I do not know.

Q. And my understanding is that as of the Staff filing, the Staff believes that the excess earnings are in excess of $200 million a year.

Given that level of excess earnings, would it be fair to say that the Staff believes that there were excess earnings leading up to the time that the complaint was filed, at least for some period of time?

A. Most likely for some period of time.

Q. But you can't say whether it's for the whole period of the EARP or one year or three years?

A. No, I could not make that assumption.

Q. Okay. And is the opinion that there were overearnings leading up to the time the complaint was filed, is that a position that other members of the Staff have communicated to you at all?

A. It was a determination made by the work of several Staff members, yes.

Q. Okay. But not just on a going-forward basis; also -- I understand by virtue of the complaint being filed the Staff is saying as of that very moment AmerenUE is in an excess earnings position.

But I guess my question is: Is it the opinion of other Staff members that there has been an historic overearnings leading up to the time that the complaint was

filed, to your knowledge?

A. I don't know that I've ever heard any of them express that opinion.

Q. Okay. Let me ask you this: Would you agree with me that it is not appropriate for the Commission to consider past excess earnings or past earnings deficiencies in deciding the outcome of this case?

A. I believe that it's appropriate for the Commission to review what is filed in this case. And if that is test year data information, that that is what they should base their decision on. That is a historical but it's not a long history.

Q. Okay. Other than to the extent it uses an historic test year in the ratemaking process, should the Commission consider past excess earnings or past underearnings in setting rates for the future?

A. I don't know.

Q. Okay. Fair enough.

Turning more specifically to your testimony, it's my understanding generally that the Staff normalizes for weather based on 30 years of historic data.

Is that correct?

A. That is correct.

Q. Why do you make a weather normalization adjustment?

A. An adjustment is made due to be abnormal weather. If the weather was extreme -- extremely cold or hot, the revenues would be based off, perhaps, once in a 10-year, 20-year type of weather.

And, of course, usage is extremely dependent upon fluctuations in weather, and any extreme weather results in extreme usage.

And to set revenues on that amount would result in possibly an overestimation of base revenues or an underestimation of base revenues.

Q. Let me ask you: Why does weather affect usage so much?

Maybe it's an over-simple question.

A. Saturation of air conditioning in UE's territory I believe is at about 96 percent. So almost all of their customers have some type of air conditioning, which is directly dependent upon the weather on any given day.

At the same time, not nearly as large a percentage of their customers have electric heat, but that and the fan usage on any other type of heating is directly correspondent to the weather that occurs.

There is also end uses that are affected by fluctuations in weather, but those are the major two.

Q. And when you say the fan, where there are other

types of heating fuels, would that be like if you have gas heat, there are blower motors that are run on electricity that circulate the hot air?

Is that what you're talking about?

A. That is correct.

Q. Okay. So would it be fair to say that as the outside -- you know, generally as the outside air temperature gets hotter than, say, room temperature, the hotter it gets, the more the air conditioners turn on and the greater the electric use?

A. Yes.

Q. And to a lesser extent, the colder it gets from room temperature, the more people turn on their heaters and then the more use there is?

A. That would be correct.

Q. Okay. So a usage curve, if you plot usage against temperature, I guess it's sort of a V?

It goes down until you hit about 65 degrees and then the usage starts back up again as people turn on their air conditioners?

A. It goes -- it does go down.

Where it hits the base usage is dependent upon the customer type. Because you've also got commercial and industrial customers that use air conditioning.

And then typically there is a band where you

don't -- a base usage, and then the weather -- or the usage increases as temperature gets hotter and saturates at very high temperatures.

Q. And on a seasonal basis, does the Company seasonal sales reflect that principle as well?

In other words, are the sales highest in the summer months?

A. Yes, they are.

Q. And then maybe lowest in the shoulder months, where the temperature is more in the 60s.

Is that true?

A. Yes, that's true.

Q. And then higher, but not as high as in the summer, in the winter?

A. That is typical, yes.

Q. Okay. And would it be fair to say that when you weather normalize, again, is the goal to try to set weather normalized sales at a level that can be expected to recur in the future when the rates that are being set will be in effect?

A. That is true for both weather normalization of sales and net system input.

Q. Okay. And what is net system input?

A. Net system input is the hourly loads that are input into the fuel run or the production cost model that

Mr. Bender makes.

Q. Okay. Let me ask you this: Should the same principles that you apply in weather normalization apply to other costs that are included in rates?

And I guess what I mean is, to the extent that the costs experienced during the test year are unusually high or low, should adjustments be made to reflect a more normal level of those costs?

A. Yes, it should.

Q. And should those adjustments be designed to reflect costs that are likely to be experienced in the future by the company during the period when the rates which are being set are in effect?

A. It should -- they should be normalized to reflect costs that would normally incur.

Q. And is the reason that you do that because you want to reflect the costs to the best of your ability that you think will be incurred by the company in the future during the period when the rates are in effect?

A. That's my understanding, yes.

Q. Okay. How come Staff uses 30 years of weather data as opposed to some other period?

A. It is my understanding that that is -- we use the 30 years because that is what NOAA uses in the calculation of their 30 years -- or their normal. I'm

sorry.

Q. How long has Staff been using 30 years of weather data to normalize sales of utilities?

A. To the best of my remembrance, it would be the mid '90s.

Q. Have you ever looked at using other periods of time to weather normalize?

A. Prior to a decision that was made in the mid '90s, we did use all of the weather that was available.

Q. And that would be, like, how much -- how many years worth of data?

A. For AmerenUE?

Q. Yes.

A. I would say greater than 50 years.

Q. Is it however long they've been taking the temperature at Lambert Field?

A. Yes, I believe that's correct.

I believe that's what we used.

Q. And what happened -- you say a decision was made in the mid '90s.

Is that right?

A. Yes.

Q. Could you explain that? Who made the decision? What was the decision?

A. I believe the estimation was made by Mike

Proctor and Dennis Patterson of the Commission Staff based on information that was discovered of how changes in the recording device, where the recording devices were placed, affected the measurement of weather of temperature specifically, that moving a thermometer could result in a reading that was inconsistent with the past.

If you move a thermometer closer to a runway or a heat sink, such as concrete and buildings, it will take a different temperature than it did when it was out in the field far away from the runway.

And there needs to be consistency between the way the current weather is read and the history that is used to produce normals.

And NOAA does that for the 30-year period over which it calculates normals.

Q. And actually moving the thermometer around, has that actually been an issue at Lambert?

A. Yes, it has.

Q. Okay. And who is Dennis Patterson? What was his job at the time that the decision was made?

A. He was an Economist on the Commission Staff. At the time the decision was made he was probably in the Economic Analysis Department of the Commission.

Q. And what position did Mike Proctor hold at that time?

A. I believe he was Manager of the Economic Analysis Department.

Q. And was he then Dennis Patterson's and your boss at that time?

A. Yes, I believe he was.

Q. Okay. And once the decision was made to use 30 years, did you no longer consider using other periods of time?

Was that kind of taken off the table by that decision?

A. Yes, it was taken off the table.

Q. Have you looked at any other jurisdictions to see what periods of time they used for weather normalization?

A. What do you mean by "jurisdictions"?

Q. Well, like, do you know what Illinois uses, the Illinois Commerce Commission uses --

A. No.

Q. -- in normalizing?

A. No, I do not.

Q. Okay. Do you know what Kansas uses to normalize weather?

A. No, I do not.

Q. Arkansas?

A. No, I do not.

Q. Any other State or Federal jurisdiction?

A. No, I do not.

Q. Okay. I mean, would it be fair to say that you haven't looked because the decision has been made that Missouri is going to use 30 years?

A. Because we believe it's the proper decision, yes.

Q. Okay. In your direct testimony, if you have it, on page 2, about line 14, you say that you worked closely with UE in the development of its weather normalization methods and inputs, and Staff has subsequently used the same method in three rate cases.

Do you see that?

A. Yes, I do.

Q. What three rate cases are you referring to?

A. I know one was a Utilicorp rate case. I believe we also used it in a St. Joseph Light & Power rate case. I'm not familiar with those case numbers.

Q. Okay.

A. And I don't remember what the third one was, but I could look that up for you.

Q. Okay. But those were -- and Utilicorp -- those were electric cases.

Is that true?

A. This is a method that could only be used in

electric cases, yes.

Q. The only reason I ask is that Utilicorp and maybe St. Joseph have gas service as well.

Okay. Can you explain how you worked closely with UE in the development of these methods?

A. When we developed our method in the late '80s, early '90s, we worked very closely with Roberta Grannemann, who was an employee of AmerenUE, or UE as it was known at that time.

I held workshops that described our method, which they were very interested in. There was problems with our method in the time it took to get load research developed, which isn't a problem in the rate case but on an ongoing every-month basis it is.

They contracted with a consultant, ICF, to develop a model that would do a very similar analysis. And Roberta and I talked often during the development of this, and she consulted with us on that development.

And we have since spent time with the consultant and the developer of that software and have -- I have a good understanding of how that model weather normalizes sales.

Q. The model that UE uses?

A. Yes.

Q. And I guess -- let me back up for a second.

You said when you -- in the late '80s or early '90s when you developed your method. And, I guess, is that the rank and average method that you're referring to?

A. That would be the development of normal weather. What I was referring to was the method used to weather normalize net system loads and sales --

Q. Okay.

A. -- of which normal weather is an input.

Q. It's part of it but there is more to it than that?

A. Yes. But it was all developed at the same time.

Q. And who participated in developing that?

A. At the Staff method?

Q. Who participated in developing the Staff method?

A. At the time it was the entire Staff of the Research and Planning Department, of which I was a member.

Dr. Proctor and Dr. Martin Turner were also part of the development of the method.

And it was an iterative process, where we tried many different types of analysis, to find what we felt would best weather normalize hourly loads.

Q. And did representatives of utilities participate on that committee that developed that

methodology, or was it primarily Staff people?

A. The development was primarily of Staff people. It was developed during the rate design case for Union Electric. We kept them apprised at various points in the analysis, asked for their opinions.

So to the extent that we could involve the utilities we did, but we did most of the analysis work ourselves.

Q. And would it be fair to say that the decision of what method was ultimately adopted was the Staff's decision as opposed to a joint decision between the Staff and utilities?

A. Yes.

Q. And would it be fair -- to the extent you interacted with the utilities, I guess you sought their opinions on occasion on aspects of the program.

Is that right?

A. I would say mostly with Ameren -- with Union Electric is who we sought the most opinions from. They were most concerned at that point in time because of the rate design case.

Q. And that was Roberta Grannemann you were talking to?

A. I believe Rick may have been involved in some of that discussions. It wasn't just Roberta. It was

other members.

Q. Rick Voytas you're talking about?

A. Yes. I'm sorry.

Q. That's okay.

And did you also get data from Union Electric Company at least, and maybe other utilities, in the course of your work in developing this process?

A. The initial development would have been UE data. After that -- subsequent to that we've used the method and, of course, refined it when we found errors. Through the years we've used them on all of the electric utilities in the state of Missouri.

Q. And then after you developed your method -- I'm sorry to break this down.

But after you developed that method, then Union Electric hired a consultant, is that correct, to implement it?

A. My recollection is, is that UE wanted to weather normalize it on an ongoing monthly basis, and wanted a similar method, but because load research could not be kept -- could not be developed on as quick a basis as what would be needed to use our method, they needed a different method but similar to weather normalize their sales. That is my understanding of why they contracted with ICF.

Q. And who is the contractor? I'm sorry.

A. ICF. And I'm not for sure what that stands for.

Q. Okay. And do you know the name of the model they developed for Ameren?

A. It's the Hourly Electric Load Model, commonly referred to as HELM.

Q. And so your understanding is HELM is close to the methodology that the Staff developed but not exactly it?

A. That is correct.

Q. And the reason it's not exactly it is because of data limitations?

A. That is correct.

Q. Okay. In other words, Union Electric was trying to create a model as close to what the Staff had developed as it could.

Is that fair to say?

A. That was my understanding at the time.

Q. And you directly worked with the consultant that Union Electric had hired in reviewing their HELM model and helping them work on it?

A. I did not directly work with him, but I was involved in review. And they kept us abreast of what the changes -- or the development of the HELM model and the

weather normalization module.

Q. And could the Staff suggest changes to that model that would then be implemented by the consultant?

A. Yes, I believe so.

Q. And did that actually happen?

A. I can't remember.

Q. Do you know what the differences are between the HELM model and the Staff's model?

A. Yes, I do.

Q. What are they?

A. The inputs to the model are the same as the Staff method. The inputs would be weather, load research, hourly data and sales data.

The Staff method requires load research for the time period that we are weather normalizing. HELM uses past load research data, not necessarily up -- not necessarily over the same time period but up to date. That's the major differences between --

Q. Okay.

A. -- HELM and the Staff method.

Q. Okay. Let me ask you this: Has Union Electric filed any testimony in this case yet concerning its view of the appropriate weather normalization adjustment?

A. Not to my knowledge.

Q. So as far as you know right now -- well, Union

Electric might -- well, you don't know what kind of a normalization adjustment they might file.

Is that fair to say?

A. That is fair to say.

Q. I mean, they might agree with what you've done. That's possible, I guess. Is that correct?

A. Yeah, I would assume that's possible.

Q. They might file the HELM model, which I guess is slightly different from what you've done.

Is that correct?

A. Actually, here is one of the complications of my analysis.

I did use their results that they calculated from HELM for weather normalization of sales. I used our method for weather normalization of net system input.

So I have used the method -- or accepted what UE calculated as weather normalized sales for the year ending June 30th, 2000 as supplied to me in a data request.

Q. So that creates an inconsistency, doesn't it, between the two uses of weather normalized data?

A. HELM is not -- was not developed to weather normalize net system input. When we use HELM to weather normalize sales, we use average daily loads.

To weather normalize net system input we need

to weather normalize both the daily peaks and the daily averages.

HELM is not set up to do that analysis. It is set up to do the analysis of sales but not system -- net system input. Not in a manner that Staff believes is correct.

Q. Well, so then you're using one set of numbers -- I guess the HELM model set of numbers for Jan Pyatte's calculation of revenues and you're using another set of numbers for Mr. Bender's calculations, which, I guess, are used for costing, you know, production -- determining production costs.

Is that fair to say?

A. No, it is not fair to say.

Q. Okay. Explain why it's not fair to say that, because I don't understand it.

A. I weather normalize the net system input, but it's important that the sales under that hourly load curve be consistent with the sales used to calculate revenues, which is exactly what you were talking about.

And so after all adjustments are made to sales from which revenues are calculated, I reconcile the load under the net system input to be consistent with the sales from which revenues were calculated.

Q. But hasn't Mr. Bender already used the other

information in running his model?

A. For the final -- for the run that is -- numbers that are in his testimony, he uses the net system input that has been reconciled to the sales used to calculate revenues.

Q. Well, what's the difference -- well, I guess I don't understand.

What's the difference between that and just using the HELM model numbers to begin with?

A. It's important in a production cost model to have hourly normalized usage. So we need to come up with an hourly curve under which to put the sales that are output from him.

There are other adjustments also done to those sales for revenues.

So the normalization of net system load gives us an hourly curve under which to put these sales once losses are added to those sales under that curve.

Q. But still, I mean, isn't he using different numbers in his analysis than are used in Ms. Pyatte's analysis?

Maybe you're saying it's because of the inherent difference in what they do. But aren't they using different numbers?

A. If you subtracted the losses from the sum of

Mr. Bender's -- the loads that go into Mr. Bender's model, if you subtract the losses from that as supplied by Staff Witness Allen Bax, the sales -- the annual sales that went into that curve are equal to the sales from which revenues were calculated.

Q. On an annual basis?

A. On an annual basis.

Q. But what about on a month-to-month or hour-to-hour basis, are they the same?

A. We don't have sales on an hour-to-hour basis. We do not have sales on a month-to-month basis. We have estimates from load research of class usage, but we do not have sales as metered by anything other than a billing month, which will not fit in a calendar month in a year.

Q. Okay. Let me ask you this: You are saying that you're -- on page 2 of your testimony, line 19, it says, I recommend that the Commission adopt the weather and unbilled adjustment as supplied by Ameren.

How did you get that information from Ameren?

A. I believe that it was requested in a data request. I don't know the number of that.

Q. Okay. Now, my understanding is -- and let me apologize in advance for my ignorance, but my understanding is you got some hourly information -- you know, hourly -- kilowatt hour usage information from

Ameren and you made some adjustments to it?

A. If you're referring to the net system input normalization that I did, yes. I've got hourly, gross hourly inputs.

Q. Okay. Start me from the beginning.

Is that what Union Electric gave to you is hourly gross, I guess, kilowatt hours of usage? Is that the right way to say it?

A. We have Commission rule, 4 CSR 240-20.080, which requires the utilities to send us on a monthly basis information. And one piece of that information is supposed to be net system load. After I started using it, I found out that it was actually gross load.

Q. Okay. So what is it exactly that Union Electric gave to you? Is it every hour of the --

A. Every hour of the year for --

Q. For the test year you're looking at?

A. We get it on a monthly basis. So we have it back through the -- whenever this rule went into effect.

Q. Okay.

A. It looks like since 1991 we have it on an hourly basis. We get it every month.

Q. Okay. And what is it? What is it that they're giving you for each hour?

A. One of the pieces of information that they're

giving us is the gross load on each hour combined for an AmerenUE control area.

Q. Okay. And what's a control area?

A. I don't have a good definition that I can give you. I do know that it includes the wholesale customers that Ameren -- or UE used to provide service to. It's the area in Missouri that they provide energy to. It's a very general gross definition.

Q. I mean, you're talking about a geographic area?

A. Yes.

Q. Okay. And so let me back up then.

Each hour of -- well, each hour during the period -- for all of the period of time that they've been giving you this, they give you a number for AmerenUE.

And what does that number represent?

A. It represents the load from that control area that UE was required to meet, plus station use.

Q. Plus station use?

A. (Nods head.)

Q. Okay.

And does it include transportation customers, as well as sales customers in the control area?

A. What is your definition of a "transportation customer"?

Q. A customer that's -- I guess that UE would

meter but it would not provide the electricity to.

A. I'm not sure.

Q. Okay. So you've got one set of data for Union Electric Company?

A. That's correct.

Q. It's that data for each hour.

And then did you also have a set of similar data for Ameren Corporation as a whole?

A. For -- yes, for Ameren Corporation and for the CIPS area also.

Q. Okay. Now, with regard to the CIPS information, did you get that information from Union Electric or did you calculate that based on the Ameren and the UE information that you were given?

A. The information was -- is included in the reports we get.

I did check, and UE plus CIPS does equal Ameren.

Q. Okay. But you didn't independently calculate the --

A. CIPS loads?

Q. -- CIPS loads?

A. No, I did not.

Q. Okay. Well, could you run me through what you did once you got this raw data from UE?

What did you do to it?

A. Well, I set about weather normalizing it using our method.

Q. Let me back you up a second.

Did you have to take the gross -- did you first have to come up with -- take the gross loads down to net loads, or did that come after you weather normalized?

A. I didn't find out that they were gross. I assumed they were supplied as required in the rule as net.

And after I did the weather normalization, the net system load, I made some comparisons to other data that we had and found inconsistencies.

At that time I talked with Mr. Tim Finnell at Ameren and discovered that indeed it was gross input, not net.

Q. So what did you do?

A. I had other adjustments that I needed to make.

I also found out in trying to check for reasonableness, checking my answers, that these loads had past customers of UE in the hourly loads.

And these were wholesale customers that UE had contracts with prior, and the contracts had substantively been switched to Ameren Energy Marketing, I believe.

And so I had to take those loads, plus their losses.

I was supplied hourly loads by Pam Roth (sic) at Union Electric. I was supplied hourly loads by her of those customers.

At that time I weather normalized them, added a loss factor and subtracted them out.

I believe I did station use -- I'm not for sure at what point in time I did station use. This was earlier this year. But I do know that I subtracted out station use.

The only numbers that I had for station use were on -- or I didn't have hourly station use. I had monthly.

So I allocated that station use back to the hours based on the use of net hours and subtracted station use out to get net input.

That's for the UE loads. That is the analysis I did.

Q. Okay.

A. And then after that I reconciled it to the sales number that was given to me by Janice Pyatte.

Q. Okay. Let me back up a little bit just to make sure I understand.

You were given hourly data for UE -- first of all, the period of time that you're looking at here is your test year ended June of 2000, June 30th of 2000.

Is that true? Is that the period of time you're trying to normalize the hourly data?

A. Actually, for the net system input, at this time we knew that we were going to be updating through December of 2000.

So I used data that included -- the data that I used was from October 1999 through March 31st, but the time period that I was using that was to get information for calendar year 2000, December ending 2000.

Q. Okay. Run that by me again.

What's the beginning and ending date of the period of time that you looked at this hourly data and normalized it?

A. I used data from October '99 through March 31st, 2001.

Q. Okay.

A. Because our method, you can have some unusual results at the beginning and ending of the time period that you're analyzing.

So I wanted the 12 months in the middle of that 18 months, because that gets rid of the unusual results that we get.

So if we use the 12 months in the middle, we've got stable numbers. And that 12 months was the calendar year ending December 2000.

So that's the period that I was working to get numbers for.

Q. Well, why were you working to get numbers for calendar year 2000 when the test year -- the Staff's test year is 12 months ending June 30th, 2000?

A. This analysis was done after the other, and we knew that we were updating through December of 2000.

With weather normalized sales -- or with weather normalization -- the normal weather for 1999 is the same as the normal weather for 2000, which is the same as the normal weather for 2001.

So, therefore, a year that's been normalized for weather -- now, the weather that goes into it is normal -- is the same no matter what 12-month period you take.

Q. Okay. Again, just so I understand this, was it Mr. Bender's production costing model that was going to be updated to calendar -- calendar year 2000?

Is that true?

A. That is my recollection of what he ran his model over was calendar year.

Q. And that's why you needed to have that calendar year data. Right?

A. I don't remember exactly what triggered my using the calendar year. It could have been my calendar

year triggered him using his. I don't remember which.

Q. But --

A. But at that time the decision had been made that Staff was going to update through December 2000.

Q. For the production costing model, not for everything else. Right?

A. Well, we updated sales for growth also through December 2000.

Q. Okay. And even though -- well, I guess they were updated for growth through December of 2000.

But even though other aspects of sales were based on 12 months ended June 30th, your idea is, it doesn't matter whether the weather -- what 12 months you calculated weather adjustment; the weather adjustment is going to be the same -- the weather adjusted sales are going to be the same no matter what period of time you use to calculate them?

A. The usage given normal weather is the same regardless -- over that -- over the short term, yes, they are the same.

Q. Okay.

A. Over the long term they are likely to be different, but six months --

Q. And why is that over the long term that they're likely to be different? Because of growth?

A. More likely because people may respond differently to weather over the long term than they do now.

Q. There could be technological advances in air conditioners and heaters and things like that?

A. Things that we can't even conceive of.

Q. But that's a very long-term proposition, is it not?

A. It may be as short as ten years. It may be --

Q. 100?

A. Yeah.

Q. Okay. I think I understand.

Okay. You took this data. And the hourly data was Union Electric hourly data, Ameren overall hourly data and CIPS hourly data that you got from the Company?

A. I did not use CIPS data. I used Ameren and UE's and backed the results out for CIPS --

Q. Okay.

A. -- of my analysis.

I had the CIPS data, but I did not use it in my analysis.

Q. Well, why didn't you use the CIPS data if you had it?

A. It was a question of to weather normalize CIPS and UE and add it together to do Ameren or to weather

normalize Ameren and UE and back out CIPS.

Q. In your mind it was six of one and half a dozen of the other?

A. That is correct.

Q. Okay. So tell me how you did that then.

Is the first thing you did when you got the data -- well, what's the first thing you did when you got the data?

You took Ameren and Union Electric data -- my understanding is you assumed it had been -- it was net data when it, in fact, wasn't. Okay?

But what did you do with it?

A. The very first thing I did with it was check the data for reasonableness, to check to see -- even though we've got a prescribed definition of what is to be submitted, we don't always get that. So I checked the data for any abnormalities.

That's when I discovered ADM, when it came onto the system for Ameren. And so I checked those loads to make sure that they were usable loads.

Q. And how did you check them for reasonableness? What did you do exactly?

A. I plot the daily ages and daily peak loads against a weather measure. It was two-day weighted mean temperatures.

Typically that will show any abnormal data that is in the data.

Q. Okay. So the usage -- they're ought to be some relationship between those two-day average temperatures and the usage?

A. That is correct.

And an abnormality will show as points above or below the curve. The rest of the data -- or a pattern shift in the data, that will show up.

Q. And the reason you use two-day is because if it's real hot one day, then -- there is more air conditioning use if you have two hot days in a row than if you only have one hot day in a row? Is that --

A. That is correct. Yesterday's weather influences our usage today.

Q. Okay. So you checked -- made these reasonableness checks and you determined that ADM -- which I guess is Archer-Daniels-Midland, an industrial customer?

A. Yes.

Q. There was a problem with them being included in the usage information?

A. I wouldn't call it a problem. It just was something that occurred that we needed to account for.

Q. And what occurred was they used to be a customer of Union Electric Company but sometime during --

at some point during the period you were looking at it they became a customer of Ameren Energy Marketing Company.

Is that right?

A. No. They are customers -- and I'm not sure what town in Illinois -- they became customers of AEM due to Illinois restructuring.

Q. So you had to take those loads out of your hourly usage numbers?

A. I took them out to weather normalize. I had to put them back in because that is a normally occurring event.

Q. Okay.

A. That was an adjustment that I made.

Q. Okay. So you made that adjustment?

A. Actually, that happened at the end. The adjustment for that happened at the end.

I took Ameren without ADM -- I know it's confusing -- weather normalized it. I believe I did some adjustments for Soyland contract and other miscellaneous type of adjustments to the Ameren load just like I did for the UE.

I added the UE wholesale -- the former UE wholesale customers to Ameren because that is who is serving them now, and the objective was to get weather normalized Ameren hourly loads and weather normalized

UE loads.

Q. But you're kind of skipping ahead on me.

I'm trying to go through just step by step what you did.

And this is before you did your whether -- chronologically, was it before you did your weather normalization or after?

A. I took ADM out before I did weather normalization of Ameren loads.

Q. What else did you do before you did weather normalization, if you remember?

Did you adjust for station usage?

Well, at that point you thought it was net load, so you wouldn't have done it.

Is that right?

A. That's correct. Station usage was I believe the last thing that I adjusted for.

Q. Okay. Is there anything else you adjusted for before you did the weather normalization?

A. I believe that's it.

Q. Okay.

A. It was for taking ADM out of the Ameren loads. And I weather normalized those.

Q. And ADM, my understanding is, that's an Illinois customer. Is that right?

A. But it is an Ameren customer also.

Q. Okay. So you wouldn't have had to make the adjustment to UE's loads, just overall Ameren?

A. That's correct.

Q. Okay.

Then the next thing you did was do the weather normalization?

A. Yes. I came up with weather normalized hourly loads. I added the --

Q. Well, stop, stop, stop.

How did you do that? Walk me through it.

A. I used Staff's method to weather normalize Ameren hourly loads.

Q. Okay. And what is the Staff's method?

A. The Staff method is a least-cost regression model that -- with an intercept of zero that allows for base usage to fluctuate across the year at the same time that it's accounting for weather usage, a weather response pattern.

Using the results of that regression and the normal weather calculated outside of this, when that is input, we get a weather normalized peak and average, of which then we calculate hourly loads.

Q. And where does the rank in average methodology fit in with this?

A. That is used outside of the weather normalization process to calculate the normal weather that is input into the results of our analysis, of our weather normalization.

Q. Okay. So that's a component that gives you the normal temperature to put into your weather normalization adjustment?

A. That is correct.

MR. BYRNE: Okay. Would you like to take a break?

THE WITNESS: That would be fine.

(A RECESS WAS TAKEN.)

BY MR. BYRNE:

Q. Okay. Let me see if I understand where we are from before the break.

You got hourly load data for Union Electric and Ameren, and then you took out Archer-Daniels-Midland from the Ameren numbers. And you thought you had net hourly load data but, actually, you had gross hourly load data.

Is that correct?

A. Yes.

Q. Okay. So then you did your weather adjustment?

A. Weather normalization, yes.

Q. Weather normalization. Okay.

And you did separate weather normalizations of

Ameren data and the Union Electric data?

A. I weather normalized both the daily peaks and daily averages for AmerenUE, separate from Ameren total.

Q. Okay. And you hadn't yet made a calculation of CIPS at that point?

A. No, I had not.

Q. Okay. And you didn't subtract anything yet for other loads that might be served by AEM in the control areas. First you weather normalized before you made that adjustment.

Is that true?

A. I believe what I did was I talked with Mr. Finnell about the Soyland contract, and we discussed that. And I discussed it with Mr. Bender. And we did not take those loads out but that contract was included in his run. So, therefore, it was consistent with what I had.

Q. Okay. So the only adjustment you made before you weather normalized was the Archer-Daniels-Midland?

A. That's correct.

Q. And then you did your weather normalization.

And a component of that is this rank and average method that sets the normal temperature.

Is that correct?

A. That's one of the inputs, yes, is the rank and normal -- the normal weather that's used to calculate the

normal weather that is an input.

Q. Okay. The rank -- let me say that again to make sure it's right in the record.

The rank and the average method? Is that the right name of the method?

A. That we used to calculate normal weather, yes.

Q. Okay. You use that to calculate normal weather.

And then that normal weather is an input into your weather normalization?

A. That is correct.

Q. Okay. Can you tell me how the rank and average method works?

A. For each of the 30 years that is in the history that we use, we rank the weather, hottest to coldest, coldest to hottest. So for each -- one of each year we do that.

Q. Each day is ranked within a year?

A. Yes. So there is 365. Leap year there is 366.

To get the -- to get the normals, what we do is average across the ranks. So we take an average of all of the hottest days in the year. That is a normal weather value. We do that for the second hottest, third hottest and so forth.

Q. So you take the hottest day in each of the

30 years and you average those -- I guess the cooling degree days, or is it the actual temperature?

A. It is actually the weather measures that we have developed in our normalization procedure. It's sort of like a degree-day measure.

It's not cooling degree days as defined by NOAA. It's calculated the same way. It's just 65 may not be the base that is used.

Q. What is the base that is used?

A. I don't have that information with me.

It's determined by -- independently for average and peak load for both Ameren and UE. So there is four different sets of these. Because of the method we use there may be several.

Q. Okay. So when NOAA calculates cooling-degree days or heating-degree days, my understanding of that is -- a cooling-degree day is the average temperature on a certain day, minus 65 degrees.

And if it's above 65 degrees -- if the average temperature on that day is above 65 degrees, you'd have that many cooling-degree days. Is that correct?

A. That is correct.

Q. And then conversely, heating-degree days, as NOAA calculates them, is if the temperature is below -- the average temperature on a day is below 65 degrees, it's

the difference between the average temperature on that day and 65 degrees, that would give you the number of heating-degree days on that day.

Is that correct?

A. That is correct.

Q. Okay. But you don't do that; you have a different -- and the difference is, you might not use 65 degrees as the cutoff point or as the factor that's in the calculation that determines how many heating-degree days or cooling-degree days there are?

A. That is correct.

Q. And how do you determine what number you use in that calculation?

A. We look at the daily data which we're using to run our regression, and we best fit a curve to that data. And using very statistical measures, we come up with what we believe is the best fit for that data.

So the degree days for the heating may be 50. It may be 58. We also may have one at 45.

But it's fitting that regression line through the model -- or through the data in our model that determines what those points are.

Q. Okay. So would it be fair to say that you have sort of a band of temperatures where there is neither heating, nor cooling -- I guess degree days isn't the

right word, but maybe a band might stretch from, say, 58 degrees to 68 degrees or 70 degrees?

It's sort of an equivalent to the 65-degree point used by NOAA?

A. That is correct.

I would not say, however, that there is no heating or cooling. It's just averaging each other out. One customer may be heating and another may be cooling.

Residential customers you can think, yes, you turn it off for a certain amount of time. Commercial and industrial customers are likely to go from heating to cooling.

So that it's not that there is no heating or cooling; it's just both of them are going on most likely.

Q. It would be fair to say that in that band there is no net effect of either heating or cooling in the Staff's view?

A. Yes.

Q. Okay. And so then after you -- under the rank and average method, after you average all of the hottest days in the 30-year period and then you average the second hottest day and average the third hottest day, until you average all of the days, then what do you do with those averages?

A. At the same time that we're ranking those days,

we're keeping track of what month the hottest day typically occurs in and what month the second hottest day typically occurs in.

So this is part of matching these 365 normals back to a year.

Q. Okay.

A. So we know which month those normals typically -- those ranks typically fall in.

We take that and the weather in the year that we are normalizing. And we know that rank one, five, seven and so forth goes in January, for example. So we pull those out.

And which day it goes in January is based on the temperatures that actually occurred in that month.

So you've got the days that typically occur -- or the normals that typically occur in January. You'll have 31 of those. Now, how to get the 31 of those back to the days is the problem. And to do that we use the actual weather that occurred.

We will not put the coldest day or the hottest day on a weekend, but that's the only restriction at that point.

Q. Okay. So you'd pick out -- you have these 365 averages that you develop from your 30 years of data. And then out of that -- let's just pick January.

You'll say somehow you decide 31 of those days -- maybe it's the coldest and third coldest and fifth coldest, however it is that, somehow you determine that 31 of those averages apply to January?

A. That's correct.

Q. Okay. And how do you do that? I mean, how do you know which 31 apply to January?

A. Because we've been keeping track of it through the years, the 30 years, what month does that typically fall in.

Q. Okay. So then you have those 31 days, and you've got to assign them to the 31 days of actual temperature that were experienced in January that you're looking at.

Is that right?

A. That's correct.

Q. Okay. And the way you do that is, the first rule is, neither the hottest, nor coldest of those 31 days can fall on a weekend.

Is that true?

A. That is correct.

Q. Do you count holidays and weekends?

A. Yeah. It would be holidays and week-- well --

Q. New Year's Day?

A. I believe the computer program itself only can

identify weekends.

I do go back later and check that. If the peak occurred on January 1st, I go back and see why. And if it has put the coldest weather on January 1st, I will move it off.

Q. Why --

A. Go ahead.

Q. Why do you not allow the coldest or warmest day to fall on a weekend or holiday?

A. That is important in the production cost runs.

We want the hottest day to occur during the weekday. That's when the loads will be the highest. Typically loads are lower on weekends.

And we want an estimate of what the production -- the fuel costs would have been with that on a weekday instead of a weekend.

Q. So the production cost model is looking for a peak day's load.

Is that true?

And in order to get a true peak day, it's got to be on a weekday.

Is that fair to say?

A. I don't know that the production cost model is looking for that. That is just one of the criteria that was set up when we developed the allocation of weather to

the days.

Q. Okay. But it doesn't matter so much to Jan Pyatte's use of your data whether it falls on a weekend; it's more to accommodate the production costs model?

A. That's correct.

Q. Okay. Then that's the first rule, but then how do you assign each of the 31?

Do you rank the days of actual temperature?

A. That is correct. We go back to the actual days in that year -- or that month. Because we're talking about, just say, January right now.

And the most extreme weather measure, normal, will go to the day that had the most extreme weather.

Q. Unless it's a weekend or holiday?

A. Unless it's a weekend.

And if it's a weekend, then it goes to whatever the coldest weekday was.

Q. And then does the weekend -- does the second coldest one go in the weekend then?

A. Yes. After the first one you can go on the weekend.

Q. Okay.

And then that's the normal temperature for each of those days once that assignment is made?

A. That is correct.

Q. Do you have your testimony there?

A. Uh-huh.

Q. On page 8 -- and I'm looking at line 13. You can read it a little bit in the context. But you're talking about -- you're explaining how the rank and average method works.

And the last sentence in that answer says this, and I think this is the rank and average method.

Minimizes the weather normalization occurring on each day.

Why does -- why does -- I guess how does it minimize the weather normalization occurring on each day?

A. Because we've assigned based on the ranks for that month. The difference between normal and actual would be minimized for each day.

If you put the most extreme normal -- say for January, on the hottest day instead, you would get a lot of weather adjustment on that day.

If you put it on the day with the coldest temperature, you would get a lot less weather normalization on that day.

Q. Okay. Let me try to understand how this works.

Let's say you had a January, since we're talking about January -- and I probably ought to do this with August since I worked for an electric company, but

since we've been talking about January.

Let's say you had a January that was colder than normal. Okay?

And my understanding is that if January is colder than normal, there will be more electricity used than normal.

Is that right?

A. That is correct.

Q. And if you showed electric usage on a graph, the actual usage for each day on a graph, it would be higher than average usage on that graph.

Is that fair to say?

A. I've used the terminology "normal." It would be higher than normal.

Q. How are you defining "normal" in this context?

A. It would be the temperature -- normal temperature that is assigned to that day, the weather response that corresponds to that normal temperature.

Q. And how would that be calculated?

I guess I'm talking about, like, an average. Is that what you're talking about?

A. Um, no. I'll be talking about -- you've got your regression results and you know what that normal weather was for that day.

And instead of inserting the actual weather to

get what actually occurred, you insert the normal weather variable. And if that normal weather variable is less than the actual, then the normal usage for that day will be less than the actual.

Q. I guess what -- and I'm not understanding very well, but I guess what I'm trying to say is, it minimizes -- when your testimony says it minimizes the adjustment, compared to what?

What would not -- what kind of an adjustment would not minimize -- what kind of an analysis would not minimize the adjustment?

Minimize compared to what?

A. It minimizes it more than any other method of calculating daily normals that I know of, including NOAA's.

Because you assigned the extreme normals to the actual days where extremes occurred in that actual test year.

NOAA's normals are a very smooth function. They don't care when the extreme -- I mean, they've got their day -- when you listen to the weather forecast and they tell you this is, you know, the extreme, they don't care what -- you know, what the actual weather is for the month.

We do.

We very specifically put the extremes on the days when -- the extreme normals on the days when the actual extremes occurred; therefore, reducing the amount of adjustment that has to be made for weather.

NOAA doesn't care. They just put a normal on that day.

Q. Well, what's the benefit of -- why is it better to have less of an adjustment?

A. Again, this gets back to the production costing model and having to come up with hourly loads.

We have the actual hourly load shape that occurred on that day from the data that Ameren has supplied us.

And load shapes differ according to weather. The load shape of a cold day is very different from the load shape of a hot day.

We want to use actual load shapes that occurred because they're realistic. And we want to do as little weather normalization on each day so that we have a correct load shape for that temperature range.

Q. Okay. So for purposes of the production costing model, because they want -- they need to use the load shape for each day, it's beneficial to minimize the weather adjustment.

Is that correct?

A. That's correct.

Q. How about on the other side of the equation?

How about on the use of your data that Jan Pyatte is making to weather normalize sales for purposes of developing weather normalized revenues?

A. Our research in the past has shown us that it's not critical, but to be consistent between what we use for production costs and what we use for weather normalization of sales.

When we do weather normalization of both, they are consistent.

This time I used UE's weather normalized sales.

So they used something -- my understanding is they used something similar, not exactly like Staff's. So the weather --

Q. Who is "they"?

A. Ameren.

Q. Okay.

Let me ask you this: If there were no -- and I understand your need -- your desire to be consistent and I understand to the limited ability that I have how when you run a production costing model, the daily load curve is important.

If there wasn't -- if you -- if the information that you developed was not being used or was not needed to

be used for the production costing model, but, instead, it was only being used for purposes of developing normalized sales for purposes of calculating normalized revenues, would you use another method, maybe similar to NOAA's?

A. Knowing what I know now, probably not.

Q. Why not?

A. Because I just feel it's a more accurate development and representation of normal weather.

Q. Okay. You said there were -- and don't let me put words in your mouth.

But I think you said there were other -- there was NOAA and there were some other normalization methodologies. What are those, if you know?

A. There is another one called Typical Meteorological Year. TMY is what it's called a lot of times. This is the math method used by HELM to calculate normals. There is very simplistic methods that some people use of averaging every January 1st. There is just that simple method.

So there's various methods.

Q. But of all of those methods, yours minimizes the adjustment, is my understanding of your testimony.

Is that right?

A. That's correct.

Q. And are all of the -- without going through

each one of them, do the other methodologies -- is there a common denominator that differentiates them from your methodology, or should I ask you how each one works?

A. I can't think of any common. I'm sorry.

Q. That's okay.

How does the NOAA methodology work?

A. My general knowledge is they calculate a normal for each month and then allocate that based on a spline back to the days, spline function.

Typical Meteorological Year looks at -- I'm not for sure how many years -- and finds for each month a month in that history that was close to normal based on a monthly number.

Q. And then they --

A. And then that -- so they pull that out, and this is August for the Typical Meteorological Year.

Because the month of August in 1968, when you do all of the calculations, is close to normal. And I don't know what that normal is based off of.

Q. Okay.

But then their adjustment will be the difference between what was experienced in the test year in August and that most typical of August that they can find in the history that they're looking at?

A. That's correct.

And so there is no matching of day types or anything with that one.

The HELM method is also a ranking method.

The difference, as I understand it, is they do not keep track of what months the extreme falls in.

So the hottest normal is allocated to the hottest day of the year regardless of where that occurred, where it typically occurs.

Q. Okay.

A. And averaging across the date, that's -- that is the method.

Q. They just take an average for each January 3rd and that's --

A. Whatever it was, January 3rd of whatever history they choose, that's . . .

Q. Okay. Let me ask you about the HELM model.

Am I correct in my understanding that the HELM model is sort of developed by Union Electric's consultant to try to track the Staff's methodology, albeit imperfectly?

A. The HELM model was developed before the Staff method was -- HELM itself was developed before Staff.

My understanding is the weather normalization module is what UE paid to have developed.

Q. Okay. So it's not -- it's a UE sort --

UE consultant's specific model; it's not some sort of generic model?

A. It is now available to whoever gives money to ICF --

Q. Okay.

A. -- that module, weather normalization module.

Q. Who developed the Staff's rank and average method?

A. Mr. Martin Turner.

Or Dr. Turner, I would say.

Q. And did you participate in that?

A. To some degree, yes.

Q. No pun intended.

How about Dr. Proctor, did he participate in that?

A. Yes, he did.

Q. And when was that developed, if you know?

A. My guess would be early '90s, the same time we were developing the weather normalization method.

Q. Okay. And is that rank and average method embodied in -- I think I've seen a document that sort of -- sort of a treatise as to how it works.

Is that true?

A. That's correct.

Q. Okay. Have you looked at all at how other

states do the analysis that the rank and average methodology does?

Let me ask it this way: To your knowledge do any other states or any other jurisdictions use the rank and average method?

A. To my knowledge, no other State Commission does weather normalization, period.

Q. So to your knowledge none of them use the NOAA method because they don't do weather normalization?

A. My anecdotal, talking to other people from other companies at conferences that I have been on, is, no, their commission does not do the level of analysis that we do.

Q. But you're not saying, are you, that they just accept test-year revenues no matter how extreme the temperature, are you?

A. I don't know. I've never specifically addressed that with them.

Q. I mean, it seems not very logical that they would.

But you don't know?

A. No, I don't.

Q. So you haven't looked at, like, what Illinois does?

A. No, I didn't.

Q. Don't know what Kansas does?

A. No.

Q. Don't know what Iowa does?

A. No.

Q. Arkansas?

A. No.

Q. Okay. Are you aware of any support for the rank and average method in academic literature?

A. No, I'm not.

Q. Let me go back to minimizing the adjustment issue.

For purposes of Jan Pyatte's development of normal revenues -- so put aside the production cost model issues.

A. Okay.

Q. And I understand your desire to be consistent, but put that aside for a second.

For purposes of Jan Pyatte's analysis, is there any advantage to minimizing the adjustment?

A. I can't think of any.

Q. Okay. For purposes of her analysis, would it be fair to say that the goal should be to try to figure out what the adjustment should be without either maximizing it or minimizing it, to find, I guess, the truth, for lack of a better term?

A. I think the goal is to be as accurate as possible.

Q. Okay. And not necessarily --

A. If we knew the truth, we'd all have our ball and we could go make millions of dollars.

Q. I understand. No one knows what the truth is.

But to be as -- I like your terminology -- to be as accurate as possible, would it be fair to say that the goal for Jan Pyatte's purposes and for purposes of her use of your data should be to be as accurate as possible without either attempting to maximize or minimize the adjustment?

A. I don't think the purpose should be either to minimize or maximize. Again, it's to get the most accurate.

I believe the rank method does give you the most accurate, but the measure of how to do that is -- it would be impossible to measure.

Q. Okay. But let me draw a comparison with Mr. Bender's use of the data.

Now, when you look at his use of the data, my understanding is there is a real reason that you want to minimize the adjustment on any particular day, and that reason is, because you need the daily hourly load curves.

Is that true?

A. That is correct.

Q. So in the case of a production cost model, a goal, other than, you know -- a goal is to minimize the adjustment, and that goal is not for purposes of Ms. Pyatte's use of the data?

A. It's not a high priority goal, no.

Q. Well, it shouldn't be a goal at all?

A. It's a fallout from using the same normals.

Q. Okay. I understand it's a fallout from being consistent, and you want to be consistent.

But independently there is no reason to minimize the adjustment for Ms. Pyatte's analysis?

A. No.

Q. Okay. Does the Staff weather normalize sales data in gas cases?

A. Yes, we do.

Q. Do you use the same methodology in gas cases as electric cases?

A. I'm not familiar enough with gas cases. I haven't worked on them.

Q. Do you know who does the weather normalization in gas cases?

A. . Are you talking about the calculation of weather normals or are you talking about the weather normalization process itself?

Q. What's the difference?

I expose my ignorance here.

A. I do know that Dennis Patterson supplies the weather to Staff that does the gas weather normalization.

Q. So he'll calculate, like, a normal weather?

A. I don't know if he calculates that for them or not. He does not calculate the normals that I use. I calculated those. So I don't know for gas.

Q. So you don't know if he uses the rank and average method as part of his analysis?

A. I don't know.

No, I do not.

Q. For all you know, he might be using the straight-average method or the NOAA method?

A. I doubt it, but he may be for all I know.

Q. Okay. How about other utility cases, is there any -- I guess -- well, I don't know.

Is there any weather in water cases? Is that a factor?

A. Staff does weather normalize water usage in large water cases, yes.

Q. And, I guess, probably, maybe the reason is because there is sprinklers that are on in the summer, do you know?

A. I'm not familiar enough with that to know.

Q. Do you know if they use the same methodology that you use in water cases?

A. No, I do not know that, what they use.

Q. So you don't compare methodologies with other members of Staff that work in other areas of utility regulation?

A. That's not my responsibility.

Q. Is it somebody's responsibility to do that?

A. Mr. Dennis Patterson and Dr. Proctor determined that.

Q. Okay. So for all you know, what you're doing in the electric area could be completely inconsistent with what is done in the gas and water area?

I mean, you just don't know.

Is that true?

A. That's true.

Q. Okay. Let's go back to what you did.

I think we're up to, you've got the hourly data for Union Electric and Ameren, you took out the Archer-Daniels-Midland load from the Ameren and then you did the weather normalization which we've been talking about.

And as I understand it, then you end up with weather normalized hourly loads for both Ameren and Union Electric.

Is that right?

A. That's correct.

Q. Then what did you do?

A. Um, I looked at the results of the data. I looked at the days, the peaks that ended up occurring on the weather normalize. I checked it against any data that I might have to accompany.

I don't remember exactly when I found out the station use was included in the loads.

Q. But you're doing reasonableness checks at that point?

A. I'm doing reasonableness checks based on data from Ameren and also knowledge that I've accumulated over the past decade of doing this.

Q. Do you remember any specific reasonableness checks that you did at that point?

A. I know I checked the dates that the normal peak fell on and checked the weather allocated to those, that was assigned to those days, to make sure that they were reasonable.

Q. What days are you talking about?

You said the days of the normal?

A. The peak, monthly peaks.

Q. Monthly peaks.

A. I'm sorry.

Q. So the peak day each month you looked at, and then you looked at the normalized weather for that to see if that's --

A. I looked at the normalized versus the actual peak on that day.

Q. Normalized weather or normalized usage?

A. Well, I looked at usage, and if there was something that led me to look further, I would look at the normal weather that was assigned to that day.

Q. Okay. Anything else that you did for a reasonableness check?

A. I compared to make -- I looked at it to make sure that the summer peak is higher than the winter peak, that the peaks -- you know, that they're consecutive, that one month isn't a lot higher than the months around it, unless it's supposed to be. Those types of reasonableness checks.

I look at the load factors that result from this analysis to make sure they haven't changed considerably, those type of reasonableness checks.

Q. And when you did all of these reasonableness checks -- well, I want to understand in chronological order what happened.

But is that when you -- don't let me skip ahead of time.

But is that when you discovered that you were dealing with gross numbers instead of the net numbers that you thought you were?

A. That was probably back when I got done with -- I did UE's numbers first and then Ameren's.

And when I was comparing the results of the net system load to the weather normalized sales, in comparing those numbers, at that point is to the best of my recollection when I found out that station use wasn't included, and also that the wholesale -- old wholesale contracts were still in.

So I did Ameren in the same progression --

Q. Okay.

A. -- so that the two would be consistent.

Q. So you realized at some point during your reasonableness checks, I guess, of Ameren, that you had a problem with the fact that it was gross numbers versus net numbers and the fact that these former customers were needed -- you needed those adjustments.

Were there any other problems that you saw with your analysis based on your reasonableness checks at that point?

A. No, there was not.

Q. Okay. So then what did you do?

A. I weather normalized the hourly wholesale

customer load that I had gotten from Pam, added losses to that and --

Q. Pam who?

A. Pam -- I always say it wrong -- Groth --

Q. Okay.

A. -- of Ameren. I weather normalized those loads.

Q. And those are customers -- just so I understand, those are customers that used to be served -- used to be provided electricity from Union Electric Company but now, as a result of maybe Order 888, they're being served by not Union Electric Company?

A. My understanding is their contract with Union Electric came to an end, and at that time they became customers of Ameren.

Q. Like the Ameren Energy Marketing maybe?

A. Probably.

Q. The unregulated or lesser regulated marketing affiliate?

A. That's my understanding.

Q. And these are, like, industrial customers, I guess, mostly?

A. No. These are cities, municipals.

Q. Okay.

I'm sorry. I interrupted you.

A. And because, you know, there are losses to deliver that usage of sales to them, I added losses to that amount and subtracted that out of UE's weather normalized loads.

I also had --

Q. Let me stop you there for a second.

How did you figure out how much to subtract for losses?

A. I consulted with Allen Bax, who did losses -- Staff Witness Allen Bax who did losses in this case at the system level.

Q. And what was the adjustment that you made for losses?

A. I believe for these wholesale customers it was 4 percent.

Q. 4 percent.

And then did you have to also deduct for losses for the rest -- for the other gross hourly numbers?

A. Um, no, I did not, because that's at the generators. So there is no losses for station use.

Q. Okay. Let me back up for a second.

Okay. Let's talk about station use for a second.

You made a deduction for station use.

Is that right?

A. Yes, I did.

Q. And that came out of the hourly numbers for Ameren and Union Electric both. Right?

A. The station use numbers that I used were monthly numbers that were part of a DR answer.

Q. Okay. So the Company provided you with those?

A. Yes.

Q. And did they provide you with a station use number for Ameren as a whole and a station use number for Union Electric?

A. Yes.

Q. Okay. So that station use -- and we already talked about the Ameren Energy Marketing customers.

But losses I'm having a little trouble understanding.

You said that losses were 4 percent for those customers -- associated with those customers that you took out?

A. For the -- because they are at a higher delivery than your typical residential or secondary customer.

Q. And does that mean that losses are less?

A. Yes, it does.

Q. Okay. But didn't you have to also adjust the other numbers for losses, too, the remaining volumes in

those hourly -- in the Ameren and Union Electric hourly --

A. No. Because those are at generator and they include losses.

Q. I'm not talking about the station use. I'm talking about just all of the other hourly load numbers.

Didn't those also have to be adjusted for loss?

A. My understanding is that is -- those numbers come from the generating units themselves. They already include losses.

Q. But aren't there -- again, maybe I don't understand this, but I thought there were losses, transmission losses.

In other words, after the electricity leaves the generating unit, aren't there, like, line losses incurred in delivering it to the customers?

A. Yes, there is.

Q. Okay. And did you adjust our gross hourly numbers for those line losses?

A. When I reconciled the net system input into the sales used for revenues, at that point I added losses back in, because the generating plant has to generate enough electricity to get the sales to where they're going --

Q. Okay.

A. -- which includes losses.

Q. Is my limited understanding correct, though, that there are -- in transmission and distribution there are some losses that occur, and that's what you added back in?

A. When I reconciled the sales used to generate revenues to net system --

Q. Okay.

A. -- yes.

Q. But I'm jumping ahead chronologically. You're trying to stay on the chronological.

A. Yes.

Q. Okay.

So the losses that you adjusted for right now in this part of the chronology are the 4 percent.

And how did you get that 4 percent?

A. I consulted with Staff Witness Allen Bax.

Q. Okay. So then is there any other adjustments that you made at that point?

A. Not to UE's load.

Q. Okay. Then what did you do?

A. Then with Ameren's load I took out ADM, as I've discussed earlier, plus losses, again, 4 percent.

Q. Losses associated with --

A. The delivery of -- yeah, what they -- ADM required.

I weather normalized the average and the peaks for those, derived hourly loads out of that, weather normalized.

Q. So now you've got for both Ameren and Union Electric?

A. And because the wholesale sales that I took out of UE were already in Ameren, I didn't have to add those back in. So that was already a part of Ameren.

Q. Okay.

A. At that point I needed to normalize for ADM's loads.

Q. Okay.

A. And, um, I only had -- I had eight months worth of data for them.

So I used that information to determine hourly loads for ADM for the year beginning January 1st through December 31st.

Q. So you kind of extrapolated a whole year's worth of hourly data based on the eight months that you actually had.

Is that right?

A. But I was careful in -- because weekend usage is different than a weekday usage for ADM, I was careful to make sure that the weekends lined up and that I took months of usage -- I didn't take an August month and put

it in January. I took a winter month, replicate January.

Q. Okay. Then what did you do?

A. I added those loads to Ameren, ADM loads to the Ameren normalized loads.

Q. Got you.

A. At this point I received a normalized usage number that included adjustments for weather to sales, growth, customer growth, any large customer annualizations for UE Missouri, and I think that was it.

I added those together. I had that number. I applied losses as supplied to me by Allen Bax. So I had an annual kilowatt hour number.

Q. Is this different than the 4 percent -- is this a different loss calculation than the 4 percent?

A. Yes, it is.

Q. Okay. Let me stop you there for a second.

At some point I'm expecting that you're going to use the Ameren and Union Electric data to calculate CIPS.

Is that coming up in the future?

You haven't gotten there yet?

A. I haven't gotten there yet.

Q. You didn't skip over it?

A. I didn't skip over it.

Q. I just wanted to make sure.

So this is the point where you add in a loss factor?

A. Oh, the other adjustment I added too, because all of the sales were on a Missouri jurisdictional basis. I acquired Illinois sales number --

Q. For Union Electric?

A. -- for Union Electric because it needs to be at a net, total UE company.

So that was added and the losses were applied, and the hourly net system input into production costs model was reconciled so that you can sum those loads and they will be equal to the sum of the sales, growth, weather adjustment, Illinois jurisdiction and losses, so they are consistent.

Q. Okay. What did you use for losses in this calculation?

A. I don't remember the exact number. It was above 7 percent. But I don't remember.

Q. Above 7 percent?

A. I believe so.

Q. And you might have already said this, but why the difference between the loss applicable to the municipalities and the loss applicable to the rest?

A. Energy is delivered to the municipals and to large customers such as ADM at a primary level or higher

transmission level.

And UE has over a million residential customers who take service at secondary, which means there is greater losses going from primary to secondary.

Q. Okay. So they're losing -- as the electricity goes through the distribution system, whereas, when you sell to a municipality, those distribution losses are kind of on the municipality. Is that --

A. From the point they take it to where it's delivered to municipal customers, yes.

Q. And where did you get the -- did you calculate the number used for losses or did you get it from Allen Bax?

A. I got the percentage from Allen Bax.

Q. Okay. And does the percentage he gave you represent an average for the year?

A. Yes, it does.

Q. Isn't it true, though, that losses is a factor that varies over the course of the year pretty considerably?

In other words, in the summertime -- on a hot day in the summertime, isn't it true that the losses are higher than sometime when there is less electricity being delivered to customers?

A. That's true.

Q. Do you know the magnitude of the variance between the losses experienced on a hot day and, you know, a 65-degree day?

A. Not for this time period, no.

Q. Okay. I guess would it be fair to say the results that you produced would have been more accurate if they would have taken into account the variance in losses between periods of heavy use and period of less heavy use?

A. The losses would have been -- there is more to this equation than just the losses. So you have to be able to have consistent sales and usage data to go with the monthly losses.

Q. But I mean, you had -- you had hourly sales data. I mean, I understand there is limits to what you can do with the data.

But if you had had -- and I'm sure the data doesn't exist.

But if you had had losses that tracked every hour of the system use, and you could have applied those loses to each hour's data, isn't it true that you would have had a more accurate picture of what went on?

A. I did not have hourly sales data.

Q. What is the hourly data?

A. The hourly data is at generation.

Q. Okay.

A. So that already includes the losses. I did not have hourly sales data.

Q. Okay. Well, let me ask you this. Let me ask it more simply.

Could you not have got more accurate outputs if you had used a loss factor which reflects the seasonal difference in losses as opposed to a single 7 percent, or whatever the number was?

Wouldn't that have -- wouldn't that -- wouldn't use of a seasonal loss factor or a monthly loss factor or a daily loss factor, if the data was available, wouldn't those factors -- use of those factors have yielded more accurate results than a simple annual average loss factor?

A. I don't know.

Q. Okay. You didn't calculate the loss factor though. Right?

You got it from Allen Bax?

A. Right.

Q. He calculated it?

A. That's correct.

Q. And is it -- I've been kind of assuming it's an annual average. Is that your understanding?

A. That's correct.

Q. Okay. Do you know very much about how losses are calculated?

I mean, is that an area that you do work in?

A. I've never done that calculation myself, no.

Q. Do you know the difference between an energy loss multiplier and a demand loss multiplier?

A. No, I do not.

Q. Do you know which one you used in your calculations, if either?

A. No, I do not know.

Q. Okay. Then what is the next thing you did after all of that?

A. So I had Ameren weather normalized -- or normalized not just weather but also normalized for ADM. And I had UE loads.

And at that point I subtracted UE from the Ameren on an hour-to-hour basis, and that's how I developed the CIPS load.

Q. Okay. So you didn't have to -- you were subtracting weather normalized UE from weather normalized Ameren, so you didn't have to apply -- you didn't have to do a separate weather normalization calculation --

A. That is correct.

Q. -- for CIPS.

Is that correct?

A. That's correct.

Q. Okay. Did you make any other adjustments to

the CIPS numbers?

A. No, I did not.

Q. One area is -- and I think you may have touched on it earlier.

My understanding is there are some customers in the CIPS service territory, and Soyland is one that I know you mentioned before, and the Illinois Municipal Electrical Association is another, that my understanding is that are served by non-- nonAmeren generators.

Did you make adjustments -- do you know about that? Is that true, do you know?

A. I'm somewhat familiar with the Soyland contract but not the Illinois Municipal contract.

Q. Okay. Did you make any adjustments for either Soyland or the Illinois Municipal Electrical Association loads?

A. We did -- I did discuss with Leon for Soyland. They also have some generation that UE has control over.

Q. Soyland does?

A. Yes.

And that was included in the production cost model.

So no adjustment was made for Soyland. I did not know anything about the Illinois load, so I didn't do any consideration or any looking at those loads.

Q. Okay. If those are loads in AmerenCIPS control area but they are served by nonAmeren generating sources, would it be appropriate to make an adjustment for them?

A. If, unlike Soyland, UE does not have control over some of their generation, then, yes, it would be appropriate to remove them.

Q. And even with respect to Soyland, I understand you talked -- when you say Leon, you mean Leon Bender --

A. Yes.

Q. -- the production cost model witness?

And I guess he reflects that in the production cost model.

But what about for purposes of Jan Pyatte's calculation of normal revenue, shouldn't both the IMEA and -- which is the Illinois Municipal Electric Association -- and Soyland loads, if they're served by nonAmeren generators, be adjusted for?

A. No. That has no relationship at all to what is given to Janice Pyatte.

Q. Okay. Are there any other adjustments that you made?

Or what did you do next?

I guess I'm back to what did you do next?

A. I wrote my testimony.

Q. Okay. So your analysis was done at that point?

A. That's correct.

Q. And you had -- the results were you had weather normalized CIPS loads, as well as weather normalized Ameren and normalized for other factors too, and normalized Ameren Corporation and AmerenUE --

A. That --

Q. -- hourly loads?

A. Yes, as a result of my analysis.

Q. What was your interaction, if any, with Union Electric Company personnel when you did your analysis?

Was there any -- did you ask them about any of the stuff other than the data requests that you asked?

Did you meet with them or did you just do the work on your own?

A. I did not meet with them. I did not discuss methods with them. I did discuss -- when I went to reconcile and do reasonableness checks, I did call Tim Finnell, to Pam, to check with them -- I think that's the only people there I talked to -- to check with them about why -- oh. I talked with Su Yu, who also works with Rick Voytas, all in trying to reconcile the numbers and to get information about the data that I was using.

Q. Okay. How many times did you talk to people at UE, do you think?

A. Combined, probably a dozen times.

Q. Were they helpful in giving you the information that you needed?

A. They were extremely helpful.

(OFF THE RECORD.)

BY MR. BYRNE:

Q. Let me ask about the source of temperature data that the Staff uses in rate cases.

My understanding is -- recently there was a Union Electric gas case, and my understanding is that for Union Electric's gas territory, for their weather normalization, they used different temperature reading areas.

Do you have any familiarity with that at all?

A. I don't know what they use, if that's what you're asking.

Q. I mean, I guess what I'm saying is, they don't use Lambert for temperature data for our Columbia, Missouri or Jefferson City, Missouri or Cape Girardeau areas?

I mean, do you have any knowledge of that, or does that sound right to you?

A. That sounds correct.

Q. And why wouldn't they use Lambert for that?

A. Because their loads -- the gas loads are more close -- are closer to Columbia and the Cape weather

stations than they are the St. Louis weather station.

Q. But isn't an advantage of the St. Louis weather station that it's a class one, or the highest class of a weather station?

A. I don't know.

Q. You don't know.

Okay. But in any event, because of the geographic differences, you would agree that it's appropriate to use Columbia, say, for the mid-Missouri portions of our gas service territory; it's appropriate to use Cape Girardeau for our Cape Girardeau portions, rather than Lambert?

A. From my limited knowledge, yes.

Q. And you wouldn't use Lambert for, you know, Kansas City Power & Light, would you?

A. No, we do not.

Q. What do you use for them?

A. We use KCI.

Q. And that's Kansas City International Airport --

A. Yes, it is.

Q. -- weather station?

And I guess the point being, you need to have a weather station that's physically close to or in your service territory.

Is that fair to say?

A. To where your customers are, yes.

Q. Okay. But it's my understanding, though, that when you -- over the course of developing weather normalized hourly loads for the AmerenCIPS service territory, under your analysis that's based on Lambert Field/St. Louis temperatures. Is that correct?

A. That is correct.

Q. Okay. And are you aware of the location, the geographic scope of the AmerenCIPS service territory?

A. I'll have to clarify what I said earlier.

I used Lambert for Ameren and for UE. CIPS is the fallout from the two.

Q. Okay. But if you used it for Ameren and you used it for UE and you calculated CIPS by subtracting UE from Ameren, isn't it implicit in the weather normalized CIPS numbers the weather normalization that was done on the Ameren and the UE data using Lambert Field temperatures?

A. Ameren is consistent with St. Louis airport as a whole, and we know that UE is -- or we believe that UE is then the fallout -- I would have to do some analysis to know whether that is implying that you're using St. Louis weather or it's the fall -- the difference.

The difference is CIPS if the majority of the usage is UE.

So I'm saying that I really don't know because I haven't done an analysis on that.

Q. Okay. Let me talk about some other things in your answer.

One is, you do have a long history of using Lambert -- and I think the Company does too -- of using Lambert Field/St. Louis as the appropriate temperature for Union Electric's Missouri service territories.

Is that correct?

A. That's correct.

Q. And I don't think there is really any debate about that, is there, between the Company and the Staff, to your knowledge?

A. Not to my knowledge.

Q. Other than Laclede, who I don't work for anymore.

And so I understand that. But you also said -- well, you also said if it's appropriate to use Lambert for Ameren as a whole.

And did you make a determination that it's appropriate to use Lambert temperatures for Ameren as a whole?

A. I did consider it based on the weather data we had available and the knowledge that the majority of Ameren's load is in Missouri, is in UE. I went ahead and

used the St. Louis airport weather for Ameren also.

Q. But you didn't do any analysis of that, did you?

A. No, I did not.

Q. Okay. And when you say the majority of Ameren's customers are UE, do you know roughly what the breakdown is between UE and CIPS in terms of customers?

A. Not in number of customers, but in size of load, yes.

Q. Okay. What's the breakdown?

A. The total peak, normalized peak for this, the year that I normalized was 10,600 megawatts, and the normalized peak for UE was 7,800.

So the UE load is about twice of what the CIPS load is.

Q. I didn't follow -- I didn't hear a number that was twice the other number. So would you go over that again?

A. 10,600 would be Ameren total system.

Q. Okay.

A. 7,800 is UE. Using rounding, that's about 3,000.

Q. Okay. So 70 percent of Ameren's load is UE on the peak?

A. 70 to 80 percent, yeah.

Q. Okay. Really, UE has more than double the load based on that peak?

A. Yes.

Q. I might have asked you this before, but do you know the geographic boundaries of the CIPS territory?

A. No, I do not.

Q. Do you know what states they're in?

A. No, I do not.

Q. Do you know whether part of it is in Illinois?

A. I would assume part of it is in Illinois.

Q. Do you know if part of it is in Indiana?

A. No, I do not know that.

Q. Do you know if part of it is in Minnesota?

A. No, I do not.

Q. Okay. Do you know what temperature measuring locations CIPS uses in their rate cases?

A. No, I do not.

Q. I've been told there are temperature data in Marion, Natune (phonetic sp.) and Quincy, Illinois.

That doesn't ring any bells for you?

A. No, it doesn't.

Q. Okay. Did you ask anyone at Union Electric what temperature data is used to normalize CIPS loads?

A. No, I did not.

Q. Why didn't you?

A. I didn't have time.

Q. Okay. And you didn't have time.

Why didn't you have time?

A. We have had a busy -- a heavy workload at the Commission this year.

Q. And were you trying to meet a deadline for your testimony to be filed in conjunction with the complaint?

Was there, like, a deadline you knew you had to meet?

A. There was a filing deadline of July 2nd.

Q. And who established that deadline?

A. The Commission order said that we could file a complaint case as of July 1st. That was a Sunday. So we assumed July 2nd.

Who actually determined that was the day, I don't know.

Q. Okay. I mean, the Commission order said you could file a complaint as of that day, but it didn't require you to.

Is that right?

A. No, it did not.

Q. But somebody in Staff decided that July 2nd was going to be the complaint filing day?

A. That's correct.

Q. And they also wanted to -- although I guess

didn't necessarily have to -- but wanted to file the testimony concurrently with the filing of the complaint?

Is that true?

A. I believe it's now required that we -- I know for rate cases that -- rate increase cases that you have to file direct testimony when you file the case.

Q. Okay. So whether it was a requirement or not, it may have been a requirement or maybe you were just following the practice of rate cases?

A. That's correct.

Q. But you don't know who made that decision in the Staff?

A. No, I do not.

Q. Who told you that your testimony had to be filed by July 2nd?

A. I don't remember.

Q. Okay. And did that put a pretty considerable burden on you to complete your testimony by that date?

A. Yes.

Q. If you had had more time to work on your testimony, are there additional things you would have done?

I guess -- the reason this came up to begin with is asking about what temperature stations were used to normalize CIPS.

And I guess that's probably one thing that had you had the luxury of a lot of time you might have pursued further.

Is that a fair statement?

A. That's a fair statement.

Q. Are there other things that if you would have had additional time to pursue, you would have, that related to your testimony, that you would have liked to, in a perfect world, if you had more time?

A. I can't think of any other.

Q. Might you have done additional reasonableness checks if you had more time?

A. Most likely, no.

Q. Might you have considered other alternatives to the way you did your analyses if you had had more time?

A. Given the luxury of all of the time that I wanted, I probably would have weather normalized CIPS independently, might have been one other analysis that I would have done to check as a reasonableness check against what fell out.

Q. Are you thinking of a specific reasonableness check, or are you just thinking you would have come up with another one?

A. Yeah, I would have come up with another one.

This is the first time that I've had to do

that.

Q. Would it be fair to say that you are more rushed than usual by the deadlines of this case, more rushed than usual in a rate case where -- well, just more rushed than usual in a rate case or a complaint proceeding?

A. Unfortunately, not anymore, no.

Q. Were you more rushed in this case than you historically have been in the past even if now everything is a rush?

A. In the past there has been some cases when there has been more resources devoted to weather normalization, yes, if that's --

Q. And I guess in a rate case as opposed to a complaint case, you know, there is an 11-month period from the time the case is filed until the conclusion of the case. And I guess within that 11 months the Staff is afforded many months of time to do their analysis and file their testimony.

How much time did you have in this case from starting of your analysis to the day it had to be filed?

A. I can't say that.

Q. Well, do you have any -- I mean, surely you must have -- and I know you can't probably say the specific date, but was it, like, at the beginning of the

year time frame that you started your analysis, or was it -- do you think it was -- let me ask you this: Do you think it was before or after the beginning of the year 2001 that you started your analysis?

A. It was before that.

Q. Okay. Do you have any order of magnitude of how much before?

A. Probably three or four months before then.

Q. Okay. And during the period that you were working on this case, were there a lot of other things that you were working on that took time away from it?

A. Yes, there was.

Q. What were some of the main things that you were doing that took time away from preparing for this case?

A. We had another electric rate case, Empire District Electric Company.

Q. And you filed testimony in that?

A. Yes, I filed testimony in that.

Q. Did you file direct -- how many pieces of testimony did you file?

A. I filed direct. The company agreed to my numbers, so that was resolved.

I've also spent a lot of time on the EFIS project, which is Electronic Filing Information System.

I've worked considerably on some rule changes

that the Commission is working on also.

Those would be the major projects that I was working on.

Q. Were there chunks of time in between when you started working on this case -- which was three or four months before the end of 2000 and, I guess, when you filed -- were there chunks of time when those obligations pretty much prevented you from doing any significant work on this case?

A. Yes, there was.

Q. Were there months in a row where you couldn't do any significant work on this case?

A. Not months. I wouldn't say months.

Q. A month?

A. Not at one time, no.

Q. Were there a bunch of several week-long periods where you --

A. There were some week-long periods, yes, within that time period where I did not have time to work on this case.

Q. Okay. You certainly haven't had the luxury of only focusing on this during that period of time that you were working on it?

A. No, I did not have that luxury.

Q. Did you spend more time on those other things

than you did on this case during that period?

A. Most likely. I can't say for sure, but most likely.

Q. Could you rank -- like, is the -- of those things that you mentioned, what did you spend the most time on, the electronic filing thing maybe or Empire case or this case?

A. I really can't say.

Q. Okay. But they were all considerable consumers of time, including this case?

A. Yes.

Q. Okay. Let me ask you this: I guess getting back to the CIPS -- I mean, in my mind if you used Ameren -- total Ameren hourly loads weather normalized with Lambert data and you subtracted Union Electric hourly loads weather normalized from Lambert data to get CIPS hourly loads, in my mind, to my way of thinking, those CIPS hourly loads are implicitly weather normalized with Lambert data.

What is wrong with that?

I mean, do you agree with that or not?

Surely there is no other temperature data from Illinois or Minnesota that's influencing the calculation, is there?

A. The weather in Minnesota or Indiana is

affecting the loads that go into the AmerenUE -- or the Ameren hourly loads.

Ideally, those should be weather normalized using weather stations closer to where those loads occurred. The amount -- the difference in the weather adjustment, if it was significant or not, is where I'm having --

Q. Got you.

A. -- the problem.

Q. You don't know whether it would have been significant -- even though ideally you should use weather stations closer to the CIPS territory in part of your analysis, and even though you didn't do that in this case, you're saying that you don't know what, if any, significance that would have in your outcome?

A. That's correct.

Q. Okay. Well, let me ask you this: Would it surprise you to find out that CIPS -- temperatures in the CIPS territory were significantly different than temperatures in the UE service territory during the period that you looked at this data?

A. No, it wouldn't surprise me at all.

Q. What would you -- I guess -- let me ask you: What would you consider a significant difference in temperature?

If temperature was 10 percent cooler in the CIPS service territory than in the Union Electric service territory, would that be a significant difference for purposes of your analysis?

A. That would be dependent upon the mix of customers in the CIPS territory.

If there is a lot of base-load customers that are not affected by weather, then a 10 percent adjustment to weather -- a difference in weather does not equate to a 10 percent difference in sales. It would be less than that.

And whether it's significant or not would have to do -- would depend on the makeup of the customers in the CIPS territory.

Q. Could you just assume for me -- and I realize you haven't analyzed the CIPS customers.

But could you assume for me that they have a weather sensitive load on the same order of magnitude as Union Electric Company; they have the same mix of residential and commercial and industrial customers.

And under those circumstances do you think a 10 percent difference in degree days, let's say, would make a significant difference in the outcome of your analysis?

A. I really don't know.

Q. What about a 20 percent difference, does that become significant?

And I understand you can't know with mathematical precision, but I'm just trying to get a feel for when the weather difference matters in your calculation to a reasonably significant degree, if you know.

A. 20 percent would be more likely to make an impact at 10 percent. That I can tell you.

Q. If I just keep going up by 10s, would 30 percent certainly -- you know, almost certainly be a significant change?

If the degree days were 30 percent colder -- if the degree days indicated that the CIPS territory was 30 percent colder, assuming the same type of weather sensitivity in a load as Union Electric, would that almost certainly be a significant impact on your analysis?

A. Yes.

Q. Okay. And 20 percent might be a significant impact?

A. Yeah.

Q. 10 percent, then it starts being more marginal?

A. That would be a correct representation.

THE COURT REPORTER: Excuse me. I need to change paper.

(OFF THE RECORD; THE LUNCH RECESS WAS TAKEN.)

BY MR. BYRNE:

Q. Have you finished explaining your analysis?

I mean, did you get to the end when we were going through that chronologically?

A. I believe so.

Q. Okay. And you talked to me a little bit about reasonableness checks.

Did you pretty much tell me all of the reasonableness checks that you did that you can remember?

A. I talked about reasonableness checks on the results.

Also within the analysis itself there are several checks and balances built in, two different ways to come up with the same answer, to see -- to make sure that I'm getting the correct answer.

Q. Can you tell me how that worked?

A. More or less I have two different ways that I can calculate the normal -- normalized loads for each day.

There is two different equations that I can use. I calculate them both way. And if they're the same, then I conclude that at least I've got the answer for those equations the same. If they're different, then I go back and look for some problems.

Q. And in this case they were the same?

A. They were the same.

Q. And it's not even just -- they were exactly the same. It's not a case of it being the same order of magnitude?

A. No. They were exactly the same.

Q. Is that more or less checking for mathematical type of errors?

A. Yes.

Q. Okay. Both ways are the same kind of analysis. It's not like approaching it from a whole different kind of analysis?

A. No. It's just using two different equations to come up with the same.

Q. Before we talked about the difference in peak load between UE and CIPS, and I think you said that you don't know how many -- what the difference in number of customers between UE and CIPS is?

A. That's correct.

Q. Okay. Do you know who has more customers even?

A. I would assume Ameren does -- or UE does, since the load is so much larger.

Q. Okay. If you could, for the next few questions, could you assume that UE has three times as many customers as CIPS?

Okay?

A. Okay.

Q. I realize you don't know that to be true.

Okay. Take a look in your testimony at Schedules 3 and 4.

Can you tell me just generally what is shown on Schedules 3 and 4?

A. Schedule 3 is the results -- a summary of the results of the normalized hourly loads that were used -- inputs into the production cost model for AmerenUE.

Schedule 4 is the same but it's for Ameren, the total system, both UE and CIPS.

Q. And could one calculate the net system load normalized for the same period for CIPS by subtracting the AmerenUE load from the Ameren load?

A. You can do that on an hourly basis, and you could create a portion of a similar table from these numbers.

The monthly usage you could do it direct, subtraction. The monthly piece may not -- you necessarily may not be able to do that with --

Q. Okay. But at least for monthly usage, it's that simple?

A. Yes.

Q. You can take Ameren total, subtract AmerenUE and you get AmerenCIPS?

A. That's correct.

Q. Okay. Okay. Let's look at a couple of specific months. And I'm looking at -- okay. Let's start with Ameren, and I'm looking at the monthly usage adjustment in megawatt hours. This is shown on Schedule 4 for June of 2000. And it looks to me that that number is 315,120.

Is that correct?

A. That's correct.

Q. Okay. Then if you flip back to Schedule 3 and look at the same month for AmerenUE, that shows that for June of 2000 the adjustment in monthly usage and megawatt hours is 91,856. Is that correct?

A. That is correct.

Q. So not being a math wizard, if I was to subtract the 91,856 from 315,120, I would get the monthly usage for that month for CIPS.

Right?

The monthly weather adjusted usage?

A. That is more than just weather adjustment.

Q. Okay. What else is in it? All of the other --

A. A big one is the fact that I added ADM, Archer-Daniels-Midland.

Q. Okay. And we've talked about all of the adjustments you made, so this is at the end of that

process.

So all of those adjustments lead to adjusted usage for Ameren and UE.

So it's not just weather?

A. It's not just weather.

Q. Okay. But the end result is -- so then if you subtract the 91,856 for AmerenUE from the 315,120, you get an adjusted usage that is adjusted for a bunch of different things --

A. Right.

Q. -- but primarily weather?

A. Probably in this case ADM addition of that load probably dwarfs -- or is bigger than the weather adjustment.

You are talking about 200 megawatts -- over 200 megawatts every hour in a month, which is 744 hours. That's a large load.

That's the reason I had to add it back in, because it is such a significant load.

Q. Okay. So the fact that the adjustment -- it seems to me if you subtract those numbers, you end up with, like, maybe 224,000 or so in round numbers?

A. 200,000, yeah.

Q. Yeah. A little more than 200,000?

A. Uh-huh.

Q. So your adjustment for AmerenCIPS is more than double the adjustment for Union Electric.

In terms of a reasonableness check, does that strike you as reasonable?

A. If it was just weather, no, it would not. But the fact that Archer-Daniel-Midland is included where it did not exist before in CIPS load, that -- and I did take the Archer-Daniel-Midland -- I checked it before I added those back in for consistency.

And for the major reason that you're -- I looked at these and said, wow, that's a big difference. What is it?

And after taking out Archer-Daniel-Midland, I did not see as big an inconsistency.

Q. Do you know how big the inconsistency was without Archer-Daniel-Midland?

A. I don't know if I have that with me. I don't even know if I pulled it out. I don't believe I printed that out.

Q. Do you still have that information, so that if we asked for it in a data request, you could print it out, or has it disappeared into the ethereal air of electronic things that got deleted?

A. I don't know. I may still have it. I may have written over the top of it.

Q. Would you not delete it if you have it?

A. I won't delete it.

Q. Okay.

A. I mean, it can also be calculated giving the workpapers that I sent you. I have Archer-Daniel-Midland hourly loads that I created, along with the rest.

Q. Okay.

I note -- you know, the same thing, I guess, is true if you look at the July numbers.

Again, the Ameren total monthly usage is 340,777 and the UE is 102,665. You know, again, that looks like if you just subtract 102 from 340, it looks like the CIPS adjustment is more than double Union Electric.

Is that correct?

A. That's what this shows, yes.

Q. And, again, I assume that would not be -- if only weather was involved, that would not be a reasonable result; but since the Archer-Daniels-Midland volumes are being added in, that is what makes it not unreasonable.

Is that true?

A. That's -- that's what my analysis showed.

Q. And let me ask you this: Isn't it also true that whatever difference in magnitude -- if there is a greater weather adjustment for CIPS or -- yeah, if you can

take Archer-Daniels-Midland out of it and just look at the weather adjustment, if there is a greater weather adjustment for CIPS than UE, you also have to factor in -- looking at the reasonableness of that adjustment, wouldn't you also have to factor in the difference in the number of customers being served by each company?

In other words, if there are three times more customers served by UE, it means that whatever difference there is, is even greater?

A. My analysis for net system input does not look at customer numbers at all.

I would agree with you that if you divide that by the number of customers, yeah, it is greater, but that doesn't even enter into my analysis of net system input.

Q. I mean, let's say, for example -- let's assume for a second that even after you reverse the adjustment for Archer-Daniels-Midland -- let's say hypothetically that CIPS had an adjustment that was double Union Electric's.

Well, if Union Electric has three times as many customers, isn't the effect more like six times as great on the CIPS system than it is on the UE system, or is there a mistake in what I'm saying?

A. If you are looking at customers -- if all customers were equal and if the mix of types of customers

were the same, I would agree with you, but I do not know that they are the same.

Q. And you didn't even look at that factor when determining whether these results were reasonable or not.

Is that right?

A. No, I did not.

Q. Okay. I guess I better do August as well.

Looking on the Ameren schedule, which is Schedule 4, for August of 2000, the adjustment is -- it looks like negative 262,252 megawatt hours.

Is that right?

A. Uh-huh. Yes, that's correct.

Q. And then looking at Schedule 3, August of 2000, it looks like the adjustment is negative 364,855?

A. That is correct.

Q. So by my calculations, CIPS must have had a positive adjustment to move the Ameren -- well, maybe not.

I guess CIPS also had -- did CIPS have a negative or positive adjustment?

A. It had a positive adjustment.

Q. And what would the amount of that positive adjustment be?

A. Approximately 100,000 megawatt hours.

Q. And so that's different in direction, not just magnitude.

Is that right?

A. That's right.

Q. And would that have been affected by the Archer-Daniels-Midland's loads as well?

A. Um, there would be only two days in August without Archer-Daniels-Midland's contract. So that, no, this does not affect this difference here.

Q. Okay. So in the month -- just looking at the month of August, you've got a negative -- it's largely unaffected by the Archer-Daniels-Midland that you were talking about before?

A. That's correct.

Q. Is that correct?

A. That's correct.

Q. And you show UE having an adjustment of negative 364,855 and CIPS having a positive adjustment of 102,603.

Doesn't that strike you as -- if you -- if you were doing a reasonableness check, doesn't that strike you as indicative that there might be a problem?

A. Yes, it does, but then it also strikes me as a difference in weather.

Because CIPS, as you pointed out earlier, has different weather than we do -- than UE does. So that is coming out, then, through the weather normalization,

subtracting out the UE from the Ameren.

Q. So --

A. That's one possible explanation.

Q. Did you notice this when you were doing your analysis?

A. Yes, I did.

Q. Are there any other months where there is an aberration like that?

A. Probably most of the rest of the year.

Q. So most of the rest of the year there --

A. And that was -- and we had the real cold December, at least. I don't know that November was as cold. But we had some extreme weather here in Missouri.

I know looking at Cape Girardeau weather lately, they didn't have the same extremes that St. Louis did.

Q. So would it be fair to say, then, starting in August there were significant differences not attributable to the Archer-Daniels-Midland load between UE and CIPS and you noticed it?

Is that true so far?

A. Yes.

Q. And you're attributing it to what?

A. One possible explanation is the different weather that the people at CIPS affects.

Q. Okay. But since you didn't really look at the different weather, you don't know that for sure.

Right?

A. That's correct.

Q. So you're faced with data with a pretty significant aberration and no sure explanation of why that aberration is there.

Is that correct?

A. That's correct.

Q. Okay. Do you know what the MidAmerica Interconnected Network -- also known as MAIN -- is, M-A-I-N?

A. I have a general idea, yes.

Q. What is it?

A. It's a power pool which UE belongs that does their planning and can rely on each other for capacity when needed in energy.

Q. It's like a reliability network?

A. That's one possible way of defining it, yes.

Q. Okay. And how is MAIN related to the National Electric Reliability Council, or NERC, N-E-R-C?

A. I have no idea.

Q. Okay. Well, I really don't either, but I think NERC is, like, at the top of the pyramid and then MAIN is one of the sort of regional ones.

Does that sound like it might be right, or do you not have no idea?

A. I don't have any idea.

Q. Okay. Do you know if MAIN establishes requirements that Union Electric Company has to follow in forecasting its weather normalized peak load for resource planning purposes?

A. No, I do not know.

Q. Do you know if MAIN has written requirements for calculating a weather normalized peak?

A. No, I do not know.

Q. Okay. And I assume you don't know if Union Electric has a legal obligation to calculate a weather normalized peak load in a manner specified by MAIN?

A. No, I do not.

Q. If they did have that obligation -- if they did have the obligation to calculate their weather normalized peak load in the certain specified manner and plan their -- do resource planning to meet that load, would that fact have an impact on the analysis that you did in this case?

A. No, not to my analysis.

Q. So it wouldn't matter to you if Union Electric had a legal obligation to plan its resources to meet a

peak different than the one you calculated?

That wouldn't matter?

A. I believe I would have used -- had I known that peak, I would have used that as a reasonableness check. But at the same time that doesn't mean that I would agree with their method of what they require out of AmerenUE.

Q. Sure.

But you don't even -- I mean, you don't even know that that exists --

A. That's correct.

Q. -- other than me telling you that?

A. That's correct.

Q. Let me ask you an order of magnitude, you know.

If you used it as a reasonableness check, how far -- and I guess this is an hourly peak for the year?

A. Okay.

Q. If the hourly peak for the year that UE was required to calculate for MAIN purposes and for resource planning purposes was 100 megawatts higher than the hourly peak on your analysis, would that suggest that -- would that become significant to -- in a reasonableness check?

A. No, it would not.

Q. How about 150 megawatts, would that become significant?

A. Are you talking for AmerenUE or Ameren?

Q. For AmerenUE.

A. Um, that would cause some concern, but I -- I think it's still within realm of reasonableness.

Q. How about a 175 megawatt difference?

A. I would have to look -- seriously look at both their number and mine again.

Q. Okay. How about a 200 megawatt difference?

A. Anything above 2 percent, which would be about 160 megawatts, I believe, I would seriously look at it.

Q. Okay. Let me ask you this: Aside from the magnitude of the difference, do you see any problem conceptually with Union Electric Company -- assuming -- assume this is true -- having to design its system to meet a peak calculated under requirements established by MAIN on the one hand, and having a legal obligation to do that, and then on the other hand having your analysis which feeds into both how the rates are calculated through Jan Pyatte's testimony and the model that Mr. Bender runs being based on a different peak?

I mean, shouldn't -- isn't there a problem if they don't match?

A. There -- there is no problem -- I would have no concern about the numbers for Janice Pyatte's revenues --

Q. Okay.

A. -- having -- if the peaks were different.

Q. That's not going to affect --

A. That's not going to affect the analysis for revenues.

Q. My lack of understanding of the difference between a megawatt and a megawatt hour is showing.

Okay.

A. If what I'm -- I understand your question right, you're talking about a predicted peak.

What we have here -- or what I do is weather normalized what actually happened. There is a difference there.

The peak is made up of usage that occurred on the day where it was highest. There is weather response in that number. There is response to the time of the year. And in any regression model you have a random, sometimes called error term at the end, which may be positive or negative.

So a weather normalized number can be different from a predicted number.

If those numbers were different, I would go back and see what kind of prediction I got. But -- and how much it concerned me would be based on the differences and what I show with predicted versus normalized.

Q. Okay. Let me ask you this: If there is a difference between your calculation of the peak and the

calculation that is done under MAIN, would it be your recommendation that Union Electric should use the peak that you calculated for resource planning purposes?

A. No. That's not the objective of what I was -- the given objective that I was to do.

Q. Okay. So you would still use the MAIN calculation to resource plan or do whatever you were doing absent my calculation?

A. Yes.

Q. Okay. But if we do use a higher number calculated by the MAIN methodology for resource planning purposes and yet the lower peak feeds into Mr. Bender's model, won't there be -- isn't there a problem there?

Isn't there an inconsistency? Isn't there a gap there?

A. Again, you're talking predicted versus normalized. And on a predicted going-forward basis, it all has to do with the methodology used to come up with the hourly loads that go into that -- go into that model.

Q. What is the difference between predicted and normalized?

My understanding is -- again, this goes back to some stuff we were talking about before.

My understanding is the goal of normalization is to sort of predict what will happen in the future when

the rates are in effect and when the future activity occurs.

Isn't that true?

Or is there a difference in your mind between normalized and predicted?

A. Normalized is adjusted -- it's actual that is adjusted for some known. In this case mostly weather, which is for Ameren or for UE.

Predicted does not have that random error term from a regression in it.

On any day -- given day there is load that is due to weather, and there is other things that happen that affect the loads.

Q. That's the random variable?

A. When we normalize, we keep that randomness -- whatever caused that load to differ on that day from what would be predicted, we allow that to stay in there because we think that's important.

Q. Okay. On another subject that we talked about earlier today, I think you said that -- I don't want to put words in your mouth, so listen carefully and correct me if I'm misstating what you said.

But I think you said that it didn't matter that you used Calendar Year 2000 for weather normalized load purposes, because, at least in the short run, if you take

the weather out of the equation, it doesn't matter. All of the base periods are going to be about the same.

Is that fair?

A. That's a fair representation of what I said.

Q. And I guess there would be a little bit of change from time to time to reflect a growth factor, whatever growth and load the system experiences.

Is that true?

A. That is true.

Q. And I guess in the longrun, you had said there could be significant technological breakthroughs that change the way heating and air conditioning work, and that would obviously be a significant change, but --

A. That's a fair representation, yes.

Q. Okay. Do you know what the load growth rate is on Union Electric's system at all?

A. No, I do not.

Q. How about -- what I have heard -- and tell me if this rings a bell or not -- is it's on the order of 1 to 2 percent a year.

Does that sound right?

A. That would be my guess.

Q. Okay. But it's just a guess?

A. It's been some time since I saw that number.

Q. Is it at least an educated guess?

A. Yes, it's an educated guess.

Q. Okay. So if you were to take weather normalized loads for, let's say, the last three years, say 19-- calendar year 1999, 2000 -- well, that doesn't quite work, does it?

How about, you know, year ended June 30th of '99, year ended June 30th of 2000 and year ended June 30th of 2001 and you were to weather normalize those loads, my understanding is the results ought to be about the same if you looked -- if you compared -- let's take January, because I can't get out of my heating mode -- take January of 1999 and January of 2000 and January of 2001 and looked at those weather normalized for all of those years, those ought to be similar except for whatever level of growth in load occurs.

Is that fair?

A. Unless some other event happened --

Q. Sure.

A. -- to change --

Q. There could always be some other event?

A. Theoretically, yes, that's the way it should be.

Q. And I guess the same thing putting on my electric company hat, if you took August of -- I guess in my example it would be August of 1998 and August of 1999

and August of 2000, again, you ought to see the same -- it ought to be a -- weather adjusted loads ought to be very similar, albeit with a modest growth.

Is that right?

A. With the growth, yes, that's correct.

Q. So for purposes of a reasonableness check, did you look at that at all?

In other words, did you look at what your weather normalization loads were from period to period in recent years to see if that modest growth rate existed?

A. This is the only time period that I've done weather normalization for AmerenUE, in that time period. So I had nothing else to compare it to.

So, no, I did not.

Q. What was the time period that you did it?

A. October -- to get the year beginning January 2000 through December to 2000, I used October of '99 through March of 2001.

Q. So you could have looked at -- you had duplicate months for some of the period of time?

A. Yes.

Q. You could have looked at January 2000 to January 2001 or February or March or, I guess, October, November, December, you could have, but you didn't do that?

A. No, I did not.

Q. Okay. And if you did look at those weather normalized numbers and they showed significant differences, you know -- if, you know -- if it was, you know, far in excess of the order of magnitude of growth, would that would be a fact that would cause you to look at your analysis to see what could be causing that?

A. Yes.

Q. And if you had, you know, pretty wild swings -- and I guess the order of magnitude that I'm talking about is 20, 25 percent swings, say, from one -- you know, January 1 of one year to January the next year or February 1 of one year to February the next year, weather normalized, if those kind of swings occurred and if they could not be explained by an extraordinary event, wouldn't that suggest that there is a problem with your analysis?

A. Either with the analysis or the data that was used --

Q. Okay.

A. -- that is input into the analysis.

It could be the UE billing system.

Q. But something is wrong if you're seeing swings like that?

A. Yes, something would definitely be wrong.

Q. And it's possible that the something that could

be wrong is the weather normalization methodology?

A. That's correct.

Q. Okay. Did you talk to any Staff members about your testimony before you wrote it or about your analyses as you did them?

A. I discussed the weather adjustment to sales and the sales numbers that I recommended, I discussed those with Janice Pyatte, and that would be just about it. I don't know that I discussed it with anybody else.

Q. Okay. I'm assuming from that answer that you didn't get any direction from anybody about what your testimony ought to say or anything, did you?

A. No, I did not.

Q. They just said, do the weather analysis?

A. That's correct.

Q. Okay. Nobody suggested what the result of the analysis should be or anything?

A. No, they did not.

Q. No one tried to influence your results or anything?

A. No.

Q. Okay. And then I assume you developed drafts of your testimony?

A. Yes.

Q. Who would have reviewed the drafts of the

testimony?

A. Um, Dennie Frey, Steve Dottheim, Janice Pyatte reviewed it, and I believe Doyle Gibbs and maybe Greg Meyer would have been on -- I think that is who is listed in my interrogatories.

Q. It's just -- I can look at the interrogatories. It's just whoever is there.

A. Yes.

Q. Did any of those people suggest that you change your testimony from one draft to the next?

A. Not substantially, no.

Q. I guess they would catch grammatical problems and things like that?

A. Yes.

And sometimes, you know, they would say, this sentence doesn't make any sense. Can you rewrite it so it makes sense?

Q. They never said you were being too nice to the company, be a little meaner?

A. No. And look what it got me.

Q. You may have answered this already. I apologize if that's the case.

But did you consider -- in a lot of respects your testimony follows traditional Staff positions, using 30 years of data, using the rank and average method.

Did you ever consider deviating from those methods in your analysis, or were you pretty much just going to follow what the traditional Staff analysis has been?

A. I'm always open to new and better ways of doing things.

The fact that we've used HELM rather than our method is one example. I've yet to be showed or find anything that is better than what I used here.

Q. Do you think you would have been permitted to file an analysis that is significantly deviated from the Staff's practice?

You know, would you have been -- for example, been permitted to use another weather normalization -- and maybe that's not even the right term -- but another method beside the rank and average method, or is the Staff pretty much committed to that so that you'd have to give an awfully good reason to deviate from it?

A. I would be allowed to deviate.

Q. And how about using 30 years of weather data, do you think you would be allowed to deviate from that if you thought it was appropriate?

A. If I thought it was appropriate and could convince others in the Staff.

That is not my area of expertise, so, you know,

it would have to be reviewed and analyzed by others in the Staff. But if I came up with something better --

Q. They would listen to you?

A. -- they would listen, yes.

MR. BYRNE: Okay. I don't think I have any more questions, but can I have just a minute to make sure of that?

Can we go off the record?

(OFF THE RECORD.)

MR. BYRNE: I don't have any more questions.

Thank you very much for your patience today.

THE COURT REPORTER: Waive presentment; obtain signature?

MR. FREY: Yes.

(SIGNATURE ON THE FOLLOWING PAGE.)

(THIS IS THE SIGNATURE PAGE TO THE DEPOSITION OF LENA MANTLE TAKEN ON NOVEMBER 20, 2001.)

_____
LENA MANTLE

subscribed and sworn to before me this day of , 2001.

_____
Notary Public in and for
County
State of Missouri

COPY

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

I, Patricia A. Stewart, RPR, CCR, CSR, Registered Merit Reporter with the firm of Associated Court Reporters, Inc. do hereby certify that pursuant to notice, there came before me,

LENA MANTLE,

at the Governor Office Building, Room 210, in the City of Jefferson, County of Cole, State of Missouri, on the 20th day of November, 2001, who was first duly sworn to testify to the whole truth of her knowledge concerning the matter in controversy aforesaid; that she was examined and her examination was then and there written in machine shorthand by me and afterwards typed under my supervision, and is fully and correctly set forth in the foregoing pages; and the witness and counsel waived presentment of this deposition to the witness, by me, and that the signature may be acknowledged by another notary public, and the deposition is now herewith returned.

I further certify that I am neither attorney nor counsel for, nor related to, nor employed by any party to said action in which this deposition is taken; and further, that I am not a relative of employee of any attorney or counsel employed by the parties hereto, nor finally interested in this action.

Given at my office in the City of Jefferson, State of Missouri, this 21st of November, 2001.

Patricia A. Stewart, RPR, CSR, CCR
Registered Merit Reporter

November 20, 2001

Public Service Commission
Governor Office Building
Jefferson City, Missouri 65101

ATTN: Dennis L. Frey

In Re: Case No. EC-2002-1

Dear Mr. Frey:

Please find enclosed your copy of the deposition of Lena Mantle taken on November 20, 2001 in the above-referenced case. Also enclosed is the original signature page and errata sheet.

Please have the witness read your copy of the transcript, indicate any changes and/or corrections desired on the errata sheet, and sign the signature page before a notary public.

Please return the errata sheet and notarized signature page to Mr. Byrne for filing prior to trial date.

Thank you for your attention to this matter.

Sincerely,

Patricia A. Stewart

Patricia A. Stewart

Encl:

CC: Thomas Byrne