Exhibit No:	102
Witness:	Michael Rahrer
Sponsoring Party:	Union Electric Co.
Type of Exhibit:	Deposition
Case No:	ER-2007-0002
Date Testimony Prepared:	January 16, 2007

Amended Exhibit No. 102
Date 3-16-07 Case No. ER-2007-0002
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BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the MATTER OF UNION ELECTRIC COMPANY d/b/a AMERENUE for AUTHORITY to FILE TARIFFS INCREASING RATES for ELECTRIC SERVICE PROVIDED to CUSTOMERS in the COMPANY'S MISSOURI SERVICE AREA.	))))))	Case No. ER-2007-0002

DEPOSITION OF MICHAEL RAHRER
January 16, 2007

Sheryl A. Pautler, CCR 871

(Whereupon the exhibits were attached to the original and copies.)

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the MATTER OF UNION ELECTRIC)
COMPANY d/b/a AMERENUE for)
AUTHORITY to FILE TARIFFS INCREASING) Case No. ER-2007-002
RATES for ELECTRIC SERVICE PROVIDED)
to CUSTOMERS in the COMPANY'S)
MISSOURI SERVICE AREA,)

DEPOSITION OF WITNESS, MICHAEL RAHRER, produced, sworn, and examined on the 16th day of January, 2007, between the hours of eight o'clock in the forenoon and one o'clock in the afternoon of that day, at AmerenUE 1901 Chouteau Avenue, St. Louis, Missouri, before SHERYL A. PAUTLER, a Notary Public and Certified Court Reporter within and for the State of Missouri, in a certain cause now pending before the Public Service Commission in the State of Missouri, in the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area.

APPEARANCES

For the Staff of Missouri Public Service Commission:

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Also present:
Mr. John Cassidy
Mr. Tim Finnell
Mr. David Queenson
Mr. Brian Collins
Mr. Leon Bender

IT IS HEREBY STIPULATED AND AGREED, by and between counsel, that the deposition of MICHAEL RAHRER may be taken in shorthand by Sheryl A. Pautler, a notary public and shorthand reporter, and afterwards transcribed into typewriting; and the signature of the witness is expressly reserved.

* * * * *

MICHAEL RAHRER,
of lawful age, being produced, sworn and examined, deposes and says:

[EXAMINATION]

QUESTIONS BY MR. LOWERY:

Q. Good morning, Mr. Rahrer. My name's Jim Lowery. I'm an attorney representing AmerenUE and I'll be asking you questions this morning.

Have you ever been deposed before?

A. No. This is the first time.

Q. Okay. Well, let me go over a few ground rules or guidelines just to try to make the deposition go more smoothly since you haven't been deposed before in particular.

Obviously there's a court reporter here. She'll be taking down all my questions and all of your answers. So no nodding your head or shaking your head. You need to verbalize your responses because she can't take

Page 6

down the non-verbal responses.
I'll try not to talk over you if you'll try not to talk over me so she can clearly make a good record of the deposition.
Mr. Dottheim may have an occasion to object to a question that I ask. And if he does, he can lodge his objection, but you would still answer the question. The objection is just noted for the record if there was something we needed to take up with the judge later. But you go ahead and answer the question anyway.
You're not taking any medication that would interfere with your ability to understand my questions or give truthful answers?
A. No.
Q. No other reason that you know of that would interfere with your ability to understand my questions or give truthful answers to my questions?
A. No.
Q. Okay. It's certainly possible I may ask you a question that you don't understand. And if I do, please tell me. I'll try to rephrase and clarify the question. There will be some aspects of this you'll know more about than I will. So I may ask a question that just doesn't make sense, so just tell me that and I'll try to rephrase it and try to can communicate so we can get through the

Page 7

deposition.
A couple of definitional items. When I refer to the benchmark run and I know you probably did various iterations of the benchmark run. But when I refer to the benchmark run without qualification, I'm talking about the benchmark run that you talk about in your direct testimony, the one that's actually used for the basis of your direct testimony. Do you understand that?
A. Yes.
Q. And when I say Staff model run, I'll be talking about the one that's actually used in your direct testimony, although I understand you've probably done some other runs at various points in time. Okay?
A. Yes.
Q. Now, the principal subject of your direct testimony is to explain Staff's production cost modeling in this case, right?
A. Yes.
Q. Okay. When were you contacted by the Staff to begin to work on this case?
A. I don't remember. I believe it was in September or October, something like that.
Q. September or October of '06?
A. Yes.
Q. Who contacted you?

Page 8

A. It was Lena Mantle. I'm pretty sure that's who it was.
Q. Did you know Lena Mantle before she contacted you?
A. Yes, I've met her before.
Q. Can you tell me how you knew her and what interactions you might have had before she contacted you in September/October of '06?
A. The Staff has used the model that my company sells, RealTime, for many years, maybe ten years. So in the process of working with Leon Bender and Dave Elliot of Staff, just being in the room, I've met her several times. She introduced herself. I've never really done any directed work for her, per se.
Q. And earlier interactions you've had with the Staff, Ms. Mantle was not really involved in the production cost modeling aspects of that per se, at least as far as you knew?
A. That's right.
Q. Do you know why she was contacting you as opposed to Mr. Bender for example?
A. I always assumed she was the boss, but I don't know.
Q. Okay. What did -- When she contacted you, did she contact you by phone?

Page 9

A. It might have been e-mail or phone. It might have been an e-mail to call her. I don't remember.
Q. Okay. When she contacted you, what was the substance of the conversation, what did she ask you to do or what did she indicate to you was the purpose of her contact?
A. She wanted to know if I was interested in doing the runs for a rate case.
Q. Have you ever been asked to run a production cost model for the purpose of filing testimony in a utility rate case before?
A. Well, not for Staff. I used to work with a guy that did some testimony in a case in Nova Scotia and I might have made some runs for him, but I don't remember. That was ten years ago.
Q. But you've never before been, in effect, if I can characterize it this way, the principal sponsor of a production cost modeling result to be utilized in a rate case for a utility; is that fair?
A. That's correct, yes.
Q. What did -- What information did Ms. Mantle give you when she asked you if you would be interested in running the production cost model for this rate case?
A. At that time, she didn't give me any information. The only thing I asked her was the due dates,

Page 10

because I had to see how it fit in with the rest of my schedule. That was essentially it. And a few weeks later, she contacted me and we got a contract to do the work. But at the time, all I was really interested in is when it was due.

Q. So you were willing to do the work as long as it fit into your schedule?

A. Yes.

Q. What questions did you have for her at that time other than what was the schedule, what are the due dates?

A. At that time, I don't think I had any questions for her.

Q. What do you charge for your work?

A. $75 an hour. It's a bargain.

Q. That is a bargain.

Have you essentially -- have you told me the substance of your initial contacts and conversations with Ms. Mantle?

A. Yes.

Q. When was -- when was your next contact with Staff and with whom beyond that initial contact you had with Ms. Mantle?

A. Once again, I don't remember, but at the -- they told me -- it had been a week or so. So I didn't even

Page 11

no if it was going to happen or not. It may have been Leon that called me back and got me on a conference call with Lena or something. I don't remember exactly.

But within the next week or so, we came up with a contract with a list of things that would be done, deposition, testimony, the running of the models, those kind of things.

Q. What does the contract call for you to do? What's the scope of the work? Do you understand what I mean by that term?

A. Yes. To make all the runs that the Staff needed to support their case. And to provide, you know, testimony, deposition if necessary, you know.

Q. And just all on, if I can use this phrase, on a time and materials kind of basis; whatever time you spend, you charge $75 and that's how it will work?

A. Probably with a ceiling, yes. I underestimated some of the cost or some of the time involved.

Q. So you sort of gave them a lump estimate as well and you're going to stick to that lump estimate?

A. Yes.

Q. What was that?

A. 280 hours, which I think when you use your calculator, it's about $21,000, plus travel expenses if

Page 12

any.

Q. All right. So you were contacted by maybe Mr. Bender, maybe Ms. Mantle was involved. You got the contract finalized. You were hired to do the work. Did you discuss parameters, information about the case, those kinds of things at that time?

A. I told them I needed the data and they sent me -- as soon as we had signed the contract and signed the confidentiality thing, they started sending me data, I think from Tim.

Q. When you say data from Tim, you're talking about, I guess, data request responses and perhaps work papers from Tim Finnell of Ameren.

A. Yes. A lot of them had the letters DR in front of them. So I assume that's where they came from. There was a CD and -- I think mostly it was a CD that I printed out.

Q. Did you specify to Staff, I need A, B, C, and D, or did you just say I need the data necessary to run the model, or how did they know what to send you?

A. Well, they sent me everything, I think, that Tim gave them on that CD. But, yes, I told them clearly I need load, I need fuel cost, I need anything like that that they have, hydro generation.

Q. Did you have any particular questions for them

Page 13

about the case, Ameren --

A. No.

Q. -- Missouri Regulation, anything of that nature?

A. (The witness shook his head.)

Q. Now, I know you testified in the Empire rate case a few years ago for Staff, correct?

A. Correct.

Q. And that's the only other testimony you've ever given in a regulatory proceeding?

A. Right. Written testimony.

Q. Have you given verbal testimony?

A. No.

Q. And that testimony was fairly limited in that case. I believe it was limited to a particular narrow issue on surrebuttal, if I remember correctly?

A. I think I provided that. I did not reread it. That was before I was on the electronic system. I got a copy of it from -- I think Leon sent me a copy. I think it's in here somewhere or I've already given it to you.

Q. Did you discuss with Staff either around the time of your initial engagement or at any time since then whether Staff had done some modeling related to this rate case before they engaged you?

A. No.

Page 14

Q. You don't know whether they have or they haven't?
A. I don't know whether they have or not. I did ask if they had created a RealTime model for this. I don't recall their answer, but I think they said the last case was in 2002.
Q. Was there any discussion about why they were engaging you to do the production cost modeling as opposed to them doing the production cost modeling as they had normally done in the past?
A. I think they said they were getting a lot of rate cases and they were understaffed.
Q. You said you think Staff used the RealTime model for about ten years?
A. That sounds about right, yes.
Q. Do you know what they paid for it?
A. No. At that time -- I think I have a ballpark and I'll give it to you in a second. At that time, the model was owned by another company. I owned a piece of it. A guy named Steve Mitnick did the selling. He made the sale to Missouri Public Service and I think it was $40,000 or something like that, but I'm not positive. He didn't always give me all the sales information.
Q. When did you first -- Well, let me back up. What was the nature of the first model run that you did

Page 15

related to this case; was it related to trying to benchmark the model?
A. Yes.
Q. Okay. And about when did you do that, do you know?
A. It was in late October.
Q. And you needed certain data and information to run that model, right?
A. Yes.
Q. Did you get all the data and information that you needed in order to make your model run?
A. Yes. Yes.
Q. Have there been any changes in your assignment since you were first given it?
A. No.
Q. Before you were contacted, I guess by Ms. Mantle to work on this case, did you know anything about Ameren, AmerenUE?
A. No.
Q. Never heard of them?
A. I heard of Union Electric, but not AmerenUE.
Q. Did you know what generating units EU owned? When I say UE, I'm talking about AmerenUE, Union Electric Company, or UE are all the same company.
A. Until I took this job, no, I did not.

Page 16

Q. And you understand there's a difference between Ameren and AmerenUE, correct?
A. No, I didn't know that.
Q. All right. Ameren is the holding company that owns Union Electric which is a subsidiary of Ameren.
A. All right.
Q. Did you know anything about AmerenUE's transmission system?
A. No. Well, I knew that up until this year, they were in a joint dispatcher agreement with somebody. That's all. Somebody had mentioned that to me before and that's all I knew.
Q. When you say somebody, somebody on Staff mentioned that?
A. Yeah, must have been.
Q. What was your understanding of the joint dispatch agreement; did you have one or do you have one?
A. That there's two companies, one in Missouri and one, I think, in Illinois or somewhere over there. And they got together to -- and would dispatch their units to serve their common load.
Q. Okay. Did you have any particular knowledge about the region in which AmerenUE operates before you were engaged in this case?
A. I know that it affected somehow Missouri,

Page 17

because that's what Staff does.
Q. Didn't know anything about the energy markets in the area?
A. Correct.
Q. Transmission systems, how they operated?
A. That's correct.
Q. Nothing -- You didn't know anything about any transmission constraints that might exist or not exist?
A. That's right.
Q. Didn't know anything about the mix of base load generation versus peaking generation that UE had, correct?
A. Correct. I did not know that.
Q. Or what mix of coal, nuclear, gas, oil, those kinds of things, didn't really know anything about any of those parameters; is that fair?
A. Yes.
Q. Is it then fair to say that whatever relevant and necessary information that you received in connection with your work in this case was provided to you by the Staff?
A. Yes.
Q. Do you know what the MISO is?
A. I've heard it and I've heard the Staff mention it to me, but I've forgotten what it is.

Page 18

Q. Do you know what an independent system operator is?
A. No.
Q. Or a regional transmission organization?
A. No.
Q. Do you know what LMP stands for?
A. LMP, no.
Q. Do you know what congestion charges are?
A. No, I don't. I can take a guess, but I don't.
Q. Can you describe for me in your own words what the purpose of a production cost model is?
A. You can use it for many things. In this case, we're using it to come up with fuel costs. It determines the method of running your generating assets or all your assets so that you can minimize your cost.
Q. When you say we're coming up with fuel costs, are you talking about -- you're essentially trying to come up with what you believe under a certain set of conditions would be the variable production costs for a utility, in this case AmerenUE, right?
A. That's correct.
Q. And that's fuel, it's purchased power, it's margins from off-systems sales as an offset to that to lower the production cost, correct?
A. Yes.

Page 19

Q. Any other elements that come into play -- Let me back up. When you use the term fuel cost, you were using that synonymously with variable production cost; is that fair?
A. Generally, yes, that's fair.
Q. Okay. So if you say fuel cost throughout the deposition, unless you qualify it, can I take it that you'll be talking about variable production costs for UE?
A. I'll be more careful next time. I'll say variable.
Q. Sure. No problem. I just want to make sure I'm understanding your answers.
A. Okay.
Q. Because I do the same thing; I sometimes will mix them up too.
Do you know whether the results of simulations that you are running affect the revenue requirement that Staff is recommending for UE in this case?
A. No, I do not.
Q. Don't know how any of that works?
A. I know what you guys are asking for a rate hike and I don't know what Staff is recommending for a rate hike.
Q. You didn't know that Staff recommended a significant rate cut for AmerenUE in this case?

Page 20

A. No, I did not.
Q. Do you know at what point and over what period any rates that are set as a result of this case would be in effect?
A. No, I don't. I heard on the news this morning that you haven't had a rate increase for 20 years, but that's all I know.
Q. I take it you don't have any knowledge about the effect that rates that may be set in this case might have on the company's earnings, its stock price, its ability to provide service to the customers?
A. No, I don't.
Q. No knowledge or opinion about any of that?
A. Correct.
Q. I think you said you first did -- excuse me -- you first did a benchmarking run in late October?
A. Yes.
Q. How many benchmarking runs did you do? I mean, you're doing benchmarking runs in October, you get to filing direct testimony on December 15. In between there, you had to obviously be doing some work. Did you do multiple benchmarking runs in that period?
A. After I finished the benchmark run, which I think it was October 26, something like that, maybe a few days later, I didn't run the benchmark run anymore at all,

Page 21

I was finished with it. In fact, I think these results still here are the same results I reported in that October date.
Q. When did you do the Staff model run that was used in your testimony?
A. I started that -- it was a few weeks later. I don't know exactly how long, but I think that we got the final first Staff run around December 12, something like that rings a bell. So there was some period of time of inactivity from when I finished the benchmark run to when I started the Staff run.
Q. Did you have, I guess I would call them preliminary Staff model runs, did a run, here's some results, did another run, here's some results, ultimately you get to the Staff model run used in your testimony; is that kind of how it went?
A. Yes.
Q. Do you know how many of those preliminary versus final Staff model runs you did?
A. No idea.
Q. When I say Staff model run, of course I'm talking about now you've got the benchmark run done, you benchmark your model against Ameren's result as I understand it, correct; that's what you did?
A. Yes.

Page 22

Q. Now you're changing inputs and assumptions based upon the parameters that Staff is giving you, correct?
A. Changing some inputs and assumptions, yes.
Q. Okay. These various -- you said you don't remember how many exactly, but these various Staff model runs that you did, whether it's one or two and then you get to the final or however many it was, what changes in inputs and assumptions were there between these various runs, first Staff model run versus the final one that's used in your testimony, do you remember?
A. Well, I know in general. I don't remember the order. One of the changes was the load, they changed the hourly load. And so I don't know what order I got these things in. They changed the fuel cost. They changed the forward price curve, which is the cost of purchase power and sales power. We changed some assumptions on the Callaway units.
So as these were coming in, I would put the new data in, make a run just to make sure that I got the data in correctly. Maybe an hour or a day later, I would get some new data from Staff and make new runs.
Q. So loads changed from the time first you did a Staff model run until the final. Fuel cost -- when we talk about fuel cost, are we talking dispatch cost or accounting

Page 23

cost?
A. Both cost; dispatch and accounting.
Q. You said forward price curve. The energy prices used as input in your model changed over time that Staff was giving you, correct?
A. They changed them from the benchmark run. They gave me another set of 8,760 values for the forward price curve.
Q. Some assumptions regarding the Callaway unit were changed?
A. Yes.
Q. What else changed; can you think of anything else?
A. Well, hang on a second. We went from using a 2005 year using -- going from July 1 to June 30, 2006. So it's the same number of hours, but we shifted the time frame.
Q. When you say you went from using a 2005 year -- in other words, you went from using -- well, tell me what you mean by that. When you say I went from a 2005 year to -- I take it the test year which was July 1, '05 to June 30, '06, correct?
A. Correct. The Ameren benchmark run was from January 1 to December 31, 2005. And the load that Tim provided and all the data Tim provided was for that year.

Page 24

When the Staff started making the run, they wanted to run it from July 1, '05 to June 30, '06.
Q. Now, when you're talking about these changes that we're making, are these changes from what was in the benchmark run or are these changes between your various, I'll call them iterations or versions of the Staff model run or both?
A. I started the Staff run by making an identical copy of the benchmark run. So I saved everything from the benchmark run in one directory and I started a brand new one. But I started -- the base of it was with the benchmark run.
Q. And then you started making changes?
A. Yes.
Q. And we talked about five material changes that I guess that you thought of so far?
A. Yes. And I can't think of -- I can't think of anymore. But, yes.
Q. How long does it take to make a run?
A. You mean the elapsed time at which you push the button until it finishes running?
Q. Give me that.
A. Fifteen minutes maybe.
Q. All right. What about -- I take it that you were thinking there might be another part of that question,

Page 25

such as what, setting up the model?
A. Right.
Q. Once you had the benchmark run done and then you made that copy and you start that as the base of the Staff model run, to make the changes, these five changes you've thought of so far, what kind of time is involved in making those kind of changes in making a run; is it a day, a half a day, couple days?
A. Well, the load for example, the load came in and I think it was in just one long vector of numbers and I had to change that to another format, import it into the model. We're talking maybe 30 minutes to on hour. The fuel cost mostly is cut and paste from the spreadsheet, cut out the numbers and you move it over there. All you have to do is be careful that you're moving the right numbers over. It's relatively quick.
Q. Once you took all that initial data and information, got the benchmark run all set up, once all that's done, you benchmarked it, doing additional runs is really not all that time consuming of a task; is that fair?
A. Correct, that is fair.
Q. These changes that we've talked about -- Let me back up.
From the time you were asked to work on this case until now, with whom did you talk or otherwise

Page 26

communicate about the subject of your assignment?
A. There was four people. John Cassidy, Greg Meyer, Leon Bender, and Dan Beck a few times. I think that's all.
Q. And Lena Mantle?
A. She didn't do any direction as far as the technical issues, the data, anything of that nature.
Q.. Okay. She was kind of involved in the beginning, getting you hired. And after that, she disappeared from the picture as far as you're concerned?
A. As far as I'm concerned, yes.
Q. All right. Tell me from your viewpoint, what's Mr. Cassidy's role in all of this in terms of the fuel modeling.
A. I probably had the most interaction with John Cassidy and he sent me the data that I was requesting from him. Actually, I wasn't requesting it. He was just sending me new data, put the new data in the model, run it, and report back to him.
Q. So in terms of these changes, you weren't requesting any of those or suggesting any of the changes. If changes were made, it was information flow driven from Staff saying, Mr. Rahrer, here's some data, make this change, and you did it; is that right?
A. Exactly, yes.

Page 27

Q. You weren't exercising your own discretion about doing those things, correct?
A. No.
Q. What about Mr. Meyer; from your viewpoint, what's his role in all this?
A. To me, John and Greg were almost the same. In fact, just recently, I couldn't tell their voices apart when they called me. I considered them to be just a source of data.
Q. So both of them were -- they were in charge of what you were doing in effect; is that how you viewed them?
A. Yes.
Q. What about Mr. Bender?
A. I think -- I guess Leon would sort of be the -- I don't know about the head guy -- but the guy that was sort of the coordinator on the project. I can't remember if he ever gave me any data other than telling me maybe it would be coming. But Leon did not, as I recall, send me any new data or anything.
Q. What about Mr. Beck?
A. He called a few times and said, we want a run for this or run for that, but I don't remember exactly.
Q. Okay. Have you provided all the work papers underlying all the analyses or studies that were used in connection with your direct testimony?

Page 28

A. Yes, I have.
Q. Tell me the principal inputs that you used and needed in order to run your model?
A. The major input in a model like this is load, because the whole purpose of the model is to serve load. And to serve load, you need generating units. And the two most important things of a generating unit is its efficiency or heat rate curve and the variable cost.
There are a lot of other things, but they're minor compared to those things. We want to know what this unit is going to cost to run and we want to know how much it can generate to serve load.
Q. You need to know dispatch prices, right?
A. Only if you want to have a purchase power contract or sale contract. You don't really need to know dispatch price. This thing generates internally the dispatch price of the units based on the heat rate curve and the variable costs which are fuel and variable O & M, could be emission cost.
Q. So the variable costs you're talking about are the fuel cost, variable O & M, emissions. Okay.
Do you need to know about planned outages?
A. Oh, definitely, yes.
Q. Forced outages?
A. Yes.

Page 29

Q. Derates?
A. Yes.
Q. Equivalent availability?
A. The model comes up with that.
Q. The model comes up with that.
Reserve requirements?
A. Yes.
Q. What else? Have we missed any important inputs?
A. If you're going to have purchase and sales, those are very important. The Ameren system has two hydro units. So they're important. They have one pump storage unit. So that's important.
Q. Do you know who on Staff is responsible for each of those inputs we just talked about?
A. No.
Q. You got all that information essentially from Mr. Meyer and/or Mr. Cassidy?
A. Yes.
Q. In the context of the work that you did, do you believe that you obtained necessary information respecting all of the factors and information that you needed to properly run your model and to arrive at your opinion about what the appropriate level of variable production costs were for AmerenUE?

Page 30

A. I didn't have an opinion about what the production cost should be. But, yes. Do the first part of the question again.
Q. Do you believe that you received all necessary information and data that you needed to properly run your model and also to arrive at an opinion about what the proper level of variable production costs for AmerenUE should be?
A. The first part of the question is yes. And the second part is I don't have an opinion what it should be. But do I think they gave me sufficient information to give them a number, the answer is yes.
Q. Now, your modeling results produce a variable production cost for AmerenUE, correct?
A. Correct.
Q. Do you have an opinion about whether your modeling results are accurate?
A. Yes, I do have an opinion about that. And, yes.
Q. Have you told me everything that changed between your benchmark run and the Staff model run that is the subject of your direct testimony?
A. Verbally today?
Q. Yes.
A. No. I said somewhere in my testimony that we

Page 31

changed the Rush Island forced outage rate from the benchmark to the Staff run. We changed the -- I think I mentioned here today that we changed the Callaway availability. By availability, I mean planned and forced outages.
Other than that, I believe I have told you of all the differences between the benchmark run and the Staff run, yes.
Q. Okay. You provided in connection with some discovery that was recently done a fairly large batch of e-mails, right?
A. Yes.
Q. And in several of your e-mails, there's a mention of 14 modeling assumptions. Do you recall that?
A. Yes, I do.
Q. And I take it, according to your data request responses, I think you indicated you lost six months of e-mails from your inbox recently?
A. Yes.
Q. Do you have any idea what happened?
A. No. I wish I did. I tend to keep all of them, which is why I have so many of them.
Q. Right. If I've read the e-mails correctly, I don't see a particular e-mail where all 14 assumptions are actually listed in an e-mail. Can you tell me what the 14

Page 32

assumptions are?
A. No. But I think they're provided in this pile somewhere.
Q. All right. Can you point me to what those 14 assumptions are?
A. I thought they were in one of my out e-mail boxes, but.
Q. Well, it's possible. I think when you print it, there's 61 or 2 pages of e-mails. So I could have missed it.
A. I have to see which one of these things might -- I might be able to recreate them in my mind, but I'd rather not.
MR. LOWERY: Can we mark this, please.
(Whereupon the reporter marked Exhibit No. 1 for identification.)
Q. (By Mr. Lowery) Mr. Rahrer, I'm going to hand you what's been marked as Deposition Exhibit 1, Rahrer. And take a look at that. I'll represent to you that this is a printout of your inbox and your outbox, that as I understand it, you provided to the company in response to DR number TDF-Staff-018. If you could look at that and see if we printed that accurately.
One other thing, I have numbered these, just the number of pages that printed so you and I can follow

Page 33

along more easily so we're not shuffling around quite as much.
A. Yes, this looks like it.
Q. See if you can find in Exhibit 1 -- I asked you a minute ago about these 14 modeling assumptions that were discussed. And you were looking through the copy of the e-mails that you had looking for a complete list of those 14 assumptions. See if you can find that in Exhibit 1 and then I'll follow along with you.
A. There may not be all 14 of them, but I've seen two cases in my stack here where we can get most of them. And perhaps I can remember the rest of them.
Q. I can tell you --
A. On Page 7.
Q. Yeah. On Page 7 or 8 there's some discussion of those, or at least some of them. I believe on Page 6 of Exhibit 1, there's some discussion also perhaps.
A. Okay. We can start trying to put together the 14 assumptions. Looking at this, it jogs my memory somewhat.
Did you check my outbox?
Q. I did, but I could have missed it.
A. I found some in the outbox. There does not seem to be a complete list of them here. I'm sure I've got one somewhere, but it doesn't seem to be here. So we can

Page 34

try to put them together if you'd like.
Q. All right. I would like to do that, please.
A. I believe the first one was in reference to the new Callaway outages. So I'll call that No. 1.
Q. Okay. Tell me -- Well, do you want to try to do the list of 14 and then we'll talk about each of them a little bit? Which way is easiest for you?
A. It's up to you.
Q. Let's get the list and then let's go back through them. New Callaway outage information?
A. Yes.
Q. That's No. 1.
A. I can't remember how many -- it was on the list, but we changed all the fuel cost -- not all the fuel cost, but some of the gas and coal cost, both accounting and dispatch.
Q. Okay.
A. Changed the APL contract price to $20.10. I think one of the things is we were using a new nuclear -- no, we didn't use a new nuclear price. Sorry. Yes, we did. We changed the nuclear price, the nuclear fuel price. We had a discussion about the Sioux fuel blend. We raised the sales -- raised the sales limit.
Q. When you're talking about sales, you're talking about volume of energy, correct?

Page 35

A. Correct.
Q. Megawatt hours, correct?
A. Yes, correct.
Q. Sorry. I just need it for the record.
A. I was talking to my shoe.
We also did the same for the purchase power contract. I'm not positive if that was one item or two items.
Q. All right.
A. Some of them were -- some of the assumptions were simply things like you are using the new load. So the answer was yes to that.
Q. When you say new load, you mean they're verifying whether you're using the final weather normalized loads for the period 7/1/05 to 6/30/06 that they provided you, they being Staff?
A. They provided me with three separate loads. One of them was called weather normalized, but that's not what I used. I used one called normalized, and that's straight from Staff instructions.
Q. So you used -- they provided three loads for that period?
A. Well, they sent me something that had three sets of load in it. The one I used was called normalized or NORM.

Page 36

Q. And you say they sent you, was it like a spreadsheet with three different tabs?
A. Right.
Q. So there was a NORM tab?
A. Right and WTH NORM. Actually, I used that first and they told me I had the wrong one. I thought I had it right and I didn't.
Q. WTH NORM?
A. It might have been WTHR. But something I could get the feeling that it meant weather normalized.
Q. That was your understanding, was that WTHR NORM was weather normalized data?
A. Yes.
Q. What was the third tab?
A. I don't remember. It might have been the same as the benchmark load. I was instructed to use the one that said NORM or NORML, which they told me was normalized and that was for the period of July 1 to June 30 of '06.
Q. July -- the 12 months ending June 30, '06?
A. Yes.
Q. Okay. I think I've got seven on my list so far.
A. Some of them were just very -- are you sure you're doing such and such. Oh, one of the assumptions was that we added the Joppa unit, the EEInc unit.

Page 37

Q. Okay. And Staff gave you whatever information you had regarding what inputs related to the Joppa unit that you needed to put in your model?
A. Correct. Yes. This is the sum and substance of what I remember these things being. We're missing some, but some were, like I said, are you sure that you're using the new load.
Q. Let me ask you, you brought a large stack of documents with you today. I take it that those are documents that you believe were responsive to Exhibit A, the Notice of Deposition, that was served in this case for your deposition?
A. Yes.
Q. Do you think that within those documents if I gave you a few minutes off the record, that you could actually find a list of these 14 assumptions?
A. No. If they're not in this inbox thing --
Q. Okay.
A. -- then I don't have them. They were -- the assumptions were -- like I said, some of them were just are you sure you're using this. One of the assumptions might be are you using 7.0716 for a PEPL gas. And that could have been one -- that could have been one or two or three assumptions. But this is the sum and substance of the assumptions even though we're missing a bunch of them.

Page 38

Q. All right. Let me direct your attention to Page 2 of Exhibit 1 that we've marked today. And take a look at that, particularly if you'll look below that dark black line about a third of the way down the page from the top of the page. And right below that, it looks like there's an exchange of e-mails between you and Mr. Cassidy regarding the loads. Is that what that deals with?

A. Yes, it is.

Q. Now, a moment ago, you told me there were three tabs. If you look about two-thirds of the way down that page, I see a question from you -- and verify if I'm looking at this right -- it's a question from you to John Cassidy where you're asking him, do I use the normalized tab, the weather normal tab, or the actual tab, right?

A. Yes.

Q. And right above that, does Mr. Cassidy answer your question?

A. I believe he told me to use the weather normalized tab.

Q. All right. Now, a minute ago, I believe you testified that you did not use the weather normalized tab. You used the normalized tab. Which is accurate?

A. They're both accurate. What I said a few minutes ago is that I began by using the weather normalized tab, but I made a mistake. I don't know if I misunderstood

Page 39

John, but I did my first set of runs for the weather normalized tab, they looked at output, they saw that the load was either too high or too low, and they came back and told me to use the normal tab.

Q. I apologize. After this December 8 e-mail from Mr. Cassidy telling you to use the weather normalized tab, you ran the RealTime model using the weather normalized tab data for load?

A. Yes.

Q. And that produced results, right?

A. Yes.

Q. And you sent them to Mr. Cassidy, Mr. Meyer, both?

A. I usually e-mailed them both. If the attachment was large, I would just send them to one person.

Q. And you received a call, e-mail, some communication from somebody about those results, correct?

A. I believe it was a phone call.

Q. From whom?

A. I don't remember. It was either Greg or John.

Q. And they told you what?

A. They told me that I should be using the normal tab.

Q. And their explanation for that was what?

A. I don't think they gave me one.

Page 40

Q. Well, I think you said a moment ago that some mention was made the load was too high or too low, something like that. Where did you get that understanding?

A. From the two different runs, from the weather normalized run, I think the load was around 40 million and the other tab was 39-point something million. There was definitely a difference in the total load from those two tabs.

Q. The normalized tab, do you have an understanding of what that data represents?

A. No. I know that they -- No. I guess I should say no.

I mean, let me clarify that. I know what they tried to do. They were trying to make a study that looks into the future, they try to take the variances out of the weather from it may be a cold year like this winter, and try to make the load look more normal so they can project more carefully into the future.

Q. Do you know --

A. I don't know how they do it.

Q. When they say normalized, when they have a normalized tab versus a weather normalized tab, do you know what the difference is between those two in terms of how they get to those two numbers?

A. Do I know? No, I don't.

Page 41

Q. Do you know if the normalized tab reflects any attempt to reflect normal weather, as opposed to abnormal weather?

A. No, I don't.

Q. They just told you now -- they first told you to use the weather normalized tab, right?

A. Yes.

Q. And then they said, no, that's wrong; you need to use the normalized tab, right?

A. That's correct.

Q. So you did it?

A. Yes.

Q. Didn't really question it; you just did it, right?

A. Yes.

Q. So the Staff model run that underlies your direct testimony used the normalized tab for the load data in the model run; is that correct?

A. Yes.

Q. Not the weather normalized?

A. Correct.

Q. Let me direct your attention to Page 6 of Exhibit 1. About a third of the way down in the middle of that first e-mail, do you see the line that starts: What we need is the run to reflect all the 16 points?

Page 42

A. Yes. We need the run to reflect all the 16 points that we went over last week via e-mail and -- Yes, I do see it.
Q. And it continues: And also to reflect the new weather normalized net system that we sent you last week, right?
A. Yes.
Q. And the new weather normalized net system input -- and this e-mail is dated -- it looks like if you go back to the prior page on December 11 on Page 5 of Exhibit 1; is that right?
A. Yes.
Q. That new weather normalized net system input is the same weather normalized data that we were talking about back on Page 2 where they told you to use the weather normalized tab; is that right? Page 2 of Exhibit 1.
A. Yes.
Q. And that was on December 8 when they first told you to use the weather normalized tab, right?
A. Yes.
Q. And then on December 11, they're still telling you to use the weather normalized net system input, right?
A. That's what they say, yes. However, I don't know how they name their tabs. The new weather normalized tab might have been called normal for all I know.

Page 43

Q. You're absolutely sure that your model run is based on that normal tab, not the weather normalized tab?
A. I'm absolutely sure, yes.
Q. All right. The 16 points that they mention on Page 6 of Exhibit 1, are the 14 assumptions part of those 16 points, is it a subset of it, is there overlap between the two, or are we talking about a different set of points?
A. I do not remember. I assume they're part of the 14 points, but I don't recall ever seeing 16 points.
Q. All right. Other than you see there's a mention of 16 points here?
A. Yes, I do.
Q. You don't have any particular recollection of how those differ perhaps?
A. No, I don't.
Q. I think you mention that your Staff model run did -- Let me back up. Did the Staff model run that you did, did it include any cost associated with -- I'm going to say EEInc or Joppa and use those terms interchangeably? Do you understand that those are the same thing?
A. Yes.
Q. Did your Staff model run include any costs associated with Joppa?
A. No.
Q. In your response to DR TDF-Staff-008, you

Page 44

state that the Staff included approximately 65 million in annualized costs associated with EEInc generation.
Were you aware that these numbers comprised of 21.2 million of demand charges and 44.1 million of energy charges?
A. No.
(Whereupon the reporter marked Exhibit No. 2 for identification.)
Q. (By Mr. Lowery) I'm going to hand you what's been marked Exhibit 2, Rahrer, for this deposition. And I ask you to take a look at that. And in particular, do you see down at the bottom where fuel for purchase power and load has been broken out for fuel for interchange?
A. Yes.
Q. And do you see this 44,109,584 number?
A. Yes, I do.
Q. And I think you indicated that there's $65 million of cost in your data request response that Staff had added in for the Joppa plant, right?
A. When did I say that?
Q. Well, let me show you.
A. I think you said it a minute ago and I might have nodded too soon.
Q. Let me show you. Do you recognize this response to DR number TDF-Staff-008?

Page 45

A. Yes.
Q. And this is your response, correct?
A. Correct.
Q. Provided on January 11?
A. Yes, it is.
Q. Of 2007?
A. Yes.
Q. Bear with me just a second. All right. I don't think you did say that. I think we had an incorrect reference. We'll go on to another topic.
A. Okay.
Q. Now, you didn't include cost in your production modeling related to Joppa, right?
A. Correct.
Q. And Joppa was modeled as a purchase power contract in effect?
A. Yes.
Q. You've done other RealTime simulations for clients over the years, right?
A. Yes.
Q. You mentioned a few of those in your DR responses to the company's data request, right?
A. Correct.
Q. In other simulations that you do for other clients, if you include a resource, a generating unit, a

Page 46

purchase power agreement, typically you include the cost associated with that resource, true?
A. Correct. Yes.
Q. It's unusual to model a resource, but not include any cost associated with it, isn't it?
A. Not totally unusual. Hydro, for example, is frequently put in at zero cost.
Q. But Joppa is not a hydro plant, right?
A. Right.
Q. It's a coal plant?
A. But I'm just saying, you asked about a resource and it's a resource. It's unusual to have a generating unit render zero cost.
Q. It's unusual to have a base load, general coal unit run in a production cost model without associating cost with it, right?
A. Yes.
Q. Did you question why the Staff wanted you to do that?
A. Yes, I did. I said, I can put cost in for it. And they said they would handle it off model or something like that.
Q. Did they give you any reason why they would handle it off model or how they would handle it off model?
A. How and why are two separate questions.

Page 47

Q. Well, let's go one at a time. Did they give you any information about how they were going to handle it outside the model?
A. No. But the reason why -- They said something to me once about fuel cost or something. But, anyway, I don't recall it. But they did say something about why, but they never told me anything about how, except that they would do it outside the model.
Q. What was the why that they gave you?
A. I just said I don't really remember. It was something to do with fuel cost or something.
Q. All right. Do you have an understanding that in effect, the way that they handled it outside the model ends up assigning those energy costs to interchange sales, as opposed to load -- native load?
A. No, I don't know anything about it.
Q. All right. Of course for the APL or Entergy -- I forget -- you know what I'm talking about, the APL contract that is modeled in your model?
A. Yes.
Q. You did include costs associated with that, correct?
A. Correct.
Q. What assumptions were made when you did the Staff model run including the Joppa plant in terms of when the power would be taken by UE from the Joppa plant?

Page 48

A. The whole process that I went through is they gave me monthly generation from this unit. And they told me that the maximum capacity of the unit, I think, was 405 So I took for the peak hours of the day, which are the middle 18 -- the first six hours and the last two hours are non-peak, off peak. The other 18 hours of the day are on peak.
So I assigned 405 to all the on-peak hours. And I assigned the remainder of the output per month based on the load shape for the off-peak hours. So it varied from 405 down to -- I don't remember. But all the output from Joppa is in this stack someplace.
Q. And you said based on the load shape. Is that the load shape reflected in there -- I guess we don't know they're normalized or weather normalized, but whatever load Staff had given you for the test year?
A. Correct.
Q. What is the basis for the assumptions of assigning all 405 megawatts in the on peak and the remainder to that low shape. How did you decide that's how you're going to model it or did somebody tell you to do it that way?
A. I think that was my decision to do it that way.

Page 49

Q. Why?
A. I don't know. It just seemed like a good thing to do. I took the monthly load and divided it by the number of hours in the month. I knew the thing could run at 405 and it didn't seem like it made sense to run it at at 405 at 1:00 a.m. I knew it was physically a unit, not a purchase power contract. So I just assumed that they would run it more during the peak hours.
Q. That was an assumption that you made?
A. That's correct.
Q. Didn't have any operating data, history, information that backed up or didn't back up that assumption; is that fair?
A. That's correct, yes.
Q. Did you discuss that assumption with Mr. Meyer, Mr. Cassidy, or anybody else at Staff?
A. I might have told them that I did it after the fact, but I don't recall any input from them on the subject.
Q. Don't recall them commenting on that one way or the other?
A. Correct.
Q. Let's go back and talk about some of these 14 assumptions that we have, I guess, a partial list for. Can you explain the change that you made regarding the Rush

Page 50

Island forced outage rates? You said you made a change from the benchmark run to the Staff model run, right?
A. Yes.
Q. Please explain that for me.
A. To come up with the forced outage rates for the units, I processed the data that Tim Finnell had provided, the GADS data. I think it was six years of history for each of the units. I used that for all of the units except the Callaway unit. I used it for all the major coal units. When I was making the benchmark run, I could get the Rush Island units to match what was in the benchmark run.
Q. Let me just stop you. Is that all the Rush Island units?
A. Both. The two.
Q. Okay. Go ahead.
A. I checked the heat rate, I checked the dispatch, what I thought it should be, I checked the fuel cost. Everything seemed to be right. The only thing that would make a difference would be in the outage rate of the unit.
So I tweaked these outage tables that are in the unit, which are explained somewhere in here, to make it either be more or less available. I forget which one it was. Whatever change I made, it finally got the unit to

Page 51

generate closer to the benchmark numbers.
So for the benchmark, I used a modified forced outage rate from the GADS data. When I made the Staff run, I went back to the original forced outage rates for the two Rush Island units that I had gotten from the GADS data, because I wanted everything to be as consistent as possible.
Q. So the benchmarking results reflect your adjustment of the Rush Island 1 and 2 unit outage rates; is that right?
A. Correct.
Q. But then you changed it back to using the GADS data from AmerenUE, the outage rates -- the forced outage rates for Rush Island to the GADS data from AmerenUE for the Staff model run?
A. Yes, I did.
Q. Okay. You talked about one of the assumptions that changed in the Staff model run were new Callaway outages?
A. Correct, yes.
Q. Please recount for me in full what changes were made regarding Callaway outages.
A. In the benchmark run, the Ameren model, they simply derated the Callaway unit on a monthly basis by a certain percentage to simulate forced outages, was the

Page 52

impression I got.
The benchmark run also had one long planned outage in the springtime sometime. I forget how long it was. 900 hours. But, anyway, I forget. And in the -- in the Staff run, the Staff did not want to model it that way. I don't know where they got their data, but they wanted me to simulate some forced outages, and they changed the planned outage to the fall and it was of shorter duration.
Q. Okay. So Staff told you, we disagree with how the company has modeled forced outages of Callaway and we disagree with the duration and timing of the planned outage that the company used and so we want you to use X, Y, and Z for those parameters; is that a fair summary?
A. The very last part of your question is true. They wanted me to use X, Y, Z. Whether they disagreed with the way Ameren ran it or they had somebody else in mind, I don't know.
Q. You didn't discuss why they wanted you to use X, Y, and Z, but they wanted you to use different input assumptions for Callaway forced outages and for time and duration for the planned outages than had been used by the company?
A. That's correct.
Q. So Staff gave those to you and said, use this, and you just input it into the model, right?

Page 53

A. Not actually. They said they wanted -- it was that very first thing on that list. I may have a copy of that list some place. They said they wanted an outage of certain duration, let's say 88 hours. They wanted it to occur in the fall sometime. So they left it to up me where to put the outage.
There were about six of those. Some were shorter duration of about 24 hours. Some of them were longer. They told me where to put the planned outage, as I recall. They gave me either six or seven outage periods. Some of them were derates, some of them were full outages.
Q. All right. Let me back up and make sure I'm processing this information. I think we're talking about two things. We're talking about them giving you information as to when they want forced outages to occur for Callaway, true?
A. Not totally.
Q. All right. Tell me where I'm not understanding.
A. Let's take a full forced outage.
Q. Let's forget the planned outage for a minute.
A. So this is a full forced outage. I believe there were two of them; there might have been one. They said, we want it to be out for a number of hours, let's say 80 hours, sometime in March.

Page 54

And so I just -- I put the outage in March someplace. I don't recall they specified the date they wanted it to be in.
Q. But they gave you the month?
A. That's my impression, yes.
Q. So if we look at your RealTime information, your outputs, and we see a forced outage in March -- I'm making these up. We'll look at it maybe in at minute. But March, July, and November. Let's say there were three of them. The Staff told you, we want forced outage of X hours in this month, this month, and this month. They didn't tell you March 10 to 12; you just picked sometime in March, but they gave you the month; is that right?
A. That's my recollection. And all the outages are here.
Q. We'll look at them in a minute.
Now, for the planned outage -- forget the forced outages for a minute. Now we're talking about a planned outage, a refuelling outage, right?
A. Correct.
Q. At a nuclear plant, they're also called refuelling outages, right?
A. Correct.
Q. Do you have experience with that? Do you know how often nuclear plants have major planned outages?

Page 55

A. No.
Q. Did you know for example since Callaway has been built, it's had a planned outage every 18 months without exception, roughly every 18 months?
A. No, I didn't know that.
Q. All right. And if Callaway had a planned outage in the fall the previous time, then it's going to have a planned outage in the spring the next time. If you do the math of 18 months, you can see how that would work, right?
A. Sounds good.
Q. You didn't know that's how it always worked at Callaway, correct?
A. No.
Q. So for a planned outage, the company had modeled a planned outage in the spring, right?
A. Correct, yes.
Q. Did you know that the previous planned outage at Callaway had been in the fall?
A. No, I didn't.
Q. So the company had modeled a planned outage in the spring, but the Staff told you that they wanted the planned outage modeled in the fall, correct?
A. Correct.
Q. Did they -- did they give you any parameters

Page 56

as to what they meant by fall, in terms of what period?
A. Yes. They told me the month. I think it was November.
Q. They wanted that planned outage modeled in November?
A. I believe that's true, yes.
Q. All right. And the duration of the planned outage that they gave you was shorter than the duration of the planned outage the company had had in the spring?
A. Yes.
Q. And given the duration the Staff gave you, could you fit the whole planned outage in the month of November?
A. It might have run over in December, but I'm not positive.
Q. Is there about 740 hours in a month, something like that?
A. 744 hours in a 31-day month.
Q. Do you remember what the duration of the planned outage they gave you was?
A. No, but it was less than a month's worth.
Q. So you could fit it all in November?
A. Yes.
Q. Well, November is 30 days, but you could get it close to fitting in November, right?

Page 57

A. Yes.
Q. Now, I think you mentioned something about derates at Callaway and it seems like you were drawing a distinction between forced outages and derates. Were you drawing a distinction?
A. I shouldn't have been. A full forced outage and a partial forced outage is what I meant to say. A partial forced outage is a derate.
Q. We were talking about these forced outages that Staff gave you that they wanted particular months with particular durations. The changes you made regarding Callaway, were those forced outages in those particular months for particular duration and then moving the planned outage to a different duration; those were the two changes that we're talking about for Callaway?
A. Correct.
Q. And there aren't others?
A. No, no others.
Q. Okay. On Pages 11 and 12 of your testimony --
A. Let me go back to that.
Q. Sure.
A. The way the Ameren benchmark model did it, they simply derated the unit every month by a certain percentage for the entire month. So if it was a thousand megawatt unit and they dropped it by five percent, they'd

Page 58

run it at 950. They did that and we removed those and we changed the maximum monthly capacity of the unit to some other numbers.
Q. Right. And you understood that AmerenUE modeled it that way -- that was their way of simulating forced outages throughout the year, correct?
A. That's what I was told, correct.
Q. You were told that by Staff or?
A. Mr. Finnell.
Q. Okay. Do you have an understanding why AmerenUE modeled it that way?
A. No.
Q. Did you ask Mr. Finnell what the rationale was?
A. I don't remember whether I did or not, but...
Q. You don't know if that was, for example, based on actual operating history of Callaway over a period of years?
A. No. But that doesn't seem likely, but...
Q. Before you getting involved in this case, you didn't know anything about the Callaway unit; is that correct?
A. Correct.
Q. And do you have any particular experience with operating nuclear facilities in general?

Page 59

A. No.
Q. Have you regularly modeled utilities that have nuclear generation?
A. Yes. I think several of the ones I do have nuclear units in it.
Q. Have you ever done any studies or analyses about typical forced outage rates at a nuclear plant?
A. Not that I can recall.
Q. All right. Pages 11 and 12 of your testimony, you say that you normally benchmark the RealTime model against actual data. That's how you normally do it, right?
A. Correct, yes.
Q. All right. And in response to DR TDF-Staff-001, you identified a few different RealTime model runs that you've done for various clients. For any of those clients, did you benchmark or calibrate -- if I use the term benchmark and calibrate, can I use those interchangeably; does that make sense to you?
A. Yes.
Q. All right. Did you calibrate the model to actual data before making those runs for those clients?
A. In those studies that I mentioned in the DR, no, I did not.
Q. Did you calibrate the model at all before making those studies that you mention in the DR?

Page 60

A. You asked me if I benchmarked and I just said no, I didn't benchmark.
Q. You didn't benchmark at all?
A. Not in those cases.
Q. All right. When you have benchmarked or calibrated your model for clients, and I assume -- well, yeah, for clients, what percentage of the time would you say that you benchmark it or calibrate it against actual, as opposed to benchmarking or calibrating against somebody else's model run?
A. I don't recall I've ever calibrated against somebody's model run.
Q. Until this case?
A. That's correct.
Q. This is the first time you've ever done that. Why didn't you calibrate your model against actual data in this case?
A. Well, the actual data wasn't provided. We were trying to benchmark it against the Ameren benchmark run.
Q. Did somebody tell you to benchmark your model against UE's model, as opposed to benchmarking or calibrating against actual data?
A. One of the bullets in my contract was to run a benchmark model against the Ameren benchmark model.

Page 61

Q. So Staff actually prescribed in your scope of work, that they wanted you to benchmark the model against Ameren's model, right?
A. Yes, correct.
Q. And something you've never done before?
A. Not that I recall.
Q. Did you find it unusual that Staff wanted you to benchmark your model against another model run, as opposed to actuals like you'd always done before?
A. I asked them about it and they explained that with interchanges and other factors, it just wasn't that easy to do, to get the data that we needed.
Q. Tell me as specifically as you can recall what their explanation was.
A. Well, it was yesterday and my memory is not that good even from yesterday. It was because of the interchange sales between CIPS and Ameren, something of that nature.
Q. They gave you this explanation yesterday?
A. Yeah, because I asked them about it again yesterday.
Q. Well, you state in your testimony on Pages 11 and 12 -- Do you have a copy of your testimony with you?
A. Yes, I do.
Q. I want to make sure I'm reading this

Page 62

correctly. You state in your testimony at Lines 20 to 22, you state: In the current case, test year data being used by RealTime has already been processed and synthesized by AmerenUE and can no longer be compared against an unbiased objection.

That's your sworn testimony, right?

A. Yes, it is.

Q. Did somebody discuss with you this concept of processed and synthesized data?

A. Well, I must have heard from somewhere. I looked at their -- I looked at their -- I mean for example, the Callaway unit, I just figured that it could not run at that derating level. I looked at another data set that I maintain and I saw that Callaway did indeed have forced outages in 2005. So I knew immediately that their benchmark run was not against actuals.

Q. Well, yesterday you're asking them again, roughly a month after you file your direct testimony, you're asking them to give you some explanation as to why they wanted you to benchmark your model against AmerenUE's model. And you testified that one of the reasons they gave you, there's something about interchange sales between Ameren CIPS and AmerenUE, right; that was your testimony?

A. No. I actually asked them yesterday, I said, we should have benchmarked this thing against our actuals.

Page 63

That's been my opinion.

Q. That's been your opinion all along, that really the way to benchmark is to do it against actuals, right?

A. Yeah. But they explained to me why it was difficult to get the data.

Q. Well, you give some reasons on Pages 11 and 12 of your testimony. Where did you get these reasons? Because you testify in your December 15 testimony, you testify that -- to the reasons for why you benchmarked it against AmerenUE's model. So where did you get those reasons?

A. I don't understand that question.

Q. Well, were these reasons a product of your independent thought or did somebody suggest these reasons to you on Pages 11 and 12?

A. I was told to benchmark against the Ameren model. These reasons at the bottom that you just read?

Q. Yeah.

A. Let's read the next one on the top of the page. The market price curve was created from data aggregate from the last three years.

That's synthesized and processed to me. The worksheets that I was given by Ameren, it clearly showed that they were getting their forward price curves from the

Page 64

average of the last three years.

So that is not benchmarking against actual. The actual data on January 1, hour 14 last year, there was an actual forward price curve value, and I was not given that value. So you can't model it if you're not given the value.

Q. Well, AmerenUE's model run that underlies Mr. Finnell's testimony in this case wasn't attempting to model actual conditions, was it?

A. No, it wasn't.

Q. I mean, production cost model, one of the reasons you use a production cost model is we've got conditions that differ from actual, we want to model those so we can see what we think the results will be, correct?

A. I don't know why you guys run them.

Q. Well, how about production cost modeling in general. We don't need a production cost model to tell us what the actual results in a given 12-month period were, do we?

A. No, not if the period has passed, you don't.

Q. Right. I mean we just look at the books and we know how many megawatt hours were generated, we know what the prices were, we know what the margins were, we know what the fuel costs were, we know that information without running a model, correct?

Page 65

A. You should, yes.

Q. So when AmerenUE ran their model that underlies Mr. Finnell's testimony -- which you benchmarked against, right?

A. Yes.

Q. Mr. Finnell wasn't trying to find out what the actual results were for that past period; Mr. Finnell was trying to model based upon a different set of conditions what the results would be, correct?

A. I don't know what he was doing.

Q. Well, does that make sense; that he was modeling something other than actual conditions? You just --

MR. DOTTHEIM: I object, Mr. Lowery. Mr. Rahrer has answered your question.

Go ahead. Answer the question.

A. I don't know why Tim did what he did.

THE WITNESS: Sorry. Can I call you Tim; is that all right?

MR. FINNELL: Yes.

A. When you benchmark a model against reality, it's not to find out the number. Let's say the magic number for Ameren last year was 47. You don't run a model to try to come up with the 47; you try to run a model to see if you can get close to the 47 just to let you know

Page 66

that your model is working correctly.
Q. (By Mr. Lowery) That's right.
A. That's why you would do that.
Q. Did you read Mr. Finnell's direct testimony where he discussed the calibration work he has done to calibrate AmerenUE's production cost model?
A. There was several pieces of it. I know I read the first piece of testimony that he sent out. I don't think I read the follow-up.
Q. Testimony from back in July of 2006 --
A. That's correct.
Q. -- he discussed in that testimony calibration work he has done, correct?
A. I believe so, yes.
Q. And you read that?
A. Yes.
Q. Did you examine Schedule TDF 1-1 to that July 2006 testimony?
A. If it was attached to it, I'm sure I did.
Q. Did you ask -- did you have any occasion or did you ask Staff to get for you any of the data underlying Mr. Finnell's calibration runs that he discussed in his testimony?
A. I don't recall.
Q. You testified yourself that the normal way

Page 67

that you calibrate RealTime is to check it against actual real world data. Isn't that what Mr. Finnell did, as discussed in his testimony filed in July 2006; he calibrated his testimony based on real world data?
A. Do you have his testimony there? I don't recall that. I know there was two places, once he was talking about the benchmark run. And another place, he was talking about the reality for an 11-month period. But I don't remember it.
MR. LOWERY: I'm going to hand you -- Let's just go ahead and mark this, please.
(Whereupon the reporter marked Exhibit No. 3 for identification.)
Q. (By Mr. Lowery) I'm going to hand you what's been marked Exhibit 3, Rahrer. And ask you if you recognize this as being testimony that you did review that was filed by Mr. Finnell in July of 2006. Take your time.
A. Yes, this appears to be it.
Q. All right. I'm going to direct your attention to Page 5 and ask you to just read that to yourself.
A. Okay.
Q. Do you agree with what Mr. Finnell has to say there about calibrating models against actual data?
A. Well, I don't know how his model works, so I really can't answer that. I don't know where he -- I don't

Page 68

know whether he used actual hourly load or he had some kind of predictive algorithim for what the hourly load would be.
Q. Well, doesn't Mr. Finnell say that on Line 3, that he compared -- that he ran his model which compared actual 2005, actual 2005 generation to model results?
A. Uh-huh.
Q. Wouldn't that indicate to you he was using actual generation, not normalized generation?
A. I'm talking about load. What did he use for load? I mean a typical costing model will come within one or two megawatts of load. And he says he comes within a half percent. So a half percent of 40 million is -- I don't know what he did. It clearly does say he compared some results against actual.
Q. Which is what you would normally do?
A. Yes. If the data were available and I was asked to do it.
Q. You don't know if the data was available or not, do you?
A. I do not.
Q. You didn't ask for the data?
A. I don't recall asking for the data. They wanted me to benchmark against the run that was submitted that had results from the units, you know, that was provided to us.

Page 69

Q. But had -- you indicated before, I believe, that you thought the right way to calibrate a model was to do it against actuals. Had Staff agreed with you, you would have asked Staff to get you the data, the actual data, for whatever period we're talking about from the company, wouldn't you?
MR. DOTTHEIM: I object, Mr. Lowery. I think you're testifying on behalf of Mr. Rahrer.
Q. (By Mr. Lowery) Mr. Rahrer, if there is a historical period that you want to examine in order to benchmark or calibrate your model, you can ask and obtain data for that historical period in order to calibrate your model against that actual data; isn't that true?
A. Who can I ask? Can I ask? Yes, I can ask.
Q. You could have asked for that information? Staff could have asked for that information, correct?
A. Staff could have asked Ameren.
Q. Yes.
A. I guess they wanted to, but I don't know whether they could or not.
Q. Staff, from the beginning in your assignment, wanted you to benchmark it against Ameren's model run, as opposed to actual. So as far as you know, Staff never asked for the actual information, correct?
A. As far as I know, yes, that's true.

Page 70

Q. You don't have any reason to believe or any evidence to suggest that had Staff asked for that information, it would not have been available; is that fair?
A. I can't possibly answer that. No, I have no evidence.
Q. You don't have any evidence it would not be available, right?
A. That is true.
Q. You don't have any particular reason to believe it would not be available, correct?
A. That is true.
Q. You don't know for sure if it was available, but you don't have any evidence that it was not available, correct?
A. That is correct.
Q. I take it because you didn't seem to express a lot of familiarity with the calibration work that Mr. Finnell has done, I take it you don't have any criticisms of his calibration; is that true?
A. I don't recall seeing any information from his calibration other than this paragraph.
Q. And based upon that paragraph or a prior review you make of Mr. Finnell's testimony filed in July of '06, do you have any criticisms of his calibration work?

Page 71

A. It's impossible to have criticism or praise with only that paragraph. I mean, a half percent sounds -- I'm not supposed to volunteer information. A half percent sounds good, but I don't know what his load input was.
Q. You haven't examined his calibration results or asked for any of the underlying data in order to evaluate it; is that fair?
A. I haven't seen any of it and I haven't asked for it; that's correct.
Q. You were aware it existed because you read the testimony; is that correct?
A. Yes. Yes.
Q. Okay. Do you know for what purposes AmerenUE used it's PROSYM modeling, production cost model?
A. Rate cases, I guess. I don't know what else. Fuel budgets.
Q. Do you know if they use it for business planning purposes?
A. No.
Q. Do you recall reading Mr. Finnell's testimony on Page 3, Line 16 to 20? And this is part of Exhibit 3.
A. I do remember reading this, yes; preparation of monthly/annual fuel budgets.
Q. Would you agree that the purposes Mr. Finnell talks about there are important in the operation of a

Page 72

utility?
A. Yes.
Q. I mean for example if AmerenUE's model produces biassed fuel burn projections, AmerenUE may buy too much fuel or not enough fuel which could have negative impacts on its business, correct?
A. Yes, it could.
Q. Do you have any evidence that AmerenUE's fuel burn projections that have been made using the PROSYM model produced biased results?
A. I don't have any evidence, but I haven't seen any of them.
Q. You don't have any evidence, right?
A. That's correct.
Q. Do you have any evidence of any kind that AmerenUE's production cost model produced biassed results in any of these important areas?
A. I have no evidence to that effect.
Q. Now, actual data for a particular historical period -- I think we talked about this a little bit -- it may very well not be reflective of future conditions that we're trying to model, correct?
A. Correct, yes.
Q. Changes sometimes take place during a particular period. For example, let's say the test year in

Page 73

this case, changes may take place in generation, in loads, purchase power contracts that are not available. Those changes may take effect that we know are going to be permanent. So if we're trying to run a model for a test year so we can use those results to try to predict what may be a production cost level in the future, we need to model those changes, right?
A. When you model the future, yes.
Q. And that's really why we have models, so we can make changes to actual data and determine what we think the results are going to be based upon those modeling results, right?
A. Yes.
Q. We can have a major new customer added that changes loads for example?
A. Yes.
Q. We could have a joint dispatch agreement go away; that would be something we could model. We could model the absence of the joint dispatch agreement, right?
A. Yes.
Q. We could model new purchase power contracts or purchase power contracts that went away, right?
A. Yes.
Q. New units coming on, right?
A. Yes.

Page 74

Q. Or going away?
A. Yes.
Q. Models are designed to accept those kinds of changes or inputs. And if you have a good model, they're designed to produce reasonably accurate results even based on those changes, right?
A. They should, yes.
Q. They should. I mean that's the point of having a model, right?
A. Correct.
Q. Doesn't -- when we have conditions that we're modeling that are different than actual -- we just talked about a whole bunch of things that are different than maybe the actual information from a period. Isn't it true that data is often processed and synthesized before we input it into the model?
A. If you're talking about what you were just talking about, modeling the future for handling changes in weather --
Q. I mean, weather data -- I know you testified you don't really know how people go about weather normalizing loads. But you know that weather normalized loads reflect a lot of different kinds of analyses and so on that go on, that they process and synthesize actual temperatures and so on throughout the year to come up with

Page 75

a weather normalized load. There's a lot of processing that went on to come to that weather normalized load, correct?
A. Yes.
Q. Unit availabilities, the information you use and the company used, and I'll pull Callaway out of that and I know you made some adjustments on Rush Island, but in general, was a six-year average of GADS data, right?
A. Right.
Q. I mean, that's not actual data; that's an average that's been calculated, right?
A. Correct. But going into the future, you can have actual date for forced outages. You can have an actual date when a new unit is going to come on line, for example.
Q. What about energy prices. Are you aware that Dr. Proctor ran various regressions, took averages, did various data processing and synthesizing of data to come up with what he believed normalized level of energy prices were?
A. Once again, he's going into the future. And I assume that's what he did, but I don't know where he got his data from.
Q. But assuming that's what he did, he processed and synthesized data before he fed you those inputs that

Page 76

you use in your model, right?
A. Yes, but for the future. When you're dealing with the past year, you don't have to process or synthesize anything. You've got the invoices.
Q. You do understand that rates to be set in this case will be in effect in the future, right?
A. Yes.
Q. We're not trying to figure out what the production costs were in a past period. We're trying to figure out what a normalized level of production cost would be so that the Commission can make a decision about how to use that calculation in setting rates. Is that your understanding?
A. Yes.
Q. Rates in the future, right?
A. Yes.
Q. And various processed and synthesized data was used by you in your model in order to come up with those results for the Staff, correct?
A. I don't know where they came from, but I assume they processed them somehow to give me the data.
Q. On Page 12, Lines 3 to 5 of your testimony, you say: Usually items such as heat rate curves are created from periodic heat test, not a heat rate curve such as AmerenUE uses.

Page 77

Or that's the import of what you said. Is that a fair characterization of what you said?
A. Correct, yes.
Q. Have you been involved with any utilities generating unit heat rate testing programs?
A. No. But I've been involved with utilities where they told me they got their data from heat rate test.
Q. Do you know anything about the frequency of those heat rate tests, how they do them?
A. No, I don't.
Q. They just told you they get them from heat rate tests, right?
A. Yes.
Q. That's really the extent of your knowledge --
A. Yes.
Q. -- is that some utilities told you, hey, we use heat rate tests, that's how we get this heat rate information?
A. That's correct, yes.
Q. All right. Do you know how often utilities typically perform a heat rate test?
A. No, I don't.
Q. Do you know how heat rate testing is actually done?
A. No, I don't.

Page 78

Q. Do you know if they test at maximum loads only?
A. No, I don't.
Q. At minimum and maximum loads, do you know?
A. I don't know, no.
Q. Do they test at various points?
A. I don't know.
Q. Don't really know anything about it.
Are off-line adjustments needed to correct for air and water temperatures of the time of the test, whenever it is they do the test?
A. I don't know.
Q. What parameters impact the unit's heat rate, do you know?
A. No, I guess I don't.
Q. Does air temperature affect it?
A. That, I believe it does, yes.
Q. Water temperatures?
A. I believe so, yes.
Q. Quality of the coal?
A. I imagine.
Q. How the equipment is performing?
A. I don't know what you mean by that. I don't know.
Q. The amount of auxillary equipment that may be

Page 79

on-line at the time of the heat rate test; does that affect it?
A. I don't know.
Q. To the extent that all those kinds of items affect the heat rate, do you think a single test is going to provide a sufficient heat rate information to actually rely upon in your production cost model?
A. That, I don't know.
Q. Do you have any evidence that AmerenUE's heat rate curves are not reflective of the current heat rates at each of AmerenUE's generating units?
A. No. I looked at some hourly output from another product that I have. And some of them were not exactly the same thing, but the product that I looked at used gross heat rate -- sorry -- gross capacity. So I couldn't exactly tell. But it looked like to me in some cases there were some variances, but I don't have anything written down.
Q. You really don't know anything about how AmerenUE derived its heat rate curves, do you?
A. I do not.
Q. You really don't have any evidence that their heat rate curves are inaccurate in any way; is that fair?
A. No, I guess I don't. But there's --
Q. All right.

Page 80

MR. DOTTHEIM: Mr. Lowery, would you permit Mr. Rahrer to complete his answer.
MR. LOWERY: I think he's answered my question.
MR. DOTTHEIM: Well, he's --
MR. LOWERY: If you want to ask him a question on redirect, you can ask him a question on redirect.
MR. DOTTHEIM: I thought, Mr. Lowery, you said you wouldn't talk over Mr. Rahrer, which is what I think you were doing.
MR. LOWERY: I thought he had completed his answer.
MR. DOTTHEIM: No, I don't think he had completed his answer.
Mr. Rahrer, had you completed your answer?
A. I was going to say that using those three coefficients to come up with the heat rate curve is probably a good generic way to do it. But with a few heat rate tests, you could probably get -- come closer to the right answer.
Q. (By Mr. Lowery) Mr. Rahrer, you don't know how many heat rate tests or the frequency of those heat rate tests or how they were done, you don't have any idea what heat rate tests do or do not underlie AmerenUE's heat rate curves, do you?

Page 81

A. I have no idea.
Q. You have no idea?
A. That's correct.
Q. So when you say a few heat rate tests might come to a closer answer, you don't whether AmerenUE maybe has done, in your words, a few heat rate tests, do you?
A. That's correct, I do not.
Q. Or when they did them or how they did them or what conditions they were done under; is that correct?
A. That's correct.
Q. So, again, I'm going to ask you, you don't have any evidence except the speculation that you seem to be expressing, that there's any inaccuracy in AmerenUE's heat rate test -- heat rate curves, do you?
A. I have no evidence.
Q. And your testimony where you talk about the heat rate curves is really based upon some comments that you received from other utilities that, hey, we use heat rate test, as opposed to a heat rate curve; is that the substance of your testimony?
A. Assuming they were telling me the truth, yes, that's --
Q. And you don't know anything about what they do, do you?
A. It's been explained to me in the past. But,

Page 82

no, I didn't go monitor the test.
Q. But in effect, you were criticizing AmerenUE's use of heat rate curves in your testimony, weren't you?
A. Yes, I was.
Q. Without really any basis for that criticism; is that fair?
A. I didn't have -- I don't know if --
Q. You don't have any evidence that there was problems with the heat rate curve?
I apologize for interrupting. I thought you were done.
A. Ask the question again.
Q. You didn't have any evidence that there were problems with AmerenUE's heat rate curves, but you criticized the use of those heat rate curves in your testimony?
A. Yes, I did.
Q. Could you please take a look at Schedule 3 to your testimony. Can you tell me how the numbers in the Ameren -- the outage hours Ameren column were determined?
A. It might have been from the GADS worksheet that was provided to me. There was a list of actual outages and outage hours were summed up or I summed up the hours. This was definitely from Ameren input to me.
Q. Do you know if it was 8,760 hours minus the

Page 83

hours connected to load for each of those units?
A. No, I do not know that.
Q. Are you familiar with your work paper RT_AMB_Outages.xls?
A. I think that's where I got this information from.
Q. Is that spreadsheet the source of your calculations in the column we're talking about?
A. Yes. I think I just typed the number in.
Q. Are you aware that the outage hours of Ameren in this column, they do not include derates?
A. I thought they did include derates.
Q. So if they don't include derates, you were not aware of that; in fact, you made the opposite assumption?
A. I thought these were what I call equivalent outage hours, which is the number of hours it would be equivalently out if it was on full force outages all the time. That was my assumption.
Q. If that assumption was wrong and derates were not included, if we included derates in these numbers, the outage numbers would go up, wouldn't they? We'd be out more if we include derates, as opposed to not including derates, correct?
A. If they're not included here?
Q. Yes.

Page 84

A. That's true, but I thought they were included here.
Q. Just assume that they're not included. If that's the case, they were not included and you included them, the outage hours would go up, correct?
A. Yes.
Q. And if the outages are greater, then the equivalent availability is going to be less in each of those units, correct?
A. Hours are greater?
Q. Outage hours are greater.
A. Yes, that's right.
Q. Now, for the RealTime outage hours -- outage hours RealTime, which would be the fourth column on Schedule 3 -- are you with me?
A. Yes.
Q. How did you calculate those numbers?
A. Those are from the equivalent availability of the unit.
Q. Let's take a look at Labadie 1 in the outage hours RealTime. You're showing Labadie out 2,307 hours, right?
A. Yes.
MR. LOWERY: I'm going to show you -- I guess we can go ahead and mark this too.

Page 85

(Whereupon the reporter marked Exhibit No. 4 for identification.)
Q. (By Mr. Lowery) I'm going to hand you what's been marked Exhibit 4, Rahrer, for this deposition. Do you recognize this?
A. Yes.
Q. And this is -- these are the results of your RealTime Ameren benchmark run; is that right? Look it over.
A. Yes.
Q. All right. And I'm going to direct your attention to a page that at the top, it says, Ameren MPSC0140, Ameren benchmark run, original 2005. And over on the left, it says, hours connected to load?
A. Yes.
Q. You're familiar with this, right? This is output from your model, right?
A. Yes.
Q. For Labadie 1, if we go over here to the total column, we get 6,729 hours connected to load, right?
A. Uh-huh.
Q. All right. On Schedule 3, you've got Labadie out 2,307 hours, right?
A. Yes.
Q. And if you sum those two together, we get

Page 86

9,038 hours; would you agree with that?
A. Yes.
Q. And there's only 8,760 hours in a year, correct?
A. Correct.
Q. So that can't be right, can it?
A. But this hours connected to load is not what you guys are used to. Let's look at the equivalent availability for the unit.
Q. Okay. Explain what you're trying to get at there.
A. I'm trying to show you where I got this number 2,307.
Q. How did you get that number?
A. I used the equivalent availability and I just worked the formula backwards to find out how many equivalent hours it would have been out.
Q. Well, let's take a look at another one. Labadie 2 is out, according to Schedule 3, 717 hours, right?
A. Yes.
Q. And Labadie 2 is shown as on-line in your benchmarking run of 8,531 hours. And the total of those is again more than the number of hours in a year. So explain to me again why that can be true.

Page 87

A. I do not remember what this report reports, these hours connected to load. And that's the source of the controversy.
Q. This is your report, right?
A. Yes, it is. This is a report that somebody asked me to write and I'm not sure exactly what it reports and I can't tell you because I don't have my model in front of me.
Q. Somebody at Staff asked you to write it, correct?
A. No, no. This has been part of the RealTime model for a long time.
Q. I see. Somebody asked you to conclude the capability in your model to produce this report at some point in the past?
A. Yes.
Q. So when you spit out a RealTime model run results, this report is one of the reports that comes out?
A. You can ask for it, yes.
Q. And you chose to ask for it in making Staff's runs?
A. That was one of the things, I think, that was requested.
Q. Staff requested this report?
A. Uh-huh.

Page 88

Q. Let's take a look at Schedule 1 to your testimony, please. Is this a mistake in the labeling on the left most column, the last line that says purchases? Is that purchases or is that in fact total energy in megawatt hours?
A. That is a mislabel.
Q. Is it supposed to be --
A. I believe it's a mislabel. I know it didn't purchase that much.
Q. If you look at Schedule 4, you have a similar benchmark results table and you label that same line as total energy in megawatt hours.
A. Yes.
Q. So Staff's production cost model reflects total energy in megawatt hours of 40,947,977; is that correct?
A. I believe -- Well, I can't do the math in my head. This clearly is a mislabeled item. The purchases are actually three lines up.
Q. Yeah. The purchases are actually the 1.5 million megawatt hours, right?
A. Correct. Uh-huh.
Q. That's just a typographical error?
A. Yes.
Q. Could you please explain how you get

Page 89

equivalent availability information -- pardon me -- in your model?
A. Yes. It's the number of hours in the period -- I gave you a copy of my manual. It's in there under the element report. Essentially, it's total hours available minus the full outage hours, which is -- a full outage is when the capacity is zero for the unit, minus the derated hours. The derated hours are -- a hundred megawatt unit is derated to 70. Let's do the math.

Every time it loses the amount of capacity for full generation, that would be one more derated hour. So you subtract the hours in the period, minus the full outage hours, minus the derated hours, divided by, I believe, the outed hours in the period.

But that's Chapter 6 for the element report in the manual. It's spelled out there.

Q. All right. With the exception of Callaway and I guess ultimately in the Staff model run, you ended up back at the same GADS information for Rush Island as well, right?
A. Correct.
Q. So with the exception of Callaway, you used the NERC GADS data from UE and used some external RealTime module; is that right?
A. Yes.

Page 90

Q. That's what you were sort of describing?
A. Yes.
Q. Now, after you use that external module, you had to do some further manual adjustments; is that correct?
A. No. The module actually gives me the tables that I imported directly into RealTime.
Q. Do you recall back in December, I believe it was, there were some bullets that had been sent that we had sent to the company, the company sent to Staff, and Staff had provided to you in terms of looking for other work papers. Do you recall that?
A. You guys were looking for work papers from us?
Q. Yes.
A. I don't remember the date. There's been two cases.
MR. LOWERY: Let me show you and maybe it will refresh your recollection.
Could you mark that, please.
(Whereupon the reporter marked Exhibit No. 5 for identification.)
Q. (By Mr. Lowery) I'm going to hand you what's been marked Deposition Exhibit 5. I'm sure you would not recognize the first page because it's an e-mail actually from me to some folks at Ameren forwarding on some information.

Page 91

But you see that we have an e-mail from somebody at the Missouri Staff to myself and other folks, with the subject line ER-2007-0002. That's this case, right?
A. Uh-huh.
Q. Staff witness Rahrer work papers more to follow, and then there's some file attachments. Do you see those?
A. Uh-huh.
Q. I'll represent to you that the file attachments attached to this Exhibit 5 are -- correspond to Bullet 1, Bullet 2, and Bullet 3. Do you recognize these documents that are attached to this e-mail?
A. Yes, I do.
Q. You prepared these, right?
A. Yes, I did.
Q. And if we take a look at one page of these, it's only got text on about a fifth of the page and it starts out, the following file contains the actual unit forced outage information, etc. Do you see that?
A. Uh-huh.
Q. It says: After an initial run of the model -- and I'll let you look at this yourself. After the initial run of the model, an attempt was made to adjust the RealTime unit outages to more closely match the unit

Page 92

outages reported in the AmerenUE benchmarking model.
It's the second sentence on that page, right?
A. Yes.
Q. Doesn't that reflect that you're making some manual adjustments after this external module had calculated equivalent availability numbers?
A. Yes. I did that for the Rush Island units, as I've already said.
Q. So you're talking about the adjustments you made in the benchmarking run for the Rush Island unit; that's what this is referring to?
A. To the best of my recollection, yes.
Q. All right. Thanks.
So just so I'm clear and we'll set Callaway aside. When you did the Staff model run, were the equivalent availabilities that you used by unit, by generating unit, were they exactly the same as the equivalent availabilities that AmerenUE used in its modeling?
A. Equivalent availabilities are not an input to RealTime. Equivalent availabilities are an output from RealTime.
Q. Let's ask it this way then: Did the equivalent availabilities that came out of RealTime for all those non-Callaway units and the Staff model run, did they

Page 93

match the equivalent availabilities from UE's modeling?
A. I did not look at them.
Q. You don't know.
Take a look at Exhibit 1. I think it's Exhibit 1. Yeah. It's the e-mails, your e-mails. Take a look if you would at Page 45. And look between the two dark black lines, there's an e-mail.
A. Apparently I did.
Q. You looked at exactly what we were just talking about, didn't you?
A. I guess I did.
Q. That's fine. I don't expect you to remember everything you've done in the last six months.
A. I don't remember where I got the equivalent outage hours to compare, but apparently I did. It might have been from one of the inputs. But, yes, clearly I did.
Q. So the question I asked you before was whether or not the equivalent availability in Staff's model run for each AmerenUE unit by unit, excluding Callaway, matched the equivalent availability from AmerenUE's model run and the answer would be no; is that correct?
A. I was thinking about something else. Ask it again.
Q. I think I asked you before whether or not the equivalent availability produced by your RealTime Staff

Page 94

model run matched the equivalent availability from AmerenUE's modeling on a per unit basis, again excluding Callaway. And before, you said, I didn't look at it, I'm not sure. But this e-mail on Page 45 of Exhibit 1 indicates you did look at it, right?

A. Yeah. Apparently the Schedule C comes from that comparison. Like I said, I don't remember it. You asked me where I came up with the numbers on Schedule 3 for the Ameren numbers and I said I don't remember. I thought they might have been some of the input forms. I'm not sure whether they were output from the model.

Q. RealTime apparently in certain units must have higher equivalent availability, correct, in the Staff model run because it's generating 260,836 more megawatt hours, right, according to Exhibit 1, Page 45.

A. It's not generating more. It's allowing that many more megawatts to be available.

Q. Right. Because the equivalent availability is apparently higher, according to RealTime, than according to Ameren's modeling, correct?

A. That's correct, yes.

Q. And you indicate in the second line of that e-mail that we're looking at, that the data is pretty good, but not perfect. So there were some imperfections in the data you were using, right?

Page 95

A. When you're looking at a random element, it's hard to say you can call it an inaccuracy. It's hard to say that. It's an unknown. You don't know when the forced outage is going to occur. So to say that the RealTime versus the PROSYM are inaccurate, we'd have to wait for the period to be finished before we can determine that, the time frame you want to study. Not to split hairs. This is something in the future that hasn't happened yet, so we don't know.

Q. If in fact the equivalent availabilities from RealTime were higher than they should be, and I said if, I'm not asking you to agree that they are. But if they were, and it allows the units to generate more megawatt hours, the direction of that difference between AmerenUE and RealTime is going to be more megawatt hours availability, more off-system sales, more margins, and a lower overall production cost; is that right?

A. That's correct, yes.

Q. You mentioned something about 70,760 of the megawatts relating to Callaway changes. Are those changes no more, no less the changes we talked about before that you made to modeling regarding Callaway?

A. That's correct, yes.

Q. How could you have made your model match or get closer to AmerenUE's numbers?

Page 96

A. The benchmark numbers? Is that what you're saying? Are you back to talking about the benchmark model?

Q. Yes.

A. The only thing we're off on is, of course, the cost. RealTime came within nine megawatts of meeting Ameren's load.

Q. But we're off on the cost?

A. One and a half percent on the cost. RealTime is lower.

Q. Well, is it possible that one way to get your model closer would have been to run more iterations?

A. I can't -- you can't tell until you do it.

Q. You ran 16 iterations; is that right?

A. Yes.

Q. How many iterations would you normally run for other clients?

A. Some clients run an absolute number of iterations. I always like to set -- and don't ask me statistics, because I can hardly pronounce statistics, much less know much about it, except there's a test in the model that you can set a level of confidence and a maximum sampling error. And every time the model gets finished with a run, it does -- it checks to see whether the model has converged on those numbers yet.

So I normally set -- for a one-year run, I

Page 97

normally set the level of confidence to 99 percent and sampling error to one. I just let it run until it meets that.

Q. Okay. You'll have to help me a little with statistics maybe. A confidence level of 99 and a sampling error of one?

A. Yes.

Q. All right. Tell me -- Put that in eighth grade English for me.

A. That's probably better than most polls they take on CNN or USA Today. There's also a section in the manual that explains it. I use this thing called a T test for small samples. It's just a formula for doing it.

Q. Does it mean that at least based upon statistical analyses, that you believe that your model -- you're 99 percent sure that your model is coming within one percent of the actual results? If I stated it wrong, you tell me.

A. You could be stating it right. It's something like that, yes.

Q. But you're not completely sure yourself?

A. No. I'm using a statistical test that somebody else gave me. What it does is it gives you, to coin the phrase, level of confidence in the results so that the results might come close to reflecting reality.

Page 98

Q. Now, you said something about, I think, some clients set an absolute number of model iterations or something like that. Were you given any direction by the Missouri Staff on how many iterations to run?
A. No.
Q. How did you arrive at 16?
A. The model stopped at 16 because the results converged on that 99 and one percent.
Q. You'd agree if you run RealTime once based on a particular set of inputs, the results may have sampling error?
A. It's not going to reflect reality very well.
Q. And multiple iterations, you're trying to reduce that sampling error, right?
A. Correct.
Q. I think you even discussed this with Mr. Bender. If you look on Page 24 of Exhibit 1, you're discussing this very issue, are you not? Take a look at that before you answer that.
A. This was obviously early. I don't know what the date of this is, but it's an early phase of the model and I don't remember what was changed, but something was obviously changed in the outage schedules or something.
Q. We're talking about the benchmark run here, would you agree?

Page 99

A. Hang on a second. Yes, it is the benchmark run.
Q. If you look down about 80 percent of the way down that page, I see a 10/20/2006 date. I don't know if that's associated with the e-mail that we were just looking at.
A. These are in order.
Q. So we're in that October 20 time frame probably?
A. Yes.
Q. And you're indicating that you're going to try 30 iterations to try to get the sampling error down to one percent?
A. Right.
Q. You're trying to get that 99 percent, one percent confidence level we were talking about?
A. Right.
Q. Did you ever run 30 iterations?
A. I don't think I did. I think I ran 25. Then something was changed in the model, which I can't tell you what it was, but obviously an outage -- unit outage table someplace that made this thing converge at 16 iterations.
Q. Now, on costs, you're one and a half percent apart?
A. 1.55, something or other, yes. On the

Page 100

benchmark run.
Q. On the benchmark run.
And total production costs, using rough numbers, we're looking at, are 5 to $600 million for AmerenUE?
A. The variable costs were, I think, 596,868,000. That's the units, not purchase or sales.
Q. Give me that number again.
A. 596,868,000.
Q. So we're about $9 million off. If we're a percent and a half off, we've got a $9 million divergence, right?
A. No. I took that one and a half percent based on the final cost, which was whatever these three numbers were added together.
Q. You're looking at Schedule 4?
A. Yes.
Q. All right. Maybe we ought to just add them up.
A. You've got the results there some place. It's on a spreadsheet.
Q. What numbers should I add?
A. On this one?
Q. Uh-huh.
A. Try adding all three of those.

Page 101

Q. 596, 31, and the negative 325?
A. Yes. The bottom line number on the RealTime benchmark run was about 302 million. I believe the bottom line on the Ameren benchmark run was 3.7 or -- actually, I don't remember, but we've got it in front of us somewhere.
Q. Let me ask it this way: If you're a percent and a half off on the benchmark run on total cost, then your starting point when you then run the Staff model run is a divergence of one and a half percent in terms of cost; is that right?
A. It could be.
Q. Well, why wouldn't it be?
A. It could go the other way just as easy, I mean.
Q. When you say the other way?
A. It's based on just -- Okay. Let's go back to your statement. We're starting RealTime. Probably due to forced outages, RealTime is coming in one and a half percent less than your cost. So RealTime outages are probably going to keep it at one and a half percent. That's a reasonable assumption to make.
Q. All right. So our starting point right off the bat is that the variable production costs that Staff is going to be using are going to be in that one and a half percent range lower than AmerenUE's cost, right?

Page 102

A. No. You can't say that. Because I mean this was based on their forward price curve numbers. We've changed the forward price curve numbers. I mean I --
Q. I'm sorry. Go ahead.
A. I changed the way Rush Island forced outages were. And I'm sorry. I don't remember whether it was to get more out from them or not. I went back to the original, so perhaps I shouldn't have done that in retrospect, but I wanted to match the benchmark model. And the Staff one, I wanted to be as accurate as possible with the outages.
Q. What should you perhaps have not done in retrospect?
A. Maybe not have adjusted the Rush Island units and the benchmark run trying to get more output from them.
Going back to the original good -- what I call good outage numbers from GADS, I think it was the correct decision for the Staff model. There -- Yeah.
Q. Take a look at Page 26 of Exhibit 1 if you would, please.
A. Okay.
Q. Down at the bottom, you've got an e-mail from you to Leon Bender. Is Leon, Leon Bender?
A. Yes.
Q. You're asking him whether you should force the

Page 103

model to buy less, sell less -- Well, just tell me what it is you're trying to communicate to Mr. Bender.
A. I was asking him how close he wanted me to get to the Ameren numbers. And actually probably the difficulty in getting to the Ameren benchmark numbers is the variability in our forced outage schedules and they're probably never going to match.
Q. Once you take those forced outages and you put them into whatever month Staff gave you, then you're going to have this divergence, right?
A. Now you're putting words in my mouth. Only for Callaway did we do that. Forced outages occur in a random pattern in RealTime. I don't know how they occur in PROSYM so you can never tell exactly when a forced outage is going to occur or what coincidence --
Q. I understand.
A. -- of the different units are going to occur at the same time. So if for bad luck, you have a bunch of major units out at the same time, you're going to purchase more and obviously sell less in that situation.
Q. But part of that equation where the forced outages may not match up between Ameren and your benchmarking run are also what you did with Callaway, right?
A. Clearly, yes.

Page 104

Q. So part of it may be -- let's assume PROSYM also randomly assigns forced outages and RealTime does it and maybe the random results don't match up perfect, right; that's one point you were making?
A. They definitely don't match up perfect.
Q. So that's part of it. And part of it is also forcing -- if I can use the word forcing -- certain forced outages regarding Callaway into particular months; that would be part of the divergence, right?
A. It's clearly different from the way Ameren modeled Callaway, yes.
Q. It's different so the results are going to diverge because it's different, right?
A. Yeah.
Q. Do you need to take a short break?
A. No. I'm fine.
Q. Okay. Good. I'm okay for now myself.
Let's talk about Sioux a moment, the Sioux units.
A. Okay.
Q. Back in October when you were working on the benchmarking runs, it appears to me that you expressed a concern regarding whether AmerenUE actually ran the Sioux units as AmerenUE modeled it or whether that was just an assumption made on AmerenUE's part. Do you remember that?

Page 105

A. It wasn't an assumption. I wanted to know whether they actually ran the units the way the input said they ran the units or whether they were doing that for some modeling purpose.
Q. Right. Well, you wanted to know -- Well, okay.
You wanted to know if AmerenUE had made an assumption that that's how they should run for modeling purposes, as opposed to is that how AmerenUE actually ran the units?
A. Correct.
Q. And you were of the mind that if in fact that is how AmerenUE actually ran the units, then that is an appropriate way to model the units; is that fair?
A. That's a true statement. Whether that was my thought at the time or not, that's a good statement.
Q. So whether it was your thought at the time or not, if AmerenUE actually runs the Sioux units in X, Y, Z fashion, that's how you should model the Sioux units, correct?
A. For the benchmark run, correct.
Q. All right. How did you model the benchmark run? How did you model Sioux in the benchmark run?
A. I did not model it the way they did it, because I didn't -- it was either input from Staff or

Page 106

something. I don't remember exactly. So --
Q. So -- I'm sorry. Go ahead.
A. -- it didn't model -- I think the first four hours of the day, they reduced the capacity to 428. I think that's right. And they changed the fuel mix.
Q. So to the extent that AmerenUE actually ran the units in that fashion, then in the benchmark run, the correct way to have modeled it would have been to model it the way they ran the units, right?
A. Yes.
Q. And you did not model that way based upon direction from Staff?
A. We had several discussions on it. I can't remember exactly the give and take. But, yes, that's true.
Q. Because if it had been up to you, because that's the right way to model it in your opinion, you would have modeled it the way they ran the units?
A. Yes.
Q. All right. Isn't it true that you found out that indeed that is how AmerenUE ran the units, the way that AmerenUE had modeled them?
A. I don't know how they run the units.
Q. You don't know?
A. No.
Q. You still don't know to this day?

Page 107

A. No. I haven't checked. I had one conversation with Tim about it and I still couldn't tell whether it was an accounting thing or actually a running thing.
Q. You had quite a lot of back and forth with Staff about this whole issue about how we should be modeling Sioux; is that fair to say?
A. Yes, it is.
Q. You expressed concerns on several occasions about can Sioux really sell that much or generate that much and are we really modeling right. Is that generally a fair characterization?
A. Yes.
Q. You were asking them a lot of questions. Can we really assume that it's going to run differently than the way the company is saying they're operating it, right? You asked that question -- more or less asked that question several times?
A. Yes.
Q. And each time, Staff stuck with the position that, no, we're not going to model that way; we're going to model it the way we want to model it, right?
A. That's my understanding, yes.
Q. You did some calculations on Page 39 of Exhibit 1 that indicated to you that not modeling it the

Page 108

way the company -- I want you to assume for a minute the company does actually operate it in the fashion that Mr. Finnell has expressed to you and in the fashion that they modeled it. You made some calculation that not modeling it in that fashion in effect lowered the company's production cost by more than $10 million, right?
A. I have to read this. Hang on a second. You have to ask that question again.
Q. The calculations that are reflected in your e-mail to Greg Meyer -- is that an e-mail to Greg Meyer?
A. Yes.
Q. Where right underneath Greg's name it says: I put the Sioux capacity constraints in and the units do generate less than --
A. Yes.
Q. The calculations reflected there reflect a calculation that you did that indicate that modeling Sioux as Staff wanted you to model it, as opposed to the way the company modeled it, which Tim Finnell indicated to you which is how the company actually ran the units, was lowering the company's production cost by more than $10 million, right?
A. The profit increased by 10 million when you ran it the Staff's way.
Q. If the profit from off-systems sales increased

Page 109

by more than $10 million, then when you take into account those off-systems sales profits in your total production costs, your total production costs are going to go down by more than 10 million; is that right?
A. That sounds right, yeah.
Q. We talked about before we've got fuel, we've got purchase power, and we've got margins, and we've got to take those three things and that's where we get total variable production costs, right?
A. Yes.
Q. All right.
A. This was an early run I made and I made another set of runs which are also included in here that are actually better than these.
Q. When you say early, this was around November 29 or November 30, right, if you look at the e-mail above and below it?
A. Yes.
Q. It's a couple weeks before your testimony is filed, right?
A. Yes.
Q. On the next page, Page 40, Mr. Meyer responds to your e-mail, it appears; is that right? Is he responding, does it appear to you?
A. I would say so.

Page 110

Q. He's saying, I'm aware of Sioux plant modifications. And his last line says, I just want to make sure we get the benefits from the peak if we have to take the derating in the night.

Can you explain what that means to you?

A. No, I don't know what that means.

Q. And on Page 39, you go back a page, you're telling Greg Meyers at the bottom of that page: I would be inclined to go with Ameren on the Sioux reduced overnight capacities.

And part of that I think is based upon, if you go back up four paragraphs, you say: Tim's explanation was logical as far as I understand.

So what Tim had told you about how Sioux was being operated would make sense to you, right?

A. Yeah.

Q. And based on that, you're telling Greg Meyer, I'm inclined to go with Ameren on this. But then you say, I'm just a mechanic here, you guys are the drivers.

So essentially the guys who own the car in this analogy, Staff, are telling you, I want you to fix it this way, so do it that way, right?

A. We were doing the Staff run and the question wasn't whether -- it wasn't whether -- I'm volunteering information again -- it wasn't whether Ameren was running

Page 111

the unit that way at this point; it was whether it could be run another way and increase the profit to the company and decrease its bottom line.

Q. So you know by now that this is how AmerenUE is running the units?

A. I still don't know that, no.

Q. Okay. But that question was irrelevant by this point in the discussions with Staff; is that what you're saying? Staff didn't care how they were running it. Staff wanted you to model it based upon an assumed way of running the plant that might generate more megawatt hours, right?

A. A complex question. But in general, that's correct, yes.

Q. I'll try to make it a little simpler.

Staff was suggesting that -- Staff was saying, I don't really care if AmerenUE is running the plant based upon this particular coal blend, for example, or during these particular hours of the day. I want you to assume that it can be run this way. And the way that Staff was asking you to assume it could be run would generate more profit from Sioux, right?

A. The way Staff asked me to run the model would generate more profit from Sioux. However, the explanation that Tim gave me decreased profit from Sioux.

Page 112

Q. But the explanation he gave you was logical, right?

A. For what he explained. They were trying to save money, but perhaps they're wrong, so. I think Staff -- you have to ask Staff, but I think they're completely valid in exploring the possibility of let's run this unit differently.

Q. They didn't explore the possibility. Ultimately, they filed their case based upon it being run differently, didn't they?

A. I don't know.

Q. Well, you do know that. That's how your Staff model run that underlies your direct testimony --

A. But I can't tell you what's in their mind. But, yes, clearly.

Q. I mean the numbers you used, you supplied them that are in your direct testimony have Sioux being run in the way that would make Sioux more profitable, which is how Staff told you to run it, right?

A. That's correct, yes.

Q. All right. Which was against the inclination you had when you wrote this e-mail to Greg Meyer?

A. I don't know if I get to say things. But my reason was one less item to be different on, but that's not my call.

Page 113

Q. I understand. Were you principally communicating with Greg Meyer about the Sioux issue as opposed to John Cassidy?

A. Fifty percent of the time, I sent e-mails to both of them. Sometimes I forgot. I did not have a main -- one contact. I think I probably had more contact with John, but it's just a feeling.

Q. Now, we're back on, I believe, the e-mails we were just talking about were November 29, November 30, around that time frame, right?

A. Uh-huh.

Q. If you go over to Page 44 of Exhibit 1, I guess you'd have to look at Page 43. And you can see that your e-mails have got up to December 4, a few days later, right?

A. Yeah.

Q. I guess as we go deeper into this Exhibit 1, we're getting later into December, right, directionally?

A. What page?

Q. Page 45, we're at December 5 and 6, and Page 43, we're at December 4. So on Page 43 to 44, you're going through -- these are these 14 assumptions we were talking about before?

A. Yes.

Q. And you're kind of going -- it appears to

Page 114

me -- and correct me if I'm characterizing this inaccurately. It appears to me you're sort of verifying with John Cassidy that you got all the assumptions right according to those 14 assumptions, correct?

A. Yes. And this the best list of the 14 assumptions that I've seen.

Q. So this was maybe the one you were looking for before?

A. Yeah.

Q. And I'm not sure why -- you get down to the bottom of that e-mail and you sign it Michael. We're on Page 44 right before the dark black line that's horizontal on the page. I'm not sure why you have No. 9 out of order. But in that No. 9, despite the fact that a few days earlier, Greg Meyers essentially, it appears, told you do Sioux the way we've told you to do it, you're saying let's do all these other things first, make some runs, and then play with the Sioux capacity reduction scenario. So you're bringing the Sioux issue up again, right?

A. Yes, I am.

Q. Why are you bringing it up again?

A. This e-mail was in response to making sure that I'm doing the assumptions again. I think obviously assumption No. 9 must have had something to do with Sioux. So I said there, see below, which is why it's out of order.

Page 115

I think the decision had been made that we were going to use the capacity that the Staff wanted to use. I think I was volunteering to say we would make some Sioux runs later to see what would happen if we did reduce the capacity.

Q. Because you still have questions in your mind whether running Sioux the way Staff is asking you to run it is really going to work in the real world, didn't you?

A. I guess I did -- No. By throwing in the word real world in the end, the unit -- You can't say anything can you, Tim?

The unit -- somebody -- a troll doesn't come in at midnight and turn it down to 428. That's a voluntary thing Ameren -- how Ameren runs that unit, from my understanding. This is all my understanding. I think it's completely proper that Staff says we're not going to do that and let's see what the results are.

Q. Well, you had some questions in your mind about whether or not the economics at Sioux would really support the way Staff wanted you to model it?

A. I had questions.

Q. You had some questions.

And Mr. Finnell had explained to you there were economic reasons for why the Staff -- it wasn't a troll, but probably somebody in a control room that turned

Page 116

the unit down at midnight, right? Right?

A. I guess.

Q. That's probably how it worked?

MR. DOTTHEIM: I think Mr. Rahrer has answered your question.

Q. (By Mr. Lowery) And Mr. Finnell explained to you there was economic reasons for why the company was doing what it was doing, correct?

A. Mr. Finnell said the company could make more profit if they did that. Yes.

Q. Did you have an understanding that it had to do with higher costs of using more Illinois coal?

A. Yes.

Q. And so that's on -- I don't know. You're raising the issue again because of your concerns around the 4th, 5th, 6th of December. Then if we go over to Page 47 of Exhibit 1, at the bottom of that page, you're telling John and Greg despite the fact that the decision had already been made by Staff, that you're going ahead and working on and looking at the Sioux reduction, right?

A. You're talking about the one that says, John, dispatch --

Q. I'm talking about the bottom of Page 47, the line that says, I'm starting to work on the Sioux reduction now.

Page 117

A. I think I had told him earlier I would make some runs. We were trying to get out the Staff model and everything. I didn't have time to work on the Sioux runs, so I guess I was telling them I was going to start on some testing.

Q. And you point out to them on Page 47 above that, that if you use the blend that the company is telling you, they would be using dispatch costs or 77 cents per MMBTU higher, correct?

A. Correct.

Q. Which means the unit is going to be dispatch less -- dispatch cost is going to be higher?

A. That's not a true statement. If you're talking about meeting domestic load, sure. But if you're talking about making sales, false.

Q. Well, at least if you're talking about making sales, the margin on those sales is going to be smaller, correct?

A. That's correct, yes.

Q. And it may be that you're also going to make less sales?

A. That is true also.

Q. Can you explain the numbers that Mr. -- it appears that Mr. Cassidy is giving you at the bottom of Page 48, top of Page 49 in Exhibit 1? I say it appears to

Page 118

be Mr. Cassidy because whoever signed this e-mail is John on the top of Page 49.
A. I think I asked him the question what coal split Sioux are you simulating. That was for the Staff model.
Q. Okay.
A. He had given me one price for Sioux coal -- dispatch cost and one accounting cost for Sioux. So I wanted to know what percentage that was -- what he was simulating the percentage was.
Q. These are the numbers that are used in the Staff model run for Sioux then, it would appear, on the top of Page 49.
A. That looks right, yes.
Q. Okay. On Page 14, Lines 4 to 5 of your testimony, you indicate that within the Staff model run, you change capacities of coal units from the capacities used in the benchmark run to use the unit's actual monthly capacity. Am I accurately understanding what you said?
A. What line is that?
Q. Four and five on Page 14.
A. Yeah. That's -- Yes.
Q. Why did you do that?
A. I guess I thought it was right -- the right thing to do.

Page 119

Q. Why would it be the right thing to do?
A. Because that's the real capacity of the unit. And I don't know where I got that information, but I think they were generally -- I think they were probably higher than they were in the benchmark run, but I don't remember that for a fact.
Q. Which is going to cause your model to reflect a higher level of generation from the UE units than the benchmark run?
A. Yes. That's assuming that they went up.
Q. Okay. On the assumption that the maximum capacity -- wouldn't the maximum capacities have to be higher than the average as a matter of mathematics? I'm not a great math whiz, but...
A. Well, I got the average values from Ameren. Maybe I shouldn't have used the word average. But I got a value from Ameren for the monthly capacity of the unit. Then we changed those monthly capacities when we went to the Staff model. I'm not sure where I got those monthly maximums either, but I got them from somewhere in the data sent.
Q. Can you tell me what factors are important when determining when to schedule planned outages for a generating unit?
A. Sure. I would think load, your hourly demand

Page 120

in an off-peak part of the year. You would not want it to be coincident with other major units. Those are priority to me anyway.
Q. All right. Would energy prices have any relevance in deciding when to put planned outages?
A. Yes, but energy prices are usually reflected in hourly load.
Q. There's a correlation between load and energy prices, isn't there?
A. Correct, yes.
Q. Would what level of capacity reserves you might have if you put an outage in a particular place might be a relevant consideration, to maintain your reserves?
A. Sure, yes.
Q. Whether contractors are available to do all the planned outages you wanted to do a particular time, would that be relevant?
A. Of course. But I don't have any knowledge of that.
Q. Right. I'm just asking if those are things you probably ought to be thinking about when you decide where you're going to put a planned outage?
A. Right.
Q. And whether the maintenance personnel you need are going be to available; do you have enough of them to do

Page 121

all the planned outages you want to do at a particular time, right?
A. Yes.
Q. And you usually need equipment and materials to do -- when you're going to do planned outages to repair or replace the things you're going to work on, so you need to make sure you've got all those things, right?
A. Yes.
Q. All right. It's normal to spread outages among different major units between the spring and the fall, as opposed to scheduling all major units or a large number of your major units in one or the other, right?
A. I would think so, yes.
Q. Now, you moved the Callaway planned outage at Staff's direction from the spring to the fall, right?
A. Correct.
Q. And you moved it into November?
A. Yes.
Q. And I forget, and I'm sorry if you asked you this, but you were told to move it my whom, do you remember?
A. It was in one of those 14 assumptions. I think it was the very first or second assumption, and I don't recall who I got it from. I'm sure it was either Greg or John.

Page 122

Q. That was an assumption given to you pretty early on in your work?
A. That was early on in the beginning of the Staff -- of the Staff model.
Q. Once you were ready to do the Staff model run as opposed to the benchmark run, that's an assumption that's sort of been there from the beginning; move it from the spring to the fall and put it in November?
A. As I said earlier, I don't remember what order I was given these things. When I first started -- the list of 14 things came out later. That was more of a checklist to make sure I had done the things that they had requested earlier.
Q. Did you raise any concerns at all at any point in time with the Staff about moving that outage to the fall?
A. Not that I recall.
Q. And you didn't have any information about what UE's actual schedule called for?
A. No, I didn't.
Q. And I think you testified before you didn't know that the prior outage had been in the fall?
A. That's right.
Q. And that outages occur every 18 months; you didn't know that, right?

Page 123

A. That's correct.
Q. Do you know whether the energy prices that you used in the Staff model run are higher during the spring months when UE had scheduled the Callaway outages, than they were in the fall when Staff wanted you to schedule the outage or Staff had you in fact schedule the outage?
A. No, I never looked.
Q. Now, you moved the Callaway outage to the fall and particularly to November, but you didn't move any of the planned coal outages to another period, right?
A. Not actually true. We -- For an example, let's say Labadie 1 had an outage in March, March of '05. Since we're now simulating July '05 to June '06, I move the March '05 one to exactly the same time. I think I put them on a Monday, the same day of the week one year later.
Q. Well, you moved the spring Labadie outage to the spring of '06?
A. That's correct.
Q. But if Labadie was scheduled to be out, let's say, in November of '06 and you moved Callaway to November '06, you didn't move the Labadie fall outage away from the fall to another period, right?
A. No, I didn't.
Q. In fact if there's any outages of other major coal units scheduled in the fall to where you moved the

Page 124

Callaway outage, you didn't move any of those coal outages out of the fall away from the time of the Callaway outage, correct?
A. That's correct. But I'm going to -- not correct my earlier testimony, but one of the things they asked me was to put it in November and avoid other major outages. And I assumed they meant planned major outages and I believe I did that. That's why I didn't fall totally in November because I think I was jumping -- moving it away from some other unit outage.
Q. Well, take a look at Page 43 of Exhibit 1.
A. Okay.
Q. Look at Item 2. Isn't it a fact that you were not able to avoid the coincidence with some other major unit planned outages in November?
A. That's correct. I wasn't totally able to do that. What did I say? November 7. So I did keep it all in November. And I put it as far as I could into the month to limit the coincident outages with those Labadie units, Labadie 1 and Sioux 1.
Q. But Labadie 1 and Sioux 1 are going to go all the way into early December, right?
A. That's what it says.
Q. So you've got Labadie 1, Sioux 1 and Callaway all out at the same time in your modeling, right?

Page 125

A. That's what it looks like, yes. All the planned outages are also in this stuff.
Q. Do you recall what UE's schedule was?
A. For what?
Q. Planned outages.
A. I didn't change any of the UE except for Callaway. They were scattered in the spring and the fall, like you said.
Q. What did you do to verify whether it was reasonable or even feasible to have the coincidence of outages with Callaway moved into November?
A. I sent this e-mail to them and I asked them for their opinion.
Q. So you asked Staff if they thought it was okay?
A. Yes.
Q. Did you suggest to Staff that maybe they ought to ask the company for a data request or seek other information from the company as to whether it was feasible?
A. No. That's what they should do if they wanted to.
Q. You don't know whether they had any information that it was reasonable or feasible to have that coincidence with those outages, do you?
A. No, I have no information on that at all.

Page 126

Q. You don't know what the load levels were, whether or not the load levels would allow that number of outages all at one time; you don't know that, right?
A. The model did not under generate so I can assume that it handled.
Q. You don't know if there were contractors and other maintenance personnel available to handle all those outages?
A. Of course not.
Q. And whether there were materials and equipment available?
A. No, of course not. As you said before, that's what a model does. You can do things that don't happen to reflect reality. That's what you can do in a model.
Q. But of course if you know before you model something that something's not feasible, then you don't want to model that way if you've got that information, right?
A. That's generally the case.
Q. And if there's a fair question raised about whether or not perhaps something may or may not feasible, you might want to ask some questions or seek some information about whether it is feasible before you just go ahead and model it; wouldn't that be fair?
A. I did, yes.

Page 127

Q. Well, you did. You just asked Staff their opinion. But you don't know if Staff did any due diligence on that issue at all, do you?
A. As far as I know, they did or they didn't. I don't know. Was there a -- I'm sorry. I don't get to ask questions, do I?
Q. Now, we've already talked about the fact that Staff gave you particular dates and durations to simulate forced outages that you manually plugged into the RealTime model for Callaway, right?
A. Yes.
Q. The RealTime model includes with it -- includes within it the capability to randomly select forced outage periods and durations, right?
A. Yes.
Q. I mean, that's what you did for the coal units, correct?
A. Correct.
Q. That's a selling point of RealTime or any production cost model, that it's got the capability of doing that, right?
A. Yes.
Q. Manually inputting forced outages in a particular period for particular durations is not how you would normally model forced outages, is it?

Page 128

A. If you're doing a benchmark run, it is. If you're modeling the future, it is usually not.
Q. That's what we're doing here, right?
A. For the benchmark run, no.
Q. Well, for Staff model run we are, aren't we?
A. Yeah. As you said before, it's synthesized or processed, best guess of how this unit will perform in the future.
Q. Well, you design RealTime to randomly select the forced outages; that's normally how it's done, is it not?
A. Yes. However, you can set in your planned outage section, you can tell it to simulate a planned outage as a forced outage. That's the way you benchmark essentially the past. So if I had wanted to benchmark 2005, I would have asked for a list of all the actual outages for the units and I could then put them as planned outages.
Q. Do you have any knowledge about what the energy prices were that you used in Staff model runs in those months when Staff had you force outages at Callaway?
A. No.
Q. You're aware Callaway is the company's largest generating unit, right?
A. Yes.

Page 129

Q. You're aware, I believe you indicated before, that the company, based upon its actual operating experience at Callaway, essentially used a 94.5 percent Callaway capacity factor in each hour of the year in its modeling as its proxy for forced outages at Callaway; you're aware of that?
A. I didn't know the exact number. I know that they reduced their monthly maximum capacities to simulate their usage or whatever they do.
Q. Isn't that a reasonable way to simulate forced outages, based upon that actual operating experience?
A. I don't think so, no.
Q. Well, if it's not, which way would the error tend to go?
A. That's really hard to tell. As you said, that's what models are for. We can make a run and find out. I think the best way would be to treat it like a normal unit, put in your 18-month planned outages and use your GADS data to put in the forced outages and let it run.
Q. Let the model randomly select the forced outages; that's how you would really do it, right?
A. Yes.
Q. But based on Staff's direction, that's not how you did it?
A. Well, for the benchmark run, that was based on

Page 130

Ameren direction.
Q. But for the Staff model run, which actually reflects the production cost that Staff's using in this rate case, that's not how you did it, right?
A. That's correct, yes.
Q. How much spending reserve was used in your model?
A. 101 megawatts an hour.
Q. What's the model definition of spinning reserves?
A. Well, the way I ran it, it had to be spinning. So it had to be on-line. For example, Labadie 1 has a limit of contribution to reserve of 20 or some odd megawatts. So Labadie 1 would be running, let's say, 20 megawatts below its maximum capacity to be contributing to reserve.
Q. Are spinning reserves held constant each hour?
A. Yes.
Q. Do spinning reserves increase with load levels?
A. They can, but I did not model it that way. I did a constant 101.
Q. And the reason you chose -- That's a choice you can make?
A. Yes.

Page 131

Q. Why did you make that choice?
A. I just saw somewhere in the Ameren submissions, that 101 was their spinning reserve. I didn't see anything by hour or load or by daily peak or monthly peak or anything like that.
Q. Which units are assigned a spinning reserve?
A. I don't know. They're all coal units, but not all the coal units.
Q. Do you know how much was assigned to each of those coal units?
A. I can't tell you off the top of my head. I think the most was maybe 21 for a couple of units, 19 for some. In that ballpark.
Q. Those numbers came from where?
A. From Ameren.
Q. All right. Do off-system sales count as a spinning reserve resource?
A. No.
Q. All right.
A. You can tell the model to do that, but I did not.
Q. You didn't do it. And the reason you didn't do it was?
A. Nobody told me to, I guess.
Q. All right. Do you normally do it?

Page 132

A. It's up to the kind of contract how you're selling power.
Q. All right. Does RealTime consider the affects of transmission restraints on the company's ability to dispatch lowest cost resources?
A. No.
Q. Would transmission constraints reduce the megawatt hours available to sell off-system if they exist?
A. It's impossible to know. It's according to where you're selling it. If you've got a big buyer next to Callaway, you know, one mile away, maybe not. If it's on the other side of the state, maybe it would.
Q. But if there are some transmission constraints that don't allow you to get the power from the generator to the market where it needs to be sold, then those constraints are at some point going to reduce the megawatt hours you can sell, right?
A. Yes.
Q. And your model didn't consider that?
A. That's correct.
Q. Did you have occasion to discuss with Mr. Finnell why there exists such a disparity between the megawatt hours your model generated from UE's units, versus your benchmark run?
A. Not that I recall in the benchmark run. We

Page 133

had one conversation about the Staff run.
Q. Can you tell me about that?
A. I asked him which unit we're showing the greatest disparity between -- I don't know what they called them -- let's call them the Ameren staff -- between the Ameren staff run and the Staff run and he said it was Sioux by about 400,000 megawatts. And I don't think we got into any other units.
Q. Did you indicate to Mr. Finnell during a conversation that you thought most of the extra megawatt hours were a result of the removal in the Staff model run of the sales limits that AmerenUE had included?
A. Clearly they are. The fact that you're selling that much power, that's why they generate more, yes.
Q. Is it typical to remove all sales constraints when running a production cost model, to have unlimited sales?
A. Let me say that we don't have unlimited sales in RealTime. I up the capacity limit to 8,000 an hour. I just pick that number out of my head.
Q. That's a big number.
A. Yeah. Never came close to it. So that was good enough. You can't really set unlimited.
To answer your question, that is not -- that's

Page 134

not atypical. If you're interested in knowing what's the maximum you can sell, you clearly want your limit high. If you want to see what happens when you lower your limits – as you said, that's what models are for, for what-if tests.

Q. Effectively by setting it at 8,000 and based on your model, it never came close to it, that's like there was no limit, right?

A. Right. I just didn't want to say I set no limit on it.

Q. At some point, don't energy markets lack the depth to accept an unlimited volume of sales?

A. I would think so. But I don't know this market, so I don't know.

Q. Did you run various scenarios that related to the volume of off-system sales produced by your model?

A. Say that again.

Q. Did you run various scenarios that related to the volume of off-system sales produced by your model?

A. For the Staff run? For any run?

Q. Staff run, yeah.

A. No. From almost Day 1, that was one of the first things they wanted. So I raised the limit to 8,000.

Q. I believe the work papers that you provided reflected three runs, the benchmark run, the Staff run, which was Joppa with sales, right?

Page 135

A. Yes.

Q. And Staff run Joppa with no sales?

A. Yes.

Q. I don't think you discussed that last one in your testimony; is that true?

A. That's true. I don't recall discussing it.

Q. Why not? Why wasn't that discussed in your testimony?

A. I didn't think it was a deliverable product. I thought that Staff was just curious about it. I have no idea why they requested the run.

Q. You don't know why that was done?

A. No.

Q. What other runs, including draft runs, have you done -- and let's talk about Staff runs.

A. Okay.

Q. -- have you done since you were retained for the case? We talked about three. We have a benchmark, Staff run, and Staff run Joppa no sales. What other runs have you done?

A. The Staff run was Joppa with sales. I did every combination of that. I did Joppa with no sales; no Joppa, sales; no Joppa, no sales. That's of the Staff variation. Then I ran five runs for the Sioux fuel blend check and those were all with sales, I think.

Page 136

Q. Different Sioux fuel blends?

A. Yes, capacities and fuel blends.

And right at the end, I made, I think, eight more runs and I increased the forward price curve price by a certain percentage and some fuel cost by a certain percentage and then had the exact same run for the fuel cost and forward price curve reduced by the same percentage.

Q. You've done those pretty recently, right?

A. Yes.

Q. You've been asked to do those since the direct testimony was filed on December 15, right?

A. Yes.

Q. Have you ever done a without Joppa run?

A. Without Joppa without sales?

Q. Without Joppa at all?

A. Sure.

Q. Have you ever done it without Joppa without sales or without Joppa with sales?

A. Yes. Every one of those sets of runs except for the Sioux runs had two runs without Joppa. We had the Staff run Joppa with sales; let's say the next one was no Joppa, sales; no Joppa, no sales. Each one of those things there was a no Joppa run, yes.

Q. You've provided those runs to Staff?

Page 137

A. Correct, yes.

Q. To your knowledge, has it been provided to the company?

A. Yes. They're all right here. They were on the CDs I submitted.

Q. Like last week, that CD?

A. Yeah.

Q. So they're on there?

A. In both RTF form and spreadsheet form.

Q. Okay. I think we talked about a correlation between prices and loads before. Do you remember that?

A. Yeah.

Q. Would you agree that market prices and regional loads will tend to be higher during hot summer weather and lower during cooler summer weather, in a cooler period?

A. I have to think about it. Hang on.

Q. It's not a trick question. A really hot day, high loads, you're going to have high prices, aren't we?

A. Certainly.

Q. And we're probably going to have the opposite effect with opposite weather, right?

A. Unless you had a transmission line to South America, that's probably true.

Q. So regional prices and regional loads are

Page 138

going to be correlated?
A. Yes.
Q. All right. So it's hot in the region, it's hot in UE's service territory, UE's load is going to tend to be high and UE is going to have less capacity available to sell off-system, right?
A. Yes.
Q. So when market prices are high, UE's load is likely to be high. At the same time, we're probably going to have less off-systems sales during that period, even though we have high energy prices, right?
A. Yes.
Q. What happens if load is adjusted down through weather normalization; shouldn't prices also be adjusted to reflect normal weather so we match the loads and the prices?
A. Loads and prices should be somewhat correlated, I would think. So if you were adjusting load down, yeah, I would adjust price down.
Q. So if we adjust load down but we keep prices up at prices that would correspond to higher load levels, we're probably going to overstate off-systems sales margins, aren't we?
A. Your sales margin would be higher.
Q. Yeah. Your sales margin would be higher than

Page 139

it really would be because prices probably came down when loads came down, right?
A. Yes.
Q. Have you ever considered the shape of the power prices used in your model are consistent with the loads used in your model?
A. I didn't -- I might have considered it. But I never graphed it visually to confirm anything.
Q. You don't know whether the price shapes and load shapes match up because you haven't really analyzed that; is that true?
A. I've looked at the few days and you could see that during the on-peak hours, the price is higher than the off-peak hours. But have I looked at it all year? No, I have not.
Q. You didn't really perform any comprehensive analyses to confirm that loads and prices were properly correlated?
A. No.
Q. Did you perform any kind of analyses to test the reasonableness of the hourly off-system sales volume that your model generated?
A. What do you mean by reasonableness? Is it possible to generate that much sales, that level of sales? Yes.

Page 140

Q. Well, you've got a level of sales. Did you run any checks or do anything to see does that make sense, do those amounts look reasonable?
A. Other than just visual examination, no, I guess I didn't.
Q. Did you compare hourly off-system sales volumes to hourly loads?
A. I made one spreadsheet that had to do with cost, but it was 8,700 hours. So I didn't do enough looking at it to --
Q. That's really not enough to tell you if those match up, right?
A. True, yes.
Q. I think in response to DR TDF-Staff-17, you described a variety of analyses performed to confirm that the results from RealTime were free from error. Do you remember that?
A. Yes.
Q. What made you conclude that the RealTime benchmark costs were within a reasonable margin of AmerenUE results?
A. I didn't conclude it. I gave the results to Staff and that was up to them to conclude. I mean, I could have -- I guess they could have asked me to do something else in the model, but they didn't. I assume that the one

Page 141

and a half percent was acceptable to them, but I don't know what they thought.
Q. Now, the load you used, you're sure that you used the normalized load tab, not the weather normalized load tab. You're not really sure what that normalized load data reflects though, right?
A. I'm sure I used it, but I don't know --
Q. You don't know if it's weather normalized or not?
A. That's correct. The tab on the worksheet said something like normal.
Q. You know it's some normalized load corresponding to the test year period though, right, those 12 months ending June 30, '06?
A. Right.
Q. They're not load years for calendar year '05?
A. Right.
Q. And they're not loads over a period '03 to '05, right?
A. I don't know where they got their loads. They gave me loads for July 1, '05 through June 30, '06.
Q. Right. Which aren't loads from '03, '04, and '05. They're for that 12-month period, right?
A. Right. But I don't know -- they might have added those together and divided by three for all I know.

Page 142

I just know where they got the data. I just know what tab I used.
Q. All right. Would it surprise you if in fact the price shape that was used in your model reflects average prices from 2003 to 2005, not a 2005 price shape?
A. I have no idea where they got those prices from.
Q. Well, were you assuming that the price shape was from particular prices from a particular period when you ran your model?
A. I was originally assuming that they were giving me price for the 12 months starting July 1 --
Q. The right way to do it would have been to have loads for a particular 12-month period and prices from the same 12-month period, correct?
A. I agree, yes.
Q. All right. And if that's not the case, then we've injected potentially a problem in our modeling results, have we not?
A. Yes.
Q. In fact, I think you raised a concern about this very issue, didn't you?
A. Yes, I did.
Q. Did you get your concern answered?
A. The Staff instructed me what to do.

Page 143

Q. The Staff said, don't worry about your concern, use the loads and use the prices we gave you, right?
A. Yes.
Q. So you did discuss with people at Staff the issue of the consistency of the load shape used in your model versus the price shape used in your model?
A. Yes.
Q. What did they say? I mean I paraphrased what they said and you agreed with it, but who did you talk to about it?
A. I don't remember who I talked to. My concerns were not their concerns.
Q. They didn't share your concern?
A. That's correct.
Q. Fair enough.
A. Actually, I cannot say that. They might have been concerned as all get out.
Q. But they didn't ask you to change anything or give you different data that would have addressed the concern, did they?
A. That's correct.
And within the next five minutes, I need a break.
MR. LOWERY: Why don't we do it now.

Page 144

(Whereupon there was a short break.)
Q. (By Mr. Lowery) Can you demonstrate or show me we how we know that your model is using dispatch prices and not averages prices when making off-system sales? Is it using the dispatch prices?
A. Yes, it is.
Q. How can we see that; is there a way we can verify that?
A. You can look at the hourly -- well, you can look at the results and see that we're using accounting costs in the final results. But you have to look at the hourly output to determine it's using the dispatch cost.
Q. Is -- Are there some reports that we could look at that would show that? Are those the reports that you prepared within just the last week or two?
A. The reports are extremely lengthy and I put them on the CD.
Q. So that information is on the CD?
A. Yeah. You essentially look at the -- on the hourly output, that's all we have is the dispatch cost.
Q. UE's modeling dispatch has the units variable O & M costs are included in the dispatch price. Is that true in the Staff model run for RealTime?
A. Yes. But they're not included in the accounting cost, not included in the final cost of the

Page 145

model.
Q. Okay. I don't know if you'll be familiar enough with this and I guess I can show you on the computer if we need to. Do you know whether subfolder 9A in your CD include the results of your sensitivity run where fuel and electric power prices are reduced by certain percentage factors relative to the Staff run and as requested by Dr. Proctor?
A. That's my remembrance. 9A was the reduced and 9B was the increased.
Q. For the Joppa run, off-system sales margins were approximately 275 million, do you know?
A. I can't remember that.
Q. Okay. And subfolder 9B contains sensitivity runs for fuel and electric power prices are increased by certain percentage factors?
A. Yes.
Q. All right. Were you asked to perform sensitivities for gas and on-peak prices increased, but coal and off-peak prices remained unchanged?
A. No. I cannot -- No. The answer is no.
Q. You don't think so.
Were you asked to perform sensitivities for coal and off-peak prices increased, but gas and on-peak prices remained unchanged?

Page 146

A. No. The only sensitivity I was asked to do are those ones in 9A and 9B.
Q. Okay. Fair enough.
If you look at Pages 19 and 18 of Exhibit 1, the sensitivities we just talked about that are reflected -- the results of which are reflected on 9A and 9B, those are the sensitivities that were being discussed on Pages 19 and 18 of Exhibit 1?
A. Correct, yes.
Q. Mr. Rahrer, I take it you've never worked for a utility?
A. Correct.
Q. Have you worked for a governmental utility regulatory agency?
A. No.
Q. You're not an engineer?
A. No.
Q. You're a computer science background, right?
A. Yes.
Q. So you've never actually been involved in making decisions about dispatching and actual generating unit or group of units, right?
A. That's true.
Q. You haven't been involved in planning transmission systems?

Page 147

A. I have not.
Q. In determining the capability of transmission systems or generating units, right?
A. No.
Q. Have you ever been responsible for model production costs for the purpose of a utility or business actually using those to make business decisions, as opposed to something like this?
A. Well, I assume when I make a run for a client, that's what they want to do, for a business decision.
Q. Okay. So some of the clients you have ask you to run your model so they can take that information and use it and make some decisions from it or you think that's what they're using it for?
A. Yes.
Q. You never bought or sold energy, been a power trader or marketer or anything like that?
A. No.
Q. Can you tell me what you understand security constrained economic dispatch to mean?
A. No idea.
Q. No idea. All right.
Have you ever run your RealTime model for the purposes of providing testimony in any kind of legal proceeding other than a regulatory proceeding?

Page 148

A. Yes.
Q. What was that?
A. I only helped with this. It was some years ago. I think the company was Putnam, Hayes and Bartlett, something like that. They were a consultant with the Peach Bottom nuclear case when the Peach Bottom units -- one of their units was shut down because of people reading comic books and that kind of stuff.
The other partners in the PGM interchange district, they wanted to sue for damages and they wanted to find what was the cost for that unit being out for 18 months or whatever and they used RealTime for that.
Q. Okay. You didn't testify in that case?
A. No.
Q. Well, I know you weren't deposed; you haven't been deposed before today?
A. It was settled.
Q. All right. Have you ever run your RealTime model for a state regulatory agency before?
A. Only to the extent maybe every once in a while, I'll help the Missouri Staff make a run.
Q. Other than Missouri Staff?
A. No.
Q. All right. Was Mr. Bender correct in 2002 when he testified in his deposition in that case that no

Page 149

other state regulatory agency uses RealTime?
A. That's true.
Q. Is that still true?
A. Yes.
Q. What regulated public utilities use RealTime, do you know?
A. I don't know what you mean by regulated. Aquila. There's a co-op, Lafayette Utility Systems, Lafayette, Louisiana. There's Holy Cross, which I think is a co-op in Colorado somewhere. There's the Staff. Of course, they're not regulated.
Q. Let me ask this: How many current installed RealTime licenses do you have?
A. I think it's 12.
Q. Twelve. Okay.
A. I gave a list of the cases in the Empire. I think there's a couple since then. So it should be in my testimony someplace.
Q. What version of -- RealTime has versions, I assume, like everything else?
A. Yes.
Q. And what version did you use in this case?
A. 8.34.
Q. And did you use the same version for all the simulations?

Page 150

A. Yes, I did.
Q. MLR Group, Inc.; where did the name come from?
A. My initials; MLR.
Q. Got you. It's a Florida general business corporation, right?
A. Yes.
Q. You have two employees; is that right?
A. Well, my wife is a board member, but I'm the only employee.
Q. You're the only employee?
A. Yes.
Q. So you run the business out of your home in Delray Beach?
A. Yes.
Q. What's the MLR Group's annual gross revenue?
A. Well, it varies. About $110,000 in 2006.
Q. How many products does the MLR Group sell? I think you sell some other product besides RealTime, right?
A. No. RealTime is the only one I sell that I own. I maintain some products for some people. There's a product called Ramp-Up which I maintain for PA Consulting, which has all the hourly information for the generating units in the country. I do some things that don't relate at all to energy.
Q. Within MLR Group?

Page 151

A. Yes.
Q. Can you break down your gross revenues by RealTime the model itself, whether it's selling the model or selling updates, versus consulting or things like this, versus these other things you do like the Ramp-Up or whatever else you do? Can you give me a reasonable breakdown what the average would be on an annual basis?
A. Last year it was probably 40 percent RealTime. And earlier years, it might be a third of the business.
Q. 30, 40 percent is RealTime, and the rest is these other things, in general?
A. In general, yes.
Q. All right. Over the course of a year, how many hours on average each week do you dedicate to the MLR Group's business?
A. At least full time. At least 40 hours a week.
Q. So your wife really doesn't --
A. No.
Q. -- do anything?
She's on the board?
A. She's on the board. Yeah.
Q. All right. So for RealTime, you have about 12 ongoing customers?
A. I don't know how active they all are. But, yes. Over the years, like I said, I wasn't involved in

Page 152

sales. Probably had 20 to 25 total sales. Some companies I know don't use it anymore.
Q. So you over the years since RealTime's been around, you've sold about 20 to 25 licenses?
A. Yes.
Q. And about 12 of those are current now?
A. Yes.
Q. And of those 12, maybe some of them aren't actively using it?
A. Yes.
Q. Have you ever run another production cost model besides RealTime?
A. No.
Q. Are you familiar with Global Energy Decisions, that company?
A. The adjective or the company? No, I'm not.
Q. You're familiar with the PROSYM model?
A. I've heard of it, yes.
Q. Do you have familiarity with it other than the fact that Ameren used it in this case?
A. No.
Q. All right. You don't how many large utilities and regulatory commissions use PROSYM?
A. No.
Q. Do you have any criticisms of the PROSYM

Page 153

model?
A. It's impossible to criticize unless I know something about it. I'd like to learn something about it.
Q. All right. Is RealTime capable of accepting hourly costs for various inputs like fuel cost, emissions cost, variable O & M, startup cost?
A. Too many questions. Fuel cost, yes, we take hourly cost. Startup cost, no, you can't. What were the other ones?
Q. Emission costs.
A. You can put in a cost of emission allowances or penalty for emissions, but you can't put it in on an hourly basis.
Q. What about variable O & M?
A. No. You can change it as frequently as daily, but that's not often done.
Q. Other than fuel costs, are there any other inputs that RealTime can take on an hourly basis, key inputs that you need to simulate the system?
A. Sure. Hydro generation, purchase and sales; the cost of purchase and sales; load, obviously.
Q. Other than load data, which we don't know if it was weather normalized or not I guess at this point. It was normalized somehow apparently. Did you use any other data in your Staff model run as inputs that you considered

Page 154

to have been normalized?
A. Not that I am aware of. Like I said, I don't know where the forward price curve numbers came from.
Q. When I use the term normalization, do you have an understanding of what I mean by that or what's your understanding of that term?
A. That you've somehow changed it to take things into account so that the variations are limited. But other than that...
Q. You're trying to take particular input and use information that would reflect normality for whatever period, as opposed to something that isn't normal. Is that a fair definition?
A. I don't know.
Q. That's fine. That's fine.
Do you know what the phrase known and measurable means in the context of utility rate making?
A. No.
Q. RealTime is capable of producing the hourly output in megawatt hours for each generating unit that's being modeled, right?
A. Yes.
Q. Now, initially -- Let me back up.
In order to do that, I assume, and you can tell me if I'm wrong, but I assume that in order to do

Page 155

that, you can choose to have RealTime produce that information, right --
A. Correct.
Q. -- from a particular model run or you can chose not to?
A. Yes.
Q. Click a mouse or something probably or check a box and it will either do it or it won't, right?
A. Yes.
Q. Is there some reason you didn't check that box initially in this case?
A. Yes. It slows the model down and it creates huge files.
Q. I think you said you could do a model run in about 15 minutes once you got it all set up. So how much does it slow the model down.
A. It probably doubles it.
Q. So 30 minutes?
A. Yes. But like I said, is creates huge files.
Q. When you run simulations for these various clients, do you create those hourly output files more often than not?
A. When I'm first creating the data set, I create them for some limited period of time just to check to see that the values I entered have been entered -- excuse me --

Page 156

entered correctly.
Q. I take it that of the various inputs that you were given from Staff for the Staff model run, you didn't do any independent verification about where they came from, were the data sources accurate, are they the right information from the right periods, you just used what Staff gave you as inputs; is that right?
A. Yes.
Q. In every instance? Any exceptions to that?
A. Well, you already asked me about the case of Joppa, how I decided to spread out the Joppa, so in that case, I --
Q. You made a decision?
Can you think of any other decisions you made affecting the inputs?
A. If they gave me input, I used it exactly as they gave it to me.
Q. All right. Did you check, for example, unit starts that you modeled versus actual unit starts for any particular period?
A. I think I checked the main units and that's all, the coal units.
Q. Did you check outage rates? I may have asked you some of this before and I apologize if I did.
A. I may have looked at outage rates. But the

Page 157

way PROSYM and RealTime do outages, it makes it difficult to compare.
Q. What about hot and cold starts?
A. For the major units, I did look at those, yes.
Q. What about hourly unit generation to determine hours at full load?
A. No, I didn't see that.
Q. Same question regarding to determine hours at minimum loads, didn't look at that?
A. No.
Q. Did you look at average heat rates, model versus actual?
A. Yes.
Q. Did you compare the distribution of forced and partial outages through the year model versus actual?
A. No.
Q. Did you take a look whether or not for any unit the Staff model run generated more megawatt hours from that unit than the unit ever generated?
A. No, I don't know how much the units have ever generated.
Q. I think you're going to tell me you do know what coast up and ramp down means?
A. I know what ramp up is and ramp down.
Q. Ramp up. Okay. I use the term coast up. You

Page 158

know what ramp up and ramp down means?
A. Yes.
Q. Does RealTime take that into account?
A. It does.
Q. And it took it into account for Callaway for example?
A. It took into account ramp up, but not ramp down. It can ramp down instantaneously. RealTime does have the capability of ramping down; I didn't use it.
Q. So you assume that units can come down instantaneously in your model run?
A. Yes.
Q. Do you know whether in fact that's the case with all the generating units?
A. No, I don't.
Q. Do you know if there's a difference between ramp up at Callaway after a refueling outage versus ramp up after a forced outage?
A. No, I don't. I didn't see that information in anything that was supplied.
Q. But the model didn't take any such difference into account?
A. No.
Q. Does RealTime model all hydro units the same; pump through, pump storage, run a river, ponded, are they

Page 159

modeled the same?
A. You just asked several questions. You can run -- you can model a hydro unit as either run a river or pondage and that's the choice.
Q. Did you -- And of course UE has different kinds of hydro units, right?
A. Correct.
Q. Did you model them according to the type of unit they are?
A. Yes. Keokuk was run a river or however you say it. And Osage was pondage.
Q. Does your model take fuel quality load reductions into account?
A. I don't know what you mean by that.
Q. Well, different quality fuels may allow the unit to operate higher loads or lower loads. Like lower quality fuel, maybe it's going to operate at a lower load. That's what I mean. So does your model take that into account?
A. It can, but it didn't.
Q. It can, but it didn't take that into account?
A. Right.
Q. Your model tends to run each unit at the maximum capacity that's input or in fact that is how your model modeled the system in this case; is that right?

Page 160

A. Definitely not.
Q. Okay. What did the model in the Staff model run, what capacities did it run the units at?
A. Variable capacities. You mean maximum capacities? You're talking generation of maximum capacity, one's a capacity and one's a generation number. You can't generate more than the maximum capacity, but you can generate below it. So you need to ask that again, I guess.
Sorry. The cold weather is sort of affecting my throat.
Q. It's a shock to our system too and I'm sure it was a shock to yours.
Could there be an equipment problem at a unit that does not cause an outage so it doesn't show up in forced outage rates, but loads are reduced nevertheless?
A. Sure. But the GADS data should show it, should show reduction in maximum capacity.
Q. Did your model model partial outages?
A. Yes.
Q. Did it model derates?
A. I consider partial outages a derate, so...
Q. All right. Did your model take into account the cost of starting up the unit?
A. Yes, it did.
Q. How does it do that?

Page 161

A. It has several values for hot and cold. One of them is a labor cost and one of them is a fuel cost and it adds up the cost and it has a factor called start spread factor, which it uses to come up with sort of a penalty which it adds into the normal dispatch cost to keep it from being committed unless the next dispatch cost in order is greater than the normal dispatch cost, plus the penalty of starting up. That's also explained in the user manual.
Q. Does whether or not a unit is a must-run unit affect the startup cost?
A. No.
Q. What is a must-run unit?
A. In RealTime, a must-run unit is a unit that if it's available, it will run at or above the capacity that's specified as the must-run capacity.
Q. What units are must-run units in the Staff model run?
A. I believe all the coal units in Callaway. I think that's right.
Q. Does the model take boiler characteristics into account?
A. No.
MR. LOWERY: Steve, if you could give me five or ten minutes, I think I can wrap this up.
(Whereupon there was a short break.)

Page 162

Q. (By Mr. Lowery) Mr. Rahrer, we were talking a little bit earlier about how you could demonstrate that your model was producing dispatch prices and not average prices when making off-system sales, right, and you said it did?
A. Yes.
Q. And that variable O & M were included in the dispatch price, right?
A. Yes.
Q. Just to help us out, I've got -- and we can try to look at this together. I've got your CD pulled up here on my computer. Could you get us right to the files you were talking about before that we would need look at for that verification. And just feel free to click away. Which folder did you go into?
A. 8A.
Q. 8A. You went into 8A. Then which subfolder did you go into?
A. Staff run, 8A Staff run.
Q. Okay.
A. On every CD, I put a table of contents. So if you go to the contents file, it will show you where everything is. This one right here, all hours, so this is all the hourly information that could be produced. Let's look at this one. That's not it; it must be something you

Page 163

were looking at. It's big. We don't need to see it all.
MR. BENDER: You might want to turn off the calculations now. Oh, I can't speak here.
A. Looking at the first hour is not the best in the world, so I'm going to go down and look at the second hour.
Q. (By Mr. Lowery) Just as an example, we're looking at the ALLHR01.cvs file?
A. It stands for all hours. This is all hourly data, iteration number one. I'm not an Excel expert. Let's make these columns a little bigger.
Okay. This is for the second hour of the year July 1. You purchased 160 megawatts from this APL contract. That's standard. 384 megawatts from the Joppa unit. This particular hour, we sold 2,044 megawatts. Got 102 from Keokuk, 1,197 from Callaway. Here's the Labadie 1. So I think we can do the calculations with Labadie 1 if you'd like to.
I'll scroll down just a little bit. The -- this number is the fuel dispatch cost, but it does not have the variable O & M in it, even though I am definitely dispatching the variable O & M.
On this particular report, which was made originally -- essentially sort of looking at the internals of the model, it was easy to subtract out the variable O &

Page 164

M if that was the option to not put the variable O & M in the final cost. But it was not easy to show the accounting cost here, so this is the dispatch cost.
This number right here is -- let me get this right -- this is the amount of primary fuel that it used in MMBTU, 5,792. So you need to take 5,792 times the dispatch cost, divide it by the current generation, which is 573, and that will give you 12,256.
I also provided two other hourly files. I think you requested -- there was one hourly file showing only generation which included sales and purchases. And the other file like it was the cost, the hourly -- or dollars per megawatt cost.
But this particular file has everything. I actually included -- I think in the table of contents or someplace, I told you what each one of these columns was.
Q. All right. Thank you. Just a few more questions, I think.
Other than things that we've talked about in this deposition here today or that are talked about in your direct testimony, were there any other assumptions or parameters or modeling methods that you used in either the benchmarking or Staff model runs in this case that were outside or different than how you would normally run your RealTime model?

Page 165

A. I don't believe -- The answer is no, I don't believe so. I tried to take every most manila assumptions that I could for the model and I used -- all the assumptions were the same -- I'm not talking about data assumptions. I mean the way the model was run was the same from the benchmark to the Staff run.
Q. All right. We benchmarked to a UE model run which was different than normal. And you had forced outages at Callaway, that was different than how you would normally do that. Those were two particular areas that were different. Anything else like that?
A. That I would normally run?
Q. A different way of handling inputs or assumptions or a different way of running the model that we haven't talked about?
A. That we haven't talked about. That's a very broad question. None to my recollection.
Q. To the best of your recollection, you can't think of any?
A. Yeah.
Q. Fair enough. Have you spoken with any Ameren employees or representatives other than Mr. Finnell regarding this case?
A. No.
Q. Do you remember how many times you've talked

Page 166

to Mr. Finnell?
A. I believe twice.
Q. And have we recounted the sum and substance of those conversations today or were there other things discussed we haven't talked about, if you recall?
A. I don't recall. The first conversation was about Sioux, I believe that's right, the way they run the units. The second conversation, he called me and was asking some generic questions about the model. And we also got into the fact that the RealTime Sioux generation, that was the largest disparity between his staff run and the Staff run. The conversation was longer than that, but I don't remember what else was discussed.
Q. Do you have any documents from Ameren other than filed testimony and work papers that were supplied to you in connection with this case?
A. No.
Q. Or data request responses that maybe the Staff has sent to you that the company gave to Staff?
A. Do I have anything other --
Q. Other than those things?
A. Definitely no.
Q. Do you have any other opinions other than those expressed in your direct testimony or that we've talked about here today about the appropriate level of

Page 167

variable production costs for AmerenUE that should be used in this case?
A. Ask it again.
Q. Do you have any opinions other than those expressed in your direct testimony or that we've talked here today about what the appropriate level of variable production costs should be for AmerenUE in this case or how modeling a variable production cost should be done?
A. The first answer to your question is definitely no. We've never discussed what the proper level should be for Ameren.
Q. Don't have any opinion at all about that?
A. No opinion at all.
Q. And in terms of the propriety of AmerenUE's modeling versus Staff's modeling versus the benchmark modeling, any opinions that aren't expressed in your testimony or that we've talked about today, any other opinions?
A. Concerning the production --
MR. DOTTHEIM: Excuse me. As far as any rebuttal testimony that Mr. Rahrer is planning to submit, I would object to him going into any discussion as I've previously done in any discussion of rebuttal testimony as being inappropriate.
So, otherwise, I would instruct you to answer

Page 168

the question.
A. I don't have -- I don't know what Ameren's production costs should be. I don't have any opinion of it, whether it's right or wrong.
Q. (By Mr. Lowery) Without telling me what opinions you may intend to give, given Mr. Dottheim's objection -- which for the record, I think again is invalid, but I'm not going to take it up with the judge -- have you been asked to give other opinions by the Staff in this case at this point in time?
A. About?
Q. Anything about the case.
A. No.
MR. LOWERY: All right. I don't have anything else. I think Mr. Dottheim is going to do some redirect.
Before I forget about it, waive presentment but read and sign?
MR. DOTTHEIM: Yes.
MR. LOWERY: Thank you, Mr. Rahrer. Unless Mr. Dottheim asks a question that prompts me to ask a question, those are all my questions today.
(Whereupon there was a short break.)
[EXAMINATION]
QUESTIONS BY MR. DOTTHEIM:
Q. Mr. Rahrer, I've just got a very few number of

Page 169

questions for you based upon Mr. Lowery's questions earlier this morning.
I'd like to show you what's been marked Exhibit 2, Rahrer, for purposes of the deposition. Mr. Rahrer, can you identify that document?
A. No, I can't.
Q. Okay. You haven't seen that document previously?
A. Not before today. Not until today.
Q. Mr. Lowery asked you a number of questions earlier this morning about the existence of actual data for benchmarking. Do you know whether actual data exists for benchmarking?
A. No, I don't know whether it exists. From Mr. Finnell's testimony, he said he made a benchmark model. So I don't know what he used for that. But I can assume -- one might assume he's got something, but I have no knowledge of it.
Q. As a consequence, do you know whether the data that Mr. Finnell used included data respecting the joint dispatch agreement?
A. I do not know that.
Q. Mr. Lowery asked you a number of questions about your provision of hourly output data. A couple of weeks ago, you provided, did you not, hourly output data

respecting the Staff's model run?
A. Several weeks ago?
Q. Yes, approximately. Data -- hourly output data that you generated over the January 9th/10th weekend?
A. That's for this. I mean I don't have the time frame exactly right. I did generate hourly output at the request of Staff for the Staff run.
Q. Which was provided to the company, do you know?
A. Are they the company?
Q. Yes. I'm sorry. To AmerenUE.
A. Yes, it has been provided to AmerenUE.
Q. And that hourly output data, that involved 16 iterations?
A. Yes.
Q. And, again, it was hourly output data for the Staff model run?
A. Correct.
Q. And did you provide a conversion for the 16 iterations?
A. I don't know what you mean by conversion.
Q. Did you have to translate that data in some format for the company?
A. Yes. I had to make -- Yes, I did.
Q. Again, when I say the company, I'm referring

to AmerenUE.
Could you indicate how many hours you spent generating that hourly output data and translating that data for the Staff model run?
A. Probably between four and five hours.
MR. DOTTHEIM: Okay. One moment, please. That's all I have.
MR. LOWERY: Nothing for me.
(Whereupon signature was reserved.)

CERTIFICATE OF REPORTER

I, Sheryl A. Pautler, Certified Shorthand Reporter, Notary Public within and for the State of Missouri, do hereby certify that the witness whose testimony appears in the foregoing deposition was duly sworn by me; the testimony of said witness was taken by me to the best of my ability and thereafter reduced to typewriting under my direction; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken, and further that I am not a relative or employee of any attorney or counsel employed by the parties thereto, nor financially or otherwise interested in the outcome of the action.

_____
Notary Public within and for
the State of Missouri
My commission expires April 10, 2009.

I, MICHAEL RAHRER, do hereby certify:
That I have read the foregoing deposition;
That I have made such changes in form and/or substance to the within deposition as might be necessary to render the same true and correct;
That having made such changes thereon, I hereby subscribe my name to the deposition.
I declare under penalty of perjury that the foregoing is true and correct.

Executed the _____ day of _____, 20___, at _____.

_____.
MICHAEL RAHRER

My Commission Expires: _____
Notary Public: _____
SP/Michael Rahrer
In the Matter of Union Electric Company d/b/a AmerenUE for Authority to file Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area

Errata Sheet
Witness: Michael Rahrer
In Re: In the Matter of Union Electric Company d/b/a AmerenUE for Authority to file Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area

Upon reading the deposition and before subscribing thereto, the deponent indicated the following changes should be made:

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Reporter: Sheryl A. Pautler

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January 17, 2007

Mr. Steven Dottheim
Public Service Commission State of Missouri
200 Madison Street, Suite 800
Jefferson City, Missouri 65102-0360

In Re: In the Matter of Union Electric Company d/b/a AmerenUE for Authority to file Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area

Dear Mr. Dottheim:
Please find enclosed your copy of the deposition of Michael Rahrer, taken on January 16, 2007 in the above-referenced case. Also enclosed is the original signature page and errata sheets.

Please have the witness read your copy of the transcript, indicate any changes and/or corrections desired on the errata sheets, and sign the signature page before a notary public.
Please return the errata sheets and notarized signature page to Mr. James B. Lowery for filing prior to trial date.

Thank you for your attention to this matter.

Sincerely,

Sheryl Pautler

CC: Mr. James B. Lowery

ERRATA SHEET

Deposition of: Michael Rahrer

Case Caption: ER-2007-0002

Date Taken: 1/16/2007

Page	Line	Correction	Reason
11	1	know if it was going to happen or not. It may have been Leon	typographic
19	21	I know that you guys are asking for a rate	Typographic/transcription
25	12	model. We're talking maybe 30 minutes to an hour. The	typographic
26	2	There were four people. John Cassidy, Greg	Typographic/misspoke
28	16	dispatch price. RealTime generates internally the	transcription
30	2	production cost should be. But, yes, to the first part of the question again.	Transcription/typographic
54	5	No. I wrote a small program to randomly place the Callaway outages throughout the year. With three caveats, one is that no outages were placed in the summer months (June through August), two is that no outage can be within 24 hours of another Callaway outage and three, that one specific outage occur starting on a Friday for the whole weekend. Staff only supplied me with outage durations and the reduced capacity during the outage.	I made an error in my original answer. At the time, I thought I remembered Staff giving me the outage dates, but when I reviewed my notes while going over my deposition, I realized I had made a mistake.
55	20	No, I didn't. I believe the previous 2004 Callaway outage was in the spring.	To complete my answer.
69	19	I guess if they wanted to, but I don't know	Transcription
75	12	Correct. But going into the future, you can't	Transcription or I misspoke. There cannot be actual dates for forced outages in the future as their occurrence is unknown

101	17	Your statement. We're talking about RealTime. Probably due to	Transcription or I misspoke
127	11	Yes and no. Staff gave me the outage durations and I wrote a program to assign the outages randomly throughout the year, but not in the summer months.	I made a mistake in my answer. Please refer to previous explanation regarding my review of my notes.
130	6	How much spinning reserve was used in your	transcription
133	20	In RealTime. I upped the capacity limit to 8,000 an hour. I	Transcription
142	1	I just know where I got the data. I just know what tab	Transcription or I misspoke
148	9	The other partners in the PJM interchange	typographic
161	18	I believe all the coal units and Callaway. I	Typographic
165	2	believe so. I tried to take every most vanilla assumptions	transcription

/s/ Michael Rahrer

Signature

STATE OF MISSOURI)
)
COUNTY OF COLE)

In the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area.

Missouri Public Service Commission Case no. ER-2007-0002

I, MICHAEL RAHER, do hereby certify:

That I have read the foregoing deposition;

That I have made such changes in form and/or substance to the within deposition as might be necessary to render the same true and correct;

That having made such changes thereon, I hereby subscribe my name to the deposition.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 9 day of MARCH, 2007.

Notary Public

My commission Expires:

MASHALLAH C. IZADI
Notary Public - State of Florida
My Commission Expires Jan 2, 2008
Commission # DD247149
Bonded By National Notary Assn.