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 EL05-022
CONVERSION FACILITY PERMIT FOR THE
CONSTRUCTION OF THE BIG STONE II PROJECT

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Transcript of Proceedings
Volume 4
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ORIGINAL

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THURSDAY, JUNE 29, 2006

MR. SMITH: Can we come to order, please. Good morning, everybody. Today is Wednesday, June 29th -- Thursday, June 29, Thursday, June 29th, it's approximately 8:35 in the morning. I'll note for the people on the Internet that may be listening that one reason we are in confusion this morning is we have moved and it's a cozy room, going to be a cozy hearing room today. At the close of yesterday's session, we had concluded staff's testimony and we had some housekeeping issues related to the applicants' filing of PowerPoint presentations as exhibits in the case and did the parties want to deal with that first and get that out of the way so we don't forget before intervenors begin?

MR. WELK: Mr. Smith, I had the exhibits marked, I believe, at the end of the day, so they are marked as exhibits and I believe I moved those into evidence yesterday at the conclusion of the hearing.

MR. SMITH: Okay, thank you. Mr. O'Neill, are you the man of the hour?

MR. O'NEILL: Good morning, Mr. Smith. Yes, what I can do here this morning is identify the exhibits that the joint intervenors intend on introducing today so we have a number for each of them, and then when the witness comes up, we will formally introduce them. Does that sound like a plan?

MR. SMITH: That sounds like a plan.

MR. O'NEILL: Joint Intervenors' Exhibit No. 1 is the direct testimony of David Schlissel and Anna Sommer, Synapse Energy Economics, Incorporated on behalf of the joint intervenors. It does have the exhibits attached to them, Exhibit 1-A through 1-H. Joint Intervenors' Exhibit No. 2 is the direct testimony of Ezra Hausmann, Ph.D., Synapse Energy Economics, Incorporated, from May 19th, 2006. Joint Intervenors' Exhibit No. 3 is the direct testimony of Marshall Goldberg of MRG and Associates, Incorporated. Joint Intervenors' Exhibit No. 4 is the direct testimony of David A. Schlissel and Anna Sommer, Synapse Energy Economics. This is the confidential version from May 26th, 2006. There is also a public version that we have also labeled Joint Intervenors' Exhibit No. 4 of the same May 26th testimony.

Joint Intervenors' Exhibit No. 5 is the rebuttal testimony of David A. Schlissel and Anna Sommer, Synapse Energy Economics, Incorporated, dated June 9th, 2006. Joint Intervenors' Exhibit No. 6 is the surrebuttal testimony of David A. Schlissel and Anna Sommer, Synapse Energy Economics, Incorporated, and that's dated June 22nd, 2006. Lastly, Joint Intervenors' Exhibit No. 7 that we will be introducing today is the surrebuttal testimony of Ezra Hausmann, Ph.D., Synapse Energy Economics, Incorporated, dated June 20th, 2006.

MR. SMITH: Thank you. Are any of these going to be moved into evidence other than a live witness?

MR. O'NEILL: Yes, before the testimony here today, we reached an agreement with the applicants and I believe Ms. Stueve that there would not be any cross-examination of Ezra Hausmann. Mr. Hausmann is the expert that we had prepare testimony regarding the issue of the CO2 or greenhouse gas effect as a result of the coal, and we are introducing his direct testimony as Joint Intervenors' Exhibit No. 2 and that's from May 19th, 2006, as well as his surrebuttal testimony, Joint Intervenors' Exhibit No. 7 from June 20th, 2006, and at this time we would move to introduce into evidence Joint Intervenonrs' Exhibit No. 2 and 7.

MR. SMITH: Do the parties agree that the introduction has been stipulated in?

MR. WELK: We agree. We assume that you will file an affidavit similarly to how we have filed, that he would affirm under oath that testimony, so the record is clear that he provided that testimony under oath. And we can reserve a number, if you want to reserve your No. 8. Is that your last?

MR. O'NEILL: We could possibly do a 7-A, if that would be okay.

MR. WELK: Whatever number you would like.

MR. O'NEILL: 7-A we will reserve for the affidavit of Ezra Hausmann.

MR. SMITH: If there's no objection, I'm going to -- you have offered, did you offer that now? I am going to say we

will just receive that into evidence when it comes in.

EXHIBITS:

(Joint Intervenors' Exhibit Nos. 2, 7 and 7-A received into evidence.)

MR. O'NEILL: Sure. We will offer into evidence Exhibit No. -- Joint Intervenors' Exhibit No. 7-A, which will be the affidavit of Ezra Hausmann swearing to the direct and surrebuttal testimony.

MR. WELK: We have no objection.

MS. STUEVE: I have one question. I do have a question as far as did the -- did the testimony include reference to the CO2 emission chart?

MR. O'NEILL: The CO2 emission chart.

MS. STUEVE: For Big Stone II supplied to the -- may I move for admission?

MR. SMITH: Move for what?

MS. STUEVE: Did the testimony --

MR. SMITH: Are you talking about Mr. Hausmann?

MS. STUEVE: Mr. Hausmann's testimony.

MR. O'NEILL: I'm unsure. I would have to look through the testimony to make sure. I don't know what chart you are talking about.

MS. STUEVE: Can I move for judicial notice?

MR. SMITH: We will get to the bottom of this and we will deal with that after they have put on their case or at

some time. Is that okay?

MS. STUEVE: That's okay.

MR. SMITH: Then we will find out. If it was something that was in one of their exhibits, it's highly likely that it will come in as a part of today's activities, but let's just check. It may end up in the record. Please proceed, Mr. O'Neill.

MR. O'NEILL: With that, Mr. Smith, we would call as our first witness this morning Marshall Goldberg.

Thereupon,

MARSHALL GOLDBERG,

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

DIRECT EXAMINATION

BY MR. O'NEILL:

Q. Good morning. Good morning, Mr. Goldberg.

A. Morning.

Q. Mr. Goldberg, for purposes of the record, can you state your full name?

A. My name is Marshall R. Goldberg.

Q. And for purposes of background, can you tell us a little bit about your educational background?

A. Sure. I have a master's degree in community and regional planning from the University of Oregon.

Q. For purposes of work-related background, can you

provide us a little bit of your work-related background as it relates to your testimony here today?

A. Sure. I have my own consulting firm, MRG and Associates, and I've been practicing for about 15 years doing energy and economic resource analysis. I've been working primarily for state economic development commissions, departments, state energy offices, U.S. Department of Energy, a number of different think tank type groups, Union of Concerned Scientists, American Council For an Energy Efficient Economy, quite a few groups that are involved in energy planning and analysis.

Q. For this case here today, did you cause to be prepared prefiled direct testimony?

A. Yes, I did.

Q. And can you look at Exhibit No. 3? Is that your prefiled direct testimony that you caused to be prepared in this case?

A. Yes, it is, looks like it.

Q. If I asked you the same questions contained within Exhibit 3, would your answers be the same?

A. Yes, they would.

Q. Are there any changes or corrections to your testimony?

A. No.

MR. O'NEILL: We would offer into evidence Exhibit No.

3.

MR. WELK: No objection by the applicants.

MS. STUEVE: No objection.

MR. SMITH: Joint Intervenors' Exhibit 3 is received into evidence.

EXHIBITS:

(Joint Intervenors' Exhibit No. 3 received into evidence.)

Q. (BY MR. O'NEILL) Mr. Goldberg, can you prepare or can you provide us a brief summary of your testimony that you filed in this case here this morning?

A. Yes, I can, certainly. In the last, well, during the last several years, I've been doing quite a bit of work for the Department of Energy National Renewable Energy Laboratory doing an economic impact analysis building some models for them to allow them to document and address economic benefits related to different energy technologies, and most recently I worked on one for wind-related development and as part of that the Wind Technology Center, who I'm working with, has several states that they have asked me to do analysis for and one of those states was South Dakota.

And I recently completed an analysis of an equivalent generation using wind compared to a 600 megawatt coal-fired power plant and based on that analysis, I was asked to detail the impacts that might occur, the economic impacts that might

occur from constructing and developing wind generation resources in the area of South Dakota.

I found that there were significant economic impacts both in the construction as well as the O and M, the ongoing 20- to 30-year time frame which the plant would be operating. I found that those impacts were diverse, they would be across the whole state, depending on where wind plants were generated, significant long-term impacts. I found that when comparing this to coal-fired power plants -- actually, in the analysis that I did for National Renewable Energy Laboratories, I did not compare it to a coal-fired power plant. I didn't do the analysis for a coal-fired power plant, it was strictly for a wind plant, if wind technology were put in place.

My analysis was based on 1,320 megawatts of wind resource that would be put in to provide equivalent electricity generation to a 600 megawatt wind plant. I found that significant economic opportunities would be provided by putting in wind power. I also found -- in my testimony, the other component was I was asked to look at the economic impact analysis that was done for the Big Stone II plant and to provide some comparisons to the analysis that I had done for the National Renewable Energy Laboratory, and consistent with what I had just said, I found that the benefits from wind were significantly greater, they were comparable in terms of the construction period, assuming a four-year construction period

for the coal plant and assuming a similar construction period for the wind resource. On the construction level they were very similar. On the O and M, the ongoing long-term economic impacts, I found that they were significantly greater.

I also found that the benefits that I analyzed, I estimated for wind would actually be all within the state of South Dakota, whereas I recognize the benefits that Mr. Stuefen analyzed were actually split between South Dakota and Minnesota and in fact at least in my mind there was some inconsistencies in the assumptions that he used for how even that much, the 50 percent that he noted would actually be put in place in South Dakota. So there is certainly some inconsistencies there, but either way, regardless of what number was used, I found that the wind benefits were significantly greater. I found that if this commission, if the state of South Dakota finds that energy diversity and opportunities for economic development are a prime concern as we increase generation resources, that wind should certainly be considered.

Another point in my testimony that I think is worth noting is that based on experiences at other places, I have seen that enhancing generation resources, bringing a wind industry into a state, has an added benefit of encouraging additional economic development. The opportunity is significant for manufacturers to move into the area and actually bring more jobs and more economic development to the

state as a whole, and this is unlike a number of our traditional resources like coal or natural gas, where we don't have manufacturing industries offering to move to states to enhance, to build up, to ramp up in response to these kind of decisions. We are finding that with wind.

MR. O'NEILL: Thank you, Mr. Goldberg. We would now tender Mr. Goldberg for cross- examination.

CROSS-EXAMINATION

BY MR. WELK:

Q. Thank you. Good morning, Mr. Goldberg. I don't think we have met before, my name is Tom Welk. Mr. Goldberg, the only point of your testimony this morning, as I understand it, is if there was a hypothetical wind farm with 1320 megawatts constructed here in South Dakota, there would be more economic benefits to the state of South Dakota rather than the proposed coal-fired plant for Big Stone; is that correct?

A. Yes.

Q. That's in essence your entire testimony, correct?

A. Well, my testimony is that -- and it also relates to the analysis that was completed by Randall Stuefen.

Q. But that is what you are telling this commission, if this hypothetical wind farm was constructed in South Dakota, there would be more economic benefits to the state than the coal-fired plant.

A. Yes.

Q. Where do you assume this hypothetical wind farm is going to be constructed in South Dakota?

A. It wasn't part of my analysis to assume where that it would be, but when I was directed by National Renewable Energy Laboratory to do this analysis, not related to Big Stone, it was related to the fact that there are a number of states that the wind technology program is focusing on that have a significant wind resource and potential for significant economic development.

Q. So you don't have -- in your hypothetical, we don't know where this wind farm is going to be in South Dakota.

A. We don't know specifically, but we do know that South Dakota has one of the best wind resources in the whole country.

Q. Well, you base this conclusion on a fact that there would be more long-term jobs in the wind plant than the coal-fired plant, correct?

A. Yes, sir.

Q. That's a principal tenet of your analysis, that you are going to have in this hypothetical wind farm 172 jobs in the wind plant and there will be somewhere around 30 in the coal-fired plant that would be permanent jobs; is that correct?

A. I didn't make the determination there would be 30, that was the analysis that I reviewed, and the 172 that I have estimated is actually jobs that would be across the state, depending on where the wind plant is. This isn't just one

centralized wind plant. It would benefit residents all over the state.

Q. But the jobs that you -- in your hypothetical are $8 an hour jobs at the wind plant; is that correct?

A. They are probably more on the order of $13 to $15 an hour jobs, some of them even higher, depending on whether they were field technicians going out in the field or whether they were administrative jobs or whether they were project manager jobs.

Q. Does your 15, does that include the base rate plus benefits? Your $15 an hour, where is that?

A. I am just giving you sort of an off-the-cuff 15, some of them might be $18 an hour jobs. There's a variation.

Q. Well, let's look at your Exhibit 3 and go to your appendix and after your resume and your list of literature continues, you have put your model in the appendix of Exhibit 3; is that correct?

A. Put the results of that run for NREL that was done, yes.

Q. And NREL, that's just an acronym for the computer model you were using?

A. NREL is the National Renewable Energy Laboratory, U.S. Department of Energy JEDI, Jobs and Economic Development is the NREL model.

Q. It was a computer model that you ran to create these

numbers.

A. Yes.

Q. And in this computer model on the page that I'm on where it says local economic impact summary of results and then during operating years annual, you have got a listing there, direct impacts, plant workers only, 7.96.

A. $7.96 million.

Q. And how much -- so tell me, then, how much do you anticipate in this hypothetical wind farm we don't know where it's going to be, how much somebody is going to get paid for working at the wind farm.

A. Once again, if they are a field technician out in the field, they could be making $15 an hour.

Q. Now, one of the things I was interested in is in your analysis, you assumed that the wind plant would pay local property taxes of $2 million for the life of the plant for 20 to 30 years, correct?

A. Yes, sir.

Q. And but in looking and in comparison to Big Stone, you assumed that Big Stone would pay $4.7 million in real property taxes for 10 years, correct?

A. I didn't make that assumption, I used -- that data was in the reports that I was provided, I can't remember the --

Q. Janelle Johnson?

A. Janelle Johnson, and it said in there that was her

estimate and for 10 years it said. I took it directly from the report.

Q. When you compared the economic benefits to the state, you didn't consider the real property taxes after 10 years for the coal-fired plant, did you?

A. No, sir.

Q. Do you think that the coal-fired plant is not going to pay real estate taxes after 10 years?

A. I would assume they probably did. I took that directly from her testimony, it said for 10 years.

Q. But I mean when you did your analysis, didn't you stop and think, well, the coal plant is going to be there for 30 to 40 years, they are going to be paying local property taxes at $5 million a year for more than 10 years?

A. I didn't do any analysis of that. I just noted that number in comparison to what I had estimated for wind. I didn't analyze the coal plant. I do know that there are states where there are tax incentives and deals that are cut to bring that kind of development to the area.

Q. Mr. Goldberg, we are not talking about other states, we are talking about the state of South Dakota. What county is the coal-fired plant going to be located in?

A. Big Stone is in, is it Grant County?

Q. What's the county seat of Grant County?

A. I don't remember, I don't know.

Q. So you didn't call the local office to find out about real property taxes where this coal-fired plant is going to be located?

A. As I stated before, when I did my analysis, I didn't analyze the coal-fired power plant, I took the analysis that your witness provided.

Q. But you didn't even think about putting in another 10 years of real estate taxes?

A. I didn't see any reason, it wasn't part of my analysis. I didn't analyze the coal plant. I took exactly what was analyzed and took that information.

Q. How did you come up with $2 million in property taxes for the wind farm? Where did you get that number?

A. The information came from a resource from this commission based on $1600 per megawatt.

Q. Did you call any of the counties in the state of South Dakota to figure out what the real number would be rather than just assume some number?

A. For wind?

Q. Yes.

A. Actually, Larry Flowers, director of the Wind Project at Department of Energy, he made that call and he gave me that number.

Q. But you didn't make a single phone call to anybody in South Dakota to try and figure out what the real number was?

A. I assume that was the real number, it came from a commission.

Q. When you looked at your analysis, did you look at the additional cost to generate electricity for consumers arising from a wind plant?

A. No, that wasn't part of my analysis for NREL.

Q. You didn't consider any of the cost of the transmission of the wind, did you?

A. No. It wasn't part of the analysis.

Q. You did not consider that wind cannot generate ancillary services, did you?

A. As I said, it wasn't part of my analysis. My analysis was to analyze what the economic benefits would be for a comparable electricity generation for wind compared with coal.

Q. The purpose of your analysis was not to determine how much of either coal or wind was dispatchable, was it?

A. No, it was not.

Q. And your analysis did not analyze MAPP accreditation and load capability for the purposes of comparing wind and coal-fired generation.

A. No, sir, I've done this analysis for the National Renewable Energy Laboratory for several states and the U.S. Department of Energy NREL doesn't do project specific analysis.

Q. But we are here for a project, sir.

A. Yes, sir.

Q. We are not here for something in some other state, we are here for a particular project, you understand that?

A. Certainly.

Q. You have not taken a position in your analysis whether the applicant should propose or build this hypothetical wind farm compared to the proposed Big Stone II plant, have you?

A. No, sir.

Q. And you haven't analyzed whether this hypothetical wind farm or the proposed Big Stone II unit was the least cost alternative, that was not your purpose of your testimony.

A. No, it was not. My analysis was to look at what would the economic benefits would be if wind were put in.

Q. And you did no analysis to see if there were going to be any increases in rates to consumers of electricity if this hypothetical wind farm was constructed, correct?

A. No, I didn't do that for wind or for coal.

MR. WELK: Thank you. I have no further questions.

MR. SMITH: Housekeeping matter, Mr. O'Neill, did you intend to offer your exhibit?

MR. O'NEILL: Sure, the testimony?

MR. SMITH: Yes, Exhibit 3.

MR. O'NEILL: Yes. At this time we would offer Joint Intervenors' Exhibit No. 3 with the exhibits to that exhibit.

MR. WELK: No objection.

MS. STUEVE: No objection.

MR. SMITH: Joint Intervenors' Exhibit 3 with attachment is received into evidence.

EXHIBITS:

(Joint Intervenors' Exhibit No. 3 received into evidence.)

MR. SMITH: Ms. Stueve.

MS. STUEVE: No questions.

MR. SMITH: Staff.

CROSS-EXAMINATION

BY MS. CREMER:

Q. Good morning.

A. Morning.

Q. When you looked at placing the wind turbines, did you have an idea of how many acres of land that would be affected?

A. No, I didn't actually look at placing the wind turbines. My role is economic impact analysis, so I was looking at the number of megawatts that could potentially be installed in South Dakota relative to this size plant.

Q. Okay. Do you know what I'm talking about when I refer to the Westin IV plant in Wisconsin?

A. No, I don't.

MS. CREMER: Thank you.

MR. SMITH: Is that all staff has?

MS. CREMER: Yes.

MR. SMITH: Redirect. Excuse me, I forgot again,

commissioner questions. The problem is you guys are sitting beside me instead of in front of me.

VICE-CHAIR JOHNSON: Your excuses are amusing, Mr. Smith.

EXAMINATION

BY VICE-CHAIR JOHNSON:

Q. Did you have an opportunity to review the testimony of Mr. Klein?

A. No, I'm not familiar with that name.

VICE-CHAIR JOHNSON: I don't have any other questions, Mr. Smith. Thanks.

MR. SMITH: Now, intervenors' redirect.

COMMISSIONER HANSON: There's three of us.

EXAMINATION

BY COMMISSIONER HANSON:

Q. Out of sight, out of mind. Mr. Goldberg, you had said you obtained information from Larry Flowers.

A. Yes.

Q. Would you tell us again what his position is and level of credibility?

A. Sure. Larry Flowers is one of the directors for the National Wind Technology Program at the U.S. Department of Energy, NREL, National Renewable Energy Laboratory facility in Golden, Colorado. And he heads up the program that contracts with me to develop the models and to work on economic impact

analysis for a number of priority states. In terms of his credibility, I'm not sure what to say. He's a pretty credible guy. He's thought of very highly in the wind industry and his focus, in addition to working on enhancing energy resources, is looking at economic development opportunities around the country and how wind can provide those kind of benefits for various states, counties, local areas.

COMMISSIONER HANSON: Thank you.

EXAMINATION

BY CHAIRMAN SAHR:

Q. I will vouch for Larry Flowers' credibility, although he has gotten me into a little bit of trouble because he tells me things that I cannot verify, so for instance, he told me a while back that based on the new wind maps, South Dakota was clearly number one in the nation and I told that to a reporter at the Argus Leader who was unable to independently verify that, so Larry is very credible but he has gotten me into a little bit of trouble here and there.

A quick question on your analysis. When you are comparing the issue of coal plants and wind power or at least looking at the benefits of wind, certainly one of the issues that has come up over the past several days is the difference between firm and nonfirm power. Could you comment a little bit on are we in a situation where, I think while we have a lot of interest in seeing wind power resources developed here in our

state, is this an apples to oranges comparison if we are talking about a firm versus nonfirm source? Because my understanding is if you look across the state, we have a tremendous potential and we have got some capacity factors at current wind farms that are in the high forties, still though when you compare that to a power plant that's going to be operating probably close to double that capacity factor or maybe a little less, are we in an apples and oranges comparison or do you strictly look at the economic impact?

A. Okay, my main focus is economic impact, but I certainly get involved in these kinds of conversations and I think rather than call it apples to oranges, I think it's more realistic to call it apples to apples where maybe it's graphensteins (sp) to pippens (sp) or something like that. I think they are both energy resources. I think, in my opinion anyway, all resources have their constraints and aren't operating 100 percent of the time. You can't necessarily count on every resource. Certainly there's some that have a higher capacity factor than others, but what I understand is when we develop and we construct and operate such a large, diverse offering of wind in many different areas, that we are in a situation where we are going to have wind operating all the time. And not just it's either all 40 percent of the time and 40 and zero, I think we are going to have a diversity depending on where they are operating. So I think the reliability is

less of a factor than we have traditionally thought it was going to be.

Q. A follow-up or second question along those same lines now. I have had conversations and spent some substantial time at NREL meeting with them and I know the concept is out there that the wind is always blowing somewhere sometime, but actually when they have looked at -- this is what I have been told at people from NREL, when you look at weather forecasting and look at the data from it, actually there is some real challenges with that theory because across a region, it tends to either be fairly windy all at the same time or the system comes through a region and then when it's calm, it's very calm for an extended period of time, if you can kind of follow my drift.

A. Sure.

Q. And so when you are talking about -- and I find it fascinating because I think there is a lot of merit to talking about dispersed wind farms and overall looking at trying to deal with some of the intermittency problems for weather forecasting and taking advantage of the wind blowing somewhere when it's not blowing somewhere. I agree and I am interested in your theory. But in practice, if we are looking at North Dakota, Minnesota, South Dakota, let's say those three states, typically with the way the weather systems move through, if the wind isn't blowing in southern North Dakota, it's probably not

blowing in northern South Dakota; is that correct? Do you have any experience with that?

A. I don't have experience at that level of detail. But I will say that in terms of the analysis that I did, have done, it wasn't based on understanding whether there was actually even base load need or capacity need here, so the degree that you are going to is something that I wasn't really involved in, but there may be some different analysis if there had been some evidence to suggest that there was really a base load need, so I don't know the answer to that.

Q. And my next question may be along the same lines and I appreciate you going somewhat outside the scope of your testimony when asked these questions. We are dealing with, on the scope of things, with all due deference to them, to the interested partners in the plant, they are relatively small utilities in terms of comparing them to national scope and in terms of numbers of either customers or members. The concept of taking on 600, 1300, whatever the number you want to pick megawatts of wind, did you evaluate the feasibility of that from an energy mix standpoint? Because certainly I believe that I'll say the rule of thumb out there is somewhere between 10 and 20 percent seems to be a reasonable number and if you talk to most of the more diehard utility people, they will say, we can take on about 10 percent of our energy mix from wind maybe, you talk to some of the wind people, they will try to

push it up to 20, but there aren't too many people that I know out there that go kind of beyond those brackets, at least that I have had the experience meeting, and I've talked to hundreds of people in the wind industry about that. The concept of a 1,320 megawatt wind farm, I think we would all love to see that happen in the state, but if it's displacing a base load coal plant, aren't we in a situation where, because of the relatively small loads of these utilities or partners in this plant, they are going to have some difficulties dealing with that from an integration standpoint?

A. It's not my area of expertise in terms of integration, but once again, I don't know the answer to whether it's displacing a base load capacity plant. I have not seen anything or read anything. The analysis I was given that suggests that what's before you is for a base load plant or that there's evidence that it's needed, I should say that, and then the other thing, in your reference a 1320 megawatt wind plant, once again, my analysis doesn't make the assumption, for one, that the owners of Big Stone would actually -- they would be the people putting in that wind plant, I wasn't suggesting that necessarily. They certainly could propose that. I understand that they wanted to propose some, although I didn't see anything firm on that. And the other thing that I think is important to recognize is that it's not one big centralized plant. Certainly somebody could put in a large wind plant, but

I think more realistically what we are looking at is a diversity and potentially being put in quite a few different areas.

Q. Then back more to the economic analysis, did you look to any of the issues that would be involved with the fact that with wind, you are going to have a capacity factor of 40 something percent perhaps and that the utilities would have to go out then on the open market, buy replacement electricity, possibly fired very, very likely from natural gas-fired turbines and look at the economic impacts of, one, those purchases, and two, the regional impact from a regional and national pricing standpoint on increasing the costs of natural gas throughout the region and country because of increased purchases?

A. I didn't look at that aspect. I understand some of the other witnesses for the joint intervenors did actually look at some combinations, gas/wind combinations, but I think the point there that relates to my doing this economic impact analysis and what I think for a lot of commissions in areas around the country is that one of the benefits of wind is to help insulate us from price shocks and the issues that relate to petroleum prices that we have seen recently, and the benefits of wind obviously are there aren't any fuels. If gasoline goes up, the price of wind isn't going to go up. If coal goes up or natural gas costs go up, the cost to consumers

are going to go up as well.

Q. One of the challenges that we have in South Dakota is that we are on the far end of the eastern transmission grid and there are limited spots in this state where there are adequate injection points because of a variety of issues, seams issues, pricing issues, so on and so forth. We have the ability to put on a few hundred megawatts of wind relatively easily in the scope of things. With some transmission upgrades, we might be able to go higher than that, but for large-scale wind development to happen in this region, we have a situation where we will need quite a bit of new transmission to be built. Did you, in your analysis of the hypothetical wind farm, does that include the pricing necessary to pay for that transmission system? Because right now I don't think you could put a wind farm of that size onto the grid, so I was curious, who pays for that upgrade?

A. That wasn't part of my analysis, but I do understand that the analysis for Big Stone didn't include that either and in fact I think, as I understand, we are going to be looking at transmission, significant transmission upgrades if the Big Stone II goes in as well. So it wasn't part of my analysis.

Q. That was my next question, was with the proposed coal plant or the expansion to Big Stone I with Big Stone II, they are discussing building additional capacity onto those power lines to allow -- we don't know who would build it, we don't

know where it would be built, but to give the opportunity within the region to have several hundred or more megawatts of wind or other renewables being placed onto those lines.

Does that not give us the opportunity to really get both benefits of bringing on a base load plant and having the ability for some incremental costs that they are willing to shoulder to give us the opportunity then to add several hundred or more megawatts of wind farm? Is that not a scenario that really benefits both the needs of the consumers and the future potential for getting wind power onto our grid in this system?

A. I think certainly on the surface it appears that that capability would be there and the opportunity, but I think in reality, and once again this isn't part of my analysis, but my understanding is that if you were to approve and a 600 megawatt coal plant would be built, that there would not be much incentive or need for anybody to do that. So while the opportunity might be there in terms of the distribution, the transmission distribution, I think the reality is that you wouldn't have -- probably wouldn't build the wind, it wouldn't happen.

Q. Thank you.

A. Not on the scale you are talking about.

CHAIRMAN SAHR: Thank you very much.

COMMISSIONER HANSON: Mr. Smith.

COMMISSIONER HANSON: Just as a point of

clarification, when I was asking the question pertaining to Larry Flowers, and I suspect he never thought that his name was going to be used nearly so much at this meeting, I am a member on the board with the National Wind Coordinating Committee and I worked with Larry and have been associated with him for several years now, so I know him very well, but I just felt that there should be something introduced into the record since you said you obtained the information from him.

MR. SMITH: Redirect.

REDIRECT EXAMINATION

BY MR. O'NEILL:

Q. Just one area. Mr. Flowers' name will come up one more time. The representation that South Dakota was possibly the number one state, or in your testimony, that South Dakota was a priority state, can you just give us the information that you have that would suggest South Dakota being a priority state for wind and what the national energy lab uses to try and foster that goal of it being a priority?

A. First off, in terms of where it stands in being number -- one of the top states, I think the wind maps are actually on the Web. I don't have the location with me, but I think in terms of whether the newspaper needed that information, in terms of the wind resource around the country, I think National Renewable Energy Laboratory publishes those on the Web so anybody can go there and see which states are the

top.

In terms of priority, I will preface my remarks by saying that isn't what I'm doing for the National Renewable Energy Laboratory in terms of determining which are the priority states, but as I understand, the priority states are the ones with the highest wind resource and the ability to bring those kind of plants on line and what NREL is doing through analysis that I'm doing building these models and doing other kinds of efforts in terms of enhancing the kinds of generation resource that will be available to utilities and other developers is providing tools and information so that commissions like this can look at other benefits of wind rather than limit it to just, gee, we need some electricity generation here, because as you and most commissions know, economic impact and opportunities are a key component and if that is one of your objectives, the National Renewable Energy Laboratory is trying to provide information to help you understand how it can really benefit the state, provide other opportunities that aren't limited to wind, but provide what you need in terms of energy as well.

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

MR. WELK: I don't have any further.

MR. SMITH: Did you have a question, Ms. Stueve? You are excused, Mr. Goldberg. You may call your next witness.

MR. O'NEILL: As our next witness, we would call David Schlissel. We are in the process of trying to get copies of the PowerPoint presentation, I don't know where that sits.

MR. SMITH: Do you need a five-minute break?

MR. O'NEILL: That might be a good idea.

(Whereupon, the hearing was in recess at 9:20 a.m., and subsequently reconvened at 9:35 a.m., and the following proceedings were had and entered of record:)

EXHIBITS:

(Staff Exhibit No. 4 marked for identification.)

EXHIBITS:

(Joint Intervenors' Exhibit No. 15 marked for identification.)

MR. SMITH: Apparently the technical problem is insurmountable as I'm just seeing that here. Do the joint intervenors, do you want to just proceed verbally here and with our handout?

MR. O'NEILL: Yes, thank you. Joint intervenors call as our next witness David Schlissel.

Thereupon,

DAVID SCHLISSEL,

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

DIRECT EXAMINATION

BY MR. O'NEILL:

Q. Good morning, Mr. Schlissel.

A. Good morning.

Q. Mr. Schlissel, can you please state your full name for the record?

A. David Alan, A-L-A-N, Schlissel, S-C-H-L-I-S-S-E-L.

Q. For purposes of background, can you provide us your educational background?

A. I have a bachelor of science degree in astronautical engineering from MIT, a master's degree in the same subject from Stanford University. I have a juris doctor degree from Stanford University School of Law and I've also studied nuclear engineering and project management at MIT, but not in a degree program.

Q. Can you please provide us your work-related experience that is relevant to your testimony here today?

A. I've been working on energy and environmental issues for over 32 years. The first five or six were as an attorney. Since then I've been a consultant on technical and economic studies on a wide variety of issues, including examining utilities' need for new capacity, how utility systems operate, load forecasts, a wide range of issues, power plant operations and costs.

Q. Thank you. In this case, did you cause to be prepared direct, rebuttal and surrebuttal testimony?

A. Yes, jointly with Ms. Anna Sommer, who also works with

me at Synapse.

Q. If you look at the documents in front of you, Joint Intervenors' Exhibit No. 1, is that the direct testimony of you and Ms. Sommer?

A. Yes, it is.

Q. Do you have any additions or corrections to that testimony?

A. Ms. Sommer has a couple of typos in the exhibits to this testimony. I don't know if you want me to do them now or to wait till she is in the witness chair.

Q. What we would like to do, I guess, is at some point, I'd like to do it when we are done talking here this morning, introducing it as an exhibit, but maybe we can leave for purposes of the record any corrections that Ms. Sommer would make. Does that sound fair?

A. That sounds fair. I can tell you as we go through some of the pieces of testimony I found a couple of typos, but her list is different than mine.

Q. Do you want to identify those for us right now?

A. In Joint Intervenors' Exhibit 1, there are no typos that I found.

Q. All right. If I asked you the questions that are contained in Joint Intervenors' Exhibit No. 1, would your, and to the best of your knowledge, Ms. Sommer's answer to those questions be the same?

A. Yes.

MR. O'NEILL: At this time we would move into evidence Joint Intervenors' Exhibit No. 1.

MR. SMITH: Is there an objection?

MR. GLASER: Well, perhaps since Ms. Sommer jointly prepared this exhibit and may be testifying about it, perhaps we should just wait until we have her.

MR. O'NEILL: Before we move it into evidence?

MR. GLASER: Before you move it into evidence.

Q. (BY MR. O'NEILL) Directing your attention to Joint Intervenors' Exhibit No. 4, do you have that document in front of you?

A. Yes.

Q. And that contains both the confidential version and the public version of your rebuttal testimony; is that true? I don't believe that is rebuttal, that's further direct testimony; is that right?

A. That's correct.

Q. And if I asked you the questions contained on Joint Intervenors' Exhibit No. 4, May 26th, 2006, would your answers be the same?

A. Yes, except I would clean up two typos.

Q. What are those?

A. On page eight, line seven, in the question, the word "that," T-H-A-T, should be inserted between the word "analyses"

and "were" so that the question would read "What are the three jointly sponsored analyses that were submitted as part of the co-owners' testimony in this proceeding?"

Q. Okay. Anywhere else?

A. Yes, the next typo is on page 34, line 10, the words "has not" at the beginning of the line should be eliminated, deleted so that the beginning of the sentence would read "nor has it evaluated." Those are the typos I found in Joint Intervenors' Exhibit 4.

Q. Directing your attention to the rebuttal testimony, Joint Intervenors' Exhibit No. 5 prepared on June 9th, 2006, do you have that testimony in front of you?

A. Yes.

Q. Again, if I asked you the questions contained in Joint Intervenors' Exhibit No. 5, would your answers be the same today?

A. Yes.

Q. Are there any changes or corrections to that?

A. None that I found.

Q. Directing your attention to Joint Intervenors' Exhibit No. 6, the surrebuttal testimony filed on June 22nd, 2006, do you have that document in front of you?

A. Yes.

Q. If I asked you the questions contained in that surrebuttal testimony, would your answers be the same today?

A. Yes, subject to correcting four typos.

Q. Okay. Let's go to those four typos.

A. Page four, line 24, the word in the middle -- it's the line, it currently reads "is," I-S, it should be "in," I-N. So the line would read "permit capacity to be added to a system in smaller increments or demand side." The next is page 12, line 24, the fourth word from the end of the line, "displaced," should be "displace," the D at the end of the word should be eliminated.

Page 16, line three, the word "his," H-I-S, should be inserted in front of rebuttal so that the first sentence of the question would read "Mr. Greig has testified that the figures in table one in his rebuttal testimony." Then finally, on page 23 in table one -- actually, I can't read Ms. Sommer's handwriting, I'll let her deal with that one. I apologize for taking you to the spot. I don't want to make a typo on top of a typo.

Q. Finally, you have prepared a summary exhibit for your testimony here today; is that true?

A. Yes, it is.

Q. And that's Exhibit 15?

A. Yes.

Q. Can you provide us that summary testimony?

A. Sure. In their planning -- what we have found in our investigation -- please tell me, I'm a New Yorker, so if I talk

too fast, slow me down. What we found in our investigation is that in their planning and decision making to build Big Stone II, the co-owners --

CHAIRMAN SAHR: I hate to throw you off right at the beginning. We have had trouble with the Internet picking up witnesses' mikes and you are coming through okay for this room, but if you pull the mike a little bit closer, I think that might help the people listening on line.

A. No problem. I'm a New Yorker and sometimes I talk loud and I hate to blow anybody's computer.

CHAIRMAN SAHR: Loud is good with the folks listening on the Internet, thank you.

A. In their planning and decision making to build Big Stone II, the co-owners have assumed there will be no regulation of CO2 emissions during the plant's projected 40-year or longer operating life. However, CO2 regulation is not speculative, even though the timing and stringency of such regulations is uncertain at this time. The U.S. Congress has examined over the past few years and continues to examine numerous bills that would limit CO2 emissions.

We at Synapse have developed, and we discuss in Joint Intervenors' Exhibit 1, a range of projected CO2 allowance costs from the years 2010 through 2030. Under the range of projected CO2 allowance costs -- under our range of projected CO2 allowance costs, Big Stone II would incur annual penalties

of between $35 million to $137 million each year, on average or levelized.

Despite uncertainties, the issue of CO2 regulations and their impact on the cost of operating Big Stone II must be addressed now before the plant is licensed and built. There is no economical control technology for CO2 emissions from pulverized coal plants, so this is not an issue that you can hope to deal with in the future. Allowing the plant to be built will be a commitment to 40 to 50 years of CO2 emissions.

In the various pieces of testimony filed by the co-owners there's been confusion between an externality and an internal cost of regulation. An externality is different from a regulatory cost. An externality is a cost caused but not borne by the producer of the cost. We have not considered externality costs in our testimony. We believe they need to be considered, but it's not an issue that we have projected. We have presented a range of projected direct costs of federal efforts to limit CO2 emissions.

Although the co-owners have demonstrated that as a group they require additional capacity during peak demand hours starting in or about 2011, they have not shown that they need a 600 megawatt dispatchable unit. The co-owners have not shown that a portfolio of resources that includes renewables and demand-side management would not be more cost effective than Big Stone II. Now the co-owners are saying that in future

years they will add some renewables and some DSM in addition to Big Stone II. However, it appears that some of the wind resources that the co-owners say that they will add will not be added before the 2015 to 2020 time frame that Mr. Morlock testified to. That would be nearly a decade after Big Stone II would be built.

Each of the Big Stone II co-owners is already heavily dependent upon coal. Adding Big Stone II would make them even more dependent. Despite their claimed plans to add wind, other renewables and DSM, the co-owners will remain heavily dependent upon coal if they are allowed to build Big Stone II, and natural gas-fired capacity, and thus will continue to be highly susceptible to costs resulting from federal regulation of greenhouse gases.

Despite what the co-owners claim repeatedly in their testimony, we have not proposed that a gas plant be built in place of Big Stone II. What we have done is to show that there are alternatives that are more economical than Big Stone II. For the purposes of planning and deciding whether to build Big Stone II, it is prudent to assume that at some time in the not-too-distant future the federal government will take meaningful action to reduce emissions of greenhouse gases from power plants, that wind resources in South Dakota, Minnesota and North Dakota will deserve a capacity credit of between 15 percent and 25 percent of their rated capacity, and that the

wind production tax credit will continue to be renewed.

I would make one last point that's not included here, is that our analysis of Big Stone II and CO2 emissions is from a point of view of economics. We also believe there are serious environmental issues related to global warming and climate change that our colleague, Dr. Hausmann, presented in his testimony and that he would have explained had he been here today.

MR. O'NEILL: Thank you, Mr. Schlissel. We would now tender him for cross-examination.

MR. SMITH: Is it Mr. Glaser?

MR. GLASER: Yes, sir, I guess I'm up.

CROSS-EXAMINATION

BY MR. GLASER:

Q. Mr. Schlissel, good morning again.

A. Good morning, Mr. Glaser.

Q. Let's start on page 18 of the first round of testimony, which is Joint Intervenors' Exhibit 1.

A. Page 18?

Q. Page 18.

A. I'm falling apart in front of the commission here, I poured something on my paper.

Q. That was just my first question.

A. What I poured or I'm falling apart? May 19th, page 18?

Q. May 19th, Exhibit 1, page 18.

A. Yes, sir.

Q. And in particular table three, do you see table three there?

A. Yes, sir.

Q. And in table three, you present three carbon price forecasts, assuming that the country in the future adopts greenhouse gas regulations; is that correct?

A. Yes.

Q. And so what you are projecting in terms of future carbon dioxide costs is $7.80 to $30.50 as a range, in the mid case of what your projection is is $19.10; is that correct?

A. Well, those are levelized costs over a period of years. You can see the price trajectories that underlie those levelized costs in figure one, which is directly above table three.

Q. Right, that's correct, as the title to table three indicates. And then if you would just turn the pages over to page 23, please, are you there?

A. Yes.

Q. Okay, and I'm looking at table four, which is entitled CO2 cost of new fossil fuel resources; do you see that?

A. Yes.

Q. And in the column labeled supercritical PC, I see, reading down the left side, that we have the three CO2

allowance prices there that you previously testified to just a moment ago, do you see those, the 7.80, the 19.10 and the 30.50; do you see that?

A. Yes.

Q. Below that I see that those numbers have been converted into costs per megawatt hour and if I'm reading the table correctly, what you are saying there is that at least just picking out one example, that the mid price of $19.10, that would project out to a cost per megawatt hour to Big Stone of $18.61; is that correct?

A. Correct. But again, that's levelized costs.

Q. Levelized costs, right. And then just reading down to line 10, you go on to say, from a purely qualitative standpoint, it is very difficult to imagine that other resources would not be more cost effective than Big Stone II with the addition of $18.61 per megawatt hour in operating costs from our mid case CO2 price forecast. Do you see that?

A. Yes.

Q. Okay, and I want to explore, as we did in your deposition a couple of weeks ago, whether or not that statement that I just read applies not just to Big Stone II but in fact would apply to almost any comparably-sized coal plant, and I wonder if it's fair to characterize your view as being one that you don't want to be tied down to any possibly proposed power plant, there could be individual circumstances, but that for

most coal-fired power plants being proposed, it is hard to imagine that those plants would remain cost effective as compared with other resource choices with imputed carbon costs equal to $18.75 per megawatt hour; is that a fair characterization?

A. I think it's close. My recollection was that that kind of cost would put a big hurt in the economics of proposed coal-fired plants, but you would have to look at it case-by-case basis to determine whether there were or were not alternatives to each plant.

Q. Do you have a copy of your deposition with you?

A. No.

Q. I have one for you.

A. Thank you.

Q. We are not going to be introducing the deposition as an exhibit, but I will have a few questions off the transcript and for those who want a copy, we have extra copies to follow along. While we are handing that out, so we can just keep moving along, I want to refer you to page 185.

A. 185.

Q. And beginning on line three, my question was, I don't want to beat a dead horse on this, but you would expect that in most cases, the kind of an $18 percent megawatt hour cost impact on a coal plant is going to result --

A. Yes.

Q. -- is going to result in that coal plant not being cost competitive against other resources, most cases, not all cases. And I believe your answer is, well, I don't want to beat a dead horse from my end, so I'm just going to say it would certainly put a hurt in the earnings and the economics of the power plant, but as to whether it would turn it around, without knowing the specific circumstances, it's -- we can't prejudge any other case. We haven't looked at the facts of any other case, but we are willing to say yes, it would put a hurt on them on the economics and it's difficult to imagine it wouldn't turn it around compared to other resources. That was your answer; is that a fair characterization of your position?

A. Yes.

Q. Okay, well, having made that statement, you would agree with me nevertheless that there are upward of about a hundred proposed coal plants, a hundred coal plants that have been proposed in the United States at this time.

A. I've seen numbers roughly a hundred, maybe a little higher, in the media.

Q. Okay, and all of those coal plants obviously would face the risk that at some point Congress would adopt future greenhouse gas regulation; is that correct?

A. Yes.

Q. And if we could just go to page eight of your testimony, same testimony.

A. Page eight?

Q. Yeah, page eight of the May 19th, Exhibit 1.

A. Yes.

Q. And on line 21, the question is, do other utilities have opinions about whether and when a greenhouse gas regulation will come? And you answered yes and you give a number of examples, but the first one is from James Rogers, the CEO of Duke Energy, who you indicate made the statement that he said there. Do you see that?

A. Yes.

Q. You are aware, aren't you, though, that Duke Energy in fact itself has proposed two 800, for a total of 1600 megawatts of supercritical pulverized coal plants at its Cliffside location in the state of North Carolina?

A. Vaguely I've heard that.

Q. Well, Mr. Hewson at page 21 of his initial testimony, lines nine to 11, indicates that in fact is the case. Do you have any information that would contradict Mr. Hewson on that point?

A. No.

Q. And you know that there are other coal plants in this region of the country that have been proposed, in this region meaning the Midwest and Upper Midwest.

A. Sure.

Q. Basin Electric Power Cooperative has a proposed plant.

A. Yes.

Q. Tri-State Generation and Transmission has a proposed plant; is that correct?

A. I'm not familiar with the names of the plants through the owners. If you give me the name of the proposed project is what I usually look at.

Q. I don't know all the names, I know some of the utilities, but you are at least familiar with the Basin Electric Plant?

A. I'm familiar that there are a number of coal plants proposed for Wisconsin and west.

Q. If we could go to page 13 of the same testimony.

A. Yes.

Q. And line 14, the question is, do any states require that utilities or default service suppliers evaluate costs or risks associated with greenhouse gas emissions in long-range planning or resource procurement? And I take it that that is what, in this case, you want the applicants to do, is to evaluate the costs or risks associated with greenhouse gas emissions in their resource procurement; is that right?

A. Well, not -- I believe they should have done it in the past and should continue doing it as things go forward. In this case it's really a request for a permit before the South Dakota Commission, so I would ask not that the co-owners do anything, but that the commission consider this as part of

their evaluation of the project.

Q. Sure. And in doing so, obviously, to utilize the range of values or at least the midpoint case of $19.10; is that right?

A. No, I -- well, yes and no. Yes, I believe they should look at a range of values, and I would not recommend that they just focus on the middle value. I think that given the uncertainty in future CO2 allowance prices, that it's important to look at a range rather than focusing on one price.

Q. Okay. Then line 17 on page 13, you say, as shown in table one below, several states require companies under their jurisdiction to account for the emission of greenhouse gases in resource planning. When we turn the page, there's table one, and it lists the states. The table is entitled requirements for consideration of greenhouse gas emissions in electric resource decisions. I see that some of these states are listed twice and I counted seven states that you listed here with these requirements, including -- but not including something called the NWPCC. That's the -- what is the NWPCC?

A. I would suggest that you hold these questions for Ms. Sommer. She's more familiar with this area in the testimony than I.

Q. Okay. I will do that. Then let's go back to page 13 and in line nine, the question is, have any states adopted direct policies that require specific emission reductions from

electric sources? And it lists three states; do you see that there? Massachusetts, New Hampshire, Oregon and California.

A. That's four.

Q. I'm sorry. Massachusetts, New Hampshire, Oregon -- you're right.

A. I'm sure people think that states on the coast are the same.

Q. Well, California.

A. There's two on each coast.

Q. Four states, Massachusetts, New Hampshire, Oregon and California. I have some -- let me just ask you the questions, you tell me if I'm asking the right person. Do you know -- well anyway, these are four states that, as the question indicates, actually require their electric sources within the state to reduce their carbon dioxide emissions; is that correct?

A. I believe so, yes.

Q. And for these states, if I asked you the amount of coal that each state's electric -- let me rephrase it. The amount of coal generation that each state has as a percentage of its total electric resource mix, would you know the answer to that?

A. I don't know percentages. I know -- I'm familiar with Massachusetts, partly because I live there and partly because we work there. Massachusetts has a fair amount of coal-fired

generation, I think it's five or six units, two of which are very large, but I don't know as a percentage. It's not a very large percentage, but I don't know the exact percentage.

Q. Mr. Hewson testified in his Exhibit 30 that the percentages for each state were Massachusetts 25 percent, Oregon seven percent. Do you have any information that would indicate that that is incorrect for Massachusetts and Oregon?

A. No.

Q. Do you know what the percentage is in South Dakota?

A. I don't recall it, no.

Q. Mr. Hewson, page 23, line three, indicates that that amount is 46 percent. Would you dispute that amount?

A. No.

Q. Do you know comparatively the retail electric rates of the four states listed here in comparison with South Dakota, Massachusetts, New Hampshire, Oregon and California versus South Dakota?

A. I would imagine they are significantly higher, but there are lots of reasons for rate differentials.

Q. You testify concerning something called the Regional Greenhouse Gas Initiative in the northeast and that's on page 13, lines four and five, and actually continuing down to six and seven; do you see that?

A. Yes.

Q. And the Regional Greenhouse Gas Initiative is an

initiative of a number of states in the northeast to adopt a region wide cap-and-trade program; is that correct?

A. That is correct.

Q. But that program actually has not been adopted by the individual states; is that right?

A. That's a question again, it's called RGGI, RGGI is a question for Ms. Sommer. She's more familiar with that than I.

Q. Well, let's go back to page 18.

A. Of the same exhibit?

Q. Of the same exhibit. I'd like to inquire about figure one here, and I have a number of detailed questions about how to interpret and decipher this figure one. At your deposition, Ms. Sommers was the one to whom you deferred on this figure. Should we do that here as well?

A. I can try my best shot. I understand how it's done and can explain it. If you want to try with me and then ask Ms. Sommer, you may get a complete answer out of both of us, we may duplicate some.

Q. Well, I think it's fair that we have one witness testify concerning this figure. I don't want to tag team this. If there is one of you who can answer comprehensively about this figure, I'd like to do it with one witness and save time and not have to do it with two.

A. We both worked on it. I think that's one of the reasons we presented panel testimony.

Q. Well, okay. Then I will go forward at this time. It's fair to say just as a general matter here that the information on figure one is designed to support the levelized carbon price forecasts that are shown on table three; is that correct?

A. No, I wouldn't -- I wouldn't term it like that, no. It's not designed to support. This is the information we looked at when we developed the price trajectories that were translated into the levelized prices.

Q. Right, okay, that's a good correction. So what we have on this figure one, we have these -- I guess we have put it up on the screen so others can look at it. It's important that as I go through this examination, that everybody has a color copy, so we decided to put it on the screen in case people didn't have color copies. We have a series of geometrical shapes in different colors and I take it each geometric shape that is represented on this figure represents a modeled forecast of carbon dioxide allowance prices under various proposals for greenhouse gas regulation; did I get that right?

A. That's correct.

Q. And each color that we see here in the geometric shapes signifies a different proposal, so for instance, let me just illustrate this, all of the blue, the blue circles, the blue triangles, the blue diamonds, is a bill that is, if you

look at the legend in the upper left-hand corner, is S-138; is that right?

A. 39.

Q. 139. 139 it is. So each of the blue shapes is S-139 and then the difference here with some are circles, some are diamonds, some are triangles, as I said, the circles is a model forecast of the allowance prices of S-139 produced by an organization called Tellus; is that right?

A. Yes, and the other two were produced by the -- the diamonds were produced by a study at the Massachusetts Institute of Technology, MIT, and the triangles was from a study produced by the U.S. DOE's Energy Information Administration, EIA.

MR. O'NEILL: Mr. Schlissel, can you keep talking to the microphone when you are looking up there?

A. I'm sorry.

Q. (BY MR. GLASER) So all of the blue, just to make this clear, it took me a while with this, all of the blue is a single bill, but the different shapes represent different model forecasts from different analytical entities; is that right?

A. That's correct.

Q. Then, for instance, the green is something called EIA -- I'm sorry, the green is all SA-2028; is that right?

A. That's correct, there were two studies of Senate Amendment 2028, which was a variant of Senate Bill 139.

Q. Now, I guess the first thing that we can say about all of these proposals here that are depicted on figure one is that none of them in fact were ever voted out of either the U.S. Senate or the U.S. House of Representatives; that's correct, isn't it?

A. That's correct, the Congress has not voted out a greenhouse gas emissions bill.

Q. But not just the Congress, either house of the Congress.

A. Okay, that's what I meant.

Q. Okay. And let's start with the blue, the blue again is S-139, and as I understand it, S-139 is a bill that was introduced in early 2003 by Senators McCain and Lieberman; is that correct?

A. That is correct.

Q. And that bill established a two-phase program for reducing carbon dioxide emissions; is that correct?

A. That's correct.

Q. And in phase one, it was one level of emission reductions required and then there was a second phase in which even further emission reductions would be required.

A. Phase one was to bring emissions in 2010 back to the year 2000 levels and phase two was to bring them back to 1990 levels.

Q. Okay. Now, the green geometric shapes, as we said

earlier, we said that's SA-2028; is that correct?

A. Correct.

Q. SA-2028 was an amended bill introduced by Senators McCain and Lieberman later on in 2003; is that correct?

A. That is correct.

Q. And it's fair to say that the second bill depicted in the green, SA-2028, deleted -- one of the things it did was to delete the second phase of reductions; is that correct?

A. That's correct.

Q. And so it is fair to say that the second proposal by Senators McCain and Lieberman was less stringent than the first proposal; isn't that correct?

A. I think it's fair to say over the long term, phase one was the same.

Q. Okay. Now, the McCain/Lieberman bill was voted on by the Senate, was it not, in 2003?

A. Yes, it was defeated 43 to 56 I think was the vote.

Q. And do you know whether the vote was taken on the bill as originally introduced earlier in the year or on the amendment that was introduced later in the year?

A. It was on the amendment, S-2028.

Q. So it's fair to say, looking at this figure, that all of the geometric shapes that are in blue represent a bill that was not only not voted on, it was replaced later in the year by the same sponsors with a bill that was less stringent; is that

correct?

A. Yes, that's correct, but the implication is not correct.

Q. I'm not asking you about the implication. Your counsel will have an opportunity to redirect. I just want to get the facts out. Thank you. And even with respect to the green information on this figure, that represents a bill that in fact was voted on in the Senate but was not adopted; that's correct?

A. That is correct.

Q. Now, you are aware, aren't you, that Senators McCain and Lieberman then introduced another bill in 2005; is that right?

A. That is correct.

Q. And is it correct to say that the 2005 bill was similar to the Senate amendment version of the McCain/Lieberman bill in 2003 as opposed to the earlier version of the bill in 2003?

A. The answer is yes, with emphasis on the word "similar." It was not the same.

Q. Right. But the 2005 bill, like the second 2003 bill, only had one phase, correct?

A. That's correct.

Q. And is it also true that the McCain/Lieberman 2005 bill was voted on by the Senate; is that correct?

A. Yes, I believe as an amendment to the Energy Policy Act of 2005.

Q. Correct. And it is also true that in 2005 this bill received even fewer votes than the bill, the McCain/Lieberman bill that was voted on in 2003; is that right?

A. It's true, that's why I mentioned the key word in your earlier question was similar. There were provisions that caused, for the Democrat senators who had voted in favor of the Senate Amendment 2028 in 2003, to switch their votes and that was essentially the difference. Instead of 43-56, it was 38-60, I think. I think those are the numbers that work out.

Q. Now, the orange on the chart indicates, in the legend it says EIA cap-and-trade; do you see that?

A. Yes.

Q. And what is that?

A. Those deal with proposals by the National Commission on Energy Policy and studies of those proposals. Senator Bingaman back in 2005 was in the process of developing a bill based on those proposals and then after discussions with Senator Domenici --

Q. Domenici.

A. Domenici, I apologize, Senator Domenici, he did not propose the bill at the time and they have been in the process of they have held some hearings, they are holding a series of meetings trying to develop details on how you would implement a

greenhouse gas regulation, but from everything I hear, they still intend to submit a bill soon.

Q. Well, just looking again at the orange, if you could turn to -- you have an exhibit to your main exhibit, it's the Synapse climate change and power, carbon dioxide emission costs and electricity resource planning. You know the document I'm referring to?

A. Yes.

Q. If you would turn to page 34 of that. And so just for the record, we are looking at Joint Intervenors' Exhibit 1 and behind that exhibit is a fairly lengthy report dated May 18th, 2006 with a title that I just provided for the record.

MR. O'NEILL: I believe it's 1-F.

MR. GLASER: Okay. I'll take your word for it.

Q. (BY MR. GLASER) And on page 34, there's a figure 6.2 and it describes the proposals for each of the colors on the figure that we have been talking about, and under orange, it says, EIA analysis of cap-and-trade policies based on NCEP but varying the carbon intensity reduction goals; do you see that?

A. That's correct.

Q. Now, so I take it here that an entity called NCEP, and you identified that as the National Commission on Energy Policy, was looking at a proposal and that EIA did an analysis of that proposal but varying some of the goals, the carbon reduction goals of that proposal; is that right?

A. That's close, but I don't think it's completely correct, if I might.

Q. Go ahead.

A. The National Commission on Energy Policy is a broadly-based business, political, consumer, environmental group, bipartisan, has heads of corporations, former political leaders. I have the report if you want me to read any more from it. The two studies, the yellow and the orange on the chart, figure one that's on the screen, are several different studies by EIA, Energy Information Administration, of the proposals that were presented by the NCEP in December 2004. The yellow proposal, I believe the yellow study was the EIA analysis of the NCEP proposals as they were made in December 2004.

EIA was subsequently requested by several members of Congress to look at variations on the NCEP proposals, so that's the orange. The yellow I believe is the NCEP as it proposed them and the orange is as they are revised, not revised but examined under different intensity reductions.

Q. You mentioned Senator Bingaman. It's fair to say that Senator Bingaman floated a proposal during the energy policy debate in 2005 reflective of the NCEP report; is that correct?

A. That's correct.

Q. You don't think that was ever actually introduced on the floor of the Senate.

A. I believe it was not, I believe that he was going to introduce it and after discussions with Senator Domenici, he decided not to. That's my understanding.

Q. For the record, Mr. Hewson had testified that he thought that the proposal actually had been introduced but then withdrawn in the same understanding that you just described, but that's --

A. I checked the Library of Congress Web site this morning and it didn't indicate that it had been developed, but we are probably quibbling over --

Q. Yeah, that's what I think. The question I really want to ask you is there was actually legislative language that had been developed by Senator Bingaman at the time; isn't that correct?

A. I don't recall that.

Q. But at least there was a specific proposal that was floated by Senator Bingaman; isn't that correct?

A. Yes, he was taking the proposals of the National Commission on Energy Policy and was going to submit them as legislation.

Q. Okay. And so the Bingaman proposals that were being debated or at least talked about are represented on your figure one by the yellow; is that right?

A. Yes.

Q. Okay, the orange is an EIA study of possible

variations on that proposal, correct?

A. Correct.

Q. Okay, so it's fair to say that the orange was never introduced as a bill; that's correct?

A. It has not yet been, no.

Q. The orange has not yet been. And as far as you know, the orange did not furnish the basis of the actual proposal that Senator Bingaman himself was working on.

A. That's correct, as far as I know, he didn't.

Q. Now, in the yellow, we have yellow circles and yellow triangles, so we have different estimates of what this proposal Senator Bingaman was working on, what they would result in in terms of carbon price allowances. And is it fair to say that the difference in these estimates is largely due to whether or not you assume that there is going to be a cap, sometimes referred to as a safety valve, with respect to a maximum carbon price allowance, a carbon allowance price?

A. That's fair to say.

Q. Yeah, so under the triangles, for instance, the yellow triangles here, what's indicated is the proposal that Bingaman was looking at, assuming that there was no cap, no safety valve price; is that right?

A. The triangles -- no, I'm sorry, the yellow triangles assume there was a cap and the other figure assumes there wasn't, the higher figure assumes there was no cap.

Q. Right, the higher figure assumes there was no cap.

A. Then I misunderstood your question.

Q. And the lower figure assumes there was a cap.

A. Yes.

Q. And it's true, is it not, that the proposal Senator Bingaman was circulating included a cap, correct?

A. Again, I don't know that he drafted language. What I do know is it was based on the national commission proposals which had a safety valve figure.

Q. Okay, and what was that figure?

A. Somewhere on the order of $6 or $7 a ton.

Q. Okay, that is what is reflected in the lower I guess I call them circles, I was incorrect, they are triangles, the lower yellow triangles, the ones that don't have the black outline; is that right?

A. Yes.

Q. We then have what I guess we are now calling the tan squares with black borders on them. Do you see those?

A. Yes.

Q. And that's a proposal by Senator Jeffords; is that correct?

A. Yes.

Q. The Jeffords bill actually never received a vote before the Senate; is that right?

A. That's correct, it's in committee and in fact he's in

the process of going to the media of drafting a new bill, but it's still alive in committee.

Q. Sure, but the Jeffords bill that you are depicting here in fact never came out of committee; is that correct?

A. That's correct, it's still in committee.

Q. It was never voted on in committee; is that right?

A. I believe that's true, but I'm not positive.

Q. You indicate that he's working on another proposal.

A. Yes.

Q. You are aware, being from where you live in your end of the world, that Senator Jeffords has announced his retirement from Congress.

A. Yes. But he doesn't retire till January 20th, I believe.

Q. You indicated that you thought that there was -- strike that. Let's turn to your second round of testimony dated May 26th, 2006, Joint Intervenors' Exhibit 4. I thought we'd just kind of cut to the chase here and go right to the end of the testimony to page 43 and 44.

A. Okay.

Q. Then on line 20, you ask yourself, what is your overall recommendation to the South Dakota Public Utilities Commission? And you list three things, ending with the statement that the co-owners have not demonstrated that Big Stone II is the lowest cost option as compared to a portfolio

of wind, other renewable and demand-side alternatives; do you see that?

A. That's correct.

Q. But it is fair to characterize your position, is it not, that you do not have a specific recommendation to make to this commission as to the specific resources, the specific portfolio of wind, other renewable and demand-side alternatives that you believe the co-owners should acquire as an alternative to Big Stone II?

A. That's correct, we have not developed a portfolio.

Q. And the testimony, Exhibit 4, examines potential scenarios of wind and gas generation, I'm referring to the tables that have the varying amounts of wind at the 800 and 1200 megawatt level and the varying amounts of gas; do you recall that?

A. Yes, they are on page 17.

Q. But my question is, you yourself are not actually recommending to this commission any kind of a wind/gas combination as an alternative to Big Stone II; is that right?

A. That's correct, as I think you and I discussed in the deposition, if I am remembering correctly, I certainly think it would be something that the Big Stone owners would study in detail, but I'm not recommending a gas plant be part of that, be part of the portfolio, just it should be studied as part of the portfolio.

Q. And it's fair to say that you yourself have not done sufficient study at this point to come up with such a plan or recommendation; is that right?

A. Correct, so far we have not done the detailed analysis that would lead -- be necessary for the development of a portfolio.

MR. GLASER: Thank you. Could we just go off the record for one moment, please?

MR. SMITH: Yes.

(Brief pause.)

MR. GLASER: We have no further questions for this witness.

MR. SMITH: Do you need a break or do you want to forge ahead?

A. If this was a good time to break, I'd like a break, if possible. If not, I'll forge.

MR. SMITH: It's as good as any. We have been going on a long time. Take 10 to 12 minutes, how about back at ten to by that clock on the wall.

(Whereupon, the hearing was in recess at 10:35 a.m., and subsequently reconvened at 10:50 a.m., and the following proceedings were had and entered of record:)

MR. SMITH: We are back on the record. Mr. Schlissel, you are still on the stand. Ms. Stueve, do you have questions of Mr. Schlissel?

MS. STUEVE: I do not.

MR. SMITH: Staff.

CROSS-EXAMINATION

BY MS. CREMER:

Q. Thank you. Good morning.

A. Good morning.

Q. If you could look at Exhibit 1.

A. Okay.

Q. And page 15, table two.

A. Yes.

Q. Entitled CO2 costs used by utilities, so we are all talking about the same one. Why do these utilities use the CO2 adders?

A. That's a question probably better addressed to Ms. Sommer.

Q. Okay.

A. I can surmise it was either because they thought it was a prudent thing to do in their planning or a regulatory commission required them to do it.

Q. Okay, and that's what I had wondered, if they had been so required. You think some of them may do that on their own initiative?

A. Yes. If you read the literature, there are a number of utilities which anticipate or foresee that there will be some level of regulation of greenhouse gases and that there

will be cost impacts and that it's better to plan for that future rather than blindly assume it won't occur.

Q. Do you know which ones out of that table were required or which ones are doing it on their own?

A. I do not. Ms. Sommer may, but I don't know if she does.

Q. The only other thing I wondered about that table, where it's expressed as a range, for example, Idaho Power between zero and 61; do you see that?

A. Yes.

Q. Do you know how the utilities deal with that range?

A. No. You could try Ms. Sommer or -- I know this isn't helpful, but the paper, I have read the paper in the past that's referenced.

Q. Right.

A. And it may explain some.

Q. Okay, I'll ask her that. On Exhibit 4, and you can go to it if you want, I think you will remember this, you suggest that other energy resources be combined for this project, that with wind, that they combine other energy resources to come up with the 600 megawatt; do you remember that?

A. Yes.

Q. Did you have an idea of what other energy resources they should combine?

A. Well, we have an idea of what they should study.

Wind, perhaps some biomass, demand-side management and hydro. I was present two days ago when Mr. Morlock testified regarding how under some contracts with Manitoba Hydro, energy has to be returned to Manitoba Hydro, and I believe Mr. Morlock mentioned that they get power from the day and sometimes at night or on weekends you have to return energy to Manitoba Hydro. And I thought, what a wonderful symbiotic relationship, that if during the day if the wind wasn't blowing, you could bring power in from Manitoba Hydro and then in hours when the wind was blowing more, as Mr. Morlock testified would be the case, you could then send power back to Canada. Really it seems like an almost ideal kind of situation. So we believe that hydro should be looked at as part of a portfolio.

Q. And do you think that they should also buy off the spot market?

A. There might be times. There might be some reliance on the spot market. Generally when you do power purchasing, you try to have a mix or when you are doing power planning -- let me stop again. We do a lot of work on integrated resource planning and portfolio management and when you try to design a portfolio, you try to have fuel diversity so you are not heavily reliant on any one type of fuel, and you look at a mix of your own generation, of buying off long-term contracts, medium-term contracts, short-term contracts. So that there might be instances where in fact you would want to rely on the

market for a certain amount of your power. Certainly not heavily, you don't say, well, my choice is between building a power plant, I'm going to rely on the market forever, but you certainly to some extent, you might.

Q. Okay, and that was going to be one of my questions. Is it reasonable to expect consumers to pay for that higher cost spot market as opposed to a low cost base load?

A. Well, when you say it like that, the answer is obviously no, why would anybody want to pay for a higher price?

Q. Sometimes that happens.

A. Sometimes that happens, but sometimes building a peaker, I'm not proposing a gas peaker so we are talking theoretically, but sometimes building a peaker and then buying power off the market is cheaper, because the cost of operating that peaker is more expensive than buying power you can get in the market. If you had a situation where you had excess capacity during hours it's coal fired, then in fact buying off the market would be cheap. There is some hours where depending on -- well, it depends on what your supply curve is, what the power plants are and what the loads are. You match them up and there may be hours where buying off the market is cheaper than building your own. But again, I don't propose, we don't propose it as a long-term solution.

MS. CREMER: Okay. Thank you.

MR. SMITH: Commissioners, do you have questions of

Mr. Schlissel?

EXAMINATION

BY VICE-CHAIR JOHNSON:

Q. Thank you, Mr. Smith. Mr. Schlissel, are you familiar with the South Dakota statutes governing this commission's authority over this kind of a proceeding?

A. Vaguely would be an accurate term.

Q. If you look at your Exhibit 4, I'm looking at the confidential version, but either version would contain this material on page 43 and 44, outline your recommendations to the commission. The second and third of those recommendations, well, the second is that the co-owners have not demonstrated they need 600 megawatts of additional base load generating capacity. As I have looked through the burden of proof that the applicant has, I haven't seen that this is part of their burden of proof. Would you agree with that?

A. I have not -- I had some discussions of the statutes with my clients back when we began this project in September and October, and I have not had discussions with them since then as to the various statutory requirements. I recall the testimony that the applicants filed, it might have been in Minnesota, which -- or South Dakota. I remember somewhere I saw various -- how the testimony fit in with the statutes, but I don't feel com -- I don't recall enough to feel comfortable giving a statutory interpretation.

Q. Certainly, no, I understand. In your testimony, you note that the economic benefits of Big Stone Unit II must be compared to alternatives. Did you mean must by any statutory authority or must more in an appropriate perspective?

A. Must in terms of appropriate, prudent perspective.

Q. Thank you. In your rebuttal testimony, page five, line 22, and I'll give you a minute to get there.

A. Page five, line 22.

Q. I think that's right. Make sure that I'm there as well. You note that the rate increases would be lower under the wind alternative than they would be from the construction of Big Stone II; is that right?

A. Yes.

Q. Have you given any thought as to why the applicants would be interested in building a higher cost generation resource?

A. I don't want to put words in their mouth, but it seems to me that they probably don't believe it's higher cost. On the other hand, it seems from what I've read is that they have the prejudices, and I don't mean that in any pejorative sense, towards building central station power plants, that's the kind of power plants that have been built. I mean, during cross one of the questions was about the extent to which South Dakota is already dependent upon coal, and 46 percent. What we, and I mean Synapse, and the growing consensus is that what's needed

is a change in the paradigm, that you have to -- in order to address the threat posed by global climate change and continued and increasing emissions of greenhouse gases, is that things that haven't been done in the past will have to be done in the future. So I think if you combine that together. But I don't believe, from what I've read and from listening to the witnesses, that any of them are sitting there thinking, boy, I want to build a more expensive power plant. I don't believe that at all.

Q. Thank you. You haven't offered yourself up as a coal expert so I understand that, so let me know if this is outside of your range of expertise. In your testimony you did note that you believe, if you didn't say all, at least many of the co-applicants have an overreliance on coal power for their generation sources; is that right?

A. Yes, sir.

Q. There has been some information entered into the record at this proceeding about the short-term fluctuations in coal price. For your preparation for this proceeding, did you come across any information about the longer term, the historical trends for coal prices?

A. As part -- although it wasn't specifically in preparation for this testimony, I spent a fair amount of time the fall of last year going into January of this year working on a project for the staff of the Arkansas Public Service

Commission looking at the causes of the coal delivery problems that it experienced. Enter G Arkansas (phonetic) was hit not only by higher natural gas prices, which have hit everybody, but also the coal delivery problems coming out of the Powder River Basin. It seems that that's a concern for long term. The deliverability and price of coal out of Powder River Basin is something -- is a risk, but other than that, I mean, I've seen some estimates of some cost increase, cost increases in coal prices, but there's a lot of coal. But you gotta balance that with the fact that if you are an energy company and you can sell natural gas at the prices that natural gas is fetching these days and project it, you would want to raise the price you get for your coal, just natural. But beyond that I have -- I can't point you to any estimates of coal prices.

Q. Thank you. Were you present during Mr. Nguyen's testimony?

A. No, I was not yesterday, but my clients told me some of it.

Q. Did you have an opportunity to review his prefiled testimony?

A. Yes, I read his prefiled testimony, his prefiled rebuttal.

Q. Mr. Nguyen had provided some information that some of the proposals set forth by you and Ms. Sommer would mean that MDU would have far too much wind from an operational guideline

perspective, from an integration standpoint. Did you have a reaction to those concerns by Mr. Nguyen?

A. Well, we understand and appreciate the concerns. We don't share them. We think that there needs to be an actual study of wind integration, not only on the MDU system, but for the region. I mean, MISO is in the process of attempting or working to consolidate control areas. If you look at the history of what's gone on in PJM to the east of MISO, consolidation is what happens, so that looking at a small, isolated service area -- I don't mean to insult MDU by saying that, but a relatively small, a relatively small control area, we don't think is the way to go. We think that what you need to do is you can look at broader regions, because over time, that will be the balance -- those will be the balancing and control areas. So that while it may be a lot for MDU, if you look at them as an isolated system, they are not an isolated system.

Then finally, just to get back to something I may not have said completely, you really need to do a wind integration study, which I understand MDU has not done, to figure out how much can we integrate, where can we integrate it and what will it cost and then you take those results and you balance that into, well, maybe it is too expensive to do the wind that we are talking about, or maybe isn't. We think from the studies we have seen that they can integrate it, given the broader

area, but you really need to do a detailed systems study.

Q. I'm asking this question from memory so please correct me if I have any of the facts wrong, but I think in your testimony you cite a report by the Minnesota Department of Commerce and Xcel, wind integration study they had done; is that right?

A. For them, yes.

Q. For them, okay, and did that find that a guideline of 25 percent was possible in that control area?

A. No, the various studies that have been done have shown that -- have been up to 15 to 20 percent for a control area. But again, they are looking at a big control area, so 20 percent is a fairly substantial amount of wind. I understand that Minnesota is doing a very big study now and the results will be done I believe by the end of the year.

Q. Did you do -- I know that you and Ms. Sommer are not putting forth a single recommendation as to what would be -- what the co-applicants should do in lieu of Big Stone II if it were denied, but some of the proposals you evaluated, did you do any analysis on if that much wind was built on top of the wind that the applicants are individually looking to do, did you do any analysis as to how much wind that would be for the control area, what percentage?

A. We did in our surrebuttal testimony, we gave an illustrative example that looked at MAPP-US and that if you

looked at 20 percent of MAPP-US, and we did the winter peak to be even more conservative, all the studies have looked at the annual peak, but we just chose winter peak. Twenty percent of a projected peak load of roughly 27,000 megawatts, winter peak load for 2011 would be, 20 percent is roughly 5400 megawatts of wind. If you look at the existing, the 800 megawatts that the co-owners say they are going to build, there's plenty of room for additional wind if you look at a broad enough area.

Q. If you look at your rebuttal testimony, page four, Exhibit 5, page four.

A. Yes, sir.

Q. And the question on line six through eight that was asked, is it reasonable for the South Dakota commission to approve a permit for Big Stone II and hope to address these financial issues and subsequent rate cases for the plant's co-owners? In your answer I think you say, well, only two of the utilities are rate regulated by the commission. For those utilities that aren't rate regulated by the commission, isn't that a risk that the member owners of those utilities take when asking to construct Big Stone II? I'm not asking for a legal opinion here, but since it's offered in your testimony, is it the commission's place to try to make sure they make the most prudent decision for their member owners?

A. The answer is -- two answers. No, and you can't help it, because you do regulate two of the seven. I mean,

conceivably you could issue a permit for -- it's not five-seven, the two own more, but a portion of a plant, but I think that the risks -- as you mentioned, the rate payers of the IOUs and the public utility partners are the same. The rate payers of the investor-owned utilities have the benefit of having you folks to evaluate and to protect them, and I guess the public utility partners have the ability, the rate payers have the ability to vote people out of office if the decision turns out badly.

Q. Why I'm asking, Mr. Schlissel, is that from time to time I feel as though the information we are being provided feels almost more like a certificate of need proceeding than perhaps a siting proceeding. Are you aware that commissions across the country, in fact this one, have from time to time disallowed excess costs for generation plants that were not being fully utilized by the regulated utility?

A. Yes. I personally have won several cases in Texas and in Indiana where we showed that not only was there excess capacity, but it was excess capacity that the utility could have anticipated.

Q. And you feel that those types of proceedings after the fact are not sufficient protection for rate payers, given the financial risks associated, possibly associated with Big Stone II?

A. That's correct. Let's use Mr. Glaser's example of an

eighteen dollar -- what was it -- 61 cent per megawatt hour charge, additional charge, levelized, from our mid case CO2 forecast, allowance forecast, price forecast. I mean, that's a lot of dollars. I mean, if Otter Tail or MDU came in and said, well, we really didn't anticipate CO2 legislation and you believe that they had, that's a big chunk of money to take out of the companies on a regular basis, so I don't know whether in reality you could do that without harming them financially, which of course you would have to consider.

Q. Thank you. My final question, at some point this commission will have to make a determination whether or not we believe that future costs of a carbon tax should be rolled into this analysis. Did you have any concerns that many of the points that were plotted on your chart, that many of your points or on pieces of legislation that did not appear to be politically viable, didn't appear to be gaining much political traction?

A. The answer is some. Of course you are. It would be a better case, it would be an easier case to come in here and say, Congress has passed the following three bills on global warming, but that's not the way the circumstances and politics, to be honest, are developing, that we chose the legislation that's presented -- that was presented up there in figure one I think it was of our Exhibit 1, we chose that legislation for a couple of reasons. One is because it was the most serious

legislation getting extensive support from both sides of the aisle. We didn't want to pick a bill that liberal Democrats or conservative Republicans either liked or hated. We wanted broad political support. And we wanted bills that had been analyzed, the cost impacts had been analyzed by the EIA, EPA and other groups so that we could come up with a range of potential cost impacts.

The fact that these specific bills weren't viable does not dissuade us from the fact that something is going to happen. If Dr. Hausmann had been here today, he would have talked to you about the fact that the evidence is -- the scientific consensus is strengthening that there's a problem, that the evidence is -- there's increasing evidence that the bad effects are happening faster than anyone thought, and that the estimates of the cost consequences of the bad events from global climate change are increasing. In preparation for Mr. Glaser's cross today, I was looking at bills that are now before Congress and there are a number of bills, but what really struck me was not the bills. If you want, I would be certainly happy to tell you some of them, but a quote from Senator McCain, who is running for President as a Republican or it appears he's going to be running for President as a Republican. He said several weeks ago "the culmination of evidence is going to force us to act," Arizona Republican McCain said, "the question is if we will act soon enough."

And the Carper bill, which is one of the bills that Mr. Glaser and I discussed, it's been reintroduced and strengthened, now has four Republican cosponsors, including someone who self-describes him as conservative Republican Senator Lindsey Graham from South Carolina. I was at a conference several weeks ago with a woman from Fitch's ratings. She said she had been at a luncheon with Graham and that Graham is like a man possessed about global warming. He said he didn't believe it was happening until Katrina and that Katrina led him to change his mind. So that while those bills may not be viable, there will be other -- there are other bills and there will be more.

VICE-CHAIR JOHNSON: Thank you very much. Mr. Smith, that's all I have at this time.

MR. SMITH: Commissioners.

CHAIRMAN SAHR: I have nothing.

MR. SMITH: Redirect.

MR. O'NEILL: He's answered my redirect.

MR. SMITH: He just did?

MR. O'NEILL: Yes.

MR. SMITH: Following up, do any of the other parties have questions in follow up to the commissioners questions?

MR. GLASER: We have no questions.

MR. SMITH: You may step down, Mr. Schlissel. Mr. O'Neill, were you going to move his summary or is that joint?

MR. O'NEILL: It is a joint summary. We will now call Ms. Sommer.

Thereupon,

ANNA SOMMER,

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

DIRECT EXAMINATION

BY MR. O'NEILL:

Q. Good morning, Ms. Sommer.

A. Good morning.

Q. Ms. Sommer, you were present for the testimony of Mr. Schlissel.

A. That's correct.

Q. And what I'm going to do right now is direct your attention to the joint intervenor exhibits, if you can have those in front of you.

A. Okay.

Q. The first joint intervenors' exhibit is Schlissel and Sommer Joint Intervenor Exhibit No. 1 from May 19th, 2006. Do you have that in front of you?

A. I do.

Q. Do you have any changes or corrections to that document?

A. I have a couple changes to one of the exhibits to this testimony, one of the accompanying documents to this testimony,

it's JI 1-F. It's entitled climate change and power, carbon dioxide emission costs and electricity resource planning. The first correction is on executive summary, it's ES-III. Table ES-1 it says McCain/Lieberman SA-2028, and under the column entitled year proposed, the date should be 2003, not 2005. On page 12 of the same document, at the top of the page there is a small box that is entitled sense of the Senate resolution, June 2005. In the first line of that resolution, "before the end of the 109th Congress" should be eliminated, it should be deleted.

The next one is table 5.1, page 33. That's not page 33. That would be page 13, again the same correction, McCain/Lieberman SA-2028 in the column year proposed, it should be changed from 2005 to 2003. The last correction I have is on page 33. The text above the figure in this page says that figure 6.2 presents projected carbon allowance costs from the economy wide and electric sector studies in constant 2004 dollars. That should be 2005 dollars. It should be short tons, not metric ton. That's all I have for this piece of testimony.

Q. If I asked you the same questions that you answered on Joint Intervenors' Exhibit No. 1, would your answers be the same?

A. Yes.

MR. O'NEILL: We would offer into evidence Joint Intervenors' Exhibit No. 1.

MR. SMITH: Is there objection?

MR. GLASER: No objection.

MS. STUEVE: No objection.

MR. SMITH: Joint Intervenors' Exhibit No. 1 is received.

EXHIBITS:

(Joint Intervenors' Exhibit No. 1 received into evidence.)

Q. (BY MR. O'NEILL) Directing your attention to Joint Intervenors' Exhibit No. 4, do you have that document in front of you? It is the confidential and public version of testimony from May 26th, 2006.

A. Yes.

Q. Do you have any changes or corrections to that testimony?

A. No, I do not.

Q. If I asked you the same questions that were asked of you on that date, would your answers be the same as contained in that version?

A. Yes, they would.

MR. O'NEILL: We would offer into evidence Joint Intervenors' Exhibit No. 4.

MR. GLASER: No.

MS. STUEVE: No.

MR. SMITH: Joint intervenors 4 is received.

EXHIBITS:

(Joint Intervenors' Exhibit No. 4 received into evidence.)

Q. (BY MR. O'NEILL) Have you placed in front of you Joint Intervenors' Exhibit No. 5? Can you review that document and let me know if there are any changes or corrections to that exhibit?

A. No, I don't believe there are.

Q. That is the rebuttal testimony of you and Mr. Schlissel from June 9th, 2006.

A. Yes.

Q. If I asked you the same questions that are asked of you in that exhibit, would your answers be the same?

A. They would.

MR. O'NEILL: We would offer into evidence Joint Intervenors' Exhibit No. 5.

MR. SMITH: Any objection?

MR. GLASER: No, sir.

MS. STUEVE: No.

MR. SMITH: Joint Intervenors' 5 is received.

EXHIBITS:

(Joint Intervenors' Exhibit No. 5 received into evidence.)

Q. (BY MR. O'NEILL) Next place in front of you Joint Intervenors' Exhibit No. 6, the surrebuttal testimony of you

and Mr. Schlissel from June 22nd, 2006.

A. Okay.

Q. Any changes or corrections to that testimony?

A. I have two corrections of typos. They are on page 23, I'm looking at table one, it is entitled federal regulation with modeling studies, the Clean Power Planning Act should be changed to the Clean Air Planning Act. And the Clear Power Act is actually the Clean Power Act.

Q. Any other changes to that exhibit?

A. No.

Q. If I asked you the same questions that were asked of you in that exhibit, would your answers be the same?

A. They would.

MR. O'NEILL: We would offer into evidence Joint Intervenors' Exhibit No. 6.

MR. SMITH: Objections?

MR. GLASER: No, sir.

MR. SMITH: Joint Intervenors' 6 is received.

EXHIBITS:

(Joint Intervenors' Exhibit No. 6 received into evidence.)

Q. (BY MR. O'NEILL) Ms. Sommer, if you can place in front of you Exhibit No. 15, which is the PowerPoint presentation.

A. Okay.

Q. Did you assist Mr. Schlissel in preparing that presentation?

A. I did.

MR. O'NEILL: At this time with would offer into evidence Exhibit No. 15.

MR. GLASER: No objection.

MR. SMITH: Other parties?

MS. STUEVE: No objection.

MR. SMITH: Joint Intervenors' 15 is received.

EXHIBITS:

(Joint Intervenors' Exhibit No. 15 received into evidence.)

Q. (BY MR. O'NEILL) Ms. Sommer, now that the record contains all of the exhibits containing your testimony and exhibits, if you could provide for us a brief description of your educational background.

A. Sure. I was born and raised in Chadron, Nebraska. I attended college in Massachusetts and got a bachelor's of science in economics and environmental studies.

Q. And can you tell us about your work-related experience that relates to your testimony here today?

A. Sure. While I was in college, I worked for an energy consulting company called EFI. EFI was acquired by what is now Kema Consulting, so I worked for Kema Consulting for a time. I additionally worked for a wind energy development company

called Horizon Wind Energy, and following graduation I came to Synapse and I've been there since 2003.

MR. O'NEILL: We would tender Ms. Sommer for cross.

MR. SMITH: Please proceed.

CROSS-EXAMINATION

BY MR. GLASER:

Q. Good morning, Ms. Sommer.

A. Good morning.

Q. Let's go to page 13 of Joint Intervenors' Exhibit 1. I started off with Mr. Schlissel on this question. On line 14, the question inquires whether any states require that utilities or default electric service suppliers evaluate costs or risks associated with greenhouse gas emissions in long-range planning or resource procurement and the answer is yes, and it refers the reader to table one below. And then table one lists the states that have such requirements and again I counted a total of seven here plus the NWPCC, and I think when I asked Mr. Schlissel the question, what is the NWPCC, he said I should ask you.

A. Yes. The NWPCC is the Northwest -- let me see if I can get this right -- Northwest Power and Conservation Council.

Q. Then I see at the top of the table there's California, the PUC requires that regulated utility IRPs include carbon adder of $8 per ton of CO2 escalating at five percent per year. Do you see that?

A. Yes.

Q. So I had asked Mr. Schlissel whether in response to question 14 -- I'm sorry, the question beginning on line 14 on page 13, whether it was his and I guess your recommendation that in the instant case, present case here, these particular utilities, the Big Stone II applicants, should be required to evaluate costs and risks associated with greenhouse gas emissions in their Big Stone decision making, and what would your answer to that question be?

A. I would agree with Mr. Schlissel, that since this is not a proceeding regarding integrated resource planning, it's really for the commission to decide whether this issue should be incorporated in a decision regarding a siting permit. We certainly think that it's prudent for integrated resource planners to consider CO2 regulation.

Q. And at the present time the California regulation provides a number and that number is currently $8 per ton, as indicated on your table one; is that right?

A. It's a little bit more complicated than that. It's a range of $8 to I think $25 per ton, and it doesn't represent regulation itself, it actually represents uncertainty associated with the cost of reducing CO2 emissions.

Q. And then I think I went on and spoke with Mr. Schlissel about the Regional Greenhouse Gas Initiative.

A. Yes.

Q. And that is an initiative of a number of northeastern states where they are looking at a prospective regional cap-and-trade program; you are familiar with that?

A. Yes, I am.

Q. And the question that Mr. Schlissel referred to you is whether that Regional Greenhouse Gas Initiative had actually been promulgated into law by the various states that are a part of that initiative. Do you know the answer to that?

A. The way that RGGI will work varies state by state. My understanding is that there's a memorandum of understanding between the various states in RGGI that they will implement a regulation but that regulation has not gone through the legislature or been implemented by the government or however it works in each individual state.

Q. So the answer is that the RGGI program in fact has not been adopted by any of these states at least at this point.

A. No, but I think there's an expectation that it will be.

Q. My question again is whether the RGGI program at this point in fact has actually been adopted by any of those states and I believe your answer to that is no.

A. No, because the time line hasn't been reached.

Q. That's fine. But still at this point none of those states has actually adopted this program.

A. No, they have not.

Q. You are certain all of them are going to; is that what you are saying?

A. If I sat here today and told you that anything that happened tomorrow is 100 percent certainty, I would look like a fool.

Q. Right.

A. I'm saying to you that I'm quite certain it will happen.

Q. In fact this RGGI has been a long-term process, it's been going for several years of planning; is that right?

A. A couple of years, yes.

Q. And I believe through most of the planning process, in fact there were nine states involved; is that your understanding?

A. I don't recall the exact number.

Q. Do you recall that Massachusetts was a part of the process at one point?

A. It was, yes.

Q. And do you recall that Massachusetts elected to drop out of the process?

A. The Governor elected to. The legislature is now considering a bill that would require Massachusetts to participate in RGGI.

Q. The Governor declared that he was no longer participating in this process?

A. That's correct.

Q. Okay. And do you recall that the Governor issued a press release indicating that the reason why he didn't want to participate in the process was because of economic impacts to the business community in Massachusetts?

A. Yeah, I'm certainly aware of that.

Q. Any other states drop out of the RGGI process?

A. Rhode Island did. But then Maryland came on board, too.

Q. So minus two plus one?

A. Yeah, and possibly Pennsylvania as well, I'm not exactly sure about Pennsylvania.

Q. But you don't know about Pennsylvania?

A. No, I'm not certain about Pennsylvania.

Q. You are not here to tell us right now that Pennsylvania is joining the RGGI process?

A. No, as I said, I can't speak to anything with 100 percent certainty.

Q. In fact what the Maryland legislature did was to enact legislation saying that Maryland should study entry into the RGGI process.

A. I'm not sure, I know that they passed a bill that was related to RGGI and that the original bill would require participation in RGGI if the Governor did not do something to reduce CO2 emissions. I'm not sure what was -- what was

ultimately passed by the legislature.

Q. You are not certain in fact whether or not Maryland did join the RGGI process for sure?

A. As you pointed out, nobody has actually initiated the regulations to join RGGI.

Q. And if I asked you for the states that are part of the RGGI process, the amount of coal generation that each state, each of those states use as a percentage of their total electric resource mix, would you know the answer to that?

A. No, I would not.

Q. Mr. Hewson, in Exhibit 30, page 26, offered testimony on this point in footnote 14 where he said that the total coal use or the total coal generation in the RGGI region accounted for only 15.3 percent of 2005 generation. So I take it you would not be able to dispute that.

MR. O'NEILL: Counsel, can she look at what you are looking at?

MR. GLASER: Absolutely. Would you like to have a copy of Mr. Hewson's testimony in front of you?

A. Sure.

Q. (BY MR. GLASER) Do you have an extra copy there? It's Applicants' Exhibit 30, page 26, footnote 14 is what we are looking at. You can look at my copy or if you have one, that's fine.

A. What page did you say again?

Q. Applicants' Exhibit 30, page 26, footnote 14.

A. Okay.

Q. And my question simply is, you don't have information that would dispute what's depicted in -- or the information that's provided in footnote 14.

A. No, I do not.

Q. And in the surrebuttal testimony that you and Mr. Schlissel provided in this case, which is Joint Intervenors' Exhibit 6, you addressed Mr. Hewson's testimony regarding RGGI; is that correct?

A. Which page are you looking at?

Q. I'm looking at the surrebuttal testimony, Exhibit 6, Joint Intervenors' Exhibit 6 dated June 22, 2006.

A. Uh-huh.

Q. I'm asking you whether or not that testimony addressed Mr. Hewson's testimony, Exhibit 30.

A. In part it did. I guess I am wondering what specific portion you are talking about.

Q. Well, let me ask this. If you go back to Mr. Hewson's exhibit, Applicants' Exhibit 30, on page 25.

A. Yes.

Q. Mr. Hewson lists the projected CO2 allowance prices that would result if the RGGI program in fact is adopted by the RGGI states, and those prices begin in 2009 at a dollar a ton and escalate to 2024 by $2.62 a ton, and my question is in

looking at your surrebuttal testimony, Joint Intervenors' Exhibit 6, I didn't see anything in that surrebuttal testimony that disputed the allowance prices that Mr. Hewson had provided here. Am I correct in my reading of your surrebuttal testimony, that you in fact did not dispute the allowance prices set forth by Mr. Hewson?

A. Well, you're partially correct. We didn't dispute the prices, but we disputed the conclusion.

Q. Yeah, I'm not talking about the conclusion. I'm just talking about what the allowance prices projected from compliance with RGGI would be. Your surrebuttal testimony did not dispute those prices.

A. No. I've seen these prices before, too.

MR. GLASER: That's all the questions that I have.

MS. STUEVE: No questions.

MR. SMITH: Staff.

CROSS-EXAMINATION

BY MS. CREMER:

Q. Good morning.

A. Good morning.

Q. On Exhibit 1, page 15, and I had asked the previous witness about this table and he said to defer it to you.

A. Okay.

Q. Are you at that page, then?

A. I am.

Q. Do you know, why do these utilities use CO2 adders? Is it because they are required to?

A. I don't recall specifically the reason for all of these. PacifiCorps I believe is required to. I don't think that the requirement states what range that they should use those so they selected the range on their own. The Northwest Power and Conservation Council is a quasi government agency, so I don't imagine that there's any specific government regulation that would require them to do so. As to the others, I'm not entirely sure. As I said, it's been a long time since I've reviewed these specific companies.

Q. So you couldn't point to any one of them other than I think you said PacifiCorps; the rest of them you just don't know if it's on their own initiative or if they are required?

A. Yeah, not without going back and looking, I wouldn't know for sure.

Q. And then looking at, for example, Idaho Power, which has a range between zero and $61; do you see that?

A. Yes.

Q. How did these utilities deal with that range?

A. Well, I'm not -- I don't recall specifically regarding Idaho Power. I can speak to PacifiCorps, which has a similar range, if that's helpful.

Q. Sure.

A. I don't believe that there's any specific document

that underlies the range, the PacifiCorps seemed to start from the assumption that there would be regulation of carbon dioxide at some point in the future and they applied a probability to that regulation and I think starting in 2008, I don't recall exactly when, and they applied that probability to each number within that range from zero to 55, and their base case was in the zero, it was I believe $8 per ton.

Q. So when they decide to build a coal-fired plant and there's that range, do you know, do they use one end or the other or something in between? Do you have any idea?

A. Well, to my knowledge PacifiCorps is not proposing to build a coal-fired power plant.

Q. Right, but Idaho Power you don't know?

A. Idaho Power is not proposing to build a coal-fired power plant either.

MS. CREMER: Thank you.

MR. SMITH: Commissioners, do you have questions?

VICE-CHAIR JOHNSON: None for me.

COMMISSIONER HANSON: No, sir.

MR. SMITH: Commissioner Sahr.

CHAIRMAN SAHR: No, thank you.

MR. SMITH: Is there redirect?

MR. O'NEILL: Yes.

REDIRECT EXAMINATION

BY MR. O'NEILL:

Q. Ms. Sommer, you received some questions here on cross and from staff in regard to state regulations and in regard to RGGI. Before I get into specifics, what relevance do you put on other state regulations and RGGI as it relates to this process of evaluating CO2 regulatory costs?

A. Well, our allowance price forecast is a forecast of federal regulation, so the state level examples are simply to show that this is not out of the ordinary, that other people are considering CO2 regulation.

Q. As it relates to RGGI, are there some program structure assumptions that are important in understanding what RGGI is going to do?

A. Oh, absolutely. The most -- if you look at the page of Mr. Hewson's testimony that Mr. Glaser was referring to, it's page 25 and he's talking about this range of allowance prices from one dollar to $2.62 per ton. The reason it's so low is because RGGI is a regional program. That means that RGGI, the RGGI states will still be able to import power that will presumably be lower cost because they are not subject to a CO2 regulation. When ICF did -- ICF is the consulting company that did the modeling runs that determined these allowance prices, so when ICF did this modeling, they also did a kind of sensitivity in which they imposed national regulation that was less stringent than RGGI and the allowance prices went up to I believe around $12 per ton.

MR. O'NEILL: Thank you. That's all the redirect.

(Brief pause.)

Q. (BY MR. O'NEILL) Oh, there was one question that I did forget to ask that arose from Mr. Schlissel's testimony. You heard him testify regarding Duke Power and the situation involved with Duke Power. Do you have an ability to testify regarding the status of what Duke is doing?

MR. GLASER: I'm going to object to that as beyond the scope of my cross-examination. I didn't ask this witness a single question about Duke.

MR. SMITH: I'm going to let her answer because of the question in the other proceeding.

A. I assume you are referring to the proposal Mr. Glaser was saying he thought Duke Power was going to build two power plants or he was saying Mr. Hewson had said that.

Q. (BY MR. O'NEILL) The question and answer between Mr. Glaser and Mr. Schlissel, yes.

A. I guess I have a different understanding than Mr. Hewson. A press release on the Duke Power Web site said that they are building a pulverized coal plant to replace an existing pulverized coal plant of approximately the same size and that they might build a second plant in the future. I don't know if that will be a pulverized coal plant or IGCC plant or not, and as many people in this room probably know, Jim Rogers, who is now CEO of Duke Energy, until recently was

CEO of Synergy, which is an Indiana-based utility, and Synergy is not building pulverized coal, they want to build an IGCC plant because of CO2 regulation.

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

MR. SMITH: Do you have any follow-up questions, Mr. Glaser, since I allowed him to open up really a direct examination?

MR. GLASER: Yes, actually, I do.

EXAMINATION

BY MR. GLASER:

Q. Your knowledge of the Duke coal plant proposal is limited to reading a press release?

A. Yes, it is.

Q. You are not familiar with whether or not Duke in fact has filed an application with the North Dakota -- with the North Carolina Public Utilities Commission for a permit to construct two 800 megawatt supercritical pulverized coal plants?

A. No, I am not.

Q. So I take it the bottom line on RGGI, then, is we have a group of northeastern states that don't utilize a lot of coal anyway and they have come up with a program to do something about CO2 emissions, which in your view is not going to cost very much, principally because it's not going to be very effective because they are just going to import power and it's

likely to be coal power from out of the region anyway; is that where you are coming out on the RGGI process?

A. No, what I'm talking about is the modeling that ICF did and ICF showed that it seemed likely that there would be imports of power from other regions because of RGGI. I don't have any idea in practice how that will work. I don't know if RGGI will expand beyond the existing states. It could certainly be different in the future.

Q. And if the imported power comes, for instance, from the Midwest, it's going to be coal power.

A. Yes. Most likely.

Q. In essence they are displacing their greenhouse gas emissions to the Midwest.

A. Yeah, I think if that is the case, it indicates that federal regulation is preferable.

Q. But it doesn't allow anybody to hold up the RGGI process as an indication that at least people in the northeast are really getting serious about greenhouse gas regulation, and therefore, other people ought to get serious about it also.

A. No, I don't think you can conclude that because the problem of leakage is one of interstate commerce, it's essentially out of their control. The RGGI states are certainly struggling with that issue and they would very much like to address it but they have not found a way to address it as of yet.

MR. GLASER: I have no more questions.

MR. SMITH: Any last commissioner questions?

CHAIRMAN SAHR: I have none.

MR. SMITH: You may step down, Ms. Sommer. Mr. O'Neill.

MR. O'NEILL: We have no further witnesses.

MR. SMITH: Thank you. The applicants, are you going to put on a rebuttal case?

VICE-CHAIR JOHNSON: It's probably worth deferring to staff to see if they had anything additional since they did go out of order.

MR. SMITH: Excuse me, you're right.

VICE-CHAIR JOHNSON: Since we forced them to go out of order would be perhaps more accurate.

MS. CREMER: No, staff, I talked to Dr. Denney and she had not heard anything that would change her recommendation. Thank you.

CHAIRMAN SAHR: Thank you for agreeing to go out of order, too.

MR. SMITH: Am I addressing you at this point, Mr. Welk?

MR. WELK: No, I thought of another housekeeping once we get through the procedural aspects of everybody resting their cases.

MR. SMITH: Let me first of all ask applicants whether

you have a rebuttal case.

MR. WELK: We have no case, no rebuttal case. We have no rebuttal case. Did everybody get that?

MR. SMITH: We got that.

MR. WELK: I'll say it one more time if you didn't get it.

MR. SMITH: Ms. Stueve had approached me a while ago and has an issue regarding an exhibit that she would like to tender and staff has a housekeeping measure as well. Ms. Stueve, shall we start with you? This involves a document that was requested by I believe Commissioner Hanson as a follow-up to the Milbank -- during the Milbank hearing and Ms. Stueve's concern was she could not find it on our Web site or in the Milbank hearing record apparently. And I've looked at my list of documents and I can't see it on there either. So I can only suspect that maybe that's because it went directly to Commissioner Hanson or something. At any rate, Ms. Stueve, do you want to describe what you are talking about and what you would like to do?

MR. GUERRERO: Todd Guerrero for the record. I know what document she's referring to and I don't have it here, it's not part of our case.

MS. STUEVE: I have also offered it as Stueve Exhibit 1-G.

MR. GUERRERO: We have it here, it's not been marked

as part of any of our exhibits, it's not part of our case. If the question is whether or not we would stipulate to its admissibility in this case.

MS. STUEVE: Yes.

MR. SMITH: Either that or she would maybe try to lay a foundation and offer it.

MR. GUERRERO: I guess I would prefer that we do that.

MR. SMITH: Okay. I haven't even seen it so I don't know what we are talking about.

MS. STUEVE: I can pass around copies. I do have copies.

MR. GUERRERO: We will stipulate to its admissibility and she can mark it however she wants to mark it.

MR. SMITH: Do you want to mark it Stueve 1-G?

MS. STUEVE: It is marked Stueve Exhibit 1-G, yes.

MR. WELK: I think you should identify it for the record. What is it, Ms. Stueve?

MS. STUEVE: It is Stueve Exhibit 1-G and it came as part of the discovery process. I believe at the Milbank hearing Commissioner Johnson, I believe, made a request following the PowerPoint presentation that showed a diagram something such as this on some emissions.

MR. WELK: The court reporter can't take down what you are showing. If you explain, I think there's a cover letter from Mr. Madsen. Describe the letter and the date and then

whatever was appended to that would be sufficient.

MS. STUEVE: It is document number, discovery request document number, Bates stamp number JC0001728 and it is a letter to Ms. Bonrud, executive director of the Public Utilities Commission in this matter.

MR. GUERRERO: Let me see if I can help, if you don't mind, Ms. Stueve. The document being marked as Stueve Exhibit 1-G, in addition to the cover letter from the Boyce Greenfield law firm, is a document that was prepared by Otter Tail and presented at a public hearing by Otter Tail on September 13th, 2005 in Milbank, South Dakota. Will that do it? Which applicants stipulate to its admissibility.

MS. GOODPASTER: Excuse me, Mr. Smith. I believe some of it was perhaps presented at that Milbank hearing, but that the request that this responds to was to provide additional information that wasn't at the hearing. So I wanted to make that clear.

MR. SMITH: That is correct. Okay, and unless there's an objection, there's been a stipulation between applicants and Ms. Stueve. Hearing no objection, Stueve 1-G admitted.

EXHIBITS:

(Stueve Exhibit No. 1-G received into evidence.)

MR. SMITH: The one last request we have had involves a document that was marked yesterday as Applicants' 117. Do you have that? Was it actually marked or was it just a

reservation?

MS. CREMER: We are talking two different things.

MR. SMITH: Maybe I'm wrong here, I thought 116 I have as Lancaster affidavit and 117 I show as -- well, 117 is the U.S. EPA; that was admitted, correct?

MR. WELK: Mr. Lancaster's affidavit, similar to Dr. Hausmann's number, was reserved and that was the housekeeping matter I had. So we don't create a rush of e-mails and letters, can we just stipulate, similar to Dr. Hausmann, when the affidavit comes in, assuming it's a similar format, it's deemed admitted?

MR. SMITH: Is that acceptable? It is so done and we will consider that admitted.

EXHIBITS:

(Applicants' Exhibit No. 116 received into evidence.)

MR. SMITH: I got confused here. The document that staff would like to offer is the document, the Tol document that was referenced yesterday in connection -- it's one of the foundational documents for the literature survey. I don't have my glasses.

MR. WELK: Karen, is that the 2005 article she referenced?

MS. CREMER: Yes, it's the one that Commissioner Johnson -- it's actually, it says June 5th, 2004. It's the one Commissioner Johnson asked for the underlying, it's that

article.

MS. STUEVE: I have a question on that. When you asked for the reference on that, what was it in regards to? Was it in regards to the air deposition locally, globally? Was that another housekeeping matter?

VICE-CHAIR JOHNSON: This was Dr. Denney had done some literature review and this was an article she did not refer to in her testimony, not in her prefiled testimony but in her verbal testimony, she had oral testimony, she did mention that.

MR. WELK: What are we marking that as? When it comes around, I will give it to the court reporter.

MS. CREMER: Staff Exhibit 4.

MS. STUEVE: We do have one more housekeeping matter.

MR. SMITH: Let's take care of this one first.

MS. CREMER: Staff would so move to have Exhibit 4 admitted.

MR. WELK: No objection.

MS. STUEVE: No objection.

MR. SMITH: Staff 4 is admitted.

EXHIBITS:

(Staff Exhibit No. 4 received into evidence.)

MR. SMITH: Ms. Stueve, what's your issue?

MS. STUEVE: Yesterday staff asked for the foundation report from witness testimony over the course of the week that had accrued about -- and for example, I believe it's listed in

one place, the prefiled rebuttal of Terry Graumann, Exhibit 34, but it was the last witness yesterday for the applicants that referred about attributable hot spots, so the question was so where are we looking at this occurring, locally, globally, and you asked where you could find the report, you hadn't been able to access it, that 70 Fed Reg 15994, the March 29th, 2005, and one gentleman was going to provide it this morning to enter it into evidence.

MR. GUERRERO: I believe the document that she's referring to is one that Terry Graumann of Otter Tail was going to locate and provide to Ms. Cremer. Is that the one you are referring to?

MS. STUEVE: It was a witness yesterday that you asked, requested if he could bring it in.

MS. CREMER: I don't remember that. I do remember asking Terry Graumann on that federal cite.

MR. WELK: We have got that.

MS. CREMER: I don't remember asking anyone at the end of the day for anything.

MS. STUEVE: It was brought up again in his -- in the cross.

MS. GOODPASTER: I vaguely recall something with a witness yesterday was an EPA report that was requested, but I don't remember more than that at the moment, so maybe we can check the transcript.

MR. MADSEN: That's what Mr. O'Neill has there, it was reference to an EPA memo.

MR. SMITH: Is that what this is?

MR. MADSEN: It's the EPA memo.

MR. WELK: I assume that -- do you want it handed to the commission? It was for you, your request, so that's why it hasn't been marked.

MS. CREMER: Yes, thank you. Do you want to send those extra ones down here and we will mark that.

EXHIBITS:

(Staff Exhibit No. 5 marked for identification.)

MS. STUEVE: Is this part of the evidence?

MR. SMITH: Is it now? It's an official -- it's apparently -- as I recall, it was on the EPA Web site. My recollection is he was going to provide URL, but here it is.

MS. CREMER: I would offer Staff Exhibit 5. It is a statistical analysis of mercury test data to determine BDT for mercury emissions.

MR. SMITH: Is there an objection from anyone?

MR. WELK: No objection from the applicants.

MS. STUEVE: I do object.

MR. SMITH: Your objection, please state it.

MS. STUEVE: My objection would be that this report predates more recent report, Stueve Exhibit 1-E, that challenges said findings in Staff Exhibit 5.

MR. SMITH: Any response?

MS. CREMER: I would just suggest that the commission can give the weight to those exhibits as they so choose.

MR. SMITH: The objection is overruled and staff Exhibit 5 is received.

EXHIBITS:

(Staff Exhibit No. 5 received into evidence.)

MS. STUEVE: Could I move Stueve Exhibit 1-E into evidence? It's only in under judicial --

MR. SMITH: That is evidence.

MS. STUEVE: It is evidence?

MR. SMITH: Yeah, sure.

MS. STUEVE: Thank you.

MR. SMITH: Is there anything else or does anyone have anything else from an evidentiary standpoint, let me put it that way?

MR. WELK: Nothing from the applicants.

MR. SMITH: Ms. Stueve.

MS. STUEVE: Nothing.

MR. SMITH: Joint intervenors? That concludes the evidentiary portion of the hearing. I guess are there any other -- we have the remaining events. The ones that I know of are set forth in the third and fourth scheduling orders, the first of which occurs this evening at 7 o'clock and that would be the public comment, public testimony I guess it really is,

it's actually testimony. I think the next date we have is, I'm going purely from recollection, is July 9th, which is the deadline for filing of proposed findings, conclusions and briefs. And then we have July 11th, which is oral argument, and we just have scheduled at least July 14th for a final decision, for the commission to make their ruling, with the order to be issued on or before July 21st. Are there any other housekeeping or administrative matters that we need to resolve before we adjourn?

MR. WELK: Is July 9th a Sunday?

MR. SMITH: It is.

MR. WELK: I think we consciously made that decision even though it's out of the ordinary.

MR. SMITH: We did. We did and we provided some special exemptions from paper service, et cetera, because of that.

MR. WELK: Thank you. We have nothing further from the applicants, Mr. Smith. And thank you to all the parties and the commissioners and all the staff for the courtesies that have been extended to us through this week.

MR. SMITH: You're welcome, and I think what we will do, then, we will recess the hearing until 7 o'clock this evening and I certainly hope that many of you can be there. Thank you.

(Whereupon, the hearing was in recess at 12:05 p.m.,

and subsequently reconvened at 7:00 p.m., and the following proceedings were had and entered of record:)

MR. SMITH: Good evening, everyone. It is about 7 p.m. on Thursday, June 29th, 2006. This is the time and the place that we noticed in our fourth scheduling and procedural order to receive additional public input comment and if people out there so choose, offer testimony in the case. The case I'm talking about is the applicants of Otter Tail and its associated companies for a permit to construct the Big Stone II coal-fired electric generating station just outside Big Stone City, South Dakota in the northeast part of South Dakota.

Many of us in the room have spent the last four days in the formal contested case portion of this proceeding where we have taken a huge amount of factual evidence into evidence and the commissioners will need to make a decision on the basis of that evidence. I want to emphasize that there are, in addition to the straight factual findings in a case like this, there are also in effect policy decisions within the parameters of the law that the commissioners need to make in every case and they are going to have to do that here.

And one purpose of taking public input testimony is so that the public can give us your views as to when there's a gray area or close call or an ambiguity or whatever in the law, this leeway, you can let us know how you think the commissioners ought to look at this case, and that's one of the

purposes I think we want to try to fulfill tonight or give you the opportunity to have that input into how the commissioners should view this case.

We noticed the proceeding under a particular rule of ours which allows persons to appear in a case and be heard, and basically what I think we have decided, and we provided that you may be subject to cross-examination. I don't know that everyone out there in the audience wants necessarily to be a fact witness in the contested case proceeding or whether your input tonight is more in the nature of policy or philosophical type positions that you just feel you want the commissioners to hear.

And the way I think I'm going to break it down is this. If what you want to do is just make comments that are in the nature of philosophy, policy, just giving your views to the commission, we are not going to swear you and you are not going to be subject to cross-examination. The down side of that is we will also then not be considering your testimony here tonight as part of the hard factual record in the case. It will be treated as comment. If you want what you say tonight to be treated as fact evidence in the case, then please let me know that and then we are going to swear you as a witness and there's various attorneys in the room that have been here for several days and they will have the opportunity then to cross-examine you about particular factual statements that you

may make. And I don't know, I guess before we begin, do the commissioners have any objections to that mode of operation?

COMMISSIONER HANSON: No, I don't.

VICE-CHAIR JOHNSON: Mr. Smith, I don't have an objection, I just might note that this has not been the only opportunity for public input. There was a public input session this commission had at Milbank some number of months ago. There's also been a written comment period and so we have wanted to solicit as much public input as possible, and certainly whatever you say tonight, even if you choose only to make commentary and not be a sworn witness, that information certainly enters our brains and is important to us as well.

MR. SMITH: Commissioners, before we start, would you like to introduce yourselves for the audience.

CHAIRMAN SAHR: My name is Bob Sahr, I'm the chairman of the South Dakota Public Utilities Commission and I just want to say thank you for everyone that came here tonight and we appreciate your input into the process.

VICE-CHAIR JOHNSON: Dusty Johnson.

COMMISSIONER HANSON: I'm Gary Hanson.

MR. SMITH: And I'm John Smith, and I'm the real John Smith.

VICE-CHAIR JOHNSON: It's funny every time.

MR. SMITH: You're like a walking joke. At any rate, I'm the general counsel of the commission and in contested case

hearings, I generally serve as the hearing examiner, which I'm going to do tonight. And with that, we will open the -- I'll note for the record that we have received several written comments thus far. Those comments are accessible on our Web site and I'll have to try to remember the URL. You probably all know it already, but it's www.puc.sd.gov and those written comments are under this particular docket page on our Web site, which you find at commission actions, commission dockets, 2000 electric dockets, and then scroll down to EL05-022 and most of the comments we have received, in fact all of them have been within the last couple weeks written comments that were not included at least in the earlier Milbank public meeting proceeding, and so you may see on the Web site what everybody out there has submitted in writing, and I encourage you to do that.

At this point I guess I would like to open up the hearing tonight and I'm not quite sure how to go about this. I guess what I'll do is just open it up and allow persons who wish to speak to raise your hand or to come up to the witness stand here and take it from there.

VICE-CHAIR JOHNSON: Might it make sense to have all those people wishing to offer public comment to go first or do you not mind having a checkerboard?

MR. SMITH: Why don't we do that. Why don't we allow anybody who wishes just to give comment to go first and then

that way if there are people who want to be here and subject themselves to cross-examination and go on and on with this, well then the other people can decide whether they want to hear about that.

CHAIRMAN SAHR: Don't make it sound too enticing.

MR. SMITH: No, no. Does anyone in the audience want to give public comments?

MAYOR EISNACH: I'll volunteer to go first.

CHAIRMAN SAHR: I wanted to cross-examine you.

MAYOR EISNACH: You are not going to get that chance.

CHAIRMAN SAHR: Mayor, if you would, please, just a friendly reminder, this goes for everyone in the audience, we have a number of people that have been listening in on the Internet and one of the challenges with the witness microphone, you have to be very close to it, so you and the other people who intend to speak tonight could pull it close, we sure would appreciate it and we know our friends on the Internet would, because they have had trouble hearing witnesses otherwise. So thank you very much, Mayor.

MR. SMITH: Mayor Eisnach, one more announcement before you start and I apologize, I really do. I wanted to remind everybody that in the fourth scheduling order, we did the deadline for written comments at 5 o'clock tomorrow, June 30th, so I would just like to remind everybody in the audience and particularly the people on line that couldn't be here, that

if you want your comments included in the record in this case, we need to have them, we just have to have a cutoff sometime because we have a very short time frame before we are required by statute to render a decision in the case. And so we need to know at some point what's in the file and what we are dealing with. Pardon me, Mayor Eisnach. Please proceed.

MAYOR EISNACH: Thank you. Mr. Chairman and members of the commission, it is a pleasure for me to be here tonight on the other side of the table. It's been a while since I've been with the group of PUC people and this is an unusual place for me to be, but it's a pleasure to be here. And I'm here tonight with some very brief comments, understanding that you have put in a long week with your evidentiary hearing. But I wanted to make some comments tonight about the relationship between the City of Pierre and the Missouri River Energy Services, which as you know, is one of the partners of the proposed Big Stone plant.

Pierre is one of 12 cities in South Dakota that is a member of the MRES and as that, the Missouri River Energy Services actually provides the supplemental power for Pierre and those other 12 cities over and above what our hydro allocation is. And because of the fact that Pierre and along with a lot of the other communities in South Dakota that are members do have some growth, you know, our community here in Pierre has had about a three percent steady growth over the

past decade, and because of that, our electrical demand continues to grow and as you know, our hydropower is limited. And the additional energy that we get is coming from Missouri River Energy Services, and right now one of the bigger base load plants that Missouri River Energy Services is involved in is the Laramie River Station at Wheatland, Wyoming. And because of the growth that we have had on our system, Missouri River Energy Services, it is time now that we look to the future so that we can continue to supply the low cost, stable power, stable rates for those members that belong to MRES.

Really that's why I'm here, and we are very, very pleased, I guess, that Missouri River Energy Services has chosen to become a partner in the Big Stone plant, for a couple of reasons. First of all, it's in South Dakota and we like that. That's good economic development for our state. Second of all, I am very pleased about the philosophy that Missouri River has had as far as the environmental philosophy they had when they are looking for additional power. And the Big Stone power plant, from what I have read, is going to be a very environmentally sound plant that will be as environmentally responsible with the additional new plant as it is right now, which means that there's going to be some major things that are done as far as environmental controls. So I'm pleased about that and I think all of us that live in South Dakota should be pleased about that.

One of the other things that I think you should know, that as a member of Missouri River Energy Services, we belong to an organization that really has a better record I would think than most organizations do as far as having environmentally clean power, and that is because of the fact that about 50 percent of the power that is supplied to those members comes from the hydropower, and the base load plants that we have got, the one over in Wyoming, is a very environmentally sound plant and we know that the Big Stone I is going to be also.

In addition to that, Missouri River has taken on some wind energy projects, the biggest one, which is over in Worthington, Minnesota, and they also supply additional power into our system. One of the other things that I have read about that I'm particularly interested in, having sat on the other side of the table here, is part of the project with Big Stone is to do some upgrades to the regional transmission system, and all of us that have been involved in electric transmission know that probably the biggest barrier to doing something here in South Dakota, whether it's a base load plant, whether it's wind energy, whatever it might be as alternative sources of energy, is being able to get that to the market and on the grid. And without transmission, we have a barrier. So as part of this, there are some upgrades that are going to be done and I think that's fantastic.

So in closing, I just want to urge you to support the siting of the Big Stone plant. I think it's not only good for communities like Pierre, but it's outstanding for the state of South Dakota as far as economic development is concerned. Thank you for your time.

CHAIRMAN SAHR: Thank you, and I should note, certainly it was implied in some of our comments and in your comments, Mayor, but not only are you the mayor of Pierre, but you are also a former commissioner on this commission and we really appreciate you coming here tonight and welcome you back to a setting, even if you are on the other side of the table, you probably know quite well, so thank you.

MAYOR EISNACH: Thank you, Bob.

VICE-CHAIR JOHNSON: And if, as you step forward, if you would say your name and if you have any particular affiliation or town that you come from, that would be great.

MR. GEOFF HEIG: My name is Geoff Heig and I'm the general manager at Watertown Municipal Utilities and it seemed like a good time to tag along with the other MRES member Pierre. Like Pierre, we are --

CHAIRMAN SAHR: If I may, do you need the spelling of his last name?

MR. GEOFF HEIG: Like Pierre, we are one of the 12 members in South Dakota that are members of Missouri River, and as such, we receive our supplemental power from Missouri River

to meet our growth. Watertown is the largest municipal electric system in South Dakota. We serve 12,000 electric customers and we are also the fastest growing community in the 60 members of the Missouri River family in the four states that they operate in.

We are continuing to grow and develop. In the past few years, we have seen an increase in population, business development, the completion of an ethanol plant within the city limits of Watertown, a plastics manufacturing plant, a new events center, and anyone of course who goes along Interstate 29 is starting to see an awful lot of commercial growth near Watertown in that area.

Our electric load growth has averaged more than five percent per year over the last 20 years. Our total demand has more than doubled in that time. And our total energy sales has actually gone higher than that. Our load factor has actually gained in that time, so our electric load growth, we are planning on load growth in 2007 of 10 percent in one year alone. We will use up seven megawatts of Missouri River 's 150 megawatt allocation from the Big Stone II plant just next year alone in Watertown.

We are going to continue to seek economic development, we have been pretty lucky at that, bringing new jobs, industry and citizens to the community, but in order to do that, as you can see, we need a reliable and energy efficient source of

power. In order to meet these demands and the demands of its other members, of course, Missouri River has joined the participants in the Big Stone II plant. As a citizen of the community of Watertown, I am pleased that Missouri River has had the foresight to plan for our community's future needs by participating in the building of a cost efficient plant like Big Stone.

I've had the additional opportunity, since I sit on the Missouri River's board of directors, to help in the planning process and make some of the decisions that led up to this point. And as such, I encourage the PUC to approve the application here and we need the power in Watertown and I thank you for allowing comments.

VICE-CHAIR JOHNSON: Who's next?

MR. KORY RAWSTERN: Hi there, my name is Kory Rawstern. I sit on the South Dakota Building Trades Committee and I'm an electrician by trade. The Building Trades Committee, which represents nearly 20 different crafts, have been working with Black and Veatch and the owners group of Big Stone II for the past several months. I believe we are all well aware of the power needs facing our country as of today. We, the South Dakota building trades, feel Big Stone II will address the power needs for our region.

There is a signed contract agreement between the South Dakota Building Trades and Black and Veatch for the Big Stone

II project. We are very excited to have the opportunity to show the professionalism of our South Dakota work force. The projected manpower for this project should exceed 1200 craftsmen and with our established apprenticeship programs, the building trade endorsed Helmets-to-Hard-Hats for our military personnel. In addition, we are creating links with the Governor -- with Governor Rounds work force development programs, the vocational schools, and tribal employment rights offices. We believe the Big Stone II project will benefit not only the consumers but with the talk of other possible power plants in the state of South Dakota and surrounding states, we would be -- we believe it would be a tremendous opportunity for more South Dakotans to become trained, skilled craftsmen. Thank you for this opportunity.

MS. MIRIAH HICKS: Good evening, Commissioners and Mr. Smith. My name is Miriah Hicks. I am currently the executive director for the Milbank Area Chamber of Commerce. Tonight I would like to offer my testimony in favor of the Big Stone II project. In my capacity as a chamber director, I speak to the missions of the chamber, one of which is to encourage and support community growth and to stand behind projects that add value to our community. The creation of the Big Stone II plant will undoubtedly add economic growth and value for the existing businesses and add opportunity for the creation of new ones in Milbank and the region.

Over the course of the week you have heard detailed testimony regarding the intricate details of this project. Tonight I speak to the general benefits the community of Milbank expects to experience.

Future identity. Communities all around the state currently struggle to survive and maintain their identity. The construction and operation of Big Stone II will enable added stability to our community and insure that Milbank will not become a mere memory of a once strong community. The Big Stone II project will create jobs of which will add vitality to our community and entice new families to the area and increase retail sales overall to the local economy.

Communities are often identified by key industries, employers and events in the community's history. The construction and operation of the first plant, Big Stone I, was an event that helped establish the current business climate in Milbank. The employment at Big Stone I continues to provide to the area, identifies it as a major employer with roots to the community. The construction of Big Stone II will again become an identifying time in our community's history. It is my belief that many of the other businesses established in Milbank might not exist if Big Stone power plant and other businesses like it were not in the area. Communities depend on major employers and it is for that reason that we welcome the expansion of our good neighbor.

Community preparedness. The community is ready to embrace and is continuing to prepare for the growth projected with the Big Stone II plant. Examples include the opening of a satellite clinic in Big Stone City, the establishment of a TIFT housing district with more in the planning phases and planned law enforcement training and assistance measures. Housing was addressed yesterday. I was listening via -- listening live via Internet during Mr. Madden's testimony, most of which focused on housing. Milbank has and continues to prepare for additional housing, both temporary and permanent, for the Big Stone II project.

As mentioned, we have begun the development of a TIFT housing district in Milbank and we will not stop there. Although the construction phase would be three to five years, Milbank welcomes the tax dollars and increased retail sales that would come from the temporary workers living in our community during such time. In order for Milbank, Big Stone City and other immediate communities to gain the full benefit from the project, we want to do what we can to accommodate and welcome workers living, sleeping, eating and recreating in our communities. We want to take full advantage of the energy that will take place during the Big Stone II project and are aware of the undoubtable slowdowns the local economy will face following the completion of the Big Stone II plant. Regardless, we want to take full advantage of the growth during

the construction phase, the construction and completion phases of the Big Stone II plant.

Milbank will continue to be creative in providing affordable, comfortable housing for temporary and permanent employees of the Big Stone -- of the power plant. I believe that Milbank is a progressive community and will take action to protect our residents from unreasonable rent increases, but we will also act in a way that will allow and welcome as many temporary workers as possible.

Job development. The Stuefen Research -- Business Research Bureau provided an economic impact highlight of Big Stone II power plant construction report. In this study it was concluded that 35 full-time equivalent and 29 part-time positions in the community, as well as a projected 2,550 full-time equivalent positions during the construction, would result if Big Stone II were built. Milbank fully welcomes these jobs and the ripple effect it will bring to our community. I don't think you will find a community in the state against such growth if it were in their community.

Alternative energy sources. In previous testimony and arguments, alternative energy sources have been mentioned. I think it important to look outside the industry directly and see that the existing Big Stone plant has enabled the growth of ethanol, an alternative fuel source, namely Northern Lights Ethanol. This is, as you are aware, a growing industry with

huge potential in South Dakota and the Midwest. The success of Northern Lights Ethanol is partially attributed to the existing Big Stone plant and as an example of how two industries can work together to benefit each other.

Big Stone Lake atmosphere. Comments have been made regarding the environment condition of Big Stone Lake and such quality following the completion of the Big Stone II project. I would like to mention that lake development is at an all time high. Every day it seems that someone new is purchasing lake front property, developing the land and building recreation and retirement homes. The existing plant, Big Stone I, and the anticipation of Big Stone II doesn't appear to act as a deterrent for lake development. It is my opinion that lake property will continue to climb as lake front property is highly coveted.

I would not be here tonight if I did not believe that this project would be a benefit to the local and regional economy, add to the quality of life for the residents in Milbank and the surrounding area and overall provide a benefit to the state.

When considering the arguments and testimony made throughout the week, I ask that you consider the effort put forth by each of the partner companies making up Big Stone II. These partners have worked hard to meet and exceed environmental standards not only for Big Stone II but to

upgrade the existing plant. This has showed our commitment to the area and provide that Big Stone I -- and proved that Big Stone I has been a good neighbor for the community, holds strong environmental conscience and is making every effort to stay at the forefront of the industry and to act as a model for future projects. The partners of Big Stone II have thought this process through in a way that protects the community and maintains the good neighbor feeling that Big Stone I has provided our region.

I hope that those intervening on this project take into consideration the weight and impacts of community growth and sustainability factors the construction and operation of Big Stone II will provide to our area. I believe it was Mr. Welk in his opening statement that identified many of these steps taken by Big Stone II in terms of protecting and maintaining the community's resources, i.e., sound law enforcement, safety, roads, training, public relations, et cetera. By granting this permit, you can be assured that the project will proceed in the same thoughtfulness shown so far. Thank you for your time and consideration this evening.

MR. GEORGE SMITH: Good afternoon. First I'd like to thank you for the opportunity to present here. I did attend the hearing in Milbank and I subsequently sent a letter because I wasn't able to stay for the entire meeting, but I decided to come and testify simply because I think I'm going to try and

cover some areas that the other speakers may not.

My name is George Smith. I am the economic development director from Grant County, a position I have held for 10 years since I retired in 1964 -- 1994, excuse me. Too many numbers to work with.

Prior to that time, starting in 1967, I was the superintendent of schools in Milbank and I was very deeply involved in the activities that took place both locally in our county and at the legislative session during the spring in each of those five years of construction with Big Stone II. There were many issues that came up there that affected us, including railroads, education, taxes, all kinds of things, and as those issues came before the legislature, I spent a lot of time in Pierre testifying and working as a lobbyist to address some of those issues.

Therefore, I feel that I have sort of a unique perspective, as we had a test run I call it with Big Stone I, and I have an idea of what we have to look forward to with Big Stone II, if it is permitted. With that background, I guess I could address a number of separate issues, including economic development and education and impact on communities, but what I have attempted to do is to capsulize what I wanted to say with a short series of 10 position statements or policy statements or personal statements that I think might be worthy of this hearing.

First let me say that I am a strong supporter of Big Stone II and that comes from experiencing both the issues created by the original construction of Big Stone I and also from the lasting benefits that those of us who live in that immediate area in the northeast have enjoyed as a result of having that plant there.

With that being said, as I said, I have tried to summarize in quick fashion the things I want to say and I have entitled this what we can expect if Big Stone II is permitted, built and then is operated by Otter Tail Power Company. You know, they are the operating firm of our current plant and have been since its inception with the Montana Dakota Utilities, Northwestern Public Service and Otter Tail being co-owners of that particular plant.

I'll just run through these quickly in a matter of time. We can expect that the facility will insure a continued supply of electric power that will meet the future needs of hundreds of thousands of customers as well as provide potential for a series of what I call huge energy farms along the Coteau Hills. Milbank is just on the east side of those hills and I think there are easements being taken right now in that area for energy farms that will be probably sprouting up there before too long.

We will have a facility that will provide additional employment in the community, bringing skilled workers into the

area, families to repopulate Grant County and the communities that are there, children for our schools, and other benefits that come from having a greater population in the area. Presently I believe Big Stone is projecting an additional 40 employees with the plant. Just by way of information, you may have seen some of this in the paper, Milbank has been blessed in the last two years with new businesses. Currently we have eight businesses that either committed themselves or are in the process of moving to the community and we are looking at we feel somewhere between 100 and 150 jobs over the next three or four years as a result of Big Stone, the expansion of Valley Queen Cheese, some of those other businesses. We even have a plant there, a business that came in there from California that's operating out of our community at the present time.

If the plant is permitted, we can expect it will be operated by a company that has a staff with a 31-year demonstrated positive performance record from the operation of the original plant, a company that has a history of placing customer support and satisfaction at the top of their priority list, a company that will maintain their continuing quest to equip both the current plant and Big Stone II with the latest generating technology, thus creating greater efficiencies. I believe I'm right in this, that Big Stone II (sic) was built as a 400 megawatt plant and now they are able to produce 450 megawatts just through upgrades and technological advances in

the last 30 years or so since they have been there.

It will be operated by a company that will continue to demonstrate a concern for the environment by the addition of the most technologically advanced air, water and land protective devices as they become available, operated by a company that has planned for the future since Big Stone I was placed on line in 1975 for the day and time when the need for additional generation capability would be created by changing social and demographic conditions.

We talked about a second plant back in 19 -- well, as early as probably 1973, 1974. That was on the drawing board at that time and of course it took many, many years for it to come to this point, but nonetheless it was planned at that point or we knew there would be a greater need. It will be operated by a company that has demonstrated their intent to encourage additional new industry in the area, as has been evidenced by their cooperative development of the Northern Lights Ethanol plant, which is adjacent to Big Stone I.

It's a company that has been very active in each of the communities that they serve by providing both funding and human support for special projects of educational activities and community functions. And last but not least, the additional finance of resources that will come for the state of South Dakota and its eligible political subdivisions.

In summary, I would urge your full support of Big

Stone II. It has been identified as a necessity to insure the future growth and development of the region in which we live. Beyond that, due to the effort undertaken to create the consortium of partners supporting the project and the projected cost, it is an opportunity that may be gone forever if we do not recognize it is what could be a one-time possibility. With that, I appreciate the opportunity to speak here and thank you very much.

MR. SMITH: Thank you very much, Mr. Smith.

MR. DAVID BERGAN: Good evening. My name is David Bergan and I'm a retired high school principal and you might wonder why a high school principal would be here to testify. I just want to reflect for a minute. One of my first years as a principal I was a pretty young fella and all of a sudden somebody mentioned the fact there might be a power plant built in our school district, it might make a significant difference in the community, and of course I'm like everyone else, they have to kind of show me first. And I just want to relate to you what Big Stone I meant to our community and I will relate later what I think Big Stone will bring to our community.

Any time you have construction going on, you have people moving in, and we were always a good school, but we were kind of closeted in the country school mentality. We were kind of all in the same community and we had been there for a long time, no new ideas were generated and we just kind of status

quo. Many times in looking back, I kind of wonder why we didn't move faster in some of the things we should have been doing, but the construction of the Big Stone power plant allowed us to bring new people into the community, give us new ideas and get us off dead center, and we did. Not only did it allow us to put up a new building, which was very significant, but it allowed us to enhance our curriculum to the point where most of us, when we graduated from high school, if we had 16 credits, that was it, that was the benchmark.

From the time -- from 1975 when the power plant came on line until 20 years later, we were already at 20 credits, that was one of the things that caused it to happen, because we had an enhanced curriculum. Before we had a hammer and a board and we called it industrial arts. And all of a sudden we have wood shop one, wood shop two, auto mechanics and all the things that went along, plus the college level math, the college level English, all the things that we probably should have had earlier but we didn't because we didn't have the staff, we didn't have the facilities and that's what this plant allowed us to do.

And the people that moved into the community were very instrumental in making us aware that, hey, you have got a good school but you have got a ways to go, and needless to say, we moved down the right road. Fine arts and the various areas were enhanced considerably just through the facility and being

able to hire people that had expertise in that area and moved us down the road in the right direction.

Now, my comments are going to be short and brief and you will say, well, okay, that's well and good for Big Stone I causing that to happen in the Milbank School District. What's going to happen with Big Stone II? Well, if you are looking around the state, there are a lot of communities that would just love to be able to maintain their student population. That's one of the things that could be beneficial because it's difficult with the small families that we have now days. Even if you move ten new families into the community, it doesn't add a lot of kids to the enrollment. That's one of the things that I'm certain at least will give us a little more stability in our school system, because when we started in '75, we had 530 kids in high school. Right now this last -- in kindergarten, enrollment was below 60, so that kind of tells you where our school is headed without growth. So that's one of the things that hopefully Big Stone power plant will allow us to do. There's a number of other things that can also be benefitted in terms of new ideas and approaches that people bring into the community.

But one of the last comments I want to make is when we had open house at our new school back in '77, '78, when we walked in there, we had a room that we thought we were miles ahead of the rest of world. We really didn't know what we were

doing, but we had a room that was built that was probably eight by ten and on top of the door it said computer, and I can remember the people coming through the open house saying, what do you got that for, what's that computer thing? Well, that's one of the things that's coming. Well, needless to say, that's a closet now, it really is. It's the closet.

And so my point is, you know, we couldn't see the future in 1977, '78 and look where we are at today. What does Big Stone Power Plant II mean to our community in terms of education and growth? I have no idea. I think it's exciting to think that we have got the potential at least to grow and look at the future in a bright way rather than just kind of a gloomsday like a lot of communities have to look at it. So we are a community that's very happy with Otter Tail and they have been very, very good neighbors and very good contributors to the community, and with that, I'll end my comments. Thank you.

VICE-CHAIR JOHNSON: Anyone else interested in providing some public comment? Now we have got competition, who can get here first. Come on up, ma'am, that's fine.

MS. JEANNE KOSTER: I thought maybe I should come at the end of the comment period, in case someone wanted to ask me questions. I have no objection to that and I would even welcome it, but I'm not credentialed in the things that I'm talking about so I may not be worth questioning. However --

VICE-CHAIR JOHNSON: Plenty of the people who believe

they have been credentialed this week were not worthy of asking questions of, so if you have something you want to offer, we would take your comments either as sworn testimony or as public comment. What would you prefer?

MS. JEANNE KOSTER: I only have footnotes of things that I have read and discussed with other people who are the credentialed people. You can swear me in if you want, I've got the footnotes to -- I doubt it would be worth your while, but if you have questions, I do welcome them.

VICE-CHAIR JOHNSON: Let's do it this way. Let's go ahead and have you provide some comments and if we have follow-up questions, you may offer them, it may not be grilled cross-examination, but we won't be bashful about asking you a follow-up if we have one.

MS. JEANNE KOSTER: Fine. My name is Jeanne Koster and I'm here for myself. This is a good process and it's complementary to the federal process that is going on, the Environmental Impact Statement process, the NEPA process, the two do complement each other and it's worth noting that the NEPA process is being extended. You may be aware of that, that the deadline has gone forward. And that is really good because there are some very serious, serious shortcomings in the draft, not that there are not also glories in that draft. The people who did the draft did an excellent, excellent job of laying out all of the implications of the transmission capability that is

going to be installed, improved, the substations that may be improved or even reconstructed, very good job there. But there are other aspects which are far from adequate and it is one of those that I want to address tonight.

A man in a suit knocks at your door and makes a proposal. He suggests that a small commitment on your part can materially advance the greater good. A flurry of temporary employment would inject much appreciated cash around the Milbank area. After that there would be about 36 permanent new jobs. God bless those 36 lucky families and lucky Milbank to get them. Plus new transmission capacity will be added and substations will be upgraded or even reconstructed so that people somewhere, mostly Minnesota, will have more electricity as they need to tap into it. And if they don't need it, their utilities can really improve their bottom lines by selling it to folks pretty far away, but probably still in MAPP, mostly in Minnesota or even further away in MAPP, our regional power pool.

All you have to do is volunteer your child, most likely as yet unborn, for a special game, the cost benefit lottery. In this special lottery, the child wins if his number does not come up. If the child's number does come up, he gets to have neurological impairment. Maybe behavioral problems or learning problems or maybe just ants in his pants. Maybe he will really luck out and just have a few points shaved off his

IQ. They will never be missed, kids are lovable no matter. Your child could suffer neurological impairment because his mother ate mercury-tainted fish. Fortunately, you can take comfort that he at least lives in South Dakota, where mercury is less toxic than it is in Minnesota. Believe it or not, once that mercury gets across the border into Minnesota, it immediately becomes one-third more dangerous. A Minnesota regulatory official told me, if I understood rightly, their action level for a mercury advisory is two parts per million, whereas South Dakota allows three parts per million.

Or the child could turn out bipolar if his mother did not eat the fish. It seems that omega-3 oils from fish are essential for healthy neurological development and bipolarity can be a deficiency disease caused by lack in a mother's diet. For an undetermined proportion of individuals, vegetable source omega-3 oils will not suffice. Deep border fish are the best source, but the fish in our lakes are a not insignificant source, and what is available to people on tight budgets?

Mom just has to eat more fish. Wait, I momentarily forgot, mom is not supposed to eat the fish. Then again, the mercury problems can happen even if mom doesn't eat fish. The child could turn out mildly or even frankly autistic. He could, if the laws of physics and developmental physiology are the same here as in Texas, where a study of 1200 school districts published in 2005 showed a very significant increase

in autism in counties having coal-fired power plants. Texas is not the land of 10,000 lakes or even very many rivers, so not all those little people are autistic because their moms ate fish that their dads caught.

The relationship between child neurological impairment and moms or kids under 15 eating fish is well understood. Not so well understood is harm done to exposure from other pathways, but that harm is there and evidently measurable. The increase was 17 percent for every thousand pounds of mercury released by those power plants, not annually but cumulatively. Even adhering closely to the requirements of the Clean Air Mercury Rule, Big Stone I and II will easily liberate more than that half ton in the first five or six years of combined operation. Who gets to be in the 17 percent?

If I interpret correctly, the Big Stone people say in their federal draft EIS that they intend to keep their mercury emissions at the allowable limit of a fictional 144 pounds a year, fictional because that limit is achieved by actually emitting 189.6 pounds yearly, after a grace period allowing them to emit more while they work the bugs out of their emissions controls. But they get credit for 144 by purchasing mercury control credits from utilities in other states who reduce their mercury emissions more than the Clean Air Mercury Rule requires.

They might even buy those credits next door in

Minnesota, where the Minnesota Pollution Control Agency is requiring that any utility with more than 500 megawatts of generation must eliminate mercury emissions by 90 percent by 2015, some sooner. The Minnesota power plants will be using technology that Big Stone people have told me in conversation is too expensive for them, too likely to make the electricity discouragingly expensive, yet Minnesota MPCA people assure me that even for Big Stone, the cost would be truly marginal. Two to three million to install and troubleshoot, about two million annually to operate thereafter. The Big Stone people are opting to avoid paying that cost and instead to have some little kids pick up the tab for life because their number came up in the neurological lottery.

The 144 pounds in itself is somewhat puzzling. The figure is South Dakota's total allowance under the Clean Air Rule. Our DENR has a new rule themselves saying that one utility can't hog the state's whole allowance. And after five years, 2016 for Big Stone I and II, the utility must even give back some of its original actual allowance, which would be not 144 pounds but 129.6 pounds, I believe. Yet in the draft EIS, they make clear they are indeed counting on hogging the whole 144 pounds. By 2018 the federal government will have cut South Dakota's mercury emissions allowance to 58 pounds. In their draft EIS, Big Stone people are showing no plan for making the jump from actual 189 pounds to whatever part of 58 pounds they

are entitled to use, and it will be part of the 58 pounds. Surely the state will not allow them to hog the whole 58.

Which brings me to request something from the Public Utilities Commission. I don't know if you can do this. I think you may feel strongly constrained by rules not to, but see if you can. Please put off your decision on permitting Big Stone II until there is a record of decision on the draft EIS. The project co-owners, as I say, did an excellent job in some respects on that draft. And we want the power here, but do we have to take it on those neurological lottery terms? The omissions and confusions for some other issues in the draft also practically insure that for the total bucket, some material changes will be introduced before a record of decision is rendered. It would be ironic if you would approve the plant that is submitted to you along with a neurological lottery for our children. Thank you.

MR. RON WIECZOREK: I'm Ron Wieczorek from Mount Vernon, South Dakota. It was too hot to bale this evening, so I heard you guys were up here so I thank the commissioner for the opportunity to speak here this evening.

VICE-CHAIR JOHNSON: What was your name again?

MR. RON WIECZOREK: I'm Ron Wieczorek from Mount Vernon, South Dakota, and I would like to address, and I would like to commend the developers of the plant and thank the commissioners for doing their public job of making sure that

the general welfare is provided for and taken care of. And when I look at the economic crisis the nation is in right now with -- the past several, oh, well, six- to eight-, ten-month period of the inflation on commodities and energy costs in this country, and you can take copper, for instance, in the past year it's went from $2,000 a ton to $9,000 a ton, and it's dropped back now of course. But anyway, if you look at the value of copper in a penny, it wouldn't take long and it would be a dollar. So we have a monetary system where a dollar is worth a penny.

Those are the things that I think about, and right now I think about the rest of our national economy and our local economy also, where we are looking at the auto sector, General Motors going into bankruptcy most likely, Delphi already in bankruptcy, many of our airlines are already in bankruptcy, and we have to come up with another source or a more efficient use of energy.

And one of the things that I have been very excited about and promoting since I was in Germany in 1993 and rode on the Megala train (phonetic) at 300 miles an hour where you have the potential to move 1500 people at 300 miles an hour with less energy than it takes to drive my ton truck down the road, I think these are things that we need to look at. And it's essential that we have plants like Big Stone I and Big Stone II to provide that. They have to be environmentally clean and I

commend the people on the development up there and to me it looks like it has been environmentally clean.

I think right away with something like this, we could basically give ourselves a transportation system and we could put General Motors and Delphi people back to work. That machine tool sector is essential to the security of the United States of America. But they have to have the energy sources to run these type of transportation systems with. And that's what Big Stone II is all about in the big picture, I think.

It will vastly develop South Dakota and the nation, especially if we could run a segment of this from, say, Mexico City of 25 million people to Fairbanks, Alaska and parallel it along the Missouri River, parallel it along Highway 83 and then every hundred miles start the development of a new city. This is how Abraham Lincoln brought the economy out of a recession and did not use economics 101, the nickel on the ticket to pay for it. It was all the new development that paid for it in the process. And it was essential to the future. And that's what Big Stone II is, it's essential to the future, the young people need this. Fifty years in the future, we need that.

We cannot depend on sources of biofuel such as ethanol. It takes -- actually I believe most of the studies or many of the studies refer to taking two and a half gallons of diesel fuel to make a gallon of ethanol. How do you generate ethanol at $7.24 a gallon now and make statements like we are

going to raise the corn prices, when my local elevator this afternoon was $1.67, and ethanol is -- corn has gone in '97 from 4.50 to a dollar and a half and we have been adding ethanol plants all the time. I really don't see any benefit to ethanol, especially if it's -- you know, you can't get more energy out of it than you put into it.

Big Stone II is not that case. It's a very good, clean source of energy that we need for the future, magnetism, and also I think the potential is even there for hydrogen -- to tie in with hydrogen production, which will be a fuel of the future.

One other comment, I look at what the Chinese are doing right now, they have become our biggest competitor. They have just finished Three Gorges Dam and if I read it right, they are able to produce 17 times the electricity on one dam than we are producing on the whole series of Missouri River dams. They are moving very rapidly with nuclear energy, as I seen in France and Germany and Europe when I was over there, very cleanly, very efficient, a very cheap source of fuel, I think we have to look at that.

One statement that I picked up on here and I just wrote down from president -- China's President Zieman's trip to the United States was creativity is the source of national wealth and it's an inexhaustible source, and I thank you guys for the creativity that you have put into this project.

MR. SMITH: Thank you, Mr. Wieczorek. Does anyone else wish to speak? Pat, I see you back there.

MR. PAT SPEARS: I do, if all the public comments are done.

MR. SMITH: Ms. Stueve, I think we have seen you before.

MS. MARY JO STUEVE: I know, it's a good thing I'm a Gemini. Am I Mary Jo or am I Clean Water Action? I am Clean Water Action tonight. Mary Jo representing Clean Water Action. And I speak tonight on behalf of South Dakota Clean Water Action. Our office is located at 231 South Phillips Avenue, Suite 250, Sioux Falls.

Last September 13th, 2005, there was a public hearing before the South Dakota Public Utilities Commission in Milbank on the proposed Big Stone II project. A request was made by, quote, unquote, Stueve at that time to have the draft Environmental Impact Statement address total maximum daily load, better known as TMDL, for the mercury levels in Big Stone Lake and in waters within a 50-mile radius. The transcript from the Milbank hearing reads, with Chairman Hanson speaking, quote, Nancy from WAPA, would you please make an attempt, if you can -- if you cannot, just tell me -- will the Environmental Impact Statement that WAPA is entering address those, brackets, mercury TMDL questions by Stueve, issues? Nancy Werdel speaking, quote, it will have water quality

impacts as part of that study. And I took a couple of notes, and we'll take those back and put those as part of our scoping as an inclusionary thing into the EIS.

The above TMDL request was specifically made by Stueve because in the application for Big Stone II, the applicants did not calculate, analyze or study mercury impacts on humans or the environment. The applicants did not measure mercury levels or risk and neither does the recently released draft EIS address current mercury levels or measurements in the water or fish. In other words, we do not have any information from the proposed Big Stone II project on mercury load currently in the water or in the fish that not only could but would be increased by continued and/or increasing mercury emissions from the proposed Big Stone II.

Because of how mercury bio-accumulates in the environment, operation of both plants, even if at the same mercury emissions from 2004 of 189 pounds, decidedly increases mercury accumulation and degradation in the environment. What will this mean for future real estate development along the lake? What will this mean for future revenues from tourism and the fishing industry? Who will want to come and reside, fish or swim in a toxic laden lake? Will we have not only increased health risk but also a socioeconomic bust?

According to South Dakota Codified Law 49-41B-22, it is the applicants' burden of proof to establish that, two, the

facility will not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area, and that, three, the facility will not substantially impair the health, safety or welfare of the inhabitants, and four, the facility will not unduly interfere with the orderly development of the region.

Clean Water Action members are deeply concerned about the inconsistency and the lack of analysis on mercury and other toxic emissions. The application for the proposed Big Stone II does not address in a calculated, cumulative manner what the impact would be on human plant and environment surrounding the area. Neither does the draft EIS. In fact the draft EIS shows and records an expected release of 399 pounds of mercury into the environment once Big Stone II comes on line, as does evidence submitted via discovery, which can be found in Stueve Exhibit 1-G.

Even though applicants have recently submitted a letter giving voluntary commitment to emit no more than 189 pounds of mercury, South Dakota budget for future mercury emission under the Clean Air Mercury Rule falls to a 144-pound requirement in 2010, then down to 58 pounds by 2018.

What about health risk cost? Our members are concerned. Why should local populations bear the brunt of toxic risk? Mercury control technologies are available now and

the need for such very clear. Model rules have been crafted providing states with guidance, for example, Regulating Mercury From Power Plants, a Model Rule For States and Localities, November 2005 State and Territorial Air Pollution Program Administrators, Association of Local Air Pollution Control Officials. We can do better for our children, our health, our water, our future. In order for a decision to be made, everything should be on the table and people should know what are we risking and what is the tradeoff?

Clean Water Action South Dakota recommends further evaluation and calculation of the mercury risk before a permit is issued for the proposed Big Stone II. Clean Water Action contends that applicants have failed to provide proof that Big Stone II as proposed will not pose a threat of serious injury to the environment, nor to the social and economic condition of inhabitants or expected inhabitants in the siting area. Nor have applicants provided proof that the facility will not substantially impair the health, safety or welfare of the inhabitants or unduly interfere with the orderly development of the region.

Clean Water Action South Dakota sincerely thanks the Public Utilities Commissioners for the opportunity to comment in this matter.

MR. SMITH: Thank you, Ms. Stueve.

MR. PAT SPEARS: Good evening, John, and members of

the commission. I thank you for having the opportunity to speak to you, too, to address some concerns that our voice on behalf of the Intertribal Council on Utility Policy. I represent tribes not only in South Dakota but in surrounding states as well, in North Dakota, Nebraska, Wyoming and with affiliates in other regions, including Minnesota tribes and other organizations there. We look at issues in utility policy on tribal lands, from regulatory, educational, as well as environmental and economic perspectives.

We also have a real large emphasis on wind energy development and are managing the development of an 80 megawatt intertribal wind project on eight reservations with several others poised to come on and join in this effort. We are looking at community wind power as well as municipal wind power markets and also the federal government as a potential purchaser of wind energy for federal facilities and needs for other federal agencies, as well as other cities that are in our region and outside our region that are aware of the tremendous wind energy potential that we have here in South Dakota.

Just as an example, I know many of you as members of the commission are aware of this, but I want to point this out for the record here because I do want our comments to be entered into the record and I would like to submit the draft, a written document tomorrow, your deadline. I thank you for that opportunity. I'll just summarize them here tonight.

But we sit in the middle of a vast resource of wind in this country and according to estimates by the National Energy Laboratory, we have over 276,000 megawatts of wind energy on tribal lands alone and we also have the benefits of being all on the Western Area Power Administration's transmission system, much of which originates and transverses tribal lands. And we have given up much for the development of that system in the way of sacrificing lands for the Missouri River reservoir system for flood control primarily with power production kind of as a by-product really. If all the dams are full and running at maximum capacity, that capacity is about 2500 megawatts of energy annually. Well, we can do that on tribal lands easily. So can many farmers and ranchers and communities in South Dakota. We enjoy the most consistent wind, I think, of any state in the northern plains and have more transmission access points here.

But it's not only wind energy that we are concerned about. As tribal people, we are very conscious of impacts on our land and our water, the ecosystems, the plant nations, the animal nations and the fish nations, as well as the unborn generation. We think down the road quite a bit. It's something we share with other tribes in that we think ahead seven generations of impacts today. That's something we have learned from our grandfathers. We may have strayed a bit in some decisions we make today to meet the need for revenue,

jobs, employment that everybody needs out here in rural America and the northern plains in particular that we are all very aware of.

Some of those economic impacts here that we are still recovering from is the flooding of the Missouri River. Our economies have never been returned quite to the state that they were at that time. We got along pretty good. I always quote one of our elders who has passed on now to the spirit world, but he was a Standing Rock Lakota, his name is Vine Deloria, many of you have read of him. He's a well-known scholar, but he equated the flooding of the Missouri River and the impacts on all the tribal nations as probably the second most significant impact to the economies, culture and ecosystems of the tribal nations since the killing of the buffalo.

I believe that. I know the impacts of that flooding, what it's had on us, our communities, and we have been trying to rebuild and live a -- with an increasing population on not -- with not enough land to go around to sustain everybody and having all of those problems that resulted from that and our best land is gone.

So we take a look at environmental justice, that's this 80 megawatt wind project has been recognized by an interagency task force in national competition, comparison, if you will, with brown fields, other things that are polluted, other actions that have resulted in harms to the environment

and human health and such, and it's been accepted. They have never looked at an issue like that before, but the way we presented it, it was accepted. So I don't mean to dwell on that right now, but I want to use that as a background for some economic justice we feel we have coming and one of those -- one way that's possible is the development of wind energy resources.

We know the wind doesn't blow all the time, but it blows about half the time here and we are looking to partner with the utilities that are here. Our rural electric co-ops, of which we are members, we are members of communities served by municipal power companies and we are served by investor-owned utilities on reservations, too. And those over by Big Stone are Sisseton and Flandreau, who are members of Intertribal COUP, and virtually all of the river tribes as well as the Oglalas, and Rosebud, Yankton, the Omahas in Nebraska, we are all aware of power needs and the management issues on the Missouri River and we think wind energy can impact all of those.

So we are looking for creative ways to partner to provide power not only for our communities but for this region to meet new load growth and new demand and serve the new market. But we want to do so carefully. There's three issues we have here are a concern for our environment, global warming, and the economic impact of wind energy for this whole region.

I share the comments made by some of the other people here and those that I have read from other proceedings and that I have read on line and in the papers in that I hope you take a very good look at the environmental impacts and analyze it and not rush into any decisions here without knowing full well the complete mercury output as well as the sulphur dioxide and the nitrous oxide, acid rain and smog.

You know, people in South Dakota think we have got a pretty pristine environment, we don't see a lot of that smog, but you can see it if you are in North Dakota before the wind comes up, you wake up in Bismarck and look to the east, it's there. I don't wake up in Milbank very often, I don't think I ever have, I have driven through there pretty early, but I think you might be able to see some of it. Around where there's other coal plants you can see it. There's particulate matter there. We have got a lot to do to clean up existing emissions here and the technology is being researched to do that.

I have high hopes that coal gasification is going to be one of the answers to controlling emissions and pollutants as well as CO2 and sequestering that back into the earth or other ways. I really hope that there can be a partnership with the coal industry and wind energy, because we need to -- we need to do that to provide our own needs as well as meet some of those large needs in other areas, and you all are very well

aware we need to increase transmission to access those market areas. And with this new plant here, I would hope that that is a major consideration also, that you would partner with those entities that want to develop wind energy and move it to urban areas to the east of us.

But we know the wind blows in every direction here. Some places it's longest and strongest from the northwest, but we find out in our met tower studies at least down here in the middle of South Dakota, down in Rosebud and some other places that it's coming from the south. I don't know if that's changed in the last 10 years or not, but it's surprising that your most consistent wind is coming from there in someplaces. I don't know how the wind blows over there, but there's met towers around in that area and you might do well to check on that and just so you can take a look at a windrows or a graph that shows where the most consistent wind comes from for most of the year.

My concern again here, it has to do with global warming. That's been a debatable issue for years, but I'll tell you now, five years ago a lot of folks didn't think it's really an issue, but we keep breaking records for the hottest July on record. Ice flows are breaking off of Antarctica the size of Connecticut and Rhode Island. They say you are going to be able to take a boat ride across the North Pole in a few years. I gotta throw my lot in with 5,000 scientists around

the world that says this is happening.

You can argue about the cause of it all you want, but it is happening and one of the causes we feel is emissions from both our transportation and from burning fossil fuel for energy, primarily coal. So we have got to do something about it. We have got to control that, the pollutants that come from it, and also CO2. That hasn't been treated as a pollutant before, but there's a case before the Supreme Court now with about 10, 12 states, I believe, now that are saying that it is a pollutant, and Uncle Sam, you better treat it as one because it's causing some serious impacts in urban areas in human health. That's the the biggest one here, human health and infrastructure.

If a lot of folks don't believe it's happening in an industry, it's pro and con, there are groups that are planning for the future and what to do about it. Probably the biggest industry or business that is looking at global warming and its impacts is the insurance industry. They have got the best data on what's happening in the climate change of anybody because that's their business. We keep breaking records for payouts from natural disasters. Also, there are some places they will not insure any more.

Things are happening, things are changing. We have standards for pollution control that are set for the mercury, SO2, NOX and such. They are different in each state, as has

been pointed out. How does that change across a boundary line that is on paper? But you don't notice it much when you are driving, walking or riding a horse over there. We know that very well from having our treaty lands, from Canada down into Kansas to the Big Horn Mountains and over to Wisconsin, the sun literally used to rise and set on the lands of the Lakota, Dakota, Nakota nation.

So climate doesn't know any boundaries either and neither do things that happen from climate change such as different types of disease, bugs, insects that are coming north, malaria, dengue fever, West Nile disease. Unheard of when we were growing up, right? And things are happening. So we have got to do something about it, we gotta be aware of it and use the technologies that's there. Be creative, as I heard mentioned here. There is no other time but now where we need to do that and partner together, because we are not going anywhere unless South Dakota, federal government or others would like to give us back some of our land. We might expand a bit, but we are here, we are here for the long haul and we have a median age of 18 compared to 30 and going up in the rest of this country. So we have got a big, big responsibility to provide for our youth and to protect what little bit of land we have left and find ways to sustain ourselves.

So we are looking at survival for the future, we are looking at the jobs that are in renewable energy, and we come

to this climate change realization not only from our beliefs and our prophecies and our ceremonies where these messages are still coming through, but from a group of scientists that worked with the U.S. Global Change Research Program and did the national assessment on impact to climate change. Bob Gough, who represents the Rosebud Sioux Tribe as the secretary of Intertribal COUP and I, we co-chaired the Native Peoples Native Homelands Workshop in that assessment and helped write some of those impacts. We helped compile and gather it from this whole country because it was literally Indian Country at one time, and still is or isn't, depending on your perspective. But it's where we live and where we have cultural history of place and such. So we put spiritual leaders and tribal environmentalists together with scientists and the scientists' comments were that we knew that you people had traditional knowledge but what we heard here, we are literally blown away. So we knew this was coming, our grandfathers and grandmothers told us, and they still do.

So we gotta do something about it and one of the solutions is renewable energy and we are not alone in that area. I know the commission shares some of the potential and the hope that we can develop the wind resources that we have here for the tremendous economic development that it can create, and to support industries that are there. There is the same kinds of jobs in building trades, electricians that you

need with coal plants you need with wind. I look to partnerships that way. So I just want you to take a real hard look at the resources that we have left that are becoming scarce, and water is not the least of which.

It takes a lot of water to produce steam, you know, to turn a turbine. It takes a lot of water to cool a coal plant also. Look at those resources and be able to estimate that into the future, taking a look at that and maybe you get a little more rain over there in the east now because precipitation patterns have changed from west river to east river big time and so I just want to say that we are not alone in our concern for the environment. Maybe people don't voice it as often as they would like to, but we share with farmers, ranchers and other communities in the state of South Dakota that surrounds all of our tribal lands here.

We care about our children, we care about our earth and the ecosystem that we live in and we want to protect it. We also want to have jobs and we want to have a standard of living that's fair, that's equal to what it takes to provide for our family these days, and we have unemployment at 50 to 80 percent there that nobody else does. So nobody is hungrier for new jobs, new projects than tribal people. Tell me, if there are, I don't know where, but we are not in so much of a hurry that we will make decisions without all the facts and not weighing all the impacts.

So that's my comments to you, to consider looking at everything from a larger, wholistic perspective because we know that everything is related. We are all connected here in this area, the rest of this western hemisphere, around the world. We have a saying that's kind of like our amen when we pray, it's called (speaking Lakota), all my relatives or we are all related, and that means everything from us here to our relatives and our families to all of the plant nations, animal nations, all of creation across the earth and out to the stars. So think about it like that once when you go home or go out on a hill. Take a good, hard look and look deep. We have time to weigh these decisions, so let's get the facts and partner together to make a sustainable future for our children. (Speaking Lakota.) I thank you for this time.

MR. SMITH: I was just going to -- you didn't introduce yourself to the audience, Pat. This is Pat Spears, who has been my friend for 35 years. Do the commissioners have any questions?

VICE-CHAIR JOHNSON: I would like the record to note that John Smith does have a friend apparently.

MR. SMITH: He's not admitting it.

MR. PAT SPEARS: Thank you.

MR. SMITH: Thanks a lot.

MR. BOB GOUGH: Good evening. I'm pleased to be able to have the opportunity to address the Public Utilities

Commission here in South Dakota. My name is Bob Gough, G-O-U-G-H. I'm an attorney and my training is also in cultural ecology. I did my graduate work towards my Ph.D. in cultural ecology and anthropology at the University of Wisconsin in Madison and my law degree at the University of Minnesota in Minneapolis. For the last 20 years I've had the privilege and honor of living and working on the Rosebud Sioux Indian Reservation.

I was the initial director of the Tribal Utility Commission, established in 1994, and have served -- stepped down from that director position and have served as a consultant for them through the years since. I serve also as the secretary of the Intertribal Council on Utility Policy, one of the Rosebud delegates, and have worked with the Intertribal Council on the work that Pat Spears has referred to with regard to tribes across North and South Dakota, Nebraska, now Minnesota and Wyoming looking at energy development, wind development and the like.

I've also had recently the privilege of serving on the Western Governors Association's Clean and Diversified Energy Advisory Committee, and in that capacity, I sat on the committee itself and on the wind and transmission task forces and sat in periodically on some of the other they call them stovepipe task forces, the different technologies. The Western Governors Clean and Diversified Energy Advisory Committee

looked at wind, solar, geothermal, biomass, energy efficiency, and what was initially called clean coal and then was changed to advanced coal technologies to be able to look at how the western states, and in this case that included North and South Dakota, although we are on the other side of the grid for the most part of the western grid, how we could include and realize the goals set by the Western Governors of 30,000 megawatts of clean energy, new energy in the west developed between now and 2015 over the next 10 years.

This is the planning horizon that one would expect likely for any new, major new power plants and it seemed like a long way away when we started the discussions two years ago and now we are in the better part of eight and a half years from that goal. They also looked at energy efficiency goals of reaching 20 percent of energy efficiency, greater efficiency in the west by the year 2020. So there's some pretty admirable and what we believed was achievable goals for the west to be able to develop new energy projects throughout the west that would have less impact on the pollution, less impact on the air and water resources, and with a focus on the reduction of carbon dioxide emissions.

I went through the degrees and the universities of where I got them to sort of explain to you that I have been moving up wind from Wisconsin to Minnesota to South Dakota and the air has gotten increasely better with each move, I'll tell

you that. There is something to be appreciated about that wind shed, something to be appreciated about the resources here, and while I see that the governor in Minnesota has just signed recently a law with regard to mercury, that law does not quite extend across the border into South Dakota, although any emissions produced here will end up there. We have looked at it in terms of the wind industry, we have watched a lot of dollars just flying east in the prevailing westerly winds into Minnesota and seeing that economy realized there. We are very much interested in seeing that economy realized here in South Dakota.

But the issue of where the emissions go with regard to carbon dioxide isn't important. It's critical in terms of things like mercury, NOX and SO2, but for CO2 it's not important. It's the total accumulation of CO2 in the atmosphere that is what most of the world's scientists who seriously study climate have indicated is what is responsible for global warming, so your carbon dioxide, methane and other is gases. Water vapor is probably the most prolific gas, but that only stays in the atmosphere for about a week. Carbon dioxide stays in the atmosphere for about a century. What we put in today will be there 100 years from now. Mobridge will celebrate its bicentennial with the carbon we put in their today. I was just up there for the beginning of their celebrations this week.

I bring that up because I've had to spend some time at the western -- working with the Western Governors in Denver, working with the National Renewable Energy Lab, also located in Denver and in Boulder, and I've spent some time in the Rockies. And what I've noticed in the last couple of years, being there on and off, is that that's where our Missouri River comes from, not Colorado, but up in Wyoming and Montana. And this Missouri River we are seeing now has the lowest record levels of water since we have been keeping records. If there were no dams on the river and we just counted on the flowage, the natural flowage, I think that the Lewis and Clark celebrations could have terminated in Bismarck. That would have been about as far as they could get without going horseback.

We are looking at situations now in the Rockies with the snowpack where we not only get the -- we fail to often get enough snowpack to meet the averages that we have seen in the past, and in Colorado this past year, they had above average snowpack and everyone seemed delighted that the drought was over. And that was in January and February and March. April and May were usually the wettest months of the year in that region of the Rockies. This year they were two of the driest that they have ever had on record. What they have had were warm winds, very warm winds and very dry winds and what's happening with the snow in the Rockies this year is that it fails to melt, even though they had above average snowfall,

snowpack, it failed to melt.

There's a process called sublimation and the snow just turned to water vapor, it was that warm and dry, the air just sucked it up as water vapor and it didn't make it into the streams. This is what we are seeing in the headwaters of the Missouri River. We are seeing a very major change in where the water comes from. We are seeing a lot more of that water falling to the eastern part of South Dakota and into Minnesota and we will see floodings and the like. We have seen those kinds of weather extremes coming into play. We have seen that with losing Grand Forks a few years back.

What the issue is for this kind of shift, this kind of change is that we are seeing more and more of the water that does come this way falling further and further east and not behind the dams. It's falling below the dams, east or too far east to be able to fill in back behind the dams. So as we look to relying on hydropower, we are going to find that we may be short circuiting that natural cycle of snow back in the Rockies, precipitation throughout Montana, Wyoming, western Dakotas and water behind the dams. And if you look at what the climate scientists up in Grand Forks, North Dakota, for example, at the aerospace program, who have been looking at the impacts of global warming throughout the west, they have said that the kinds of years that we have seen, the warmer, dryer years, are what we are likely to expect under global warming

scenarios.

Many of the models that were put in place to look at global warming were extremely, extremely conservative. They wanted to be able to withstand any kind of scientist scrutiny, and what that meant was they have put rather conservative assumptions into place and what we are seeing today are some of the forecasts that were 20, 30, 40 years down the road, we are starting to see those things happen already, because those assumptions were perhaps a bit too conservative. I say that because you are faced with the decision of permitting something that is going to have an impact for the next 50, 60 years.

Something that may be considered state of the art when a permit process was begun several years ago may be based on some assumptions that no longer quite hold, policy assumptions that no longer quite hold and state-of-the-art technology assumptions that no longer quite hold. We are on the verge of looking at a whole new set of technologies coming down, particularly for the coal industry, a vast resource that we have in the west, not necessarily in South Dakota, we are going to have to import coal, we are going to have to bring it in from someplace else, probably going to have to bring it in by rail, probably going to be running pretty near where I have to live and drive back and forth, go up and down north and south in this state and looking at, just on the DM&E proposal, 40 trains a day, 100 cars long, and that's not counting the

empties coming back.

We are looking at the energy that that resource can serve, it can come from coal, it can come from a variety of other resources. It can come from an abundance of the wind resource we have scattered across the entire state and we could see income coming not just to one or two communities or one or two enterprises, but we could see income coming to ranchers, farmers and reservations all over this state. We can see a new economy being built in this state based on renewables, supplement it with hydro, supplement it with coal, but we are going to be able to need to envision how do we want to be in 50 years. Do we want to have water at all in the west river?

I know people here were talking about the problems with wind and how unsightly they are and I'm sitting here looking over your shoulders at a poster that has South Dakota changing and changeless with a wind turbine. Now, that's cute, it's an antique, although we have got 62 of them working between my home in Mission and the Nebraska line pumping water. So they are functional and they don't look so bad once you get used to them. And a lot of local landowners have decided that the beauty of those goes up with your ownership interest. Not a bad thing.

Well, I put that out on the table for you to consider, that the impacts of your decision will have impacts on this state and this country and this globe for the next, over the

next 50 years and then some. There's going to be costs associated with this decision. Whatever gets approved through this permit process and gets built is going to be facing a change in regulatory schemes as they come down over the next 50 years, certainly in the next 20 years and probably within the next 10.

This is what the Western Governors were anticipating in looking at how do we begin to shift, how do we begin to build in another direction, not just the business as usual direction. Coal can provide a vast storehouse of energy. It can provide a lot of other resources. We know the same thing with oil. But we look at coal, we see that the state of the art today is not IGCC, it's not -- it's not requiring sequestration of the carbon dioxide that comes out of those plants. That's not where the state of the art is. But that's where it's going to be in a very short time. And that is where the recommendations of the Western Governors want to see it go.

The Western Governors have issued a report and within that report called Clean Energy, a Strong Economy and a Healthy Environment, and in that there's a series of appendices dealing with each of the fuel types. And the advanced coal appendix, it happens to be the first, and I'll just read a portion of it to you into this record. The Advanced Coal Task Force reached a carefully crafted agreement with regard to its support for advanced coal technologies. The language of that agreement and

the state level incentives targeted only to tier one and tier two technologies that were agreed to are listed below. In addition to the state level incentives, CDIAC (phonetic) agrees to support federal incentives, but here's -- get to the point of what the governors are looking forward to.

Advanced Goal Agreements -- Advanced Coal Task Force agreement on advanced coal technologies. A, support for continuing efforts to improve the efficiency and environmental performance of all advanced coal technologies examined by the task force. The task force technical work group examined the costs, performance and environmental characteristics of a variety of commercially available and emerging advanced coal-fired electric generation technologies, including supercritical and ultra supercritical pulverized and circulating fluidized bed combustion technologies, integrated gasification combined cycle technologies. The technology work group report found that the advanced technologies examined typically demonstrated higher performance levels and lower emissions of critical pollutants, toxic pollutants and carbon dioxide emissions than the new subcritical designs as well as the current fleet of pulverized coal plants now in operation.

The task force supports continuing efforts to improve the operational and environmental performance of all the advanced coal technologies listed in the technology report beyond current performance levels, with the ultimate goal of

achieving near zero emissions in a competitive cost -- at a competitive cost of electricity. The second short paragraph is B, support the incentives for the development of advanced coal technologies that are not yet commercially viable and operate with superior environmental performance. I have a copy of the entire report on disk, which I would like to submit for the record to the commission.

As we were welcomed in the opening statements, you are looking to see what kinds of policy concerns might be important in your deliberation on this permit. I would ask that you look to what the Western Governors have come up with in terms of the best thinking they have got for at least the next 10 years. Look carefully at the opportunity that you have in being extremely deliberate. I don't know that South Dakota, in fact our Governor is going to be -- is the new chairman of the -- the current chairman this year of the Western Governors Association. Do we want to be the first state to permit the last of the old school technology?

Can we find ways to make sure, in this permitting process, that whatever is built at Big Stone for Big Stone II reduces the emissions, doesn't just extend the emissions, current emissions out of Big Stone I, has certain emissions capturing ready capacities built into it. We may be looking at some very inexpensive or competitive power coming out of it under today's regulatory scheme, but you lay a carbon tax, you

lay liability for CO2, you lay a number of these other kinds of requirements coming down either regionally or federally on top of that, and are we selling the people in South Dakota and energy going into Minnesota something whose prices are going to be guaranteed to increase because of our failure at this point to take the proper precautions, to see what's coming ahead?

I heard that one teacher or school official say we don't know what's going to come, we didn't know in '77 what it was going to look like today, and he's absolutely right. The best guess we have is that from today over the next 10 years, there is going to be some major changes coming in technology and likely regulation, liability, and all of that is just a portion of what's coming.

We are looking at some -- if the weather trends continue as we are seeing them, we are looking at some very serious issues for west river, for the rest of the state, and permitting something on the eastern side of the state may seem to have little relevance to what happens in the west, but to the extent that that is causing less water coming into our system, that is something that we are very, very concerned about.

I will close with just a note, that at the EERC up in North Dakota, they did some studies on global warming. They did it on climate change, not on global warming, they did it on climate change and they were not looking ahead as most of the

IPCC studies have been going ahead, what's coming down in the next 20, 30, 50, 100 years, they looked to the past. They looked at lake sediments across North and South Dakota and they looked at sediment levels of the last 2,000 years to see what the natural variations have been, because you really don't know what we may be in store for, maybe they are within the realms, in the range of natural variations.

But they looked in the past and what they found that this region here has experienced just in the last 2,000 years, wet and dry cycles, wet cycles with little drought periods, dry periods, and dry periods with little wet spots here and there, and these cycles could last a century, century and a half for the last 2,000 years. And I would postulate that we have been looking at the last seven to nine years certainly in the western part of the state as seeing a drought situation, a persistent chronic drought situation. And maybe we are just in one of those short little dry periods during a longer wet cycle, but we have already had about a century and a half of a wet cycle and we may be in the very early stages of the next dry cycle, just under natural variation, holding climate change aside.

Just consider everything that's been built in the last 150 years in South Dakota, almost everything that isn't Indian, that's the period of time when things were built. We have assumed a relatively wet period of time to be the natural way

things are and always will be. These studies coming out of North Dakota suggest that's not at all the case. So I leave that to you, to think about the past and to think about the future and to think about finding ways to do the best technology, bring the best technology we can to our resources. If coal is what we need to burn, let's make sure we burn it in a near zero emission fashion. Make sure that it doesn't waste or consume our water resources, that we are not polluting beyond our boundaries, and that we are providing as a guidance to both the operators and the communities who are going to depend on this that we are looking forward in a way that's going to try to account for some of the things that the best scientists we have are telling us are coming down the road.

So I don't think there's -- I think if there's an opportunity for this commission to wait at least for the Environmental Impact Statement to be finalized and to see how that information fits into your proposals and into your permitting procedure, I think that's at least what we can do and making sure that there's provisions and conditions in the permits that make any new plant ready to meet the specifications and the regulations that are likely down the road. So with that I thank you very much for your time and I will leave this here with the recorder.

MR. SMITH: Thank you. Are there other persons who wish to comment?

MR. STEVE NELSON: Hello, my name is Steve Nelson and I'm a farmer from Letcher, South Dakota. And I am in support of creating energy because we need to create it. We just can't not have energy because that's the way of the future. I'd like to talk about popular opinion first and remember our opinion on DDT. It was mentioned here about malaria cases dying. The popular opinion of DDT was it's harmful, it kills people. Now the World Health Organization just okayed it to spray DDT in houses. So what has popular opinion done? It's gone the opposite. So what controls popular opinion? Certainly the facts don't because the facts were there that said DDT did not work.

So that brings me to the point of nuclear energy. Nuclear energy, popular opinion was that it is unsafe, there is lots of waste. In fact there is no waste, and I'd like to submit to -- get a copy of this and I'll leave one here and we have got a couple extras, but an article in the 21st Century I'd like to read right now, it's very short, about nuclear energy.

It's Not Waste: Nuclear Fuel is Renewable. The first thing to know about nuclear waste is that it isn't waste at all, but a renewable resource that can be reprocessed into new nuclear fuel and valuable isotopes. The chief reason it is called waste is that the antitechnology lobby doesn't want the public to know about this renewability. Turning spent fuel

into a threatening and insoluble problem, the antinuclear faction figured, would make the spread of nuclear energy impossible. And without nuclear energy, the world would not industrialize, and the world population would not grow. Just what the Malthusians want.

The truth is that when we entered the nuclear age, the great promise of nuclear energy was its renewability, making it an inexpensive and efficient way to produce electricity. It was assumed that the nations making use of nuclear energy would reprocess their spent fuel, completing the nuclear fuel cycle by renewing the original enriched uranium fuel for reuse, after it was burned in a reactor.

When other modern fuel sources, wood, coal, as this hearing is about, oil, gas are burned, there is nothing left except some ashes and air-borne pollutant by-products, which nuclear energy does not produce. But spent nuclear fuel still has from 95 percent to 99 percent of its unused uranium in it. So after we call it waste, there's still 95 percent of the energy in that uranium that we can reprocess, so that's what they are talking about, renewable resources in nuclear energy.

This means that if the United States buries its 70,000 metric tons of spent nuclear fuel, we would be wasting 66 million (sic) metric tons of uranium-238, which would be used -- which could be used to make new fuel. In addition, we would be wasting about 1200 metric tons of fissile uranium-235

and plutonium-239. Because of the high energy density in the nucleus, this relatively small amount of fuel, it would fit in one small house, is equivalent in energy to about 20 percent of the U.S. oil reserves.

Ninety-six percent of the spent fuel can be turned into new fuel. The four percent of the so-called waste that remains, the 2500 metric tons, consists of highly radioactive materials, but these are also usable. There are about 80 tons each of cesium-137 and strontium-90 that could be separated out for use in medical applications, such as sterilization of medical supplies. Using isotope separation techniques and fast neutron bombardment for transmutation, technologies that the United States pioneered but now refuses to develop, we could separate out all sorts of isotopes, like americium, which is used in smoke detectors, or isotopes used in medical testing and treatment.

Right now the United States must import 90 percent of its medical isotopes, used in 40,000 medical procedures daily. These nuclear isotopes could be mined from the so-called waste that we have in the United States now. Instead the United States supplies other countries with highly enriched uranium so that those countries can process it and sell the medical isotopes back to us. In other words, there are other countries in China and Europe that are reprocessing this nuclear waste, but the United States did not want to go forward in doing that

because they knew it would be a cheap source of energy.

How fuel becomes spent. The fuel in the nuclear reactor stays there for several years until the concentration of the fissile uranium-235 in the fuel is less than about one percent at each point. I won't quiz you on these numbers but I just wanted to get a sense of how it's used, spent. A 1,000 megawatt nuclear plant replaces about a third of its fuel assemblies every 18 months. Initially the fuel spent is very hot and is stored in pools of water which cool it and provide radiation shielding. After one year in the water, the total reactivity level is about 12 percent of what it was when it first came out of the reactor. And after five years it is down to just five percent.

Unlike other poisons, radioactive isotopes become harmless with time. This decay process is measured in terms of half-life, which refers to the amount of time it takes for the half of the mass to decay. Although a few radioisotopes have half-lives on the order of thousands of years, most of the hazardous components of nuclear waste decay to a radioactivity -- radioactive toxicity level lower than that of natural uranium ore within a few hundred years.

The spent fuel includes uranium and plutonium, plus all the fission products that have built up in its operation, and very small amounts of transuranic elements, those heavier than uranium, or actinides, which have very long decay times.

If this spent fuel is not reprocessed, it takes hundreds of thousands of years for its toxicity to fall below that of natural uranium.

What are we really wasting? The spent fuel produced by a single 1,000 megawatt nuclear plant over its 40-year lifetime is equal to the energy in 130 million barrels of oil or 37 million tons of coal, plus strategic metals and other valuable isotopes that could be retrieved from the high level waste.

Why don't we reprocess? The United States, which pioneered reprocessing, put reprocessing on hold during the Ford administration and shut down the capability during the Carter administration, because of fears of proliferation. This left reprocessing to Canada, France, Great Britain and Russia, plus the countries they service, including Japan, which is now developing its own reprocessing capabilities. In addition, new methods of isotope separation using lasers, such as the AVLIS program at Lawrence Livermore National Laboratory, were shut down or starved to death by budget cuts.

As a result, today we have 40,000 plus metric tons of spent fuel safely stored at U.S. nuclear plants, which the antinuclear fear-mongers rail about, even though they are the ones who created the problem because we weren't able to reprocess these. The plan to permanently store the spent fuel at the Yucca Mountain repository in Nevada has become bogged

down in what looks like a permanent political battle.

Technologically speaking, we can safely store nuclear waste in a repository like that of Yucca Mountain. But why should we spend billions of dollars to bury what is actually billions of dollars worth of nuclear fuel, which could be supplying electricity in the years to come?

The commercial reprocessing plant in Barnwell, South Carolina shut down in 1977, but we could start reprocessing at the national nuclear facilities at Hanford in Washington state and at Savannah River in South Carolina and we would -- we could have a crash program to develop more advanced technologies for reprocessing.

This article was written by Marjorie Hecht and in here there's a chart that says -- that is about the estimated electrical energy from the different fuels that we do use to get electricity from, the world does. Hardwood, this is how much -- one kilogram of these fuels will produce these many kilowatts. Hardwood, one kilogram of hardwood will produce one kilowatt hour. Coal, three kilograms of coal will produce -- excuse me, one kilogram of coal will produce three kilowatt hours. One kilogram of heavy oil will produce four kilowatt hours. One kilogram of natural gas will generate six kilowatt hours. Now, these are very small numbers, one, three, four and six. And these are the heavy ones that we use in the United States.

MR. SMITH: Mr. Nelson, say, I'm going to have -- we are at the end of our allotted time here. I think what I'm going to have to ask you to do, could you do this, would you please bring it to a conclusion and what I would suggest is you could provide us a citation to the article that you are referencing, and again I apologize, but our hearing was scheduled from 7:00 to 9:00 and we are past that. Thank you.

MR. STEVE NELSON: One more minute, please. Natural uranium, 50,000 kilowatts per kilogram versus the one, two, three in coal. Low-enriched uranium, 250,000 kilowatts. Uranium with reprocessing, if we did real reprocessing and used up all the waste, 3,500,000 kilowatts per kilogram. You know how much a kilogram is, it's a few pounds, three million, and we are messing around with coal that's three, not three million per kilogram.

And all these other countries are using nuclear. There's nothing wrong with different sources of fuel and energy, but let's face the facts, we need to produce a lot of energy very cheaply to where we don't need to meter it because it costs too much to meter it. Let's just provide it free to the public and you get it back in other things. But nuclear energy is the way of the future and in this book also there is an article thats has a plan for 6,000 of these 1,000 megawatt plants to be put up in the world. Let's worry about the world and not just South Dakota.

Thank you very much for having this public hearing. I appreciate it very much.

MR. SMITH: Thank you, Mr. Nelson. If you wan to leave either the magazine or a cite to it and then we will have it for the record. Or you can submit -- I'm trying to think of the comment period ends tomorrow, you know, but if you want to get us a copy.

CHAIRMAN SAHR: If he has an extra copy.

MR. STEVE NELSON: I have an extra copy.

MR. SMITH: I think it appears that everybody out in the audience, other than the people who have been here for the last week, have testified. I'm assuming that no one who has been here for days and days probably wants to say anything. Mr. Rolfes, did you want to say anything?

MR. MARK ROLFES: I have nothing.

MR. SMITH: I think that was a joke, actually. What I'd like to do on behalf of the commission is -- is that your son? Does he want to give a speech? I'd like to thank everyone for coming, I really would, on behalf of the commissioners. I know they really appreciate hearing what y'all think out there, and again we have got a very tough decision to make, the commissioners do, I don't get to make it. I gotta point out one thing, and again, it's a constraint that you may or may not be aware of under our law. Our siting law, the statute requires us to render a decision within one year,

and that may or may not have been a wise choice that the legislature made, but it is the one they made, so we have got to live within that and I just want you and all the people on the Internet to know that it's not the commissioners' decision here to rush this decision, it's what they have been commanded to do by the elected representatives of this state. So we have got to live within that. Thank you.

COMMISSIONER HANSON: You might wish to tell them when that year is up.

MR. SMITH: The year is up, we are legally required to render a decision on or before July 21st of this year and so it's a tough timetable, it really is. And it's unfortunate that the federal EIS process can't be coordinated a little better with our decision making process. The fact is, though, we have got to live within the reality that we have. And that's what it is.

CHAIRMAN SAHR: There's a question in the back of the room.

MS. JEANNE KOSTER: I have a suggestion. You can turn them down and invite them to come back with another application. I mean, the application now is full of some of the same kind of holes that the EIS is, the draft EIS is. If you turn them down and invite them to come back with, you know, a more complete application, that covers all the bases, can you do that? You probably can't say that now, but please consider

it, because we want this done right. Everybody does. The co-owners of the project want it done right, too. They were maybe in too much of a hurry. Just consider it.

MR. SMITH: Thank you, Ms. Koster, and I think the commissioners are aware of that, although they are bound by the Administrative Procedures Act and by the South Dakota Law of Evidence and our statute, and if they determine that that's the right choice to make on the record that we have, that's their decision to make and I think they are aware of that potential, and thank you. I'm going to adjourn the hearing and I want to thank you all for coming.

(Whereupon, the proceedings were concluded at 9:10 p.m.)

CERTIFICATE

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 3rd day of July 2006.

Carla A. Bachand

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.