THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF SOUTH DAKOTA

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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

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Transcript of Proceedings
Volume 2
June 27, 2006

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# I N D E X

I N D E X (cont.)

# I N D E X (cont.)

TUESDAY, JUNE 27, 2006

EXHIBITS:

(Staff Exhibit Nos. 1, 2 and 3 marked for identification.)

EXHIBITS:

(Stueve Exhibit Nos. 1-D, 1-E and 1-F marked for identification.)

MR. SMITH: Good morning, everyone. It is Tuesday, June 27th, and we will reconvene the hearing in Docket EL 05-022, which is the application of Otter Tail Power Company and its associated companies for a permit to construct the Big Stone II Unit. We were in the midst of the applicants' case-in-chief and unless there's another order of business first, matter before the commission, applicants, please proceed, call your next witness.

MR. SASSEVILLE: Thank you, Mr. Smith. Good morning, members of the commission. The applicants call Jerry Tielke.

Thereupon,

JERRY TIELKE,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. SASSEVILLE:

Q. Good morning, Mr. Tielke.

A. Good morning.

Q. You are here on behalf of the applicants and Missouri River Energy Services?

A. That's right.

Q. Did you prepare or cause to be prepared prefiled written testimony in this case?

A. I did, yes.

Q. Do you have that prefiled testimony in front of you?

A. Yes, I do.

Q. Could you identify Exhibits 14 and 44, Applicants' Exhibits 14 and 44 for the record, please?

A. Yes.

Q. Could you tell me what they are?

A. They are my direct testimony for the commission as well as my prefiled rebuttal testimony.

Q. So your direct prefiled testimony is Exhibit 14, your prefiled rebuttal is Exhibit 44?

A. That's correct.

Q. Do you have any changes or corrections to make to either one of these exhibits?

A. Yes, I do. For Exhibit 14, on page 15, lines 3 and 4.

Q. Let folks catch up to you before you identify the changes.

A. Sure. That's Exhibit 14, on page 15, lines 3 and 4, that question should read, why is the Hutchinson -- why is Hutchinson, Minnesota referenced in the table above.

Q. Okay, are there any other changes?

A. Yes. In the South Dakota Exhibit 44, on page 12.

Q. Is that line 22 on page 12 of Exhibit 44? Are you in Exhibit 44, Mr. Tielke?

A. I'm on Exhibit 44 but my page 12 doesn't seem to have a line 22, so I can't seem to find that correction.

Q. There are two different versions, maybe that will help. There's a public and a nonpublic version. Which one are you looking at?

A. I'm looking at the public version.

Q. The nonpublic version might have different line entries. Try page 13, line 10 of Exhibit 44.

A. That's correct, on the public version it's page 13, line 10, actually, line 11, HRC should be spelled HUC.

Q. Are there any other changes, Mr. Tielke, in Exhibit 44?

A. Yes, on Exhibit 44 on page 3, and again in the public version, on line 13, the words "extreme weather" should be inserted after 2006.

Q. Is that the sum of all the changes to your prefiled testimony?

A. Yes.

Q. If I were to ask you the same questions that are set forth in the prefiled testimony, Exhibits 14 and 44, would your answers today be the same?

A. Yes, they would.

Q. And could you briefly summarize for the --

MR. SASSEVILLE: Let me do this. Let me offer for admission into the record Exhibits 14 and 44, Applicant Exhibits 14 and 44.

MR. SMITH: Is there objection? Hearing none, Exhibits 14 and -- Applicants' 14 and 44 are admitted.

EXHIBITS:

(Applicants' Exhibit Nos. 14 and 44 received into evidence.)

Q. (BY MR. SASSEVILLE) Thank you. Could you provide the commission with a brief summary of your educational, employment and professional background, Mr. Tielke?

A. Sure. I'm from Yankton, South Dakota, so that makes me West River, west of the Jim River, that is, and I went to SDSU to get my electrical engineering degree, graduated there in December 1979, since then I have worked for Missouri River Energy Services. During that time I also got my MBA from USD and I became a registered professional engineer in South Dakota.

During my time at Missouri River Energy Services I've worked -- I've been in charge of their load forecasting efforts during that whole period of time. I've also been involved in resource planning during that whole period of time, and I've worked up to become in charge of their operations management

and during that time I've also worked quite a bit with the information technology department.

Q. Have you prepared a summary of your testimony?

A. Yes, I have.

Q. Would you mind presenting it for the commission?

A. Not at all. MRES is a member-based organization that has 16 member cities in the four states of Iowa, Minnesota, North Dakota and South Dakota and our members range from smaller towns such as Fort Pierre and Burke and Faith, South Dakota, all the way up to larger growing towns such as Watertown and Brookings and Pierre and other cities such as Worthington and Alexandria, Minnesota. The goals of our resource planning effort are to minimize the costs of power to our member cities, and a particular goal of this resource planning effort also was to meet the renewable energy objective of Minnesota.

And just to summarize the results of our resource planning effort, it was to satisfy our resource needs through the year 2020, with the optimal results were to come up with a mix of resources that include 40 megawatts of new wind, 82 megawatts of new DSM on top of the existing DSM and wind resources that we have already, a 150-megawatt share of the Big Stone power plant, which includes a 40-megawatt share that will be resold to the City of Hutchinson, Minnesota, along with 45 megawatts of new peaking capacity that will -- all together

these resources, like I mentioned, will serve our needs out through the year 2020.

Our 2006 requirements are in the range of 480 megawatts, if you look at our peak requirements, including planning reserves. Our growth rate is a pretty robust growth rate of 3.6 percent per year, and as Ray Wahle mentioned earlier, we have loads inside and outside the MISO footprint. Our capacity shortfall is about the year 2011. Depending on if you count in the new DSM programs that we are planning to add, our capacity shortfall may be delayed by a year or so. However, the main point is that we need energy resources so that we can avoid running new -- running peaking plants or having to buy from the energy market, if we can run base load, this new base load resource to supply our energy needs in a more economical manner.

A little bit about DSM and renewables. Our existing DSM activities amongst our membership we estimate reduces our needs already by about 57 megawatts and our planned new DSM, we estimate that there's about 82 megawatts' worth of DSM that we can add by 2020 that will be economical on a comparable basis with the new supply-side resources we are planning to add. In order to implement this new DSM, our board has established a DSM task force amongst our membership to help us develop policies to implement this new DSM.

And we're active in the area or renewable energy, we

have four megawatts worth of wind turbines already and we are going to be planning to add 40 megawatts of new wind as well as purchasing some biomass energy to meet our renewable objectives.

Our capacity expansion model considers several alternatives, not only new base load but also new wind capacity, DSM capacity are options, peaking capacity and IGCC resources. We did a separate study on the side of what the needs for the City of Hutchinson, so we separated out the City of Hutchinson separately from the needs of our other -- of our other members so that was a separate study that was done on the side.

So a little bit about the modeling done for the City of Hutchinson. Hutchinson, Minnesota has a load of about 65 megawatts. They currently have no base load resources. They do own some peaking plants that run on natural gas and fuel oil and otherwise they purchase from the MISO market to supply their energy needs. So using Big Stone II would allow Hutchinson to avoid running peaking units and avoid purchasing from the market or purchasing from other utilities really. The optimum amount that was calculated for Hutchinson based on our study was a 45-megawatt purchase of Big Stone II. And of course the contracted amount is 40 megawatts so their study really did confirm this 40-megawatt purchase for Hutchinson.

In summary, the MRES resource plan was a combination

of 40 megawatts of additional wind on top of our four megawatts we have already, 82 megawatts of additional DSM on top of our 57 megawatts that we have currently estimated, 150 megawatts share of Big Stone II, which includes the 40 megawatts for Hutchinson, and in our resource plan, the resource plan for MRES and Hutchinson together calculated the optimal amount for the combination would be about 200 megawatts, but we're only applying for 150 megawatts. 45 megawatts of combustion turbines, so this whole plan together includes DSM and renewables and Big Stone Unit II to serve our needs through 2020, and that concludes my summary.

Q. Thank you.

MR. SASSEVILLE: At this time, we will tender Mr. Tielke for cross-examination.

MR. SMITH: Joint intervenors, you may proceed.

CROSS-EXAMINATION

BY MS. GOODPASTER:

Q. Good morning.

A. Good morning.

Q. I apologize that I'm going to have to have a screen between me and you because I had printer difficulties so I don't have my notes printed out on paper, I just have to stare at a screen, so my apologies for not having eye contact. I wanted just to ask you first, you mentioned in your summary the capacity expansion modeling that MRES has done that considers

all types of resources. That's the Strategist model that you are referring to?

A. Yes, that's correct.

Q. And when did you acquire the Strategist model and do that analysis?

A. We acquired the Strategist approximately January 1st, give or take a few weeks, so earlier this year, 2006.

Q. And so your direct testimony, your initial decision to participate in the Big Stone plant was not supported by a modeling analysis that MRES, a capacity expansion modeling analysis.

MR. SASSEVILLE: Go ahead and answer.

A. We did a production costing model during 2005 that we used to make the decision for our share of Big Stone plant and we confirmed it later with a capacity expansion model.

Q. (BY MS. GOODPASTER) Is the reason that you later confirmed it with a capacity -- attempted to confirm it with a capacity expansion model that the Minnesota Department of Commerce concluded that the production cost modeling that you had done to support your 2005 IRP was an inadequate tool to do the analysis?

A. No, the Department of Commerce commented on the results of our production costing model and they felt it was adequate for normal planning purposes that we file every couple of years with the Minnesota PUC. However, they felt for our

certificate of need proceeding that a capacity expansion model would be more robust and be more appropriate for a proceeding such as this.

Q. So the modeling is necessary to determine need for a facility, the capacity expansion modeling.

A. It was the opinion of the Department of Commerce that it would be better to have a capacity expansion model, but the PUC themselves never ruled on it, for instance.

Q. So the Department of Commerce in Minnesota nor the Minnesota PUC have issued any decisions on your 2005 IRP?

A. That's correct.

Q. The modeling analysis that MRES did, the capacity expansion modeling analysis, when was that completed and made public?

A. We filed the supplement, which is the results of that analysis, on May 9th, 2006.

Q. And it's true that intervenors asked for the input and output files associated with that modeling so that we could examine that analysis further.

A. Yes.

Q. And do you remember the date that you supplied some input/output files to intervenors?

A. I don't remember the date.

Q. Does it sound correct to you that it was last Friday?

A. No, I've -- that seems pretty late to me. It seems

like we were responding to IRS quite frequently in between there.

Q. I'm not talking about discovery generally, I'm talking about the input/output files associated with the capacity expansion modeling you completed May 9th.

MR. SASSEVILLE: I'll object based on relevance. The timing of when you got it is relevant to what issue, counsel?

MS. GOODPASTER: It goes to the opportunity to assess rebuttal, what is claimed to be rebuttal testimony.

MR. SASSEVILLE: I still object based on relevance.

MR. SMITH: What are you asking us to do here?

MS. GOODPASTER: I will get to some further questions that will request some of the information we would have liked to have.

MR. SMITH: I mean, does anybody know over there when this delivery of data was done? Let's get that out in the open.

MR. GUERRERO: I don't know as I sit here today, but I could make a phone call and find out some additional particulars with respect to -- if counsel could give me the specific interrogatory, I could make a phone call back to my office and either address that on the record or cover it in his redirect.

MR. SMITH: Why don't you go forward and we'll see if we can't get to the bottom of that.

MS. GOODPASTER: Okay.

Q. (BY MS. GOODPASTER) One of the things we wanted to assess by looking at input/output files, and we only have summaries of input/output files from MRES, but what wind production tax credit did MRES assume in its supplemental filing, the dollar value?

A. What particular wind tax, production tax credit did we use in the supplement? I don't remember that -- I don't remember that number off the top of my head. I know that the staff that works for me did the production -- did the capacity expansion planning and I remember reviewing those numbers at one point late last year, but I don't remember the actual number at this point.

Q. So you don't know how MRES calculated any particular wind production tax credit since you don't remember what the tax credit was, or do you remember how it was calculated?

A. I know the methodology was generally a credit for the amount of -- a credit per megawatt hour for the amount of wind production for the first ten years of production from any wind resources. Now, what the amount is in terms of dollars per megawatt hour, that's what I can't remember currently.

Q. I apologize if this is repetitive of your summary, but what portion of Big Stone II will MRES be acquiring excluding Hutchinson?

A. 110 megawatts for MRES and Hutchinson is the other 40.

Q. And subject to check, would you agree that the annual generation -- the annual generation from MRES's portion is approximately 847 gigawatt hours?

A. It would be roughly the 88 percent capacity factor for that 110 megawatts, whatever that number works out to be.

Q. So if that's the number we got using an 88 percent capacity factor, that sounds like it would be an accurate number to you?

A. Yes.

Q. What amount of surplus sales is MRES projecting in its new capacity expansion modeling?

MR. SASSEVILLE: Counsel, maybe you could identify a year.

MS. GOODPASTER: How about 2011.

A. Since the plant comes on in the middle of the year, it would -- it would be different than the normal year.

Q. (BY MS. GOODPASTER) If you could give me for comparison 2011 being a different year as you mentioned, also give me 2012, if that's perhaps more typical.

A. I know it was calculated as part of the resource plan summary. Again, I don't know off the top of my head what the number would be.

Q. Subject to check, would you agree that MRES is projecting 964 gigawatt hours of surplus sales in 2011?

A. I know we have some surplus sales. Let's see. Do you

know if that's in any of the testimony at this point?

Q. It's from the summary of modeling files that we received on Friday.

A. It's probably correct, but I couldn't testify to it at this point.

Q. Subject to check?

A. Yeah.

Q. Do you have any recollection of how the numbers come out for surplus sales for 2012, '13 and '14?

A. Well, 2012 would probably have a jump in surplus sales just because Big Stone is on for all 12 months. But then the remaining months the surplus sales would drop off rapidly as the use of Big Stone for our firm loads would increase.

Q. Did you just say months or did you mean years?

A. Years, excuse me.

Q. Based on the summary modeling files we received on Friday, it looks actually that in 2013, it actually jumps up over 2012 as opposed to a significant drop.

A. Yes, okay, the general trend would be a decrease, I'm trying to think which years there is a plan forced outage of our Laramie River Station and which years there may be a planned forced outage of Big Stone put into the model. But either of those events would affect the amount of production from those resources and would affect the amount of surplus sales from Big Stone.

Q. Would the projected surplus sales account for a planned outage?

A. It would be the other way around, a planned outage would affect the surplus sales numbers.

Q. So the modeling doesn't have any projection of when planned outages would occur?

A. What we do is we have as an input to the model when we expect planned outages to be, so for instance for Laramie River Station, we have a set schedule. Every so many years there is a schedule for when planned outages would be and that's an input that goes into the model, and likewise there is a schedule for Big Stone II of when we expect planned outages to be, so many weeks per year in every so many years.

Q. I would like to just review what we have covered here just to make sure I understand it. We established subject to check that MRES is acquiring approximately 847 gigawatt hours in their portion of Big Stone II. We then went on to say that MRES is projecting 964 gigawatt hours of surplus sales for 2011, and then -- is that correct so far, subject to check?

A. All right.

Q. And then that in 2013, we established, subject to check, that it goes up to 972 gigawatt hours of surplus sales.

A. Okay.

Q. Subject to check. And so these are -- surplus sales by definition are those that are not planned for your members'

needs.

A. That's correct.

MS. GOODPASTER: That's all I have, sir.

MR. SMITH: Did you find out anything, Mr. Guerrero?

MR. GUERRERO: Mr. Smith, I was unable to find out. I left a message with a colleague of mine back in the office. I've got my phone in my pocket on buzz and as soon as I find out, I will let everyone know.

MR. SMITH: Okay. Ms. Stueve, do you have questions?

MS. STUEVE: Yes, I do.

CROSS-EXAMINATION

BY MS. STUEVE:

Q. Good morning.

A. Good morning.

Q. Is it Mr. Tielke?

A. Yes.

Q. All right. First question, does MRES buy and sell on the open market?

A. We buy and sell to the extent that we have surplus energy available from our existing resources and to the extent that if it's economical to purchase energy rather than run our own resources and are trying to minimize the cost to our members, so the overall goal again is to minimize the cost to our members.

Q. If I'm hearing that clear, that was in your

presentation also to minimize the cost to the members?

A. Yes, thank you.

Q. Have you had discussions recently or specifically perhaps in March and April related to the coal shortage problems?

A. I'm sure our upper management has but I have not been part of that.

Q. You specifically have not been privy to any discussions or memos or news or anything?

A. Just the results in terms of I get a daily report of the coal pile results, for instance.

Q. And that coal pile result report, was that a result report related to the coal pile at Big Stone?

A. No, but at Laramie River Station.

Q. Laramie River Station?

A. Our resource at Laramie River Station.

Q. Would you agree that coal shortage problems could impact or affect your main objective to minimize costs to the members?

A. Certainly a coal shortage could.

Q. Coal shortage could.

MS. STUEVE: Could I offer for admission into the record Exhibit 1-D?

MR. SASSEVILLE: Do you have extra copies?

MS. STUEVE: Yes, I do.

MR. SASSEVILLE: Should we use a prefix number MJ, No. 1-D?

MS. STUEVE: Stueve Exhibit 1-D. That's D as in dog.

COMMISSIONER HANSON: Do you have extras? Todd, did you have an extra?

MR. GUERRERO: Sure.

Q. (BY MS. STUEVE) Have you seen this document before?

A. No, I haven't.

Q. First time?

A. Yes.

Q. Have you had a chance to look at it?

A. Just flipping through it here.

Q. Again, I would go back to your point about minimizing costs to the members. It appears from what you have said and agreed that that's a primary objective.

A. Yes.

Q. Of MRES. If we go to slide --

MS. SASSEVILLE: Excuse me, Ms. Stueve, did you offer this into the record?

MS. STUEVE: I believe I did, but before I handed it out.

MR. SASSEVILLE: I don't believe proper foundation has been laid and I would object if she's offering it at this time.

MR. SMITH: I'm going to sustain that. It looks like an Otter Tail document, so when an Otter Tail witness is back

here or someone familiar with them, Mary Jo, maybe you could ask them the foundational questions to admit this. It looks like an official Otter Tail document. Is this not something you guys could just stipulate to allowing in?

MR. SASSEVILLE: I think we will, but I think the proper witness would be Mr. Morlock coming up.

MR. SMITH: Is that okay, Mary Jo, we will wait on admission and ruling on admission until we have an appropriate witness? That doesn't mean you can't ask him questions about it --

MS. STUEVE: Okay. Absolutely.

MR. SMITH: -- necessarily, depending on what they are.

MS. STUEVE: Okay. Thank you.

Q. (BY MS. STUEVE) Would you agree that on, for example, Slide 20, it's on the last page where it says drastic customer impacts, and in general, would you agree that a coal shortage which curt and curtailments cost an estimated three million per month for retail customers of the Big Stone plant partners would also, could also impact MRES customers, if a similar situation would occur or was not -- or did not have remedy?

MR. SASSEVILLE: Do you understand the question, Mr. Tielke?

A. Yeah, I would ask if you could repeat that.

Q. (BY MS. STUEVE) Would it impact MRES customers if

this situation with the coal shortage was not remedied when Big Stone plant II came on, for example?

A. Which sort of situation exactly?

Q. Coal shortage. Nondeliverables of coal. And for example, in the slide above, 19, generation was reduced to 70 percent of full load.

A. I'm sure it would have some impact. I mean, there's a lot of variables here. In our case it would be one resource out of a couple base load resources.

Q. Absolutely, and yet did I hear you say in your summary that your needs, you wanted to meet Missouri River Energy Service needs with Big Stone plant Unit II coal-based power for least cost and its base load reliability?

MR. SASSEVILLE: I will object to the form of the question. It's argumentative and it's ambiguous. If you understand it, you can answer it.

A. Could you repeat that, please?

Q. (BY MS. STUEVE) Did you look at Big Stone plant Unit II to meet Missouri River Energy Service needs?

A. Sure.

Q. Projected need in the future.

A. Yes.

Q. Did you look at that based on cost?

A. Yes.

Q. Did you look at that based on reliability?

A. Yes.

MS. STUEVE: Thank you. No further questions.

MR. SMITH: Thank you. Staff?

MS. CREMER: Staff has no questions, thank you.

MR. SASSEVILLE: Thank you, I have I couple of redirect.

REDIRECT EXAMINATION

BY MR. SASSEVILLE:

Q. Mr. Tielke, Ms. Goodpaster asked you some questions about sale of surplus, I believe it's energy. Could you explain the distinction between selling surplus energy and selling surplus capacity?

A. Sure. If we have a resource that during some of the hours of the day or some of the hours of the month we have extra resource available, we will commonly sell energy to other utilities so that they can back down another resource and save fuel costs or save operating costs. And we will do that back and forth with other utilities on an hourly basis or a daily or weekly basis. This is where we'll sell energy between other re -- between other companies all the time. Selling capacity is where we will sell basically the right to use a unit with another company, and they can call on that resource any time that they want to. So it's basically almost like an ownership but it's not really an ownership right, but the right to call on that resource. So they have the right to the capacity of

that resource as well.

Q. Is MRES planning to sell excess capacity after Big Stone II comes on line?

A. Currently we don't have that in our plans. We may evaluate that down the road when the time comes.

Q. Is it your testimony that MRES needs the 110 or 150 megawatts of capacity depending on what you're focusing on beginning in 2011 to meet its customers needs for capacity and energy?

A. Yes, we need it for meeting our capacity and energy needs according to our resource plan. Now, when we did our resource plan, when we calculated our optimal amount we did not have surplus sales turned out in the model, so we were calculating how much -- what the optimal amount would be as if we did not have any surplus sales planned. We only added surplus sales in our reports after we already calculated the optimal amount.

Q. Does the fact that the capacity expansion model would permit the sale of excess energy beginning in 2011 affect the validity of the model that confirmed that the power and energy was needed for your system?

A. Again, the capacity expansion plan we never had surplus sales. Well, we weren't using the capacity expansion plan with surplus sales in it to calculate the optimal amount.

MR. SASSEVILLE: That's all I have.

MR. SMITH: Commissioners, do you have questions of this witness?

CHAIRMAN SAHR: I do not.

VICE-CHAIR JOHNSON: Nor do I.

EXAMINATION

BY COMMISSIONER HANSON:

Q. Morning, Mr. Tielke.

A. Morning, Commissioner.

Q. Appreciate your testimony this morning. When you were giving your presentation, your summary, you spoke a little bit about peaking capacity that the Big Stone II would provide an opportunity for. And I believe you referred to 45 megawatts of additional -- well, of peaking that it would either eliminate or provide for you?

A. Our resource plan covers through the year 2020 and in order to fill up our -- fill out our capacity plan through 2020, we needed this combination of resources, which included 45 megawatts of new combustion turbines, later on in the plan, actually installed in 2016 to carry us out through the year 2020.

Q. All right. Thank you. If it's not confidential information, could you share with us what the cost is presently for peaking power?

A. The cost --

Q. I assume you have a base load cost which is far less

expensive than your peaking cost, and if you have to go to a peaking cost such as combustion turbine as opposed to coal, there has to be a difference in cost. I'm curious what that cost is.

A. Sure, a peaking unit would normally be -- nowadays would normally be on natural gas so it would be the cost of natural gas to operate. Nowadays being it varies almost daily, so we had a price in there that would probably be in the range of, again it depends on the efficiency also of the peaking unit that you're modeling.

Q. Do you have a low and a high, give us some idea.

A. Right.

Q. What I'm trying to figure out, is Big Stone II going to displace a certain amount of peaking cost?

A. Sure.

Q. At the present time? I assume it is from what I read, but since I have you here I thought it would be a good idea to get it from the horse's mouth.

A. Yeah, it's probably in the range of $70 power for a peaking unit like that and escalated of course out to 2016.

Q. Thank you. And what -- in your presentation, you were talking about a capacity shortfall in 2011. What alternative resources do you have if Big Stone II were not completed?

A. If Big Stone II were not completed, there is really no major large coal plant that's being considered right now in the

year 2011, so our only alternative would be to look at something a little more expensive to carry us forward a few more years into whatever the next big project would be, which would be a few years later so we would probably have to add some combustion turbines, a combination of combustion turbine and maybe some wind capacity to carry us forward a few more years, along with our DSM opportunities, and maybe hope there's another base load project maybe in 2013 or 2014 time frame that we can join into at that point.

Q. Okay. So you don't have a specific fallback, but you are guessing right now that it would be mainly combustion turbine?

A. That's right.

COMMISSIONER HANSON: All right, thank you.

MR. SMITH: Intervenors, do you have follow-up?

RECROSS-EXAMINATION

BY MS. GOODPASTER:

Q. Yes, thank you, just one follow-up. You mentioned, you were discussing the difference between the sales of surplus capacity and surplus energy. Does the Strategist model that MRES is using project sales, is it capable of projecting sales of surplus capacity?

A. I don't know if we have ever investigated that. I couldn't tell you.

Q. So have you done any analysis of whether MRES can make

surplus capacity sales?

A. We analyzed that on a shorter term basis because we have surpluses currently. But our assumption is that we're going to be deficit by 2011 so we haven't looked at anything longer term like that, no.

MS. GOODPASTER: Thank you.

MR. SMITH: Is there follow-up?

MR. SASSEVILLE: No, there isn't.

MR. SMITH: Ms. Stueve?

MS. STUEVE: No.

MR. SMITH: Thank you, Mr. Tielke, you are excused. Applicants, please call your next witness.

MR. SASSEVILLE: The applicants call Steve Thompson.

Thereupon,

STEVE THOMPSON,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. SASSEVILLE:

Q. Good morning, Mr. Thompson.

A. Morning.

Q. Did you prepare or cause to be prepared prefiled written testimony in this proceeding?

A. Yes.

Q. Do you have in front of you premarked Applicants'

Exhibits 6 and 46?

A. I've got 6, this is my direct testimony, yeah, and 46, which is my rebuttal.

Q. Do you have any changes or corrections to either one of these prefiled testimonies?

A. No.

Q. If I were to ask you the same questions that are set forth in Applicants' Exhibits 6 and 46 this morning, would your answers be the same?

A. Yes.

Q. Would you summarize for the commission your educational, professional and employment background, please?

A. I've got a BSEE from the University of Minnesota, an MBA from St. Thomas, a PE in the state of Minnesota. And I've got 26 years of electric utility experience, 20 years I worked at Xcel, the old NSP. The last six years I've been working at CMMPA where I'm now currently the chief operating officer. My work background has been in generation planning, transmission planning, I have also spent some time in system operations and in distribution, planning and construction.

Q. What's your current position with CMMPA?

A. The chief operating officer and also the interim CEO.

MR. SASSEVILLE: The applicants offer for admission into the record Exhibits 6 and 46.

MR. O'NEILL: No objection.

MS. STUEVE: No objection.

MS. CREMER: No objection.

MR. SMITH: Applicants' Exhibits 6 and 46 are admitted.

EXHIBITS:

(Applicants' Exhibit Nos. 6 and 46 received into evidence.)

Q. (BY MR. SASSEVILLE) Did you prepare a summary for the commission this morning?

A. Yes.

Q. Would you mind presenting it now?

A. I want to start out and give you a little background. CMMPA consists of 14 small municipals, we are located in south central Minnesota. We have a board of directors, each member city is on the board. Our load for 2006 is forecast to be 163 megawatts. We are a small organization, we only have seven employees. CMMPA is a project-orientated agency. Each member itself is responsible for their own planning but the agency assists them. For the most part, the members plan and finance for their own local generation and the agency gets more involved in the planning, procuring and financing of the large centralized plants like the base load plants. That's been our main role.

So our members really retain the autonomy to make their own decisions and decide what resources to put in their

portfolio. We assist them and advise them in what's the optimal thing to do.

Twelve out of our 14 members at CMMPA elected voluntarily to participate in the Big Stone II project. In addition to that, we have one member, Willmar, who is also participating in the project with us. Our proposed share of the Big Stone plant is 30 megawatts or approximately five percent of the plant.

Our current situation today with regards to power supply is that CMMPA today purchases essentially 100 percent of its energy. Only about 30 percent of these purchases I would characterize as being economical purchases. 70 percent of these purchases are either purchased directly from the market or in contractual type of arrangements that mirror market pricing. The purchases we make are currently nonfirm purchases, they don't have capacity with them and they can be interrupted and they require us to run our diesel generation during these interruptions.

This past strategy of buying economy energy like we did for the last two decades is no longer viable under the current market conditions. You know, the increased gas prices has affected market pricing. There's a tight supply right now. There is a decreasing amount of, you know, low cost, you know, economy energy purchases even available. And on top of that, the transmission system is becoming increasingly constrained,

so even sometimes when we can find economical purchases, we can't get it delivered.

From a planning perspective, CMPPA is not required to file Integrated Resource Plan because we are too small, because we don't meet that threshold. But CMMPA is still very actively involved in planning. We have performed three consecutive studies over the last, you know, four years. 2002 was the first study. All these studies were done by Beck. We did another one in 2004 and a follow-up one in 2006. All of the studies essentially compared what our alternatives were and we were looking at base load coal resources, natural gas generation and market purchases, kind of the status quo.

Each study was kind of a refinement of the previous study. Each one updated the load when we had better load information. It updated the natural gas forecast and the most recent one, the 2006 one, actually included an evaluation of DSM and renewables in there. Each plan or each study basically confirmed the same result, that CMMPA needs base load generation.

The latest 2006 R.W. Beck study is really the most comprehensive study and most up-to-date study and really needs to supersede any previous stuff that we have submitted. It included econometric load forecast. It included an evaluation of DSM and renewables, and it also used the latest Strategist computer model. The 2006 Beck results basically said that we

have capacity deficits starting in 2008 and this capacity deficits will increase to approximately nine megawatts in 2011, meaning we have only a 10 percent reserve margin at that time.

It went on to further evaluate that we could effectively justify an additional 30 megawatts of Big Stone II above our current subscription amount. This additional 30 megawatts can be justified on the economic savings of what Big Stone II is displacing for us. Since we are essentially buying 100 percent of our energy from the market today, Big Stone II is displacing market purchases.

The other thing that the 2006 study came up with is it confirmed that we could use another 10 megawatts of wind generation. CMMPA currently has 22 megawatts of wind generation and the model said we confirm putting another 10 megawatts on line. With respect to DSM, CMMPA is under the Minnesota CIP requirements and we are meeting our requirements there, but the R.W. Beck results indicated that we are already probably spending more than what is economically justifiable for DSM at this time.

CMMPA's need for base load generation is a need that we have today. We could use Big Stone II today if we could get it on line today. Until very recently, CMMPA was under a full requirements contract with Xcel Energy. That contract, you know, now totally expires in 2011. That contract was an energy-only contract. So now CMMPA now has had very little

time to build its portfolio. We are just beginning to build our portfolio. CMMPA has no base load generation in our portfolio at this time. CMMPA's alternative to Big Stone II is to continue to purchase from the market again.

The reason Big Stone II is so important to us is because we have no coal generation. Our members have 153 megawatts of generation, all of it being diesel. We are currently at the mercy of the market right now. Like I said, 70 percent is coming from the market and it's nonfirm market purchases. Our prices for our market purchases have increased significantly over the last five years.

So other benefits of participating in Big Stone II that we see is that Big Stone II not only provides us with firm energy, Big Stone II also provides us with firm delivery. CMMPA needs both firm delivery and firm, you know, generation. The other thing Big Stone II provides us is ownership, it provides us an opportunity to have more control over our power supply destiny.

CMMPA, recapping, needs Big Stone II, one, to meet our capacity deficits, and two, to replace our high cost market prices that we are currently paying and to stabilize our pricing. And Big Stone II would also supplement our renewable efforts that we are doing right now. That's all I have.

MR. SASSEVILLE: Thank you. At this time we will tender Mr. Thompson for cross-examination.

MR. SMITH: Please proceed, intervenors.

MR. O'NEILL: Thank you, Mr. Smith.

CROSS-EXAMINATION

BY MR. O'NEILL:

Q. Morning, Mr. Thompson.

A. Morning.

Q. Just one area of inquiry. In looking at your direct testimony, Exhibit 6, page 14, line 6, one of the two aspects that you stated are most important for you in supply forecasting planning, I'm going to focus on the second one, is affordability. Do you remember your testimony in that regard?

A. What page were you referring to again?

Q. Page 14 -- Exhibit 6, page 14, line 10.

A. Okay, I think I see where you're at.

Q. Okay. Did CMMPA quantify any CO2 regulatory costs in looking at its participation in this project?

A. CMMPA has tried to stay abreast of the future policy issues on that. We are not in the position to try to evaluate where that policy may go. We felt it was too speculative at this time to include that cost in our planning.

MR. O'NEILL: Thank you. That's all I have.

MR. SMITH: Ms. Stueve?

MS. STUEVE: Yes.

CROSS-EXAMINATION

BY MS. STUEVE:

Q. Morning.

A. Good morning.

Q. So it looks like from your summary, you said you are looking for base load generation that meets CMMPA's needs.

A. Correct.

Q. And part of that is you are looking at reliability and economics, least cost.

A. Correct.

Q. Has C -- is it CMMPA?

A. CMMPA.

Q. CMMPA, okay. Have you discussed the coal shortage?

A. I am aware of it, but since we don't currently own a base load generation, I'm not privy to a lot of those coal freight issues.

Q. Would a coal shortage or a shutdown because of a coal shortage impact reliability or cost for CMPPA?

MR. SASSEVILLE: At what point in time, Ms. Stueve?

MS. STUEVE: For example, when Big Stone II Unit comes -- would come on and if the remedies were not -- or the troubles were not alleviated with the delivery of coal.

A. Yes, I'm sure that would be possible, if nothing was done about the current issues.

Q. (BY MS. STUEVE) And did you look or quantify as far as perceiving Big Stone II to be most reliable and economical for base load the possible price variations for the delivery of

the coal to the plants, which some utilities have said can, and I quote, Otter Tail Power says in our region two-thirds of the delivered price of coal is for transporting the coal to the generating plants. Would that impact, say, the economic factor to CMPPA?

MR. SASSEVILLE: I'll object. It's a compound question, it's ambiguous.

MR. SMITH: Do you want to try to ask it in two parts?

MS. STUEVE: Yes.

Q. (BY MS. STUEVE) Did you look at the economic factors considering Big Stone II to be least cost, the price of fuel to deliver coal?

A. In our analysis, we did do some fuel cost sensitivities. The most sensitive one was the gas price sensitivity, that's the one that had the most significant risk to us.

Q. As compared to?

A. The coal price.

Q. Did you look at -- I'm assuming here, maybe you know better than I do, fuel price to deliver coal, is it diesel?

A. I don't understand your last question.

Q. Did you look at fuel cost sensitivity, the diesel fuel price, the fuel price to operate the trains to deliver the coal?

A. No. I mean, we are very aware of the price of diesel,

too, though. Our peaking diesel units burn diesel fuel.

MS. STUEVE: Thank you.

MR. SMITH: Is that all your questions?

MS. STUEVE: Yes.

MR. SMITH: Staff?

MS. CREMER: Staff has no questions. Thank you.

MR. SMITH: Commissioners, do you have any questions?

VICE-CHAIR JOHNSON: None, thank you.

EXAMINATION

BY CHAIRMAN SAHR:

Q. I do have a question. Listening to some of the discussion about the coal shortages and so on and so forth, certainly by the time that this plant comes on line, you also could be looking at a situation where natural gas shortages may be taking place, natural gas prices may be significantly higher, so there certainly are some other countervailing factors that would indicate that other alternative sources of electricity could also be significantly higher if this plant is not built, correct?

A. That's true, like I said before, we feel the biggest risk for us is the price of natural gas.

CHAIRMAN SAHR: Thank you.

MR. SMITH: Redirect?

MR. SASSEVILLE: I have no redirect.

COMMISSIONER HANSON: I have one question.

EXAMINATION

BY COMMISSIONER HANSON:

Q. I am a little hesitant to ask, but I am curious and I was going to ask you, I can't ask you this outside the meeting so I guess I have to ask it now. After looking at your presentation, have you ever thought of sitting down with MRES and letting them take over your operation, joining with them? You are in a world of hurt there it looks like.

A. What worked for us for two decades very well, because of the change of situation, yes, we are changing our plan and our plan is to get involved in base load generation, so we are in the right direction.

Q. Sure, and I don't mean anything towards your administration or your capabilities, it's just from the standpoint of your resources just don't appear to be very strong there.

A. I think all power agencies are always looking to do things together, so yes, we continually talk with other power agencies, that's part of this joint effort of doing this project, is working together. So whether it's working together in just a power supply contractual arrangement or working together other ways, we're always looking for things.

COMMISSIONER HANSON: Thank you.

MR. SMITH: Redirect?

MR. SASSEVILLE: No redirect.

MR. SMITH: We usually just -- one second here. Because of the way things work with like the commissioners asking questions, do you have any cross that relates at least to those issues? Otherwise he hasn't redirected so I think you're done. You are excused. Thank you. Call your next witness.

MR. SASSEVILLE: John Knofczynski.

Thereupon,

JOHN KNOFCZYNSKI,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. SASSEVILLE:

Q. Good morning, Mr. Knofczynski.

A. Good morning.

Q. Do you have in front of you premarked Applicants' Exhibits 15 and 49?

A. Yes.

Q. Are those the prefiled direct testimony and prefiled rebuttal testimony respectively in this case?

A. Yes, they are.

Q. And was this testimony prepared by you or under your supervision?

A. Yes, it was.

Q. And is it, to the best of your knowledge, true and

correct?

A. One correction, on Exhibit 49, on page 11.

Q. Just to be clear, there's two versions. Are there two or just one? Just one version, one public version, correct?

A. That's correct.

Q. In Exhibit 49, what page and line?

A. Page 11, line 19, the time frame there instead of 2001 to 2013 should be 2011 to 2016.

Q. Are there any other corrections?

A. There are not.

Q. If I were to ask you the same questions that are set forth in the prefiled testimony this morning, would your answers be the same?

A. Yes, they would.

Q. Would you mind --

MR. SASSEVILLE: Let me offer for admission into the record Applicants' Exhibits 15 and 49.

MR. SMITH: Objections? Hearing none, Exhibits 15 and -- Applicants' Exhibits 15 and 49 are received.

EXHIBITS:

(Applicants' Exhibit Nos. 15 and 49 received into evidence.)

Q. (BY MR. SASSEVILLE) Mr. Knofczynski, what is your current position with Heartland?

A. I am their manager of engineering.

Q. What is your educational, professional and employment background?

A. I received my bachelor of science in electrical engineering in 1988 from South Dakota State University. After graduating I worked for a couple different consultants for 14 years in the electric utility industry related fields. After working for the consultants, I joined Heartland Consumers Power District in 2002 as their manager of engineering. While working for the consultants, I performed power supply planning, transmission planning, and design and project management of high voltage transmission and substation facilities.

Q. Do you hold any professional degrees?

A. I'm a registered professional engineer in South Dakota, North Dakota, Minnesota and Kansas.

MR. SASSEVILLE: At this time we would tender Mr. Knofczynski for cross-examination.

A. The summary.

MR. SASSEVILLE: I'm sorry, we're going to tender him to present his summary.

MR. SMITH: Consider yourself tendered.

MR. WELK: And accepted. (Laughter)

A. First a quick overview and a review of some of the information that Mike McDowell presented yesterday. Heartland is primarily a supplemental power supplier. Historically we have always been the supplemental supplier to the Western Area

Power Administration. Some of our new customers, however, are now full requirement customers. Primary goal of Heartland is to help small communities gain economies of scale in large power generation projects and transmission projects they would not otherwise be able to enjoy.

Heartland is also -- even though we serve primarily small communities we also have a high load factor. There are a couple of large industrial loads within our communities that give us a very high load factor, which is one of the reasons we are interested in a lot of base load facilities.

I would like to review our load forecast. It's a little different than a lot of other forecasts that are participants in Big Stone. There are three components to our load forecast. The first and primary component is the econometric load forecast prepared in 2002. That was prepared for all existing customers we had at that time. There were 22 customers. In addition to that, we have added eight new customers in the past year and a half or so. Instead of preparing an economic load forecast for those customers at that time, we simply took the projections those new customers gave us and added those to our econometric forecast. We also have added load growth objectives of our board of directors. These objectives are in response to notice we received from the City of Marshall, Minnesota, giving us notice that they were terminating their contract in 2016. The board of directors

took the initiative in early 2005 to assume we were going to grow over the next ten years to be able to replace that load of Marshall.

Since the application was submitted, we have added new customers, so I did update Heartland's forecast in Applicants' Exhibit No. 49. The growth is significant, we did add 39 to 45 megawatts of demand over the 2008 to 2021 time period, and 250 to 290 gigawatt hours of load over that same time period.

As Mike McDowell discussed yesterday, Heartland is a political subdivision of the state of South Dakota. We are governed by its statutes. The statute I have on the screen is a statute that Heartland uses to justify its participation in large-scale power generation projects like Big Stone. Paraphrasing what the statute says, the board of directors has the latitude to invest in large-scale power facilities that are shown to be economical and reliable at the time they are available.

As you are aware, these types of facilities like Big Stone are built infrequently. The last large-scale facility was built in 1987, which is Sherburne County Unit 3. The next unit that's coming on line is the Council Bluffs Unit 4, that's a 20-year gap. This statute that I have on the screen essentially allows the board of directors to authorize Heartland to invest in these projects when they are available since they are built so infrequently.

I emphasized the last sentence, the last portion of the statute. Essentially emphasizing the fact that even though we don't have a foreseeable need for some of the base load resource we may be investing in, it's the prerogative of the board of directors to be able to invest in more resource to be able to have that resource available for the future, since these projects are built so infrequently.

Next I'd like to provide a brief overview of the resources that Heartland relies on to serve its customers. The only facility that Heartland owns is a 50-megawatt share of the Laramie River Station, that was built in 1980. Our load has grown over time to the point where we are now contracting for over 100 megawatts of facilities to serve our customers, so right now two-thirds of our resources are under contract with other utilities.

Of those 100 megawatts, approximately 45 at this time are base load facilities that will be expiring in 2013. The expiration of these base load contracts is one of the primary drivers for our interest in investing in base load resources like Big Stone.

Demand-side management activities and renewables are also a component that Heartland uses in its current resource portfolio. With a load growth that we have seen and the contracts that are anticipated to expire over the next several years, we see a large deficit for Heartland beginning in 2008,

that deficit will be about 35 megawatts in 2008 growing to about 60, a little over 60 megawatt deficit in 2010, just before our new base load resources come on.

One of the components of Heartland's customers; resource portfolio is their demand-side management activities. In 2005 our customers reported to us an approximate 7 megawatt decrease in their demand and 90 megawatt reduction in their energy requirements through their demand-side management activities. In addition to continuing to help our customers evaluate and implement demand-side management programs, Heartland is also going to be offering low interest loans to our new customers, new customers we have, I don't believe any of them have load management systems. We are offering low interest loans to those new communities to help them install and implement demand-side management activities, particularly load management systems.

Another component of Heartland's resource portfolio we include in our resource planning is renewables. At this point we do have a lot of renewables in our system. In 2005 there were about 1600 megawatt hours generated by wind turbines located at our customer facilities. We are undertaking additional steps to look at additional renewables. There's a wind farm developer we are discussing a contract with in central South Dakota. We are looking at a couple wind turbines at some existing customer sites. There's a landfill gas project

we are evaluating with one of our customers and just last week there was a groundbreaking at one of our customers' consumer sites for expansion of a large biodiesel refinery.

Heartland's base load resource planning had been an ongoing process for several years. When we identify resources, we use system-level production cost modeling to evaluate those resources and to identify the lowest cost resource. In this way we did select Big Stone Unit II as one of the low cost resources that was available to Heartland.

We are currently participating in a 25-megawatt share of the project, which is about 4.2 percent of the plant. With Heartland's growing load, we would actually at this point be willing to accept more capacity from the Big Stone project if it were available. In summary, Heartland's plans and its customers' plans include demand-side management, renewable resources, and Big Stone Unit II.

MR. SASSEVILLE: Thank you, Mr. Knofczynski. He's now available for cross-examination.

MR. SMITH: Are you ready to go? Please proceed.

CROSS-EXAMINATION

BY MS. GOODPASTER:

Q. Good morning.

A. Good morning.

Q. This is something that was brought up somewhat in your summary and as well with your colleague, Mr. McDowell,

yesterday. But just wanted to confirm that Heartland has goals for load growth.

A. That is correct.

Q. And what are those goals?

A. The goals were implemented by the board of directors to replace the load that's going to be lost 2016 in the City of Marshall. The goals that we included in our application were approximately three to six megawatts of additional load added per year.

Q. And are you -- is Heartland meeting those goals?

A. We have already exceeded those goals for the replacement of Marshall.

Q. So it's fair to say that Heartland is building load, I think you may have even used that term in your opening statement.

A. That would be -- yeah, that would be correct, we are adding new customers and we are also experiencing new load growth of existing customers.

Q. Now, if Heartland doesn't, didn't meet its load growth goals or if load were reduced for some other reason, loss of another customer, that would have an adverse effect on Heartland's budget, wouldn't it?

A. Yes.

Q. Is that why Heartland does not pursue conservation efficiency, DSM programs like that?

MR. SASSEVILLE: I'll object to the form of the question. I think it misstates his testimony.

MR. SMITH: I think it does as well. If you want to get at it through some introductory questions, but that assumption doesn't sound to me like it jibes with the testimony.

Q. (BY MS. GOODPASTER) Mr. Knofczynski, you have stated in your testimony that Heartland's future DSM initiative is integrated load management systems.

A. Primarily, yes.

Q. Could you state for me the difference between a load management program and conservation or efficiency programs?

A. Load management program is designed to reduce the peak demand of a customer.

Q. And conservation efficiency measures are?

A. Would be a measure that would reduce use through increased efficiencies or conservation would be reduction in use.

Q. So an integrated load management system is designed to reduce peak load and therefore that type of system is to avoid the need for future peaking supply.

A. The intent of the load management is to make the customers' demand more efficient or their use of electricity more efficient by spreading some of the energy use from the peak periods to the off-peak periods or lower-peak periods.

Q. So Heartland is not planning to do anything other than load management system.

A. That is what we promote with our customers. Our customers, through their preference power contracts with WAPA, are also obligated to pursue other measures of conservation, energy efficiency and load management.

Q. But Heartland is not planning to engage in conservation efficiency DSM measures.

A. We will support our customers and help them evaluate and implement those activities in their own systems.

Q. Mr. McDowell yesterday, were you here for his testimony?

A. Yes, I was.

Q. Do you recall that he stated one of the defining goals of Heartland is to increase electricity use?

A. The purpose of the district is to extend and encourage use of electricity, yes.

Q. And so a DSM program would be counter to that goal.

A. I would say not, I would say that we are promoting the efficient use of electricity. Extending the use of electricity, we believe, means that we're using, we are promoting the use of electricity in replacement of other means of or other types of energy like natural gas. We will work with our customers, for instance, when building a new school to encourage them to put in electric heat instead of gas heat.

Q. That would increase electric usage.

A. That's correct.

Q. Are you familiar with a program that Heartland had a few years ago, I believe it was called the energy and efficiency incentive program?

A. I believe that program was developed about the time I started working at Heartland, yes.

Q. And what was the purpose of that program?

A. The purpose of the program was going to be to provide grants to our customers to make improvements in their systems, primarily in efficiency and conservation.

Q. And that program no longer exists, correct?

A. That is correct.

Q. And do you recall that the board of Heartland passed a resolution in 2002 to transfer that, the funds that had been in that program?

A. Yes, I am.

Q. Do you recall how much, prior to that transfer, the amount in the program, the amount of dollars in the program?

A. Not exactly, no.

Q. Would you agree that it was in the ballpark of a million dollars?

A. That sounds correct.

Q. And you recall, then, that in August 2002 that Heartland transferred that million dollars or so to the general

reserve fund?

A. Yes.

Q. So that one million dollars that otherwise would have gone to efficiency and conservation measures is no longer available to Heartland for that purpose.

A. That money was used I believe to reduce the electric rates of the customers the following year.

Q. Okay. The reason that you needed to reduce customer rates that following year was what?

A. To provide rate stability to our customers.

Q. I guess I was looking more at a cause of the projected rate increase the following year. If you don't know, that's okay.

A. I don't recall exactly what the reason was, no.

Q. Is it possible that it was an outage at Laramie River?

A. In 2003 would have been an outage for Laramie River Station.

Q. Are you familiar with the prefiled testimony of Bryan Morlock on behalf of -- specifically his Exhibit 42 is his rebuttal testimony that's offered on behalf of all of the applicants?

A. I have read it, yes.

Q. So you are familiar with his statement that he says all seven of the applicants performed system-level analyses of their own systems.

A. Yes.

Q. We understand through discovery that there are -- Heartland has a couple of different studies and one of those is the 2002 R.W. Beck study that it participated in with CMMPA, I believe.

A. I believe the study was performed on behalf of CMMPA. We didn't -- I don't recall having any input into that study.

Q. Okay, so you don't know whether that study did a systemwide analysis to evaluate alternative resources to meet future load?

A. No.

Q. How about the -- are you familiar with the 2003 update to power systems study?

A. Power system engineers?

Q. Yes, sorry.

A. Yes.

Q. And did that study do a system-level analysis to evaluate alternative resources to meet future load that included fossil resources as well as renewables and DSM?

A. I believe so.

Q. Could you point me to where in that 2003 update that we just were discussing where that analysis is shown?

MR. SASSEVILLE: Ms. Goodpaster, do you have a copy of it that you can show him?

MS. GOODPASTER: I would like to, but just a moment.

Q. (BY MS. GOODPASTER) I will need to ask you -- ask you whether you would disagree with me if I said that we had looked at that study, because it was provided to us in discovery, and did not see that DSM and renewables were included in any analysis contained in that evaluation of alternative resources. Would you disagree with me that it actually does?

MR. SASSEVILLE: I'll object. It lacks foundation and it's not the best evidence.

MR. SMITH: If you can answer, go ahead. If you know.

A. I believe the primary emphasis of that study was to identify base load resource. I think renewables and DSM were addressed but I don't know if they were given a lot of evaluation in that study.

Q. (BY MS. GOODPASTER) Thank you. So would you disagree, then, with Mr. Morlock's statement that Heartland, as one of seven of the applicants, did a system-level analysis of its system?

MR. SASSEVILLE: This has been asked and answered, I believe.

MS. GOODPASTER: No, I asked him whether he was familiar with Mr. Morlock's statement, but I haven't. . .

MR. SMITH: Overruled. You can answer.

A. System level I guess as far as when we look at that, we are looking at a system level as far as like a particular resource need and we evaluate base load on a systemwide need.

We probably do separate systemwide studies for each individual type of resource we were evaluating.

Q. (BY MS. GOODPASTER) Mr. Knofczynski, I apologize, we actually didn't get the study from you, we got the modeling files in support of that study, the 2003 study.

A. Uh-huh.

Q. And so I would like to know whether you could provide us with a copy of that 2003 study so that we could examine that.

A. I believe it was provided.

Q. We have the modeling files associated with the study from which we have discerned that there were not renewables and DSM evaluated there, but we don't actually have the study that we asked for.

A. Yes, we can certainly provide it.

Q. Thanks. Exhibit 49-C in your testimony, if you could turn to that, please.

A. Okay.

Q. That exhibit shows that the current power purchase agreement with Nebraska Public Power District ends in 2013.

A. That's correct.

Q. Is that contract end time to coincide with the originally planned retirement of the Cooper Nuclear Station?

A. No, I believe the operating license for Cooper expires at the end of 2013.

Q. Are you aware that the Nebraska Public Power District is planning to extend Cooper's operating life by an additional 20 years?

A. Yes, I know they have made that application.

Q. Are you aware of any applications for renewal of a nuclear power facility's license that have been denied?

A. No, I do not.

Q. Have you had any conversations with Nebraska Public Power about extending the Heartland PPA beyond 2013 or entering into a new PPA?

A. Yes, we have.

Q. For what time period, extending immediately from the expiration of the current contract or?

A. We have actually asked them for both availability of base load resources in the 2010 to 20 -- in the 2009 and 2010 time frame and beyond 2013.

Q. Is one of the options that you have asked for an extension of the current license or a new PPA for the entire relicensed life of the Cooper station, the 20-year relicensed life?

A. No, we have not.

Q. On Exhibit 49-C, it generally lays out various sources of capacity Heartland will rely on. If I could just go through on the right-hand legend, I guess, the fourth source in that list, do you see where I'm referring to?

A. Yes.

Q. The Whelan Energy Center.

A. Yes.

Q. That's coal fired, correct?

A. That is correct.

Q. And then the next resource listed would be the fifth one down on the list, that's the Big Stone Unit II and obviously that's coal fired as well.

A. Yes.

Q. And the second resource from the bottom of the list, Laramie River Station, do you see that?

A. Yes.

Q. That's also coal fired.

A. Yes, it is.

Q. And all of these resources use Powder River Basin coal?

A. Yes.

Q. Looking at that list, would you agree with me that the sources of capacity that Heartland relies on do not reflect a lot of fuel diversity?

A. In the base load area, no, they do not.

Q. Finally, has Heartland undertaken any studies or analysis that quantify the potential for greenhouse gas regulations and those potential costs?

A. No, we have not.

MS. GOODPASTER: Thank you, that's all I have.

MR. SMITH: Ms. Stueve?

MS. STUEVE: Thank you.

CROSS-EXAMINATION

BY MS. STUEVE:

Q. Good morning, is it Mr. Knofczynski?

A. Knofczynski.

Q. Okay, great. Base load reliability and least cost, minimal cost, Heartland is looking at.

A. Yes.

Q. Yes. Have you had discussions about the coal shortage?

A. At the Laramie River Station, yes.

Q. At Laramie River Station. No discussions as far as the recent -- this last spring shutdown or decreased generation at Big Stone due to the coal?

A. I was aware of it --

Q. Stockpiles.

A. I was aware of the curtailment, but. . .

Q. You are familiar with the Laramie River Station?

A. Yes.

Q. It happened there also.

A. We had difficulty with delivery, yes.

Q. In 2003 did I hear you say there was an outage there?

A. It's a scheduled maintenance outage every three years.

Q. Scheduled maintenance, okay. Laramie River uses Powder River Basin coal?

A. That is correct.

Q. If you know, what would be the difference between Powder River Basin coal and Montana coal?

A. I believe the Montana coal is an extension of the Powder River Basin into Montana. Different chemical makeup, different levels of sodium and ash and moisture and things like that in the coal.

Q. And is one better than the other as far as emissions go?

A. I'm getting outside my area of expertise here.

Q. Possibly?

A. Possibly.

Q. Okay. Does Heartland currently have a current contract rate for rail transportation for your Laramie River, for example, although now Ms. Goodpaster said there's other. . .

A. We are on a tariff rate for Laramie River Station.

Q. Have you seen increases?

A. In the delivery cost?

Q. Yes, delivery cost.

A. When our long-term contract ended in I believe 2004, we did see an increase in delivery costs.

Q. And what was the increase, percentagewise, for

example?

A. Doubled.

Q. It was doubled, so 50 percent, then?

A. 100 percent.

Q. 100 percent.

A. Increase, yes.

Q. Did that impact customer rate?

A. Slightly.

Q. Percentage?

A. We did not have to change the rate the next year. It was within our margin.

Q. And has Heartland had discussions at all about this project, Big Stone II, reliability and economical cost related to the coal shortage?

A. I believe it has been discussed. We believe that's a short come anomaly. We believe the market will respond and coal supplies will be available in the future.

Q. Has Heartland had any discussions on risk as far as supply and demand the more coal plants, for example, come on line that are proposed?

A. That has been discussed. We believe again market forces will encourage the mine operators and owners to expand the mines to increase the supply to meet the demand.

Q. And ultimately, who pays if, for example, we see another two times contract for delivery of coal?

A. Again, we believe market forces will expand the supply to meet the demand.

Q. Is the cost typically passed on to the customer?

A. Yes.

MS. STUEVE: Thank you. No further questions.

MR. SMITH: Staff?

MS. CREMER: Staff has no questions. Thank you.

MR. SMITH: Commissioners?

EXAMINATION

BY VICE-CHAIR JOHNSON:

Q. Thank you. You mentioned that some of the members of Heartland do engage in energy efficiency programs; is that right?

A. That's correct.

Q. Are you familiar generally with their efforts?

A. Not specifically. I don't have a lot of direct contact with the customers, that would be our customer relations manager.

VICE-CHAIR JOHNSON: Thank you.

MR. SMITH: Any other commissioner questions? Redirect?

MR. SASSEVILLE: First a housekeeping item, Ms. Goodpaster, we have done a little forensic investigation and confirmed that we produced the power supply study dated February 17, 2003 last November, we produced it on 11-29-2005

and it's Bates stamped HCPD 000089. If you want to check your records, you should be able to find it. It's up on the screen.

REDIRECT EXAMINATION

BY MR. SASSEVILLE:

Q. Mr. Knofczynski, following up on a question asked by Commissioner Johnson, what is the breakdown in terms of the responsibility between Heartland and its members with respect to conservation improvement?

A. I guess I don't exactly understand the question.

Q. Well, it wasn't my best one. Ms. Goodpaster also asked you about conservation measures. Is Heartland chartered by the customers' systems that it serves to develop and manage conservation improvement programs?

A. No, it is not.

Q. Do your customers' systems retain that responsibility themselves?

A. Yes, they do.

Q. And Ms. Goodpaster also asked you about the board's load growth goals, that is Heartland's load growth goals. Is Heartland encouraging additional use of electricity or is it simply aggregating existing loads of its customers to achieve more efficient use or economies of scale?

A. We are aggregating additional load, yes.

Q. Could you explain or give examples of how that's being done?

A. With new load?

Q. Correct.

A. The board has established these growth goals, they did that in early 2005, and since then we have been actively pursuing and responding to requests for proposal that we have received from other municipal customers whose contracts are expiring. We have been very successful in responding to those RFPs and signing on new customers.

Q. Ms. Goodpaster asked you about the contract for the Cooper nuclear facility.

A. Yes.

Q. Did you have any conversations about renewing the Cooper nuclear contract?

A. Yes, we have.

Q. And what was the result of those discussions?

A. They were not willing to extend that contract at this time.

Q. Did they explain why they were not willing to extend the contract?

A. Not knowing what the market conditions would be like in 2013, not knowing whether they would have or need the resource for their own customer needs, they said that they would like to defer that discussion till a later time.

Q. Ms. Goodpaster also asked some questions about Heartland's planning activities. Do you believe that the

planning activities that Heartland undertakes to meet its customers' power and energy needs is sufficient to meet those customers' power and energy needs?

A. Yes, we do.

MR. SASSEVILLE: That's all I have, thank you.

MR. SMITH: Do you have follow-up cross-examination, MCEA?

MS. GOODPASTER: Yes.

RECROSS-EXAMINATION

BY MS. GOODPASTER:

Q. Earlier I had asked you about that 2003 power study and it was on the screen there a moment ago, and I was wondering if you could point me to where in that document there is a system-level analysis that includes to meet DSM and renewables as alternative resources along with fossil resources?

MR. SASSEVILLE: We would need to take a break to have him look at the document.

MR. SMITH: Why don't we do that. Is this a document that you intend to print and introduce into the record? Do you know?

MS. GOODPASTER: I don't know because I haven't seen it but it seems unlikely.

MR. SMITH: We will take a break and we will conclude, then. We will let you take a look at that and conclude in a

minute. Why don't we take a 15-minute break so we reconvene at 25 to.

(Whereupon, the hearing was in recess at 10:20 a.m., and subsequently reconvened at 10:42 a.m., and the following proceedings were had and entered of record:)

MR. SMITH: We are back in session following a recess and I am going to probably mispronounce your name, but Mr. Knofczynski is on the stand and we took a break to enable him to review a document for purposes of addressing a question regarding that. And at this point intervenors, would you like to reask your question.

MS. GOODPASTER: Actually, if I could ask the court reporter to read it back, that would help.

(Whereupon, the Court Reporter read back the requested portion.)

A. I reviewed the report that was prepared in 2003. There was a whole section on renewables. When the study was conducted, the renewable resources were evaluated and screened, but none of them were selected as resources to be included in the detailed study.

Q. (BY MS. GOODPASTER) So Mr. Knofczynski, it's that they were qualitative evaluations as opposed to a quantitative modeling?

A. That's correct.

Q. You mentioned renewables but not DSM.

A. I believe at that point we probably directed the consultant not to include DSM, probably for a couple different reasons.

Q. We did receive from Heartland the modeling files associated with that study and for the record, we have looked through every CD that we have with documents that have been produced and can't find the actual study, so I would reiterate my request to have a copy of the study if you don't mind.

A. We will provide it for you.

Q. Thank you very much.

MR. SMITH: Are you finished? Redirect?

MR. SASSEVILLE: I have one question.

REDIRECT EXAMINATION

BY MR. SASSEVILLE:

Q. What were the reasons Heartland did not direct the consultant to examine DSM?

A. Probably the primary reason is Heartland is a wholesale power supplier and as stated earlier in my testimony, the DSM activities is the responsibility of our customers. As a wholesale supplier, we can't reach into their systems and enact DSM activities unless they ask us to.

Probably the second reason would be at that time the City of Marshall was our largest customer and still is. Making up about two-thirds of our load. However, Marshall also has a third supplier, so if we tried to enact any DSM activities,

more than likely they would not benefit Heartland, they would benefit the third party supplier, so a large, very large portion of our load, if we enabled or enacted DSM activities, would be of no benefit to Heartland.

MR. SASSEVILLE: Thank you.

MR. SMITH: I think we are done. Do you have a follow-up cross?

MS. GOODPASTER: No.

MR. SMITH: You are excused.

THE WITNESS: Thank you.

MR. SMITH: During the break here between witnesses we have a couple of administrative items. Well, one is a little more substantive I guess. Mr. Guerrero, do you want to address the issue of the response to discovery regarding the inputs?

MR. GUERRERO: Sure, I will. During the course of this morning's witnesses, I had the opportunity to talk with both my colleague Peter Tester at the law firm of Lindquist and Vennum and Mrg Simon, who is a lawyer with Missouri River Energy Services in Sioux Falls. And it appears that the trail of the input and output files, there was an original discussion among I believe Ms. Goodpaster, but certainly Mr. Schlissel and possibly Ms. Sommer back on May 9th with many of our resource planner witnesses. It was discussed at the time whether or not Mr. Schlissel and Synapse wanted copies of the five items, I believe that's the input and output files that were requested

as part of Missouri River's original filing on the resource plan in July of 2005. Those were supplied earlier. I think the response back was we will wait on any output files, input/output files, you don't have to provide those to us right now.

We got a call from -- that was May 9th. Peter received, Mr. Tester received a call from Ms. Goodpaster on June 2nd that MCEA and Synapse now did want the five items and I believe the five items refers to the input/output files that Mr. Schlissel had requested, but based on the conversation that -- I'm not sworn, but based on the conversation that Ms. Goodpaster and Mr. Tester had at that time, he then sent an e-mail to Ms. Simon at Missouri River and said, MCEA now does want the input files, but Ms. Goodpaster has agreed that we could provide them on or about June 23rd, which is when we provided the input files to MCEA, Ms. Goodpaster.

There was something in the discussion about they didn't need them right away because they were already in the testimony, so that's what happened. We provided them based at least on our understanding of the conversations when they were due and so that's where that's at, from our perspective.

MR. SMITH: Thank you. Do we need any further discussion on this at this point, Ms. Goodpaster?

MS. GOODPASTER: I don't think it makes sense to take time establishing what they understood and what I understood

about this particular IR. We did have a motion to compel related to this and we had discussions about it and we will let it sit there.

MR. SMITH: Thank you. There's one other item that I want to talk about right now and that is the testimony of David Gaige, and through a series of e-mails that I also received, there was a discussion about whether cross-examination might be waived by the parties with respect to Mr. Gaige. My recollection of the e-mails, I didn't get them out and look at them again, but it was that after some back and forth, that both MCEA and staff agreed that they did not feel compelled to have to cross-examine Mr. Gaige. At least the understanding from the one e-mail of Otter Tail was that Ms. Stueve had agreed to waive cross-examination of Mr. Gauge.

After thinking about it, Ms. Stueve decided that she felt she did have to cross-examine, would like the opportunity to cross-examine Mr. Gaige, and in the interim, Mr. Gaige cancelled his travel and now is in a spot where it's difficult for him to get up here. He can get up here, okay. I think we just had a discussion during the break, it's possible for him to get up here.

What we wanted to talk about was whether Ms. Stueve and perhaps if the rest of you have some desire to have some cross-examination of him, if she does, whether that might be done by phone and whether you would all stipulate to an

amendment to the third scheduling order that would permit his testimony to be taken, his cross-examination and any redirect to occur via phone so that we don't have to put him through trying to figure out how to get up here at this point. And I would be interested in hearing from Ms. Stueve and then from the rest of you.

MS. STUEVE: I'm amenable to the suggestion, no objection at all.

MR. SMITH: Otter Tail, do you feel comfortable with him testifying via telephone?

MR. GUERRERO: Yeah, absolutely, it's not a question of whether or not we would make him available, we would certainly make him available, it's just we're trying to save expenses and be as efficient as possible.

MR. SMITH: MCEA, do you have a problem with that?

MS. GOODPASTER: No problem with it.

MR. SMITH: Staff?

MS. CREMER: That would be fine for staff.

MR. SMITH: I think now it's on the shoulders of the commissioners, if you are comfortable with feeling that you can adequately hear and assess his testimony via phone, I think the parties have stipulated so you can go ahead and do that.

CHAIRMAN SAHR: I'm comfortable -- since the parties are comfortable, I'm comfortable.

VICE-CHAIR JOHNSON: I am as well. Are you looking

for a motion, Mr. Smith?

MR. SMITH: I think I am.

VICE-CHAIR JOHNSON: I would move that we allow Mr. Gaige to appear telephonically for the purpose of this hearing.

CHAIRMAN SAHR: Second.

COMMISSIONER HANSON: I concur.

MR. SMITH: Thank you. Applicants, please proceed with your next witness.

MR. WELK: Thank you, the applicants will call John Lee.

Thereupon,

JOHN LEE,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. WELK:

Q. Would you please state your name?

A. John Lee.

Q. And Mr. Lee, where do you live?

A. Bloomington, Minnesota.

Q. By whom are you employed?

A. Barr Engineering Company.

Q. And Mr. Lee, in connection with this proceeding, have you prepared both prefiled and rebuttal testimony?

A. I have.

Q. And has your prefiled direct testimony been marked as Applicants' Exhibit 18?

A. Yes.

Q. And has your prefiled rebuttal testimony been marked as Applicants' Exhibit 36?

A. Yes.

Q. Are there any changes or corrections to Exhibit 18 or Exhibit 36 of the applicants?

A. I have three corrections for Exhibit 36.

Q. All right, let's let everyone please get there, Exhibit 36, and let's go through your corrections on Exhibit 36.

A. On page 4, line 5, change the 1.4 percent to 1.2 percent.

Q. All right. Any other changes in Exhibit 36?

A. Yes. On page 6, line 9, change 18,900 acre feet to 18,152 acre feet.

Q. Any other changes on Exhibit 36?

A. One more on page 7, line 10, again change the 1.4 percent to 1.2 percent.

Q. Are there any further additions or corrections to Exhibit 36?

A. No, there are not.

Q. If I ask you the questions contained in Exhibits 18 and 36 as now amended, would you give those answers?

A. Yes, I would.

MR. WELK: I move for the admission of Applicants' Exhibits 18 and 36.

MR. O'NEILL: No objection.

MS. STUEVE: No objection.

MS. CREMER: Staff has no objection.

MR. SMITH: Applicants' Exhibits 18 and 36 are admitted.

EXHIBITS:

(Applicants' Exhibit Nos. 18 and 36 received into evidence.)

Q. (BY MR. WELK) Mr. Lee, would you please summarize your testimony?

A. First I'll give a little background on myself and Barr Engineering. I have a bachelor --

Q. Wait till she gets it up.

A. Thank you. I have a bachelors of science degree in civil engineering from Iowa State University that I earned in 1979. I'm currently vice-president of Barr Engineering Company. I have over 26 years of experience providing environmental and engineering services to the power industry. I have worked on site permitting issues for seven power plants in Minnesota and South Dakota since 1998.

Barr Engineering Company provides engineering, environmental and information technology services to clients

across the nation and around the world. Barr was incorporated as an employee-owned firm in 1966 and we trace our origins to the early 1900s. Barr employs over 300 engineers, scientists and technical support staff in five offices, three in Minnesota, one in Michigan and one in Missouri. We serve clients in the power, mining, refining, and other natural resource industries, as well as all levels of government.

On the Big Stone II project, Barr has assisted with the preparation of the siting permit application. I have served as Barr's project manager and principal in charge. Other key staff from Barr who worked on the application were Daniel Jones, an environmental scientist; Tina Pint, geologist; and Andrew Skoglund, accoustical engineer. All three of those folks have provided direct testimony in this matter.

Barr's work on this application started with data collection and analysis of the plant site and the immediate vicinity. We looked at terrain, soils, geology, hydrogeology, surface waters, wetlands, vegetation, wildlife, land use, transportation infrastructure, traffic, national, state, regional and local parks, scenic areas and management areas and similarly-designated significant resources, population and demographic information, and archaeological, historical and architectural resources.

Barr also completed several site visits as part of the preparation of the application. On those visits we identified

wetlands, verified surface water drainage patterns, reviewed and photo documented resources identified in the vicinity of the plant through our inquiry to the South Dakota Historical Society, and we performed a general field survey of natural resources present at the site.

As part of our work on the application, Barr also reviewed information and work product prepared by others, including the seven project applicants, Burns & McDonnell, the 106 group, Stuefen Research and Business Research Bureau and the First District Association of Regional Governments.

The summary of my testimony is that the existing and potential issues have been adequately addressed with regard to the environment, hydrology and the community. And that no material adverse effects will occur by constructing and operating Big Stone II.

Regarding water use and sources, Big Stone II plant will appropriate up to an additional 10,000 acre feet of water per year from Big Stone Lake. This is in addition to the current authorized maximum withdrawal of 8,000 acre feet per year. Current appropriations prohibit summertime withdrawals from Big Stone Lake when the level drops below elevation 967 feet above mean sea level.

Barr prepared a water use model that evaluated the effects of additional Big Stone II appropriation over a 70-year period. The model assumed the current diversion restrictions

will be maintained going forward. The model also assumed that the existing pond would have -- would provide storage for about 8,000 acre feet of water and that a proposed new water makeup pond with approximately 10,000 acre feet of storage would be available.

We used that model to look at Big Stone Lake level impacts. The model shows that the Big Stone Lake levels depend mainly on precipitation amounts and that the Big Stone plant appropriations are not the primary influence on lake levels because of the diversion restrictions that will be maintained. The additional Big Stone II appropriations will result in an average two and a half inch decrease in Big Stone Lake levels over the 70-year study period according to our model.

The same water use model was used to assess the effect on the Minnesota river flows from the additional Big Stone II appropriations. Again, the diversion restrictions limit the appropriation impacts on river flows. The model indicates that there will be no significant effect on Minnesota river flows from the additional Big Stone II appropriations over the 70-year study period.

As part of the application preparation we also evaluated community impacts. We looked at impacts from the project to roadways, parking, railroad traffic, health services and facilities, recreation, public safety, schools, population and demographics. The community impact evaluation was based on

surveys of area governmental agencies and businesses. Those surveys of agencies and businesses were completed by the First District Association of Regional Governments and provided to Barr. The conclusion of that evaluation is that impacts to the community are expected to be not significant or positive.

Q. (BY MR. WELK) Does that conclude your summary?

A. That does conclude my summary.

MR. WELK: I would tender the witness for cross-examination.

MR. SMITH: MCEA, please proceed.

CROSS-EXAMINATION

BY MR. O'NEILL:

Q. Thank you Mr. Smith. Good morning, Mr. Lee.

A. Good morning.

Q. Mr. Lee, if you can turn to your direct testimony, page 8, lines 9 through 11, and my question to you in reading that, you reference that additional appropriation is needed to adequately supply the Big Stone Unit I and II with water during periods of extended drought. My question to you, what are you referring to when you write "periods of extended drought"?

A. We looked at a history record of climatological data over a 70-year period as I mentioned in my summary. Within that 70-year record, historical record, there were various periods of drought that then were accounted for in our model. We worked with the model to size the new proposed water makeup

storage pond and to come up with a size, the 10,000 acre feet of additional storage, that would provide adequate storage to cover most of those historical drought periods.

Q. Did Big Stone I, was the construction completed in 1975?

A. I believe so.

Q. And shortly thereafter, was there a drought in the late seventies that caused the Big Stone I to request a reserve requirement to be withdrawn from Big Stone Lake?

A. I don't recall the exact dates or details, but yes, I think there was at least one, I think two occurrences where there were emergency appropriations requested.

Q. Okay. So if I'm looking at some documents that show emergency appropriation requests in 1976 and 1977, you are familiar with those two?

A. Yes.

Q. Then there were similarly two emergency appropriation requests in the late eighties because of another period of drought; is that true?

A. I believe so. I'd have to look at my notes to be sure of the dates.

Q. If I told you there was two requests in the late eighties, October 11th, 1988 and one on May 1st, 1989, would you have any reason to dispute that?

A. No.

Q. Why this is significant is that there could be another drought period and there would be a similar need for the ability of Big Stone to draw on the reserves of the lake; is that true?

A. I guess that's possible, yes.

Q. All right. On page 11 of your testimony, referring you to lines 1 and 2.

MR. WELK: Is this still on the direct, counsel?

MR. O'NEILL: Yes. Sorry.

VICE-CHAIR JOHNSON: What page, I'm sorry.

MR. O'NEILL: Page 11 of the direct testimony, lines 1 and 2.

Q. (BY MR. O'NEILL) You reference a permit application and to try and insure that there's no significant adverse effect that is expected. Are you referring to a permit application with both South Dakota and Minnesota?

A. I'm not sure what permit application you are referring to, could you be more specific?

Q. I'm sorry. If you turn to page 11 and water -- I was reading -- I'm sorry, I was reading another passage. But the passage I'm questioning now, water withdrawals from Big Stone Lake would not exceed state-permitted volumes, and my question to you is, is that both South Dakota and Minnesota state-permitted volumes? This is page 11, lines 1 and 2, I'm sorry.

A. The current Big Stone appropriations permit is with the State of South Dakota. They do not have a Minnesota appropriations permit and the proposed new permit, the application was submitted to the State of South Dakota.

Q. And what is your intention with regard to the State of Minnesota?

A. And again, I'm not familiar with the detailed history, but -- or don't recall the detailed history, but the State of Minnesota, there is a joint powers agreement on the Big Stone Lake that the agreement does not require that this appropriation get a State of Minnesota appropriations permit.

Q. What are the alternatives that Big Stone is going to consider if there is a drought and if the lake reserve requirement is something that you cannot access?

A. I think there are two basic alternatives. One is to look for other sources of water, potentially groundwater. The other is to not operate the plant.

Q. And were you to look at groundwater, who would that affect? Where would you try and obtain this groundwater?

A. In the hypothetical, it's difficult to answer that, but presumably as close to the plant as possible from an economic standpoint.

Q. And I understand that, I'm just wondering if you can provide me with is this industrial users, is it farmers, is it -- who is in your likelihood of potential sources of

groundwater?

A. Well, the source of groundwater would be likely a regional aquifer, which may have multiple users. We have not looked in detail at what the -- select a particular aquifer that would be economically feasible. So it's difficult to answer that question directly.

Q. What, if any, effects will there be downstream from Big Lake if there is a drawing of the reserve from the lake on recreational use?

A. I'm not sure what you are referring to when you refer to the reserve, lake reserve. The current permit and the assumed same provisions will be -- are assumed to be carried forward in the new permit, would restrict diversion from the lake during periods when the lake level drops below a certain level, 967 project datum. So I assume you're referring to an emergency appropriation below that.

Q. Yes, I am.

A. We have not -- we are not planning to do such an emergency appropriation and so we have not looked at specifically what those impacts might be, but would likely be required to do so at that time.

Q. Right, and would there then be potential effects on recreational use at let's say I think it's Lac qui Parle?

A. Lac Qui Parle. I don't know enough about that, the operation of that facility to answer that.

Q. Do you understand that to be a major economic or recreational resource of the state?

A. Right. I would like to make the point, however, though that below that elevation 967 when we are restricted from withdrawing water from Big Stone Lake, that is the normal overflow level for the dam so there would be no discharges if the lake is below that level over the dam (brief pause. )

Q. Mr. Lee, when you had stated that you are not presently planning on any droughts, would you agree that there similarly wouldn't have been any planning for any drought when Big Stone I was constructed in 1975?

A. I didn't say we weren't planning for any droughts. I said we are not planning for any emergency appropriations. There will be droughts and the relative severity will determine on how the plant operates. The new storage pond, as I mentioned, was sized to accommodate plant operations, both units, through most drought periods that we have experienced over the last 70 years, with the exception of the extreme drought we saw in the 1930s.

Q. On page 11, down near the end on lines 21 and 22, you talk about this 70-year model that you had constructed and that the effect of the lake one foot lower during a nonconsecutive week and one foot lower during one two-week period of the 70-year model period.

A. Yes.

Q. Do you recall that testimony?

A. Yes.

Q. Do you know if such a one-foot drop complies with the operating agreement with the Minnesota DENR?

A. Well, the operating agreement is essentially addressed in the appropriations permit diversion restrictions, at least as they affect the appropriations for the Big Stone plant. So the restriction, like I said, once the lake level drops below that 967 in the summer months, no further appropriations can be taken. That doesn't mean that the lake might drop further because of other reasons, evaporation and so forth, but the intent is that the appropriations restrictions do comply with that operating plan.

Q. And if the water level did drop below that 976 during the summer months, there wouldn't be an ability to draw additional water from Big Stone Lake for the plant, then, at that time; is that true?

A. That's correct.

Q. And then the options would be to either not operate the plant or to try and access groundwater.

A. Or actually, the more common option will be to withdraw water from the makeup storage pond, which is being constructed for that very reason, is to store water, obtain water during periods when there is sufficient flow over the dam at Big Stone Lake, store that in the water makeup storage pond

and then draw upon that during periods when we cannot withdraw it directly from the lake.

Q. If that was not accessible, then we would be at the groundwater potential solution?

A. Right. But our model has indicated that 60-plus years out of the last 70 we would have had adequate water storage in the makeup storage pond.

MR. O'NEILL: Nothing further at this time.

MR. SMITH: Ms. Stueve?

CROSS-EXAMINATION

BY MS. STUEVE:

Q. Thank you. Good morning.

A. Good morning.

Q. I'm going to follow up on some of the questions presented. First, I'd like to ask you, you mentioned in your summary that long list of things you looked at, wetlands, land use, transportation. In your review, did you look at economic development plans, particular economic development plans?

A. The application addresses economic development, economic impacts. Those will be addressed by Randy Stuefen, I believe, in his testimony.

Q. Okay. Economic development impacts, for example, real estate development plans, lakeshore property?

A. Well, I guess Randy can address more of that, but we did look at impacts on real estate as a result of additional

residents but not -- I was not involved in any direct looking at impacts to property values, for instance, as you are referring to on the lake.

Q. Okay.

A. I'm not sure whether Stuefen had addressed that or not. I don't recall.

Q. Okay. I'll check with him. I believe he has yet to come, right? Would you agree with me that a one-foot drop on the lake could impact development plans for lakeshore property?

MR. WELK: Objection, insufficient foundation.

MS. STUEVE: Okay.

Q. (BY MS. STUEVE) In your testimony, I'm looking at Applicants' Exhibit 36, so it would be the prefiled rebuttal testimony, lines 4, 5 and 6.

MR. WELK: Which page was that?

MS. STUEVE: Page 5.

Q. (BY MS. STUEVE) We have a figure on the top and it says lake level reductions generally are modeled at less than six inches and only a handful of times are lake level reductions modeled to be greater than 12 inches. Question, did your model take into account and your resulting conclusions the depth of Big Stone Lake?

A. The change in surface water level is what we looked at. We didn't directly look at that as, say, a percentage of depth, but we could -- that would be -- we could calculate that

but we did not specifically do that.

Q. Are you aware that Big Stone Lake is a shallow lake, with much of the areas around the per -- it's 27 miles long, more or less, 27 to 30 miles, and much of the area around the edges five- to seven-feet deep. Are you aware of that?

A. I'm aware of the configuration of the lake, yes.

Q. And I will find out if there's an objection. Would a one-foot drop make a difference with this configuration of Big Stone Lake being shallow as compared to a deeper lake?

A. I'm not sure I understand the question. Could you be more specific?

Q. For example, if you are taking a water -- you have done different power plants.

A. Uh-huh.

Q. Water appropriations?

A. Yes.

Q. Do you have any examples where water appropriations were drawn in some of the studies you have done from a deep lake, a lake different from Big Stone Lake?

A. Yes, I've worked on appropriations from lakes deeper than Big Stone, yes.

Q. And have you worked on any appropriations from shallow lakes similar to Big Stone Lake?

A. Not that I recall.

Q. So you don't have something to draw from in your

experience as far as what the resulting analysis or an outcome could be on a shallow lake?

A. I'm not sure what outcomes you are referring to.

Q. For example, that there would be no adverse -- it was up on the slide or in your testimony, no adverse impact.

A. One thing to keep in mind, we looked at the incremental effects. If you look at that same Figure A that's in the rebuttal testimony on page 5, you can see that -- it's difficult to see when it's not in color, but there's two lines there and they are almost right on top of each other, that's why it's difficult to discern and that's the difference between with and without the appropriation for Big Stone II, is the two different lines.

Now, but you can see that even there's huge fluctuations in the lake level even without Big Stone II, so the lake fluctuates and would be expected in the future to fluctuate widely without the appropriation from Big Stone Lake. So the incremental effect, the additional effect from this appropriation is not significantly different than the fluctuations we see without that appropriation.

Q. Uh-huh. You mentioned also that current license prohibits summertime withdrawals below 967 feet.

A. Yes.

Q. Does the current license also restrict wintertime withdrawal or is that unlimited?

A. No, I just didn't mention that because it's a little more complicated. There are limited withdrawals allowed in the winter months, but greatly reduced from when the lake is above elevation 967.

Q. So it has -- I just want to make sure I understand this clearly. In the wintertime it also has to be at 967 before you can withdraw.

A. No, between elevation -- for instance, between 966 and 967, there is an allowable withdrawal, and I can't recall the exact volume, but it's significantly reduced from what is available to be withdrawn when the elevation is above 967.

Q. Okay. So the wintertime withdrawal is not permitted below 966?

A. No, then there's another step between 965 and 966. There's even a more restricted appropriation available.

Q. When you say "more restricted."

A. Well, above 967 in the summer or the winter, I think the allowable withdrawal is 110 cubic feet per second, and I believe -- take a moment, let me look in my testimony. I don't have it here. It's not in there.

Q. I guess I don't mean to make you search for the numbers, but just in brief what's the lowest point where in the wintertime you cannot draw down? Is there a low point?

A. Yes, I believe it's elevation 965 there can be no withdrawals in the winter.

Q. So summer is 967, winter is 965?

A. That's correct, I believe.

Q. Unless there is an emergency.

A. If there is an emergency, then we have to go to the water board and ask for emergency appropriation.

Q. South Dakota?

A. Yes.

Q. Was there a reason why a 70-year historical record was selected versus, for example, a 100-year?

A. Seventy was selected because that was the most reliable and complete period for gathering climatological data. Prior to that 70-year period there was limited information that we could use in our model.

Q. Okay. So we don't know whether it would be skewed one way or the other beyond the 70 year because of limited information?

A. No, we didn't look beyond the 70-year period.

Q. Have you studied Big Stone County extensively or specifically just Big Stone Lake here in this project?

A. We looked primarily at Big Stone Lake and tributary areas to it.

Q. Were you aware that in shallower lakes in Big Stone County in the 1930s some lakes actually dried up?

A. I wasn't aware of that specifically, but again we looked at --

Q. Big Stone specifically.

A. Right.

Q. And you had mentioned you had backup plans for a water source, if I wrote this down right, maybe regional aquifer.

A. We have no specific plans, but we know where we can -- what our options are, alternatives are and those would be looking for groundwater sources, other surface water sources, but as I stated, the primary source would be the stored water that is appropriated and stored for future use.

Q. Are you familiar with River Warren as an underground water source?

A. I don't recall that.

Q. And do you know if Ortonville, City of Ortonville gets its drinking water supply from underground water source River Warren?

A. I don't know that. I don't recall.

Q. Would that be -- come into analysis looking at an underground source?

A. Presumably if we looked at a groundwater source, we would be looking at what the potential impacts would be from additional appropriations from that source.

MS. STUEVE: Thank you. No further questions at this time.

MR. SMITH: Staff?

CROSS-EXAMINATION

BY MS. CREMER:

Q. Good morning.

A. Hi.

Q. In Exhibit 18, page 17, then if you look at lines, it starts on line 13 about the number of trains that pass through Milbank, do you see it?

A. Yes.

Q. And just that last statement there, that paragraph the overpass and underpass system in Milbank mitigates any train transportation impacts. My question is, what about other towns? Did you look at those for impacts?

A. I do not recall what the extent of our -- where we looked. The fact that we mention specifically Milbank I think is because of the closest community, but I don't recall if we looked at other towns specifically.

MS. CREMER: Okay. That's all I have, thank you.

MR. SMITH: Redirect?

MR. WELK: Is there questions from the commissioners?

MR. SMITH: I'm sorry, commissioner questions, excuse me.

EXAMINATION

BY VICE-CHAIR JOHNSON:

Q. On the rebuttal testimony on page 6, we have already talked a bit about this chart, but it shows the lake level with additional appropriations and those -- and the lake level

without additional appropriation. I was surprised by how often for extended periods of time in the past that the lake level has fallen below that benchmark level of 967.

A. Be careful on that, that graph does not show what has happened historically, it shows what would happen if we had the same climatological conditions that we had during that 70-year period and we were withdrawing to meet the needs of both Big Stone I and II.

Q. Yeah, good correction. Absolutely. If memory serves, the application explained that the on-site water storage would be enough for about a year; is that right?

A. Yes. Well, a year, equivalent to a year's appropriation, and actually the on-site storage will be approximately 18,000 acre feet. In a typical year we expect the consumptive use of water, water that will evaporate on the order of 11,700 acre feet. That's in a typical year. If we had two typical years we would have about a year and a half worth of water storage. The reason we have additional is to address those nontypical years or a series of nontypical years.

Q. I may have missed it, if I have I apologize, but looking through your testimony, I didn't see any analysis of how often we could expect the Big Stone II partners to have to go out and secure groundwater or secure other sources of water.

A. Well, we didn't explicitly address that. However, what we do show in the application and to maybe less detail in

the testimony is that with the additional storage that is proposed, the additional makeup storage pond, like I said, we can accommodate water needs for the plant essentially indefinitely as long as we don't have a drought period similar to the thirties. So what we did is we looked at the 70-year period, said it's not cost effective to add storage to address the thirties but we will try to address everything but the thirties.

Q. You said that was in the application?

A. Yes.

Q. Do you remember where?

A. No.

MR. WELK: It's Exhibit 54 I think is the application.

A. That's better. We address the water use in --

Q. (BY VICE-CHAIR JOHNSON) Section 2?

A. Well, the physical description of how we are using water, but the impacts are addressed in Section 4, starting on page 84.

Q. On page 85 the worst effect is predicted to be in one year out of a 70-year period the lake level would be one foot lower.

A. Well, I think it's the first full paragraph on page 85 where we address that the new makeup storage pond, storage capacity of approximately 9,000, which has changed slightly since this was published, that the 15,300 acre feet of makeup

storage, which again has increased, will provide sufficient storage for capacity through extended drought periods. I guess we don't define that explicitly there. However, in the supporting documentation, the appendices where we describe the model, we go into more detail on how that pond was sized. So it's not in the body of here but it is in the. . .

Q. So what was an extended drought period?

A. Well, the -- I believe the thirties had a drought where we had significantly lower than average precipitation for I think seven out of nine years. So that is the most extreme drought that we have experienced in the Midwest in the last 70 years. There have been subsequent drought dry periods and as I mentioned, the storage capacity is designed to accommodate or will accommodate based on our model all those other drought periods without any emergency appropriation required.

Q. And I have looked and it may be I can't find it but I'm not finding any description of what kind of an event is this. Is an extended drought that would affect the project in the way we are discussing, is it a 100-year event, is that a 200-year event?

A. Well, we didn't describe it in that probabilistic way because of the difficulty in defining that, so what we did is we looked at -- we took the different approach of looking at the 70 years of history and essentially overlaid the operation of a plant over that 70-year history, so our conclusion is that

if we had the same weather pattern, same conditions for the next 70 years that we had for the last 70 we could accommodate, we could operate the plant for that whole 70-year period except for I think a couple years when we had a drought similar to the thirties.

Q. So the thirties, seven year below average precipitation out of a nine-year period?

A. I believe that's a summary of that, yeah.

Q. At what point would this project have gotten, needed to find other sources of water under that kind of historical scenario? Is that year four, is that year five, what did the model show as far as what's the threshold?

A. Well, we did a much more rigorous presentation of the model in the water appropriations permit application and I think that may be what is causing confusion on recalling some of that, but in that application we do show some graphics that would show what specific time periods our makeup storage pond and all our water storage would be dry and that would probably be what you are looking for, I guess, and I don't know that -- we didn't include that in this application.

Q. I apologize, you've got to try to explain these water issues to a nonengineer. Thanks very much. Do you happen to recall, it's certainly subject to check, but can you give me some idea of when that would have been a problem?

A. Oh, yeah, I think in, for instance, we started our

model in the thirties, so in the first -- I don't know, the first three or four years started the drought in I think '32, but within about two years, I think it was in the mid-thirties where we would have had difficulties with water supply in our model. And then apparently we had two wet years out of those nine and then there was water back in our ponds according to our model and then again it dried out. So there was two distinct periods where that would have occurred and I don't recall the exact number of weeks, but our model was set up on a week time step, so we always speak about weeks of when we would have a shortage of water.

VICE-CHAIR JOHNSON: Thanks very much, Mr. Lee. That's all I have.

MR. SMITH: Do any of the other commissioners have questions?

COMMISSIONER HANSON: No, I don't.

CHAIRMAN SAHR: No, I don't.

MR. SMITH: Have you guys -- I have a question.

EXAMINATION

BY MR. SMITH:

Q. Are there any facilities such as rural water systems or the like that are in that vicinity that you have explored as maybe partnering with for these rare occurrences?

A. Well, there is a rural water district that actually provides potable water to the Big Stone, I believe, currently

and that will be utilized for potable water for the workers at the plant. But they don't have the sufficient capacity to meet these types of water needs.

MR. SMITH: Thank you. Are you ready to go with redirect?

MR. WELK: I have no further redirect.

MR. SMITH: Then I think you are excused. Can I ask the applicants, who's your next witness?

MR. MADSEN: Mr. Smith, Andrew Skoglund will be our next witness. He's the engineer from Barr who dealt with the noise issues.

MR. SMITH: My guess is the commissioners may have some questions and stuff about that. Would it be better if we took our lunch break now or would you want to plow ahead, commissioners, and take Mr. Skoglund. He's the noise expert.

COMMISSIONER HANSON: Doesn't matter to me.

CHAIRMAN SAHR: Doesn't matter to me.

VICE-CHAIR JOHNSON: How long will Mr. Skoglund take?

MR. SMITH: How long do you think he will take?

MR. MADSEN: It should be a fairly brief presentation given that we are dealing with a very narrow scope of issues.

MR. SMITH: Let's start him and do the presentation and then we'll decide. How's that?

MR. MADSEN: That's perfectly fine, Mr. Smith. Applicant calls Andrew Skoglund.

Thereupon,

ANDREW SKOGLUND,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. MADSEN:

Q. Mr. Skoglund, would you state your name for the record, please?

A. Andrew Skoglund.

Q. And how are you employed, sir?

A. I'm employed at Barr Engineering, Minneapolis, Minnesota.

Q. What was your role with regard to investigation for the Big Stone II project?

A. I performed both noise monitoring of the existing site and also modeling to project the future impacts of the Big Stone II plant.

Q. Mr. Skoglund, if you open the file there, I believe you will find marked before you Applicants' Exhibit No. 20 and Applicants' Exhibit No. 38. Do you see those there?

A. I do.

Q. Let's start with Applicants' Exhibit 20. What is that?

A. That is my direct testimony.

Q. And Applicants' Exhibit 38?

A. My rebuttal testimony.

Q. These two exhibits, Mr. Skoglund, did you prepare them or cause them to be prepared?

A. I did.

Q. Are there any corrections that need to be made to either Exhibit 20 or Applicants' Exhibit 38 at this time?

A. No, there are not.

Q. And if you were called upon to answer each of the questions today, Mr. Skoglund, that are set forth in the testimony, Exhibits 20 and 38, would you give the same answers today?

A. I would.

MR. MADSEN: Mr. Chairman, Mr. Smith, the applicant moves for admission of Exhibits 20 and 38.

MR. SMITH: Objections? Hearing none, Exhibits Applicants' 20 and 38 are admitted.

EXHIBITS:

(Applicants' Exhibit Nos. 20 and 38 received into evidence.)

Q. (BY MR. MADSEN) Mr. Skoglund, have you prepared a summary of your testimony that includes your background and the conclusions from your testimony?

A. I have.

Q. And would you please present that to the commissioners at this time?

A. Yes. I received a bachelors of science from -- engineering science from Iowa State University in 2004. I am now employed as an acoustic engineer at Barr Engineering Company. I have done work for Xcel Energy and the City of Inver Grove Heights for various noise monitoring and modeling scenarios.

With regard to my work on this project, I performed both noise monitoring at four locations around the proposed Big Stone II site and also modeled the impacts from the Big Stone II. The overall noise impact that we projected with our modeling was expected to be imperceptible at the nearest residential location.

Q. Mr. Skoglund, I'm going to have Ms. Daniels pull up Exhibit No. 36-I, Applicants' Exhibit 36-I. Perhaps a little bit of glare, but Mr. Skoglund, this is Exhibit 36-I and could you use this to show the commissioners where the Big Stone site is and where the noise monitoring sites were where you took your readings to conduct your investigation?

A. Yes. The existing Big Stone I plant as well as the proposed site for Big Stone II is right about where the black number three appears to the southwest of the evaporation pond. If you look at where there's kind of a T formed by the walls there, at the base of that T is roughly where the plant is.

The noise monitoring sites are labeled as NMS 1 through 4. Noise Monitoring Site 1 is to the north of the

facility at the intersection of 484th Avenue and 143rd Street. The monitor was set up slightly to the south of that intersection. Noise Monitoring Site 2 was right across the street to the west of the ethanol plant, that is slightly north -- the northwest quadrant of 484th Avenue and 144th Street immediately adjacent to the cooling tower of the ethanol plant. Noise Monitoring Site 3 was to the southwest of the facility along similar line out from Noise Monitoring Site 2 west of 484th Avenue about 2,000 feet north of 145th Street slightly north of the nearest residential receptor, there is a farmstead just south of that monitoring site. Location 4 was to the east over near Big Stone city at the intersection of 144th Street and 109th -- excuse me, 109, Highway 109.

Q. Does that conclude your summary, Mr. Skoglund?

A. That concludes my summary.

MR. MADSEN: Mr. Smith, we would tender Mr. Skoglund for cross-examination at this time.

MR. SMITH: MCEA, do you have any cross-examination?

MR. O'NEILL: No.

MR. SMITH: Ms. Stueve?

MS. STUEVE: No.

MS. CREMER: Staff does not, thank you.

MR. SMITH: Do the commissioners have any questions?

VICE-CHAIR JOHNSON: Not unless he wants to answer something about the ACDC tie.

MR. SMITH: Would you like to do that? (Laughter)

MR. SMITH: You are excused. (Brief pause.) Why don't we -- do you want to start another witness or is this a good time to take our lunch break?

MR. WELK: Mr. Stuefen is here. I don't know if he's going to be very long.

MR. SMITH: Why don't we do it, then. Why don't we call your next witness, please.

MR. MADSEN: Thank you, Mr. Smith. Applicant calls Randall Stuefen.

Thereupon,

RANDALL STUEFEN,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. MADSEN:

Q. Mr. Stuefen, would you state your name for the record, please, and spell your last name for the benefit of the court reporter?

A. Randall Stuefen, I go by the name of Randy more often than Randall, my spelling is Stuefen, S-T-U-E-F-E-N.

Q. Mr. Stuefen, before you, I believe just there to your right, are Applicants' Exhibits 26 and Applicants' Exhibit 40. Do you have those there?

A. Yes, I do.

Q. And what is Applicants' Exhibit 26?

A. I have economic impact highlights of Big Stone II power plant construction as 26-B. 26-A is leading sector estimates of employment impacts in four-county area. And I don't see the exhibit number on this, I assume this is 26.

Q. It should be on the cover page on the upper right-hand corner.

A. Yes, and this is, let's see --

Q. Is it up here?

A. It's my direct testimony on my economic impact.

Q. So just so we are clear, Applicants' Exhibit 26 is your direct testimony and then also attached to that is Applicants' Exhibits 26-A and 26-B?

A. Correct.

Q. With regard to Exhibits 26, 26-A and 26-B, did you prepare these or cause these exhibits to be prepared?

A. Yes, I did.

Q. And with regard to the questions, Mr. Stuefen, contained in Applicants' Exhibit No. 26, if you were called upon to answer each and every question today, would you give the same responses?

A. As it was amended.

Q. And as amended where, sir?

A. The addendum, I believe it's in C.

Q. I don't have a C. Do you mean with regard to your

rebuttal testimony?

A. Yes.

Q. We haven't gone through that yet, but first of all with regard just to 26, just the direct testimony, if you were called upon to answer those questions today, would the answers be the same as are set forth in the exhibit?

A. Except as corrected later on, yes.

Q. In Exhibit 40 you mean?

A. Yes.

MR. MADSEN: Applicant moves for the admission of Exhibits 26, 26-A and 26-B.

MR. O'NEILL: No objection.

MR. SMITH: Hearing no objections, 26, 26-A and 26-B are admitted.

EXHIBITS:

(Applicants' Exhibit Nos. 26, 26-A and 26-B received into evidence.)

Q. (BY MR. MADSEN) Let's cover 40, Mr. Stuefen. Do you also have before you Applicants' Exhibit 40, your rebuttal testimony?

A. Yes, I do.

Q. Mr. Stuefen, did you prepare or cause Exhibit 40 to be prepared?

A. Yes, I did.

Q. If called upon to give the answers, answers to the

questions that are set forth in Applicants' Exhibit 40, would you give the same answers today?

A. Yes, I would.

MR. MADSEN: I move for the admission of Applicants' Exhibit 40.

MR. SMITH: Objections? Hearing none, Applicants' 40 is received.

EXHIBITS:

(Applicants' Exhibit No. 40 received into evidence.)

Q. (BY MR. MADSEN) Mr. Stuefen, have you prepared a summary of your testimony that has been prepared for this docket?

A. Yes, I have.

Q. And would you give that to the commission at this time, please, and with your summary, please outline a bit of your educational background and experience.

A. I'm Randy Stuefen, I graduated with a bachelor of science degree in economics from South Dakota State University in the mid-seventies. Later in the seventies I worked on and earned my master's degree in economics in 1980. Following my time at South Dakota State University, I came to Pierre where I worked as the tax analyst for the South Dakota legislature for a few years and finished my time here in Pierre as the chief fiscal analyst to the appropriations committee. Prior to leaving here and going to the University of South Dakota, where

I was employed by the Business Research Bureau and also given academic status there at the university. I spent from 1983 in the fall until December 19 -- 2004 at the university and retired from there with early retirement and now hold the rank of professor emeritus at the University of South Dakota.

Q. Thank you. And if you would tell us, summarize your testimony for us, please, Mr. Stuefen.

A. The general model inputs, that information that was taken from Burns & McDonnell showed that -- and information I received from the Otter Tail Power Company shows that the project will take place between April 2007 and April 2011, approximately. The total project cost is estimated to be about $1 billion. Calculations that were provided to me show it to be a little less than that. Direct construction costs are estimated to be approximately $531.7 million. The difference between the $1 billion and the $531.7 million are procurement costs for machinery that goes into the plant that will be purchased from out of state and brought in assembled, just to be installed and owners' costs. And item by item those things that are included and excluded are listed in my testimony.

On the next page, local four-county benefit during construction, these are in 2008 dollars. It is estimated that the local impact of the $531.7 million project will be $672.8 million when one considers both the direct, indirect and the induced impact associated with the project in the four-county

area. Local job growth, it's estimated there will be 2,550 full-time-equivalent positions on site during construction and there will be another 1,844 jobs created indirectly by purchasing services from businesses within the four-county area and then by induced spending, that's where those people that are working on the project spend money in the communities.

Table 2 shows the breakdown of how we get the 672.7 and the number of jobs that are created both directly, indirectly and in induced fashion. You can see that the average of 1,900 jobs for a period of four years is simply the 4,394 divided by four.

State benefit during construction, that was the four-county benefits, state benefits during construction, larger economy, more inputs can be bought in the region, it's $745.1 million during construction. State job growth is still the 2,550 jobs on site to construct the plant. Indirect numbers increase and there's 2,291 full- and part-time jobs in the communities created throughout the state created by the project. For a total of 4,841. An average of 1,210 per year for four years is the 4,000 on the next slide, 4,841 divided by four. Again, the induced spending is assumed to be 50 percent.

Long-term local benefit, Otter Tail Power provided information that there would be 35 full-time-equivalent employed at the site to operate Big Stone II power plant on an ongoing basis and that 35 full-time positions creates the

equivalent or creates another 26.8 full- and part-time positions in the communities. This is the four-county area. Long-term local impact, economic impact is $3.6 million per year of new income to the four-county area, not including the ongoing contractors' support for plant activities.

That concludes my comments.

MR. MADSEN: Thank you, Mr. Stuefen. At this time applicant would tender Mr. Stuefen for cross-examination.

MR. SMITH: Please proceed.

CROSS-EXAMINATION

BY MR. O'NEILL:

Q. Thank you, Mr. Smith. Good morning, Mr. Stuefen.

A. Good morning.

Q. Mr. Stuefen, just so we can understand maybe some basic economic concepts, if we put this $531 million into another project, we would see some of the same economic benefits that we are seeing as presented through your testimony here today; is that true?

A. Every business activity or transaction activity has an economic impact. The multiplier that would result and the amount of impact that would result from the indirect and induced spending would differ by the activity. But in general terms, there would be the direct expenditure and then there would be the activities that resulted beyond that.

Q. And you have described a direct benefit, an indirect

benefit and an induced benefit; is that true?

A. That's correct.

Q. The direct benefit, does that assume that the contractor who is going to build the power plant is based in South Dakota, because the $531 million is going to that contractor in South Dakota?

A. The way the IMPLAN model works is that the transaction will actually take place on site in the employ of the contractors and activities to build the plant. And so we count that economic activity as having taken place at the plant site.

Q. But for example, if there were a contractor from another state, possibly a neighboring state but not necessarily a neighboring state, would some of the direct benefit of that $531 million possibly go outside the state?

A. The transaction would still take place in the state of South Dakota.

Q. So under your model, whether the project designer is in state or out of state, it's not -- doesn't matter because the project transaction takes place in the state?

A. The project designer was taken out of -- the difference between the $531.7 and the full $1 billion includes the project design, which takes place in Kansas city and so part of the difference between the one billion and the 531.7 million, not included as a direct expenditure for the construction of the plant, is that design.

Q. If the engineer building the plant is not a South Dakota engineering firm or engineering company, would the direct benefit then have to be split among the engineering residents or location?

A. Well, the engineering designers were identified as being out of the area of interest, which is either the four-county area or the state, and because it took place in this case in Kansas, it was excluded from the estimate.

Q. I understand that, but I'm talking about the $531 million, that that gets paid for the engineers constructing the project, true?

A. On-site engineers.

Q. Right. And if those on-site engineers are from a neighboring state, not from South Dakota, wouldn't it then mean that that $531 million would not be staying in the state of South Dakota?

A. That's possible.

Q. Okay. Now, the four-county area that you described, are two of the counties in Minnesota and two of the counties in South Dakota?

A. That's correct.

Q. So some of the benefits that are stated here are benefits to two counties, which also then would parlay into benefits for the state of Minnesota?

A. Correct.

Q. Okay. On page 6 of your testimony, Exhibit 26, there's a 50 percent figure that you use. It is assumed in the impact estimates that 50 percent of the workers will be from outside these areas. Do you recall your testimony in that regard?

A. Yes, I do.

Q. Where did you arrive at that 50 percent figure?

A. As the testimony said, that there was no historical perspective in order to attach the number, there was no local knowledge to improve an estimate, so I arbitrarily selected 50 percent.

Q. Have you worked in construction-related estimation before, construction of power plants first?

A. Not in construction of power plants per se.

MR. O'NEILL: Thank you, that's all the questions I have.

MR. SMITH: Ms. Stueve?

MS. STUEVE: Thank you.

CROSS-EXAMINATION

BY MS. STUEVE:

Q. Good morning.

A. Good morning.

Q. I believe I'm supposed to direct my question to you, you are Mr. Stuefen?

A. I'm Stuefen, yes.

Q. I think I have the right one here. I asked earlier Mr. Lee a question on analysis of economic development plans and in any of the study that you did for this project, did you examine economic impact, for example, or consider -- did you consider economic risk associated with potential adverse impacts in the real estate industry?

A. I did not consider the real estate industry directly.

Q. Did you consider the tourist industry?

A. My assignment was to look at the economic impact of this project going on in terms of this new money arriving in these two areas, whether it be the four-county area or the full state of South Dakota, and estimate what impact those expenditures would have as they made their way through the economy.

So we do consider contributions to the real estate in that people purchase real estate that have jobs and so there is money that flows. If we look at the consumer expenditure survey, we will see money that flows for the purchase of homes and that type of thing. But only from that perspective. We don't look at it from the terms of if the water drops a foot, how will that impact the area in terms of real estate values or something like that.

Q. For future reference or use. So do you know, are you aware of anyone that has looked at that period?

A. I only know that I haven't.

Q. You haven't. Okay. I will have to do some research on that.

MS. STUEVE: No further questions.

MR. SMITH: Staff?

CROSS-EXAMINATION

BY MS. CREMER:

Q. Thank you. Mr. Stuefen, in your multiplier analysis, it calculated the economic impact of Big Stone I -- II, I'm sorry, of Big Stone II on the local community and the state of South Dakota. Did you conduct any estimations or can you give me a ballpark estimate of the economic impact nationwide?

A. No. We do know that just as point of interest, we do know that some of the activity that was taken out of consideration here such as that activity by Burns & McDonnell in Kansas city would show up where it doesn't show up here. We don't know -- I would not know without doing research how much of the machinery is being purchased from Japan versus here in the country, so in terms of procurement, some of those procurement dollars that were excluded would be included in a national study. So there are things that would come in, but maybe not all of the $1 billion.

Q. Right. They will show up somewhere else, though.

A. Could be Japan, it could be wherever, yeah.

Q. Did you read the various testimonies that were filed in this matter, other people's testimony? Have you reviewed

others?

A. Selected ones. Not all of them.

Q. Okay. Did you read Schlissel, which probably isn't even close to the name, and Sommer?

A. I don't recall that one.

Q. I'll ask you the question, but if you don't know, just tell me. In their testimony, they criticized Dr. Denney, staff's expert, and she relied on some of your methodology, and so that's what I'm trying to get here. What the intervenors referred to is Dr. Denney's use of your estimates of the economic impact. They say it was unrealistic and contrary to the common rate-making goal of least-cost service to use -- I think I'm going nowhere here. He thought he asked a bad question this morning, this one is worse.

I'll try this again. In the intervenors' testimony, and again because you haven't read it and I understand that, but you may be able to address the criticism. What they state is the more that Big Stone II co-owners spend on building the proposed plant, the larger the economic benefit for South Dakota, and they say that is unrealistic. Are you following me at all?

A. Well, we do know that larger plants end up costing more, so we could at least agree on that. The measure of how efficient any technology is, whether it's wind or whether it's coal or it's a small coal plant versus a large coal plant, is

what the cost of power is coming out of the plant, and so there are a lot of technology differences, there are a lot of differences in how efficiently plants can be run, but in the end it's a matter of how much does it cost to run the plant and how much does it cost per kilowatt hour and megawatt hour in order to provide electricity, and so I think the best measure in terms of efficiency is what is the cost of power as it leaves the plant.

Q. Why do you use spending as the basis of your economic impact?

A. The IMPLAN model is what we call an input/output model, and so spending is how much did you spend in the construction of the plant. The underlying assumption is that the builders of a plant are profit motivated and that they are looking for at least a reasonable deal, if not the best deal in terms of constructing this plant. And that if -- in order to assemble the plant, you have to spend money on certain activities. I mean, it's like when I talk about multipliers typically I talk about it's like making a cake, you need so much flour, you need butter, you need whatever. You know what you need to put into the formula in order to end up with a cake. These folks, Burns & McDonnell, know what you need to put into the formula in order to come up with a coal-fired power plant, at least they can come pretty close.

And so what you are looking at is if we are going to

end up with a coal-fired power plant, how much is it going to cost us for each element within the mix in order to end up with that facility, and based on the spending what it cost us to build the plant and what the power sells for, we're going to be able to review what the profitability of that plant will be. And so in terms of efficiency, it's the cost of power going out of the plant and in terms of profitability, it's what they receive for the power beyond that cost.

MS. CREMER: That's all I have. Thank you.

MR. SMITH: Commissioners, do you have questions of Mr. Stuefen?

VICE-CHAIR JOHNSON: I do not.

COMMISSIONER HANSON: No, thank you.

MR. SMITH: Mr. Madsen?

MR. MADSEN: No redirect.

MR. O'NEILL: I do have one follow-up question, if I might.

MR. SMITH: Okay.

MR. O'NEILL: It will be one.

MR. SMITH: Do you have an objection to that? Is it follow up resulting from another party's cross?

MR. O'NEILL: In part, yes.

RECROSS-EXAMINATION

BY MR. O'NEILL:

Q. Mr. Stuefen, are you aware of the fact that Black and

Veatch is the construction firm for the power plant?

A. No.

Q. Okay.

MR. O'NEILL: That's all I have.

MS. STUEVE: I do have one question, too, only one follow-up.

MR. SMITH: Go ahead.

RECROSS-EXAMINATION

BY MS. STUEVE:

Q. Because in response to their questions, you mentioned the importance of inputs, outputs, so would you agree higher prices for inputs, for example, coal delivery, coal prices, could negatively impact economic growth and job creation?

A. I didn't review that for the project.

MS. STUEVE: Okay, that's one question. All right. I said one.

MR. SMITH: Thank you, you are excused. We will take our -- we will go into recess.

(Whereupon, the hearing was in recess at 12:15 p.m., and subsequently reconvened at 1:30 p.m., and the following proceedings were had and entered of record:)

MR. SMITH: It's 1:30, that was the appointed time for coming back into session, which we are now doing. And as I recall, we had concluded the testimony of Mr. Stuefen, and applicants, you may call your next witness. Just a sec, before

we do that, I have confirmed with Tina that we will call Mr. Gaige at 8:30 in the morning, unless I hear an objection from the other parties here.

MR. GUERRERO: Do you have his phone number?

MR. SMITH: Yes, I do, we will call him from here and he will be then on the PA system here. Please proceed.

MR. GUERRERO: Thank you, Mr. Hearing examiner. Applicants will call Mr. Robert Brautovich.

Thereupon,

ROBERT BRAUTOVICH,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

MR. GUERRERO: We are calling Mr. Brautovich slightly out of order to accommodate his scheduling needs. We will follow Mr. Brautovich with witnesses from the Burns & McDonnell consulting firm. Then we will go to Mr. Pete Koegel with MAPP and then followed up by Mr. Bryan Morlock and then down the line we will see how far we can get, but we have got several witnesses lined up for this afternoon.

MR. SMITH: Thank you.

DIRECT EXAMINATION

BY MR. GUERRERO:

Q. Mr. Brautovich, could you please state your name for the record, please?

A. Robert Brautovich.

Q. And by whom are you employed?

A. BNSF Railway.

Q. In what capacity?

A. Assistant vice-president of coal marketing for the western U.S.

Q. And what are your job responsibilities as assistant vice-president?

A. I'm responsible for marketing and sales for basically a line that cuts north/south west of the Mississippi River, the three Canadian provinces, Mexico and the Pacific Rim and we are basically charged with growing the Burlington Northern, the BNSF's rail business in particular for coal.

Q. Thank you. What are your -- what is your employment experience for the commission?

A. I have been at BNSF for 14 years and prior to that just in terms of relevance, I was four years with an affiliate of a utility company.

Q. What's your educational experience?

A. I've got a bachelor's degree from Villanova University and an MBA from the University of Houston.

Q. Mr. Brautovich, did you prepare or have cause to be prepared prefiled written testimony in this matter?

A. Yes.

Q. And do you have before you Applicants' Exhibit No. 35?

A. Yes, I do.

Q. It's in the manila folder there. Or maybe you have it.

A. I brought my own copy. Yes, it's right here.

Q. Could you identify Applicants' Exhibit 35 for the commission?

A. Yes.

Q. And is Applicants' Exhibit No. 35 the prefiled rebuttal testimony of Mr. Robert Brautovich?

A. Yes.

Q. Mr. Brautovich, are there any corrections or clarifications that you would like to make to that testimony?

A. No.

Q. If I asked you the same questions today, would your answers be the same?

A. Yes.

MR. GUERRERO: The applicants would move Exhibit No. 35, Applicants' Exhibit No. 35.

MR. SMITH: Is there an objection? Applicants' 35 is received.

EXHIBITS:

(Applicants' Exhibit No. 35 received into evidence.)

Q. (BY MR. GUERRERO) Thank you, Your Honor. Mr. Brautovich, could you provide the commission and counsel for the other side a brief summary of your testimony?

A. Yes. We have got an overview of BNSF Railway. We are

one of seven class one railroads in North America. We operate a system of some 32 main line route miles in 28 states, three Canadian provinces and Mexico. We have got about 40,000 employees and we moved about 259 million tons of coal to various locations around the country and internationally in 2005.

The basic purpose of the testimony was a discussion of current and future rail delivery capabilities for coal. There's been some, in 2005, some well-documented issues that arose with the integrity of the roadbed out in the predominant coal fields that we move coal from, which is the Powder River Basin in Wyoming and Montana. Those problems precipitated some or impeded our ability to get the coal to the marketplace that was needed and we have embarked on some massive programs to improve the delivery and the velocity of the system. In that regard, there were two primary areas that we addressed in our rebuttal testimony and that is the current delivery situation to the Big Stone II power plant and then the future deliveries for the prospective plant out at Big Stone.

With regard to current deliveries, things are improving, the system is generally -- velocity is generally improving and there's been quite a bit of infrastructure investment, locomotive deliveries, and an awful lot of hiring going on, which has helped our delivery pace. For Big Stone in particular, we are adding a set in mid July, and by way of a

set, I mean a set of rail cars. There's two sets of rail cars today that deliver coal and they each deliver a little over a million tons or they had, and with the slow downs we weren't quite making that pace, so mid July a third set of rail cars is going to be introduced and that should more than adequately supply Big Stone with their needs today.

Then with regard to the future, we have tremendous plans both in and around the mining locations in the Powder River Basin. Again just by way of reference, last year about 415 million of the 1.1 billion nationally tons of coal, 415 million were moved by rail out of the Powder River Basin, so it's a very intense, highly densely trafficked area for us, so we have embarked on a massive program of capital investment both at that location and then elsewhere out across our network, where we have seen pinch points at terminals and elsewhere.

2005, and this is expansion capital, the railroad requires about 1.1, $1.2 billion a year in maintenance capital and that's kind of an ongoing cost, a capital expense associated with just keeping the factory operating. And our capital budget for 2005 is going -- or 2006, excuse me, well over two and a half billion dollars with somewhere in the neighborhood of 600 million of that dedicated specifically to improving coal velocity.

Q. Does that conclude your summary?

A. Yes, it does.

MR. GUERRERO: Applicants would tender Mr. Brautovich for questions.

MR. SMITH: MCEA, please proceed.

CROSS-EXAMINATION

BY MS. GOODPASTER:

Q. Good afternoon, Mr. Brautovich. Do any of the rail investments that you discuss in your testimony, the improvements, affect deliveries to the Big Stone site?

A. Yes.

Q. I don't mean the train set addition, but the --

A. Infrastructure?

Q. Infrastructure.

A. Yes, they do.

Q. And which ones are those?

A. We have got -- we actually graded for twelve but we installed six staging tracks east of Donkey Creek, a place called Rozet, in Wyoming, which will serve as a staging area to fleet trains in and out of the mines. There's a 103-mile stretch called the joint line and last year 325 million tons came off the joint line, so as you might imagine, it takes a lot of effort to coordinate it, and when you include or expand into staging areas, what you create is additional capacity to get in and out, velocity improves, more trains are loaded. So we have got six tracks at Rozet, we graded for twelve, we put

those in next year. We had 14 miles of triple track from Reno to mile post 48 installed. We are running over it right now, but all the cutovers aren't finished, which are crossovers to get from one track to the other so you can bring, meander the trains around back and forth.

Q. These that you are describing are big -- they will directly impact the Big Stone site?

A. Yes, they will.

Q. And we have heard testimony that some of the Big Stone co-owners are concerned with the rates that BNSF has been charging and proposes to charge in the future. Would any of the investments you are talking about making, infrastructure investments, reduce rates for the Big Stone co-owners?

A. I really didn't come prepared to get into a discussion about rates here. My testimony was rather specific with regard to capacity. But our charge is to meet our cost of capital and the coal business needs to stand on its own and provide an adequate return for us to continue to invest in the franchise, so I think all of our customer base will participate in helping us make the investments necessary to get coal out to these coal-fired power plants nationally.

Q. And the investments that you were discussing earlier, are those -- you mentioneded that you thought that those would affect the Big Stone site. Is that taking into account expanded coal facilities elsewhere other than the proposed Big

Stone II? There's going to be a lot of growth if you read reports and believe that they all come to be.

A. Yes, coal-fired capacity, yes.

Q. Yeah.

A. Yeah, there was a company called CANAC, it's an engineering firm out of Montreal that was hired and they have done an assessment on the needs to grow in particular the Powder River Basin to 600 million tons, 415 million moved out in 2005. If you look at the EIA studies, EIA is forecasting through 2025 growth out of the Powder River Basin of 215 million tons, I'm sorry, 500 -- a growth of 215 million, yes, that's correct, so the growth out of the Powder River Basin between 2005 and 2025 was 215 million tons. CANAC's engineering work takes the capacity of the joint line up to 600 million tons.

Q. So if I followed the math, we are at 400 something now, adding 200 something and the capacity is 600, so it sounds to me like we are going to be kind of in the same position we are now with the amount of coal increase.

A. No, the joint line today is designed for 350 million tons. We did 325 million last year and that was an engineering study that was done back in 1999. So I mean, you design the factory around the expected growth and of all these power plants that are being named and they are all prospective, you know, they need to happen in order for us to make those kinds

of investments. So I think it's incrementally as each of these plants gets introduced and gets constructed, there will be incremental investments made.

Q. In the past there have been outages of the joint line, at the joint line -- if I'm speaking, using the wrong terms, I apologize -- and presumably those tracks were built to accommodate the capacity of the coal industry or utilities at that time, and yet there was still outages and so there could just as easily be outages in the future, even though the investments have been made to accommodate greater capacity.

MR. GUERRERO: I would object. I ask counsel clarify the question. Are we talking about outages at the power plants along the lines? Would you clarify that for me?

MS. GOODPASTER: Track outages.

A. I don't want this to be misinterpreted, but we have track outages every day. We operate over 33,000 miles. We have floods, hurricanes, snowstorms, tornadoes, washouts. It's very, very difficult to answer that kind of a question just because of the scope of the factory and the scope of what we deal with. Now, if you are talking specifically about the Powder River Basin, there are prospects there for problems. But that's just why you maintain the line, that's why you invest the money. It's impossible to foresee exactly what might occur out into the future.

MS. GOODPASTER: Thank you, I have no questions

further.

MR. SMITH: Thank you. Ms. Stueve, do you have questions of Mr. Brautovich?

MS. STUEVE: Yes, I do.

CROSS-EXAMINATION

BY MS. STUEVE:

Q. Good afternoon, Mr. Brautovich.

A. Good afternoon.

Q. You're welcome. I have Applicants' Exhibit 35 here, your prefiled rebuttal testimony.

A. Uh-huh.

Q. On page two, line five, you have been asked to describe the Powder River Basin.

A. Uh-huh.

Q. And it looks like it's the world's largest single deposit of low sulphur coal. Can you distinguish between that and Montana coal? What would be the difference?

A. The Powder River Basin includes Montana.

Q. So is the Montana coal low sulphur also or is it higher sulphur?

A. Well, each -- the quality of the coals vary even from mine to mine along a 100-mile stretch of the joint line right up into the Campbell sub and on up into Montana off the Big Horn sub. So as that coal was evolved millions of years ago, the quality based on the depth and everything else associated

with it changes and varies even within the same seams.

Q. I'm looking at an update on rail issues at Otter Tail Power Company, April 21st, 2006 presentation to the South Dakota PUC.

MR. GUERRERO: I am going to interrupt for one second. If you are going to ask a question, I would ask if Mr. Brautovich could get a copy.

MS. STUEVE: It will be Stueve Exhibit 1-D.

Q. (BY MS. STUEVE) On the last slide, number 22, bottom right on the last page, I didn't give you time to flip through, but this had to do with the short supply.

A. Uh-huh.

Q. The title bullet it says switch to Montana coal.

A. Uh-huh.

Q. And so would there be a reason why at the bottom bullet it says having committed to taking a limited number of trains of Montana coal as a stop gap measure, but this is not a long-term solution.

A. Uh-huh.

Q. Why would that be?

MR. GUERRERO: Couple of things. Mr. Brautovich, you are going to have to say yes or no rather than uh-huh when you answer a question. I guess I would object to the question based on foundation. This is a document that Otter Tail Power Company has produced, not Mr. Brautovich and the Burlington

Northern.

MR. SMITH: I'm going to sustain that, and Ms. Stueve, if you want to get into that, you are going to have to ask him some questions related to whether he has knowledge about this subject and whether he's frankly competent to offer any form of opinion on that whatsoever. This is an Otter Tail presentation here.

Q. (BY MS. STUEVE) Do you have knowledge of the difference in sulphur, low and high sulphur between the Montana coal and what was previously used?

A. I'm not an expert on coal quality.

Q. Okay. Thank you. Line 10, same page two, Applicants' Exhibit 35 in your prefiled rebuttal, line 10 and 11, combination of low mine and transportation cost has resulted in PRB coal being the lowest cost delivered coal for electric generators. Do you foresee higher mine and transportation costs in the future?

A. Depends on inflation rates and the cost of service and where the market is going. Hard to say.

Q. If safety of mine --

MR. SMITH: Pardon me a minute. Mr. Brautovich, I hate to interrupt you, but could you please move the mike in front.

VICE-CHAIR JOHNSON: Turn your on, Mr. Smith.

MR. SMITH: Excuse me. There's the pot calling the

kettle black. We broadcast this on the Internet and they can't pick it up unless the mike is in front of your head. Thank you.

Q. (BY MS. STUEVE) So it depends, it depends when I asked do you foresee higher mine and transportation cost in the future?

A. Uh-huh.

Q. Would mandated mine improvements in safety affect pricing for coal?

A. You probably should talk to a mining company about that.

Q. Okay. Thank you. Do you foresee the increased demand for coal, and I'm referring to line 11, same exhibit, Applicants' Exhibit 35, page three, where it says --

MR. GUERRERO: Give him a minute to look at it when you direct him to it. Sorry to interrupt but you point him to where you are going to. Page three, line 11, Ms. Stueve?

MS. STUEVE: Yes.

A. Okay.

Q. (BY MS. STUEVE) And the context would be you said over the past few years the price of natural gas has sky rocketed, making gas-fired generation less competitive and sparking increased demand for coal. Will the increased demand for coal affect cost, making coal generation more costly in the future, in your opinion?

MR. GUERRERO: It was two questions.

Q. (BY MS. STUEVE) Do you foresee the increased demand for coal affecting cost?

A. Typically, basic economic supply and demand balances or imbalances affect the prices.

Q. Is that a yes or a no?

A. It's possible.

Q. Possible, okay. If it did affect cost, would it make coal generation more costly?

A. I don't know. You would have to talk to a generator.

Q. Let's go to page five, Applicants' Exhibit 35, page five, lines four through seven. Has the CANAC analysis been completed?

A. Not completely, no.

Q. It's still under way, then?

A. It's under way for the Campbell sub and there's further refinement for the joint line, yes.

Q. So no conclusions have been made yet as far as the question that was proffered on line four, will the railroads be able to handle future growth?

A. Well, the preliminary assessment and the results are in from CANAC, and as a result of those -- that preliminary study, we have already embarked on a well over a $100 million improvement as a result of the preliminary results. What we are doing now is fine tuning, because you can't just look at

track structures, you also have to look at the mines and the way the mines and the railroads interrelate, so that's the next phase of this.

Q. So the study is still continuing, only preliminaries finished?

A. Yes.

Q. Page six, the same exhibit, 35, line five, the question was what will be required to deliver additional coal supplies if a new unit is constructed on the Big Stone site, and the answer on line five, as described earlier, massive amounts of capital are being invested in rail infrastructure around the mines of the PRB, which would be Powder River Basin, correct?

A. Yes.

Q. Massive amounts of capital, are those capital funds secured or the loans?

A. Are they secured?

Q. Well, I better ask another question another way. Where do the amounts of capital come from?

A. From the capital markets.

Q. Capital markets. Will any of the cost to make these improvements be passed on to customers?

A. Yes. That's who pays us to move trains, yes.

MS. STUEVE: Thank you. No further questions.

MR. SMITH: Staff.

CROSS-EXAMINATION

BY MS. CREMER:

Q. Thank you. Good afternoon.

A. Good afternoon.

Q. In your testimony, you talk about joint line derailments; do you recall that? You kind of mention it in a footnote. Can you tell us what the causes of those derailments were or are?

A. There's two in particular that have, at least in our universe have become well-documenteded and well-known, and they happened in May of -- or April of 2005 and one of our trains and one of the Union Pacific trains derailed after some massive rainfalls, which undermined the integrity of the balast that supports the roadbed. So those are the two derailments that precipitated a little more aggressive maintenance program up there to try to improve conditions in case we get that kind of rain again.

Q. Is traffic dust ever an issue for derailments or is that a problem?

A. That was part of the problem that precipitated these, but it's not track dust, I think what you are alluding to is coal dust.

Q. Oh, yeah, that's what I have written, too. I said track dust. I'm sorry. With the increase -- you talk about also in your testimony that there's going to be a number of

more coal-fired power plants located along the route. So my question is, what is it that you guys are going to -- what is BNSF going to do to address the issue of coal dust, if anything?

A. Well, there's three areas that are already being addressed. The first is to make sure the cars, the rail cars that are in service that deliver the coal don't leak. Some have doors, some have tubs underneath. They all have weep holes, so there is the quality of the maintenance programs and the integrity of the construction of the cars. We have elevated our interest and our customers have elevated their inspection and maintenance programs.

Secondly, we changed the configuration of the chutes or the mines actually did so the profile of the coal as it's loaded in a car has changed and basically what happened is we have flattened out the heap. You have got a top cord around the top of the car, the coal typically gets loaded higher than the top of the car and we have changed that heap, it almost -- it looked like a tipi, now it's flattened out a little bit. So that was the second area that we have taken care of.

And then thirdly, there's an ongoing investigation with regard to applying a surfactant or some sort of a topping agent at the mines before the trains leave. So those are the three areas that we have addressed.

MS. CREMER: That's all I have. Thank you.

MR. SMITH: Commissioners, do you have questions of Mr. Brautovich?

EXAMINATION

BY CHAIRMAN SAHR:

Q. I do, and it's probably more out of personal curiosity than anything else. You talked about the possibility for a number of new plants come on line and the ability for upgrades to be made as those become shall I say more likely to actually occur. I'm just curious, what sort of lead time is there between let's say they get the permit here, it's going to be completed in 2011, 2012, when would you start the upgrades necessary to supply the additional coal?

A. It's a lot easier to permit and build track than power plants, as you might imagine. So when we get definitive guidance that a plant has been permitted, we obviously have ongoing discussions with utilities over the transportation if we are involved, associated with coal being delivered to the new plant, and if they have got a four- or five-year time horizon, we can lay a tremendous amount of track and buy locomotives in four or five years, so locomotive lead times are about a year, 18 months. It's the same thing with cars. It's the same thing with rail. So we have got actually a wonderful situation with regard to capacity expansion and coal-fired plants.

Q. So pretty much you can wait until they are just about

ready to break ground or --

A. Absolutely --

Q. -- almost on top of when they would break ground before you start putting your investment, because obviously if something happens, you don't want to strand all that investment.

A. Yes.

CHAIRMAN SAHR: Right. Thank you very much.

MR. SMITH: Additional commissioner questions. Applicants, redirect.

MR. GUERRERO: No, Your Honor.

MR. SMITH: You are excused, Mr. Brautovich. Call your next witness.

MR. GUERRERO: Applicants would call to the stand Mr. Jeff Greig.

Thereupon,

JEFFREY GREIG,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. GUERRERO:

Q. Could you please state your full name for the record?

A. Jeffrey, J-E-F-F-R-E-Y, John, J-O-H-N, Greig, G-R-E-I-G.

Q. Thank you. By whom are you employed?

A. Burns & McDonnell Engineering.

Q. In what capacity?

A. I'm a vice-president and general manager of the business and technology services division.

Q. What are your responsibilities in that position?

A. The business and technology services division is the consulting arm of Burns & McDonnell. We are engaged in utility consulting, including financial planning, cost of service and rate design, resource planning, transmission planning, feasibility studies, siting studies. We also have an information technology consulting group and an energy services consulting group.

Q. What is your employment history or experience?

A. I have 19 years of experience in consulting to the utility industry, six years with the firm of Black and Veatch in Kansas City, and 13 years with Burns & McDonnell.

Q. What's your educational experience?

A. I hold an undergraduate degree in economics and finance from the Eastern Illinois University and a master's degree in economics from Iowa State University.

Q. Mr. Greig, did you prepare or have cause to be prepared testimony in this case?

A. Yes.

Q. And do you have certain documents in front of you?

A. Yes.

Q. Could you identify those documents for the commission?

A. I have a copy of prefiled direct testimony filed as of March 15th, 2006. I have a copy of the Analysis of Base Load Generation Alternatives, a study that was prepared by Burns & McDonnell and as indicated it's Applicants' Exhibit 23-A, and a copy of prefiled rebuttal testimony, my prefiled rebuttal testimony dated June 16th, 2006.

Q. And what is the exhibit number on that?

A. Applicants' Exhibit 51.

Q. What is the exhibit number for your original direct testimony?

A. Exhibit 23.

Q. Mr. Greig, do you have any corrections or clarifications to add or subtract to your testimony?

A. No, I do not.

Q. If I were to ask you the same questions today as that are asked on the prefiled testimony, would your answers be the same?

A. Yes.

MR. GUERRERO: I would move Applicants' Exhibit, along with attachments, 23 and 51.

MR. O'NEILL: No objection.

MR. SMITH: Seeing no objections, Applicants' 23, including exhibits, and 51 are received.

EXHIBITS:

(Applicants' Exhibit Nos. 23 and 51 received into evidence.)

Q. (BY MR. GUERRERO) Mr. Greig, could you provide a summary of your testimony? And I assume your summary will include a little bit of who Burns & McDonnell is.

A. Sure.

Q. Thank you.

A. Burns & McDonnell is primarily an engineering company headquartered in Kansas City. We have approximately 2100 employees in nine operating divisions. We are headquartered in Kansas City. We have eight regional offices around the country and our divisions include a power generation design division, an electrical transmission distribution division, and the business and consulting division that I head up as well as some other divisions that are involved in other types of infrastructure.

Based on some initial planning efforts conducted by Otter Tail Power and some other utilities, they had identified a potential need for additional base load resources to serve their customers and Burns & McDonnell was retained to evaluate different base load generation alternatives and that resulted in two different studies that have been submitted in this proceeding. The first is what's titled the Phase One Report on Big Stone Unit II dated July of 2005, and that is filed as Applicants' Exhibit 24-A and then the second study was the

Analysis of Base Load Generation Alternatives dated September of 2005 and as mentioned, that's Applicants' Exhibit 23-A.

Going through first, the Phase One Report, the part that I managed was an economic evaluation of seven different base load generation alternatives. This included supercritical pulverized coal units of a size of 450 and 600 megawatts, a subcritical pulverized coal unit of 300 megawatts, three different sizes for another coal technology called circulating fluidized bed or CFB technology, ranging in size from 300, 450 and 600 megawatts, as well as a gas-fired combined cycle gas turbine project of the size of 500 megawatts.

The economic evaluation included projected capital and operating costs, performance, emission estimates for each of these different alternatives as well as an overall busbar economic evaluation based on projected financing costs and ownership structures.

This chart is -- comes from the Phase One study in Exhibit 24-A and what it presents is the annual busbar costs of each of these different alternatives, assuming an investor-owned ownership structure, and as you can see from this chart, the costs range from the low end, the lowest alternative was a 600 megawatt pulverized coal unit and the highest cost on this, the two were the 500 megawatt combined cycle gas-fired unit as well as the 300 megawatt pulverized coal unit.

The next chart shows similar results for each of the

same alternatives, but under a public power ownership structure and again the rankings remain relatively the same. The lowest cost alternative for base load generation was a 600 megawatt pulverized coal unit, ranging up to the highest cost alternative was a gas-fired combined cycle unit operated in a base load manner.

The overall conclusions of that Phase One study, there were several. First, that between the technologies of pulverized coal or PC unit had an economic advantage over similarly sized circulating fluidized bed or CFB units, that when you look at different sizes of potential solid fuel units, a 600 megawatt unit had economic advantages over the smaller unit sizes, and that's due to economies of scale in terms of the capital investment and operating costs of the unit. When you compared the 600 megawatt PC unit to a comparable 500 megawatt gas-fired alternative, there were significant economic advantages for the 600 megawatt PC unit. That gives an overview of the Phase One study.

As I mentioned, Burns & McDonnell also conducted a second study dated September of 2005 and that was the Analysis of the Base Load Generation Alternatives. And in this study, we carried on from the prior effort, we carried forward the 600 megawatt supercritical pulverized coal unit, but we conducted some further economic evaluation and in total we evaluated six different base load alternatives, 600 megawatt PC unit as I

mentioned, a 600 megawatt subcritical pulverized coal unit, 600 megawatt combined cycle gas turbine project, a 600 megawatt combined cycle gas turbine project combined with wind purchases, a 535 megawatt integrated gasification combined cycle unit or IGCC, as well as a dedicated 100 percent biomass facility.

Again, the economic evaluation included projected capital and operating costs for each of these alternatives, performance and emission estimates, and resulted in an overall busbar cost estimate that addressed the potential financing costs and ownership structures. Also in the second study, we included a sensitivity analysis evaluating the potential for carbon tax that would be added sometime in the future.

This next chart illustrates the results of that second study, again this is for an investor-owned utility structure and as you can see, the rankings of those alternatives are that the two PC units are relatively close to each other in the lower ranked alternatives. The next case up was the 600 megawatt combined cycle unit with wind purchases, ranging all the way up to the highest, which for an investor-owned utility would be the IGCC facility or a dedicated biomass facility. What this chart presents is the levelized busbar cost over a 20-year planning period. And out to the right we have also identified what that represents in terms of the net present value of these different alternatives in millions of dollars.

So for example, this indicates that for an investor-owned utility, the 600 megawatt supercritical PC unit has an overall busbar cost of $58.81 a megawatt hour on an NPV basis, that would be about $2.356 million or $2.4 billion and the alternative of a gas-fired combined cycle unit combined with some wind purchases has a busbar cost of about $73 per megawatt hour, which represents an NPV of $2.9 billion or roughly a $550 million NPV difference between those two alternatives.

The next chart presents the results of the analysis for a public power ownership structure. Again the overall rankings are consistent, that the lower cost alternative from a base load generation standpoint is the pulverized coal units, ranging up through to the combined cycle unit and the biomass unit.

The next two charts highlight the results of adding in a potential carbon tax in the future for carbon emissions from each of these alternatives. And in this case, although this hearing is in the state of South Dakota, what we used was the high end of the range that has been approved by the Minnesota commission for CO2 externality values as a potential carbon tax. And this chart indicates for the investor-owned utilities that even the inclusion of that carbon sensitivity did not change the overall rankings between the alternatives, that the PC units remained the lowest cost base load generation alternative.

The chart on page 11 provides the results for a public power ownership structure and the results are consistent, that even including a CO2 tax in the analysis, the overall economic performance from a base load generation standpoint did not change.

Overall, the conclusions of the second study reconfirmed that the 600 megawatt PC unit represents a low cost base load generation alternative for the applicants. This conclusion did not change, including the high end of the Minnesota PUC carbon value. We also ran some sensitivities where we looked at whether or not the production tax credit for wind would be extended or would lapse and the conclusion did not change under either of those scenarios. As you saw, supercritical and subcritical pulverized coal units had similar economic performance. A supercritical unit is going to cost a little bit more, but it has a better efficiency, so in terms of a life cycle, you saw that those two units performed quite comparably. The applicants have elected or selected to move forward with a supercritical unit in order to minimize emissions.

Now, one of the criticisms of the study that's been addressed in rebuttal testimony by the different parties is that the intervenors have claimed that the 600 megawatt combined cycle unit plus the gas case should have been given a capacity credit for the wind component, and what I wanted to

point out is that we were evaluating base load generation alternatives, so our two alternatives were a 600 megawatt pulverized coal unit or a 600 megawatt gas fired combined cycle unit. Both those units could be scheduled, both those units could be dispatched, both of those units could deliver energy or capacity over a similar time frame, around the clock capacity and energy. Wind was added to the gas-fired combined cycle case as a nonfirm resource in order to reduce the production cost of energy from the gas-fired case, but wind is not a base load resource, it's a variable intermittent resource, and therefore, when we combined that, we did not provide a capacity credit for wind in our case.

The other reason that we did not is because we were looking at busbar costs between our two analyses, so when we look at a 600 megawatt PC unit and a 600 megawatt combined cycle unit from a transmission standpoint, those are comparable projects to compare. If we start talking about building on additional wind capacity or wind and adding capacity to it, that case isn't comparable because we have not addressed the potential transmission costs of adding on the wind component to the gas-fired case.

So the purpose of our study was to evaluate base load alternatives. Now, that doesn't mean that the applicants haven't fully vetted and addressed the potential to add wind capacity to their systems. And they have through their

Integrated Resource Plans, which other witnesses can testify to. However, even though I point out that we disagree with the criticism of our study, even if we accept that wind has a capacity value that we should have included and should have included that by reducing the size of the combined cycle unit in order to provide a comparable project, we still find that when we include that, which this chart illustrates, the difference between evaluating a 600 megawatt combined cycle unit with 600 megawatts of nonfirm wind or 510 megawatt combined cycle unit with 600 megawatts of wind, which are given a 15 percent capacity value, as you can see, the difference in the net present value of those two alternatives in one case is $3.4 billion and the other case is also $3.4 billion, but roughly a difference of about $50 million on an NPV basis, and still significantly higher than the pulverized coal alternative under the no CO2 case and even when we include a carbon tax of 3.64 a ton, which is the high end of the Minnesota PUC values, again the results do not change. Even if we incorporate a 15 percent capacity value for wind, the overall results do not change from the analysis?

Q. Does that conclude your summary, Mr. Greig?

A. Yes.

MR. GUERRERO: Thank you. Applicants tender Mr. Greig for questions.

MR. SMITH: MCEA, are you ready to go?

MR. O'NEILL: Yes.

MR. SMITH: Please proceed.

CROSS-EXAMINATION

BY MR. O'NEILL:

Q. Thank you, Mr. Smith. Good afternoon, Mr. Greig.

A. Good afternoon.

Q. Mr. Greig, have you ever testified in support of an application for a wind-based facility?

A. No.

Q. You used this $3.64 figure that the Minnesota PUC used as an externality value for CO2; is that true, in one of your --

A. The value of 3.64 in 2005 dollars is correct. I believe we indicated in our report as an externality value or a carbon tax.

Q. And how would you define an externality value?

A. An externality value is a value placed on an environmental impact that could have indirect cost impacts that are not measured within the overall costs of the project.

Q. In other words, something that someone else pays beside the building companies or the companies designing the energy plant.

A. I wouldn't -- in that context I don't believe anybody would pay the externality value.

Q. And you understand that what the Synapse witnesses did

is they decided to look at this based upon the pending legislation and/or the legislation that could be proposed and assigned a value to that as an actual cost that the energy companies would have to pay. That's different than the analysis that you did; is that true?

A. No, I would disagree. If I can refer to Exhibit 23-A.

Q. Okay.

A. Within Section 6, which is where we evaluated the carbon sensitivity.

Q. Tell me what you are referring to.

A. Under Section 6.2 on page 6-1 of Exhibit 23-A within the second full paragraph, we indicate that the carbon dioxide externality value for a power plant located in South Dakota is zero, the inclusion of a carbon dioxide externality value or --

Q. What page again?

A. 6-1. Or imposition of a carbon tax.

MR. GUERRERO: Mr. Greig, give him one minute to find the page.

Q. (BY MR. O'NEILL) Even though you are calling it a carbon tax, there's no basis for that number other than the externality value given by the Minnesota PUC; is that true?

A. The assumption we used in this analysis was that the high end of the Minnesota PUC could be used as an externality value or could be imposed upon all these alternatives as a tax.

Q. And you understand the midpoint range over a 20-year

period that the Synapse witnesses gave to the carbon tax was $19.10. Did you see that in their testimony?

A. I did.

Q. Okay. Have you ever recommended that clients consider the future regulation of CO2 emissions in your presentations?

MR. GUERRERO: Other than this presentation?

MR. O'NEILL: Yes.

A. Yes.

Q. (BY MR. O'NEILL) On how many occasions?

A. I can't recount the specifics, but more than once.

Q. What numbers have you used on those occasions?

A. A range anywhere from five dollars to ten dollars as a sensitivity.

Q. Have you ever forecasted CO2 costs?

A. No.

Q. What factors caused you to use the Minnesota PUC value in this case as opposed to five to ten dollars in the other cases?

A. These are approved values by the commission for an externality value.

Q. What was your basis supporting the five to ten dollar value?

A. As just sensitivities looking at a range.

Q. Was that something you did or something that you took the information from someone else? I'm trying to find the work

that you used to support the five to ten dollar range.

A. They were just assumptions for sensitivity analysis. As I have indicated, we have not put together forecasts of potential CO2 taxes.

Q. So you just looked at the potential laws and thought that it's possible there should be a five to ten dollar value assigned and went with that?

MR. GUERRERO: I guess I would object. The question has been asked and answered.

MR. SMITH: I'm going to sustain that, probably more on the basis that I think there was a part of the question that assumed a fact not in evidence.

MR. O'NEILL: Okay. I'll move on.

Q. (BY MR. O'NEILL) On page six, lines seven to 16 of your testimony.

MR. GUERRERO: Direct testimony?

MR. O'NEILL: Yes, sorry, direct testimony.

Q. (BY MR. O'NEILL) You stated that there was not a need to consider more than 600 megawatts of new transmission capacity. Could you tell me --

MR. GUERRERO: Which line are we on, counsel?

MR. O'NEILL: Lines seven to 16.

A. Of page six?

Q. (BY MR. O'NEILL) Yes. I'm sorry, it's -- I'm sorry, it's rebuttal, yeah.

MR. GUERRERO: That's Exhibit 51?

MR. O'NEILL: Yes.

A. I'm sorry, repeat the question.

Q. (BY MR. O'NEILL) Sure. You are familiar with that testimony?

A. Yes.

Q. Okay. And in that analysis there, you are stating that you did not need to consider more than 600 megawatts of new transmission capacity. Can you tell me why that is?

A. I'm indicating that when we -- we have provided busbar cost estimates which exclude transmission service costs or transmission upgrades, and in comparing the 600 megawatt PC unit with a 600 megawatt combined cycle unit, that's a reasonable comparison because both units would require 600 megawatts of transmission capacity in order to provide firm generation to the applicants. We considered the addition of the wind to be a nonfirm resource that did not have associated firm transmission capacity with it.

Q. Is there anywhere in the September 2005 analysis where you discuss the fact that you are considering wind to be a nonfirm purchase or resource?

A. I could check.

Q. Please, go ahead.

A. The wind component was assumed to be an energy purchase.

Q. So the answer would be no?

A. What, can you repeat the question?

Q. I'm sorry. Strike that. I'm thinking of something else. I'll move on to the new transmission. What factors will determine whether you need new transmission lines?

MR. GUERRERO: I guess I'm going to object. Outside the area of his expertise and no foundation.

MR. SMITH: Can you ask him a foundation question?

MR. O'NEILL: Yes, he's talking about transmission lines on page six and my question is going to what factors will be used to determine building of new transmission lines in his opinion.

MR. SMITH: Are you able to answer that?

A. In general, yes.

MR. SMITH: I think it's a general question.

A. The site location of the resource, the location of the load, the design characteristics and operating characteristics of the transmission system.

MR. O'NEILL: No further questions.

MR. SMITH: Ms. Stueve.

MS. STUEVE: Yes.

CROSS-EXAMINATION

BY MS. STUEVE:

Q. One question, Mr. Greig. Did you run sensitivities for mercury?

A. Yes, we included within the cost estimates a mercury allowance cost and those were subjected to operating cost sensitivities within the analysis of plus or minus ten percent.

MS. STUEVE: Thank you.

MR. SMITH: Is that all you have?

MS. STUEVE: That's it.

MR. SMITH: Staff.

MS. CREMER: Staff has no questions, thank you.

MR. SMITH: Commissioners, do you have questions?

COMMISSIONER HANSON: No.

EXAMINATION

BY VICE-CHAIR JOHNSON:

Q. I do have one, Mr. Smith. I would call your attention to your summary presentation and particularly the chart that appears on slide 14. In comparing the coal 600 megawatts with the PUC high carbon dioxide and the next lowest cost option, the last line there, the wind plus the combined cycle with the PTC, as we talk about carbon tax sensitivity, can you give me some idea of how large a carbon tax would have to be enacted to bring those two values close to one another?

A. Yes. We calculated the break even cost within our study in Exhibit 23-A.

Q. I have got that out. Could you point me to a section?

A. Sure.

Q. Section 6, I presume.

A. It is Section 6, commissioner, on page 6-3.

Q. Okay.

A. The second full paragraph on that page, the break even carbon dioxide value would be $14 per ton for the investor-owned ownership structure and in the next full paragraph, paragraph three, the value would $23 per ton for the public power ownership structure.

VICE-CHAIR JOHNSON: Perfect. Thank you very much.

MR. SMITH: Other commissioner questions? Redirect.

MR. GUERRERO: Just a couple, thank you Mr. Hearing examiner.

REDIRECT EXAMINATION

BY MR. GUERRERO:

Q. Just for clarification purposes, Mr. Greig, we had some information, there was some questions about the difference in capital structures between investor-owned utility and public power. Could you tell the commission why we have two different numbers based on the ownership structure?

A. Yes. Of the seven applicants, two applicants are investor-owned utilities, Montana Dakota Utilities, and Otter Tail Power. The other applicants I refer to as public power, meaning whether that's municipal or other forms and generally they finance their capital projects differently. The investor-owned utility we assumed used a combination of debt and equity and has a higher overall cost of capital. In

addition, the investor-owned utilities are subject to income taxes and so we needed to evaluate each of the projects under both ownership structures because of the cost of capital and the financing assumptions are different for those two types of utilities.

Q. We also have, as you know, a generation and transmission cooperative who is part of the project. How did you handle that?

A. We lumped that in with the public power utilities.

Q. Mr. O'Neill was asking you questions, Mr. Greig, about externalities versus a carbon tax. Are you familiar generally with how carbon externalities are used in the resource planning process?

A. Yes.

Q. And are you familiar generally with how carbon taxes would be used in the resource planning process?

A. Yes.

Q. Could you describe to the commission whether there's any differences or similarities in how they are used in the context of resource planning?

A. Well, the difference primarily is with the externality value. The externality value would influence the resource decision but does not reflect the actual costs that the rate payers would bear in a tax situation. Both the resource decision could be impacted as well as the costs that are

ultimately borne would be impacted. But depending upon the value and the case that you are evaluating, both could be considered the same in terms of whether or not it influences a resource decision.

Q. What's the purpose of an externality value in the context of resource planning, in your judgment?

A. To capture potential environmental impacts that are not -- that are not directly included in the overall costs of the project.

Q. But is it intended to, when you use it in the context of a resource plan, is it intended to affect the cost of a particular resource?

A. It's intended to affect the cost of that resource plan and potentially modify the resource selections.

Q. Is the carbon tax intended to do the same thing?

A. Yes.

MR. GUERRERO: I have no further questions, thank you.

MR. SMITH: Do intervenors have some recross?

MR. O'NEILL: No.

MS. STUEVE: No.

MR. SMITH: Staff, you didn't have any originally. Okay, you are excused. Thank you.

MR. SASSEVILLE: The applicants call Steve Gosoroski.

Thereupon,

STEPHEN GOSOROSKI,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. SASSEVILLE:

Q. Good afternoon, Mr. Gosoroski.

A. Good afternoon.

Q. Could you state your full name for the record?

A. Stephen James Gosoroski.

Q. You are employed by Burns & McDonnell?

A. Correct.

Q. Same outfit that Mr. Greig works for?

A. That's correct.

Q. Did you cause to be prepared or prepare prefiled direct testimony in this case?

A. Yes, I did.

Q. And do you have that in front of you as Exhibit -- Applicants' Exhibit 24?

A. Yes, I do.

Q. Do you have any changes or corrections to Applicants' Exhibit 24?

A. Yes, I do.

Q. Could you first refer to the page number?

A. Yes, I believe it's page 13, line 12, it talks about the responsibility for the generation alternative study that Mr. Greig just addressed. Mr. Greig was the project manager on

that study and I was the consultant on that study.

Q. So you want to change the testimony to indicate that you were the consultant rather than the project manager?

A. Correct.

Q. Are there any other changes or corrections?

A. No.

Q. If I were to ask you the same questions set forth in Exhibit 24 right now, would your answers be the same?

A. Yes, with the exception of the change I just made.

Q. Have you prepared a summary for the commission this afternoon?

A. Yes, I have.

Q. Would you go ahead and present it, please?

MR. SASSEVILLE: We offer Exhibit 24.

MR. SMITH: Is there objection? Applicants' 24 is accepted.

EXHIBITS:

(Applicants' Exhibit No. 24 received into evidence.)

A. Yes, the first slide is just a general background for myself. I have been with Burns & McDonnell 29 years, all in the energy division. I have participated in approximately 6,000 megawatts of new generation capacity, either as a design engineer or in project management at Burns & McDonnell. And I have been a project manager in the energy division since 1992.

The Phase One study that Mr. Greig just addressed I

was the project manager on. We were retained by the Big Stone co-owners at that time to do the Phase One study for base load generation. The purpose of the study was to evaluate the feasibility of locating base load generation at the Big Stone site. The study involved looking at different generation increments. It was not an integrated resource study. Basically we looked at different sized units because at that point the Big Stone owners ownership group was still in flux and they weren't exactly sure how many megawatts of capacity were needed.

So as Mr. Greig alluded, we looked at three different size units, basically 300, 450 and 600 megawatts. And we looked at pulverized coal units and a circulating fluidized bed unit. We compared those against combined cycle 500 megawatt unit. And so those are the seven alternatives that Mr. Greig discussed that he did the economic analysis on.

We also looked at two other alternatives. One was integrated gasification combined cycle or IGCC. That was eliminated because it's really not a proven commercial viable technology in today's society. We understand those are being developed as new projects in the markets that are coming in the future, but if you look at the past 25 years, the five projects that were developed in the United States, only two are still running and there have been significant capacity factor issues with the units when they ran. They have also had a high O and

M cost associated with them.

In addition to that, the units that were built were in the 250 to 260 megawatt size range as a max and we are looking at units that are potentially significantly larger than that. Also the units that were built, the units operated on bituminous coal. The fuel supply to the Big Stone plant is PRB subbituminous coal, so there's no IGCC experience with PRB coal.

In addition to that, the cost of an IGCC plant is, in Burns & McDonnell's opinion, 10 to 15 percent higher than a comparably sized coal PC unit. So those are the reasons the IGCC was eliminated from consideration in the Phase One. And then wind was also considered and eliminated because it's not a base load generation facility.

So the conclusions of the Phase One Report, pulverized coal units have a significant economic advantage over the CFB units. The reason for that is in the higher megawatt size range, CFB units, the biggest boiler built in a circulating fluidized bed is approximately 300 megawatts. So that would fit the small end, but if you are talking bigger units, you have to have two boilers, which significantly increases capital costs and O and M costs.

Second of all, the 600 megawatt unit has an economic advantage over smaller size units just because of economies of scale. And third, the 600 PC unit has a significant advantage

over combined cycle unit because of the costs of fuel between natural gas and coal over the life of the unit.

The Phase One study as far as environmental issues, we considered different types of emission controls for the pollutants. For NOX we used low NOX burners over fire air and selective catalytic reduction or SCR. For particulate we used a baghouse. For sulphur dioxide the Phase One study used a dry scrubber. The second study for generation alternatives actually went to a wet scrubber, that was one change between the studies. For mercury we used carbon injection and for carbon monoxide and VOCs or volatile organic compounds we used best operating practices on the boilers.

For the second study, the Analysis of Base Load Generation Alternatives, this was done in support of the Minnesota certificate of need for transmission. One difference between this study and the Phase One, the technologies considered were not specifically limited to the Big Stone site. In other words, for IGCC we assumed we could locate the plant at a point where we could bring in bituminous coal instead of being stuck using PRB coal.

Mr. Greig alluded to the six technologies that were considered in that study. Again, base load generation was a requirement of this study. And peaking generation was not considered as a stand alone type unit. Smaller units and CFB units, as part of the Phase One study, we show that they didn't

stack up against PC units, so we didn't reevaluate those as part of the study. And again, the carbon tax was considered in Mr. Greig's analysis.

Again the results in this matches the last slide in Mr. Greig's testimony, or his summary, confirm that the 600 PC unit represents the lowest cost alternative to the Big Stone co-owners. The conclusion did not change when we included the high end of the Minnesota PUC carbon value and the conclusion did not change with or without the extension of the production tax credit for wind. And again, the supercritical unit was chosen because of the lower emission values associated with it, which represents a significant environmental benefit.

Q. You have 29 years experience in the power industry?

A. Yes, sir.

Q. Are you an engineer?

A. Yes.

Q. Would you provide your educational and employment background, please?

A. Yes. I have a bachelor's from the University of Missouri in mechanical engineering, I have a master's degree in -- as an MBA at the University of Missouri, and I'm registered in four different states as a PE.

Q. And are you done with your summary?

A. Yes, I am.

MR. SASSEVILLE: We will now tender Mr. Gosoroski for

cross.

MR. SMITH: MCEA, do you have any questions?

MS. GOODPASTER: Yes, we do have a few questions.

MR. SMITH: Thank you.

MS. GOODPASTER: I need to rearrange my screens.

CROSS-EXAMINATION

BY MS. GOODPASTER:

Q. Good afternoon, Mr. Gosoroski.

A. Good afternoon.

Q. Do you generally understand the integrated resource planning process as a general matter?

A. As a project manager, I usually -- I do not get involved in integrated resource planning.

Q. Going from your testimony that there was a difference between the Phase One study and the Phase Two study, that you screened out IGCC in the Phase One but in Phase Two you gave it a look, you said that it was ruled out in the Phase One study because IGCC is not proven. Why did you study it in the September 2005 report, then, if it's not proven?

A. As I stated, we recognize, and Burns & McDonnell is involved in developing IGCC units in the future, so we recognize it is a technology that is developing and so we thought it should be looked at and we removed the issue with the type of coal that would be burned by releasing it from being located at Big Stone plant so we could consider a

bituminous type coal.

Q. So you are obviously aware that Burns & McDonnell is involved in IGCC projects --

A. Yes, I am.

Q. -- currently. Would you agree with me that the primary, if not only, reason IGCC is becoming a develop -- in your words, a developing technology, and that other projects that you are involved in are getting started is because of a concern about the future need to capture CO2?

MR. SASSEVILLE: I'll object, lacks foundation, assumes facts not in evidence.

MS. GOODPASTER: The witness testified that he is familiar with Burns & McDonnell's efforts to be involved with IGCC projects currently. So I'm asking him -- he also talked about whether there's -- it's in the developing stages or not, so I'm asking him why it's changed from July to September.

MR. SASSEVILLE: That's a totally different question and I also should have objected to form. There were at least two adverbs in there and I'm not sure he agreed with either one of them. I ask that you rephrase the question.

MR. SMITH: I think that's all we are talking about here, you have a couple questions and if you could take it step by step, I think you'll be fine.

MS. GOODPASTER: I don't remember what adverbs I used but I'll try to avoid them this time.

MR. SMITH: I think it's more if you can just ask him first if he knows anything about that and then go from there, that facet of this and then take it from there.

MR. SASSEVILLE: The words were "primarily if not exclusively," if you want to avoid those two the next time around.

Q. (BY MS. GOODPASTER) We will try it a different way. Would you agree with me that it is lower cost to capture CO2 from an IGCC facility than it is from a pulverized coal facility?

A. There are ways to capture CO2 in IGCC, yes.

Q. And would you agree that that is a reason that various market participants are proposing IGCC technology, including the project that you were working on or your firm is working on?

A. I can't say why they are developing them, I'm not part of that decision process.

Q. So you don't think it has to do with CO2 capture and the relative cost effectiveness of that?

MR. SASSEVILLE: I object to the form of the question. I think he answered the question he's not involved with it, so this question lacks foundation as well.

MS. GOODPASTER: That's fine.

MR. SMITH: I haven't ruled on the objection yet.

MS. GOODPASTER: What do you think?

MR. SMITH: Maybe in terms of foundation, do you just want to ask him if he's involved with that subject at all and has any knowledge concerning it and then we will find out if he knows anything about it and we can go from there.

MS. GOODPASTER: I'll try again.

Q. (BY MS. GOODPASTER) Would you agree that IGCC is a higher capital cost than pulverized coal technology?

A. Yes.

Q. Do you know why people would -- or market participants would be pursuing IGCC despite the fact that it is a higher capital cost?

MR. SASSEVILLE: It lacks foundation, but. . .

MR. SMITH: Overruled.

A. I'm aware that they are being funded by the DOE, so since they are higher capital costs, they are being supplemented.

Q. (BY MS. GOODPASTER) But you don't know why?

A. I cannot state why certain utilities or developers are developing IGCC because I'm not involved in those projects.

MS. GOODPASTER: Okay, thank you.

MR. SMITH: Is that all you have of him?

MS. GOODPASTER: It is.

MR. SMITH: Ms. Stueve.

MS. STUEVE: Thank you.

CROSS-EXAMINATION

BY MS. STUEVE:

Q. Good afternoon, Mr. Gosoroski.

A. Gosoroski.

Q. Gosoroski, okay. Do you have expertise in the area of selected emission controls for mercury?

A. I'm aware of carbon injection for controlling mercury, yes.

Q. You are aware of carbon injection. And in the Phase One study or for the Big Stone II project, did you recommend carbon injection for mercury emission controls?

A. Carbon injection was shown in the study to be used for the control of mercury.

Q. And are you aware that it will be used for the proposed Big Stone II?

A. We are not involved in the design of the plant, so I cannot say that I know what they are going to use as a final solution to the problem.

Q. You can only say that it was a recommendation?

A. No, I'm saying it was included in the capital costs of the study.

Q. Included in the capital cost. Was any other mercury emission control included in the capital cost study?

A. No.

Q. Only the ACI, is it ACI?

A. That's what we listed for controlling mercury in the

study.

Q. Okay. Are you aware of a November 2005 regulating mercury from power plants, a Model Rule For States and Localities document?

A. I'm not specifically aware of that particular document.

Q. Okay. Are you aware of or know about the State and Territorial Air Pollution Program Administrators, STAPPA, or the Association of Local Air Pollution Control Officials, ALAPCO?

A. No, I'm not.

Q. Neither organization?

A. No.

Q. I'd like to offer Stueve Exhibit 1-F and I will provide them. Again I would go back and repeat the question. You are familiar with mercury emission control carbon injection.

A. Yes.

Q. Yes, and on page 26, Stueve Exhibit 1-F.

MR. SASSEVILLE: Your Honor, I think that she should offer this into evidence before she starts questioning the witness on the contents of the document.

MR. SMITH: Do you want to --

MR. SASSEVILLE: Unless she's laying foundation. I'm not sure if that's what she's doing but it sounded like she was

examining the witness substantively.

MS. STUEVE: I will be affirming what was included in the capital cost for Big Stone II projection on mercury emissions.

MR. SMITH: Do you want to -- we don't have any actual foundation about this exhibit, but do you want to start out by just asking him something about that as to whether he's familiar with this document and if it's a document he knows anything about and that kind of thing?

MS. STUEVE: Yes.

A. I'm familiar with the Clean Air Mercury Rule.

Q. (BY MS. STUEVE) Okay. Familiar with the Clean Air Mercury Rule, and are you familiar with, oh, I believe it's some 14 states that are challenging the federal government on the Clean Air Mercury Rule?

A. I'm not directly knowledgeable of that.

Q. But you have heard about the challenge on the Clean Air Mercury Rule by states out east?

A. I'm aware that there is a challenge.

Q. You are aware that there is a challenge. Are you aware of health and environmental effects of mercury?

MR. SASSEVILLE: I'm going to object. I think this goes way beyond the scope of his direct testimony.

MR. SMITH: I think it actually does. Without having gone back instantly and read, does your testimony include any

discussion of the health effects of mercury?

A. Not the health effects. We just simply state the level we are controlling to.

MR. SMITH: I don't think he's the expert on health effects of mercury. Sustained.

Q. (BY MS. STUEVE) Are you aware that there are needs to controlling mercury?

A. The study suggests we are using activated carbon or it was included in the costs, so yes, I'm aware there are ways to control mercury.

Q. And do you see that states are having and power plants in particular are facing challenges on how to do it, governing bodies, for example, in general?

MR. SASSEVILLE: I'll object again. This goes beyond the scope of this witness's testimony. I think Ms. Stueve is asking about the perceived health effects and adverse environmental effects of mercury and Mr. Gosoroski was only retained to deal with the cost issues of mercury emission control.

MR. SMITH: As far as I know, Ms. Stueve, I think I have to agree with that. I just think we are outside of what this individual may have been -- you know, if you want to ask him, maybe you could ask him, you know, if there's something related to his direct testimony in terms of costing that you can get at via laying a foundation for it through his expertise

or whatever, but as of now we don't even know if he has any expertise regarding health effects and all of that.

Q. (BY MS. STUEVE) Do you have a number on the capital cost of controlling mercury in the study that you did for ACI?

A. That particular item, no. It was part of the capital cost for the whole plant, it wasn't broken out just for mercury control. We complied with the clean air regulations on mercury as far as the limit.

MS. STUEVE: No further questions.

MR. SASSEVILLE: Just for the record, I guess we will stipulate to the admissibility of Stueve Exhibit 1-F for what it's worth.

MR. SMITH: Thank you. Any objections to the admission of Stueve 1-F? Stueve Exhibit 1-F is admitted.

EXHIBITS:

(Stueve Exhibit No. 1-F received into evidence.)

MR. SMITH: Staff, you may proceed.

CROSS-EXAMINATION

BY MS. CREMER:

Q. Good afternoon.

A. Good afternoon.

Q. In your presentation that you gave, you mentioned that the Phase One study used carbon injection as a mercury control technology. Is there a reason you didn't consider carbon injection in the later study, the Phase Two study?

A. I believe the capital costs for the pulverizeded coal units, the basis was the same except we have a wet scrubber and we also included the emissions from Big Stone Unit I and Big Stone Unit II into this same scrubber, so there was a capital cost difference for the pulverized coal unit, and those were the two reasons, but there was nothing else that was different.

Q. But why didn't you include it?

A. I believe it is included.

Q. Okay, you think it is included in there.

A. As I said, the capital cost is slightly higher in the second study because we made the scrubber bigger to accommodate both units.

MS. CREMER: Thank you.

MR. SMITH: Commissioner questions.

VICE-CHAIR JOHNSON: I have none.

MR. SMITH: Commissioner Hanson.

EXAMINATION

BY COMMISSIONER HANSON:

Q. Good afternoon.

A. Good afternoon, commissioner.

Q. Appreciate your discussion on IGCC and the explanation yesterday. I had some questions on it, Commissioner Johnson was good enough to point out that there was some writing in the information that was provided to us, it was very interesting. In your explanation of mercury and the questions were back and

forth, I was just curious, yesterday we had testimony pertaining to the best practices as set forth by the EPA and I believe it was a fabric followed by a wet scrubber and I'm wondering, in addition to that filtering system, there obviously are other ways to proceed in removing mercury and possibly more mercury. I'm wondering what you may have explored and what your expertise or knowledge is on the ability for in this particular instance for the Big Stone II, Big Stone I and II plants to remove even more mercury than what is -- what they are planning on -- what is being proposed.

A. Well, as I said, we are not involved in the design of the unit so I can't testify to what the design is at this point, but many units are looking at a combination of wet scrubber and baghouse to control mercury and if limits from the Clean Air Mercury Act cannot be met, then they look at carbon injection as additional removal.

Q. Do you have experience in those areas, in areas in addition to what is being proposed here?

A. I have limited knowledge of carbon injection, yes, as another way to control mercury.

Q. Are there other methods that you are aware of?

A. Some type of sorbent injection is the method other than a wet scrubber and baghouse.

Q. Is this beyond your expertise?

A. Yes.

COMMISSIONER HANSON: Then I'll stop asking you the questions. Thank you.

MR. SMITH: Are there other commissioner questions? Redirect?

MR. SASSEVILLE: I have no redirect.

MR. SMITH: Do you have any other questions stemming from other questions that were asked?

MS. GOODPASTER: In a way.

EXAMINATION

BY MS. GOODPASTER:

Q. Commissioner Hanson mentioned the word IGCC and I just wanted to ask you again, calling your attention to Exhibit, I believe it's 23-A, the September 2005 report, and you previously discussed this document, correct?

A. Yes, but I don't have it in front of me. I just have 24.

Q. Is 23 near by?

MR. SASSEVILLE: It's part of Mr. Greig's direct.

Q. (BY MS. GOODPASTER) I would ask you to turn to page 4-13.

A. Okay.

Q. And the first sentence, if I could just ask you whether you have any reason to disagree with the sentence that states, while the technology exists for separation and capture of CO2 in an IGCC facility, the cost is estimated to increase

overall busbar cost of electricity generation by 25 percent. For PC units, the Electric Power Research Institute has estimated that the comparable cost impact of CO2 capture would be 70 percent on the cost of electricity. You have no reason to disagree with that.

A. No, I don't.

MS. GOODPASTER: Thank you.

MR. SASSEVILLE: One quick follow-up.

REDIRECT EXAMINATION

BY MR. SASSEVILLE:

Q. Could you read into the record the next sentence in the same document?

A. Would you like me to read it.

Q. Yes, please.

A. For PC units, the Electric Power Research Institute --

Q. She read that one. It's the one that begins once CO 2.

A. Once CO2 has been captured, sequestration opportunities are limited and very site specific.

Q. What is your understanding of the limitation and very site specific?

A. The limitation is the use of the CO2. I mean, you have to have a place to sequester it and an opportunity to use it.

Q. And with regard to being very site specific, what does

that refer to?

A. Actually, I would think it would be the use of the sequestered CO2.

Q. Is every site on which a power plant is built appropriate for sequestration of CO2?

A. No.

Q. What kinds of sites are appropriate for sequestration of CO2?

A. For the use of sequestered CO2 would be for mining, using underground pressure to restore or to recover oil facilities in an underground oil storage area where you are trying to recover oil.

Q. Are there any oil wells near the Big Stone site?

A. I'm not aware of any.

MR. SASSEVILLE: Thank you.

MR. SMITH: Are there any last questions?

MS. GOODPASTER: One last question.

RECROSS-EXAMINATION

BY MS. GOODPASTER:

Q. You earlier described the difference between the September 2005 report, which we were just reading from, Exhibit 23-A, and the Phase One Report, and the September 2005 report you stated the difference was, a difference was that you included IGCC and released it from being located at the site of Big Stone II; isn't that what you said?

A. Correct.

MS. GOODPASTER: Thank you.

MR. SMITH: You are excused.

MR. SASSEVILLE: We are ready to call another witness unless this is an appropriate time for a break.

MR. SMITH: It's ten after 3:00. It is -- do you need a break? I'll put it this way, do you ever want to have a break?

COURT REPORTER: Yes.

MR. SMITH: This might be as good a time as any, but it's up to you.

COURT REPORTER: Sure, great.

MR. SMITH: We are in recess.

(Whereupon, the hearing was in recess at 3:10 p.m., and subsequently reconvened at 3:30 p.m., and the following proceedings were had and entered of record:)

MR. SMITH: Let's go back on the record following our afternoon recess. Applicant, are you prepared to call your next witness?

MR. SASSEVILLE: Yes, we are. Thank you, Mr. Smith. The applicants call Kiah Harris.

Thereupon,

KIAH HARRIS,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. SASSEVILLE:

Q. Could you spell your name for the record, Mr. Harris?

A. My first name is Kiah, K-I-A-H, middle name is Edward, E-D-W-A-R-D, last name is Harris, H-A-R-R-I-S.

Q. You are a project manager with Burns & McDonnell?

A. Yes, sir.

Q. And do you have in front of you premarked Applicants' Exhibit 25?

A. Yes.

Q. And that's the prefiled direct testimony of Kiah Harris in this proceeding.

A. Yes, it is.

Q. Is that testimony that you prepared or had cause to be prepared?

A. Yes.

Q. And is it accurate to the best of your knowledge?

A. Yes.

Q. Are there any corrections or revisions that have to be made to it?

A. No.

Q. If I were to ask you each of the questions set forth in Exhibit 25 this afternoon, would your answers be the same?

A. Yes.

MR. SASSEVILLE: Applicants offer Exhibit 25.

MR. SMITH: I believe this has already been offered and received by stipulation. Is there now an objection?

MR. SASSEVILLE: Heck, then I withdraw my offer.

MR. SMITH: Thanks anyway.

Q. (BY MR. SASSEVILLE) Could you give us a brief summary of your employment, educational and professional background, Mr. Harris?

A. Yes. My educational background, I've got a bachelor's in electrical engineering from the University of Missouri Columbia, I have a master's in electrical engineering from the University of Missouri at Columbia. I started my career with the Bureau of Reclamation in '75 to approximately 1978 and I worked at Department of the Army for two years and then I started with Burns & McDonnell in 1980 and I've been a design engineer for transmission systems, substations, generating plants, and I've been a resource planner since 1988.

Q. Have you prepared a summary of your testimony this afternoon?

A. Yes, I have.

Q. Could you present that now, please?

A. The purpose of the report that I prepared was to compile information that had been requested by the Minnesota PUC for the Minnesota certificate of need for the application of the transmission facilities. This is the report that's filed in the Applicants' Exhibit 25-B. There was essentially

two broad questions that the PUC had. One was if the participants' share of Big Stone plant II was not constructed, what would the next best alternate be for each of the applicants to meet their capacity out of that unit. And the second was to compare and contrast the costs of these individual plans against the plan that included Big Stone as well as the inclusion of the environmental externalities established by the PUC.

Some of the major conclusions from the report were that without the externality cost, just looking at the two approaches to meet their power supply needs, one with Big Stone II and the other without it, there was a cost benefit to the plan with the Big Stone II power plant of approximately $670 million. When we included the externality costs, Big Stone, the Big Stone II future costs were less than the seven other alternatives combined, and when we looked at the high externality costs of Big Stone II, they were still less than the cost of the individual alternatives.

So what we were looking at were essentially three scenarios with the consideration of the externalities by the Minnesota PUC. There's a low range and there's a high range and then we ran a further case, which is called the all CO2 case, which included externalities that are -- the application of externalities to CO2 for plants that were located outside of Minnesota. Typically in the application of externalities,

plants outside of Minnesota did not have that externalities applied to them, but in this case we included it. And as you can see on the bottom line of this slide, that the benefits to the plan with the Big Stone II power plant included ranged from a low of 653 million to a high of 718 million, so that's really the completion of my summary.

MR. SASSEVILLE: Thank you, we will tender him for cross, then.

MR. SMITH: MCEA, are you ready to go?

MS. GOODPASTER: We have no cross for Mr. Harris.

MR. SMITH: Ms. Stueve.

CROSS-EXAMINATION

BY MS. STUEVE:

Q. Good afternoon, Mr. Harris. In the figures, were decommissioning costs included?

A. Within the plans of the individual participants, that would probably be a question that they should answer. I'm not familiar with the exact details that were included in all the costs that were included in their plans.

Q. In the collective analysis as a whole.

A. Well, what I'm saying is we didn't get those details in the numbers that were presented to us so I'm not sure if what you consider to be decommissioning costs were included or not.

Q. So that would have to be from each of the individual

co-owners?

A. Yes, ma'am.

Q. We would have to --

A. I understand, yes.

Q. We don't know if those are included in the costs.

A. I do not, no.

Q. Okay, thank you. So you covered and put in externality costs.

A. Yes.

MS. STUEVE: No further questions.

MR. SMITH: Staff.

MS. CREMER: Staff has no questions. Thank you.

MR. SMITH: Is there redirect?

MR. SASSEVILLE: No redirect.

MR. SMITH: Commissioners, do you have questions of Mr. Harris? Thank you. You are excused.

MR. SASSEVILLE: We are going to call Pete Koegel.

Thereupon,

PETER KOEGEL,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. GUERRERO:

Q. Please state your name for the record.

A. Peter Koegel.

Q. By whom are you employed?

A. MAPPCOR.

Q. And who is MAPPCOR?

A. MAPPCOR is a service contractor for MAPP.

Q. And who is MAPP?

A. MAPP is an association of electric utilities and other industry participants. They have members in seven states and two Canadian provinces.

Q. Maybe you will get into it in your summary. Did you mention what your job is for MAPPCOR?

A. I am a project manager.

Q. And what are your responsibilities as project manager, Mr. Koegel?

A. Primarily I deal with the MAPP generation reserve sharing pool.

Q. What does that mean?

A. Well, we insure reliability for the MAPP region, that includes the reserve sharing pool.

Q. Okay. What's your employment and educational experience, Mr. Koegel?

A. I have a bachelor's of engineering, electrical engineering from the University of Minnesota. I have worked in the utility industry for nine years, all of it at MAPPCOR.

Q. Thank you, and what's your educational experience, Mr. Koegel?

A. I have a bachelor of electrical engineering from the University of Minnesota. I am also a registered professional engineer in the state of Minnesota.

Q. Thank you. And did you prepare or cause to be prepared testimony in this case, Mr. Koegel?

A. Yes, I did.

Q. And do you have before you in the manila folder Applicants' Exhibit No. 9 and Applicants' Exhibit No. 50?

A. Yes, I do.

Q. Could you tell the commission what those are, please?

A. Applicants' Exhibit 9 is my direct testimony, Applicants' Exhibit 50 is my prefiled rebuttal testimony.

Q. Thank you. Mr. Koegel, are there any corrections or revisions you would like to make to your testimony in this case?

A. No.

Q. If I were to ask you the same questions today that I asked you or that were asked in your prefiled written testimony, would your answers be the same?

A. Yes, they would.

MR. GUERRERO: Applicants would move for admission, Mr. Hearing Examiner, of Exhibit 9 and 50.

MR. SMITH: Objections? Hearing none, Applicants' 9 and 50 are admitted.

EXHIBITS:

(Applicants' Exhibit Nos. 9 and 50 received into evidence.)

Q. (BY MR. GUERRERO) Mr. Koegel, could you please provide a summary of your testimony in this case?

A. Yes, I would. Like I started earlier, MAPP is an association of electric utilities and electric industry participants. We have members in seven states and two Canadian provinces. We have a service area of one million square miles. Our primary focus is on system reliability. MAPPCOR, which is my employer, is a service contractor to MAPP.

Q. What does MAPP stand for?

A. MAPP stands for the Mid-Continent Area Power Pool.

Q. Thank you. Proceed.

A. MAPP has a minimum installed generation reserve obligation of 15 percent of each member's peak demand. This insures adequate installed generation for reliability purposes. Reserves are shared between member utilities to help lower their costs. MAPP performs an after-the-fact audit for compliance purposes.

Here is an illustration of the MAPP generation reserve sharing pool region. A little bit about MAPP's capacity outlook. Based on our current 15 percent minimum reserve requirement, MAPP-US will go capacity deficit in the summer seasons without the 600 megawatts from Big Stone Unit II. Starting in 2011, we will be over 800 megawatts deficit in

MAPP-US and over 2400 megawatt deficit in 2014. All capacity reserves in the summer season of 2011 and the winter season of 2011 and 2012 in MAPP-US will be natural gas and oil-fired generation.

Why will these deficits occur? This is due to continued customer load growth and few planned generation additions. MAPP-Canada does show a capacity surplus in 2011, but the availability for purchase is subject to transmission availability and economics.

Here we have an illustration of MAPP's capacity outlook. This is the MAPP-US reserve margins without Big Stone Unit II. These are actual reserve margins from 1980 through 2005 and projected reserve margins from 2006 to 2014. This is also in my Exhibit 50-A.

A bit on capacity reserves. There are several reasons why a utility may want to maintain installed reserves greater than 15 percent in any particular year. Risk of weather uncertainty on actual peak demand days, an adjustment in fuel mixture or new generation additions that may need to serve several years of load growth. Nearly all new generating capacity installed in MAPP since the 1980s has been fueled by oil or natural gas. We do have some coal units that are now being proposed starting in 2006 through the 2009 time frame.

Talking about how MAPP accredits wind capacity, we accredit wind on a monthly capacity value. This is based on

actual wind machine performance and it's correlated in time to the utility's peak demand period. The nominal accredited wind capacity values we have observed in MAPP range from five to 20 percent in the summer seasons and 10 to 35 percent in the winter seasons. This concludes my summary.

MR. GUERRERO: Thank you, Mr. Koegel. Applicants tender Mr. Koegel for questions.

MR. SMITH: Please proceed, intervenors.

CROSS-EXAMINATION

BY MS. GOODPASTER:

Q. Thank you, Mr. Smith. Good afternoon, Mr. Koegel.

A. Good afternoon.

Q. If you could refer to your rebuttal testimony, Exhibit 50, starting on page five and then I'll ask you a question about that.

A. Okay.

Q. You have a section entitled at line seven entitled MAPP reserve requirements. Would you agree that a reserve requirement is a capacity requirement above and beyond that needed to meet forecasted load?

A. Yes.

Q. Is MAPP reserve requirement currently 15 percent?

A. Yes.

Q. Are you -- now I'm going to refer to another piece of testimony. Are you familiar with Mr. Morlock of Otter Tail

Power's testimony of June 16th, 2006 in this docket?

A. No, I am not.

Q. Okay. If I represented to you that in that testimony, Mr. Morlock stated that a MAPP 15 percent reserve capacity obligation is a floor level of generation capacity the MAPP members are required to maintain, would you agree with that statement?

A. Yes, I would.

Q. Would you also agree with Mr. Morlock if I represent to you that he stated that the MAPP reserve capacity obligation is a floor because it does not include weather uncertainty, which might raise peak demand?

A. Yes, I would.

Q. Does MAPP periodically commission analyses to evaluate the needed MAPP reserve requirement?

A. Yes, it does.

Q. Is the most recent such analysis the study prepared by GE Power Systems in November 2003?

A. Yes, it is.

Q. And you are familiar with that study?

A. I am familiar that the study was performed. I have not read the analysis from the study.

Q. Okay. So you can't describe how the study was prepared?

A. No, I cannot. I believe Mr. Morlock could answer

those questions.

Q. Okay, I'll ask Mr. Morlock if he was involved with the preparation of that study. Let's see, are you able to state whether you agree -- do you know the purpose of the study?

A. Could you rephrase the question?

Q. Sure. I could be more specific. Do you know whether the purpose of the study was to determine the reserve capacity obligation or reserve requirement for the MAPP-US thermal system for the years 2003, 2006, 2009 and 2012?

A. Yes, I believe that was part of the desired outcome.

Q. And then do you know whether the study looked at hourly loads from a year within normal weather conditions and a year with extreme weather conditions or am I going beyond your familiarity?

A. You are going beyond my familiarity.

Q. Okay. I'm sorry for taking a brief break. I just want to make sure that I understood you correctly when I asked you earlier and I was asking in reference to Mr. Morlock's testimony, but the question was whether the 15 percent reserve capacity is a floor level of generation capacity -- I'm sorry -- if the reserve capacity obligation is a floor because it does not include weather uncertainty which might raise peak demand.

A. Yes, I believe that to be correct.

Q. I believe to your left is a document that is marked

Exhibit 14, Joint Intervenors' Exhibit 14.

VICE-CHAIR JOHNSON: If you could speak a little closer to the microphone, I think that would help. We have had some complaints over the course of the hearing thus far about volume levels. Thanks.

A. You're welcome.

Q. (BY MS. GOODPASTER) And this document is entitled MAPP reserve capacity obligation review final report, prepared for MAPPCOR by GE Power Systems Engineering Consulting; is that what you see this document is?

A. Yes, I have the document.

Q. This is the document, this is the final report that I was -- both of us were referencing a couple of minutes ago as the most recent MAPP study regarding the reserve requirement.

A. Yes.

Q. If you could turn to page ES-3.

A. Okay.

Q. The --

MR. GUERRERO: Has this document been identified as an exhibit number?

MS. GOODPASTER: Yes, it's Exhibit 14. I should move to have it admitted at this juncture.

MR. GUERRERO: Joint Intervenors' 14?

MS. GOODPASTER: Yes.

MR. SMITH: Yes. She just moved to admit it.

MR. GUERRERO: I guess I would object, no foundation. He's already admitted that he's not the author of the study and only generally familiar with it.

MS. GOODPASTER: Mr. Koegel works for MAPPCOR and this is a MAPPCOR document and he did state that he was familiar with this to the extent that it was the last report of the reserve capacity obligation.

MR. SMITH: I'm going to overrule the objection and admit Intervenors' 14.

EXHIBITS:

(Applicants' Exhibit No. ^ received into evidence.)

Q. (BY MS. GOODPASTER) If you could look at on page ES-3, the second paragraph from the bottom, it starts "the results of this study."

A. Yes.

Q. It states, the results of this study indicate the need for installed reserves in the range of 9.96 percent, no internal transmission limitations, to 12.75 percent, load forecast uncertainty, in the MAPP-US thermal portion of the system in order to maintain a reliability level of 0.1 day per year. Now, my question is, following the number 12.75 percent in parentheses, the load forecast uncertainty, is your understanding that that is weather-related uncertainty?

A. I did not work on this study, so I'm out of my realm here. I would hesitate to guess on what that term relates to.

Q. Do you know, Mr. Koegel, when the next study of the needed MAPP-US reserve capacity obligation will be undertaken?

A. It's in the preliminary stages now. I do not know what the anticipated completion date is. I think they may have selected a vendor to perform the study.

Q. Okay, thank you. Do you know whether it will be undertaken for the MAPP-US subregion or both US -- MAPP-US and MAPP-Canada?

A. I do not know.

Q. So you don't know what regional scope the study will have?

A. No, I'm not familiar with the scope.

Q. Are you familiar with the current limits on importing firm capacity from MAPP-Canada in the summer months?

A. No, I am not, transmission limits, no.

Q. Are you aware of any transmission system upgrades that are being planned or proposed to increase the amount of capacity that could be imported to MAPP-US?

A. No, I am not familiar with the transmission system studies.

Q. Do you know what other NERC, N-E-R-C, regions border MAPP-US?

A. What NERC regions border MAPP-US, yes.

Q. Do you know what the current firm transmission import capabilities from each of these bordering regions are in the

summer months?

A. No, I do not.

Q. Do you know about -- this may be the same as the previous question regarding MAPP-Canada and MAPP-US, but do you know about the transmission import capabilities -- I'm sorry, the transmission system upgrades that are being planned or proposed or considered to increase the amount of capacity that can be imported into MAPP-US from each of the bordering regions?

A. No, I do not.

Q. Do you know whether the proposed Big Stone II power plant will have a zero expected forced outage rate?

A. I do not know that.

Q. Would it be -- based on your your experience, would it be a reasonable forced outage rate, would zero be a reasonable -- would zero be a reasonable forced outage rate to expect from a 600 megawatt coal plant?

A. Again, it's out of my expertise.

MS. GOODPASTER: I have no further questions.

MR. SMITH: Ms. Stueve.

CROSS-EXAMINATION

BY MS. STUEVE:

Q. Yes, good afternoon. Is it Mr. Koegel?

A. Yes.

Q. Okay. Could we bring the summary up, the MAPP picture

showing the Mid-Continent Area Power Pool. I believe it's on page three of the summary. Are you familiar with the draft EIS for the Big Stone II power?

A. No, I am not.

Q. You are not, okay. I'm a bit confused. Is the need for this project, is Big Stone II power plant supposed to provide for the need for MAPP, a forecasted deficit?

A. Yes, I believe the unit or the project would be accredited in MAPP and therefore help the need for generation accreditation, accredited generation in MAPP.

Q. For MAPP, which encompasses the area up there --

A. Yes.

Q. Okay, so it's supposed to provide for the need, the whole area. Maybe beyond your scope, but is it deliverable from Big Stone Plant Unit II to the whole area?

MR. GUERRERO: Can I ask she clarify the question. Is what deliverable?

Q. (MS. STUEVE) Is transmission of electricity deliverable from Big Stone Plant Unit II to the whole MAPP area?

A. That's beyond my expertise.

MS. STUEVE: We have entered the document, the draft EIS, right?

MR. GUERRERO: Correct.

MS. STUEVE: That is part of the docket?

MR. SMITH: It is.

MS. STUEVE: Could I have you look at a map of the transmission for the draft EIS?

A. Sure.

MS. STUEVE: Or could we bring it up from the Big Stone PowerPoint presentation, for example, at Milbank?

MR. GUERRERO: She's going to call up the draft EIS on the computer and try to find the particular map that you are looking for, Ms. Stueve.

MS. STUEVE: Or the PowerPoint presentation in Milbank had it, the transmission. Or pass it over, either or.

MR. SMITH: Do you need -- you need an extra copy, Mary Jo? I've got a copy here he can look at if you want.

MS. STUEVE: I just have one question on it.

MR. SMITH: Can you guys hand this down?

MR. GUERRERO: What page?

MS. STUEVE: Let's look at 2-62.

MR. SMITH: We are talking Exhibit 53, I believe, we are talking Applicants' Exhibit 53 for purposes of identifying it for the record.

MS. STUEVE: Thank you. It's 2-62. The question would be in your assessment --

MR. GUERRERO: If you could hold on, we are going to pull up the map.

MR. SMITH: Can you blow it up a little bit?

Q. (BY MS. STUEVE) Question, in your opinion or in your assessment, will this transmission reach out to all of MAPP?

MR. GUERRERO: I guess I'm going to object. I think that question was just posed and answered.

MR. SMITH: Overruled. You can try -- if you know, you can answer. If you don't, just say so, if you are not able to.

A. I'm not a transmission engineer, so I haven't done any analysis and I wouldn't be able to answer that question.

Q. (BY MS. STUEVE) I could pose it differently. Geographic, does geographic perimeters of this map match up with MAPP map from your exhibit on the --

A. If you are asking whether this map is contained wholly within the MAPP region, the answer is yes.

Q. Contained totally within. Does it match to the boundaries of MAPP?

A. I don't understand the question.

Q. Does this map we see on page 2-62 match up with the boundaries of MAPP?

A. No.

MS. STUEVE: Thank you. No further questions.

MR. SMITH: Thank you. Staff.

MS. CREMER: Staff has no questions. Thank you.

MR. SMITH: Commissioners, do you have questions of this witness?

COMMISSIONER HANSON: No, I don't.

VICE-CHAIR JOHNSON: Nor do I.

CHAIRMAN SAHR: Nor do I.

MR. SMITH: Does the applicant have any redirect?

MR. GUERRERO: Just a couple. Thank you, Mr. Hearing examiner.

REDIRECT EXAMINATION

BY MR. GUERRERO:

Q. Mr. Koegel, you have before you it's been marked as Joint Intervenors' Exhibit No. 14 and you were directed by Ms. Goodpaster to look at page ES-3. Can you get there again?

A. Yes.

Q. I believe that she directed you to the fourth full paragraph.

A. Yes.

Q. Are you there? And she had you read or maybe she read, I can't recall, a particular set of sentences in that. Tell me if I'm reading, starting in the middle of that paragraph, if I read this correctly. However, because deliverability integrated hydro with thermal and hydro dominant issues were not specifically or adequately addressed, the present 15 percent thermal RCO -- do you know what RCO stands for?

A. Reserve capacity obligation.

Q. And 10 percent hydro RCO values are still considered

valid and no changes are being recommended. Did I read that correctly?

A. Yes.

Q. Ms. Goodpaster asked you if reserves, the 15 percent reserve obligation in MAPP are above peak demand; do you recall that question?

A. Yes.

Q. Maybe I didn't get it exactly correct, but are the 15 percent reserve capacity, is the 15 percent capacity reserve obligation, the 15 percent capacity that MAPP utilities have ever used to serve generation?

A. Can you --

Q. Sure, it wasn't a very good question.

A. -- ask that again?

Q. My understanding, Mr. Koegel, we have a 15 percent capacity reserve obligation, correct?

A. Yes.

Q. And the purpose of that is what?

A. To insure reliability in the MAPP region.

Q. When you say insure reliability, does that suggest that energy is ever produced from that capacity?

A. Yes, it is.

Q. And in fact that's why you have the 15 percent reserve, in case you need it.

A. Yes, that's correct.

MR. GUERRERO: I think that's it, Mr. Hearing examiner.

MR. SMITH: Thank you. Is there any recross?

MS. GOODPASTER: No, Mr. Smith.

MR. SMITH: Any follow-up? You are excused. Next witness.

MR. GUERRERO: We would call Mr. Bryan Morlock.

Thereupon,

BRYAN MORLOCK,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. GUERRERO:

Q. Please state your name for the record.

A. Bryan Morlock.

Q. By whom are you employed, Mr. Morlock?

A. I am manager of resource planning for Otter Tail Power Company.

Q. And in your capacity as manager for resource planning, what does that entail?

A. That entails developing the Integrated Resource Plan for the entire system of Otter Tail Power to meet our customer loads. It also involves analyzing, negotiating long-term power capacity and energy contracts. And it also involves getting bids and obtaining contracts for other types of renewable

generation, wind generation, so forth.

Q. What is your employment history, Mr. Morlock?

A. I have been at Otter Tail Power about 28 years. I have some experience in the transmission and distribution planning and construction area. I have spent some time in the system operations area doing economic dispatch, generation scheduling, short-term power buying and selling, energy accounting issues. For about the last 20 years I've been primarily involved in the resource planning area and I've got 19 years of experience serving on various committees, subcommittees and working groups at MAPP.

Q. Thank you. What's your educational experience?

A. I have a bachelor of science degree in electrical engineering and in business administration from the University of North Dakota and I'm a registered professional engineer in Minnesota.

Q. Thank you, Mr. Morlock. Did you cause to be prepared or prepare testimony in this case?

A. Yes, I did.

Q. And do you have that testimony in front of you?

A. I believe so, yes.

Q. And could you identify it for the record, please?

A. I have Exhibit No. 10, which is my initial direct testimony. I have Exhibit 42, which is one set of prefiled rebuttal testimony, and Exhibit 32, which is another batch of

prefiled rebuttal testimony.

Q. Are there any corrections and did you identify the last two, the exhibit numbers?

A. Yes, the last two were Exhibits 42 and 32.

Q. Thank you. Do you have any corrections or revisions to your testimony?

A. I have one correction and that is to Applicants' Exhibit 42, page 34, line 22.

Q. Page 34?

A. Line 22.

Q. Let's give people just a moment. Okay.

A. And the sentence should be modified --

VICE-CHAIR JOHNSON: Page number and line again.

A. Page 34, line 22.

VICE-CHAIR JOHNSON: Thanks.

A. The sentence should be revised to say, result in a five percent to 21 percent cost penalty compared to the preferred plan, including the Big Stone Unit II. This represents a total cost penalty of 27 million to 122 million to the applicants' customers.

Q. (BY MR. GUERRERO) Any other revisions?

A. That's all.

Q. If I asked you the same questions that were asked in your prefiled testimony, Mr. Morlock, would your answers be the same?

A. Yes, they would.

MR. GUERRERO: Mr. Hearing Examiner, applicants would move Applicants' Exhibit No. 10, 32 and 42.

MR. SMITH: Is there an objection?

MS. GOODPASTER: No objection.

MS. STUEVE: No objection.

MR. SMITH: Applicants' 10, 32 and 42 are received.

EXHIBITS:

(Applicants' Exhibit Nos. 10, 32 and 42 received into evidence.)

Q. (BY MR. GUERRERO) Thank you. Could you please provide a summary of your testimony, Mr. Morlock?

A. Yes, I will. As Otter Tail is an investor-owned utility serving customers in Minnesota, North Dakota and South Dakota, we are required by law in Minnesota to file periodic Integrated Resource Plans to the commission in Minnesota. We currently have the plan that was filed in 2002 before the commission for approval and we have provided copies of that plan to both the North Dakota and South Dakota commissions.

Otter Tail currently provides nine to 11 percent of our total retail sales from renewable resources. We are also subject to the Minnesota Renewable Energy Objective and we are on track to comply with that objective by 2015, not just in Minnesota but across our entire system, including Minnesota, North Dakota and South Dakota. Our resource plan includes 110

megawatts of additional wind resources as well as 5.7 megawatts of biomass capacity to help us meet that obligation.

In terms of resource planning capacity needs are really a reliability consideration, but energy costs and needs are what determine the appropriate mix and timing of base load facilities. For Otter Tail Power, why Big Stone Unit II? We will have a capacity deficit of at least 116 megawatts by 2010. Increasing and volatile natural gas and the market prices are driving the need for additional base load resources for us. Our optimized capacity expansion model picked the Big Stone II unit as a cost effective resource as part of our total optimized resource plan.

Like the other applicants, we have performed extensive system level planning analysis. We looked at many, many combinations of resources. We used an optimized resource planning model in which we put all types of supply side, demand side alternatives available to the model. It sorts through those and determines an optimized mix of resources to be implemented. These studies showed that Otter Tail could justify 120 megawatts of the Big Stone II project in 2011. Since the resource plan was developed, we have acquired another 23 megawatts of unexpected high load factor load. It's quite possible if we reran the studies, we could justify possibly more at Big Stone II. Our resource plan is proposing DSM, renewables, peaking and the Big Stone II unit as part of a

diverse resource plan.

I'm going to digress to some total numbers for all seven applicants in total. We have been involved in doing DSM for a number of years. As a group we have already compiled 560 megawatts and about 370,000 megawatt hours per year of DSM picks through 2005. That's equivalent to a pretty large generating plant. The resource plans of all seven applicants plan to achieve an additional 240 megawatts and 780,000 megawatt hours per year of DSM by 2015. In the area of renewables, a number of the utilities subject to the Minnesota REO goals already have 740,000 megawatt hours per year of renewables through 2005. The resource plans include almost another 2.2 million megawatt hours by 2015. Out of that total of about 2.9 million megawatt hours, not all of it will come from specific resources, it will come from a mix and a blend, but it's equivalent to the output of 950 megawatts of wind generation at a 35 percent annual capacity factor. The combined resource plans of the seven applicants include the addition of 850 megawatts of wind generation as part of the plans.

In our rebuttal summary, rebuttal testimony, we do state that the applicants did assign MAPP capacity values in accordance with the MAPP procedures to the planning process for considering MAPP. It's important to note that MAPP is a summer peaking pool with summer deficits, so it kind of pancakes.

Both are very critical.

The joint intervenors proposed a number of combination wind/gas scenarios that should be looked at. When pancaked on top of the existing 850 megawatts that's already planned, it would call for a significant amount of wind, 1600 to 2,000 megawatts of wind energy, 25 to 30 percent of the applicants' peak demand by 2015. This by itself without consideration of other operating parameters is likely to force the balancing authorities or the control areas, of which Otter Tail is one, into a problem with complying with the NERC performance criteria standards. There were other major and costly steps that would have to be taken to insure that enough dispatchable generation is available to meet these NERC standards.

In summary, the joint intervenors' wind/gas analysis is oversimplified, inadequate, and it also uses some inappropriate large and unsupported externality values for our process.

A number of the applicants looked around MAPP to see what surpluses were available in MAPP-US's capacity deficit by the summer of 2011 without the Big Stone II unit. If you take a look at the mix of the generating resources in MAPP, by that same winter, 2011-2012, almost all the surpluses that are available are either natural gas fired or oil fired, many consisting of small diesels and combustion turbines. There are capacity surpluses in MAPP-Canada in 2011, but in dealing with

trying to purchase some of those capacity surpluses under the contractual terms, they generally do not provide the same scheduling and operating flexibility as the Big Stone Unit II would. In our analysis, they cost more than the Big Stone II Unit and the deliverability to the U.S. is severely restricted by the transmission limits on the existing facility and the numerous existing transmission reservations that are already in place on those facilities in 2011.

In summary, the applicants' plans, based on the system level analysis, include a diverse and balanced mix of demand-side management, renewables, peaking facilities and the Big Stone II unit. That concludes my summary.

MR. GUERRERO: Thank you, Mr. Morlock. Applicants would tender Mr. Morlock for questions.

MR. SMITH: Please proceed with cross-examination.

CROSS-EXAMINATION

BY MS. GOODPASTER:

Q. Thank you and good afternoon, Mr. Morlock.

A. Good afternoon.

Q. I think I'd like to -- I assume you were here just for the last witness when Mr. Koegel was testifying.

A. Yes.

Q. I had asked him some questions and he thought maybe you might be able to answer them, so I thought I would go back to that discussion based on Exhibit 14 to your left there.

Specifically, one, just to confirm your testimony first, it's Exhibit 42, page five, that the MAPP reserve capacity obligation is a floor because it does not include weather uncertainty.

A. That is correct.

Q. That's your testimony?

MR. GUERRERO: I'm sorry, I just was going to catch up to page five.

MS. GOODPASTER: I'm sorry, I didn't have a line number on there because my line number was for a different question, but I can get that for you.

Q. (BY MS. GOODPASTER) The reference would be to lines nine through 12, but it says, to the extent extreme weather causes customer demand peaks that are above forecasted levels, a utility that plans to exactly meet the 15 percent requirement based on their forecasted demand load alone, as Schlissel's and Sommer's testimony is apparently suggesting, can easily fall short of meeting the requirement. That would be the reference. From that you had already agreed with me that your testimony is that that obligation is a floor because it does not include weather uncertainty, which might cause peak demand to increase, correct?

A. Yes.

Q. Are you familiar with the study that is Exhibit 14, the MAPP reserve capacity obligation review final report?

A. I am in general familiar with it, not with all of the fine details.

Q. Okay. Well, when I was speaking with Mr. Koegel, I was interested in the second paragraph on page ES-3, the second paragraph from the bottom, I'm sorry, where it is just talking about the results of the study, it's the first sentence of the second paragraph from the bottom. Results of the study indicate the need for installed reserves in the range of 9.96 percent, paren, no internal transmission limitations, closed paren, to 12.75 percent, paren, load forecast uncertainty, closed paren. Do you have an understanding of what is meant by load forecast uncertainty in reference to the 12.75 percent?

A. I think there's some confusion here over two different aspects. One is in the study, and yes, the study itself here did consider some load forecast uncertainty from the perspective of if MAPP members missed their forecast, they did not do a good job of forecasting, that is an uncertainty that was included in the study. In my testimony, when I say load forecast uncertainty is not included, that is in the application of the RCO, the reserve capacity obligation, to each member in the after-the-fact audit. We are not allowed any margin for error or any other normalization. We have to maintain the reserve for our peak load whatever that goes. So from an individual member perspective, we are not allowed any weather forecast uncertainty in the application of the RCO.

Q. Are you familiar enough with this study to be able to tell me where in the study it defines load forecast uncertainty in the way you have just described it?

A. No, I am not.

Q. Maybe we could try page 3-2 of that Exhibit 14. There's about two-thirds down there's a section called loads and hourly profiles, that first paragraph, the last sentence of that paragraph reads, in other words, the hourly shape from a year with normal weather conditions would typically be used as a base case load model while a shape from a year with extreme weather conditions may be used for a sensitivity case.

MR. GUERRERO: Is there a question?

Q. (BY MS. GOODPASTER) Would you agree that that is discussing weather uncertainty, that sentence that I just read?

A. I can't say for sure whether it is. It may be, but from my prior experience in being involved in these types of studies, it could actually get to other types of issues related with loss of load probability.

Q. But you -- so you don't know what that sentence that I read refers to, you don't think -- you can't state that it's weather uncertainty?

A. Without having participated in actually doing the scope and working with the consultant, no, I cannot for sure say exactly what that is.

Q. Now I would like to turn to your testimony, Exhibit

42. I'll start with pages nine to ten. Generally you are discussing there, correct me if I'm wrong, the reasons why you can't rely on a Manitoba Hydro -- rely on Manitoba Hydro actually having surplus capacity.

MR. GUERRERO: Could you direct me again to the. . .

MS. GOODPASTER: I'm at pages nine to ten and I'm generally just stating that the general topic of that was reasons why Mr. Morlock says you can't rely on Manitoba Hydro actually having surplus capacity.

MR. GUERRERO: Exhibit 42?

MS. GOODPASTER: Yes.

MR. GUERRERO: Thank you.

Q. (BY MS. GOODPASTER) Is there any evidence to suggest that the amount of Manitoba Hydro capacity cited in the -- yes, in the load and capability report are based on anything other than MAPP's capacity accreditation methodology?

A. No, I am presuming that they follow the MAPP accreditation standards.

Q. Then if you could turn to page 10, lines one to six. If you would read that, let me know.

A. I am familiar with it.

Q. You remember that testimony?

A. Yes.

Q. Okay. During what periods of the year did Manitoba Hydro have to purchase spot market energy?

A. The last time they were in that scenario, I believe it started almost in the spring or during the previous winter, but it can -- it can go all year. To understand it, it requires some understanding and familiarity with their hydro system.

Q. So you are not testifying that you have that familiarity with their system?

A. We have, over the past 30 years since the tie line was put in that we have part ownership in, worked with them on many deals and transactions, short term, long term, so forth, had discussions with them on what they have available to us for capacity and they have very thoroughly briefed us on their planning requirements, which are on an energy basis, not on a capacity basis because they are a predominantly hydro system.

Q. What evidence do you have concerning any of Manitoba Hydro's spot market energy purchases? Are you referring to anything in particular when you say 30 years?

A. Well, we have existing -- we have had existing contracts with Manitoba that have had the return energy clause in them and they have exercised it within the past few years, where we had to return energy at nights and on weekends that we scheduled from them during the daytime.

Q. And that actually leads to my next question. I was going to ask you on page ten, you are talking about at lines nine through -- actually 13 through 18, talking about the requirement in contracts to return -- including a return of

energy provision. What evidence do you have that Manitoba Hydro currently demand such a return energy?

A. The proposals they gave us are covered by a confidentiality agreement and I'm not permitted to discuss those, any of the terms or conditions.

Q. So when you testify about the historic contract terms, you are not saying anything about what the current contract terms are?

A. No, I cannot.

Q. They may or may not include requirements for a return of energy.

A. That is correct.

Q. I would like to talk about Exhibit 42-A in your testimony, and it relates to your testimony that existing transmission between Canada and the U.S. is essentially full with current transactions and you stated that at page 11, lines one through three, but I wanted to just talk about this exhibit that you included. Have you found the exhibit?

A. I've got it.

Q. On the first page of 42-A, which is looks like a 11 by 17 sheet, does that first page show that Manitoba Hydro is reserving capacity space on the interface?

A. It would appear to me that Manitoba has reserved space on there, yes.

Q. Does this Exhibit 42-A indicate what contracts

Manitoba Hydro would be using this capacity for?

A. Only where it -- no, it would not indicate, other than the fact that it does say the path name in some cases is Manitoba Hydro to NSP would indicate that there's likely a Manitoba Hydro to NSP contract.

Q. The fact that Manitoba Hydro and NSP are listed there, it could be, though, that it's not for ultimate delivery to NSP customers but that the transmission control area is adjacent to Manitoba Hydro.

MR. GUERRERO: I guess I'm going to object. Calls for speculation and sounds argumentative.

MR. SMITH: Can you rephrase it so you are asking him whether he knows that?

MS. GOODPASTER: Sure.

Q. (BY MS. GOODPASTER) Mr. Morlock, you stated that Manitoba -- you were looking at some of these Manitoba Hydro capacity reservations with NSP as the point of delivery I believe is the column. And do you know -- you also stated that you thought that they would be the contracting entity for the capacity. Is it possible that that is only an indication of the fact that NSP's transmission system is the -- the control area is adjacent to the Manitoba Hydro system?

A. I guess I don't follow what you mean by adjacent.

Q. I guess I'm thinking that it is possible that they are just delivering it to the NSP control area but that NSP itself

is not the contracting party for the capacity.

A. There are a couple of possibilities. If somebody else was the purchaser directly with Manitoba Hydro, the transmission path should go from Manitoba Hydro to that purchasing entity. But it is possible that NSP would be buying from Manitoba Hydro here and turning around and providing that to somebody else from NSP to that point under a separate transmission reservation that I do not know about.

Q. Thank you. Do you know what firm contracts Manitoba Hydro has to sell power in the U.S. in the summer of 2011 or any subsequent summer period?

A. No, I do not.

Q. My next question is regarding this same 42-A exhibit, and the top of this exhibit contains the acronym OASIS, which do you know what that stands for? I could suggest what it stands for actually.

A. It's something about on line access, same time information system or something for transmission access, yes.

Q. Yes. Open access same time information system. Does the OASIS reflect any planned or proposed upgrades to the system, the transmission system, by 2011 that would permit increased firm capacity import transaction from Canada to the U.S.?

A. That I don't know.

Q. If I could refer you to page 14 of Exhibit 42 of your

testimony and about two-thirds of the way down the page, line 14, the question is regarding Exhibit 23-A that we were discussing earlier today from Burns & McDonnell. You have found that please?

A. Yes, I have.

Q. Do you know whether the objective of the study that you reference there, the -- do you know what the objective of the study was?

A. My understanding is simply to take a look at firm dispatchable base load options.

Q. Was it to choose -- the objective of the study to choose a resource that would meet the co-owners' needs based on one of the resources being less cost?

A. I guess I couldn't say that. I wouldn't know that.

Q. Mr. Morlock, my next question relates to something that you stated in your opening summary, and in general, you also talk in your testimony in Exhibit 42 regarding -- actually it's page 26 you talk about externalities. Would you agree that an externality is a side effect imposed by one party on another?

A. I've heard it defined as that. That's not the usual definition I hear.

Q. We have talked in earlier discussions with other witnesses also about it being a cost that is imposed by one party where those costs are not paid by that party. Is that a

definition that's -- what is your definition of externality?

A. It's a perceived cost impact that has not been internalized to the analysis.

Q. Thank you. So would you agree that a regulatory cost is an internal cost that has been internalized?

A. It's a requirement that's regulatory, a statute or law, yes.

Q. Could you tell me where in the Schlissel/Sommer testimony they use externalities or externality values?

A. Not without going back and reviewing it again in detail.

Q. Are you generally familiar with that testimony's discussion of regulatory costs of carbon dioxide?

A. I'm generally familiar with that aspect of their testimony, yes.

Q. And sitting here now, you can't point to a part of that testimony where Schlissel or Sommer discuss externalities?

A. Well, I was recently hospitalized with heavy doses of morphine and it's kind of affected my short-term memory, so without going back and reviewing stuff from the past few weeks, I can't quickly call that up.

Q. Okay. But in your opening summary, you did state that Sommer and Schlissel had assumed externality values.

A. That appeared to me when I read the testimony in discussion of using values much higher than what we are

required to used with the state of Minnesota.

Q. But you would agree that a regulatory cost is an internal cost and not an external cost like those that are used in Minnesota.

A. If it is in place, yes.

Q. I would like to turn your attention to page 26 of Exhibit 42 and at line 21, you reference Thomas Hewson's testimony in this proceeding. Going on to page 27, the question would be whether prior to Mr. Hewson's assessment in this proceeding, his rebuttal testimony, whether Otter Tail or any of the other co-owners had an independent -- obtained an independent assessment of the likely greenhouse gas regulations or costs of meeting potential CO2 regulations.

A. I'm not aware of any.

Q. On page 28, lines one to two, you talk about 800 megawatts of wind that applicants plan to install by the 2015, 2020 time frame, correct?

A. Yes.

Q. This by definition would be up to nine years after Big Stone II would be in service, assuming that it is approved and built.

A. I don't know the timing of each participant's planned installations.

Q. Okay, so your reference to the 2015 time frame is not based on knowledge of when the installations are going to be?

A. No, that was just totals compiled together.

Q. So do you know anything about the commitments, the nature of those commitments to install the wind, how likely those commitments are going to be?

A. I can only speak for the Otter Tail portion.

Q. Okay. And the Otter Tail portion is a compliance with the Minnesota REO is what I heard you summarize earlier.

A. We are working on complying with the Minnesota REO across our entire system, not just Minnesota.

Q. Stay on page 28, line 11 through 12. You state at line 12 that the Schlissel/Sommer testimony, that Schlissel and Sommer seem to be suggesting an amount of wind that would violate system operating standards.

A. Yes.

Q. What system operating standards are you referring to?

A. We have as a control area or now the frequent term is a balancing area authority, Otter Tail operates a control area with a responsibility to second by second basis balance load and generation of all the generating resources. There are two NERC standards that lay out the requirements that we have to meet and that -- that includes compensating for the variability of wind generation. The Otter Tail Power control area is three times the size of Otter Tail Power, so we are actually using Otter Tail Power generation to balance load and generation variances for a control area that's three times the size of our

load. We already have other planned wind generating facilities that will be going into the control area and we are getting close to the limits on how much we will be able to balance. Without adding other dispatchability facilities to be able to adjust for the variations of much more wind, we are not going to be able to comply with the NERC standards, and it's not a question of backing up all of the wind because it's only a fraction of a name plate, but even if it's only five to 10 percent for the Otter Tail control area, that's a significant amount of additional generation to have on line available.

Q. You mentioned there were two NERC standards. Could you give me a citation or name of the rule?

A. I cannot. I know I recently submitted those in response to a data request, but I don't recall those.

Q. I haven't seen those yet.

A. Okay.

Q. Possibly came in while we were in Pierre. We will look for those there.

A. Okay.

Q. Also on page 28, lines -- actually line 16, you talk about a current operating standard of between 15 percent and 20 percent for an amount of wind as a percentage of total peak demand. Do you see where I'm referring to? Are you referring to a different operating standard there?

A. Operating standard might be a little strong. That's

if you read a lot of the literature that people are discussing as to how much penetration wind could have, of course it's going to be system specific, but a number of people seem to be falling within that 15 to 20 percent range, depending on conditions in the specific area.

Q. So there's no operating standard that you can refer me to that would establish that 15 to 20 percent is a ceiling?

A. No. That's probably more appropriately called a guideline based on studies that people have been doing.

Q. Are you familiar with those studies and whether those studies have concluded that you cannot have more than 15 to 20 percent as a percentage of peak?

A. No, the studies I've reviewed, which include the one that was done with Xcel Energy, they tend to be system specific so really their conclusions are really only appropriate for the system they were studying, not a blanket industry-wide guide.

Q. So have any studies been undertaken by Otter Tail or any of the other co-owners to examine how much wind could be integrated into their respective system?

A. We have not. We are participating in the current study that the state of Minnesota is doing. We did have some indications in the resource planning runs of some difficulties once we started getting much above 10 percent wind due to minimum load problems, but we have not had time yet to investigate the magnitude of those issues.

Q. And in the resource planning docket that you just mentioned and any difficulties you gleaned there, that was specific to the Otter Tail Power control area as opposed to the MAPP region or MISO?

A. That was specific to Otter Tail's system, yes.

Q. On page 29 is my next reference at lines 14 to 15, you mention at 14 going on 15 a theoretical backup of wind machines with natural gas combined cycle generating units; do you see where I'm referring?

A. Yes.

Q. Didn't Burns & McDonnell assume in its September 2005 study of base load alternatives to Big Stone II that natural gas fired capacity would back up the wind?

A. That they did.

Q. If you could turn to page 33 next and lines six through seven, you are discussing there, referencing Exhibit 42-D, showing -- I'm reading the sentence -- it shows there's an inverse correlation of wind energy with peak demand periods. Do you see where I am?

A. Yes.

Q. If you could turn to that reference to Exhibit 42-D, could you explain or identify and explain what inverse relationship you see in that?

A. Well, I'd rather not try and explain the graph because it's rather complicated. Inverse correlation basically means

that at the time we experience our summer and our winter peaks, that the wind generation tends to be at low levels. Rather than being coincident with the need for generation, at the times we need it most, it tends to be generating the least.

MR. GUERRERO: Mr. Morlock, that exhibit is behind you in case you want to refer to it.

Q. (BY MS. GOODPASTER) I'm sorry, Mr. Morlock?

A. Yes.

Q. My recollection, you can correct me if I'm wrong, isn't Otter Tail Power a winter-peaking utility?

A. We are a winter-peaking utility at this time. The resource plan analysis showed that by about 2014, because of our use of the load management system and the ability to shave our winter peaks and the growth of summer season demand, air conditioning, so forth, that at that point we might switch over to being a net summer-peaking utility. Our unmanaged peaks would still be winter but the actual peaks we experience after load control would likely turn over to summer.

Q. But at present Otter Tail is a winter-peaking utility.

A. Yes, we are.

Q. And would this graph suggest that there is the highest amounts of wind during that period of the year? It seems like there's a lot of yellow and red in that area.

A. There is a lot of yellow and red. It takes a bit more than the graph. We have the existing wind facilities on our

system. Our extreme cold weather machines, the General Electric 1.5 megawatt machine, recognized as one of the best, that machine actually shuts down at 24 degrees below zero and so typically on our winter peak day those units shut down and are not available.

Q. On Exhibit -- just so I understand Exhibit 42-D a little better, this is representing the output of a single wind turbine or farm or what?

A. No, this is actually -- well, output pattern, I'm not sure which wind farm this came from. It was provided by FPL Energy.

Q. In your statement, you said that it's a wind farm.

A. It is a wind farm, yes.

Q. Thank you. And the exhibit shows -- would you agree with me that the exhibit shows that the wind blows at this particular site up to 25 percent during some peak hours?

A. During which time period?

Q. Summer.

A. Well, it indicates somewhere between zero and 25 percent, it's hard to discern with the colors.

Q. It looks a little bit like a psychological test. Going back to page 33, you are discussing system level studies analyses performed by the applicants. Did Burns & McDonnell perform a system level study?

A. No, we used in our Integrated Resource Plan, we used

literally none of the Burns & McDonnell study. The only thing that went into our integrated resource planning process out of their work was the cost and performance characteristics of the Big Stone II proposal. We used our own integrated model.

Q. But Burns & McDonnell did no system level analysis?

A. For us, no, they did not.

Q. On page -- I'm going to turn to asking you about a different company that you do not work for, but you are offering this exhibit on behalf of all of the applicants, so page 35, lines 10 to 14, you talk about Montana-Dakota Utility. Are you aware of any studies that MDU has performed about the amount of wind that could be integrated into its system?

A. No, I'm not. The testimony indicates Hoa Nguyen will discuss that in his testimony.

Q. I'll ask Mr. Nguyen about that. As to Otter Tail Power, this is not in reference to this page, but what did you assume in your resource planning modeling that the wind production tax credit would be available?

A. I would say based on the way it was modeled, you would have to assume yes. We modeled the wind being available as purchases from wind energy developers, and the price ranges we used that the model could select from would imply that the PTC was available.

Q. Do you know what value was assumed for the PTC?

A. For the PTC, no, because we worked strictly with a net

cost per megawatt hour based on discussions with wind developers.

Q. So there's no information in the IRP modeling that you did of an amount assumed for the PTC?

A. For the PTC, no.

Q. Are you aware, Mr. Morlock, do you know whether Otter Tail Power is aware of the Nebraska Public Power District's decision to seek relicensing of its Cooper Nuclear Station?

A. I am not aware of anything there, no.

Q. So you are not aware of --

A. I am not aware whether anyone at Otter Tail is aware or anything of what's going on there.

Q. Okay. That's clear, thank you. How about with the Omaha Public Power District, are you aware of anything there in relation to the Fort Calhoun Nuclear Plant?

A. No, I am not.

Q. And are you aware of anything having to do with the Florida Power becoming the new owner of the Duane Arnold Nuclear Plant?

A. No, I am not.

Q. I'm going to refer now to page eight and I realize I'm flipping around a little bit here, but page eight of Exhibit 42 and lines 11 to 12, you are referencing Mr. Koegel's testimony and the fact stated in his testimony that MAPP-US has about 7900 megawatts of installed capacity fired by oil and natural

gas in both summer and winter seasons. And you go on to state that in -- lines 15 to 16 -- to depend on the surpluses to offset Big Stone II would involve more oil and gas consumption in the winter seasons. Do you see where I'm referring to?

A. Yes, I do.

Q. Have you determined which units, oil and natural gas fired units would be running in the winter at full capacity and which weren't?

A. No, this is simply based off discussions with other utilities and the possibility of buying output from them and we have negotiated numerous peaking power contracts over the recent years and they are typically tied to a combustion turbine in the pricing accordingly, where either the pricing is available on a day-by-day basis at the spot market price or based on the natural gas price.

Q. Are you concluding that the entire surplus is oil and natural gas?

A. If you take a look at it and in typical utility operations, peaking units, your reserve is carried on peaking type units, so if you have a surplus and you are already seeing market prices that are fairly high, it's a natural result that pretty much that available capacity is going to be oil-fired or gas-fired, it's those peaking units, that there may be times if you are purchasing energy off such a transaction, that they could be supplying the energy off some other type of resource

but still charging you for the oil or the natural gas price or the market price.

Q. If you could turn to Exhibit 43, 42-C, excuse me. Do you have that in front of you?

A. Yes, I do.

Q. Is this exhibit, the title of it is comparison of applicants' base load needs in 2011 and proposed shares in Big Stone Unit II. Is this exhibit based on the modeling and planning studies by the co-owners?

A. I can only speak for the Otter Tail portion, and yes, it is based on our resource plan modeling.

MS. GOODPASTER: I have no further questions. Thank you.

MR. SMITH: Ms. Stueve.

MS. STUEVE: Thank you. Yes, I do.

CROSS-EXAMINATION

BY MS. STUEVE:

Q. Good afternoon.

A. Good afternoon.

Q. It's Mr. Morlock?

A. Yes.

Q. Yes. I'll get your title right here, manager of resource planning.

A. Yes.

Q. Otter Tail Power. So it would seem that -- are you

aware of -- not aware of -- I'm looking at the summary, page four that we just had up on the screen there. And it appears that it's very important for Otter Tail Power and other witnesses we have heard from, the additional co-owners for Big Stone II, the need for additional reliable base load production capacity with low energy cost.

A. Yes.

Q. Would that be accurate?

A. Yes.

Q. Have you looked at, in considering the cost effectiveness, least cost generation for electricity taken into consideration the coal shortages and what that might mean in the future, how does that impact?

A. From my perspective, the recent coal issues are out of my area of responsibility, and in actuality, the resource planning analysis that was completed was prior to those issues, so that's not part of my area of responsibility.

Q. And the next time you would do resource planning, would you have to take into consideration the possibility of that happening in the future?

A. That would depend on what information I get from the Otter Tail personnel that are directly involved in fuel and rail transportation and presumably what they are hearing from the mines and the railroads as well.

Q. Is it your opinion that it would impact cost that

would be passed on to customers?

A. I'm not sure what you mean by --

Q. Say, for example, what happened last spring where it shuts down and the generation capability is not there.

A. Any time you lose the ability to run a low cost resource at its full output capability, it has a potential to cost customers money.

Q. Yes. Could I have you take a look at Stueve Exhibit 1-D, it's an Otter Tail Power -- it should be to your left, I hope. I refrained from asking any questions for the moment. I will let him look at that. It's an Otter Tail Power presentation document to the South Dakota PUC on April 21, 2006 with an update on rail issues. Have you seen any of this before?

A. I have not seen this in detail before, no.

Q. So you know nothing about it?

A. No.

Q. Period?

A. No.

Q. Have you seen any of the points in here at all, separate from this presentation?

A. Not having seen this, I don't know what points are in this so I don't know that I can respond to that.

MS. STUEVE: No further questions.

MR. SMITH: Staff.

MS. CREMER: Staff has no questions, thank you.

MR. SMITH: Commissioners, do you have questions of Mr. Morlock?

VICE-CHAIR JOHNSON: Mr. Smith, I would ask Mr. Morlock if his appearance before us today is more or less enjoyable than being under the influence of heavy doses of morphine.

THE WITNESS: I can say 100 percent yes, although at the time the morphine was very welcome.

VICE-CHAIR JOHNSON: That's it, Mr. Smith.

MR. SMITH: Gary, do you have a question, Commissioner Hanson?

COMMISSIONER HANSON: Not quite as facetious as Commissioner Johnson's.

EXAMINATION

BY COMMISSIONER HANSON:

Q. Just out of curiosity, when you were making your presentation, you said that all of a sudden you found 123, and I'm using a different verbiage than you, you said that you just found the 123 megawatts of additional not capacity, but expended electricity or something like that.

A. I believe you are referencing 23 megawatts of low --

Q. Was it 23?

A. 23.

Q. And you just -- okay, I can understand 23 as opposed

to 123. 23 sounds like a lot.

A. That would be scary.

Q. You just found that through?

A. We frequently get people that come in and say, I'm considering this project or this project. We get many ethanol plant proposals, many which don't come to fruition, or pipeline or this, somebody plans to build something and the vast majority of them never happen. In the past few months, suddenly we have gotten notified of two ethanol plant projects, a pipeline project and a major agricultural processing project that are all going forward literally at the same time.

Q. Excuse me, that was just in the past how many?

A. That's just within the past five or six months.

COMMISSIONER HANSON: Thank you very much.

MR. SMITH: Redirect.

MR. GUERRERO: None, Your Honor.

MR. SMITH: Do you have any further questions?

MS. GOODPASTER: No.

MR. SMITH: You are excused. Is it the pleasure of the commission and the applicants to take additional witnesses yet today? Is that what you would like to do? Maybe you can talk a bit about what you have got left and consumption of time and what we are talking about schedule wise.

MR. GUERRERO: Sure, I think it's the pleasure of the commission really, whatever the commission wants to do. We are

prepared to call witnesses. We have on tap Mr. Hoa Nguyen, Mr. Larry Anderson, Mr. Stan Selander, Mr. Robert Davis, all in the resource planning departments within their respective companies. Then scheduled for tomorrow are our outside experts who are coming in tonight, Mr. Tom Hewson and Mr. Daniel Klein, so all told six -- and Mr. Gaige by phone, thank you. So my sense would be four witnesses should go relatively quick, I'm not sure, we would have to ask counsel, but actually five. I don't expect Mr. Gaige to get a whole lot of questions either. So my sense would be we could get done by, if not noon tomorrow, certainly early afternoon tomorrow with our case-in-chief, but we are willing to call more witnesses tonight and whatever the commission believes necessary.

MR. SMITH: Commissioners, I would be interested in your thoughts and those of anybody else. Is Mr. Nguyen, is that how you pronounce the name? Is he next on the agenda?

MR. GUERRERO: Mr. Stan Selander with Great River Energy.

MR. SMITH: He would be next? I don't know, do you want to hear one more witness?

VICE-CHAIR JOHNSON: That would be fine. Where are we relatively where we expected to be at this point?

MR. SMITH: I think we might be slightly -- we are right about on schedule, maybe slightly ahead of schedule I think. We are definitely not falling behind at this point in

time.

CHAIRMAN SAHR: How long would the next witness take?

MR. GUERRERO: That would be a question that you better ask --

MR. O'NEILL: We have no cross for Mr. Selander, based upon the time of the day, no cross for him or Mr. Anderson.

MR. SMITH: Shall we forge ahead? Are you saying that -- would you have cross if it were not --

COMMISSIONER HANSON: Are we off the record?

MR. SMITH: We are on the record.

MR. O'NEILL: We would forego the cross on Mr. Selander and Mr. Anderson to allow us to proceed with Mr. Nguyen, do that, and then I think do we have anyone else?

MR. GUERRERO: Mr. Robert Davis on behalf of Central Minnesota Municipal Power.

MR. O'NEILL: We may forego the cross on him, but the only one who we would do is Mr. Nguyen. You could forego the other two.

MR. GUERRERO: Maybe what would make sense would be having Mr. Selander and Mr. Anderson present their --

MS. CREMER: Or just admit their testimony like we have done with the rest.

MR. GUERRERO: That would be fine, too.

MS. CREMER: If Ms. --

MR. SMITH: Ms. Stueve, would you have any cross of

either of those two people? None?

MS. STUEVE: No.

MS. CREMER: Staff does not. Wasn't there three people they mentioned? Wasn't it Davis, Anderson and Selander?

MR. SMITH: The other element of it is unless the commissioners, since they are hear, want to hear the summaries. That's up to you.

VICE-CHAIR JOHNSON: I have looked over their testimony and am perfectly willing to do it again before we issue any kind of a decision. So I don't feel like I have to hear it in person.

MR. SMITH: And I don't know what applicants, if that's acceptable, if you want them to be able to present their direct summaries.

MR. MADSEN: If we can confer for a second.

(Brief pause.)

MR. GUERRERO: Mr. Smith and counsel, here is our proposal. With respect to Davis, who I don't believe is here yet, that would probably have to happen tomorrow, but with respect to Mr. Selander and Mr. Anderson, what we would suggest is we would just bring them up, let them affirm their testimony, enter it into the record, no summary, and then let them -- no cross, we just want to get it in the record rather than having to do an affidavit, which we have done with the other witnesses.

Then we would propose to take Mr. Nguyen first thing in the morning. I think we will do the same with Mr. Davis tomorrow morning, since he's coming in tonight, with what we have done with Mr. Anderson and Mr. Selander. So tomorrow that would leave us I believe with just Mr. Nguyen, Mr. Hewson and Mr. Klein and Mr. Gaige.

MR. SMITH: That sounds great. Let's do that.

MR. O'NEILL: The only clarification, we would want to cross-examine Mr. Davis, just so that that's clear. We were thinking about that and have decided to cross-examine Mr. Davis. The other two we would not cross-examine, Mr. Selander and Mr. Anderson.

MR. GUERRERO: Maybe we just call Mr. Selander and Mr. Anderson and then call that a day.

MR. SMITH: I think that's a great idea.

MR. SASSEVILLE: Applicants call Stan Selander. Mr. Smith, even though we are not going to go through the summary, we will hand out the PowerPoint materials, if that's okay, for both.

MR. SMITH: If there's no objection, do you want to show them to opposing counsel so they can review them for consistency with the filed testimony?

MR. SASSEVILLE: Sure.

MR. SMITH: Is that acceptable or would you rather not?

MS. GOODPASTER: It seems simpler not since they are not going to be offered as exhibits separately, but I don't feel strongly about it.

MR. SASSEVILLE: We are handing them out, we are not going to offer them as exhibits.

MR. SMITH: They won't be evidence in the case. They are just a piece of paper. It's if you feel they might influence somebody's decision, though.

MS. GOODPASTER: More paper is fine.

Thereupon,

STAN SELANDER,

called as a witness, being first duly sworn as hereinafter certified, testified as follows:

DIRECT EXAMINATION

BY MR. SASSEVILLE:

Q. Good afternoon, Mr. Selander.

A. Hello.

Q. Would you state your name and spell it for the record, please?

A. Stan Selander, S-T-A-N, last name begins with an S as in Sam, E-L-A-N-D-E-R.

Q. What's your position with Great River Energy?

A. Resource development administrator.

Q. Did you cause to be prepared in this proceeding prefiled rebuttal testimony?

A. Yes, I did.

Q. And do you have a copy of that in front of you? It should be marked as Applicants' Exhibit 43.

A. Yes, I do.

Q. Mr. Selander, if I were to ask each of the questions set forth in your testimony, would your answers be the same?

A. No, there are two changes that need to be made.

Q. Could you point out for the record those changes?

A. On page labeled number three, lines 14 and 15 of Exhibit 43, the number 74 at the end of line 14 on page three of Exhibit 43 should be changed to 35 and the number 88 in line 15 should be changed to 59.

MR. O'NEILL: Can you give me those two again?

A. 35 on line 14 at the end and 59 on line 15. They are in the summary that was handed out as well.

Q. (BY MR. SASSEVILLE) What page was that again, Mr. Selander?

A. Page three, lines 14 and 15.

Q. Was there a second change? That covered both of them?

A. That covered both, just those two numbers on those two lines.

Q. With the exception of those two changes, if I were to ask the same questions that are set forth in your prefiled testimony in Exhibit 43, would your answers today be the same as in the testimony?

A. Yes, they would.

MR. SASSEVILLE: We offer Applicants' Exhibit 43 into the record.

MR. O'NEILL: No objection.

MR. SMITH: Objection? None, Ms. Stueve? Applicants' 43 is received.

EXHIBITS:

(Applicants' Exhibit No. 43 received into evidence.)

MR. SASSEVILLE: It's my understanding that intervenors, staff and Ms. Stueve have waived cross and I would have no questions of the witness.

MR. SMITH: Would you care to confirm on the record that in fact you have waived cross-examination?

MR. O'NEILL: Yes, joint intervenors waive their cross-examination of this witness.

MS. STUEVE: Yes, Mary Jo Stueve waives cross-examination of this witness.

MS. CREMER: Staff has no questions.

MR. SMITH: Thank you, you may step down, Mr. Selander.

MR. SASSEVILLE: The applicant now calls Larry Anderson.

Thereupon,

LARRY ANDERSON,

called as a witness, being first duly sworn as hereinafter

certified, testified as follows:

DIRECT EXAMINATION

BY MR. SASSEVILLE:

Q. Good afternoon, Mr. Anderson.

A. Good afternoon.

Q. State your name, spell it for the record, please.

A. My name is Larry Anderson, L-A-R-R-Y, A-N-D-E-R-S-O-N.

Q. You are a senior planner and economist for Southern Minnesota Municipal Power Agency?

A. Yes, that's correct.

Q. Also known as SMMPA?

A. Yes.

Q. Did you prepare or cause to be prepared direct prefiled and rebuttal prefiled testimony in this proceeding?

A. Yes, I did.

Q. Do you have in front of you Applicants' Exhibits 20 and 45?

A. That's correct.

Q. And is Applicants' Exhibit 20 your prefiled direct testimony?

A. Yes, it is.

Q. And is Exhibit 45 applicants' rebuttal testimony?

A. Yes.

Q. And is there two parts to Exhibit 45, 45-A and 45-B?

A. Yes, there is.

Q. Is that contained within Exhibit 45 or are those separate right now?

A. They are separate right now.

Q. All right. And did you cause to be prepared or prepare Exhibits 45-A and 45-B?

A. Yes.

Q. If I were to ask you -- are there any corrections to any of these exhibits?

A. No.

Q. If I were to ask the same questions set forth in Exhibits 20 and 45, would your answers today be the same?

A. Yes, they would.

Q. Are Exhibit 45-A and 45-B true and correct, to the best of your knowledge?

A. Yes, they are.

MR. SASSEVILLE: Applicants offer for admission into the record Exhibits 20, 45, 45-A and 45-B.

MR. SMITH: I have a question. I'm showing that 20 was Mr. Skoglund, but let me check.

MS. CREMER: That's what I show also.

MR. SMITH: But I haven't been able to dig out my book yet.

MR. MADSEN: It's 13 and 45, try that.

MR. SASSEVILLE: Let's go back.

Q. (BY MR. SASSEVILLE) Is the exhibit marked 20 in front

of you, is that your prefiled direct?

MR. GUERRERO: Exhibit No. 12.

A. It's Applicants' Exhibit 13.

Q. (BY MR. SASSEVILLE) 13, okay. Applicants' Exhibit 13, is that your prefiled direct testimony?

A. Yes, it is.

Q. And if I were to ask the same questions set forth in Applicants' Exhibit 13 this afternoon, would your answers be the same?

A. Yes, it would.

MR. SASSEVILLE: With that correction, the applicants offer Exhibits 13, 45, 45-A and 45-B.

MR. SMITH: Is there objection to admission?

MR. O'NEILL: No objection.

MR. SMITH: Hearing no objection, Applicants' 13 and 45, including exhibits, are received into evidence.

EXHIBITS:

(Applicants' Exhibit Nos. 13, 45, 45-A and 45-B received into evidence.)

MR. SASSEVILLE: Thank you. I believe the agreement would be we will start at 8:30 in the morning with Mr. Gaige.

MR. SMITH: As with the other witness, we have a waiver of cross-examination as to this witness?

MR. O'NEILL: Yes.

MS. STUEVE: Yes.

MS. CREMER: Staff has no questions.

MR. SMITH: Okay, thank you. You may step down. Yes, we are going to start at 8:30. We will call Mr. Gaige from this room and put him on the PA system and we will begin in the morning with him. I encourage everybody to be here a bit early so we can get organized.

MR. WELK: Mr. Smith, before we adjourn, if we conclude the witnesses then in the applicants' case-in-chief, it's my understanding that the joint intervenors' witnesses will not be here till Thursday, so we have had some discussions, is Dr. Denney -- we are going to proceed to the staff's case, or Mary Jo Stueve, how are we going to proceed after the applicants' case-in-chief is concluded?

MR. SMITH: I don't know. What I'm thinking is maybe Mary Jo could go and then the exhibits she has appended to her testimony would be -- they could be admitted, if that's okay, and we would have them in the record for her benefit. She's not a lawyer, but it's up to you.

MS. STUEVE: You are saying tomorrow?

MR. SMITH: Right. It's up to you. If you would rather not.

MS. STUEVE: I am confused. Are we on the record?

MR. SMITH: We are at this point, yeah. We are just talking about the order of presentation and if -- you don't have to. If you would prefer, we could move the staff's case.

MR. GUERRERO: This is Mr. Guerrero. I see Mr. Schlissel in the back of the room, who is one of the witnesses for joint intervenors, so it seems to me that we would be able to proceed after our case-in-chief is in directly with joint intervenors' witnesses.

MR. SMITH: Intervenors, do you have an opinion on that?

MS. GOODPASTER: I know that our witness, Mr. Goldberg, will not be here tomorrow, but will be available Thursday. And we didn't learn until late yesterday that Mr. Schlissel was going to be able to be here, but I haven't talked to him yet.

MR. SMITH: Let me ask you this. Just tell me, you gotta be blunt around here, if you don't feel, because of that, that you can be prepared by tomorrow.

MS. GOODPASTER: We would prefer to go on Thursday and we also don't know how long tomorrow is going to go. I know the first few witnesses will be pretty quick, so it seems like we can't really plan about tomorrow too much.

MR. SMITH: Do you have -- is there a contrary opinion from --

MS. CREMER: There is from staff, go figure. The problem I have with anybody going before my witnesses is staff's role is really that of public -- I can't even think of the word -- public interest and so it's really I believe to

everyone's benefit to have all the evidence in and then staff offers their recommendation. It gets very out of place and I understand that we are not in front of a jury and we are not all of that, but it just seems like it's better if everybody puts their evidence in and then staff goes. We are prepared to go, but I would think they have all of tonight, it's only 5:30, to prepare Mr. Schlissel. He's been deposed, he's put in two or three testimonies, I can't imagine it takes that long to get an expert ready. By the time they get through their witnesses tomorrow, there's also the lunch hour to finish any preparation. I would think he would be ready to go. If he's not, staff is and we can put on Dr. Madden and Dr. Denney and certainly Mary Jo could probably go.

MR. SMITH: I got -- yes.

MS. GOODPASTER: I wasn't going to introduce personal information about Mr. Schlissel into this, but he just had a death in the family this weekend so that is why we weren't certain when he was going to be here and obviously he didn't have time to be devoting to preparation ahead of time, so we would really appreciate tomorrow for him to prepare.

MR. WELK: We don't care, we are more concerned about knowing who is going to be up and the gaps in the testimony. If we get done with our case at 1:30 or 2 o'clock, I think we all ought to know where we are going so we can prepare. It looks like, based on where we are going now, we are ahead of

schedule, because we have all day Thursday as well, and we have no issues with Mr. Goldberg being on Thursday morning. I think the good news is we are ahead of schedule, but let's just figure out what it is before we go home tonight so people don't waste time preparing for things that aren't going to occur. We don't care.

MR. SMITH: Commissioner Johnson, did you have anything?

VICE-CHAIR JOHNSON: I was going to ask staff if additional information has changed your recommended approach at all.

MS. CREMER: No. I don't care either, it's just I'm kind of that way, I like it done in order and if you want to take it out of order, that's fine.

MS. STUEVE: I do have a comment. I could go tomorrow, but if I go tomorrow, I would rather I could prepare if staff was going on Thursday versus tomorrow.

MR. SMITH: In order to prepare more for the staff?

MS. STUEVE: Yes, exactly.

MR. SMITH: They would probably be going Thursday or Friday. I don't know, why don't the parties here come up with a proposal and, you know, Mary Jo, you are in a little different situation because you are pro se and most of what I would expect would be you just entering your evidence in the record and then subjecting yourself to questioning from -- you

give your summary and then making yourself available for questions from other parties.

MS. STUEVE: That answers a question I had. I was a bit confused where -- I was looking on the witnesses or the listing here and I was listed as state coordinator Clean Water Action and I thought -- I was confused as to --

MR. SMITH: What that is?

MS. STUEVE: What that means, because I didn't list bringing any witnesses in because I am listed as pro se and not as state coordinator, Clean Water Action, so that was a bit confusing to me.

MR. SMITH: That list was not prepared by us, so it's not an official list.

MS. STUEVE: Okay.

MR. SMITH: That list was prepared by the applicants and that's their characterization, but because of our representation laws in this state, unfortunately, you are pro se.

MS. STUEVE: Right.

MR. SMITH: And as you know, the people, other people in your organization will have ample opportunity to say their piece on Thursday night.

MS. STUEVE: As long as that's clear, I definitely could go tomorrow, then. That would be no problem.

MR. SMITH: We will do that. Why don't we do this,

because you may not even know, after we go home tonight, we are leaving reasonably early, why don't you see how it goes with Mr. Schlissel and then you can be the judge. If you feel like he's ready tomorrow, we can proceed. If not --

VICE-CHAIR JOHNSON: Mr. Smith, if she comes to the determination and tells us tomorrow he's not going to be ready to go, then where are we? I would harken back from Mr. Welk's comment we need to have a road map. It's not an awful idea, it's just not a very good idea.

MR. GUERRERO: If I can make a recommendation, I defer to Mr. Welk on this as well, but given what we have heard, it seems that we finish the applicants' case-in-chief tomorrow, we go with Ms. Stueve after that, staff present their testimony, I know it's a little bit out of order and I heard what Ms. Cremer said, then we can expect joint intervenors' case on Thursday.

MR. SMITH: I think that sounds good and let me add this little maybe suggestion regarding staff's position and that would be -- I think they would have this opportunity anyway -- it's always odd when you have got prefiled that includes direct, rebuttal and all that in one package, that if something comes up on Thursday, that staff would have a liberal opportunity to meet that evidence, if necessary, Friday morning or what have we.

MR. GUERRERO: We would not object.

MR. SMITH: Is that a fair way to handle it?

MS. GOODPASTER: That sound fair.

MR. SMITH: That's what we shall do, then. Thank you. As to Dusty's comment, that's why they call me John Smith. We are adjourned for the day.

(Whereupon, the hearing was in recess at 5:35 p.m., and subsequently reconvened at 8:30 a.m. on Wednesday, June 28, 2006.)

# C E R T I F I C A T E

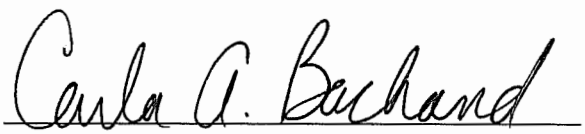
STATE OF SOUTH DAKOTA )
) ss.
COUNTY OF HUGHES )

I, Carla A. Bachand, RMR, CRR, Freelance Court Reporter for the State of South Dakota, residing in Pierre, South Dakota, do hereby certify:

That I was duly authorized to and did report the testimony and evidence in the above-entitled cause;

I further certify that the foregoing pages of this transcript represents a true and accurate transcription of my stenotype notes.

IN WITNESS WHEREOF, I have hereunto set my hand on this the 27th day of June 2006.



Carla A. Bachand, RMR, CRR
Freelance Court Reporter
Notary Public, State of South Dakota
Residing in Pierre, South Dakota.

My commission expires: June 10, 2012.