or in part to promote  
11 conservation or natural beauty, to protect the  
12 environment, personal health or other biological  
13 values, to preserve historical sites, to promote  
14 consumer interests, to represent commercial and  
15 industrial groups, or to promote the orderly  
16 development of the area in which the facility is to  
17 be constructed, or any interested person may be  
18 granted party status in this proceeding by making a  
19 written application to the Commission on or before  
20 September 19, 2005.  
21 We have applications available here this  
22 evening if you'd like to apply for party status.  
23 As of this time the only person or organization  
24 that has applied for intervener party status is  
25 Clean Water Action. Thank you very much for

7

1 allowing me to get through the formality that is  
2 required at the beginning of the hearing.  
3 Mr. Welk, I understand you're the attorney  
4 representing Otter Tail Power Company. I'll allow  
5 you to certainly go first since it is your docketed  
6 item, and please introduce the members of your  
7 organization. Thank you.  
8 MR. WELK: Thank you, Mr. Chairman,  
9 Commissioners, members of the public. My name is  
10 Tom Welk. I'm one of the attorneys for the  
11 project. With me, other attorneys are Chris Madsen  
12 from my law firm to the right and Bruce Gerhardson,  
13 who is the Associate General Counsel. You can tell  
14 us by our ties as the attorneys.  
15 We have a number of witnesses tonight that we  
16 would like to utilize to present the project to the  
17 Commission and to the members of the public. We  
18 have it's approximately about -- if the timing is  
19 correct, about 50 to 60 minutes. It's a  
20 Power Point presentation. It will be divided  
21 through several witnesses.  
22 Mark Rolfes, the project manager, is going to  
23 give us a background on the history of the project,  
24 the technologies we're considering, the site, why  
25 it was selected here. Then we're going to have

8

1 Stacie Hebert talk about the demand and why this  
2 facility is going to need to be there.  
3 Bill Swanson is going to talk about the facilities  
4 and what it's going to look like. Terry Graumann  
5 is going to talk about the emission control  
6 technologies. And John Lee, the consulting  
7 engineer, is going to go through the review of what  
8 the environmental community impacts have been and  
9 also what the community service is that might be  
10 affected.  
11 We have these in various segments that we're  
12 going to have presented. We also have a couple of  
13 other engineers, Todd Sundbom from Burns &  
14 McDonnell, and Andrew Skogeland (phonetic).  
15 They're available here also for questions for  
16 members of the Commission or the staff or anyone,  
17 if there are some technical questions.  
18 I don't know, Mr. Chairman, how you want to  
19 proceed, whether we want to hold the questions  
20 until the end, but that's just to kind of give you  
21 an overview of what we've got to present.  
22 CHAIRMAN HANSON: Thank you,  
23 Mr. Welk. Generally what takes place is that we  
24 allow you to make your entire presentation, and  
25 then we can make comment afterwards. That way we

9

1 aren't asking questions that you will be covering.  
2 So we'd appreciate it if you go ahead with your  
3 presentation and then we will have questions and  
4 then we'll go to public comment.  
5 MR. WELK: Okay. Thank you,  
6 Mr. Chairman. I'd call Mark Rolfes, and I'd ask  
7 each witness as they get up just to give a couple  
8 of minutes or half a minute on who they are and  
9 their background so the Commissioners and public  
10 know who they are.  
11 MR. ROLFES: Commissioners, I'm  
12 Mark Rolfes, as Mr. Welk said. I'm a registered  
13 engineer in the State of South Dakota and  
14 Minnesota. I've been in the power generation  
15 business for 28 years, half of that time as the  
16 manager of the existing Big Stone I facility.  
17 I really want to express my appreciation for  
18 the chance to address you tonight to tell you about  
19 the Big Stone II project. We feel we have an  
20 extremely good project that's going to be good for  
21 our customers, good for the communities that we  
22 serve, and very good for the environment.  
23 With that, I'd like to just very briefly touch  
24 on the history of the Big Stone II project. The  
25 existing Big Stone I facility has been in operation

10

1 since 1975, and it's also a co-owned facility by  
2 three investor-owned utilities.  
3 In 1995 Otter Tail began the study of its  
4 options for future generation resources, and in  
5 that study we came to the conclusion that  
6 Big Stone II was our best option for baseload  
7 resources and we've continued studies throughout  
8 the years until late in 2003 we knew that  
9 Otter Tail Power Company had need for baseload  
10 resources and we began the process of trying to see  
11 if there was the critical mass, so to speak, to do  
12 a baseload facilities.  
13 Seven utility companies have come together to  
14 propose the Big Stone II project. And as the  
15 Petition said, they're Otter Tail Power Company,  
16 Heartland Consumers Power District, Montana-Dakota  
17 Utilities Company, Southern Minnesota Municipal  
18 Power Agency, Missouri River Energy Services, Great  
19 River Energy, and Central Minnesota Municipal Power  
20 Agency.  
21 I'd like to point out that Otter Tail Power  
22 Company and MDU are investor-owned utilities.  
23 Heartland Southern Minnesota, Missouri River, and  
24 CMMPA are municipal associations, and Great River  
25 Energy is a generation transmission cooperative.

11

1 So this project is bringing together the three  
2 different types of utilities to get a better  
3 project. We've got investor-owned, municipals, and  
4 cooperatives working together to make a better  
5 project.  
6 Now this is a baseload resource that we are  
7 proposing. It's not the only resource in these  
8 companies' energy mix, but this project we began by  
9 looking at the potential sources of energy for this  
10 baseload project. We considered wind, but wind is  
11 not suitable for a baseload resource. We need  
12 something that is there 24 hours a day, seven days  
13 a week.  
14 We looked at the next three: Supercritical,  
15 atmospheric circulating fluidized bed, and  
16 integrated gasification combined cycle, which are  
17 really coal-based technologies. Of those,  
18 integrated gasification is heard -- you hear a lot  
19 in the media today, is not a commercially available  
20 technology. It's in the demonstration phase. So  
21 we ruled that out as we were not in an experimental  
22 mode. We needed commercially available technology.  
23 The final one is combined cycle gas turbine.  
24 I think everyone's aware of what's happening to  
25 natural gas prices today and the question on the

12

1 pricing and availability, we felt that was not a  
2 good option. So that brought us back to the two  
3 coal options, the advanced -- the atmospheric  
4 circulating fluidized bed, and the pulverized coal  
5 supercritical boiler. Because of the fuel we're  
6 considering burning, Powder River Basin fuel, we  
7 felt the supercritical pulverized boiler is better  
8 as it is more efficient and better suited for the  
9 fuel that we will be burning.  
10 All of my comments are very high-level. The  
11 people following will get down into more of the  
12 details.  
13 After we had determined the technology, we  
14 needed to have a site for this facility, and as we  
15 did in 1995 and subsequent studies, we started with  
16 an open book and any place that had the right  
17 attributes, you know, of the water and the rail and  
18 transmission and all of the things to make this  
19 project successful were considered. And this study  
20 we looked particularly close at these sites, but  
21 after we considered all of the attributes needed  
22 for a good site for a baseload resource we came to  
23 the conclusion that the existing Big Stone I site  
24 because of its existing infrastructure,  
25 transmission, et cetera, was the best location for

13

1 this proposed baseload facility.  
2 Now the final thing I'd like to point out,  
3 this is a rough map of the service territories of  
4 MDU, Otter Tail, and Great River, and the dots  
5 representing the communities served by the  
6 municipal associations. You'll see the proposed  
7 location for the Big Stone II is in the center of  
8 this geographical area. The plant will serve the  
9 communities and the farms and such that surround  
10 it.  
11 This is an ideal setting for the communities  
12 that need the power. This is not a facility  
13 designed to move power to Chicago or Minneapolis.  
14 It's designed to serve the communities and the  
15 farms that surround the project.  
16 With that, I will turn it over to Stacie to  
17 talk about the need for the facility.  
18 MS. HEBERT: Commissioners, my name  
19 is Stacie Hebert. I'm with Otter Tail Power  
20 Company. I've been with the utilities for 13 years  
21 working in resource planning for 12 of those years,  
22 and in the last year and a half I've been working  
23 in fuel and freight. I'm a registered mechanical  
24 engineer in the State of Minnesota.  
25 Can you hear me okay?

14

1 The purpose of this portion of the  
2 presentation is to talk about why there is a need  
3 for the Big Stone II facility. What this map  
4 shows, and I want you to focus on the blue states,  
5 it's an area called the MAPP Region. MAPP stands  
6 for the Midcontinent Area Power Pool.  
7 It's a region where the utilities have joined  
8 together to enhance reliability, and it is the  
9 region that all of the Big Stone II project  
10 participants are located within. One of the  
11 services that this MAPP organization provides to  
12 the MAPP Region is that it does a survey, and it  
13 looks out 10 years to take a look at where we are  
14 in terms of forecasted demand and energy needs for  
15 the region.  
16 And this is one of the charts that's put  
17 together by the MAPP Region. I'll kind of walk you  
18 through what this shows so hopefully it will make a  
19 little more sense.  
20 On the left-hand side you've got capacity in  
21 megawatts. The MAPP Region is actually broken up  
22 into two regions. There's MAPP Canada and MAPP  
23 U.S.  
24 You've got MAPP U.S. represented in the light  
25 blue bars, and MAPP Canada is represented in the

15

1 dark blue bars.  
2 On this left-hand access there you'll see zero  
3 megawatts along the centerline. Anything above  
4 zero means that there is surplus capacity, there's  
5 excess capacity. Once you go below that line, you  
6 start to have deficits, meaning there's not enough  
7 capacity to satisfy the projected need for the  
8 MAPP Region.  
9 You can see the MAPP U.S. in the light blue is  
10 projected to go deficit starting in 2010 with a  
11 94 megawatt deficit that grows to 819 megawatts in  
12 2011, just under 1,500 megawatts in 2012.  
13 You can also notice that the MAPP Canada  
14 portion of the graph in the dark blue doesn't ever  
15 go deficit. It's tempting to say, well, why don't  
16 we just look north to Canada to help satisfy these  
17 resource needs?  
18 Well, there's really two problems with that:  
19 Number one, Canada is predominantly a hydroelectric  
20 system. They plan for energy needs which a lot of  
21 times leads to surplus capacity. So there may be  
22 capacity available in Canada, but that may not be  
23 backed up with energy.  
24 Secondly, the transmission lines between the  
25 United States and Canada are already fully utilized

16

1 so if we were to look at bringing down -- if there  
2 was surplus energy and capacity in Canada, if we  
3 wanted to bring it down to the United States, we  
4 would have to add significant amounts of  
5 transmission. So it's not a real viable option for  
6 us to just look north and think that we can solve  
7 our resource needs through Canada.  
8 Again, the purpose of this graph is to just  
9 point out that the MAPP Region, those blue states,  
10 are forecasting to be capacity deficit in 2010.  
11 CHAIRMAN HANSON: Could you stay up  
12 towards that so you project more towards the --  
13 MS. HEBERT: The second chart  
14 actually talks about energy. On the left-hand side  
15 there we show -- this is actually gigawatt hours of  
16 energy. And it looks at that same planning period  
17 of 2005 through 2013, and it shows a growth rate of  
18 approximately 15 percent. We can see a 15 percent  
19 increase in the energy requirements for the region  
20 from 2005 to 2013.  
21 The energy is what you're probably used to  
22 seeing on your electricity bill from your utility.  
23 You're billed on a kilowatt hour basis. So this is  
24 projecting gigawatt hours, which is one billion  
25 of -- a gigawatt hour is a billion watt hours.

17

1 Watt is maybe something if you think in terms of a  
2 light bulb. A 100-watt light bulb running for one  
3 hour would be 100 watt hours. Well, this is  
4 1 billion watt hours, just to put that into  
5 perspective. And this represents all of the  
6 MAPP Region.

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

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

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

18

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

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

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

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

25 Now I've kind of skipped over this

19

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

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

15 And I'll turn it over to Bill Swanson.

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

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

24 COMMISSIONER JOHNSON: Thanks.

25 MR. SWANSON: Good evening. My name

20

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

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

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

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

21  
1 side of the plant property. The ethanol plant,  
2 Northern Lights Ethanol Plant, is just to the south  
3 of the plant building. And the rail facility  
4 coming into the site is this red line going through  
5 where we unload our coal.  
6 One of the great things about this site is the  
7 opportunity to share in the existing infrastructure  
8 with the Big Stone I plant. The cooling water  
9 intake from Big Stone Lake, the pumping structure,  
10 the pipeline system, none of that has to change to  
11 satisfy the needs of Big Stone II. So we'll be  
12 reusing that facility.  
13 Obviously the plant roads are in place to use  
14 to get access to the site as well as the rails will  
15 be the same rail spur to deliver coal to  
16 Big Stone II. The coal unloading facilities, we  
17 have a rotary dumper at the site so that is going  
18 to be remaining the same and handle the existing or  
19 new train loads of coal coming from Big Stone II.  
20 And then the solid waste disposal facility, we do  
21 have an ash disposal site on the property, and that  
22 will serve for both the ash disposal for  
23 Big Stone I and Big Stone II.  
24 On the site work that we've done, again, this  
25 is the T in the middle of the pond structure that

22  
1 you saw from the other map. This is the existing  
2 power plant that can be seen from a ways away. The  
3 new plant will be just to the southwest of the  
4 existing plant. So the turbine and the boiler  
5 building will be immediately adjacent to it. The  
6 pollution control system, the baghouse and wet  
7 scrubber will be just to this side.  
8 We'll have a cooling tower. That's one  
9 difference from the new plant to the old plant is  
10 rather than the cooling pond, we'll be using a  
11 cooling tower. The cooling tower will be located  
12 down in this area. And this is the cooling tower  
13 blow down pond, and this is also a water source for  
14 the wet scrubber that we're going to be talking  
15 about in some future slides. This is also the coal  
16 storage area, and that area is sufficient enough to  
17 handle both units.  
18 Okay. Water is an important part of a  
19 project. It's just as important as the fuel part  
20 of it. And the Big Stone I and Big Stone II site  
21 usage is going to go to about 10,900 acre feet.  
22 It's about twice as much as we're using currently.  
23 This is the diagram showing where the pumping  
24 station is at on Big Stone Lake. Water is going to  
25 be pumped now, and it's going to be stored in what

2  
1 we call the evaporation pond and holding pond.  
2 What the Big Stone site is is a zero liquid  
3 discharge facility, which means we don't discharge  
4 water away from our site. It only leaves through  
5 evaporation.  
6 We're very proud of that environmental record  
7 that we've been able to maintain, and we want to  
8 continue that with the Big Stone II site. So the  
9 water balance is something we've put a lot of  
10 effort into looking at that and see how we can pump  
11 water from Big Stone Lake when it's available and  
12 maintain the water balance with all the chemistries  
13 on the site.  
14 So one of the things that we are going to be  
15 doing is we're going to be building a large water  
16 storage pond so we can pump water up from Big Stone  
17 Lake when it's available. We're going to have a  
18 water storage capacity of about 9,900 acre feet,  
19 and that will also be some of the makeup supplied  
20 to the cooling ponds. From the cooling pond that  
21 will make up the supply to the Big Stone II cooling  
22 tower.  
23 COMMISSIONER JOHNSON: Could you say  
24 that last sentence again, sort of walk through.  
25 MR. SWANSON: You bet. From the

24  
1 whole site this is the pumping station from  
2 Big Stone Lake. From there it will be pumping  
3 water from the evaporation pond or the holding pond  
4 or the new water storage pond -- this will be a new  
5 facility built from Big Stone II -- and from there  
6 back to the cooling pond. The cooling pond is used  
7 as cooling water for Big Stone I, and it's also the  
8 makeup water for the cooling tower for the Big  
9 Stone II.  
10 COMMISSIONER JOHNSON: The makeup  
11 water, can you explain what makeup water is?  
12 MR. SWANSON: Sure. There's an  
13 evaporation process. Using the cooling towers  
14 there is always waters that need to be made up into  
15 that process. So that's where that source of water  
16 comes from.  
17 VICE CHAIRMAN SAHR: What time of  
18 the year would you be doing most of the pumping on  
19 the lake?  
20 MR. SWANSON: Most of the pumping  
21 has been historically in the spring when the runoff  
22 goes into the lake and goes up. The same thing, we  
23 would likely want to take advantage of that period  
24 when the water levels are the highest.  
25 VICE CHAIRMAN SAHR: Is there any

Case Summary

25

1 tangible effect on lake levels?

2 MR. SWANSON: Minimal effect.

3 VICE CHAIRMAN SAHR: Thank you.

4 CHAIRMAN HANSON: I know we said we

5 would reserve and ask questions, but it's very

6 appropriate to ask questions as we're going along

7 obviously. I'm curious as well, do you have your

8 water rights for the State permit?

9 MR. SWANSON: For the increased

10 water usage for --

11 CHAIRMAN HANSON: 10,902 acre feet.

12 MR. SWANSON: No. We currently are

13 using the -- we're under the water appropriations

14 permit for Big Stone I, which is 8,000 acre feet

15 per year.

16 CHAIRMAN HANSON: Thank you.

17 MR. SWANSON: With that, I'll turn

18 it over to Terry Graumann.

19 MR. GRAUMANN: Good evening. My

20 name is Terry Graumann. I'm the manager of

21 environmental services for Otter Tail Power

22 Company. I've been in that position for about

23 32 years, and all that while I've been located in

24 Fergus Falls, Minnesota.

25 The purpose of my presentation this evening is

26

1 to describe the emission control technology. This

2 is a schematic of the emission control technologies

3 for Big Stone II. It does not show the turbine,

4 does not show the generator. It doesn't show any

5 of the other ancillary plant equipment.

6 It shows the boiler, which is located on the

7 left, and then the stack on the right and then the

8 emission control technologies are located in

9 between those two.

10 Let's start with the boiler, the item in blue.

11 Mark mentioned the supercritical pulverized boiler

12 technology, and that's the technology we've chosen

13 for Big Stone II. The advantage of that technology

14 is it's 3 to 4 percent more efficient than other

15 commercially available technologies. And in a

16 practical sense what that means is that there's

17 3 to 4 percent less emissions, including

18 carbon dioxide when using this technology as

19 compared to other technologies.

20 The boiler also includes a provision for low

21 NOx burners, and what those burners are is those

22 burners are a special design to provide a

23 combustion atmosphere that would minimize the

24 amount of combustion nitrogen oxides that are

25 formed during the combustion process.

27

1 Additional nitrogen oxide control occurs in

2 this green section, which is a box essentially.

3 It's called a selective catalytic reduction system.

4 And it's much like the catalytic converter in your

5 car. The flue gas flows through the catalytic

6 reduction system. This is a box, again, flow with

7 the catalyst.

8 But there's one exception, and that is that

9 ammonia needs to be added to this box in order for

10 the reaction to occur with the catalyst that

11 essentially converts the nitrogen oxide emissions

12 to elemental nitrogen and water.

13 The flue gas then flows into this device that

14 we call it an air free heater. And it's simply an

15 efficiency devise. It's an air-to-air heat

16 changer, and that device heats the combustion air

17 as it's going into the boiler.

18 From the air free heater the flue gas flows

19 through the fabric filter baghouse. And this is

20 just again another big box that's filled with a

21 series of bags, fabric bags. The flue gas flows

22 through those bags, and the ash collects on the

23 outside.

24 Periodically there's a pulse of air. That's

25 why they call it, although it doesn't show on here,

28

1 a pulse jet baghouse. A pulse of air that gently

2 inflates the bags, shedding the ash. And as the

3 ash is shed, it falls to the hoppers below the

4 fabric filter baghouse, and from those hoppers then

5 the ash is conveyed pneumatically to fly ash

6 storage satellite.

7 This is an induced draft fan, and that pulls

8 the flue gas again through the fabric filter into

9 the wet flue gas desulfurization system. We

10 commonly call this similarly a scrubber.

11 And the purpose of this device is to remove

12 sulfur dioxide from the flue gases. And the way

13 that it does that is limestone slurry -- limestone

14 simply mixed with water, finely crushed limestone,

15 is circulating throughout this tower in a very

16 turbulent fashion, which creates a good contact

17 between the flue gas and the limestone.

18 And in doing so the flue gas is cooled and the

19 sulfur dioxide then reacts with the limestone in

20 the flue gas desulfurization system forming, first

21 of all, a calcium sulfite, and as a part of this

22 process air is also injected so ultimately the end

23 product is a calcium sulfate or gypsum.

24 Mercury control actually occurs in two areas

25 in this project. Primarily -- first of all,

29

1 mercury control -- or mercury is collected in  
2 particulate form on the bags, and then from there  
3 it's collected and moves through with the ash.  
4 The other control mechanism is the flue gas  
5 desulfurization system or the scrubber. Any  
6 oxidized mercury that leaves the system is  
7 collected in the flue gas desulfurization system  
8 simply because it's soluble in water.  
9 Historically dry scrubbers and not wet  
10 scrubbers have been used to remove sulfur dioxide  
11 when burning subbituminous coal. And this is a  
12 different technology.  
13 And you remember the fabric filter occurred  
14 first and then the scrubber. And in the dry  
15 scrubber there is a spray dryer mechanism, much  
16 like a milk dryer, if you will. Some of you might  
17 be familiar with that. The slurry is put in a  
18 liquid form. But the end product is dry, and it's  
19 mixed with the fly ash and from there it flows to  
20 the fabric filter which occurs after the spray  
21 dryer.  
22 This is a very common technology. It meets  
23 all of the regulatory requirements, and it's still  
24 being permitted. Weston 4 out in Wisconsin is  
25 using the wet spray dryer. Council Bluffs is using

30

1 a spray dryer.  
2 We've decided to use a wet scrubber. It is  
3 more expensive, about 18 percent more expensive,  
4 but there are some advantages. The wet scrubber  
5 gives us more efficient SO2 removal. And that's  
6 very important to the Big Stone II co-owners simply  
7 because Big Stone II does not receive any SO2  
8 allowances under the -- allowance allocation under  
9 EPA's Clean Air Act Amendments of 1990.  
10 What that means for us is that as owners we  
11 will have to, one, either get allowances from  
12 existing units or buy allowances. So it's  
13 important for us to have very efficient SO2  
14 removal. And in this particular case the wet  
15 scrubber will typically give about 95 to 97 percent  
16 removal. A spray dryer, likely in the low 90s.  
17 The wet scrubber also gives us more efficient  
18 mercury removal. In EPA's mercury rule that was  
19 published in March of this year they established  
20 standards based on the coal type as well as the  
21 type of emission control technology that a user was  
22 installing. And for a wet scrubber system the  
23 emission -- allowable emission rate is half of what  
24 it is for a dry scrubber, as compared to a dry  
25 scrubber.

3

1 Finally, the wet scrubber also gives us one  
2 additional advantage, and that gives us a salable  
3 fly ash. I just mentioned that the dry scrubber  
4 mixes the fly ash with the SO2 removal reagents,  
5 but in this particular case if we remember from the  
6 drawing, the fly ash comes out in the fabric filter  
7 first. That fly ash is available for sale. It's  
8 commonly used as a replacement for Portland Cemen  
9 and concrete mixtures and, in fact, the American  
10 Coal Ash Association, which is an industry group  
11 that tracks coal byproduct utilization in the  
12 United States, reported in 2004 that there were  
13 14.1 million tons of fly ash that were used in  
14 concrete add mixtures.  
15 Big Stone during our average conditions is  
16 expected to produce about 127,000 tons per year of  
17 fly ash. We'd like to get into that market rather  
18 than putting it into our ash disposal site.  
19 The joint scrubber opens up some  
20 possibilities -- or we have a joint scrubber  
21 possibility because of the wet scrubber technology  
22 that wouldn't be available to us with a dry  
23 scrubber. We're able to double the size of the  
24 scrubber but with only an increase in cost of  
25 60 percent. We're able to share equipment, and

32

1 other benefits of other redundant components, we're  
2 able to, for example -- the main spray tower --  
3 there will only be one main spray tower instead of  
4 two.  
5 As a result of all of this we will have lower  
6 per megawatt hour costs associated with the  
7 scrubbers, primarily because of capital cost  
8 savings and labor savings.  
9 The Big Stone co-owners have also committed to  
10 add Big Stone II and not to increase nitrogen oxide  
11 emissions from the Big Stone Plant site. I  
12 described earlier the extraordinary steps that  
13 we're taking to reduce nitrogen oxides from the  
14 Big Stone II boiler, the low NOx burners, the  
15 selective catalytic system.  
16 We're also going to be making some operational  
17 changes at Big Stone I to lower its NOx emissions.  
18 We may need to make some equipment changes, but  
19 that will be determined following additional  
20 testing at the site. We are not certain of that  
21 yet at this time.  
22 In summary, our process or our approach, what  
23 we'll have is we will have sulfur dioxide, nitrogen  
24 oxide, and mercury emissions from both units that  
25 are targeted to be less than or equal to Unit 1's



33

1 emissions in 2004. We expect nitrogen oxide  
2 emissions by permit to be about equal to what  
3 they've historically had, and we expect mercury  
4 emissions to be less than or equal to those  
5 emissions as 2004 emissions as well.  
6 Here's a graph showing our sulfur dioxide  
7 emissions. And let me point out a couple of items  
8 on this graph. On the left side that shows the  
9 capacity, the megawatt generating capacity, of the  
10 Big Stone Plant site for the various years. 1994,  
11 2004, for both Big Stone I and II and then another  
12 bar that shows Big Stone I and II and the capacity  
13 is identified by the green bar.  
14 Going back to 1994, the Big Stone Plant site  
15 had about 450 megawatts, which it is today. 2004,  
16 about the same megawatt capacity. Based on our  
17 proposal, in 2011 the site capacity would go to  
18 about 1,050 megawatts, and we would hope that that  
19 would be maintained into the future as 1,050  
20 megawatts.  
21 What this graph also shows is SO2 ton  
22 emissions. And going back to 1994, notice that  
23 dot, we had SO2 emissions at the Big Stone Plant  
24 site of about 44,000 tons per year. At that  
25 particular time we were burning North Dakota

34

1 Lignite. Since that time we switched to Western  
2 Low Sulfur Subbituminous Coal. And in 2004 our SO2  
3 emissions dropped from about 44,000 tons down to  
4 roughly 14,400 tons.  
5 We expect based on our proposed permit  
6 application that the site will have no more than  
7 about 13,300 tons once Big Stone II is permitted.  
8 But in reality we expect our target  
9 operational level to be in the neighborhood of  
10 2,000 tons per year. So within this particular  
11 time frame we've dropped our SO2 emissions from  
12 44,000 tons to about 2,000 tons, which is roughly  
13 about a 95 percent reduction, even though our  
14 generating capacity went from 450 megawatts to  
15 slightly over 1,000 megawatts, 1,050 megawatts.  
16 MR. WELK: Cost.  
17 MR. ROLFES: Yes. The cost. It  
18 comes at a significant cost with these types of  
19 reductions, and it's about \$160 million in capital  
20 costs.  
21 CHAIRMAN HANSON: Are you complete?  
22 MR. GRAUMANN: Yes.  
23 CHAIRMAN HANSON: Could you tell us  
24 again repeat when you -- when the plant began the  
25 use of the low sulfur coal.

35

1 MR. GRAUMANN: It was late 1995  
2 actually in the -- about the first of September  
3 1995.  
4 CHAIRMAN HANSON: And do you have  
5 similar information for us regarding carbon  
6 dioxide?  
7 MR. GRAUMANN: No, I don't. Not  
8 with me.  
9 CHAIRMAN HANSON: Could you provide  
10 us with that along with mercury and nitrogen?  
11 MR. GRAUMANN: I can.  
12 CHAIRMAN HANSON: Appreciate that.  
13 Thank you.  
14 COMMISSIONER JOHNSON: 160 million  
15 at what stage in the process -- since '94, from '94  
16 until the future target date or --  
17 MR. GRAUMANN: The 160 million is  
18 essentially for the scrubber and the fabric filter  
19 that would evolve as a result of Big Stone II. So  
20 that has not been installed yet.  
21 COMMISSIONER JOHNSON: So between  
22 bar 2 and bar 4 would be the \$160 million  
23 investment.  
24 MR. GRAUMANN: Yes. Correct.  
25 VICE CHAIRMAN SAHR: With the sulfur

36

1 dioxide, mercury, and NOx that doesn't get  
2 scrubbed, where does that go? Where does it end  
3 up?  
4 MR. GRAUMANN: Anything that  
5 passed -- anything that passes through the emission  
6 control equipment is exhausted from the stack, but  
7 the levels that we can emit those types of  
8 materials are all set by permit from the -- that  
9 would ultimately be issued by the South Dakota  
10 Department of Environment and Natural Resources.  
11 We have to make a permit application to them.  
12 Not only do we have to meet, for example, like the  
13 new source performance standards which establish  
14 emission limits for each of these parameters for  
15 the NOx, for the SO2, and for mercury, there's a  
16 mercury-specific mercury emission limit for new  
17 units.  
18 The other part of the Clean Air Mercury Rule  
19 that was adopted by the administration in March of  
20 2005 limits the amount of mercury in terms of  
21 pounds that you can emit for various states. Now  
22 there's a certain allocation that goes to a state.  
23 You've got opportunities to buy allowances to emit  
24 more. But it's going to depend upon the efficiency  
25 of the control equipment whether or not we have to



37  
1 buy allowances or not.  
2 The level of allowances for the State of  
3 South Dakota is 144 pounds. And we would need to  
4 stay under that level, or else we would need to go  
5 out and buy additional mercury allowances.  
6 VICE CHAIRMAN SAHR: I guess my  
7 question is more along the lines of -- I mean, use  
8 a lay -- I don't know if it would be a lay term,  
9 but what basically is a drop saw?  
10 I mean, with these are they going up in the  
11 atmosphere and coming down in rain, or what's going  
12 on? I mean, what would be the zone of concern  
13 if -- about anything that might be going on through  
14 the stacks with the NOx and mercury and SO2?  
15 MR. GRAUMANN: Most of the  
16 pollutants in terms of the evaluation process have  
17 to be modeled, and some of them would drop out  
18 close to the plant. Others might be farther away  
19 from the plant.  
20 And we need to meet -- at least as far as the  
21 particulate matter, those kinds of things that are  
22 modeled specifically for this plant, we need to  
23 make sure that we meet all of EPA's air quality  
24 standards that are essentially established at the  
25 property line for the pollutants.

38  
1 COMMISSIONER JOHNSON: With regard  
2 to the mercury and Big Stone I, currently, I mean,  
3 how much mercury is going up the stacks now, pounds  
4 per year?  
5 MR. GRAUMANN: In 2004 we reported  
6 189 pounds per year. And we have been up into the  
7 300 pound.  
8 COMMISSIONER JOHNSON: So you're  
9 currently purchasing allocations from other states  
10 then? The difference between 144 and 189 is being  
11 made up with allocations?  
12 MR. GRAUMANN: The requirement to  
13 have mercury allowances goes into effect in 2010 at  
14 144 pounds is a requirement in 2010. In 2018 that  
15 requirement drops to 58 for the State of  
16 South Dakota for their allocation because of the  
17 reduction requirements as a part of the Clean Air  
18 Mercury Rule.  
19 COMMISSIONER JOHNSON: What is the  
20 projected mercury emissions for both plants once  
21 they're both on line?  
22 MR. GRAUMANN: Like I mentioned, our  
23 target level is the 2004 level.  
24 COMMISSIONER JOHNSON: Okay. 189.  
25 MR. GRAUMANN: 189.

3  
1 COMMISSIONER JOHNSON: Okay.  
2 CHAIRMAN HANSON: Thank you.  
3 MR. LEE: Hi. My name is John Lee.  
4 I'm an engineer from Barr Engineering Company.  
5 We're a regional consultant. I have been providing  
6 consulting services to the utility industry for  
7 over 25 years. And over the last  
8 10 years or so I've been focusing on environmental  
9 issues related to power plant siting.  
10 I'm going to review some of the community and  
11 environmental information that we've compiled and  
12 made an assessment of for the siting permit  
13 application.  
14 As far as the environmental impacts, we looked  
15 at eight general categories of potential impacts  
16 from the project. Those are listed up here, and  
17 I'll go through each of them in turn. But in  
18 general we found that the impacts from the project  
19 will be minimal, and that's primarily because of a  
20 lot of things you've heard already, the employment  
21 of state-of-the-art technologies for air emissions  
22 and other equipment related to the power plant and  
23 also because of what Bill Swanson emphasizes, that  
24 we're taking advantage of a lot of the existing  
25 infrastructure at the current plant.

40  
1 As far as the physical environment, we looked  
2 at the land forms and topography, geology, soils,  
3 and economic deposits. Economic deposits refer to  
4 gravel pits and sand pits, those types of resources  
5 and erosion and sedimentation.  
6 Our conclusions from that assessment was that  
7 impacts would be very limited and primarily related  
8 to the new water storage pond that Bill talked  
9 about earlier that will take an area of about  
10 500 acres and require some grading. That will  
11 impact some of the local land forms southwest of  
12 the plant but in a very limited area.  
13 We looked at the hydrology issues. We looked  
14 at surface water drainage. Again, because most of  
15 the activity is taking place in the existing plant  
16 site, existing surface water drainage systems will  
17 be utilized, and they'll be enhanced where  
18 necessary to deal with additional storm water  
19 runoff that may occur.  
20 And also as far as water needs for the plant,  
21 as Bill mentioned, we'll be -- and questions about  
22 the appropriations permit, we will be asking for an  
23 amendment to the water appropriations permit that  
24 currently allows for appropriation of up to  
25 8,000 acre feet a year from Big Stone Lake.

41

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

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

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

42

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

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

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

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

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

43

1 plant.

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

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

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

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

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

23 MR. SWANSON: Yep.

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

44

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

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

10 With regards to wetlands -- actually maybe I  
11 can back up briefly here. In this area this is the  
12 new storage pond. There will be approximately  
13 58 acres of wetlands that will be inundated.  
14 They're kind of generally in this low point right  
15 in through here. Those will be inundated with the  
16 construction of that basin.

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

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

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

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

17 COMMISSIONER JOHNSON: What is  
18 insignificant?

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

21 COMMISSIONER JOHNSON: Okay.

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

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

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

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

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

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

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

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

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

25 The new plant is expected to require an

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

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

5 MR. LEE: 35. Impacts to  
6 agriculture are expected to be minimal. As we  
7 mentioned, we will take about an additional  
8 500 acres of land out of agricultural production,  
9 but other than that, the impacts to agricultural  
10 economy are expected to be negligible.

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

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

22 This is a graph of the construction labor  
23 requirements. And the time frame here is  
24 48 months, four years from over here to here. And  
25 it's difficult to read the numbers, but this is

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

7 Concerns about potential infrastructure  
8 impacts are the availability of housing. It  
9 doesn't look like housing will be a major issue.  
10 This is one area where we expanded the study area  
11 to encompass a 60-mile radius assuming that  
12 construction workers are not averse to traveling  
13 60 miles or more than an hour away to get to work  
14 on a temporary construction project. And there are  
15 over 2,200 hotel/motel beds within that 60-mile  
16 radius. There are also several trailer parks and  
17 campgrounds that would allow for temporary housing  
18 for the construction forces.

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

25 Similarly with community services, the

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

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

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

25 And then there also have been some

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

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

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

20 Would the 1,400 construction jobs and the  
21 35 long-term jobs at the plant, what's the typical  
22 wage for those type of jobs?

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

1 that.

2 MR. WELK: Mark, go ahead.

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

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

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

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

19 VICE CHAIRMAN SAHR: . Thank you.

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

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

25 MR. LEE: There will be no waste

1 discharge from the plant.  
2 MR. ROLFES: I'll try and quickly  
3 wrap up the project and turn it over to you for  
4 questions unless -- the schedule for the project  
5 going forward, we were in the project development  
6 phase early this year and now we've moved into the  
7 permitting phase and that's why we're here, of  
8 course, is to look at permits.  
9 And the expectation is that we would complete  
10 the permitting effort by the fall of next year and  
11 by the fourth quarter in 2006 so that construction  
12 contracts could be let. It would be at financial  
13 close at that time. When we have all the permits  
14 we can go to the banks and get our money, so to  
15 speak. So we'd have financial close at the fourth  
16 quarter next year so that we could begin  
17 construction as early as we can in the spring of  
18 2007.  
19 It is a four-year construction period. We  
20 would be looking at commercial operation in the --  
21 around April 1, 2011. It's a long process, but  
22 it's a big project.  
23 The other bar on here that I didn't talk about  
24 is engineering, and, of course, there's been some  
25 engineering activity for a long time as we did the

1 studies and now the work to support the effort.  
2 That concludes our formal presentation.  
3 CHAIRMAN HANSON: Questions.  
4 MR. WELK: I think to conclude the  
5 presentation I would like to mark in the record as  
6 Exhibit 1A, which is a CD of the Power Point  
7 presentation, and 1B, which are the actual slides  
8 that were used during the presentation, so we can  
9 record what the public and the Commissioners were  
10 able to see tonight.  
11 And so I'd ask for that to be admitted as part  
12 of the record.  
13 (Exhibits 1A and 1B are marked for identification)  
14 CHAIRMAN HANSON: It will be  
15 admitted. Thank you.  
16 MR. SMITH: 1A is the exact same  
17 slides that we saw tonight?  
18 MR. WELK: Correct. It's an  
19 electronic format.  
20 MR. SMITH: Just so you know,  
21 because nothing here was confidential, all of that  
22 will be available on the Commission's website so  
23 you can have access to it, members of the public,  
24 as soon as we get it up and on there.  
25 CHAIRMAN HANSON: Any questions at

53  
1 this time from Commission members?  
2 VICE CHAIRMAN SAHR: I have a  
3 question for Mark. Mark, I think you guys did a  
4 good job talking about the energy mix choices or  
5 why you picked the plants you did. Can you talk  
6 about the needs to bring in baseload plants?  
7 We've kind of gone through a number of years  
8 we haven't been out there building baseload plants  
9 in this region. And also I think probably a lot of  
10 people in the room already understand this, but  
11 just talk a little bit about why it makes sense to  
12 use coal as a fuel source here and touch a little  
13 bit more on that, please.  
14 MR. ROLFES: Quickly, Big Stone I is  
15 baseload resource. Big Stone II is intended to be  
16 baseload resource. Baseload, like Stacie talked  
17 about and I did, that's the power that's there  
18 24 hours a day seven days a week whenever it's  
19 needed.  
20 The last major baseload facility to be built  
21 in this part of the country was 1987, and that was  
22 the Sherco III Unit south of St. Cloud, north of  
23 Minneapolis. So since 1987 until now there has not  
24 been a unit put into service. So, you know, being  
25 Big Stone II is looking at 2011 -- so, I mean,

54  
1 we're way over 20 years without a baseload  
2 resource.  
3 Just go back and think what has happened since  
4 1987 to the communities of Sioux Falls and Pierre  
5 and Milbank, how much it has grown since that time,  
6 how many people now have computers, two  
7 refrigerators, three televisions in their home, and  
8 it's -- to me as a power professional, it's hard to  
9 believe that we've gone this long without a  
10 baseload facility.  
11 I really believe our infrastructure is being  
12 taxed beyond where it should be. We're relying too  
13 much on old inefficient generating sources.  
14 The question on why coal. You know, if you  
15 look at our energy mix in this country, almost half  
16 of our oil is imported. Natural gas, which, you  
17 know, most people use to heat their homes, we're  
18 getting more and more of that being imported. It's  
19 to the point that almost 20 percent of our natural  
20 gas is being imported, and we're using it faster  
21 than we're finding it.  
22 Coal is the only domestic resource, fossil  
23 fuel resource, that the United States has and has  
24 in abundance. So for energy security I think coal  
25 has to be a cornerstone of our development.

57

1 You know, currently coal supplies over  
 2 50 percent of the electricity in this country, and  
 3 it's going to have to continue to be a cornerstone  
 4 in our energy mix.  
 5 VICE CHAIRMAN SAHR: Mark, with the  
 6 existing plant what is the capacity on that? What  
 7 percent of the time is that operating?  
 8 MR. ROLFES: It's a 450 megawatt  
 9 plant. Its capacity factor runs in the high 80s to  
 10 low 90 percent.  
 11 VICE CHAIRMAN SAHR: And other than  
 12 being down for maintenance and those type of  
 13 planned outages and certainly unexpected ones could  
 14 happen, is it pretty much operating all the time  
 15 that it can for the most part? Those are pretty  
 16 high numbers.  
 17 MR. ROLFES: If you take out planned  
 18 and scheduled outages, the plant's forced outage  
 19 rate is very low. It's available usually over  
 20 98 percent of the time that it's scheduled to be  
 21 there. So it is running. And it's producing  
 22 heavily all the time.  
 23 VICE CHAIRMAN SAHR: And I think a  
 24 lot of us have a real interest in wind energy and  
 25 realize that certainly could be something important

58

1 for this region.  
 2 Could you just compare that to a typical wind  
 3 form you might expect there?  
 4 MR. ROLFES: I don't want anyone to  
 5 walk away with the impression the utilities are  
 6 only looking at Big Stone. This is part of their  
 7 generation mix. But, you know, I can speak a  
 8 little bit more on the wind resources that  
 9 Otter Tail has. It has some in Buffalo Ridge and  
 10 some in North Dakota and the capacity factor on  
 11 those resources is usually running in the  
 12 30 percents. So 30 percent versus 90 percent.  
 13 VICE CHAIRMAN SAHR: Thank you.  
 14 COMMISSIONER JOHNSON: Question for  
 15 Stacie. When you were talking about the energy  
 16 availability you're using MAPP figures.  
 17 Was there a reason you chose those as opposed  
 18 to information on the seven partners?  
 19 MS. HEBERT: The application itself  
 20 has information. It has those same two graphs for  
 21 each of the co-owners. We just didn't want to bog  
 22 down with 14 additional graphs. So those numbers  
 23 are representative of what each of the co-owners  
 24 sees for their individual utility, and I would  
 25 welcome you to if you don't have a copy of the

59

1 application, you can certainly see that information  
 2 in the application.  
 3 COMMISSIONER JOHNSON: In '05 and  
 4 for the next few years it looked like a great deal  
 5 of excess energy. Is that being sold as merchant  
 6 power, or what are MAPP partners doing with that  
 7 now?  
 8 MS. HEBERT: It was actually excess  
 9 capacity.  
 10 COMMISSIONER JOHNSON: Capacity,  
 11 yeah.  
 12 MS. HEBERT: Some of it's being sold  
 13 within the MAPP regions. Some of it's being sold  
 14 outside the MAPP regions. And it's really just the  
 15 individual load at the utility level that starts  
 16 eating away. There could also be some retirements  
 17 of the generating units that would lower the  
 18 capacity number during that period.  
 19 COMMISSIONER JOHNSON: Am I right  
 20 assuming there are also some reserves in there?  
 21 MS. HEBERT: Correct. Each of the  
 22 MAPP member utilities are required to maintain a  
 23 15 percent reserve. So you take your expected peak  
 24 demand for your utility and you also have to have  
 25 capacity for additional 15 percent. That's one of

60

1 the benefits of being in the power pool.  
 2 When everyone has that additional  
 3 15 percent -- if, for example, Big Stone I were to  
 4 go down, we can rely on our neighbors, our  
 5 co-members within MAPP to help supply that power  
 6 when we lose our generator. So we don't have to  
 7 provide our own backup. We can lean on our  
 8 neighbors. Like I say, that's one of the benefits  
 9 of MAPP membership.  
 10 COMMISSIONER JOHNSON: When you  
 11 addressed the possibility of Canadian power, talked  
 12 about the barrier the transmission costs would be,  
 13 do you have any idea -- I mean, were any studies  
 14 done on the costs of undertaking that?  
 15 MS. HEBERT: No. I'm not aware of  
 16 any. There may have been studies. I'm not aware  
 17 of anything done associated with the Big Stone II  
 18 project. But that second factor is truly the  
 19 energy situation in Canada and the way that they  
 20 plan their system based on the energy that's  
 21 produced by the hydroelectric generators. And they  
 22 don't have an 80 or 90 percent capacity factor so  
 23 they end up building more capacity than they need  
 24 in order to guarantee that they've got the energy  
 25 that they need to serve their customers.

61

1 COMMISSIONER JOHNSON: Good.  
 2 Thanks. For Bill, you talked about the ability to  
 3 use existing infrastructure. Will there need to be  
 4 upgrades? I'm thinking about the rail. Will there  
 5 be any upgrades needed to the railroad spur?  
 6 MR. SWANSON: No. The railroad spur  
 7 will continue to be maintained exactly the same way  
 8 it is. I'm sure with the existing traffic on it  
 9 they're going to look at the maintenance of it and  
 10 the existing rail and track bed, but as far as the  
 11 rail spur goes, as far as the coal supply, it will  
 12 be exactly the same.  
 13 COMMISSIONER JOHNSON: Big Stone I  
 14 uses a cooling pond. Big Stone II uses a cooling  
 15 tower. Can you talk a little about why a cooling  
 16 tower is a better option for today?  
 17 MR. SWANSON: It really comes down  
 18 to we actually like the cooling pond a lot. The  
 19 cooling tower is a little easier to maintain the  
 20 chemistries because you have a very small circuit  
 21 of water you're able to control the chemistries.  
 22 The chemistries that build up in the cooling  
 23 water can build up on the cooling surfaces inside  
 24 the plant, the condensers, the various coolers, as  
 25 the calcium gets high, has a smaller circuit you

62

1 can control the energies better.  
 2 COMMISSIONER JOHNSON: When I hear  
 3 cooling water I'm thinking something that looked  
 4 like a typical water tower. Is that about right?  
 5 How big are we talking? Am I getting the right  
 6 mental picture?  
 7 MR. SWANSON: No. I don't know that  
 8 I would say -- it's about 200 -- it's probably  
 9 shorter than a tower. It's about maybe 100 yards  
 10 long, 200 yards long. And there are individual  
 11 sells on that with a fan on top so there's a  
 12 cooling plume that comes out of the top of that and  
 13 that evaporation is where the cooling effect comes  
 14 from. It's a little different style of tower.  
 15 COMMISSIONER JOHNSON: Somebody w  
 16 talking about the joint scrubber. Was that -- is  
 17 the adjective "joint" to indicate that it's being  
 18 used for both plants?  
 19 MR. GRAUMANN: Yes. It will be used  
 20 for both plants.  
 21 COMMISSIONER JOHNSON: There are  
 22 efficiencies obviously to gain by that?  
 23 MR. GRAUMANN: Right. First of all,  
 24 efficiencies in terms of we'll be able to increase  
 25 the size of that scrubber by 100 percent. In other

63

1 words, we would serve both units with an increase  
 2 in cost of only about 60 percent. So there's some  
 3 cost efficiencies there using that approach.  
 4 COMMISSIONER JOHNSON: You talked o  
 5 a couple of different instances about with various  
 6 emissions, you know, wanting to maintain them  
 7 basically at current levels even though we might be  
 8 getting a second plant. And I thought you had a  
 9 good chart to display sulfur dioxide for that.  
 10 I mean, is there new pollution control  
 11 equipment being put into Big Stone I to also  
 12 respond to mercury and NOx? And, if so, are those  
 13 improvements part of the \$160 million that you  
 14 referred to?  
 15 MR. GRAUMANN: They wouldn't all be  
 16 a part of that. The scrubber will be used for both  
 17 sulfur dioxide removal and it would also aid in the  
 18 mercury removal. So simply because there's a joint  
 19 scrubber there will be some benefits from both  
 20 units using that type of an approach.  
 21 The NOx changes for Unit 1 are simply  
 22 operational changes. We haven't included in that  
 23 budget estimate any capital costs, additions for  
 24 Unit 1. Based on our current evaluation of that  
 25 particular unit, we feel that we will be able to

64

1 make adequate reductions on Unit 1 just with  
 2 operational changes so that the overall site NOx  
 3 emissions will not increase.  
 4 COMMISSIONER JOHNSON: Could you  
 5 give me an example of what an operational change  
 6 might be that would have that kind of impact.  
 7 MR. GRAUMANN: What we'd be looking  
 8 at doing, we have an over fire air system on Unit 1  
 9 right now that was installed as a part of the  
 10 Title 5 requirements of the Clean Air Act. And  
 11 that particular requirement required us to get down  
 12 to about .86 pounds per million BTU of NOx as an  
 13 annual emission, average emission limit.  
 14 And that technology, the over fire system  
 15 can -- what that amounts to is essentially staging  
 16 the combustion so you put in a little less air into  
 17 the cyclones and a little more air above and what  
 18 that does then is it changes the mix for the  
 19 combustion air and so it results in a decrease in  
 20 NOx emissions. And we are planning on running that  
 21 over fire air system just a little harder to be  
 22 able to accommodate the Big Stone II.  
 23 COMMISSIONER JOHNSON: Is there a  
 24 reason that those operational changes haven't been  
 25 implemented prior to, you know, this discussion?



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1 MR. GRAUMANN: We haven't been doing  
2 that. We've started operating that system back in  
3 2000. That was the first time that the system was  
4 actively used for extended periods of time. We've  
5 been working with that system during that time.

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

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

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

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

66  
1 time. But that equipment I don't believe has been  
2 in operation for probably close to 20 to 25 years,  
3 something like that.

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

6 CHAIRMAN HANSON: I have just a few  
7 questions.

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

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

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

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

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

25 I can tell you transmission constraints that

6  
1 we see in this region do limit in Otter Tail's case  
2 where we can actually go out and buy capacity in  
3 energy. There are transmission constraints that  
4 will -- we've had times where we wanted to purchase  
5 energy from Canada, and there's a constraint down  
6 in Nebraska that makes that -- I'm talking a  
7 short-term transaction there but constraints in the  
8 transmission system down in Nebraska can cause  
9 it -- our transmission request can be denied.

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

12 MS. HEBERT: Certainly. Certainly.

13 CHAIRMAN HANSON: Okay.

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

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

68  
1 state.

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

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

14 CHAIRMAN HANSON: Understood.

15 MR. ROLFES: With that said, just  
16 quickly, the existing Big Stone Plant has four  
17 transmission lines out of it. Two of them are  
18 230,000 volts and one runs north and one runs  
19 south. They are not looked at to be changed at  
20 all.

21 There are two 115 kV lines that run north and  
22 east and south and east. One goes to Morris. One  
23 goes to Granite Falls. We have looked at what it  
24 would take to get the power generated by a  
25 600 megawatt unit out into the system.



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

4 Our needs can be met by upgrading those two  
5 115 lines to 230,000 volts. Then we're also  
6 looking at a couple of options, but to make it  
7 simple those could just be upgraded to 230 volts to  
8 take care of the needs for this project.

9 We are looking at the regional needs and  
10 regional plans and are very strongly considering  
11 building the south line at 345 kV. That line is  
12 looking at roughly half to be in South Dakota, half  
13 in Minnesota. If we go ahead and are approved by  
14 the Commission to build that 345, we expect to have  
15 an additional capacity that could come close to  
16 1,000 megawatts.

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

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

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

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

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

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

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

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

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

13 Because of that, when Big Stone was built and  
14 for the first 15 years of operation it got a train  
15 a day. Now because we're on better coal, we're  
16 getting a train every other day. With both units  
17 we expect the train traffic level to be back to the  
18 level it was in 1975 through 1990 roughly, and that  
19 is one train a day. So the area has seen train  
20 traffic, you know, that high for 15 -- for a  
21 15-year period with one train a day instead of a  
22 train every other day.

23 CHAIRMAN HANSON: Are you a captive?

24 MR. ROLFES: Yes, we are.

25 CHAIRMAN HANSON: Okay. Thank you.

1 Any further questions?

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

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

11 MR. ROLFES: Well, going from 115 to  
12 230 will not yield much, if any, excess capacity.

13 COMMISSIONER JOHNSON: What would  
14 the approximate, you know, approximate cost,  
15 marginal cost, of going from -- instead of 115 to  
16 230, going from 115 to 345?

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

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

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

73

1 of the Buffalo Ridge. So it's the area where we  
2 would expect the region to need additional  
3 capacity.  
4 The line that runs north to Morris is not a  
5 prime wind development. We don't expect the needs,  
6 the regional needs, to justify anything more than  
7 230 on that line.  
8 COMMISSIONER JOHNSON: Okay.  
9 Perfect. Thank you.  
10 VICE CHAIRMAN SAHR: Mark, one last  
11 question. Have you looked at all -- obviously this  
12 is a major investment. Have you looked at any sort  
13 of potential rate impact?  
14 For the investor-owned companies we do set the  
15 electricity rates. Do you see any expected  
16 increase, decrease, so on and so forth? We'll take  
17 a decrease but --  
18 MR. ROLFES: I can probably assure  
19 that there won't be a decrease because of this.  
20 Each utility looks differently. I don't know,  
21 Stacie, if you are in a position to comment. I  
22 don't know, to be honest.  
23 MS. HEBERT: Like Mark said, each  
24 utility is taking a look at that on an individual  
25 basis, and that's something that we're working on

74

1 as part of the Minnesota certificate of need  
2 process, but I don't have anything available for  
3 you right now.  
4 VICE CHAIRMAN SAHR: Thank you.  
5 CHAIRMAN HANSON: Thank you.  
6 (A short recess is taken)  
7 CHAIRMAN HANSON: Ladies and  
8 gentlemen, I have just a couple of announcements  
9 before we get on our way with public testimony.  
10 The first is that we do have a sign-up sheet as we  
11 explained earlier. You will need to place your  
12 address on the sign-up sheet if you wish to receive  
13 any of the mailings so please be sure to do that.  
14 Right now, however, the sign-up sheet is up  
15 here with Cheri. You can go ahead and sign your  
16 name a second time with the address if you haven't  
17 already on a sheet back there in case you don't  
18 find your name back there.  
19 When we take public testimony you will  
20 obviously need to use your outside voice. Pretend  
21 you're an auctioneer at an auction. You don't have  
22 to speak quickly. We prefer you enunciate, and we  
23 have an opportunity to hear you. We want everyone  
24 to have an opportunity to be a part of this and to  
25 hear what is being said.

75

1 Would you please -- if you are having trouble  
2 speaking loud enough, you may see a few folks like  
3 this (indicating). It's very important that the  
4 court reporter be able to hear what you're saying  
5 so if you're having problems projecting and you see  
6 some hands cupped to our ears, you will move up  
7 here, please, and speak in the general direction of  
8 the Council and the court reporter.  
9 COMMISSIONER JOHNSON: I'd just make  
10 one other comment. Chairman Hanson did make a good  
11 point about the importance of signing in. I'd add  
12 one more reason. That's really our public record  
13 of who was here tonight, who in the community and  
14 the region felt it was important enough to come  
15 out.  
16 Even if you don't say anything, we'd be  
17 interested in making sure we have your attendance  
18 noted.  
19 VICE CHAIRMAN SAHR: Mr. Chairman,  
20 may I add one more thing? I'm just curious, show  
21 of hands for my sake how many people are in favor  
22 of the plant or feel good about it right now?  
23 (Hands are raised)  
24 VICE CHAIRMAN SAHR: The utility  
25 guys up front for the utility, you better raise

76

1 your hand. Thank you.  
2 CHAIRMAN HANSON: I also noticed a  
3 number of elected officials who are in the  
4 audience, and I'd like to point out that Val Rausch  
5 and Steve Street, Representatives, are here, if you  
6 would raise your hand and say howdy.  
7 Additionally, Jim Peterson, State Senator, I  
8 believe I saw him. And County Commissioners, I saw  
9 a group of them conspiring somewhere. We'd like to  
10 say hello. Acting Mayor Don Larson from Milbank.  
11 There you are. As well as Mayor Deb Wick from  
12 Big Stone. We appreciate very much having you here  
13 this evening.  
14 Bruce Gerhardson would like to make a couple  
15 of comments, address the captive coal issue before  
16 we get in with the public testimony. You can fault  
17 me for asking that particular question.  
18 MR. GERHARDSON: I'll actually -- if  
19 you don't mind, if you're not sick of Mark Rolfes,  
20 I'll have Mark speak to it. Mark is I think in  
21 many ways better than I. I will certainly fill in  
22 if you prefer.  
23 CHAIRMAN HANSON: I was informed  
24 that you needed to address that issue. Thank you.  
25 MR. ROLFES: When the question was

77

1 asked about captive rail and I just responded as  
2 yes but maybe a little bit more explanation so  
3 everybody understands what we're talking about and  
4 the process.  
5 Right now the existing Big Stone I unit and  
6 the proposed Big Stone II unit can only receive  
7 rail deliveries from the Burlington Northern  
8 Sante Fe Railroad. So when we say we're captive it  
9 means we only have a single rail supplier we can go  
10 to. There is not competition.  
11 Just a little sidelight to that. There is an  
12 organization referred to as the Surface  
13 Transportation Board. It's what used to be the  
14 Interstate Commerce Commission, but now it's the  
15 Surface Transportation Board that's supposed to  
16 regulate disputes when a customer feels that they  
17 are being overcharged by the railroad.  
18 And currently we are involved in a Surface  
19 Transportation Board case that's pending. In fact,  
20 we expect a decision very soon. That is a very  
21 long and tenuous process that we have been at for  
22 many, many years. It's a very cumbersome process.  
23 That proceeding will set the tariff rate for a  
24 20-year period for fuel shipments.  
25 So we are captive, one supplier that does --

78

1 has the ability to have monopolistic tendencies,  
2 and our remedy is to go to the Surface  
3 Transportation Board for setting of our rates,  
4 which is a long, cumbersome process.  
5 CHAIRMAN HANSON: Thank you very  
6 much, Mark. We'll give the public testimony  
7 portion of the hearing. We'll appreciate hearing  
8 from any citizens who wish to speak to the  
9 Commission at this time.  
10 MR. SOKOLSKI: My name is  
11 Adam Sokolski. I represent the Izaak Walton League  
12 of America. We've got members all across the  
13 country, including several major chapters here in  
14 South Dakota as close as Watertown. I'm going to  
15 ask that my written comments be added to the record  
16 of today's hearing. I'm going to go ahead and  
17 insert some handwritten -- not notes but  
18 corrections to it.  
19 I'm an energy associate for our Izaak Walton  
20 League's Midwest Office in St. Paul, Minnesota. I  
21 work on energy issues throughout the region  
22 together with our partners for Minnesota For Energy  
23 Efficient Economy, The Union Of Concerned  
24 Scientists, and -- excuse me. Intending to  
25 intervene in the South Dakota Public Utilities

79

1 Commission proceeding regarding the Big Stone II  
2 project.  
3 We have concerns about the proposed Big Stone  
4 II power plant, not the least of which that it  
5 would be a substantial increase in carbon dioxide  
6 emissions over today's. This is an environmental  
7 issue and a financial issue. The world's emerging  
8 response to global warming will inevitably  
9 transform the regulatory climate in the years  
10 ahead. These new laws will in turn change the  
11 economics and the technology of electrical  
12 production.  
13 This will make high carbon energy sources  
14 relatively more expensive than they are today,  
15 while low carbon energy sources become better and  
16 cheaper through technological advanced economies of  
17 sale and government initiatives.  
18 The Big Stone II partners have proposed a  
19 high-risk, high-cost power plant when you consider  
20 the ratepayer costs that are likely under a  
21 carbon-capped regulatory scenario. Just this  
22 summer the United States Senate passed a resolution  
23 nonbinding supporting, "a comprehensive and  
24 effective national program of mandatory,  
25 market-based limits and incentives on emissions

80

1 of greenhouse gases." The regulatory path ahead  
2 puts a hefty price tag on proposals such as  
3 Big Stone II.  
4 In fact, Otter Tail Power is one of the main  
5 proponents of the project. Their largest customers  
6 in Minnesota, Enbridge Energy Corporation, which is  
7 a large natural gas pipe line as well as an oil  
8 pipeline, is seeking to insulate itself from the  
9 high costs and risks of future fossil fuel  
10 regulation from investments such as Big Stone by  
11 seeking from Otter Tail a long-term contract that  
12 is keyed into the costs of a new wind power  
13 development in the other Dakota, North Dakota.  
14 The Izaak Walton League, Minnesotans For An  
15 Energy Efficient Economy, and the Union Of  
16 Concerned Scientists appreciate the opportunity to  
17 participate in the South Dakota PUC's proceeding.  
18 Thank you.  
19 And may I add this to the record?  
20 CHAIRMAN HANSON: Yes.  
21 (Exhibit 2 is marked for identification)  
22 CHAIRMAN HANSON: Is there any  
23 further public testimony, please. You may also ask  
24 questions if you have any concerns.  
25 MS. WHITE: Thank you for allowing

81

1 me to speak tonight. My name is Deanna White, and  
2 I am with the Sierra Club, and I'm here on behalf  
3 of the several thousand members in the Sierra Club  
4 that live in South Dakota and in Minnesota.  
5 I had a couple of questions about the  
6 presentation that I'd like to I guess get into the  
7 record. My comments aren't as neatly typed and  
8 organized as other folks, but there were just a few  
9 thoughts and concerns that I wanted to make sure  
10 were part of the record.  
11 Sierra Club has submitted official comments in  
12 writing as part of the scoping process, but I  
13 wanted to just hit some of the highlights and  
14 concerns and we'll make sure copies of our written  
15 comments were also submitted to the PUC for your  
16 perusal.  
17 First, in terms of the questions on the  
18 presentation, I was a little confused and math  
19 isn't my strong suit and never has been but I  
20 noticed that on the MAPP deficit diagram there was  
21 an awfully sharp move from, you know, the plus side  
22 to the negative side. And I didn't see why that  
23 was, why all the sudden in, you know, 2007 I  
24 believe it was that number just suddenly became a  
25 deficit. So I'd be curious to know more about

82

1 that.  
2 I'm also very encouraged to hear that some of  
3 the emissions might be cut by as much as 50 percent  
4 of current levels, and I would hope that efforts  
5 would be made in Big Stone I or the existing  
6 Big Stone Plant to cut those emissions with or  
7 without Big Stone II. I think that if that  
8 technology exists, which is what you're telling us  
9 this evening, I would hope that you would consider  
10 that option.  
11 And the other concern that I had or question  
12 that I had when you were going through the  
13 environmental impact specifically as well as the  
14 community impacts that this proposed plant would  
15 have is it seemed like you were really looking just  
16 at the footprint for the actual building of the  
17 plant, and I think it's important for the  
18 Commissioners, for the public, and for the folks at  
19 Otter Tail to consider the broader impact. Because  
20 that is where most of the concerns that folks have  
21 with the building of this plant lie.  
22 You're talking about, you know, more trains.  
23 You're talking about the effect that's going to  
24 have as those trains travel through communities  
25 well outside of your 20-mile radius. You're

83

1 talking about potential increases in other criteria  
2 pollutants including mercury which is going to  
3 spread far beyond the immediate community of the  
4 plant and the holding pond.  
5 And, you know, we think that there are some  
6 real concerns about the impact that that's going to  
7 have on the health of folks that live within the  
8 area of those pollutants are going to be part of  
9 the air that they're breathing. That's going to  
10 have an impact on their health, going to have an  
11 impact on our economy, not just in terms of the  
12 increased costs in hospital visits and asthma and  
13 other problems that folks are going to be facing  
14 that are going to contribute to increased hospital  
15 visits and other problems, but, you know, I grew up  
16 in South Dakota. We hunt and fish. We're  
17 outdoors. Those rivers, streams, lakes are  
18 incredibly important to us. We're already seeing  
19 problems in Minnesota that are creeping into  
20 South Dakota with mercury pollution in our lakes  
21 and streams that has an impact not just on what I  
22 get to do on the weekend but it has a huge impact  
23 on the tourism that has a fundamental base for  
24 small communities in rural South Dakota.  
25 I'd encourage you to really consider that

84

1 impact as well and the potential impact on tourism  
2 and our quality of life as well as the global  
3 warming impacts and all of the other things that I  
4 know folks are going to be talking about tonight.  
5 I think just to keep it short because it's  
6 getting late, why are we committing, you know,  
7 another 40 years and another billion dollars to a  
8 technology that's already out of date? We need to  
9 be exploring other alternatives to coal and other  
10 alternatives to building new polluting coal fire  
11 power plants. We should be investing in  
12 alternative energy. We should be investing in  
13 energy efficiency, and we should be looking at  
14 other alternatives instead of trying to do the same  
15 thing over and over again.  
16 Thank you for your time, thank you for your  
17 attention, and I'll make sure we get copies of our  
18 official comments for your record.  
19 CHAIRMAN HANSON: Thank you, Diana  
20 (sic). And I think it's appropriate to have  
21 answers to those questions at this time. I believe  
22 the Commissioners didn't ask the question. It's a  
23 very good question about the reduction in  
24 generation. The Commissioners didn't ask that  
25 question because we knew the answer. Certainly

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

3 MS. HEBERT: The question that Diana  
4 raised had to do with the steep increase in  
5 deficits that's seen in the MAPP power pool  
6 beginning in 2010. There's really three reasons,  
7 three drivers behind that decrease. One of them  
8 being load growth of the utilities. The second one  
9 could be retirement of existing generating plants  
10 that have reached the end of their useful life and  
11 so no longer are going to be generating  
12 electricity. And the third possibility, a lot of  
13 utilities in MAPP have capacity purchases from  
14 other utilities. So another factor is that they  
15 may have capacity purchases that expire in that  
16 2010, 2011 time frame and out beyond that too. So  
17 those are three reasons why the amount of capacity  
18 available could be shrinking going forward.

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

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

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

6 Could you address that for us, please.

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

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

16 We are proposing to make this a better project  
17 by building a scrubber that is twice as big and  
18 taking the exhaust gases from Big Stone I to that.  
19 So even though the output from the site will more  
20 than double, SO<sub>2</sub>, which is the primary pollutant  
21 removed by the scrubber, will probably be roughly  
22 15 percent of what it is today. We're reducing it  
23 by 85 percent.

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

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

4 So for SO<sub>2</sub>, NO<sub>x</sub>, and mercury the effect on the  
5 surrounding area can only be positive from where it  
6 is today.

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

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

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

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

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

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

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

18 Back in 1980 we built our last generation  
19 resource in Wheatland, Wyoming in Laramie River  
20 Station. That unit has met our members' needs from  
21 1980 until 2009, where in 2010 we go into our  
22 generation deficit which we see in the MAPP Region.  
23 So from our member communities we see the same  
24 types of things that have been reported as you'd  
25 expect as members of MAPP.

89

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

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

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

20 Thank you, folks.

21 CHAIRMAN HANSON: Thank you.

22 Further comment?

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

90

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

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

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

21 And Western has a website where we will be  
22 providing information on the EIS at [www.wapa.gov](http://www.wapa.gov),  
23 and look under the interconnection projects.

24 That's all. Thank you.

25 CHAIRMAN HANSON: Thank you, Nancy.

91

1 Further comment, please. Good evening.

2 MS. MEYERS: Good evening. My name  
3 is Nettie Myers. I'm the President of Utility  
4 Shareholders of South Dakota representing over  
5 2,000 members of utility shareholders of the  
6 investor-owned utilities in South Dakota, and we  
7 wholeheartedly support this project.

8 Thank you.

9 CHAIRMAN HANSON: Thank you.

10 Further comment, please.

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

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

25 We hear the most efficient electric energy

92

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

12 CHAIRMAN HANSON: Further comment,  
13 please.

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

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

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

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

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

12 Tonight you heard about a potential  
13 development that can occur from Milbank and for  
14 40 miles south. We have the Coteau Hills running  
15 through Grant County, Deuel County down into  
16 Brookings County, one of the prime wind areas of  
17 South Dakota. Mark told you that this is being  
18 overbuilt going south. There's a tremendous  
19 potential. Every megawatt of wind costs about  
20 \$1.3 million dollars. A lot of farmers down in  
21 Deuel County are really excited about maybe being  
22 able to add wind generation on.

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

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

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

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

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

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

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

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

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

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

25 MR. STREET: I concur with the

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

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

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

25 CHAIRMAN HANSON: Thank you.



97

1 Further comment, please.

2 MR. TUCHOLKE: After the team

3 approach, this isn't going to be as exciting. I'm

4 Clayton Tucholke, Gene Mann, Grant County

5 Commissioners. We'd like to welcome you to Milbank

6 and Grant County, appreciate you coming up.

7 We've been around I guess representing the

8 Commission. We've been involved in this right

9 before the start back before anybody else heard

10 about it, the Commissioners do, and our questions

11 have been answered. We're very supportive of

12 what's happening, especially looking back the

13 30 years we've been involved and seeing the other

14 one built and looking forward to this one here

15 coming to Grant County for the need for the power.

16 And it will be a great thing for our economy in the

17 future.

18 MR. MANN: I'm Gene Mann and also a

19 County Commissioner, and I guess one thing that has

20 struck me tonight that I just really thought of,

21 I've been a Commissioner for 15 years and Chairman

22 of the Planning and Zoning Board for 15 years,

23 12 years previous to that on the City Council. And

24 I have never heard a Complaint about the way the

25 power plant out here has been operated.

98

1 And as far as I'm concerned, it's a classy

2 outfit, and they bend over backwards to cooperate

3 with everybody around.

4 Thank you.

5 CHAIRMAN HANSON: Thank you,

6 gentlemen. Further comment this evening?

7 MS. STUEVE: I'd like to take up the

8 challenge the gentlemen presented about can we push

9 for something. Yes, we can, and I will push for

10 something. We can do more. We can do better. We

11 can do bigger. We can win bigger.

12 I am Mary Joe Stueve, S-T-U-E-V-E, and I am

13 here in two capacities tonight. I just joined on

14 with Clean Water Action South Dakota out of

15 Sioux Falls. And I have information here that I

16 would like for the record that I will present.

17 But I'm also here in the capacity -- I've

18 raised my four children on a family farm in between

19 Big Stone County and Traverse County in Minnesota

20 24 years. I have grandchildren. I have a home in

21 Graceville, Minnesota. Me and my family and our

22 children, we live there off and on. We come back.

23 We intend to move back. I have a home there, I

24 have land there, and I have an interest in what's

25 going on here.

99

1 I will pass these down. I'll place extra

2 copies in the back for those of you who want to

3 pick them up. And, for the record, these are a

4 synopsis of the comments we presented earlier as an

5 intervening party. And here's contact information.

6 I'll be the first to admit I like my

7 electricity and I use it. Four children. I'm on

8 the farm. We had ice storms. We had power go out

9 for four or five days and no way to get into town.

10 I know what it is to have electricity, and I

11 appreciate it. I will be the first to admit it.

12 Do we know that South Dakota is considered and

13 has been rated as the Saudi Arabia along with the

14 other Upper Midwest states, the Saudi Arabia of

15 wind energy?

16 Fact: South Dakota has a potential power

17 output of 117,200 megawatts. That's the

18 equivalent of 195 coal plants the size of proposed

19 Big Stone II. We have that capacity, that

20 availability. Some will say it's not reliable.

21 Fact: There's a plant going up, the final

22 report came in in June just this last year, and

23 it's called Compressed Air Energy Storage. This

24 plant is going up down in the Oklahoma, Texas,

25 New Mexico area. They are putting this --

100

1 implementing this in. It's Compressed Air Energy

2 Storage, CAES. It will go online in year three.

3 I spoke with Dick Kelly this morning, CEO of

4 Xcel Energy. After he got done speaking I said, Do

5 you know about this? What does Xcel think about

6 this? Yes. He says, That's key. That's key.

7 South Dakota could tap this, could look into

8 this Compressed Air Energy Storage. It a

9 three-year time frame to get it on. We have the

10 underground storage to be able to put the air in to

11 bring it out at high market demand time and to be

12 able to -- we have the coal plant. It's usually a

13 dual operation.

14 I urge the Commission to look at Compressed

15 Air Energy Storage. I can get you the report site,

16 the document. It's titled The Economic Impact of

17 CAES on Wind in Texas, Oklahoma, and New Mexico.

18 The other things I would like the

19 Commissioners -- and I appreciate you coming

20 tonight. I appreciate the opportunity to speak and

21 to hear what everyone's talking about. Some

22 concerns and questions I had with the earlier

23 presentation:

24 On the mercury, correct me if I'm wrong,

25 please. I heard you say we would be at the same or



101

1 lower levels of mercury emission with the two  
2 plants.  
3 MR. GRAUMANN: That's correct.  
4 That's our target.  
5 MS. STUEVE: I might ask at this  
6 point in time, please correct me again if I'm  
7 wrong, but Big Stone I was grandfathered in before  
8 the new emission guidelines came out with mercury  
9 emissions and the new guidelines are lower and the  
10 older plants operate at 4 to 13 times higher than  
11 the new required emissions for the plants that were  
12 not grandfathered in. So will we still be above  
13 the new guidelines if we are operating at 2004  
14 levels?  
15 MR. GRAUMANN: Your understanding of  
16 that isn't entirely correct. When EPA developed  
17 the new mercury rules in 2005, March of 2005, they  
18 did actually two things. They established emission  
19 rates for mercury for new plants. They also  
20 established the national cap and trade system for  
21 mercury. And they allocated allowances to each of  
22 the states as a part of that particular process.  
23 South Dakota's allocation is about 144 pounds  
24 based on the standards for beginning in 2010. And  
25 in 2018 that drops to 58.

102

1 And so in absence of any controlled  
2 technologies, Big Stone I would have a choice of  
3 either, one, buying allowances, or, two, scrubbing  
4 or doing something to reduce the mercury emissions  
5 down to those levels because we -- that cap would  
6 apply then to our particular units. We couldn't do  
7 anything, we couldn't emit anymore mercury than the  
8 cap would allow, otherwise we'd be in violation of  
9 the rules.  
10 And so there is an apples and oranges  
11 comparison, but to say that Big Stone I is not  
12 going to be controlled, that's incorrect because  
13 they will need to meet the new mercury levels  
14 either by buying extra allowances above the 144 or  
15 doing something to get down to the 144, if the  
16 allowances are all distributed to Big Stone I. And  
17 that's not our decision. That will be the State of  
18 South Dakota's.  
19 MS. STUEVE: It will be contingent  
20 on the decision.  
21 (Discussion off the record)  
22 CHAIRMAN HANSON: Please, go ahead.  
23 MS. STUEVE: Okay. Another concern  
24 and something I would like to be considered, total  
25 maximum daily load, TMLD. I'm certain South Dakota

103

1 and Minnesota guidelines are different, although we  
2 do share the same wonderful lake, Big Stone Lake.  
3 And I'm not familiar with the rules and  
4 regulations. I would like that to be considered as  
5 part. In Minnesota we have a court case and  
6 development was halted down near the suburban  
7 metropolitan area. Development was supposed to  
8 occur, but it would impair a river down there that  
9 was already -- it would further impair it. And  
10 when it's listed as being impaired certain projects  
11 that would add to the pollution to it are not  
12 allowed to continue. That would need to be looked  
13 at. Big Stone, Little Minnesota, potential rivers  
14 coming out from there. And it has to be more than  
15 just the adjacent. It's at least a 50-mile radius.  
16 The other one would be the job curve that you  
17 showed for the Big Stone Plant. And we do need  
18 jobs. We do need development. Any of you who have  
19 not been down to the Lake Benton area and seen what  
20 has happened to the local economy, the community  
21 down there, I urge you to take a look at that and  
22 see what has happened with the wind power  
23 development down there.  
24 The job curve that you showed went up and  
25 down, the bell curve; correct? I would like the

104

1 Commission to consider and to be part of this  
2 study, economic impact. I have a guess that the  
3 job curve for the wind development potential would  
4 be a curve up and it would plateau and keep up.  
5 We heard from the tour that for every one to  
6 20 turbines there's at least three jobs and there's  
7 hundreds -- we have the potential for thousands of  
8 windmills across South Dakota and a development and  
9 sustainability of jobs.  
10 I have many other things. I thank you for  
11 your time, though. Most of the other comments and  
12 concerns I have as a citizen and as Clean Water  
13 Action are in the written comments we submitted.  
14 CHAIRMAN HANSON: Thank you,  
15 Mary Joe. And we will mark those as Exhibits 3A  
16 and 3B, 3C.  
17 (Exhibits 3A through 3C are marked for identification)  
18 COMMISSIONER JOHNSON: For anybody  
19 in the audience that just because you don't take an  
20 opportunity to speak tonight doesn't mean this is  
21 your last opportunity for input. Certainly we  
22 would welcome written comments at the Commission as  
23 well. That's it.  
24 CHAIRMAN HANSON: Thank you. And,  
25 Nancy from WAPA, would you please make an attempt,

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

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

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

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

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

25 MS. STUEVE: I will put extra copies

1 at the back table.

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

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

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

18 Excuse me. Before I do that, Commissioner  
19 Johnson made an excellent point. Please be aware  
20 if you have additional information, you wake up at  
21 3 o'clock tonight and think oh, I wish I had said  
22 this, please submit that to the Public Utilities  
23 Commission. We appreciate that.

24 That concludes the hearing.

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

1 STATE OF SOUTH DAKOTA )


2 :SS CERTIFICATE

3 COUNTY OF HUGHES )

4  
5 I, CHERI MCCOMSEY WITTLER, a Registered  
6 Professional Reporter and Notary Public in and for the  
7 State of South Dakota:

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

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

15  
16  
17   
18 Cheri McComsey Wittler,  
19 Notary Public and  
20 Registered Professional Reporter  
21  
22  
23  
24  
25

<p><b>\$</b></p> <p>\$1 [1] 95:2</p> <p>\$160 [3] 34:19 35:22 63:13</p> <p>\$25 [1] 72:19</p> <p>\$30 [1] 52:10</p> <p>\$85,000 [2] 52:13 52:17</p>	<p>15-year [1] 71:21</p> <p>160 [2] 35:14 35:17</p> <p>18 [2] 30:3 96:2</p> <p>189 [4] 38:6 38:10 38:24 38:25</p> <p>19 [1] 6:20</p> <p>195 [1] 99:18</p> <p>1975 [2] 10:1 71:18</p> <p>1980 [2] 88:18 88:21</p> <p>1987 [3] 55:21 55:23 56:4</p> <p>1990 [2] 30:9 71:18</p> <p>1994 [3] 33:10 33:14 33:22</p> <p>1995 [4] 10:3 12:15 35:1 35:3</p> <p>1A [4] 2:8 54:6 54:13 54:16</p> <p>1B [3] 2:9 54:7 54:13</p>	<p>24-seven [1] 18:21</p> <p>25 [4] 39:7 52:10 66:2 95:12</p> <p>250 [1] 70:8</p> <p>28 [1] 9:15</p>	<p><b>8</b></p> <p>8,000 [2] 25:14 40:25</p> <p>80 [4] 2:10 2:10 2:10 60:22</p> <p>80s [1] 57:9</p> <p>819 [1] 15:11</p> <p>85 [1] 86:23</p> <p>86 [1] 64:12</p>
<p><b>1</b></p> <p>'05 [1] 59:3</p> <p>'94 [2] 35:15 35:15</p>	<p><b>2</b></p> <p>2 [4] 2:10 35:22 65:11 80:21</p> <p>2,000 [3] 34:10 34:12 91:5</p> <p>2,200 [1] 49:15</p> <p>20 [4] 56:1 56:19 66:2 104:6</p> <p>20-mile [4] 47:9 47:11 47:18 82:25</p> <p>20-year [1] 77:24</p> <p>200 [2] 62:8 62:10</p> <p>2000 [1] 65:3</p> <p>2003 [1] 10:8</p> <p>2004 [9] 31:12 33:1 33:5 33:11 33:15 34:2</p> <p>2005 [13] 1:8 2:4 4:12 4:17 6:3 6:20 16:17</p> <p>2006 [1] 53:11</p> <p>2007 [2] 53:18 81:23</p> <p>2009 [1] 88:21</p> <p>2010 [8] 15:10 16:10 38:13 38:14 85:6 85:</p> <p>2011 [5] 15:12 33:17 53:21 55:25 85:16</p> <p>2012 [1] 15:12</p> <p>2013 [2] 16:17 16:20</p> <p>2018 [2] 38:14 101:25</p> <p>21st [1] 107:13</p> <p>22 [2] 4:17 88:1</p> <p>230 [6] 69:7 72:8 72:12 72:16 72:18 73:7</p> <p>230,000 [2] 68:18 69:5</p> <p>24</p>	<p><b>3</b></p> <p>3 [4] 26:14 26:17 45:19 106:21</p> <p>30 [5] 58:12 58:12 95:12 95:13 97:13</p> <p>300 [1] 38:7</p> <p>32 [1] 25:23</p> <p>345 [5] 69:11 69:14 72:16 72:18 72:24</p> <p>35 [4] 48:1 48:5 50:12 51:21</p> <p>3A [3] 2:11 104:15 104:17</p> <p>3B [2] 2:12 104:16</p> <p>3C [3] 2:13 104:16 104:17</p>	<p><b>9</b></p> <p>9,900 [1] 23:18</p> <p>90 [4] 44:24 57:10 58:12 60:22</p> <p>90s [1] 30:16</p> <p>94 [1] 15:11</p> <p>95 [2] 30:15 34:13</p> <p>97 [1] 30:15</p> <p>98 [1] 57:20</p> <p>9:45 [1] 106:25</p>
<p><b>1</b></p> <p>1 [7] 5:2 17:4 53:21 63:21 63:24 64:1</p> <p>64:8 1's [1] 32:25</p> <p>1,000 [2] 34:15 69:16</p> <p>1,050 [3] 33:18 33:19 34:15</p> <p>1,400 [3] 47:22 49:1 51:20</p> <p>1,500 [1] 15:12</p> <p>1.3 [1] 93:20</p> <p>10 [3] 14:13 39:8 47:1</p> <p>10,900 [2] 22:21 41:16</p> <p>10,902 [1] 25:11</p> <p>10-hour [1] 52:5</p> <p>100 [3] 17:3 62:9 62:25</p> <p>100-watt [1] 17:2</p> <p>104 [9] 2:11 2:11 2:11 2:12 2:12 2:12 2:</p> <p>13 2:13 2:13</p> <p>11 [1] 20:4</p> <p>115 [6] 68:21 69:5 72:8 72:11 72:15 72:16</p> <p>117,200 [1] 99:17</p> <p>12 [4] 13:21 20:18 88:2 97:23</p> <p>127,000 [1] 31:16</p> <p>13 [4] 1:8 4:12 13:20 101:10</p> <p>13,300 [1] 34:7</p> <p>13th [2] 2:3 107:10</p> <p>14 [1] 58:22</p> <p>14,400 [1] 34:4</p> <p>14.1 [1] 31:13</p> <p>144 [6] 37:3 38:10 38:14 101:23 102:14</p> <p>102:15</p> <p>15 [10] 16:18 16:18 59:23 59:25 60:3 71:</p> <p>14 71:20 86:22 97:21 97:22</p> <p>15,000 [1] 41:14</p>	<p><b>2</b></p> <p>2 [4] 2:10 35:22 65:11 80:21</p> <p>2,000 [3] 34:10 34:12 91:5</p> <p>2,200 [1] 49:15</p> <p>20 [4] 56:1 56:19 66:2 104:6</p> <p>20-mile [4] 47:9 47:11 47:18 82:25</p> <p>20-year [1] 77:24</p> <p>200 [2] 62:8 62:10</p> <p>2000 [1] 65:3</p> <p>2003 [1] 10:8</p> <p>2004 [9] 31:12 33:1 33:5 33:11 33:15 34:2</p> <p>2005 [13] 1:8 2:4 4:12 4:17 6:3 6:20 16:17</p> <p>2006 [1] 53:11</p> <p>2007 [2] 53:18 81:23</p> <p>2009 [1] 88:21</p> <p>2010 [8] 15:10 16:10 38:13 38:14 85:6 85:</p> <p>2011 [5] 15:12 33:17 53:21 55:25 85:16</p> <p>2012 [1] 15:12</p> <p>2013 [2] 16:17 16:20</p> <p>2018 [2] 38:14 101:25</p> <p>21st [1] 107:13</p> <p>22 [2] 4:17 88:1</p> <p>230 [6] 69:7 72:8 72:12 72:16 72:18 73:7</p> <p>230,000 [2] 68:18 69:5</p> <p>24</p>	<p><b>4</b></p> <p>4 [7] 26:14 26:17 29:24 35:22 92:20 94:</p> <p>16 101:10</p> <p>40 [2] 84:7 93:14</p> <p>44,000 [3] 33:24 34:3 34:12</p> <p>450 [3] 33:15 34:14 57:8</p> <p>48 [1] 48:24</p> <p>496 [1] 1:22</p>	<p><b>A</b></p> <p>Ability [4] 61:2 66:20 69:18 78:1</p> <p>Able [15] 3:11 3:13 23:7 31:23 31:25 32:2</p> <p>54:10 61:21 62:24 63:25 64:22 75:4</p> <p>93:22 100:10 100:12</p> <p>Above-entitled [2] 2:2 107:10</p> <p>Absence [1] 102:1</p> <p>Absolutely [1] 94:17</p> <p>Abundance [1] 56:24</p> <p>Access [6] 5:24 15:2 21:14 54:23 69:17 69:20</p> <p>Accident [1] 92:3</p> <p>Accommodate [1] 64:22</p> <p>Account [1] 89:13</p> <p>Acre [7] 22:21 23:18 25:11 25:14 40:25 41</p> <p>15 41:16</p> <p>Acres [5] 40:10 44:13 44:23 44:24 48:8</p> <p>Act [3] 30:9 64:10 90:4</p> <p>Acting [1] 76:10</p> <p>Action [3] 6:25 98:14 104:13</p> <p>Actions [1] 6:2</p> <p>Active [1] 95:14</p> <p>Actively [1] 65:4</p> <p>Activities [2] 42:10 51:3</p> <p>Activity [4] 40:15 43:15 43:25 53:25</p> <p>Actual [3] 41:15 54:7 82:16</p>

Adam	[4] 30:8 36:22 38:16 101:23	[16] 1:4 4:8 4:14 4:21 5:8 5:21 5:23 5:25 6:19 34:6 36:11 39:13 58:19 59:1 59:2 85:25	[2] 26:23 37:11
Add	[2] 38:9 38:11	Applications	Atmospheric
[9] 16:4 31:14 32:10 44:22 75:11 75:20 80:19 93:22 103:11	Allow	[1] 6:21	[2] 11:15 12:3
Added	Allowable	Applied	Attached
[3] 27:9 78:15 94:22	[1] 30:23	[1] 6:24	[1] 107:11
Additional	Allowance	Apply	Attempt
[23] 27:1 31:2 32:19 37:5 40:18 44:21 46:21 48:1 48:7 50:5 50:12 58:22 59:25 60:2 66:16 66:19 67:21 69:2 69:15 71:4 73:2 86:3 106:20	[1] 30:8	[2] 6:22 102:6	[1] 104:25
Additionally	Allowances	Appreciate	Attempting
[1] 76:7	[12] 30:8 30:11 30:12 36:23 37:1 37:2 37:5 38:13 101:21 102:3 102:14 102:16	[14] 9:2 35:12 69:25 76:12 78:7 80:16 92:22 97:6 99:11 100:19 100:20 106:7 106:13 106:23	[1] 106:11
Additions	Allowed	Appreciated	Attendance
[1] 63:23	[1] 103:12	[1] 3:25	[3] 75:17 90:9 106:7
Additive	Allowing	Appreciation	Attention
[1] 46:22	[2] 7:1 80:25	[1] 9:17	[1] 84:17
Address	Allows	Approach	Attorney
[12] 3:14 3:25 9:18 44:24 46:14 68:12 74:12 74:16 76:15 76:24 86:6 105:7	[1] 40:24	[4] 32:22 63:3 63:20 97:3	[1] 7:3
Addressed	Almost	Appropriate	Attorneys
[2] 44:18 60:11	[4] 56:15 56:19 94:6 94:18	[4] 3:23 25:6 47:17 84:20	[4] 1:19 7:10 7:11 7:14
Adequate	Alternative	Appropriation	Attract
[1] 64:1	[1] 84:12	[3] 40:24 41:14 44:8	[1] 52:4
Adhere	Alternatives	Appropriations	Attributes
[1] 41:10	[3] 84:9 84:10 84:14	[5] 25:13 40:22 40:23 41:13 41:19	[2] 12:17 12:21
Adjacent	Ambient	Approved	Auction
[3] 5:2 22:5 103:15	[1] 65:21	[2] 4:25 69:13	[1] 74:21
Adjective	Amendment	Approximate	Auctioneer
[1] 62:17	[2] 40:23 41:12	[2] 72:14 72:14	[2] 74:21 106:3
Administration	Amendments	April	Audience
[2] 36:19 89:25	[1] 30:9	[1] 53:21	[2] 76:4 104:19
Admit	America	Aquatic	Auditor
[2] 99:6 99:11	[2] 70:9 78:12	[1] 44:1	[1] 5:24
Admitted	American	Arabia	Availability
[2] 54:11 54:15	[1] 31:9	[2] 99:13 99:14	[4] 12:1 49:8 58:16 99:20
Adopted	Ammonia	Archaeological	Available
[1] 36:19	[1] 27:9	[2] 50:16 51:1	[14] 6:21 8:15 11:19 11:22 15:22 23:11 23:17 26:15 31:7 31:22 54:22 57:19 74:2 85:18
Advanced	Amount	Architectural	Average
[2] 12:3 79:16	[4] 18:24 26:24 36:20 85:17	[1] 50:17	[4] 31:15 52:11 64:13 71:9
Advantage	Amounts	Area	Averse
[5] 17:20 24:23 26:13 31:2 39:24	[2] 16:4 64:15	[41] 6:8 6:16 13:8 14:5 14:6 20:18 20:24 22:12 22:16 22:16 40:9 40:12 41:25 41:25 42:18 43:15 43:18 44:11 47:9 47:16 47:22 49:10 49:10 50:10 50:22 51:2 51:7 71:3 71:19 73:1 83:8 85:24 86:5 87:5 89:24 92:9 94:1 99:25 103:7 103:19 105:14	[1] 49:12
Advantages	Analogy	Areas	Aware
[1] 30:4	[1] 70:14	[9] 28:24 42:19 42:23 45:24 47:15 51:3 93:16 95:23 105:5	[4] 11:24 60:15 60:16 106:19
Adversely	Analysis	Arm	Awfully
[2] 50:20 50:24	[1] 17:14	[1] 87:19	[1] 81:21
Affected	Ancillary	Army	
[1] 8:10	[1] 26:5	[1] 44:18	<b>B</b>
Afterwards	Andrew	Art	
[1] 8:25	[1] 8:14	[2] 39:21 46:18	Backed
Ag	Announcements	Ash	[1] 15:23
[2] 94:24 94:25	[1] 74:8	[20] 21:21 21:22 27:22 28:2 28:3 28:5 28:5 29:3 29:19 31:3 31:4 31:6 31:7 31:10 31:13 31:17 31:18 46:21 46:24 46:25	Background
Agencies	Annual	Assessment	[3] 7:23 9:9 17:11
[2] 43:4 88:4	[1] 64:13	[4] 39:12 40:6 47:12 50:20	Backup
Agency	Answer	Asset	[1] 60:7
[7] 5:10 5:14 5:15 6:8 10:18 10:20 87:20	[6] 51:18 51:23 51:25 67:19 70:2 84:25	[2] 93:2 94:10	Backwards
Ago	Answered	Associate	[1] 98:2
[1] 95:12	[1] 97:11	[3] 1:22 7:13 78:19	Baghouse
Agricultural	Answers	Associated	[4] 22:6 27:19 28:1 28:4
[4] 42:2 45:8 48:8 48:9	[1] 84:21	[3] 4:23 32:6 60:17	Bags
Agriculture	Anticipate	Association	[5] 27:21 27:21 27:22 28:2 29:2
[1] 48:6	[1] 47:20	[1] 31:10	Balance
Ahead	Apart	Associations	[3] 23:9 23:12 65:8
[9] 9:2 52:2 69:13 74:15 78:16 79:10 80:1 94:12 102:22	[1] 92:24	[2] 10:24 13:6	Bald
Aid	Apologies	Assume	[2] 43:6 43:6
[1] 63:17	[1] 72:5	[1] 66:9	Banks
Air	Appear	Assuming	[1] 53:14
[29] 27:14 27:15 27:15 27:16 27:18 27:24 28:1 28:22 30:9 36:18 37:23 38:17 39:21 46:16 46:16 46:19 64:8 64:10 64:16 64:17 64:19 64:21 65:21 83:9 99:23 100:1 100:8 100:10 100:15	[2] 41:23 51:10	[2] 49:11 59:20	Bar
Air-to-air	APPEARANCES	Assure	[5] 33:12 33:13 35:22 35:22 53:23
[1] 27:15	[1] 1:17	[1] 73:18	Barely
Algal	Appearing	Asthma	[1] 45:15
[2] 46:3 46:7	[2] 1:20 1:23	[1] 83:12	Barns
Allocated	Apples	Atmosphere	[1] 50:22
[1] 101:21	[1] 102:10		Barr
Allocation	Applicable		[1] 39:4
	[1] 86:15		Barrier
	Applicants		[1] 60:12
	[1] 89:25		Bars
	Application		[2] 14:25 15:1
			Base
			[2] 20:16 83:23
			Based
			[9] 11:17 30:20 33:16 34:5 41:2 60:20 63:24 79:25 101:24
			Baseload

[28] 10:6 10:9 10:12 11:6 11:10 11:12 12:22 13:1 17:9 17:15 17:17 17:22 18:12 18:14 18:15 18:18 19:2 19:6 19:9 19:20 55:6 55:8 55:15 55:16 55:16 55:20 56:1 56:10

**Basin**  
[7] 12:6 43:9 43:16 44:16 46:4 46:6 70:19

**Basis**  
[3] 16:23 67:15 73:25

**Beauty**  
[1] 6:11

**Became**  
[1] 81:24

**Become**  
[1] 79:15

**Bed**  
[3] 11:15 12:4 61:10

**Beds**  
[1] 49:15

**Began**  
[4] 10:3 10:10 11:8 34:24

**Begin**  
[3] 53:16 69:1 92:18

**Beginning**  
[4] 7:2 51:9 85:6 101:24

**Begun**  
[1] 45:1

**Behalf**  
[10] 1:4 1:20 1:23 4:8 5:8 81:2 87:22 88:4 89:10 89:18

**Behind**  
[1] 85:7

**Bell**  
[1] 103:25

**Below**  
[3] 15:5 28:3 41:4

**Bend**  
[1] 98:2

**Benefit**  
[2] 48:12 93:11

**Benefits**  
[7] 32:1 52:12 52:15 52:17 60:1 60:8 63:19

**Benton**  
[1] 103:19

**Best**  
[2] 10:6 12:25

**Bet**  
[2] 23:25 51:18

**Better**  
[12] 11:2 11:4 12:7 12:8 61:16 62:1 71:15 75:25 76:21 79:15 86:16 98:10

**Between**  
[10] 15:24 19:2 19:5 26:9 28:17 35:21 38:10 65:10 94:13 98:18

**Beyond**  
[3] 56:12 83:3 85:16

**Big**  
[116] 1:5 1:6 1:20 1:23 2:8 2:9 4:9 4:10 4:24 5:2 5:4 9:16 9:19 9:24 9:25 10:6 10:14 12:23 13:7 14:3 14:9 17:7 18:13 19:8 20:6 20:24 20:25 21:8 21:9 21:11 21:16 21:19 21:23 21:23 22:20 22:20 22:24 23:2 23:8 23:11 23:16 23:21 24:2 24:5 24:7 24:8 25:14 26:3 26:13 27:20 30:6 30:7 31:15 32:9 32:10 32:11 32:14 32:17 33:10 33:11 33:12 33:14 33:23 34:7 35:19 38:2 40:25 44:2 44:8 46:5 46:7 53:22 55:14 55:15 55:25 58:6 60:3 60:17 61:13 61:14 62:5 63:11 64:22 65:18 65:20 68:16 71:9 71:13 76:12 77:5 77:6 79:1 79:3 79:18 80:3 80:10 82:5 82:6 82:7 85:2 85:22 86:15 86:17 86:18 88:11 95:10 96:11 98:19 99:19 101:7 102:2 102:11 102:16 103:2 103:13 103:17

**Bigger**  
[2] 98:11 98:11

**Bill**  
[11] 8:3 16:22 19:15 20:1 39:23 40:8 40:21 41:15 43:8 43:22 61:2

**Billed**

[1] 16:23

**Billion**  
[5] 16:24 16:25 17:4 84:7 95:2

**Bills**  
[1] 94:7

**Biological**  
[1] 6:12

**Bit**  
[10] 4:3 17:10 17:10 45:23 47:3 55:11 55:13 58:8 68:2 77:2

**Blooms**  
[2] 46:3 46:8

**Blow**  
[1] 22:13

**Blue**  
[7] 14:4 14:25 15:1 15:9 15:14 16:9 26:10

**Bluffs**  
[1] 29:25

**Board**  
[6] 77:13 77:15 77:19 78:3 91:12 97:22

**Boards**  
[1] 89:17

**Bob**  
[2] 1:11 3:3

**Bog**  
[1] 58:21

**Boiler**  
[9] 12:5 12:7 22:4 26:6 26:10 26:11 26:20 27:17 32:14

**Bonrud**  
[1] 1:16

**Book**  
[1] 12:16

**Box**  
[6] 1:19 1:22 27:2 27:6 27:9 27:20

**BOYCE**  
[1] 1:18

**Breathing**  
[1] 83:9

**Brief**  
[1] 87:23

**Briefly**  
[2] 9:23 44:11

**Bring**  
[6] 16:3 19:7 55:6 65:10 94:20 100:11

**Bringing**  
[2] 11:1 16:1

**Broadened**  
[1] 47:16

**Broader**  
[1] 82:19

**Broken**  
[1] 14:21

**Brookings**  
[1] 93:16

**Brought**  
[2] 12:2 17:17

**Bruce**  
[3] 1:21 7:12 76:14

**BTU**  
[2] 64:12 71:11

**Budget**  
[1] 63:23

**Buffalo**  
[2] 58:9 73:1

**Build**  
[7] 18:2 19:12 61:22 61:23 69:14 86:14 89:1

**Building**  
[10] 21:3 22:5 23:15 55:8 60:23 69:11 82:16 82:21 84:10 86:17

**Buildings**  
[1] 50:19

**Built**  
[6] 24:5 55:20 71:10 71:13 88:18 97:14

**Bulb**  
[2] 17:2 17:2

**Bunch**

[1] 95:11

**Burlington**  
[1] 77:7

**Burners**  
[4] 26:21 26:21 26:22 32:14

**Burning**  
[4] 12:6 12:9 29:11 33:25

**Burns**  
[1] 8:13

**Business**  
[2] 9:15 96:12

**Buy**  
[5] 30:12 36:23 37:1 37:5 67:2

**Buying**  
[2] 102:3 102:14

**Byproduct**  
[1] 31:11

**C**

**CAES**  
[2] 100:2 100:17

**Calcium**  
[3] 28:21 28:23 61:25

**Campgrounds**  
[1] 49:17

**Canada**  
[11] 14:22 14:25 15:13 15:16 15:19 15:22 15:25 16:2 16:7 60:19 67:5

**Canadian**  
[1] 60:11

**Cannot**  
[1] 105:1

**Cap**  
[3] 101:20 102:5 102:8

**Capability**  
[1] 66:17

**Capacities**  
[1] 98:13

**Capacity**  
[43] 14:20 15:4 15:5 15:7 15:21 15:22 16:2 16:10 18:23 23:18 33:9 33:9 33:12 33:16 33:17 34:14 41:9 47:1 57:6 57:9 58:10 59:9 59:10 59:18 59:25 60:22 60:23 67:2 67:25 68:3 68:5 68:7 69:1 69:15 72:9 72:12 73:3 85:13 85:15 85:17 91:14 98:17 99:19

**Capital**  
[6] 18:1 18:16 19:4 32:7 34:19 63:23

**Capped**  
[1] 79:21

**Captive**  
[5] 71:23 76:15 77:1 77:8 77:25

**Car**  
[1] 27:5

**Carbon**  
[6] 26:18 35:5 79:5 79:13 79:15 79:21

**Carbon-capped**  
[1] 79:21

**Care**  
[1] 69:8

**Career**  
[1] 20:6

**Cars**  
[2] 71:5 71:12

**Case**  
[7] 30:14 31:5 52:23 67:1 74:17 77:19 103:5

**Catalyst**  
[2] 27:7 27:10

**Catalytic**  
[4] 27:3 27:4 27:5 32:15

**Categories**  
[1] 39:15

**Category**  
[1] 45:11

**CD**  
[2] 2:8 54:6

**Cement**  
[1] 31:8

**Center**  
[2] 13:7 20:15

**Centerline**  
[1] 15:3

**Central**  
[2] 5:9 10:19

**CEO**  
[1] 100:3

**Certain**  
[8] 32:20 36:22 41:4 67:19 102:25 103:10 105:4 105:5

**Certainly**  
[11] 7:5 57:13 57:25 59:1 67:12 67:12 67:16 70:6 76:21 84:25 104:21

**Certificate**  
[3] 74:1 90:15 107:2

**CERTIFY**  
[1] 107:8

**Cetera**  
[1] 12:25

**Chair**  
[1] 92:24

**Chairman**  
[75] 1:10 1:11 3:1 7:8 8:18 8:22 9:6 16:11 24:17 24:25 25:3 25:4 25:11 25:16 34:21 34:23 35:4 35:9 35:12 35:25 37:6 39:2 51:15 52:14 52:19 52:22 54:3 54:14 54:25 55:2 57:5 57:11 57:23 58:13 66:4 66:6 66:19 67:10 67:13 67:18 68:14 69:24 71:1 71:23 71:25 73:10 74:4 74:5 74:7 75:10 75:19 75:19 75:24 76:2 76:23 78:5 80:20 80:22 84:19 85:19 86:1 87:7 89:21 90:25 91:9 92:12 96:25 97:21 98:5 102:22 104:14 104:24 105:15 105:23 106:2

**Challenge**  
[2] 3:5 98:8

**Chance**  
[1] 9:18

**Change**  
[5] 21:10 50:13 64:5 72:20 79:10

**Changed**  
[1] 68:19

**Changer**  
[1] 27:16

**Changes**  
[8] 32:17 32:18 63:21 63:22 64:2 64:18 64:24 87:1

**Chapters**  
[1] 78:13

**Characteristics**  
[4] 17:23 18:4 18:17 19:3

**Chart**  
[2] 16:13 63:9

**Charts**  
[1] 14:16

**Chatting**  
[1] 3:9

**Cheaper**  
[1] 79:16

**Chemistries**  
[4] 23:12 61:20 61:21 61:22

**Cheri**  
[4] 1:24 74:15 107:5 107:18

**Chernobyl**  
[1] 92:2

**Chicago**  
[1] 13:13

**Children**  
[3] 98:18 98:22 99:7

**Choice**  
[1] 102:2

**Choices**  
[1] 55:4

**Chose**  
[1] 58:17

**Chosen**  
[1] 26:12

**Chris**  
[3] 7:11 92:23 92:24

**CHRISTOPHER**  
[1] 1:18

**Chump**  
[1] 72:20

**Circle**  
 [1] 47:10  
**Circuit**  
 [2] 61:20 61:25  
**Circulating**  
 [3] 11:15 12:4 28:15  
**Citizen**  
 [2] 91:15 104:12  
**Citizens**  
 [1] 78:8  
**City**  
 [3] 5:4 20:24 97:23  
**Classy**  
 [1] 98:1  
**Clayton**  
 [1] 97:4  
**Clean**  
 [7] 6:25 30:9 36:18 38:17 64:10 98:14 104:12  
**Clear**  
 [2] 86:8 86:12  
**Climate**  
 [1] 79:9  
**Climbed**  
 [1] 70:5  
**Close**  
 [8] 12:20 37:18 53:13 53:15 66:2 69:15 78:14 106:3  
**Closer**  
 [1] 41:16  
**Cloud**  
 [1] 55:22  
**Club**  
 [3] 81:2 81:3 81:11  
**CMMPA**  
 [1] 10:24  
**Co**  
 [4] 5:9 17:8 19:8 58:21  
**Co-members**  
 [1] 60:5  
**Co-owned**  
 [1] 10:1  
**Co-owners**  
 [9] 1:5 4:9 5:9 17:8 19:8 30:6 32:9 58:21 58:23  
**Coal**  
 [35] 4:22 11:17 12:3 12:4 19:18 19:20 21:5 21:15 21:16 21:19 22:15 29:11 30:20 31:10 31:11 34:2 34:25 55:12 56:14 56:22 56:24 57:1 61:11 70:6 70:7 8 70:10 70:15 70:16 70:23 71:15 76:15 84:9 84:10 99:18 100:12  
**Coal-based**  
 [1] 11:17  
**Coal-fired**  
 [1] 19:20  
**Cold**  
 [1] 18:7  
**Collected**  
 [3] 29:1 29:3 29:7  
**Collectively**  
 [1] 65:13  
**Collects**  
 [1] 27:22  
**Combined**  
 [4] 11:16 11:23 19:21 19:22  
**Combustion**  
 [7] 17:25 26:23 26:24 26:25 27:16 64:16 64:19  
**Coming**  
 [10] 21:4 21:19 37:11 87:3 87:13 95:11 97:6 97:15 100:19 103:14  
**Commencing**  
 [1] 2:4  
**Comment**  
 [12] 8:25 9:4 73:21 75:10 87:8 89:22 91:1 91:10 92:12 97:1 98:6 106:3  
**Comments**  
 [18] 2:10 2:11 2:12 2:13 5:18 5:20 12:10 76:15 78:15 81:7 81:11 81:15 84:18 90:20 99:4 104:11 104:13 104:22  
**Commerce**

[1] 77:14  
**Commercial**  
 [3] 6:14 48:11 53:20  
**Commercially**  
 [3] 11:19 11:22 26:15  
**Commission**  
 [22] 1:1 1:9 1:12 3:14 4:17 6:2 6:3 6:6 6:19 7:17 8:16 55:1 69:14 77:14 78:9 79:1 87:12 97:8 100:14 104:1 104:22 106:23  
**Commission's**  
 [2] 6:1 54:22  
**Commissioner**  
 [43] 1:11 3:2 19:16 19:24 23:23 24:10 35:14 35:21 38:1 38:8 38:19 38:24 39:1 42:16 43:19 45:17 45:21 48:3 58:14 59:3 59:10 59:19 60:10 61:1 61:13 62:2 62:15 62:21 63:4 64:4 64:23 65:12 66:4 72:2 72:13 72:20 73:8 75:9 92:14 97:19 97:21 104:18 106:18  
**Commissioners**  
 [14] 3:4 7:9 9:9 11 13:18 54:9 76:8 82:18 84:22 84:24 97:5 97:10 100:19 106:7  
**Committed**  
 [1] 32:9  
**Committing**  
 [1] 84:6  
**Common**  
 [1] 29:22  
**Commonly**  
 [2] 28:10 31:8  
**Communities**  
 [16] 9:21 13:5 13:9 13:11 13:14 42:24 56:4 82:24 83:24 87:24 88:2 88:23 89:5 91:20 91:21 95:14  
**Community**  
 [20] 8:8 8:9 39:10 47:3 47:4 47:6 47:12 49:25 51:9 51:13 75:13 82:14 83:3 87:15 89:6 91:20 92:9 93:8 94:8 103:20  
**Companies**  
 [2] 10:13 73:14  
**Companies'**  
 [1] 11:8  
**Company**  
 [15] 1:4 4:8 4:16 5:4 5:12 7:4 10:9 10:15 10:17 10:22 13:20 20:2 20:4 25:22 39:4  
**Compare**  
 [1] 58:2  
**Compared**  
 [2] 26:19 30:24  
**Comparison**  
 [1] 102:11  
**Competing**  
 [1] 70:15  
**Competition**  
 [3] 70:18 70:21 77:10  
**Compiled**  
 [1] 39:11  
**Complaint**  
 [1] 97:24  
**Complete**  
 [3] 34:21 53:9 94:18  
**Completed**  
 [2] 42:11 50:18  
**Components**  
 [1] 32:1  
**Comprehensive**  
 [1] 79:23  
**Compressed**  
 [4] 99:23 100:1 100:8 100:14  
**Computers**  
 [1] 56:6  
**Concern**  
 [4] 37:12 82:11 86:4 102:23  
**Concerned**  
 [6] 78:23 80:16 86:25 87:14 91:15 98:1  
**Concerns**  
 [15] 4:14 43:17 49:7 50:4 70:14 79:3 80:24 81:9 81:14 82:20 83:6 88:6 100:

22 104:12 105:2  
**Conclude**  
 [2] 54:4 106:17  
**Concluded**  
 [1] 106:25  
**Concludes**  
 [2] 54:2 106:24  
**Conclusion**  
 [2] 10:5 12:23  
**Conclusions**  
 [1] 40:6  
**Concrete**  
 [3] 31:9 31:14 46:22  
**Concur**  
 [1] 95:25  
**Condensers**  
 [1] 61:24  
**Conditions**  
 [2] 31:15 41:18  
**Confidential**  
 [1] 54:21  
**Confused**  
 [1] 81:18  
**Congratulating**  
 [2] 96:5 96:23  
**Conjunction**  
 [1] 43:3  
**Consensus**  
 [1] 50:6  
**Conservation**  
 [1] 6:11  
**Consider**  
 [5] 79:19 82:9 82:19 83:25 104:1  
**Considered**  
 [6] 11:10 12:19 12:21 99:12 102:24 103:4  
**Considering**  
 [3] 7:24 12:6 69:10  
**Conspiring**  
 [1] 76:9  
**Constituents**  
 [1] 95:22  
**Constraint**  
 [1] 67:5  
**Constraints**  
 [6] 66:11 66:25 67:3 67:7 67:15 67:17  
**Construct**  
 [2] 67:22 68:5  
**Constructed**  
 [4] 6:9 6:17 42:1 42:23  
**Construction**  
 [26] 1:6 4:10 44:9 44:16 44:20 46:13 47:21 47:22 48:12 48:13 48:22 49:1 49:2 49:12 49:14 49:18 51:4 51:20 52:4 53:11 53:17 53:19 69:3 95:1 95:6 95:10  
**Consultant**  
 [1] 39:5  
**Consulting**  
 [2] 8:6 39:6  
**Consumer**  
 [2] 6:14 91:14  
**Consumers**  
 [2] 5:11 10:16  
**Contact**  
 [2] 28:16 99:5  
**Contingent**  
 [1] 102:19  
**Continue**  
 [6] 23:8 42:13 57:3 61:7 89:1 103:12  
**Continued**  
 [2] 10:7 95:16  
**Continues**  
 [1] 42:14  
**Contract**  
 [1] 80:11  
**Contracts**  
 [1] 53:12  
**Contribute**  
 [2] 83:14 89:15  
**Contributing**

[1] 89:8  
**Control**  
 [16] 8:5 22:6 26:1 26:2 26:8 27:1 28:24 29:1 29:4 30:21 36:6 36:25 46:17 61:21 62:1 63:10  
**Controlled**  
 [2] 102:1 102:12  
**Controls**  
 [2] 45:5 65:7  
**Conversion**  
 [6] 1:5 4:5 4:9 4:15 4:19 4:21  
**Converter**  
 [1] 27:4  
**Converts**  
 [1] 27:11  
**Conveyed**  
 [1] 28:5  
**Cooled**  
 [1] 28:18  
**Coolers**  
 [1] 61:24  
**Cooling**  
 [28] 20:13 20:15 20:20 20:23 21:8 22:8 22:10 22:11 22:11 22:12 23:20 23:20 23:21 24:6 24:6 24:7 24:8 24:13 61:14 61:14 61:15 61:18 61:19 61:22 61:23 62:3 62:12 62:13  
**Cooperate**  
 [1] 98:2  
**Cooperative**  
 [1] 10:25  
**Cooperatives**  
 [1] 11:4  
**Copies**  
 [4] 81:14 84:17 99:2 105:25  
**Copy**  
 [2] 5:23 58:25  
**Cornerstone**  
 [2] 56:25 57:3  
**Corporation**  
 [4] 1:21 5:6 5:6 80:6  
**Corps**  
 [2] 44:18 45:2  
**Correct**  
 [11] 7:19 35:24 54:18 59:21 94:17 100:24 101:3 101:6 101:16 103:25 107:12  
**Corrections**  
 [1] 78:18  
**Cost**  
 [19] 18:1 18:2 18:3 18:3 18:16 18:17 19:4 19:4 31:24 32:7 34:16 34:17 34:18 63:2 63:3 70:22 72:14 72:15 89:12  
**Cost-effective**  
 [2] 88:9 89:12  
**Costs**  
 [12] 32:6 34:20 60:12 60:14 63:23 70:4 72:18 79:20 80:9 80:12 83:12 93:19  
**Coteau**  
 [2] 72:25 93:14  
**Council**  
 [3] 29:25 75:8 97:23  
**Counsel**  
 [2] 1:22 7:13  
**Country**  
 [4] 55:21 56:15 57:2 78:13  
**County**  
 [15] 5:3 5:24 6:7 76:8 93:15 93:15 93:16 93:21 97:4 97:6 97:15 97:19 98:19 98:19 107:3  
**Couple**  
 [13] 8:12 9:7 33:7 46:20 52:3 63:5 68:9 69:6 74:8 76:14 81:5 93:5 105:20  
**Course**  
 [6] 48:18 53:8 53:24 66:22 96:13 96:14  
**Court**  
 [4] 3:10 75:4 75:8 103:5  
**Covering**  
 [1] 9:1  
**Create**  
 [1] 50:11

Created [1] 72:9 Creates [1] 28:16 Creating [1] 96:6 Creep [1] 96:18 Creeping [1] 83:19 Cremer [1] 1:14 Crew [1] 96:5 Criteria [2] 83:1 88:15 Critical [1] 10:11 CRR [1] 1:24 Crushed [1] 28:14 Cultural [2] 47:8 50:15 Cumbersome [2] 77:22 78:4 Cupped [1] 75:6 Curious [6] 25:7 66:8 67:20 71:2 75:20 81:25 Current [6] 39:25 41:1 63:7 63:24 82:4 94:3 Curve [5] 103:16 103:24 103:25 104:3 104:4 Cushion [1] 41:19 Customer [1] 77:16 Customers [4] 9:21 19:14 60:25 80:5 Cut [2] 82:3 82:6 Cycle [4] 11:16 11:23 19:21 19:22 Cyclones [1] 64:17	[1] 45:19 Decided [1] 30:2 Decision [3] 77:20 102:17 102:20 Decrease [5] 64:19 73:16 73:17 73:19 85:7 Deficit [8] 15:10 15:11 15:15 16:10 19:10 81:20 81:25 88:22 Deficits [2] 15:6 85:5 Definitely [2] 91:16 92:10 Deliver [2] 21:15 87:23 Deliveries [1] 77:7 Delivery [1] 68:11 Demand [4] 8:1 14:14 59:24 100:11 Democrats [1] 94:14 Demographics [3] 47:7 50:9 50:14 Demonstration [2] 11:20 91:18 Denied [1] 67:9 Dense [1] 71:11 Department [3] 20:5 36:10 65:24 Deposits [2] 40:3 40:3 Derive [1] 48:19 Describe [1] 26:1 Described [1] 32:12 Design [1] 26:22 Designed [2] 13:13 13:14 Desire [2] 86:3 106:4 Desulfurization [4] 28:9 28:20 29:5 29:7 Detailed [1] 42:8 Details [1] 12:12 Determined [2] 12:13 32:19 Deuel [2] 93:15 93:21 Developed [1] 101:16 Development [14] 6:16 53:5 56:25 73:5 80:13 89:9 93:7 93:13 103:6 103:7 103:18 103:23 104:3 104:8 Device [3] 27:13 27:16 28:11 Devise [1] 27:15 DeWayne [1] 87:17 Diagram [2] 22:23 81:20 Diana [2] 84:19 85:3 Dick [1] 100:3 Difference [2] 22:9 38:10 Different [10] 11:2 17:11 20:11 20:19 29:12 62:14 63:5 66:23 103:1 105:10	Differently [1] 73:20 Difficult [1] 48:25 Dignified [1] 106:14 Dioxide [12] 26:18 28:12 28:19 29:10 32:23 33:6 35:6 36:1 63:9 63:17 79:5 94:4 Direct [3] 44:6 65:20 89:17 Direction [1] 75:7 Directors [1] 91:12 Discharge [4] 23:3 23:3 44:5 53:1 Discharges [1] 44:6 Discussion [2] 64:25 102:21 Discussions [1] 45:1 Display [1] 63:9 Disposal [5] 21:20 21:21 21:22 31:18 46:24 Disposed [1] 46:23 Disputes [1] 77:16 Distance [2] 43:13 87:14 Distributed [1] 102:16 Distribution [1] 49:5 District [5] 5:11 10:16 92:20 94:1 94:16 Districts [1] 50:3 Disturbing [2] 42:20 43:17 Divided [1] 7:20 Division [2] 5:5 5:13 Docket [1] 4:6 Docketed [1] 7:5 Dockets [2] 6:3 6:3 Document [1] 100:16 Documents [1] 6:1 Dollars [2] 84:7 93:20 Domestic [1] 56:22 Don [1] 76:10 Done [9] 20:8 20:9 21:24 43:14 51:5 60:14 60:17 96:8 100:4 Dot [2] 33:23 43:10 Dots [1] 13:4 Double [2] 31:23 86:20 Doubles [1] 70:22 Doubling [1] 88:13 Down [32] 6:4 12:11 16:1 16:3 22:12 22:13 34:3 37:11 43:9 49:6 51:4 57:12 58:22 60:4 61:17 64:11 67:5 67:8 87:13 93:15 93:20 99:1 99:24 102:5 102:15	103:6 103:8 103:19 103:21 103:23 103:25 106:10 Downsides [1] 95:10 Draft [1] 28:7 Drainage [2] 40:14 40:16 Drawing [1] 31:6 Drivers [1] 85:7 Drop [2] 37:9 37:17 Dropped [2] 34:3 34:11 Drops [3] 38:15 41:4 101:25 Drought [1] 41:18 Dry [7] 29:9 29:14 29:18 30:24 30:24 31:3 31:22 Dryer [6] 29:15 29:16 29:21 29:25 30:1 30:16 Dual [1] 100:13 Duly-appointed [1] 107:8 Dumper [1] 21:17 Duration [1] 18:9 During [8] 18:5 18:9 26:25 31:15 54:8 59:18 65:5 93:4 Dusty [2] 1:11 3:3
<b>D</b>		<b>E</b>	
Daily [1] 102:25 Dakota [43] 1:2 1:19 2:3 4:14 5:3 6:7 9:13 20:3 33:25 36:9 37:3 38:16 58:10 65:24 67:23 67:24 69:12 71:10 78:14 78:25 80:13 80:13 80:17 81:4 83:16 83:20 83:24 87:25 88:1 88:3 91:4 91:6 93:17 95:2 98:14 99:12 99:16 100:7 102:25 104:8 107:1 107:7 107:13 Dakota's [3] 90:13 101:23 102:18 Dark [2] 15:1 15:14 Data [1] 85:23 Date [3] 4:12 35:16 84:8 Dated [1] 107:13 Day-to-day [1] 67:15 Days [6] 11:12 18:6 18:7 52:5 55:18 99:9 Deal [3] 40:18 59:4 94:5 Dealings [1] 66:10 Deanna [1] 81:1 Deb [1] 76:11 Decibels	Daily [1] 102:25 Dakota [43] 1:2 1:19 2:3 4:14 5:3 6:7 9:13 20:3 33:25 36:9 37:3 38:16 58:10 65:24 67:23 67:24 69:12 71:10 78:14 78:25 80:13 80:13 80:17 81:4 83:16 83:20 83:24 87:25 88:1 88:3 91:4 91:6 93:17 95:2 98:14 99:12 99:16 100:7 102:25 104:8 107:1 107:7 107:13 Dakota's [3] 90:13 101:23 102:18 Dark [2] 15:1 15:14 Data [1] 85:23 Date [3] 4:12 35:16 84:8 Dated [1] 107:13 Day-to-day [1] 67:15 Days [6] 11:12 18:6 18:7 52:5 55:18 99:9 Deal [3] 40:18 59:4 94:5 Dealings [1] 66:10 Deanna [1] 81:1 Deb [1] 76:11 Decibels	Daily [1] 102:25 Dakota [43] 1:2 1:19 2:3 4:14 5:3 6:7 9:13 20:3 33:25 36:9 37:3 38:16 58:10 65:24 67:23 67:24 69:12 71:10 78:14 78:25 80:13 80:13 80:17 81:4 83:16 83:20 83:24 87:25 88:1 88:3 91:4 91:6 93:17 95:2 98:14 99:12 99:16 100:7 102:25 104:8 107:1 107:7 107:13 Dakota's [3] 90:13 101:23 102:18 Dark [2] 15:1 15:14 Data [1] 85:23 Date [3] 4:12 35:16 84:8 Dated [1] 107:13 Day-to-day [1] 67:15 Days [6] 11:12 18:6 18:7 52:5 55:18 99:9 Deal [3] 40:18 59:4 94:5 Dealings [1] 66:10 Deanna [1] 81:1 Deb [1] 76:11 Decibels	Daily [1] 102:25 Dakota [43] 1:2 1:19 2:3 4:14 5:3 6:7 9:13 20:3 33:25 36:9 37:3 38:16 58:10 65:24 67:23 67:24 69:12 71:10 78:14 78:25 80:13 80:13 80:17 81:4 83:16 83:20 83:24 87:25 88:1 88:3 91:4 91:6 93:17 95:2 98:14 99:12 99:16 100:7 102:25 104:8 107:1 107:7 107:13 Dakota's [3] 90:13 101:23 102:18 Dark [2] 15:1 15:14 Data [1] 85:23 Date [3] 4:12 35:16 84:8 Dated [1] 107:13 Day-to-day [1] 67:15 Days [6] 11:12 18:6 18:7 52:5 55:18 99:9 Deal [3] 40:18 59:4 94:5 Dealings [1] 66:10 Deanna [1] 81:1 Deb [1] 76:11 Decibels

**Efficient**  
[8] 12:8 26:14 30:5 30:13 30:17 78:23  
80:15 91:25  
**Effort**  
[3] 23:10 53:10 54:1  
**Efforts**  
[1] 82:4  
**Eight**  
[1] 39:15  
**EIS**  
[3] 90:22 105:10 105:22  
**Either**  
[4] 30:11 87:2 102:3 102:14  
**EL05 - 022**  
[3] 1:5 4:7 6:4  
**Elect**  
[1] 89:17  
**Elected**  
[1] 76:3  
**Electric**  
[5] 4:20 4:22 6:3 45:6 91:25  
**Electrical**  
[2] 79:11 96:7  
**Electricity**  
[6] 16:22 57:2 73:15 85:12 99:7 99:10  
**Electronic**  
[1] 54:19  
**Elemental**  
[1] 27:12  
**Emergency**  
[1] 18:8  
**Emerging**  
[1] 79:7  
**Emission**  
[16] 8:5 26:1 26:2 26:8 30:21 30:23  
30:23 36:5 36:14 36:16 64:13 64:13  
65:7 101:1 101:8 101:18  
**Emissions**  
[36] 26:17 27:11 32:11 32:17 32:24  
33:1 33:2 33:4 33:5 33:5 33:7 33:22  
33:23 34:3 34:11 38:20 39:21 46:17  
63:6 64:3 64:20 65:14 65:17 79:6 79:  
25 82:3 82:6 86:2 86:3 86:10 87:2 88:  
15 94:2 101:9 101:11 102:4  
**Emit**  
[4] 36:7 36:21 36:23 102:7  
**Emotional**  
[1] 106:13  
**Emphasizes**  
[1] 39:23  
**Employee**  
[2] 20:1 20:3  
**Employees**  
[2] 48:1 52:11  
**Employment**  
[2] 39:20 51:17  
**Enbridge**  
[1] 80:6  
**Encompass**  
[1] 49:11  
**Encourage**  
[3] 3:13 5:21 83:25  
**Encouraged**  
[1] 82:2  
**Encroaches**  
[1] 51:5  
**End**  
[7] 8:20 28:22 29:18 36:2 60:23 72:25  
85:10  
**Energies**  
[2] 62:1 68:7  
**Energy**  
[58] 1:5 4:4 4:9 4:15 4:19 4:20 5:11  
10:18 10:19 10:25 11:8 11:9 14:14 15:  
20 15:23 16:2 16:14 16:16 16:19 16:  
21 18:24 19:5 19:11 49:19 55:4 56:15  
56:24 57:4 57:24 58:15 59:5 60:19 60:  
20 60:24 66:20 67:3 67:5 78:19 78:21  
78:22 79:13 79:15 80:6 80:15 84:12  
84:13 87:18 88:7 89:13 91:17 91:25  
92:1 99:15 99:23 100:1 100:4 100:8  
100:15

**Engage**  
[1] 90:19  
**Engaged**  
[1] 90:11  
**Engineer**  
[5] 8:7 9:13 13:24 20:2 39:4  
**Engineering**  
[4] 20:5 39:4 53:24 53:25  
**Engineers**  
[2] 8:13 45:2  
**Engineers'**  
[1] 44:18  
**Enhance**  
[2] 14:8 44:24  
**Enhanced**  
[1] 40:17  
**Enhancement**  
[1] 44:20  
**Ensure**  
[1] 87:2  
**Entering**  
[1] 105:7  
**Entire**  
[2] 8:24 20:6  
**Entirely**  
[1] 101:16  
**Entitled**  
[1] 4:7  
**Enunciate**  
[1] 74:22  
**Environment**  
[6] 6:12 9:22 36:10 40:1 65:24 105:3  
**Environmental**  
[19] 8:8 23:6 25:21 39:8 39:11 39:14  
51:9 51:10 65:17 65:20 79:6 82:13 86:  
4 88:12 89:13 90:3 90:4 93:24 105:6  
**Environmentally**  
[3] 88:8 95:7 96:7  
**EPA**  
[2] 95:17 101:16  
**EPA's**  
[3] 30:9 30:18 37:23  
**Equal**  
[4] 32:25 33:2 33:4 87:3  
**Equipment**  
[9] 26:5 31:25 32:18 36:6 36:25 39:22  
63:11 65:7 66:1  
**Equivalent**  
[1] 99:18  
**Erosion**  
[1] 40:5  
**Epecially**  
[1] 97:12  
**Essentially**  
[5] 27:2 27:11 35:18 37:24 64:15  
**Establish**  
[1] 36:13  
**Established**  
[4] 30:19 37:24 101:18 101:20  
**Estate**  
[1] 48:19  
**Estimate**  
[1] 63:23  
**Estimated**  
[2] 47:1 50:12  
**Et**  
[1] 12:25  
**Ethanol**  
[3] 21:1 21:2 96:10  
**Evaluation**  
[2] 37:16 63:24  
**Evaporation**  
[5] 23:1 23:5 24:3 24:13 62:13  
**Evening**  
[15] 3:3 3:9 3:15 6:22 19:25 25:19 25:  
25 76:13 82:9 87:13 87:14 89:23 91:1  
91:2 98:6  
**Evolve**  
[1] 35:19  
**Exact**  
[1] 54:16

**Exactly**  
[2] 61:7 61:12  
**Example**  
[5] 18:1 32:2 36:12 60:3 64:5  
**Examples**  
[1] 19:20  
**Excavation**  
[1] 51:3  
**Excellent**  
[1] 106:19  
**Exception**  
[3] 18:21 27:8 45:6  
**Excess**  
[9] 15:5 59:5 59:8 67:25 68:3 68:6 69:  
1 72:9 72:12  
**Excited**  
[3] 88:11 88:16 93:21  
**Exciting**  
[2] 69:25 97:3  
**Excuse**  
[3] 78:24 85:1 106:18  
**Exhaust**  
[1] 86:18  
**Exhausted**  
[1] 36:6  
**Exhibit**  
[3] 2:7 54:6 80:21  
**Exhibits**  
[3] 54:13 104:15 104:17  
**Exist**  
[1] 96:11  
**Existing**  
[34] 5:2 9:16 9:25 12:23 12:24 21:7  
21:18 22:1 22:4 30:12 39:24 40:15 40:  
16 41:24 42:24 44:7 45:5 45:12 46:24  
47:2 50:7 51:11 57:6 61:3 61:8 61:10  
68:16 71:8 77:5 82:5 85:9 86:11 88:  
14 96:2  
**Exists**  
[4] 20:17 20:24 69:2 82:8  
**Expand**  
[1] 91:20  
**Expanded**  
[1] 49:10  
**Expect**  
[15] 33:1 33:3 34:5 34:8 41:12 51:6  
52:9 58:3 69:14 70:24 71:17 73:2 73:  
5 77:20 88:25  
**Expectation**  
[1] 53:9  
**Expected**  
[14] 31:16 46:6 46:9 46:25 47:21 47:  
25 48:6 48:10 48:14 49:2 49:19 51:14  
59:23 73:15  
**Expenses**  
[1] 92:8  
**Expensive**  
[3] 30:3 30:3 79:14  
**Experimental**  
[1] 11:21  
**Expire**  
[1] 85:15  
**Explain**  
[1] 24:11  
**Explained**  
[2] 74:11 93:24  
**Explaining**  
[1] 72:3  
**Explanation**  
[1] 77:2  
**Exploring**  
[1] 84:9  
**Express**  
[1] 9:17  
**Extended**  
[1] 65:4  
**Extensive**  
[1] 45:11  
**Extra**  
[5] 92:8 94:22 99:1 102:14 105:25  
**Extraordinary**

[1] 32:12  
**Extremely**  
[1] 9:20  
**F**  
**Fabric**  
[8] 27:19 27:21 28:4 28:8 29:13 29:20  
31:6 35:18  
**Face**  
[1] 67:11  
**Facilitate**  
[2] 69:18 69:22  
**Facilities**  
[7] 4:23 5:1 8:3 10:12 21:16 50:2 89:2  
**Facility**  
[33] 1:5 4:5 4:10 4:15 4:19 4:20 4:21  
4:23 6:8 6:16 8:2 9:16 9:25 10:1 12:  
14 13:1 13:12 13:17 14:3 19:13 20:10  
21:3 21:12 21:20 23:3 24:5 44:5 46:  
24 47:2 55:20 56:10 95:19 96:2  
**Facing**  
[1] 83:13  
**Fact**  
[7] 31:9 65:14 65:23 77:19 80:4 99:16  
99:21  
**Factor**  
[5] 57:9 58:10 60:18 60:22 85:14  
**Fall**  
[1] 53:10  
**Falls**  
[11] 1:19 1:22 5:7 19:1 19:5 25:24 28:  
3 56:4 68:23 91:18 98:15  
**Familiar**  
[3] 4:18 29:17 103:3  
**Family**  
[2] 98:18 98:21  
**Fan**  
[2] 28:7 62:11  
**Far**  
[9] 37:20 39:14 40:1 40:20 45:22 61:  
10 61:11 83:3 98:1  
**Farm**  
[3] 91:20 98:18 99:8  
**Farmers**  
[1] 93:20  
**Farms**  
[2] 13:9 13:15  
**Farris**  
[1] 1:15  
**Fashion**  
[2] 28:16 106:14  
**Faster**  
[1] 56:20  
**Fault**  
[1] 76:16  
**Favor**  
[4] 75:21 91:16 92:6 92:10  
**Fe**  
[1] 77:8  
**Federal**  
[4] 90:4 90:5 90:6 105:10  
**Feet**  
[7] 22:21 23:18 25:11 25:14 40:25 41:  
15 41:16  
**Felt**  
[3] 12:1 12:7 75:14  
**Fence**  
[1] 106:10  
**Fergus**  
[3] 1:22 5:7 25:24  
**Few**  
[9] 18:9 20:11 50:22 59:4 66:6 70:6  
75:2 81:8 87:16  
**Field**  
[1] 42:8  
**Figure**  
[1] 65:8  
**Figures**  
[1] 58:16  
**File**  
[2] 5:23 6:1



**Fill**  
 [2] 68:2 76:21  
**Filled**  
 [1] 27:20  
**Fills**  
 [1] 18:10  
**Filter**  
 [7] 27:19 28:4 28:8 29:13 29:20 31:6 35:18  
**Final**  
 [3] 11:23 13:2 99:21  
**Finally**  
 [2] 31:1 94:25  
**Financial**  
 [3] 53:12 53:15 79:7  
**Financing**  
 [1] 87:19  
**Finely**  
 [1] 28:14  
**Fire**  
 [6] 4:22 64:8 64:14 64:21 65:9 84:10  
**Fired**  
 [2] 17:25 19:20  
**Firm**  
 [1] 7:12  
**First**  
 [19] 7:5 28:20 28:25 29:14 31:7 35:2 62:23 65:3 69:17 69:18 69:20 69:20 71:14 72:10 74:10 81:17 92:24 99:6 99:11  
**First-come**  
 [2] 69:17 69:20  
**First-served**  
 [2] 69:18 69:20  
**Fish**  
 [1] 83:16  
**Fisheries**  
 [1] 44:2  
**Five**  
 [2] 90:10 99:9  
**Flexibility**  
 [1] 41:17  
**Flipping**  
 [1] 20:11  
**Flow**  
 [1] 27:6  
**Flows**  
 [5] 27:5 27:13 27:18 27:21 29:19  
**Fluctuate**  
 [1] 70:7  
**Flue**  
 [12] 27:5 27:13 27:18 27:21 28:8 28:9 28:12 28:17 28:18 28:20 29:4 29:7  
**Fluidized**  
 [2] 11:15 12:4  
**Fly**  
 [8] 28:5 29:19 31:3 31:4 31:6 31:7 31:13 31:17  
**Focus**  
 [1] 14:4  
**Focused**  
 [2] 47:12 47:17  
**Focusing**  
 [1] 39:8  
**Folks**  
 [10] 43:3 47:15 75:2 81:8 82:18 82:20 83:7 83:13 84:4 89:20  
**Following**  
 [2] 12:11 32:19  
**Footprint**  
 [1] 82:16  
**Forced**  
 [1] 57:18  
**Forces**  
 [1] 49:18  
**Forecasted**  
 [1] 14:14  
**Forecasting**  
 [2] 16:10 19:10  
**Form**  
 [3] 29:2 29:18 58:3

**Formal**  
 [1] 54:2  
**Formality**  
 [1] 7:1  
**Format**  
 [2] 54:19 88:10  
**Formed**  
 [2] 6:10 26:25  
**Forming**  
 [1] 28:20  
**Forms**  
 [2] 40:2 40:11  
**Forth**  
 [1] 73:16  
**Forward**  
 [5] 53:5 68:10 85:18 94:11 97:14  
**Fossil**  
 [2] 56:22 80:9  
**Four**  
 [7] 47:20 48:24 53:19 68:16 98:18 99:7 99:9  
**Four-year**  
 [2] 47:20 53:19  
**Fourth**  
 [2] 53:11 53:15  
**Fowl**  
 [1] 46:10  
**Frame**  
 [4] 34:11 48:23 85:16 100:9  
**Free**  
 [3] 27:14 27:18 70:2  
**Freight**  
 [1] 13:23  
**Friendly**  
 [2] 88:8 96:7  
**Fringed**  
 [1] 42:6  
**Front**  
 [1] 75:25  
**Fuel**  
 [14] 12:5 12:6 12:9 13:23 18:3 19:4 19:17 22:19 55:12 56:23 70:20 71:12 77:24 80:9  
**Full**  
 [1] 48:1  
**Full-time**  
 [2] 48:1 50:13  
**Fully**  
 [1] 15:25  
**Function**  
 [1] 66:23  
**Fundamental**  
 [1] 83:23  
**Future**  
 [9] 10:4 22:15 33:19 35:16 80:9 89:14 89:18 94:22 97:17

## G

**Gain**  
 [1] 62:22  
**Gary**  
 [2] 1:10 3:2  
**Gas**  
 [26] 11:23 11:25 19:18 19:21 19:22 27:5 27:13 27:18 27:21 28:8 28:9 28:17 28:18 28:20 29:4 29:7 56:16 56:20 70:4 70:11 70:15 70:15 70:22 70:25 80:7 89:3  
**Gases**  
 [3] 28:12 80:1 86:18  
**Gasification**  
 [2] 11:16 11:18  
**Gathered**  
 [1] 50:1  
**Gene**  
 [2] 97:4 97:18  
**General**  
 [10] 1:22 7:13 39:15 39:18 41:22 46:8 47:17 50:6 75:7 105:14  
**Generally**  
 [6] 8:23 18:5 18:8 44:14 47:20 51:13

**Generate**  
 [1] 95:3  
**Generated**  
 [6] 4:22 46:21 68:24 85:20 85:22 85:22  
**Generating**  
 [10] 4:20 4:25 17:12 33:9 34:14 56:13 59:17 66:17 85:9 85:11  
**Generation**  
 [17] 9:14 10:4 10:25 17:22 17:22 18:11 18:18 19:1 45:6 46:25 58:7 67:25 84:24 88:13 88:18 88:22 93:22  
**Generator**  
 [2] 26:4 60:6  
**Generators**  
 [1] 60:21  
**Gentleman**  
 [1] 92:25  
**Gentlemen**  
 [5] 74:8 92:15 98:6 98:8 106:6  
**Gentlemen's**  
 [1] 96:1  
**Gently**  
 [1] 28:1  
**Geographical**  
 [1] 13:8  
**Geology**  
 [1] 40:2  
**Gerhardson**  
 [4] 1:21 7:12 76:14 76:18  
**Gigawatt**  
 [3] 16:15 16:24 16:25  
**Glad**  
 [1] 95:19  
**Global**  
 [2] 79:8 84:2  
**Government**  
 [3] 47:13 48:21 79:17  
**Governmental**  
 [1] 6:8  
**Graceville**  
 [1] 98:21  
**Grading**  
 [1] 40:10  
**Gradually**  
 [1] 49:5  
**Grandchildren**  
 [1] 98:20  
**Grandfathered**  
 [2] 101:7 101:12  
**Granite**  
 [1] 68:23  
**Grant**  
 [6] 5:3 5:24 93:15 97:4 97:6 97:15  
**Granted**  
 [1] 6:18  
**Graph**  
 [9] 15:14 16:8 33:6 33:8 33:21 48:22 85:20 85:22 85:23  
**Graphs**  
 [2] 58:20 58:22  
**Graumann**  
 [24] 8:4 25:18 25:19 25:20 34:22 35:1 35:7 35:11 35:17 35:24 36:4 37:15 38:5 38:12 38:22 38:25 62:19 62:23 63:15 64:7 65:1 65:19 101:3 101:15  
**Gravel**  
 [1] 40:4  
**Gravy**  
 [1] 70:17  
**Great**  
 [15] 5:10 10:18 10:24 13:4 21:6 59:4 91:19 92:3 92:3 92:21 94:8 95:6 95:13 96:8 97:16  
**Greater**  
 [1] 87:2  
**Greatly**  
 [1] 3:25  
**Green**  
 [2] 27:2 33:13  
**GREENFIELD**

[1] 1:18  
**Greenhouse**  
 [1] 80:1  
**Greg**  
 [1] 1:14  
**Grew**  
 [1] 83:15  
**Ground**  
 [1] 42:20  
**Group**  
 [5] 5:13 31:10 65:13 76:9 92:19  
**Groups**  
 [1] 6:15  
**Grow**  
 [2] 91:21 92:10  
**Grown**  
 [1] 56:5  
**Grows**  
 [1] 15:11  
**Growth**  
 [4] 16:17 19:11 85:8 95:23  
**Guarantee**  
 [2] 60:24 69:19  
**Guess**  
 [6] 37:6 52:3 81:6 97:7 97:19 104:2  
**Guidelines**  
 [4] 101:8 101:9 101:13 103:1  
**Guys**  
 [3] 55:3 75:25 94:12  
**Gypsum**  
 [1] 28:23

## H

**Half**  
 [10] 9:8 9:15 13:22 30:23 43:25 44:22 49:3 56:15 69:12 69:12  
**Halted**  
 [1] 103:6  
**Hand**  
 [2] 76:1 76:6  
**Handle**  
 [2] 21:18 22:17  
**Hands**  
 [3] 75:6 75:21 75:23  
**Handwritten**  
 [1] 78:17  
**Hanson**  
 [52] 1:10 3:1 3:2 8:22 16:11 25:4 25:11 25:16 34:21 34:23 35:4 35:9 35:12 39:2 52:22 54:3 54:14 54:25 66:6 66:19 67:10 67:13 67:18 68:14 69:24 71:1 71:23 71:25 74:5 74:7 75:10 76:2 76:23 78:5 80:20 80:22 84:19 85:19 86:1 87:7 89:21 90:25 91:9 92:12 96:25 98:5 102:22 104:14 104:24 105:15 105:23 106:2  
**Hard**  
 [1] 56:8  
**Harder**  
 [1] 64:21  
**Hat**  
 [1] 70:12  
**Head**  
 [1] 51:24  
**Headquartered**  
 [1] 5:7  
**Health**  
 [4] 6:12 50:2 83:7 83:10  
**Hear**  
 [16] 3:10 3:13 4:3 5:18 11:18 13:25 62:2 69:25 70:4 74:23 74:25 75:4 82:2 85:1 91:25 100:21  
**Heard**  
 [11] 11:18 39:20 92:2 93:7 93:8 93:9 93:12 97:9 97:24 100:25 104:5  
**Hearing**  
 [13] 3:11 4:4 4:6 4:13 4:14 5:16 7:2 78:7 78:7 78:16 87:10 106:24 106:25  
**Heartland**  
 [3] 5:11 10:16 10:23  
**Heat**  
 [2] 27:15 56:17

<p>Heater [2] 27:14 27:18 Heats [1] 27:16 Heavily [1] 57:22 Hebert [17] 8:1 13:18 13:19 16:13 19:19 58: 19 59:8 59:12 59:21 60:15 66:15 66: 22 67:12 67:14 73:23 85:3 85:21 Hefty [1] 80:2 Held [1] 2:1 Hello [1] 76:10 Help [4] 3:7 15:16 60:5 95:21 Helps [1] 20:21 HEREBY [1] 107:8 Hi [1] 39:3 High [15] 12:10 18:2 18:3 18:16 50:11 52:7 57:9 57:16 61:25 71:20 79:13 79:19 80:9 90:16 100:11 High-cost [1] 79:19 High-level [1] 12:10 High-paying [2] 50:11 52:7 High-risk [1] 79:19 Higher [2] 71:11 101:10 Highest [1] 24:24 Highlights [1] 81:13 Highway [1] 20:18 Hills [2] 72:25 93:14 Historian [1] 50:23 Historical [5] 6:13 50:16 50:17 50:19 50:22 Historically [4] 24:21 29:9 33:3 41:6 History [2] 7:23 9:24 Hit [1] 81:13 Hold [1] 8:19 Holding [3] 23:1 24:3 83:4 Home [4] 52:17 56:7 98:20 98:23 Homes [1] 56:17 Honest [1] 73:22 Hope [3] 33:18 82:4 82:9 Hopefully [1] 14:18 Hoppers [2] 28:3 28:4 Hospital [2] 83:12 83:14 Hot [1] 18:6 Hotel/motel [1] 49:15 Hour [6] 16:23 16:25 17:3 32:6 49:13 52:10 Hours</p>	<p>[10] 11:12 16:15 16:24 16:25 17:3 17: 4 18:5 18:9 52:6 55:18 House [2] 92:25 94:17 Housing [3] 49:8 49:9 49:17 Howdy [1] 76:6 Huge [2] 45:8 83:22 HUGHES [1] 107:3 Hundreds [1] 104:7 Hunt [1] 83:16 Hurdles [2] 66:13 67:11 Hydroelectric [2] 15:19 60:21 Hydrology [1] 40:13  <b>I</b>  Ice [1] 99:8 Idea [1] 60:13 Ideal [1] 13:11 Identifiable [1] 20:12 Identification [3] 54:13 80:21 104:17 Identified [6] 17:13 33:13 43:12 50:19 51:1 51:6 Identify [3] 3:16 3:18 20:20 Identifying [2] 19:8 20:10 II [50] 1:5 1:6 1:20 1:23 2:8 2:9 4:9 4: 11 4:24 9:19 9:24 10:6 10:14 13:7 14: 3 14:9 17:7 19:8 21:11 21:16 21:19 21:23 22:20 23:8 23:21 24:5 24:9 26: 3 26:13 30:6 30:7 32:10 32:14 33:11 33:12 34:7 35:19 55:15 55:25 60:17 61:14 64:22 77:6 79:1 79:4 79:18 80: 3 82:7 86:15 99:19 III [1] 55:22 Imagine [1] 47:19 Immediate [4] 19:3 19:4 83:3 86:5 Immediately [2] 22:5 42:21 Impact [22] 40:11 45:14 46:19 64:6 70:21 73: 13 82:13 82:19 83:6 83:10 83:11 83: 21 83:22 84:1 84:1 86:4 90:3 93:8 93: 24 100:16 104:2 105:6 Impacted [3] 48:14 50:21 50:24 Impacts [35] 8:8 39:14 39:15 39:18 40:7 42:3 44:4 44:9 44:17 45:8 45:13 45:25 47: 3 47:4 47:5 47:5 47:12 47:17 47:19 48:2 48:5 48:9 49:8 50:10 51:6 51:10 51:10 51:13 65:17 65:20 82:14 84:3 105:13 105:14 105:19 Impair [2] 103:8 103:9 Impaired [1] 103:10 Implemented [1] 64:25 Implementing [1] 100:1 Importance [1] 75:11 Important</p>	<p>[11] 18:10 22:18 22:19 30:6 30:13 57: 25 75:3 75:14 82:17 83:18 106:8 Imported [3] 56:16 56:18 56:20 Impression [1] 58:5 Improvements [1] 63:13 Incentive [1] 94:7 Incentives [1] 79:25 Include [1] 105:16 Included [2] 63:22 85:25 Includes [1] 26:20 Including [5] 26:17 52:15 78:13 83:2 90:12 Inclusionary [1] 105:21 Incorporated [1] 5:13 Incorrect [1] 102:12 Increase [11] 16:19 31:24 32:10 62:24 63:1 64: 3 68:4 71:2 73:16 79:5 85:4 Increased [4] 25:9 41:13 83:12 83:14 Increases [1] 83:1 Incredibly [1] 83:18 Incremental [2] 45:13 45:14 Indicate [1] 62:17 Indicating [1] 75:3 Individual [4] 58:24 59:15 62:10 73:24 Induced [1] 28:7 Industrial [4] 5:1 6:15 41:25 48:11 Industry [2] 31:10 39:6 Inefficient [1] 56:13 Inevitably [1] 79:8 Inflates [1] 28:2 Influence [1] 70:23 Influx [1] 49:23 Information [15] 3:22 5:17 35:5 39:11 47:14 50:1 58:18 58:20 59:1 90:22 98:15 99:5 105:4 106:15 106:20 Informed [1] 76:23 Infrastructure [8] 12:24 21:7 39:25 47:5 49:7 51:12 56:11 61:3 Initiatives [1] 79:17 Injected [1] 28:22 Inn [1] 2:2 Input [2] 4:6 104:21 Insert [1] 78:17 Inside [1] 61:23 Insignificant</p>	<p>[2] 45:15 45:18 Installed [3] 35:20 64:9 65:6 Installing [1] 30:22 Instances [1] 63:5 Instead [4] 32:3 71:21 72:15 84:14 Insulate [1] 80:8 Insurance [1] 52:15 Intake [2] 21:9 44:7 Integral [1] 89:5 Integrated [2] 11:16 11:18 Integrating [1] 89:6 Intend [1] 98:23 Intended [1] 55:15 Intending [1] 78:24 Interconnection [4] 68:11 90:1 90:6 90:23 Interest [2] 57:24 98:24 Interested [4] 5:19 6:17 75:17 87:10 Interesting [1] 51:16 Interests [2] 6:14 88:5 Intermediate [3] 19:1 19:17 19:22 Internally [1] 17:14 Interrupt [2] 19:17 42:17 Interstate [1] 77:14 Intervene [1] 78:25 Intervener [1] 6:24 Intervening [1] 99:5 Introduce [1] 7:6 Intrusive [2] 42:10 51:3 Inundated [2] 44:13 44:15 Investing [2] 84:11 84:12 Investment [2] 35:23 73:12 Investments [1] 80:10 Investor [2] 5:6 11:3 Investor-owned [6] 5:6 10:2 10:22 11:3 73:14 91:6 Involved [3] 77:18 97:8 97:13 Iowa [1] 87:25 Issue [13] 42:15 43:6 44:2 49:9 49:19 67:17 76:15 76:24 79:7 79:7 106:8 106:10 106:13 Issued [1] 36:9 Issues [8] 39:9 40:13 45:4 46:4 50:16 78:21 89:14 105:8 Item</p>
---	--	--	---

Items [1] 33:7	2 24:19 24:22 25:1 40:25 41:2 41:3 41:4 41:6 41:14 44:8 103:2 103:2 103:19	Lights [2] 21:2 96:10	[1] 74:13
Itself [3] 5:9 58:19 80:8	Lakes [3] 83:17 83:20 105:16	Lignite [3] 34:1 71:10 71:11	Main [3] 32:2 32:3 80:4
Izaac [1] 78:19	Land [11] 40:2 40:11 42:2 45:4 45:5 45:5 45:8 48:8 48:13 96:12 98:24	Likely [5] 24:23 30:16 44:19 44:23 79:20	Maintain [5] 23:7 23:12 59:22 61:19 63:6
Izaak [2] 78:11 80:14	Landmark [1] 20:20	Limestone [5] 28:13 28:13 28:14 28:17 28:19	Maintained [2] 33:19 61:7
<b>J</b>		Limit [3] 36:16 64:13 67:1	Maintenance [3] 18:21 57:12 61:9
Jet [1] 28:1	Lantern [1] 2:2	Limited [2] 40:7 40:12	Major [5] 49:9 50:13 55:20 73:12 78:13
Jim [2] 76:7 92:19	Laramie [1] 88:19	Limits [3] 36:14 36:20 79:25	Makeup [4] 23:19 24:8 24:10 24:11
Job [9] 55:4 65:13 72:3 96:6 96:8 96:24 103:16 103:24 104:3	Large [2] 23:15 80:7	Line [14] 15:5 21:4 37:25 38:21 65:11 69:11 69:11 72:7 72:22 72:24 72:25 73:4 73:7 80:7	Management [2] 46:15 49:20
Jobs [13] 47:22 50:11 50:13 51:20 51:21 51:22 51:25 52:4 52:7 93:9 103:18 104:6 104:9	Larger [1] 17:19	Lines [8] 15:24 37:7 68:17 68:21 69:5 72:8 72:21 89:8	Manager [3] 7:22 9:16 25:20
Joe [3] 98:12 104:15 105:2	Largest [2] 80:5 95:1	Liquid [3] 23:2 29:18 44:5	Mandatory [1] 79:24
John [6] 1:13 8:6 39:3 48:4 51:15 52:22	Larson [1] 76:10	Listed [2] 39:16 103:10	Mann [3] 97:4 97:18 97:18
Johnson [41] 1:11 3:3 19:16 19:24 23:23 24:10 35:14 35:21 38:1 38:8 38:19 38:24 39:1 42:16 43:19 45:17 45:21 48:3 58:14 59:3 59:10 59:19 60:10 61:1 61:13 62:2 62:15 62:21 63:4 64:4 64:23 65:12 66:4 72:2 72:13 72:20 73:8 75:9 92:14 104:18 106:19	Last [8] 13:22 23:24 39:7 55:20 73:10 88:18 99:22 104:21	Live [5] 81:4 83:7 94:21 96:2 98:22	Manner [2] 88:8 96:19
Joined [2] 14:7 98:13	Late [4] 10:8 35:1 84:6 87:14	Load [5] 52:24 59:15 66:19 85:8 102:25	Map [3] 13:3 14:3 22:1
Joint [6] 31:19 31:20 62:16 62:17 63:18 86:9	Law [4] 1:19 6:7 7:12 90:4	Loaded [1] 52:11	MAPP [32] 14:5 14:5 14:11 14:12 14:17 14:21 14:22 14:22 14:24 14:25 15:8 15:9 15:13 16:9 17:6 19:9 58:16 59:6 59:13 59:14 59:22 60:5 60:9 66:9 66:23 81:20 85:5 85:13 85:20 85:22 88:22 88:25
Judgment [1] 50:23	Lays [3] 37:8 37:8 51:4	Loads [1] 21:19	MAPP-generated [2] 85:20 85:22
July [1] 4:17	Laying [1] 20:9	Local [8] 40:11 47:13 47:14 47:24 48:20 50:2 91:11 103:20	Maps [1] 20:11
Jump [1] 18:14	Leads [1] 15:21	Located [6] 5:1 14:10 22:11 25:23 26:6 26:8	March [3] 30:19 36:19 101:17
June [1] 99:22	League [2] 78:11 80:14	Location [4] 12:25 13:7 20:25 43:10	Marginal [2] 72:15 72:17
Justify [1] 73:6	League's [1] 78:20	Long-range [1] 70:14	Mark [26] 7:22 9:6 9:12 17:7 19:19 26:11 52:2 52:20 54:5 55:3 55:3 57:5 68:3 70:1 72:2 73:10 73:23 76:19 76:20 76:20 78:6 93:17 93:24 96:5 96:24 104:15
<b>K</b>		Long-term [7] 41:18 48:1 50:10 51:21 51:24 67:16 80:11	Marked [3] 54:13 80:21 104:17
Karen [1] 1:14	Learn [1] 106:11	Look [28] 8:4 14:13 15:16 16:1 16:6 19:3 19:11 20:19 41:17 41:18 42:13 42:14 43:20 45:10 46:1 49:9 53:8 56:15 61:9 66:16 72:7 73:24 90:23 94:14 100:7 100:14 103:21 105:12	Market [4] 19:12 31:17 79:25 100:11
Keegel [2] 87:12 87:17	Lease [1] 96:11	Looks [4] 14:13 16:16 73:20 105:10	Market-based [1] 79:25
Keep [2] 84:5 104:4	Least [7] 37:20 52:6 65:21 79:4 95:5 103:15 104:6	Lose [2] 60:6 95:9	Marketed [1] 46:22
Kelly [1] 100:3	Leaves [2] 23:4 29:6	Loud [1] 75:2	Married [1] 68:7
Key [2] 100:6 100:6	Lee [12] 8:6 39:3 39:3 42:19 43:21 43:24 45:19 45:22 48:5 51:23 52:20 52:25	Low [11] 18:1 18:16 26:20 30:16 32:14 34:2 34:25 44:14 57:10 57:19 79:15	Mary [3] 98:12 104:15 105:2
Keyed [1] 80:12	Left [3] 26:7 33:8 106:9	Lower [7] 32:5 32:17 59:17 65:15 71:11 101:1 101:9	Mass [1] 10:11
Kilowatt [1] 16:23	Left-hand [3] 14:20 15:2 16:14	Lucky [1] 20:5	Materials [1] 36:8
Kind [10] 8:20 14:17 18:22 18:25 19:7 20:9 43:8 44:14 55:7 64:6	Legislative [2] 93:5 94:6	<b>M</b>	
Kinds [1] 37:21	Legislator [1] 96:3	Madsen [3] 1:18 7:11 92:23	Math [1] 81:18
Known [1] 87:18	Length [1] 46:16	Mailings	Matter [5] 1:4 2:2 4:7 37:21 107:10
KV [3] 68:21 69:11 72:8	Less [9] 26:17 32:25 33:4 45:20 64:16 71:11 87:3 94:2 94:4		Maximum [2] 18:20 102:25
<b>L</b>			Mayor [2] 76:10 76:11
Labor [3] 32:8 48:22 52:5	Level [11] 12:10 34:9 37:2 37:4 38:23 38:23 41:4 41:10 59:15 71:17 71:18		McComsey [3] 1:24 107:5 107:18
Ladies [2] 74:7 106:6	Levels [11] 24:24 25:1 36:7 41:3 63:7 65:14 82:4 101:1 101:14 102:5 102:13		McDonnell [1] 8:14
Lake	Lie [1] 82:21		MDU [3] 5:13 10:22 13:4
	LIEBE [1] 91:11		Mean [9] 17:15 37:7 37:10 37:12 38:2 55:25 60:13 63:10 104:20
	Life [2] 84:2 85:10		Meaning [1] 15:6
	Light		Means

87:10 Meantime [1] 65:6 Mechanical [1] 13:23 Mechanism [2] 29:4 29:15 Media [1] 11:19 Meet [5] 36:12 37:20 37:23 89:4 102:13 Meeting [2] 4:5 106:17 Meets [2] 29:22 88:15 Megawatt [8] 4:22 15:11 32:6 33:9 33:16 57:8 68:25 93:19 Megawatts [12] 14:21 15:3 15:11 15:12 33:15 33:18 33:20 34:14 34:15 34:15 69:16 99:17 Member [7] 59:22 87:23 88:1 88:23 89:4 91:12 92:19 Members [15] 7:6 7:9 7:17 8:16 54:23 55:1 78:12 81:3 87:12 87:15 88:16 88:25 89:16 90:8 91:5 Members' [1] 88:20 Membership [1] 60:9 Mental [1] 62:6 Mentioned [15] 17:7 26:11 31:3 38:22 40:21 41:16 43:8 44:4 45:24 46:11 46:20 48:7 49:2 50:12 51:8 Merchant [1] 59:5 Mercury [38] 28:24 29:1 29:6 30:18 30:18 32:24 33:3 35:10 36:1 36:15 36:16 36:16 36:18 36:20 37:5 37:14 38:2 38:3 38:13 38:18 38:20 63:12 63:18 83:2 83:20 86:25 87:4 94:4 100:24 101:1 101:8 101:17 101:19 101:21 102:4 102:7 102:13 Mercury-specific [1] 36:16 Met [2] 69:4 88:20 Metropolitan [1] 103:7 Mexico [2] 99:25 100:17 MEYERS [1] 91:2 Michele [1] 1:15 Microphone [2] 3:5 4:1 Midcontinent [2] 14:6 85:24 Middle [1] 21:25 Midwest [2] 78:20 99:14 Might [13] 8:9 29:16 37:13 37:18 42:25 45:13 46:3 47:7 58:3 63:7 64:6 82:3 101:5 Milbank [6] 2:3 4:13 56:5 76:10 93:13 97:5 Mile [4] 43:20 43:22 43:24 43:25 Miles [3] 49:13 93:14 96:2 Milk [1] 29:16	87:10 Mind [1] 76:19 Mines [1] 70:19 Minimal [5] 25:2 39:19 48:6 51:11 92:4 Minimize [3] 26:23 46:19 70:21 Minneapolis [2] 13:13 55:23 Minnesota [27] 1:22 5:7 5:10 5:14 5:15 9:14 10:17 10:19 10:23 13:24 25:24 69:13 74:1 78:20 78:22 80:6 81:4 83:19 87:19 87:25 88:2 90:14 98:19 98:21 103:1 103:5 103:13 Minnesotans [1] 80:14 Minute [1] 9:8 Minutes [2] 7:19 9:8 MISO [5] 66:10 66:22 66:23 68:10 68:12 Missed [2] 52:23 71:3 Missouri [3] 10:18 10:23 87:18 Mitigating [1] 44:20 Mitigation [1] 44:17 Mix [6] 11:8 55:4 56:15 57:4 58:7 64:18 Mixed [2] 28:14 29:19 Mixes [1] 31:4 Mixtures [2] 31:9 31:14 Mode [2] 11:22 19:23 Modeled [3] 37:17 37:22 45:14 Modeling [1] 45:12 Modest [1] 50:10 Moisture [1] 71:11 Moments [1] 87:16 Money [2] 53:14 95:16 Monitoring [2] 45:11 65:22 Monopolistic [1] 78:1 Montana-Dakota [2] 5:12 10:16 Months [2] 48:24 70:6 Morning [1] 100:3 Morris [2] 68:22 73:4 Most [17] 18:19 19:13 24:18 24:20 37:15 40:14 41:6 41:24 43:14 43:25 48:16 56:17 57:15 82:20 91:25 96:9 104:11 Move [4] 13:13 75:6 81:21 98:23 Moved [1] 53:6 Moves [1] 29:3 Moving [2] 68:10 72:8	Multiplier [1] 47:23 Municipal [8] 5:10 5:14 5:15 10:17 10:19 10:24 13:6 87:20 Municipalities [1] 87:24 Municipality [1] 6:7 Municipals [1] 11:3 Musketeers [1] 92:15 Myers [1] 91:3  N  Name [15] 3:1 3:24 5:5 7:9 13:18 19:25 25:20 39:3 74:16 74:18 78:10 81:1 87:17 89:23 91:2 Named [1] 4:24 Nancy [3] 89:24 90:25 104:25 Narrow [1] 41:3 National [3] 79:24 90:3 101:20 Natural [16] 6:11 11:25 19:20 19:22 36:10 56:16 56:19 65:25 70:4 70:11 70:14 70:15 70:22 70:25 80:7 89:3 Nature [1] 71:6 Near [4] 5:3 18:19 42:23 103:6 Nearest [1] 45:16 Nearly [1] 70:7 Neatly [1] 81:7 Nebraska [2] 67:6 67:8 Necessarily [2] 19:23 87:9 Necessary [2] 40:18 48:17 Need [39] 8:2 10:9 11:11 13:12 13:17 14:2 15:7 17:9 17:14 17:16 18:12 18:15 19:9 19:12 19:12 19:13 24:14 32:18 37:3 37:4 37:20 37:22 60:23 60:25 61:3 73:2 74:1 74:11 74:20 84:8 90:11 90:15 91:19 92:9 97:15 102:13 103:12 103:17 103:18 Needed [7] 11:22 12:14 12:21 18:11 55:19 61:5 76:24 Needs [21] 3:11 3:13 14:14 15:17 15:20 16:7 21:11 27:9 40:20 41:9 41:15 49:19 55:6 69:4 69:8 69:9 69:23 73:5 73:6 88:20 89:16 Negative [1] 81:22 Negligible [1] 48:10 Neighbor [4] 95:13 95:18 95:20 96:1 Neighborhood [2] 34:9 72:19 Neighboring [1] 95:5 Neighbors [2] 60:4 60:8 Nest [1] 43:11 Nesting [1] 43:18 Nettie	[1] 91:3 Never [2] 81:19 97:24 New [34] 4:25 19:13 21:19 22:3 22:9 24:4 24:4 36:13 36:16 40:8 42:1 42:21 43:14 44:12 45:13 46:1 47:25 63:10 68:6 69:3 79:10 80:12 84:10 86:10 89:7 99:25 100:17 101:8 101:9 101:11 101:13 101:17 101:19 102:13 Next [5] 11:14 20:11 53:10 53:16 59:4 Nice [1] 49:4 Nitric [1] 86:25 Nitrogen [9] 26:24 27:1 27:11 27:12 32:10 32:13 32:23 33:1 35:10 Nitrous [1] 94:3 Noise [3] 45:10 45:13 45:14 Nonbinding [1] 79:23 Nonconfidential [1] 5:25 None [3] 21:10 42:11 51:2 Nonprofit [2] 6:9 89:16 Normally [1] 86:24 North [13] 15:16 16:6 33:25 55:22 58:10 68:18 68:21 70:9 71:10 72:25 73:4 80:13 88:1 Northeast [1] 72:22 Northern [3] 21:2 77:7 96:10 Nos [1] 2:7 Not-for-profit [1] 88:4 Notary [2] 107:6 107:18 Noted [1] 75:18 Notes [2] 78:17 105:20 Nothing [1] 54:21 Notice [2] 15:13 33:22 Noticed [2] 76:2 81:20 NOx [12] 26:21 32:14 32:17 36:1 36:15 37:14 63:12 63:21 64:2 64:12 64:20 87:4 Nuclear [1] 92:1 Number [11] 7:15 15:19 19:19 48:4 55:7 59:18 70:19 76:3 81:24 88:6 88:12 Numbers [4] 48:25 57:16 58:22 71:8  O  O'clock [2] 2:4 106:21 Observed [2] 42:12 43:12 Obtained [4] 41:2 41:7 41:11 45:3 Obviously [6] 21:13 25:7 62:22 70:2 73:11 74:20 Occur [4] 27:10 40:19 93:13 103:8 Occurred [1] 29:13
--	--	---	--

Occurs [3] 27:1 28:24 29:20 Office [1] 78:20 Official [3] 3:11 81:11 84:18 Officials [3] 47:13 50:3 76:3 Often [1] 66:12 Oil [3] 17:25 56:16 80:7 Oil-fired [1] 17:25 Oklahoma [2] 99:24 100:17 Old [2] 22:9 56:13 Older [1] 101:10 Once [3] 15:5 34:7 38:20 One [56] 7:10 11:23 14:10 14:16 15:19 16:24 17:2 20:12 21:6 22:8 23:14 27:8 30:11 31:1 32:3 42:5 43:5 44:22 44:22 49:10 51:16 51:19 52:22 59:25 60:8 68:9 68:18 68:18 68:22 68:22 70:1 70:14 71:19 71:21 73:10 75:10 75:12 75:20 77:25 80:4 85:7 85:8 87:20 88:6 88:12 88:15 92:24 93:6 93:16 97:14 97:14 97:19 102:3 103:16 104:5 105:9 Ones [2] 57:13 95:4 Ongoing [1] 65:10 Online [1] 100:2 Open [3] 12:16 69:17 69:20 Opens [1] 31:19 Operate [1] 101:10 Operated [4] 65:23 65:25 71:10 97:25 Operates [1] 18:19 Operating [6] 18:3 18:16 57:7 57:14 65:2 101:13 Operation [7] 9:25 41:17 53:20 65:9 66:2 71:14 100:13 Operational [6] 32:16 34:9 63:22 64:2 64:5 64:24 Opponents [1] 87:9 Opportunities [3] 36:23 89:7 94:20 Opportunity [13] 3:15 21:7 74:23 74:24 80:16 88:11 88:17 89:12 95:1 95:6 100:20 104:20 104:21 Opposed [1] 58:17 Option [5] 10:6 12:2 16:5 61:16 82:10 Options [4] 10:4 12:3 48:16 69:6 Oranges [1] 102:10 Orchid [1] 42:6 Order [4] 3:12 4:6 27:9 60:24 Orderly [1] 6:15 Organization [9] 3:17 3:18 3:18 6:10 6:23 7:7 14:11 66:24 77:12 Organizations [1] 90:10	Organized [1] 81:8 Orient [1] 20:21 Otherwise [3] 3:19 87:18 102:8 Otter [28] 1:4 1:21 4:8 4:16 5:4 5:5 5:8 5:17 6:6 7:4 10:3 10:9 10:15 10:21 13:4 13:19 20:1 20:4 25:21 48:15 58:9 67:1 80:4 80:11 82:19 85:1 94:9 96:23 Outage [1] 57:18 Outages [2] 57:13 57:18 Outdoors [1] 83:17 Outfit [1] 98:2 Output [3] 86:19 88:15 99:17 Outside [8] 3:8 27:23 59:14 66:20 74:20 82:25 86:4 105:4 Overall [1] 64:2 Overbuild [1] 72:6 Overbuilding [1] 69:22 Overbuilt [1] 93:18 Overcharged [1] 77:17 Overtaxed [1] 50:7 Overtime [1] 52:8 Overview [1] 8:21 Own [4] 17:14 17:19 17:23 60:7 Owned [2] 5:6 11:3 Owners [7] 4:24 5:9 17:8 19:8 30:10 58:21 87:20 Oxide [6] 27:1 27:11 32:10 32:24 33:1 86:25 Oxides [3] 26:24 32:13 94:3 Oxidized [1] 29:6	Particular [11] 30:14 31:5 33:25 34:10 42:25 63:25 64:11 72:5 76:17 101:22 102:6 Particularly [1] 12:20 Particulate [2] 29:2 37:21 Parties [2] 6:5 96:20 Partners [4] 58:18 59:6 78:22 79:18 Parts [1] 105:11 Party [4] 6:18 6:22 6:24 99:5 PASHBY [1] 1:18 Pass [2] 70:3 99:1 Passed [2] 36:5 79:22 Passes [1] 36:5 Past [1] 70:6 Path [1] 80:1 Paul [1] 78:20 Paying [3] 50:11 52:7 52:10 Peak [3] 47:21 49:2 59:23 Peaking [6] 17:23 17:24 19:2 19:5 19:18 89:2 Pending [1] 77:19 People [13] 12:11 52:9 55:10 56:6 56:17 75:21 86:24 87:11 89:16 91:22 92:6 92:21 94:20 Per [8] 25:15 31:16 32:6 33:24 34:10 38:4 38:6 64:12 Percent [24] 16:18 16:18 26:14 26:17 30:3 30:15 31:25 34:13 56:19 57:2 57:7 57:10 57:20 58:12 58:12 59:23 59:25 60:3 60:22 62:25 63:2 82:3 86:22 86:23 Percentage [1] 92:4 Percents [1] 58:12 Perceptible [1] 45:16 Perfect [1] 73:9 Performance [1] 36:13 Perhaps [4] 41:18 68:2 70:1 71:3 Period [10] 16:16 24:23 46:13 46:14 47:21 53:19 59:18 65:25 71:21 77:24 Periodically [1] 27:24 Periods [2] 18:22 65:4 Permanent [1] 52:11 Permit [16] 1:5 4:10 4:15 25:8 25:14 33:2 34:5 36:8 36:11 39:12 40:22 40:23 41:1 41:13 45:3 90:18 Permits [2] 53:8 53:13 Permitted [3] 29:24 34:7 47:2 Permitting [3] 44:19 53:7 53:10 Person	[2] 6:17 6:23 Personal [1] 6:12 Persons [1] 5:19 Perspective [1] 17:5 Pertaining [1] 105:3 Perusal [1] 81:16 Peterson [4] 76:7 92:17 92:19 94:17 Peterson's [1] 95:7 Petition [1] 10:15 Phase [3] 11:20 53:6 53:7 Phonetic [1] 8:14 Physical [1] 40:1 Pick [1] 99:3 Picked [1] 55:5 Picture [1] 62:6 Pierre [2] 56:4 107:13 Pinch [1] 49:22 Pipe [1] 80:7 Pipeline [2] 21:10 80:8 Pits [2] 40:4 40:4 Place [8] 4:13 8:23 12:16 21:13 40:15 74:11 86:13 99:1 Plan [6] 15:20 46:12 60:20 67:21 68:5 96:6 Planned [2] 57:13 57:17 Planning [4] 13:21 16:16 64:20 97:22 Plans [1] 69:10 Plant [79] 5:2 13:8 17:18 20:6 20:16 20:17 20:23 20:24 21:1 21:1 21:2 21:3 21:8 21:13 22:2 22:3 22:4 22:9 22:9 26:5 32:11 33:10 33:14 33:23 34:24 37:18 37:19 37:22 39:9 39:22 39:25 40:12 40:15 40:20 41:15 41:25 42:4 42:6 42:9 42:21 43:1 43:9 43:14 45:12 45:14 47:10 47:11 47:25 50:18 51:2 51:21 52:10 52:24 53:1 57:6 57:9 61:24 63:8 65:8 68:16 72:5 75:22 79:4 79:19 82:6 82:14 82:17 82:21 83:4 86:5 90:12 94:3 95:16 96:7 97:25 99:21 99:24 100:12 103:17 Plant's [1] 57:18 Plants [15] 38:20 42:11 55:5 55:6 55:8 62:18 62:20 84:11 85:9 94:2 99:18 101:2 101:10 101:11 101:19 Plateau [1] 104:4 Plume [1] 62:12 Plus [2] 52:10 81:21 PM [1] 106:25 Pneumatically [1] 28:5 Pocket [1] 52:18
PRECISION REPORTING, LTD.			
From Occurs to Pocket			

Point  
[14] 7:20 10:21 13:2 16:9 18:20 33:7  
43:9 44:14 54:6 56:19 75:11 76:4 101:  
6 106:19  
Points  
[1] 49:22  
Policy  
[1] 90:4  
Pollutant  
[1] 86:20  
Pollutants  
[5] 37:16 37:25 83:2 83:8 86:24  
Polluting  
[1] 84:10  
Pollution  
[5] 22:6 46:12 63:10 83:20 103:11  
Pond  
[28] 20:14 20:15 20:20 20:23 21:25  
22:10 22:13 23:1 23:1 23:16 23:20 24:  
3 24:3 24:4 24:6 24:6 40:8 42:1 42:  
22 42:22 44:12 45:7 46:1 46:2 46:9  
61:14 61:18 83:4  
Ponds  
[1] 23:20  
Pool  
[4] 14:6 60:1 85:5 85:24  
Population  
[3] 47:7 50:9 50:14  
Portion  
[3] 14:1 15:14 78:7  
Portland  
[1] 31:8  
Position  
[2] 25:22 73:21  
Positive  
[3] 47:20 51:14 87:5  
Possibilities  
[1] 31:20  
Possibility  
[4] 31:21 60:11 69:21 85:12  
Possible  
[2] 46:23 86:8  
Postconstruction  
[1] 46:14  
Potential  
[23] 11:9 39:15 42:7 43:6 43:18 47:6  
49:7 50:16 66:11 68:6 72:4 72:6 73:  
13 83:1 84:1 87:21 89:7 93:12 93:19  
99:16 103:13 104:3 104:7  
Pound  
[1] 38:7  
Pounds  
[7] 36:21 37:3 38:3 38:6 38:14 64:12  
101:23  
Powder  
[2] 12:6 70:19  
Power  
[56] 1:4 4:8 4:16 5:4 5:10 5:11 5:14 5:  
15 7:4 7:20 9:14 10:9 10:15 10:16 10:  
18 10:19 10:21 13:12 13:13 13:19 14:  
6 20:2 20:4 22:2 25:21 39:9 39:22 48:  
15 52:10 54:6 55:17 56:8 59:6 60:1  
60:5 60:11 68:24 79:4 79:19 80:4 80:  
12 84:11 85:5 85:24 87:20 87:22 89:2  
89:10 89:19 89:24 91:19 97:15 97:25  
99:8 99:16 103:22  
Practical  
[1] 26:16  
Prairie  
[1] 42:6  
Predominantly  
[1] 15:19  
Prefer  
[4] 67:19 67:24 74:22 76:22  
Prepared  
[1] 46:13  
Preparing  
[1] 90:2  
Present  
[5] 5:20 7:16 8:21 42:7 98:16  
Presentation  
[16] 2:9 7:20 8:24 9:3 14:2 25:25 54:

2 54:3 54:7 54:8 68:13 71:3 81:6 81:  
18 86:8 100:23  
Presented  
[4] 8:12 85:20 98:8 99:4  
Presently  
[1] 68:4  
Preserve  
[1] 6:13  
President  
[1] 91:3  
Pretend  
[1] 74:20  
Pretty  
[3] 46:9 57:14 57:15  
Prevention  
[1] 46:12  
Previous  
[1] 97:23  
Previously  
[1] 51:5  
Price  
[4] 70:10 70:11 70:24 80:2  
Prices  
[2] 11:25 70:15  
Pricing  
[1] 12:1  
Primarily  
[6] 28:25 32:7 39:19 40:7 42:20 49:24  
Primary  
[4] 47:9 47:13 86:20 88:6  
Prime  
[2] 73:5 93:16  
Private  
[1] 95:1  
Problems  
[10] 15:18 49:23 75:5 83:13 83:15 83:  
19 96:14 96:15 96:17 96:18  
Proceed  
[1] 8:19  
Proceeding  
[5] 6:5 6:18 77:23 79:1 80:17  
Proceedings  
[4] 1:7 2:1 107:9 107:12  
Process  
[23] 10:10 24:13 24:15 26:25 28:22  
32:22 35:15 37:16 44:19 45:1 48:12  
53:21 68:10 68:10 74:2 77:4 77:21 77:  
22 78:4 81:12 90:12 90:14 101:22  
Processes  
[4] 90:11 90:15 90:18 90:19  
Procured  
[1] 48:15  
Produce  
[2] 31:16 88:7  
Produced  
[1] 60:21  
Producing  
[2] 57:21 70:20  
Product  
[2] 28:23 29:18  
Production  
[3] 19:5 48:8 79:12  
Professional  
[4] 56:8 96:19 107:6 107:19  
Professionalism  
[1] 96:16  
Profit  
[1] 88:4  
Program  
[1] 79:24  
Programs  
[1] 89:5  
Progresses  
[1] 49:6  
Project  
[64] 1:6 4:11 4:24 5:9 5:18 5:19 7:11  
7:16 7:22 7:23 9:19 9:20 9:24 10:14  
11:1 11:3 11:5 11:8 11:10 12:19 13:  
15 14:9 16:12 17:8 20:8 22:19 28:25  
39:16 39:18 41:23 48:15 48:17 48:20  
49:4 49:6 49:14 50:4 50:8 50:21 50:  
24 53:3 53:4 53:5 53:22 60:18 69:8

79:2 80:5 86:16 87:21 89:25 90:7 90:  
12 90:16 91:7 91:16 92:11 94:10 94:  
19 95:2 95:21 96:4 105:11 105:12  
Projected  
[3] 15:7 15:10 38:20  
Projecting  
[3] 16:24 17:8 75:5  
Projects  
[4] 90:5 90:23 95:11 103:10  
Promote  
[3] 6:10 6:13 6:15  
Property  
[5] 21:1 21:21 37:25 94:23 96:11  
Proponents  
[1] 80:5  
Proposal  
[1] 33:17  
Proposals  
[1] 80:2  
Propose  
[1] 10:14  
Proposed  
[14] 4:4 4:21 4:25 5:18 5:19 6:9 13:1  
13:6 34:5 77:6 79:3 79:18 82:14 99:18  
Proposing  
[2] 11:7 86:16  
Prospects  
[1] 51:17  
Protect  
[1] 6:11  
Proud  
[1] 23:6  
Provide  
[6] 5:16 26:22 35:9 60:7 90:20 105:13  
Provided  
[2] 105:4 106:16  
Provides  
[3] 14:11 18:22 18:23  
Providing  
[3] 39:5 89:12 90:22  
Provision  
[1] 26:20  
Public  
[32] 1:1 1:9 4:4 4:6 4:17 5:17 5:18 5:  
24 7:9 7:17 9:4 9:9 50:3 54:9 54:23  
74:9 74:19 75:12 76:16 78:6 78:25 80:  
23 82:18 87:22 89:10 89:19 90:9 106:  
2 106:6 106:22 107:6 107:18  
Published  
[1] 30:19  
PUC  
[4] 3:2 81:15 91:18 92:20  
PUC's  
[2] 80:17 90:12  
Pulled  
[1] 85:23  
Pulls  
[1] 28:7  
Pulse  
[3] 27:24 28:1 28:1  
Pulverized  
[3] 12:4 12:7 26:11  
Pump  
[2] 23:10 23:16  
Pumped  
[1] 22:25  
Pumping  
[6] 21:9 22:23 24:1 24:2 24:18 24:20  
Purchase  
[1] 67:4  
Purchases  
[3] 66:17 85:13 85:15  
Purchasing  
[1] 38:9  
Purpose  
[6] 3:22 5:16 14:1 16:8 25:25 28:11  
Pursue  
[1] 17:18  
Push  
[2] 98:8 98:9  
Pushing

[1] 91:22  
Put  
[14] 3:24 14:16 17:4 23:9 29:17 51:17  
55:24 63:11 64:16 91:17 95:16 100:  
10 105:21 105:25  
Puts  
[1] 80:2  
Putting  
[2] 31:18 99:25  

---

**Q**

---

Quality  
[10] 37:23 45:22 46:1 46:2 46:6 46:8  
46:16 46:19 84:2 105:19  
Quarter  
[2] 53:11 53:16  
Questions  
[21] 8:15 8:17 8:19 9:1 9:3 25:5 25:6  
40:21 53:4 54:3 54:25 66:7 72:1 80:  
24 81:5 81:17 84:21 86:2 87:8 97:10  
100:22  
Quickly  
[4] 53:2 55:14 68:16 74:22  
Quite  
[3] 43:13 45:23 88:16  

---

**R**

---

Radius  
[7] 47:9 47:11 47:18 49:11 49:16 82:  
25 103:15  
Rail  
[10] 12:17 21:3 21:15 61:4 61:10 61:  
11 71:2 77:1 77:7 77:9  
Railroad  
[4] 61:5 61:6 77:8 77:17  
Rails  
[1] 21:14  
Rain  
[1] 37:11  
Raise  
[2] 75:25 76:6  
Raised  
[3] 75:23 85:4 98:18  
Ramping  
[1] 49:5  
Range  
[3] 41:3 41:4 70:14  
Rate  
[6] 16:17 30:23 57:19 73:13 77:23 88:  
9  
Rated  
[2] 4:22 99:13  
Ratepayer  
[1] 79:20  
Rates  
[4] 46:25 73:15 78:3 101:19  
Rather  
[5] 22:10 31:17 91:22 92:6 105:11  
Ratio  
[1] 44:22  
Rausch  
[2] 76:4 94:13  
Reached  
[1] 85:10  
Reaction  
[1] 27:10  
Reacts  
[1] 28:19  
Read  
[3] 4:2 4:2 48:25  
Reading  
[1] 3:19  
Reagents  
[1] 31:4  
Real  
[6] 16:5 45:4 48:19 57:24 71:7 83:6  
Reality  
[1] 34:8  
Realize  
[1] 57:25  
Really

[21] 9:17 11:17 15:18 19:1 19:11 51:  
16 56:11 59:14 61:17 72:21 75:12 82:  
15 83:25 85:6 92:21 92:25 93:21 94:  
10 96:9 96:15 97:20

**Reason**  
[3] 58:17 64:24 75:12

**Reasons**  
[2] 85:6 85:17

**Receive**  
[3] 30:7 74:12 77:6

**Recent**  
[1] 65:21

**Receptors**  
[1] 45:16

**Recess**  
[1] 74:6

**Recognize**  
[2] 67:22 106:12

**Reconnaissance**  
[1] 42:9

**Record**  
[15] 23:6 54:5 54:9 54:12 75:12 78:15  
80:19 81:7 81:10 84:18 96:4 96:22 98:  
16 99:3 102:21

**Red**  
[2] 21:4 43:10

**Reduce**  
[2] 32:13 102:4

**Reducing**  
[2] 86:22 88:14

**Reduction**  
[5] 27:3 27:6 34:13 38:17 84:23

**Reductions**  
[4] 34:19 64:1 86:2 86:3

**Redundant**  
[1] 32:1

**Refer**  
[1] 40:3

**Reference**  
[2] 43:8 85:25

**Referred**  
[2] 63:14 77:12

**Referring**  
[1] 105:17

**Refrigerators**  
[1] 56:7

**Regard**  
[1] 38:1

**Regarding**  
[6] 5:19 5:21 35:5 67:20 79:1 105:5

**Regardless**  
[1] 106:8

**Regards**  
[1] 44:10

**Region**  
[21] 14:5 14:7 14:9 14:12 14:15 14:17  
14:21 15:8 16:9 16:19 17:6 19:10 50:  
14 55:9 58:1 66:21 67:1 73:2 75:14  
78:21 88:22

**Regional**  
[6] 39:5 47:4 69:9 69:10 69:22 73:6

**Regions**  
[3] 14:22 59:13 59:14

**Registered**  
[5] 9:12 13:23 20:2 107:5 107:19

**Regulate**  
[1] 77:16

**Regulation**  
[1] 80:10

**Regulations**  
[2] 86:13 103:4

**Regulatory**  
[4] 29:23 79:9 79:21 80:1

**Related**  
[4] 39:9 39:22 40:7 49:23

**Relationship**  
[3] 94:15 96:9 96:21

**Relatively**  
[1] 79:14

**Reliability**  
[1] 14:8

**Reliable**  
[3] 88:10 89:12 99:20

**Rely**  
[1] 60:4

**Relying**  
[1] 56:12

**Remainder**  
[1] 46:23

**Remaining**  
[2] 21:18 47:1

**Remedy**  
[1] 78:2

**Remember**  
[2] 29:13 31:5

**Remind**  
[1] 90:8

**Removal**  
[7] 30:5 30:14 30:16 30:18 31:4 63:17  
63:18

**Remove**  
[2] 28:11 29:10

**Removed**  
[1] 86:21

**Renewable**  
[1] 68:7

**Repeat**  
[2] 34:24 46:17

**Replacement**  
[1] 31:8

**Report**  
[2] 99:22 100:15

**Reported**  
[4] 1:24 31:12 38:5 88:24

**Reporter**  
[6] 3:10 75:4 75:8 107:6 107:9 107:19

**Represent**  
[4] 6:14 78:11 87:24 88:5

**Representative**  
[1] 58:23

**Representatives**  
[2] 76:5 94:16

**Represented**  
[2] 14:24 14:25

**Representing**  
[6] 3:17 7:4 13:5 91:4 96:10 97:7

**Represents**  
[3] 17:5 43:10 47:11

**Request**  
[4] 41:20 67:9 90:1 90:6

**Requests**  
[2] 68:11 68:12

**Require**  
[3] 40:10 47:25 86:14

**Required**  
[5] 7:2 59:22 64:11 95:17 101:11

**Requirement**  
[4] 38:12 38:14 38:15 64:11

**Requirements**  
[5] 16:19 29:23 38:17 48:23 64:10

**Reserve**  
[2] 25:5 59:23

**Reserves**  
[3] 59:20 89:2 89:4

**Resident**  
[1] 91:11

**Resolution**  
[1] 79:22

**Resource**  
[21] 11:6 11:7 11:11 12:22 13:21 15:  
17 16:7 17:16 17:17 18:15 18:15 18:  
18 19:9 55:15 55:16 56:2 56:22 56:23  
67:17 88:19 89:15

**Resources**  
[18] 5:13 10:4 10:7 10:10 17:9 17:12  
17:15 17:24 19:20 36:10 40:4 47:8 50:  
15 58:8 58:11 65:25 89:6 89:9

**Respect**  
[1] 92:25

**Respectful**  
[1] 106:14

**Respond**

[1] 63:12

**Responded**  
[1] 77:1

**Response**  
[1] 79:8

**Rest**  
[1] 96:24

**Restaurants**  
[1] 93:11

**Restricted**  
[1] 41:5

**Restrictions**  
[2] 41:1 41:10

**Result**  
[3] 32:5 35:19 90:2

**Results**  
[1] 64:19

**Retirement**  
[1] 85:9

**Retirements**  
[1] 59:16

**Reusing**  
[1] 21:12

**Revenue**  
[1] 95:3

**Review**  
[2] 8:7 39:10

**Ridge**  
[2] 58:9 73:1

**Rights**  
[1] 25:8

**Risk**  
[1] 79:19

**Risks**  
[1] 80:9

**Rislov**  
[1] 1:14

**River**  
[16] 5:10 10:18 10:19 10:23 10:24 12:  
6 13:4 44:2 44:6 45:24 45:25 70:19  
87:18 88:19 103:8 105:16

**Rivers**  
[2] 83:17 103:13

**Roads**  
[1] 21:13

**Role**  
[2] 18:10 96:3

**Roles**  
[1] 95:22

**Rolfes**  
[25] 7:22 9:6 9:11 9:12 34:17 52:3 52:  
16 53:2 55:14 57:8 57:17 58:4 68:8  
68:15 70:13 71:7 71:24 72:11 72:17  
72:23 73:18 76:19 76:25 86:7 96:5

**Roof**  
[1] 70:16

**Room**  
[1] 55:10

**Rotary**  
[1] 21:17

**Rough**  
[1] 13:3

**Roughly**  
[6] 34:4 34:12 69:12 71:18 72:18 86:  
21

**Round**  
[1] 50:22

**RPR**  
[1] 1:24

**Rule**  
[3] 30:18 36:18 38:18

**Ruled**  
[1] 11:21

**Rules**  
[4] 86:13 101:17 102:9 103:3

**Run**  
[8] 18:5 18:6 18:6 18:7 19:23 68:21  
95:19 96:14

**Running**  
[5] 17:2 57:21 58:11 64:20 93:14

**Runoff**

[2] 24:21 40:19

**Runs**  
[6] 18:9 44:3 57:9 68:18 68:18 73:4

**Rural**  
[2] 83:24 91:20

**S**

**Safety**  
[1] 50:3

**Sahr**  
[19] 1:11 3:3 24:17 24:25 25:3 35:25  
37:6 51:15 52:14 52:19 55:2 57:5 57:  
11 57:23 58:13 73:10 74:4 75:19 75:  
24

**Sake**  
[1] 75:21

**Salable**  
[1] 31:2

**Sale**  
[2] 31:7 79:17

**Sales**  
[1] 48:19

**Sand**  
[1] 40:4

**Sante**  
[1] 77:8

**Sat**  
[1] 92:24

**Satellite**  
[1] 28:6

**Satisfy**  
[6] 15:7 15:16 18:12 19:12 19:13 21:  
11

**Saudi**  
[2] 99:13 99:14

**Savings**  
[2] 32:8 32:8

**Saw**  
[5] 22:1 37:9 54:17 76:8 76:8

**Scale**  
[1] 17:20

**Scenario**  
[1] 79:21

**Schedule**  
[1] 53:4

**Scheduled**  
[2] 57:18 57:20

**Scheduling**  
[1] 52:21

**Schematic**  
[1] 26:2

**School**  
[1] 50:2

**Scientists**  
[2] 78:24 80:16

**Scoping**  
[2] 81:12 105:21

**Scroll**  
[1] 6:4

**Scrub**  
[1] 86:10

**Scrubbed**  
[1] 36:2

**Scrubber**  
[30] 22:7 22:14 28:10 29:5 29:14 29:  
15 30:2 30:4 30:15 30:17 30:22 30:24  
30:25 31:1 31:3 31:19 31:20 31:21 31:  
23 31:24 35:18 62:16 62:25 63:16 63:  
19 86:9 86:9 86:17 86:21 87:1

**Scrubbers**  
[3] 29:9 29:10 32:7

**Scrubbing**  
[1] 102:3

**Second**  
[5] 16:13 60:18 63:8 74:16 85:8

**Secondly**  
[1] 15:24

**Section**  
[1] 27:2

**Sectors**  
[1] 48:11

<b>Security</b> [1] 56:24 <b>Sedimentation</b> [1] 40:5 <b>See</b> [44] 10:10 13:6 15:2 15:9 16:18 18:18 19:2 19:21 20:13 20:17 23:10 42:2 43: 13 43:17 44:9 45:4 45:8 46:3 49:4 49: 22 50:3 54:10 59:1 67:1 67:14 67:24 70:5 70:18 70:25 73:15 75:2 75:5 81: 22 86:3 88:22 88:23 89:3 89:7 89:11 91:21 92:5 94:10 95:9 103:22 <b>Seeing</b> [3] 16:22 83:18 97:13 <b>Seeking</b> [2] 80:8 80:11 <b>Sees</b> [1] 58:24 <b>Segments</b> [1] 8:11 <b>Selected</b> [1] 7:25 <b>Selective</b> [2] 27:3 32:15 <b>Sells</b> [1] 62:11 <b>Seminar</b> [1] 91:17 <b>Senate</b> [2] 79:22 94:16 <b>Senator</b> [4] 76:7 92:20 94:17 95:7 <b>Send</b> [1] 3:22 <b>Senior</b> [1] 92:18 <b>Sense</b> [3] 14:19 26:16 55:11 <b>Sentence</b> [1] 23:24 <b>Separate</b> [1] 90:10 <b>September</b> [7] 1:8 2:3 4:12 6:20 35:2 107:11 107: 14 <b>Series</b> [1] 27:21 <b>Serve</b> [8] 9:22 13:8 13:14 21:22 60:25 63:1 69:3 88:3 <b>Served</b> [3] 13:5 69:18 69:20 <b>Service</b> [5] 8:9 13:3 50:7 55:24 68:12 <b>Services</b> [9] 10:18 14:11 25:21 39:6 47:6 47:23 49:25 50:6 87:18 <b>Servicing</b> [1] 48:12 <b>Session</b> [1] 93:5 <b>Set</b> [4] 36:8 65:22 73:14 77:23 <b>Setting</b> [2] 13:11 78:3 <b>Seven</b> [7] 10:13 11:12 17:7 17:17 19:8 55:18 58:18 <b>Several</b> [5] 7:21 49:16 50:18 78:13 81:3 <b>Sewer</b> [1] 49:20 <b>Share</b> [3] 21:7 31:25 103:2 <b>Shareholder</b> [1] 91:14 <b>Shareholders</b> [3] 91:4 91:5 91:13 <b>Sharp</b> [1] 81:21 <b>Shed</b>	[1] 28:3 <b>Shedding</b> [1] 28:2 <b>Sheet</b> [6] 3:21 3:24 74:10 74:12 74:14 74:17 <b>Sherco</b> [1] 55:22 <b>Shifting</b> [1] 47:3 <b>Shine</b> [1] 96:16 <b>Shipments</b> [1] 77:24 <b>Short</b> [3] 18:9 74:6 84:5 <b>Short-duration</b> [1] 18:9 <b>Short-term</b> [1] 67:7 <b>Shorter</b> [1] 62:9 <b>Shorthand</b> [2] 107:9 107:9 <b>Show</b> [6] 16:15 26:3 26:4 26:4 27:25 75:20 <b>Showed</b> [2] 103:17 103:24 <b>Showing</b> [2] 22:23 33:6 <b>Shows</b> [7] 14:4 14:18 16:17 26:6 33:8 33:12 33:21 <b>Shrinking</b> [1] 85:18 <b>Sic</b> [1] 84:20 <b>Sick</b> [1] 76:19 <b>Side</b> [9] 14:20 16:14 21:1 22:7 33:8 81:21 81:22 106:9 106:9 <b>Sidelight</b> [1] 77:11 <b>Sierra</b> [3] 81:2 81:3 81:11 <b>Sign</b> [5] 3:21 3:24 3:24 74:12 74:15 <b>Sign-up</b> [5] 3:21 3:24 74:10 74:12 74:14 <b>Significant</b> [5] 16:4 18:23 19:11 34:18 42:3 <b>Significantly</b> [1] 48:14 <b>Signing</b> [1] 75:11 <b>Similar</b> [3] 35:5 46:7 70:20 <b>Similarly</b> [2] 28:10 49:25 <b>Simple</b> [2] 69:7 71:7 <b>Simply</b> [7] 4:19 27:14 28:14 29:8 30:6 63:18 63:21 <b>Single</b> [1] 77:9 <b>Sioux</b> [4] 1:19 56:4 91:18 98:15 <b>Sit</b> [1] 4:1 <b>Site</b> [40] 5:1 7:24 12:14 12:22 12:23 20:8 20:9 21:4 21:6 21:14 21:17 21:21 21: 24 22:20 23:2 23:4 23:8 23:13 24:1 31:18 32:11 32:20 33:10 33:14 33:17 33:24 34:6 40:16 41:24 42:9 42:14 42: 21 44:3 46:15 46:24 64:2 65:22 86:19 88:14 100:15 <b>Site-specific</b> [1] 20:8 <b>Sites</b>	[4] 6:13 12:20 51:1 51:6 <b>Siting</b> [4] 39:9 39:12 90:12 90:14 <b>Situation</b> [3] 60:19 93:25 95:9 <b>Six</b> [1] 96:13 <b>Size</b> [3] 31:23 62:25 99:18 <b>Skilled</b> [2] 52:5 52:9 <b>Skipped</b> [1] 18:25 <b>Skogeland</b> [1] 8:14 <b>Slides</b> [7] 20:12 20:19 20:21 20:22 22:15 54: 7 54:17 <b>Slightly</b> [1] 34:15 <b>Slurry</b> [2] 28:13 29:17 <b>Small</b> [2] 61:20 83:24 <b>Smaller</b> [2] 61:25 70:25 <b>Smith</b> [3] 1:13 54:16 54:20 <b>SO2</b> [12] 30:5 30:7 30:13 31:4 33:21 33:23 34:2 34:11 36:15 37:14 86:20 87:4 <b>Soils</b> [1] 40:2 <b>Sokolski</b> [3] 2:10 78:10 78:11 <b>Sold</b> [4] 59:5 59:12 59:13 106:4 <b>Solid</b> [3] 21:20 46:21 49:20 <b>Soluble</b> [1] 29:8 <b>Solve</b> [1] 16:6 <b>Solved</b> [1] 96:18 <b>Solving</b> [1] 96:15 <b>Someone</b> [1] 51:25 <b>Sometimes</b> [2] 19:21 106:12 <b>Somewhere</b> [1] 76:9 <b>Soon</b> [2] 54:24 77:20 <b>Soothsayer</b> [1] 70:12 <b>Sorry</b> [3] 19:16 42:17 48:3 <b>Sort</b> [2] 23:24 73:12 <b>Sound</b> [1] 95:24 <b>Source</b> [6] 22:13 24:15 36:13 46:5 47:14 55: 12 <b>Sources</b> [4] 11:9 56:13 79:13 79:15 <b>South</b> [52] 1:2 1:19 2:3 4:14 5:3 6:7 9:13 20: 3 21:2 36:9 37:3 38:16 44:3 55:22 65: 24 67:23 67:24 68:19 68:22 69:11 69: 12 72:7 72:24 72:24 78:14 78:25 80: 17 81:4 83:16 83:20 83:24 87:25 88:3 90:13 91:4 91:6 93:14 93:17 93:18 95: 2 96:2 98:14 99:12 99:16 100:7 101: 23 102:18 102:25 104:8 107:1 107:7 107:13 <b>Southeast</b> [1] 72:22 <b>Southern</b> [3] 5:14 10:17 10:23	[4] 6:13 12:20 51:1 51:6 <b>Southwest</b> [3] 22:3 40:11 43:16 <b>Speaker</b> [1] 93:2 <b>Speaking</b> [3] 3:20 75:2 100:4 <b>Speaks</b> [1] 96:19 <b>Special</b> [2] 26:22 41:23 <b>Species</b> [3] 42:5 43:5 43:7 <b>Specific</b> [5] 20:8 36:16 42:5 49:23 105:11 <b>Specifically</b> [3] 37:22 50:21 82:13 <b>Specifics</b> [1] 105:5 <b>Spot</b> [2] 4:2 51:18 <b>Spray</b> [7] 29:15 29:20 29:25 30:1 30:16 32:2 32:3 <b>Spread</b> [1] 83:3 <b>Spring</b> [4] 24:21 41:7 42:11 53:17 <b>Spur</b> [4] 21:15 61:5 61:6 61:11 <b>SS</b> [1] 107:2 <b>St</b> [2] 55:22 78:20 <b>Stacie</b> [8] 8:1 13:16 13:19 55:16 58:15 66:8 73:21 85:19 <b>Stack</b> [2] 26:7 36:6 <b>Stacks</b> [2] 37:14 38:3 <b>Staff</b> [2] 1:12 8:16 <b>Stage</b> [1] 35:15 <b>Stages</b> [1] 90:17 <b>Staging</b> [1] 64:15 <b>Standards</b> [5] 30:20 36:13 37:24 86:15 101:24 <b>Standpoint</b> [1] 88:13 <b>Stands</b> [1] 14:5 <b>Start</b> [4] 15:6 17:23 26:10 97:9 <b>Started</b> [2] 12:15 65:2 <b>Starting</b> [1] 15:10 <b>Starts</b> [1] 59:15 <b>State</b> [30] 1:2 9:13 13:24 20:3 25:8 36:22 37:2 38:15 39:21 46:18 48:20 68:1 76: 7 87:25 88:2 88:3 89:11 89:19 90:13 90:14 92:19 94:20 94:24 94:25 95:2 95:4 96:3 102:17 107:1 107:7 <b>State-of-the-art</b> [3] 39:21 46:18 51:12 <b>Statement</b> [3] 87:23 90:3 105:6 <b>Statements</b> [1] 96:1 <b>States</b> [12] 14:4 15:25 16:3 16:9 31:12 36:21 38:9 56:23 79:22 95:5 99:14 101:22 <b>Statewide</b> [1] 94:18 <b>Stating</b> [1] 105:2
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<p>[2] 83:23 84:1 Towards [2] 16:12 16:12 Tower [15] 22:8 22:11 22:11 22:12 23:22 24: 8 28:15 32:2 32:3 61:15 61:16 61:19 62:4 62:9 62:14 Towers [1] 24:13 Town [2] 5:3 99:9 Track [1] 61:10 Tracks [1] 31:11 Trade [1] 101:20 Traffic [5] 61:8 71:2 71:4 71:17 71:20 Trailer [1] 49:16 Train [9] 21:19 71:8 71:14 71:16 71:17 71: 19 71:19 71:21 71:22 Trains [2] 82:22 82:24 Transaction [1] 67:7 Transcribe [1] 3:12 Transcript [2] 1:7 2:1 Transcription [1] 107:12 Transcripts [1] 3:19 Transform [1] 79:9 Transmission [24] 10:25 12:18 12:25 15:24 16:5 60: 12 66:12 66:24 66:25 67:3 67:8 67:9 67:11 67:15 67:17 67:20 67:21 68:5 68:17 69:22 72:7 89:8 90:13 90:16 Transmit [1] 66:20 Transportation [5] 49:21 77:13 77:15 77:19 78:3 Travel [1] 82:24 Traveling [1] 49:12 Traverse [1] 98:19 Treated [1] 95:15 Tremendous [4] 93:2 93:18 94:5 94:9 Tremendously [1] 70:5 Triples [1] 70:22 Trips [1] 71:5 Trouble [1] 75:1 True [1] 107:11 Truly [1] 60:18 Try [4] 20:19 53:2 68:8 88:5 Trying [3] 10:10 65:7 84:14 Tucholke [2] 97:2 97:4 Turbine [4] 11:23 17:25 22:4 26:3 Turbines [1] 104:6 Turbulent [1] 28:16</p>	<p>Turn [6] 13:16 19:15 25:17 39:17 53:3 79: 10 TV [1] 92:2 Twice [2] 22:22 86:17 Two [20] 12:2 14:22 15:18 26:9 28:24 32:4 49:3 56:6 58:20 68:17 68:21 69:4 72: 8 88:8 90:14 94:14 98:13 101:1 101: 18 102:3 Type [13] 18:10 18:12 18:14 19:1 30:20 30: 21 42:8 51:22 57:12 63:20 66:17 70: 20 94:19 Typed [1] 81:7 Types [10] 11:2 17:11 17:21 17:22 34:18 36: 7 40:4 88:24 89:1 89:9 Typical [4] 19:4 51:21 58:2 62:4 Typically [3] 18:1 18:15 30:15</p>	<p>Usage [2] 22:21 25:10 Useful [1] 85:10 User [1] 30:21 Uses [3] 45:5 61:14 61:14 Utilities [22] 1:1 1:9 4:17 5:12 10:2 10:17 10: 22 11:2 13:20 14:7 17:13 17:18 51:19 58:5 59:22 78:25 85:8 85:13 85:14 91: 6 106:6 106:22 Utility [15] 5:5 10:13 16:22 39:6 51:25 58:24 59:15 59:24 73:20 73:24 75:24 75:25 91:3 91:5 91:13 Utilization [1] 31:11 Utilize [1] 7:16 Utilized [2] 15:25 40:17 Utilizing [1] 89:3 Utmost [1] 96:16</p>	<p>Water [64] 6:25 12:17 21:8 22:13 22:18 22: 24 23:4 23:9 23:11 23:12 23:15 23:16 23:18 24:3 24:4 24:7 24:8 24:11 24: 11 24:15 24:24 25:8 25:10 25:13 27: 12 28:14 29:8 40:8 40:14 40:16 40:18 40:20 40:23 41:2 41:3 41:5 41:8 41:9 41:10 41:11 41:12 42:1 42:22 43:16 44:8 45:7 45:22 46:1 46:2 46:2 46:5 46:8 46:10 46:11 46:12 46:15 49:20 61:21 61:23 62:3 62:4 98:14 104:12 105:18 Water's [1] 41:7 Waters [1] 24:14 Watertown [1] 78:14 Watt [4] 16:25 17:1 17:3 17:4 Ways [2] 22:2 76:21 Website [4] 6:1 54:22 85:24 90:21 Week [3] 11:13 52:6 55:18 Weekend [1] 83:22 Wegman [1] 1:15 Welcome [5] 58:25 92:20 92:23 97:5 104:22 Welk [12] 1:18 1:18 7:3 7:8 7:10 8:23 9:5 9: 12 34:16 52:2 54:4 54:18 Werdel [4] 89:23 89:24 105:9 105:18 Western [8] 5:15 34:1 42:6 87:19 89:24 90:1 90:2 90:21 Weston [1] 29:24 Wet [12] 22:6 22:14 28:9 29:9 29:25 30:2 30:4 30:14 30:17 30:22 31:1 31:21 Wetlands [4] 44:10 44:13 44:21 44:24 Wheatland [1] 88:19 Whetstone [2] 44:2 45:24 White [2] 80:25 81:1 Whole [5] 6:10 24:1 68:9 105:12 105:13 Wholeheartedly [1] 91:7 Wick [1] 76:11 Wildlife [2] 43:3 46:10 Win [5] 93:25 93:25 94:5 94:5 98:11 Win-win [2] 93:25 94:5 Wind [17] 11:10 11:10 57:24 58:2 58:8 67: 25 69:19 73:5 80:12 89:6 93:16 93:19 93:22 99:15 100:17 103:22 104:3 Windmills [1] 104:8 Winter [1] 18:7 Wisconsin [1] 29:24 Wish [4] 74:12 78:8 93:1 106:21 Witness [1] 9:7 Witnesses [2] 7:15 7:21 Wittler</p>
	<p>U U.S. [4] 14:23 14:24 15:9 44:18 Ultimately [2] 28:22 36:9 Umbrella [1] 45:10 Unanimous [2] 94:6 94:18 Under [11] 6:2 6:6 15:12 25:13 30:8 30:8 37: 4 45:10 79:20 90:3 90:23 Underground [1] 100:10 Understood [1] 68:14 Undertaking [1] 60:14 Unexpected [1] 57:13 Union [2] 78:23 80:15 Unit [18] 5:2 32:25 55:22 55:24 63:21 63: 24 63:25 64:1 64:8 65:11 68:25 69:3 71:8 77:5 77:6 86:11 86:11 88:20 United [5] 15:25 16:3 31:12 56:23 79:22 Units [9] 22:17 30:12 32:24 36:17 59:17 63: 1 63:20 71:16 102:6 Unless [1] 53:4 Unload [1] 21:5 Unloading [1] 21:16 Up [44] 3:21 3:24 9:7 14:21 15:23 16:11 23:16 23:21 24:14 24:22 31:19 36:3 37:10 38:3 38:6 38:11 39:16 40:24 41: 14 43:5 44:11 49:5 53:3 54:24 60:23 61:22 61:23 65:22 74:12 74:14 75:6 75:25 83:15 94:7 96:18 97:6 98:7 99: 3 99:21 99:24 103:24 104:4 104:4 106:20 Upgraded [1] 69:7 Upgrades [2] 61:4 61:5 Upgrading [1] 69:4 Upper [1] 99:14 Urge [2] 100:14 103:21</p>	<p>V Val [2] 76:4 94:12 Valuable [1] 106:16 Value [1] 94:22 Values [2] 6:13 48:13 Various [6] 8:11 33:10 36:21 61:24 63:5 90:17 Vegetation [5] 41:22 41:23 42:3 42:24 42:25 Versus [2] 58:12 70:11 Viable [2] 16:5 89:11 VICE [18] 1:11 24:17 24:25 25:3 35:25 37:6 51:15 52:14 52:19 55:2 57:5 57:11 57: 23 58:13 73:10 74:4 75:19 75:24 Vicinity [4] 42:3 42:17 42:18 44:21 Views [1] 5:20 Violation [1] 102:8 Visits [2] 83:12 83:15 Voice [2] 3:8 74:20 Voltage [1] 90:16 Volts [3] 68:18 69:5 69:7</p>	<p>W Wage [2] 51:22 52:11 Wake [1] 106:20 Walk [3] 14:17 23:24 58:5 Walking [2] 17:21 106:10 Walton [3] 78:11 78:19 80:14 WAPA [2] 104:25 105:6 Warming [2] 79:8 84:3 Waste [4] 21:20 46:21 49:20 52:25</p>

[3] 1:24 107:5 107:18

Wonderful

[4] 94:15 96:6 96:23 103:2

Words

[1] 63:1

Workers

[5] 48:13 49:1 49:12 49:24 93:9

World's

[1] 79:7

Worth

[1] 70:8

Wrap

[1] 53:3

Writing

[1] 81:12

Written

[5] 6:19 78:15 81:14 104:13 104:22

Www.puc.sd.gov

[1] 6:2

Www.wapa.gov

[1] 90:22

Wyoming

[1] 88:19

## X

Xcel

[2] 100:4 100:5

## Y

Yards

[2] 62:9 62:10

Year

[24] 13:22 18:5 18:9 18:20 24:18 25:  
15 30:19 31:16 33:24 34:10 38:4 38:6  
40:25 41:8 47:20 52:13 53:6 53:10 53:  
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Years

[32] 9:15 10:8 13:20 13:21 14:13 20:4  
25:23 33:10 39:7 39:8 47:1 48:24 49:  
3 55:7 56:1 59:4 66:2 70:8 71:14 77:  
22 79:9 84:7 89:18 95:12 95:13 96:13  
96:13 97:13 97:21 97:22 97:23 98:20

Yesterday

[1] 92:1

Yield

[1] 72:12

Yourself

[1] 3:16

## Z

Zero

[4] 15:2 15:4 23:2 44:5

Zone

[1] 37:12

Zoning

[1] 97:22

# Sign Up

## Big Stone II

Sept 13, 2005

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Utility Shareholders of SD

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Reville

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ClaytonT@Tnics.com 5724

## 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](mailto: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.

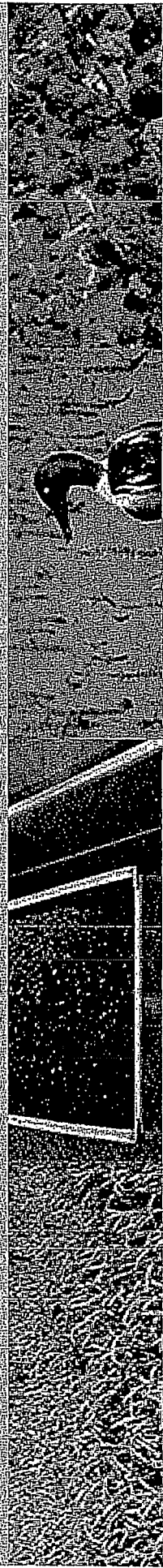
Deb Birgen  
MRES

6729

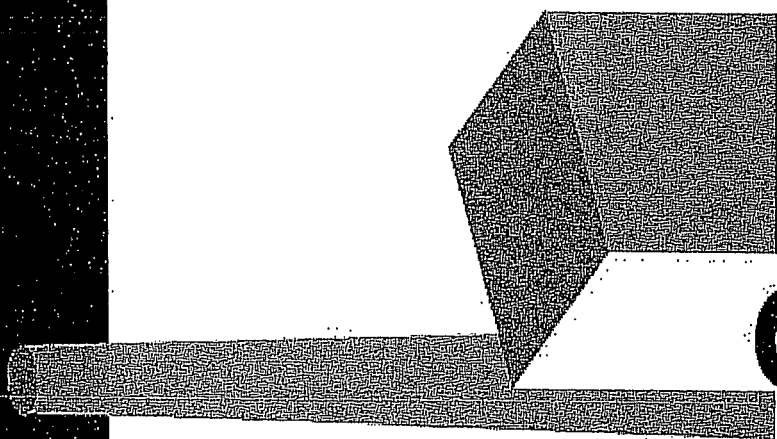
9/21/2005

# South Dakota Public Utilities Commission

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







**BIG STONE**

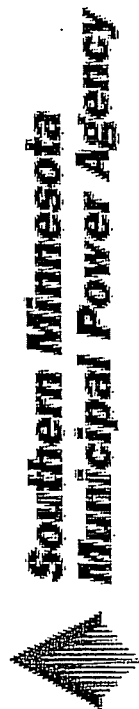
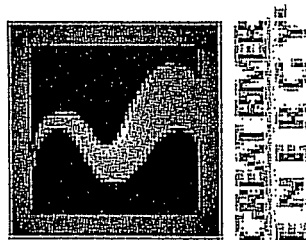
**II**

**PARTNERS IN GENERATION**

6731



# Big Stone II Co-owners



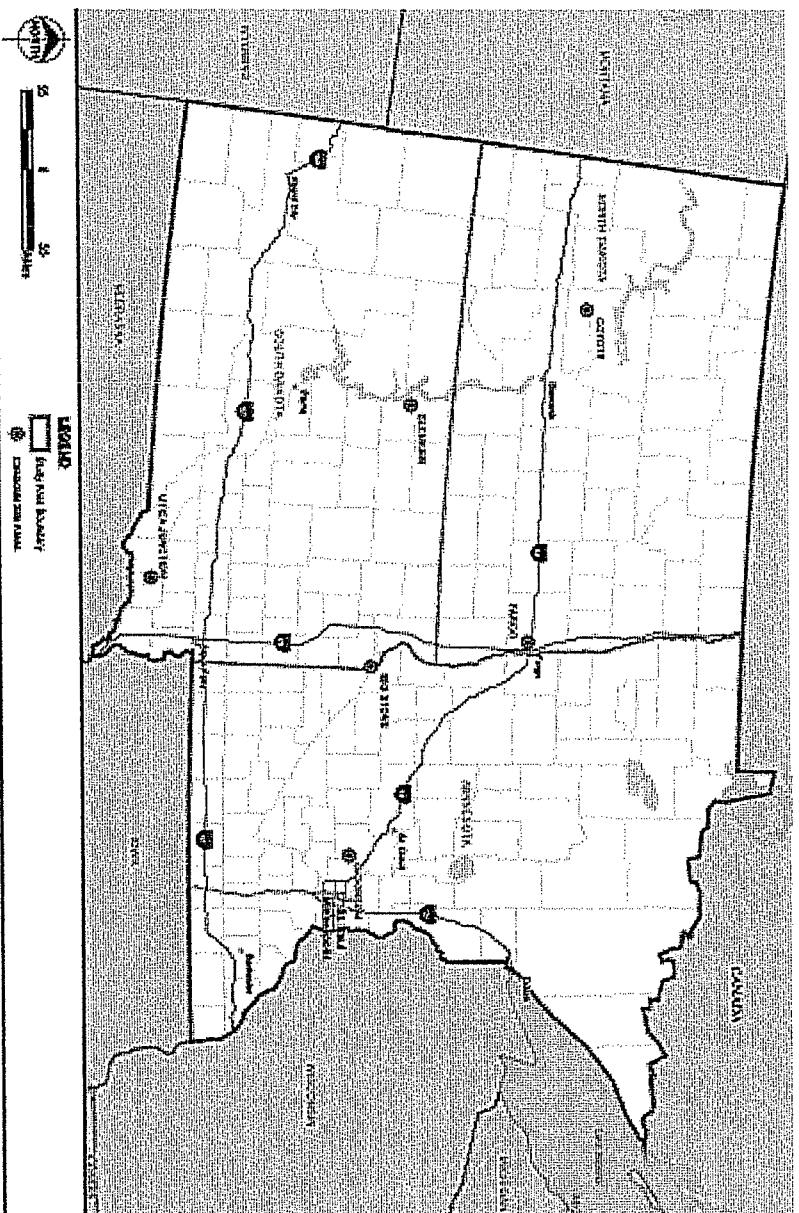
6732

# 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



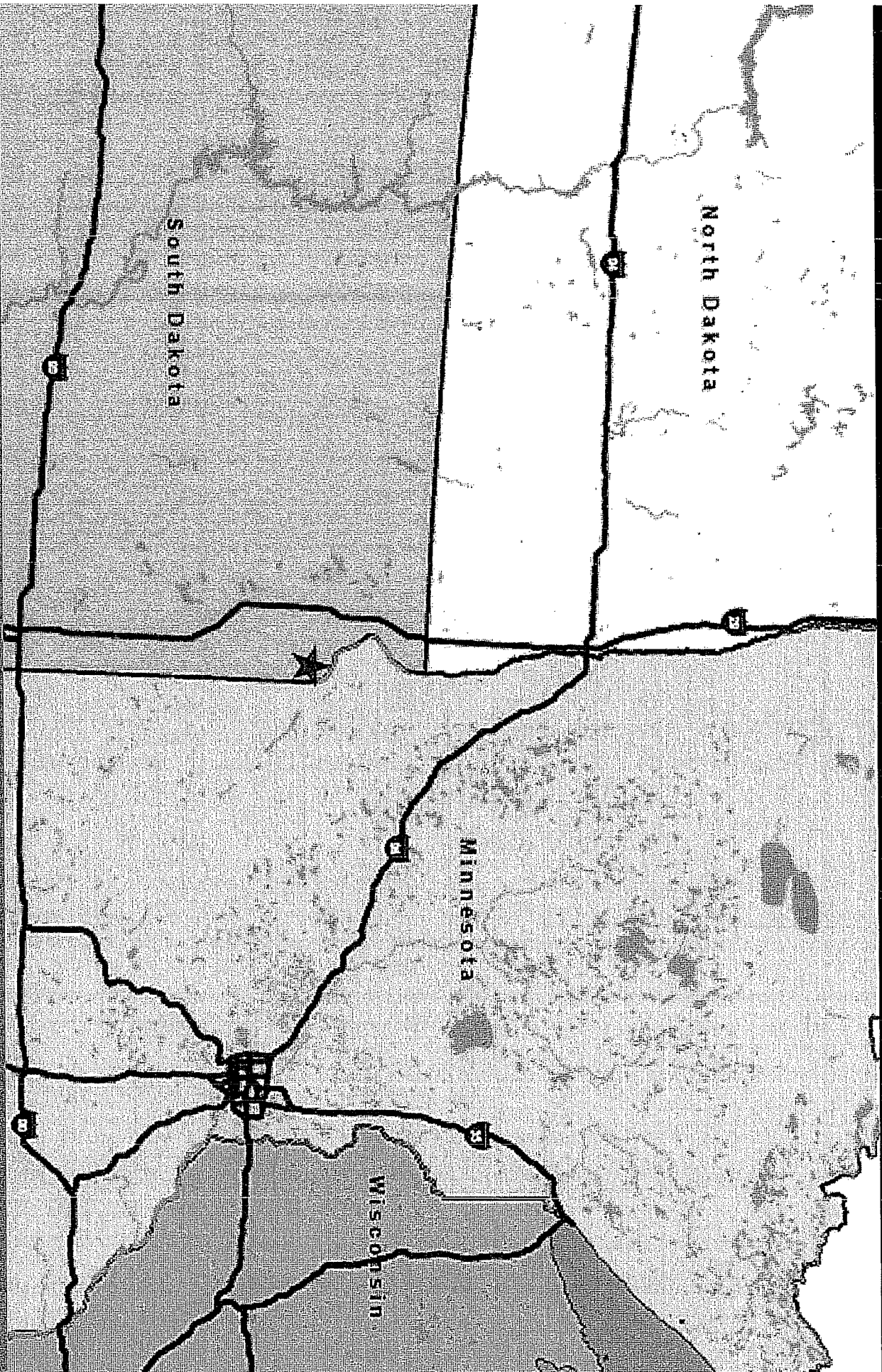
## Candidate Sites

- \* 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





South Dakota

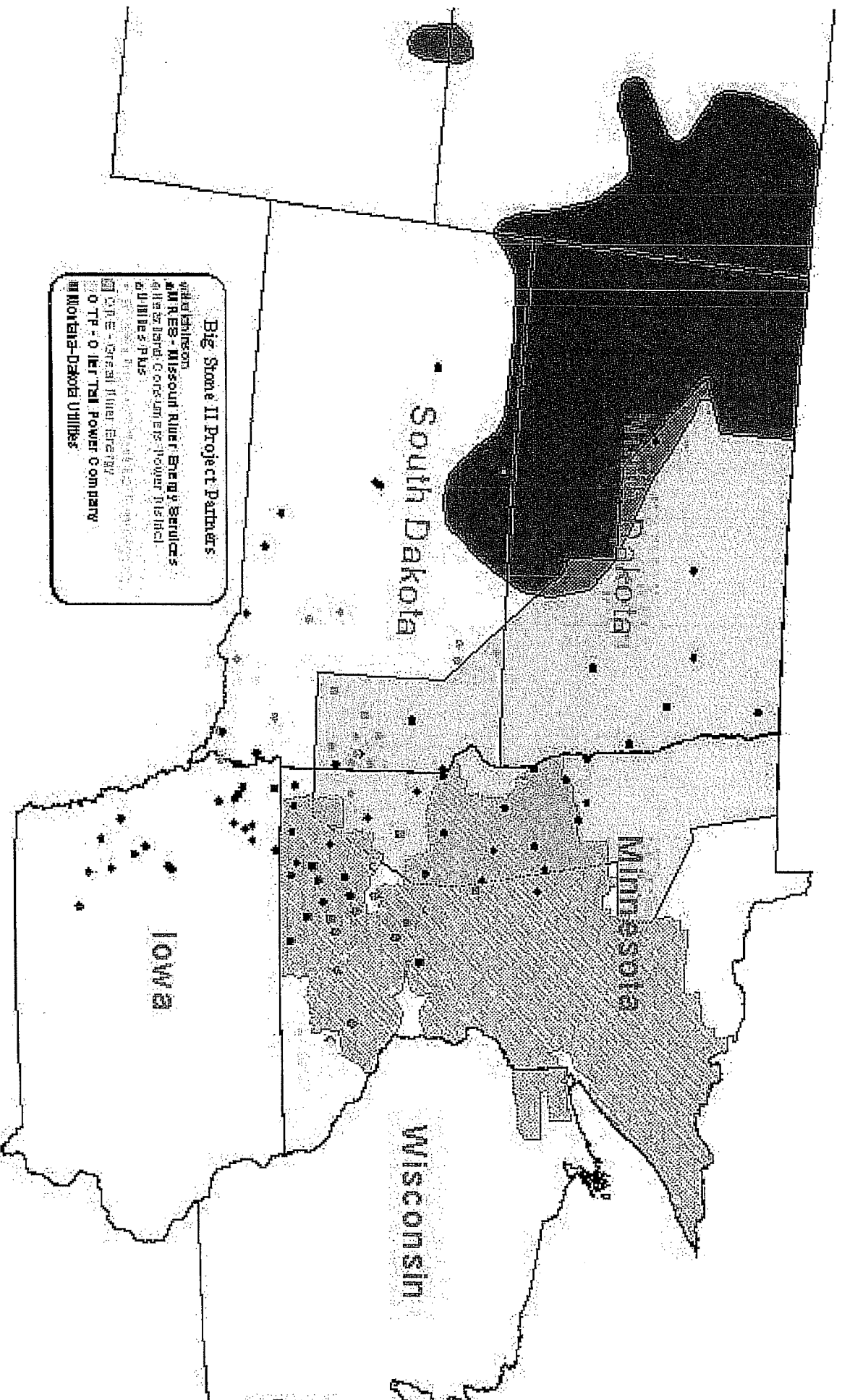
North Dakota

Minnesota

Wisconsin

# Big Stone II Preferred Site

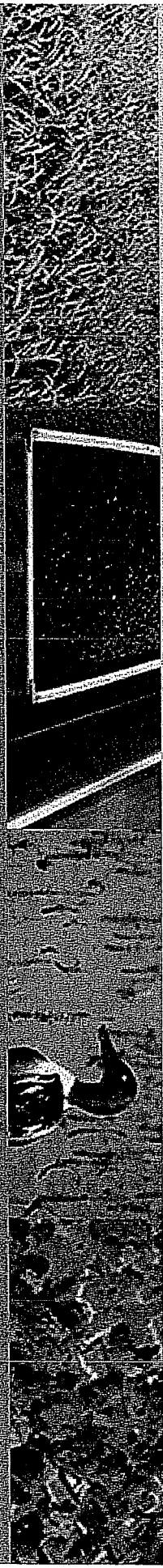
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# Co-owners' Service Territories



# Facility Need

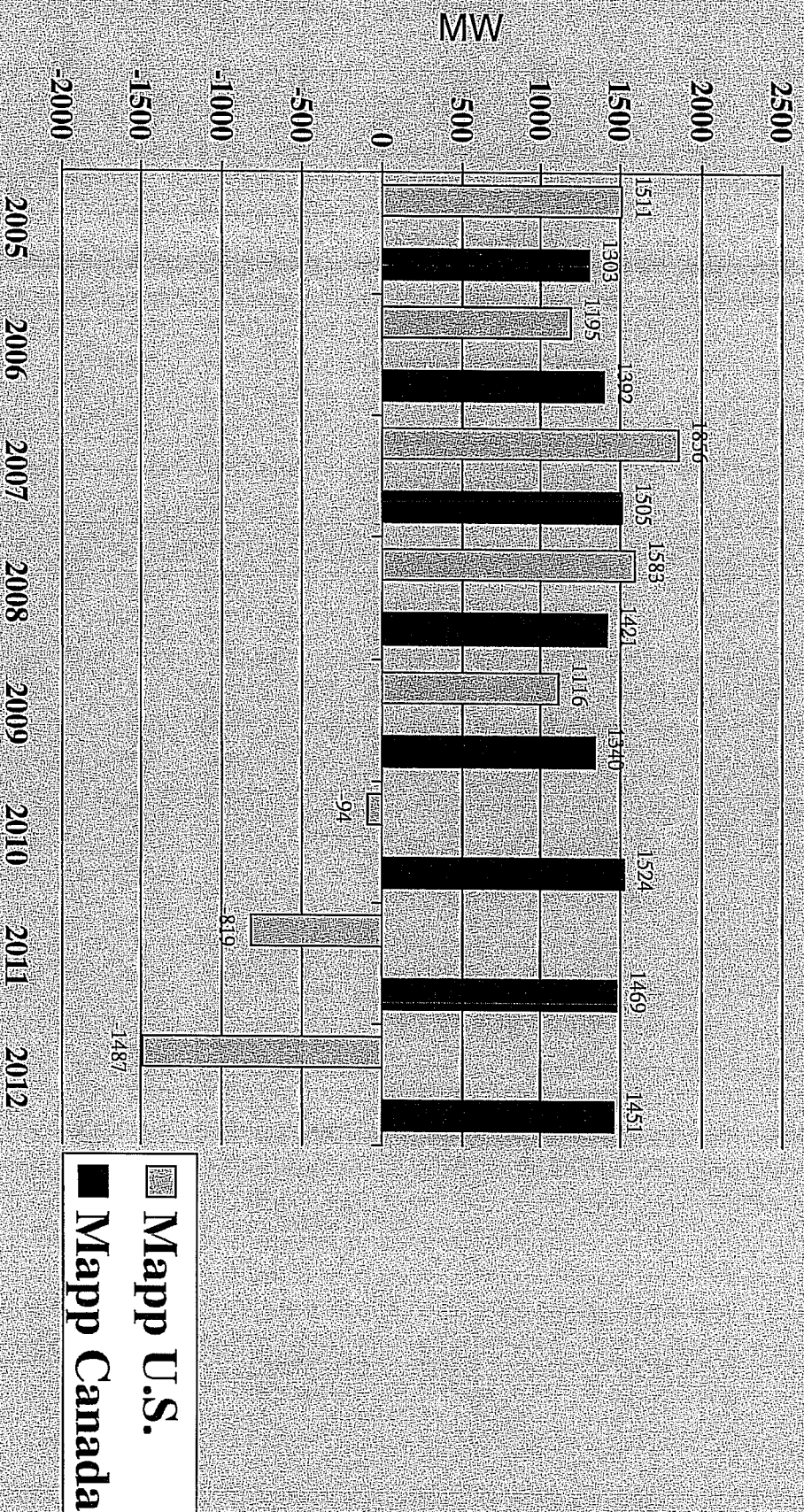




# MAPP Region





# MAPP Surplus/Deficit Forecast



 Mapp U.S.  
 Mapp Canada



# MAPP U.S. Annual Net Energy Forecast



# Baseload, Intermediate and Peaking Facility Relative Cost

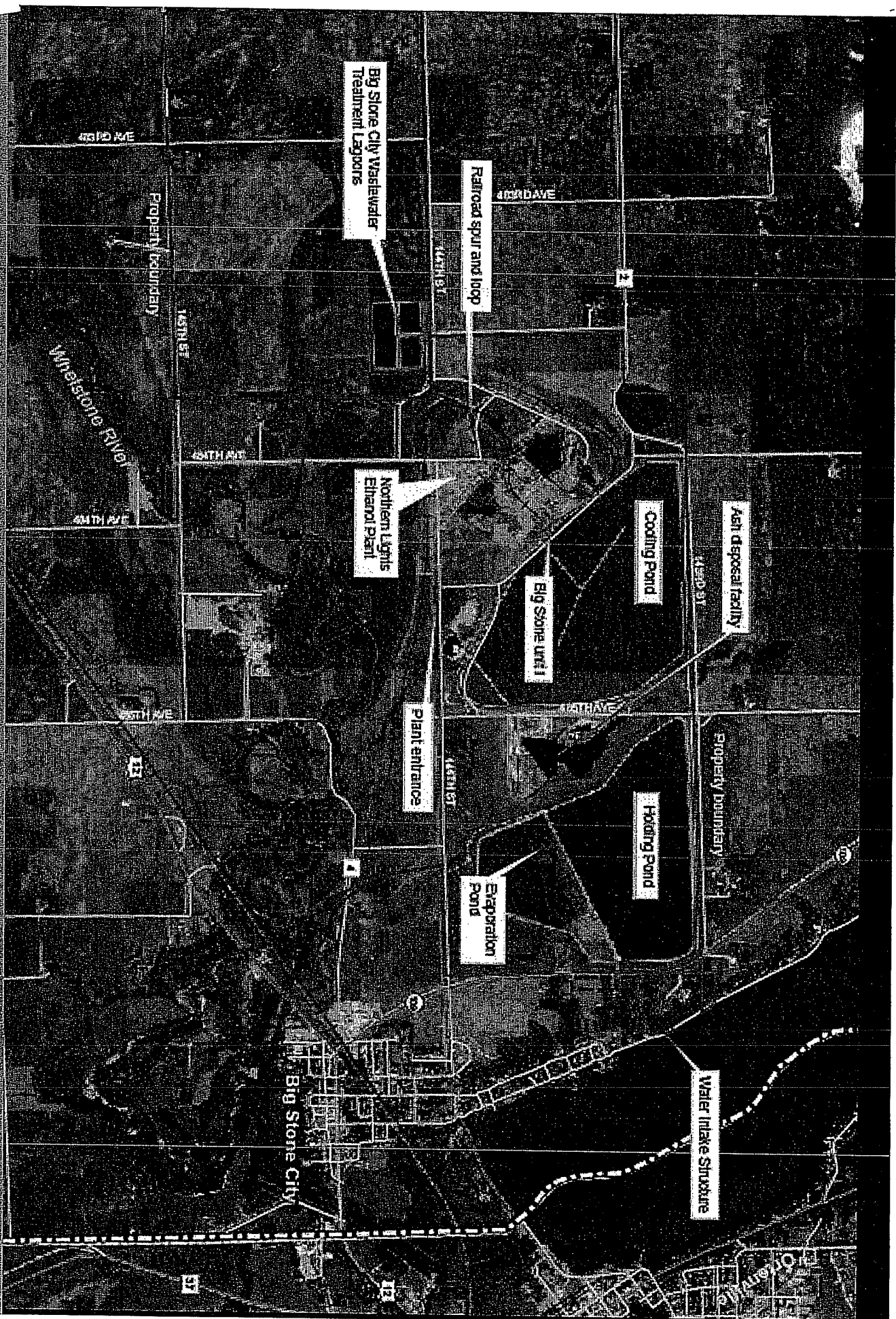
Type of Generation	Capital Cost	Fuel Cost	Typical Energy Production
Peaking	Low	High	Low
Intermediate	Medium	Medium	Medium
Baseload	High	Low	High



# 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



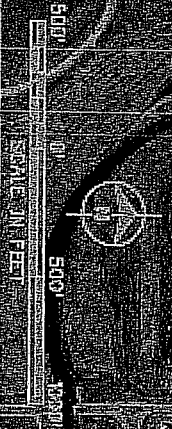
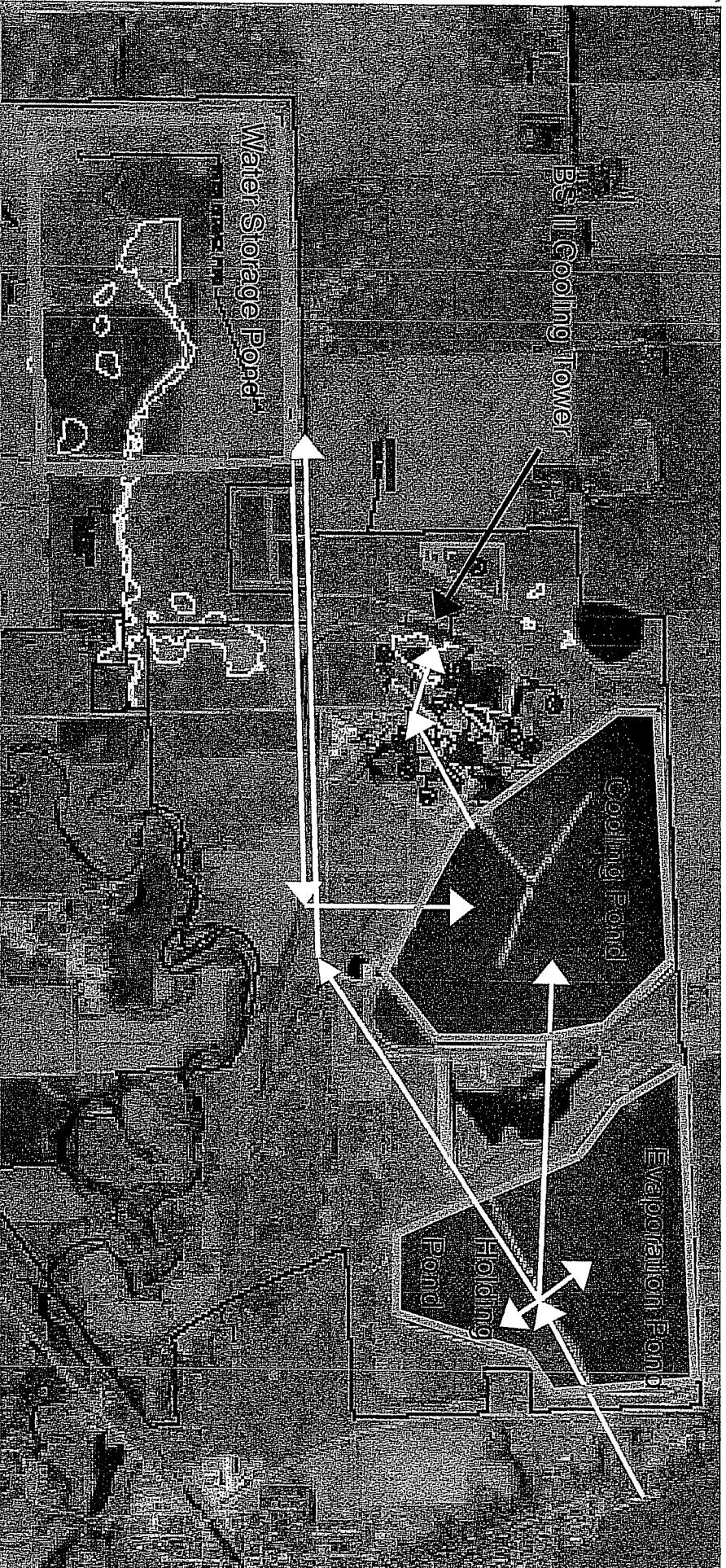


EXHIBIT 20-2

POWER PLANT SITE  
Big Stone II Project  
Big Stone II Co-owners

# Big Stone Site



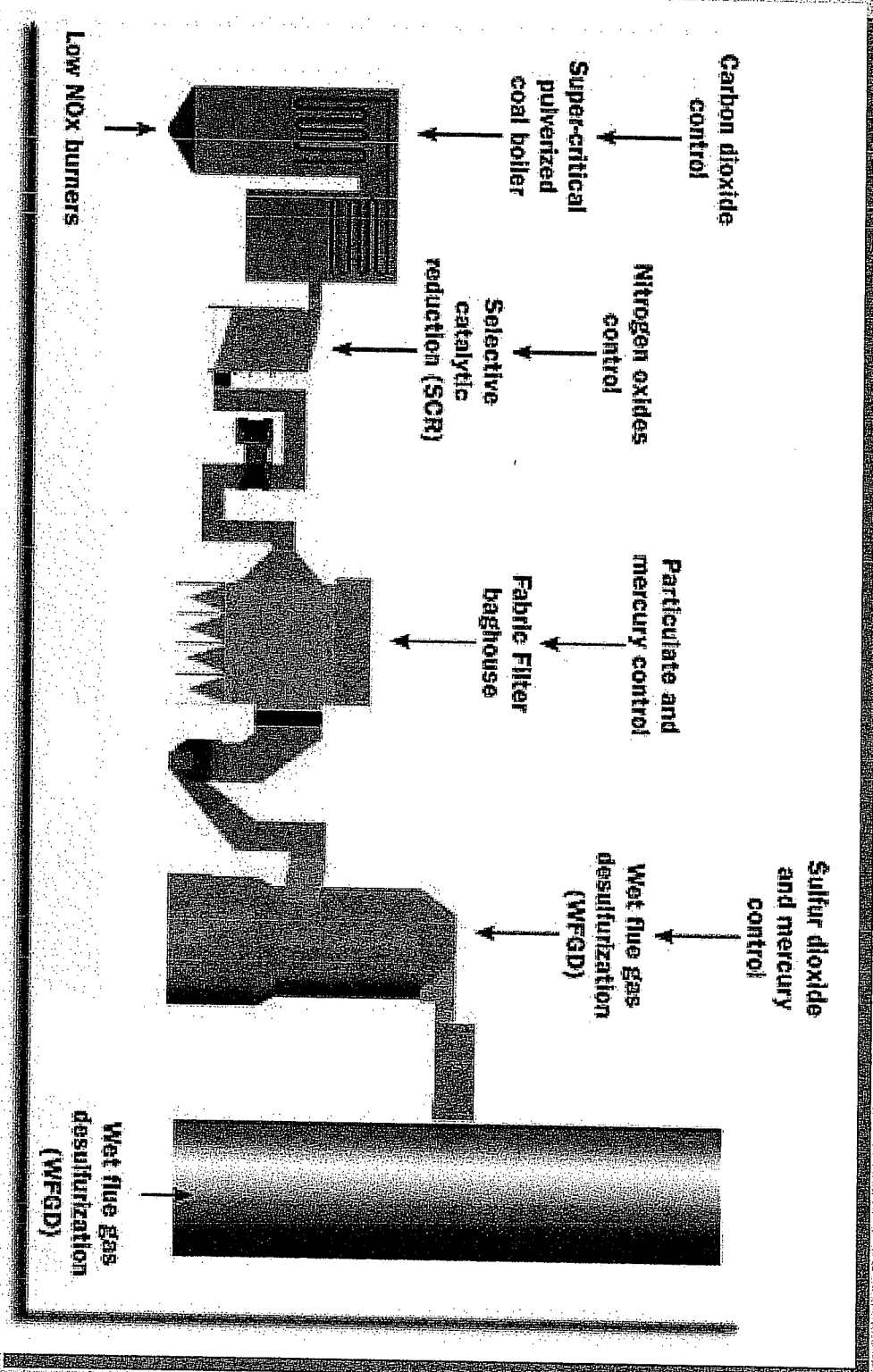


## Big Stone Site – Water Appropriations and Storage

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 SO<sub>2</sub> 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



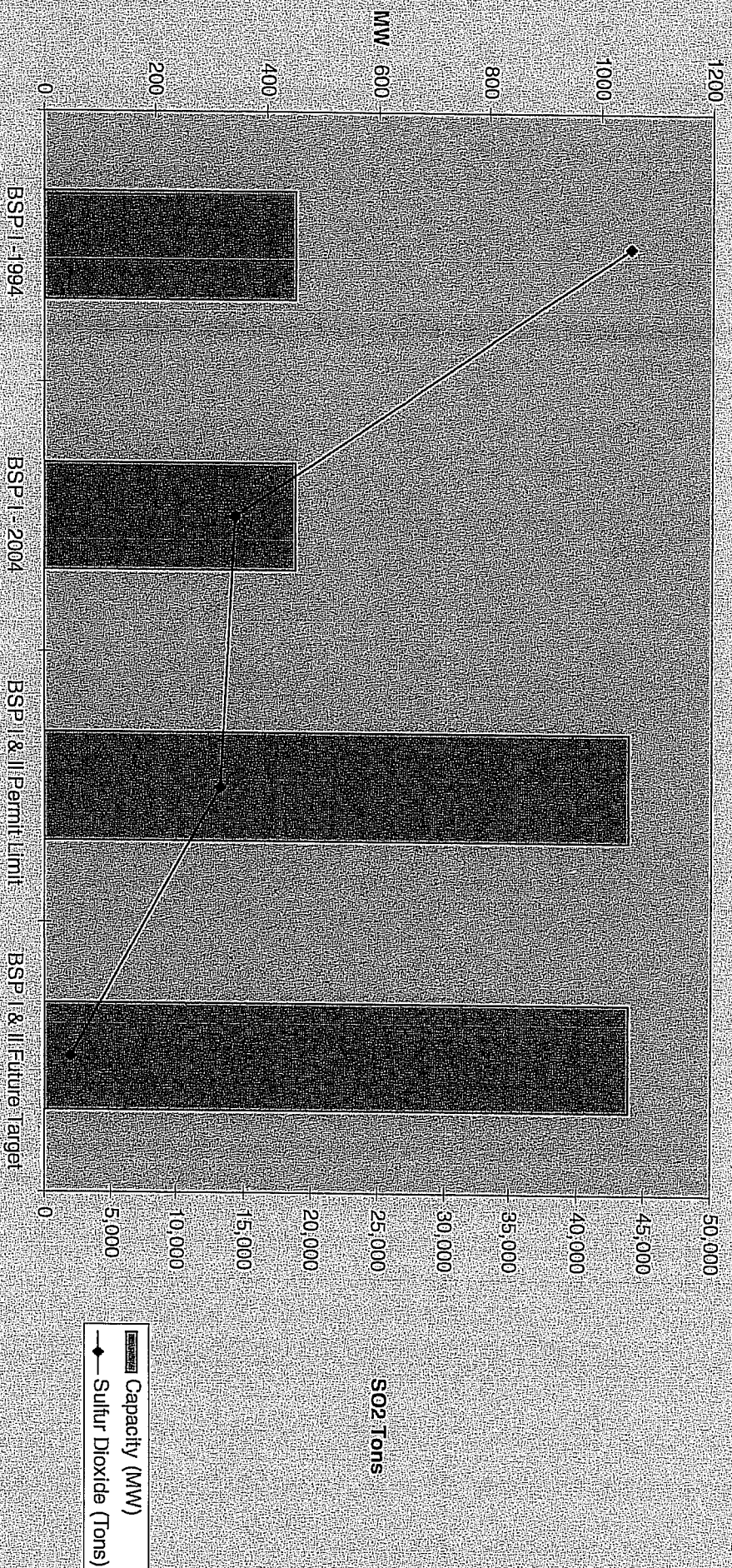
# Emissions Control Summary

- Sulfur dioxide, nitrogen oxides, and mercury emissions from both units are targeted to be less than or equal to Unit 1's emissions in 2004.



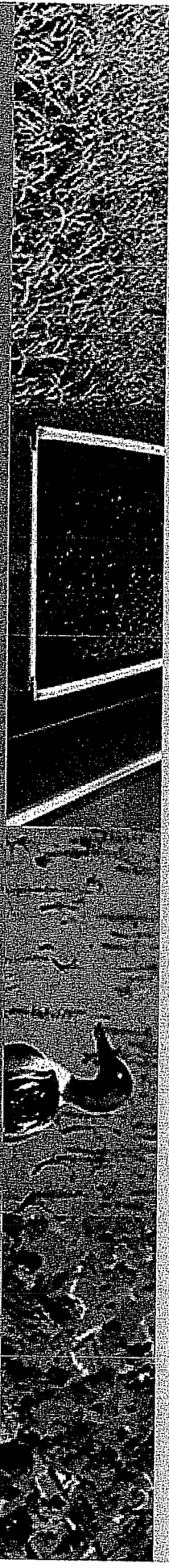


# Sulfur Dioxide Emissions



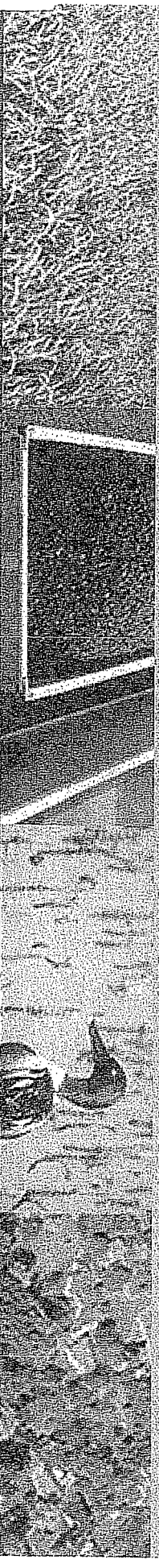


# Environmental Information



# 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

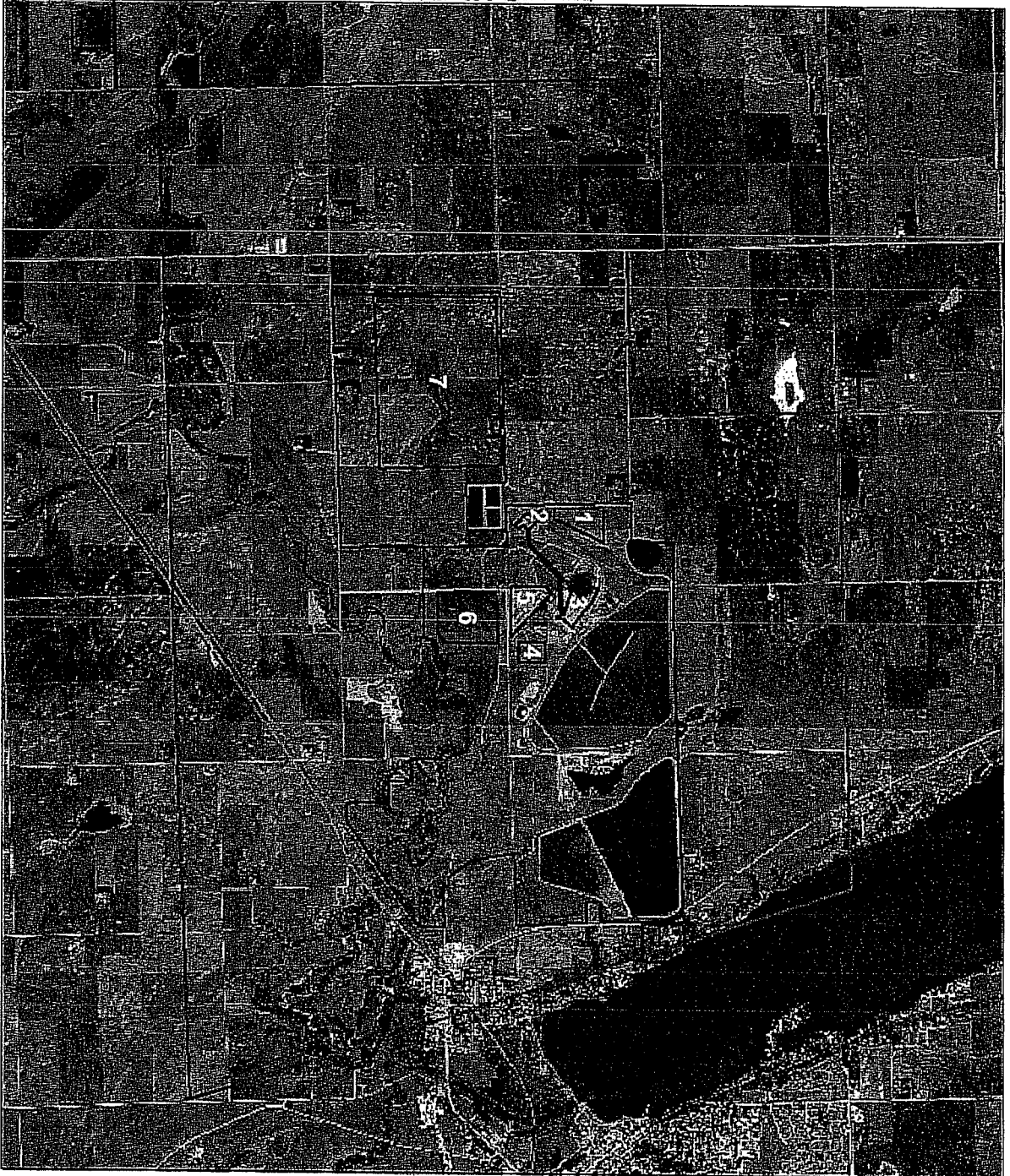




# Big Stone II Wildlife

835

Barr Footer: Date: 7/7/2005 10:32:44 AM File: I:\Project\411\29\2310\2\Project\BigStone\BigStone\_02205\_TheArch\wp\_10x5x\_4\_09\_2\Big\_Wildlife.mxd User: kjp



- ☐ Property Boundary
- ☐ Extended Study Area
- Project Features**
- ID**
- ☐ 1 Cooling Tower Slowdown 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.

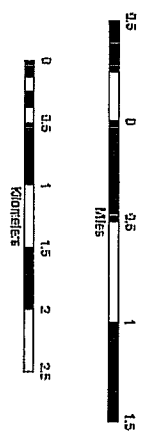


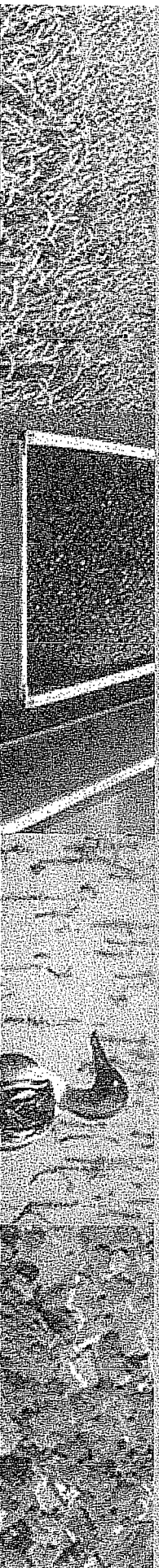
Exhibit 4-9  
WILDLIFE  
Big Stone II Project  
Big Stone II Co-owners

# 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

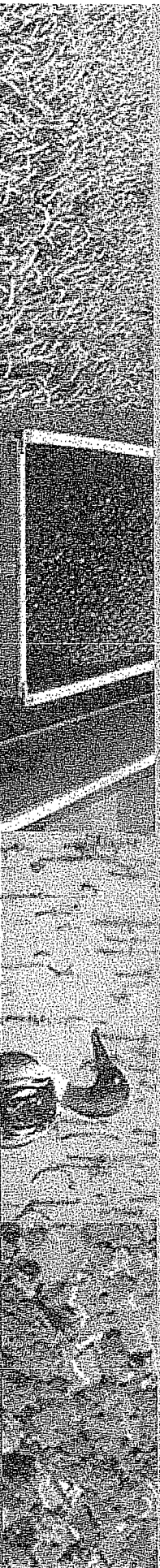


# Environmental Impacts Water Quality

- 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

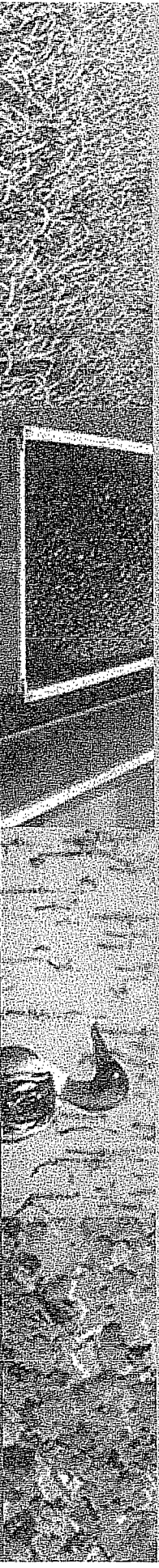




# Environmental Impacts

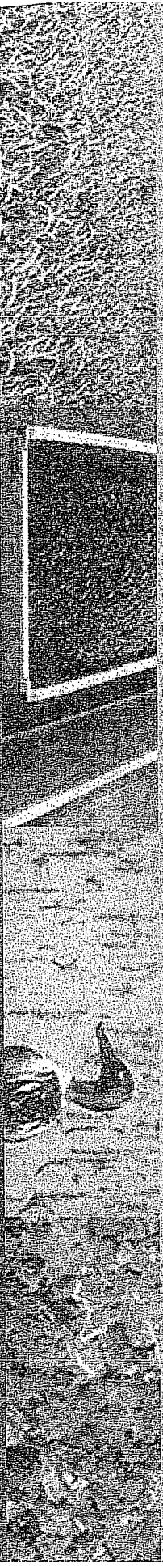
## Air Quality

- 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

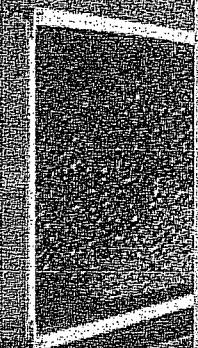
Propose to use existing permitted solid  
waste disposal facility





# Community Impacts

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



7665

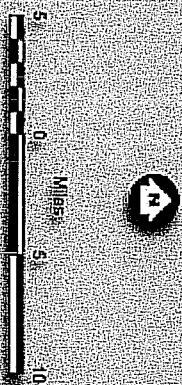
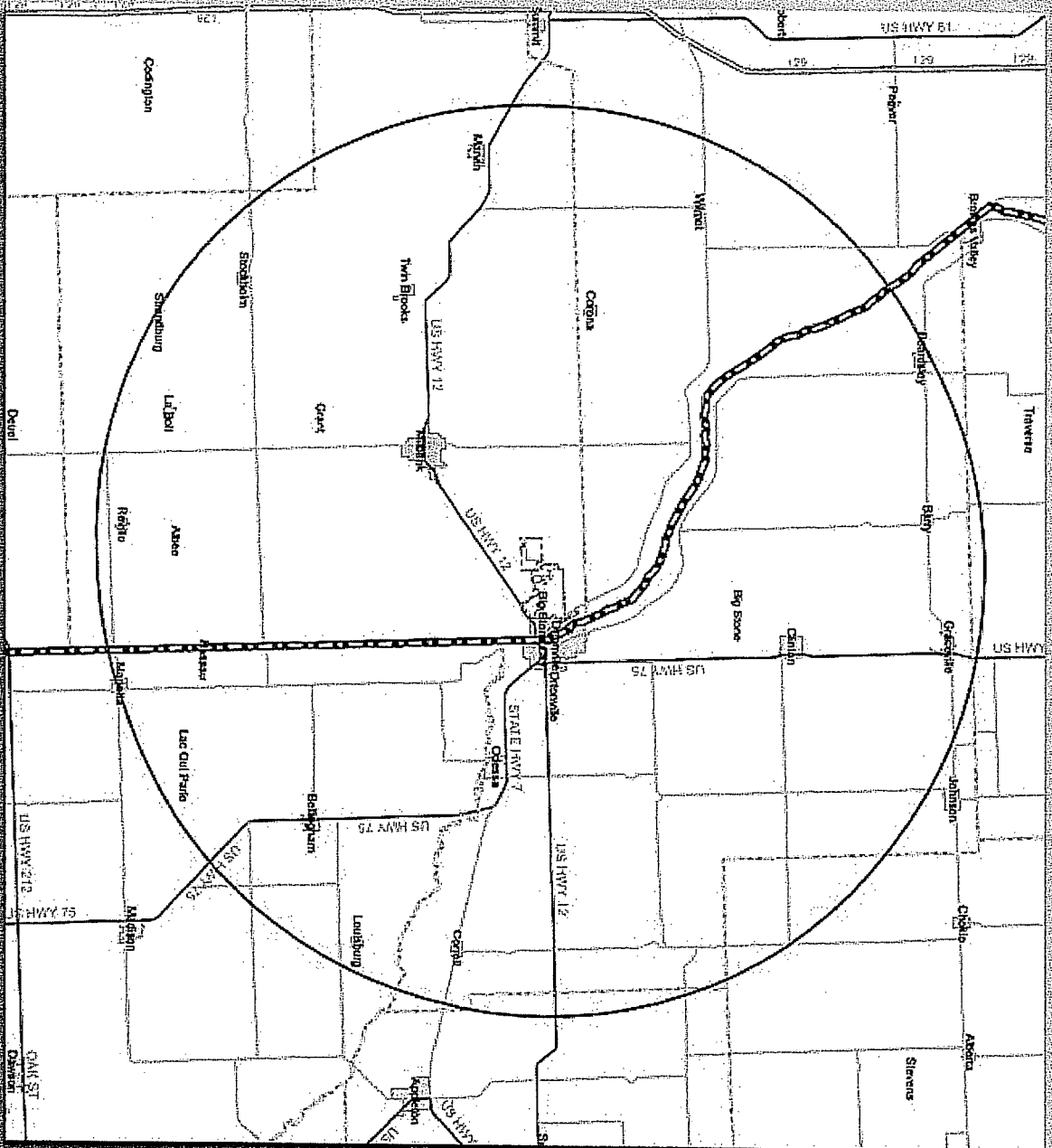


Figure 5-1





# Community Impacts

## Economic Impacts

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

Impacts expected to be positive or neutral



6766

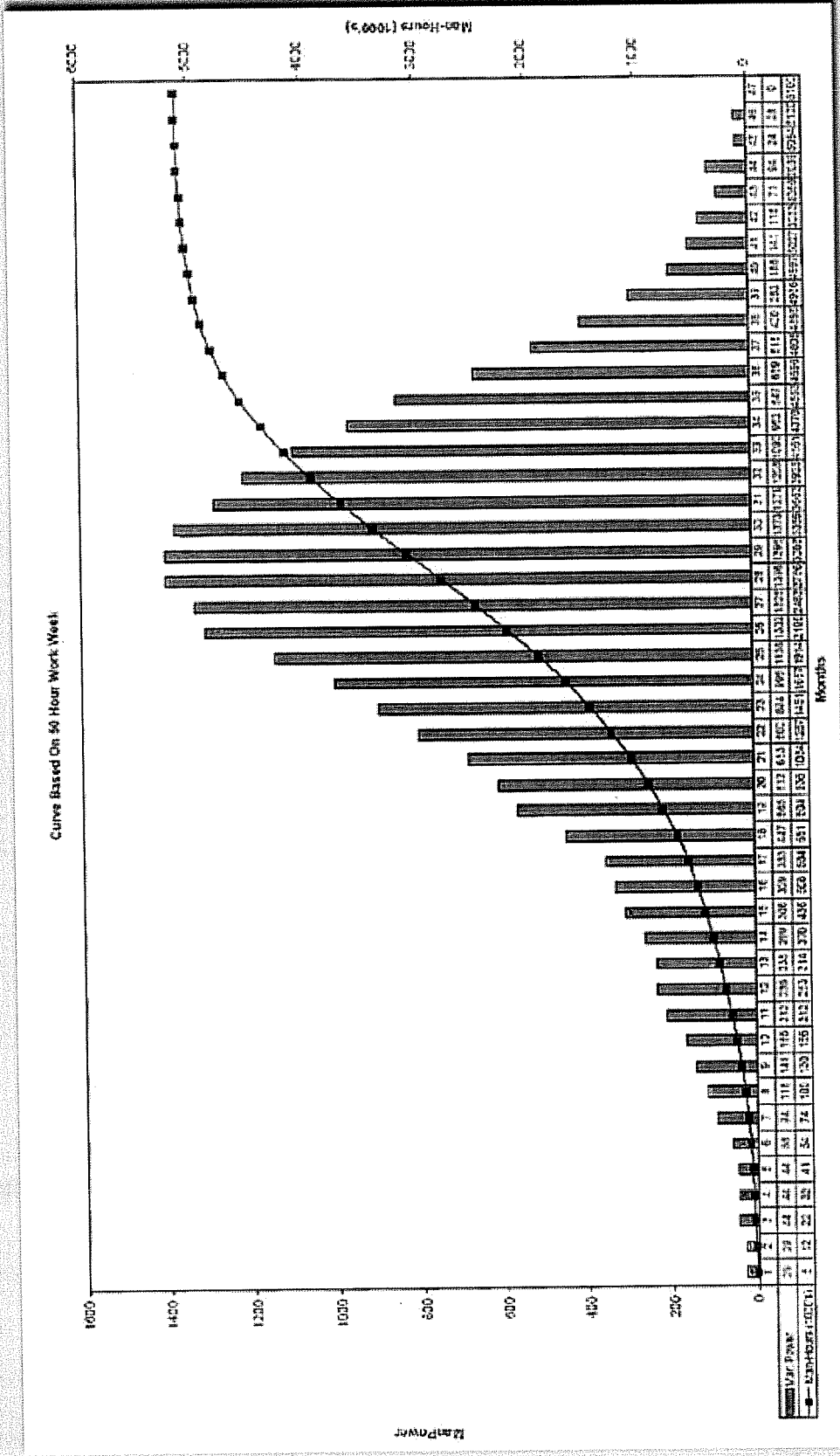


Exhibit 5-2

# Estimated Construction Labor Requirement

676



# Community Impacts

## Infrastructure Impacts

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

Existing infrastructure generally  
adequate to meet project needs

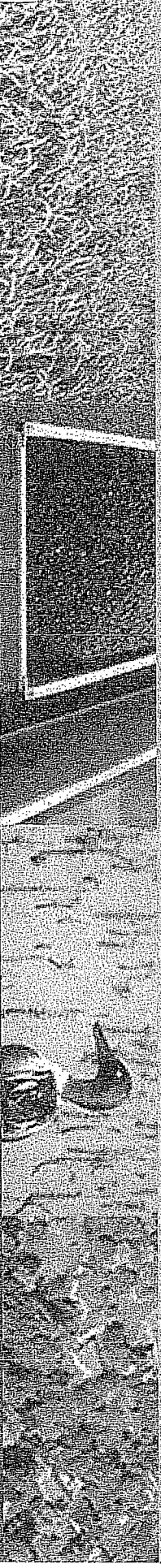




# Community Impacts Community Services

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

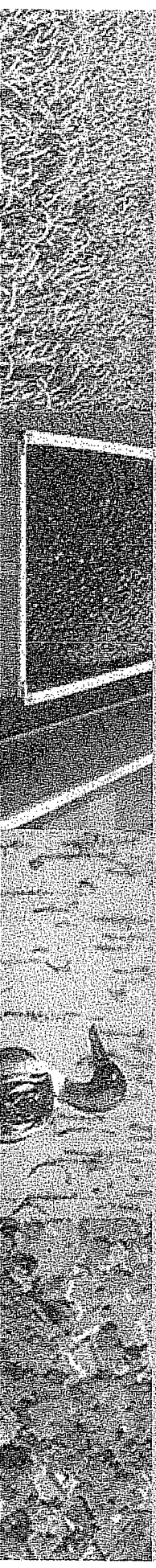
Existing services not expected to be  
overtaxed by project



# Community Impacts Other Impacts

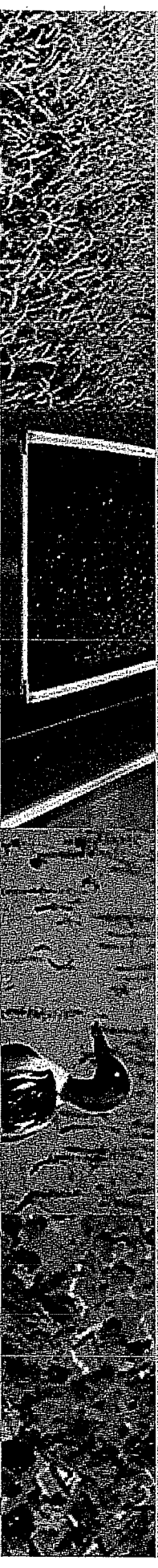
- Population and Demographics
- Cultural Resources

**No adverse impacts expected**





# Project Schedule



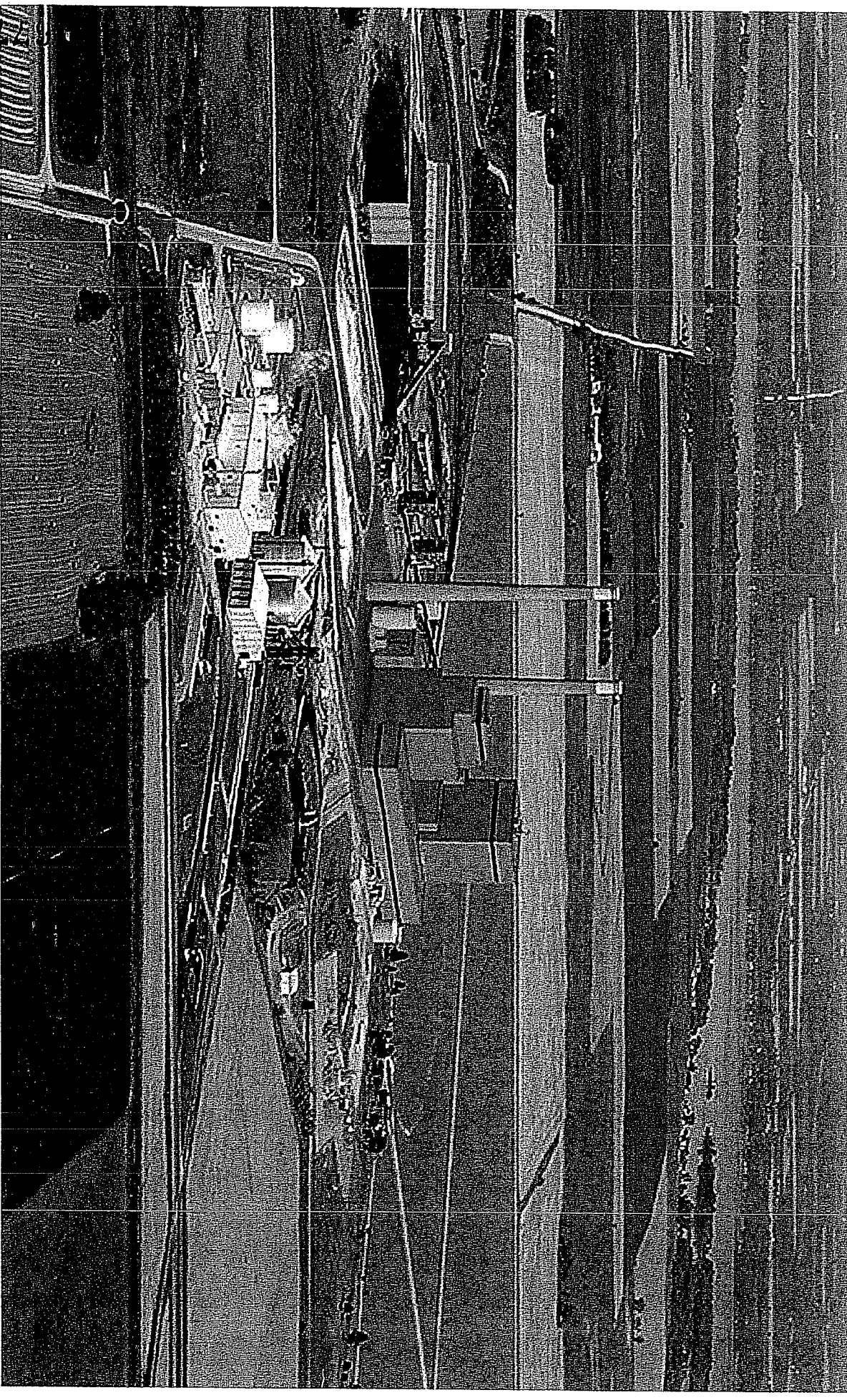
	2005				2006				2007				2008				2009				2010				2011			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
PROJECT DEVELOPMENT																												
PERMITTING/LICENSES																												
FINANCIAL CLOSE																												
ENGINEERING																												
CONSTRUCTION																												
STARTUP																												
COMMERCIAL OPERATION																												

Exhibit 1-4

# Big Stone II Project Schedule



# BIG STONE II



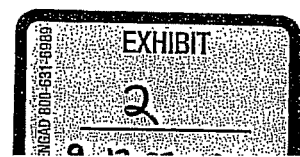


My name is Adam Sokolski, and I am an Energy Associate with the Midwest Office of the Izaak Walton League of America. The Izaak Walton League – together with our colleagues from Minnesotans for an Energy-Efficient Economy and the Union of Concerned Scientists – intends to intervene in the <sup>SOUTH DAKOTA</sup> 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.

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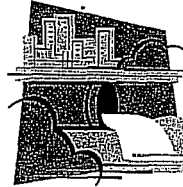


In fact, Otter Tail Power's largest industrial customer in Minnesota, Enbridge Corporation, is seeking to insulate itself from the high costs and risks of future fossil fuel investments such as Big Stone II, by seeking from Otter Tail a long term contract that is keyed into the costs of a new *wind power*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

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



## PREVENTING WATER POLLUTION

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



## RENEWABLE ENERGY

Clean Water Action Alliance is working with its members and organizing citizens across the state to move forward on the transition to clean, renewable energy. Through the Mercury-Free Minnesota Campaign, CWAA is also working to increase public demand for the reduction of mercury releases from coal-fired power plants.



## RURAL COMMUNITIES & THE ENVIRONMENT

Clean Water Action Alliance is working with farmers and rural residents to organize support for agricultural production systems and practice ecologically and economically sustainable farming. CWAA's advocacy outreach is pushing for changes that will protect against adverse air, and human health impacts from large-scale, industrial livestock production and will connect consumers with locally and sustainably grown food to directly support our family farmers and strengthen rural communities.



## PROTECTING CHILDREN'S HEALTH

Clean Water Action Alliance and its allies are working to protect children's health by reducing the presence of toxins, such as mercury, in the environment. CWAA is advocating the use of a precautionary approach in tackling this problem - preventing harm before it happens.

### 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 55812  
(218) 722-8511

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

National Office  
4455 Connecticut Ave NW A200  
Washington, DC 20008  
(202) 895-0420

La Crosse  
722 Main St  
La Crosse, WI 54601  
(608) 785-2011

www.cleanwateralliance.org



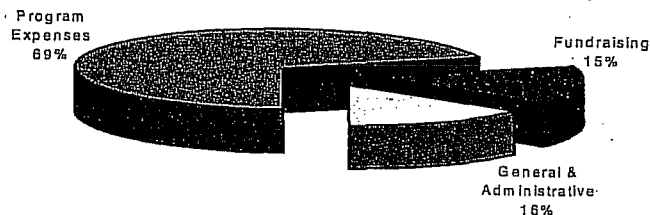


# CLEAN WATER ACTION ALLIANCE of Minnesota

*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](http://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.<sup>1</sup> 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.<sup>2</sup> 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.<sup>3</sup>

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.<sup>4</sup>

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.<sup>5</sup>

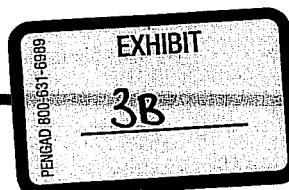


*Coal pollution can cause or aggravate lung problems like asthma.*

## 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.<sup>6</sup> That is the equivalent of 195 coal plants the size of the proposed Big Stone II.



6778

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.<sup>7</sup> 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,<sup>8</sup>
- 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.

<sup>1</sup> Energy Information Association, “State Electricity Profiles 2002,” [www.eia.doe.gov/cneaf/electricity/st\\_profiles/south\\_dakota.pdf](http://www.eia.doe.gov/cneaf/electricity/st_profiles/south_dakota.pdf)

<sup>2</sup> Abt Associates, “Death, Disease and Dirty Power: Mortality and Health Damage Due to Air Pollution from Power Plants,” Bethesda, MD, 2000.

<sup>3</sup> US EPA, “National Air Quality and Emissions Trends Report, 1999,” Office of Air Quality Planning and Standards, EPA 454/R-01-004, 2001.

<sup>4</sup> Abt Associates, 2000.

<sup>5</sup> Minnesota Department of Commerce, “2001 Energy Planning Report,” Appendix A: Dealing With Environmental Impacts of Electric Generation, 2001.

<sup>6</sup> Union of Concerned Scientists, “Plugging in Renewable Energy,” 2003. [www.ucsusa.org/documents/Plugging\\_In\\_Renewable\\_Energy.pdf](http://www.ucsusa.org/documents/Plugging_In_Renewable_Energy.pdf)

<sup>7</sup> American Wind Energy Association, “Wind Project Database- South Dakota,” [www.awea.org/projects/southdakota.html](http://www.awea.org/projects/southdakota.html)

<sup>8</sup> 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

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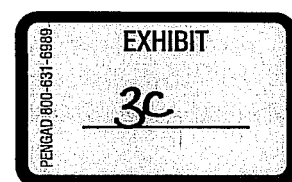


# Replace Coal Power with Clean Wind Energy

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 radionuclides.
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