Missouri Statewide DSM Potential Study

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REPORTED BY:

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MR. COSTENARO: Okay. So the first issue is the most important issue. The other issues are playing second fiddle, in my mind, to this issue and that is taking economic potential and translating it into achievable potential.

So this slide we've got -- you've got a lot of activity going on. On the top of the slide, you've got measured databases, you've got load projections, you have forecasts, you've got market information, all this stuff is feeding into a model that is churning through, you know, all the possible combinations of buildings and air conditioners and light bulbs and is spitting out this kind of objective analytic assessment of what could happen to the -- to the energy load, to how low could it go in the future.

Then you take it all and you put it through this funnel of market share projections. So the entire study hinges on this factor. And typically what you do is you say here's all the theoretically available stuff, how much will people accept, how much can you push into the market, how much is available to get through the filter of the customer's mind.

So the next slide I'll show you what -- what we did in our study. We thought this was really important and so we -- we spent a lot of money to do

surveys with people who are actual customers. We went out and asked them questions about their attitudes.

So let me back up and walk through this slide in its entirety. We created a stratified random sample of 4,000-plus Ameren Missouri customers. So then we said here are the people that we're going to survey, going to ask, we're going to assess.

Then we created a battery of probing attitudinal survey questions; so things about the environment, things about your bill, things about energy use, things about -- you know, we wanted to see what their education levels were, what their familiarity was, what actions they had already taken, what they planned to do in the future. So we had this very thorough kind of look into the Missouri customer's mind.

So then we took that into data processing and analysis where we churned that and combined it with the models that we talked about earlier. You know, we've got all those objective things going on and now you marry them up with the psychographic, the demographic and the attitudinal research. And that provides this pie chart of segmentation and factor analysis; who are the EE actives, who are -- who are the people enthusiastic about energy efficiency, who's

more focused on costs, who is just uninterested in general.

And all that plays into the model of the percent penetration on the bottom right. So you get a graph of people by pay-back period. You have a certain pay-back period, you have a certain economic future lined up and X percent of people will act on that opportunity. If it's not as attractive, people -- people will not act on that opportunity.

And so what we've found in our study, and we discussed this with the stakeholders all throughout, were the results were that the Missouri customer typically is less interested in energy efficiency and kind of has an attitude, you know, of the Show-Me State, you know, show me the money, let's take this slow.

And so all of the attitudes and all the projections and all the percentages were -- were less than the national averages, less than -- especially than the coasts, you know, the northeast and Oregon, California and Washington. So those were the numbers that we used in our study.

And if we go to the next slide, these appear to be the numbers that KEMA is going to use in the Missouri statewide study. So this is one of the

things that we wanted to seek clarity on. These are charts essentially doing the same thing. You have a -- you have on the X axis, there's a -- an economic factor or a pay-back, the participant benefit-to-cost ratio, how good is it to the customer. So the further you go out to the right, then on the Y axis, you have participation percent penetration; how many people will act on that opportunity. So we want to know where these curves come from and will one of them be chosen for all the measures in Missouri.

It appears that their -- their national averages, it appears that, you know, in our researching of other KEMA studies, this appears to be the chart that they're using for all of their studies. So we don't know if it's applicable to Missouri, if it -- we just want to understand how it stacks up against the research that we've done with Missouri customers.

So what I've tried to do in the red shaded and the blue shaded areas -- and it's very rough and it's proximate, it's imperfect, so excuse the crudity, but I tried to make our two methods equivalent for this area of a participant benefit-to-cost ratio in the one to five range kind of equate to a one- to five-year pay-back. These are --

this is kind of the wheelhouse of where energy efficiency programs typically act.

You try to -- try to buy down the cost so that it's attractive to the customer in this area. So that they will take a light bulb that they wouldn't normally and they'll buy it and they'll install it or they'll take -- they'll opt for the more efficient air conditioner or they'll do the retrofit, they'll program the thermostat, all these sorts of things.

So the red region on the graph is from -- that's -- that's kind of what we identified as the range in which Missouri customers would typically act on energy efficiency measures. So it goes from 3 percent to 47 percent. So what that means is if you've identified 100 opportunities in the economic potential, if there are 100 light bulbs to be changed and you offer these programs, you can get between 3 and 47 light bulbs actually changed. Because some people won't want to have anything to do with you, some people will chase you out of their house, all these sort of things.

So it looks like if KEMA is using all of these curves, that that range is then 2 percent through 82 percent. And again, these are all just crude just for illustrative purposes. So the question

is will KEMA use all of these curves or will they pick one of them? So the curves -- maybe I should back up and say -- explain the curves. The bottom curve is a curve that illustrates extremely high market barriers. So it's relatively flat.

You have to go way out in the -- the benefit-to-cost ratio, you have to make it very attractive to customers to start rising up on that curve. So this is what you might see with somebody who's a lagger, somebody who doesn't want to have anything to do with it. As you move up in the curves, you get to high barriers, moderate market barriers, low market barriers and no barriers.

So -- so the question is which of these curves does KEMA plan to use to represent Missouri. Choosing the wrong curve could drastically alter the results of the study. You could be -- your answer, you know -- with, you know, the best laid plans of mice and men, you do all the -- you do all the front work, all the top work in that funnel in the previous slide, you get the objective models correct, it could change by multiples just depending on which curve you pick here.

So I think that is -- that's the take-away message from my point of view that we want

to -- to understand, we want to impress on everyone here today. So I'll pause just for a moment to let that sink in.

Okay. So as I said before, the rest of these issues, they're important and that's why we're bringing them up, but I think they're -- they're playing second fiddle to that issue of the -- what is the penetration rate, what is the market acceptance, what are people going to actually do.

So the second issue that we'll talk about is measure of lifetimes. Now, KEMA says that they assume a 20-year normalized measure life. In some energy efficiency measures like insulation, they do last for 20 years so that's easy. But others like a light bulb, if you're -- if you're normalizing everything to a 20-year time frame, you're going to have to replace that sometime in the middle.

So if there's -- you have a CFL with an eight-year, nine-year or ten-year life or something like that, you're going to install it now and then in eight years from now, you're going to reinstall it and then in another eight years, you're going to reinstall it again. So all that takes place in this 20-year normalized time horizon that KEMA talks about.

The question is, how do they treat costs

during that? Is it re-upped for free? Is it installed by the customer? Or is there a program cost to it? So if they're assuming that it just happens naturally by inertia, then that will make -- that will obviously make all the measures look more attractive. We'll be essentially incentivizing, giving a rebate for one bulb that acts for three bulbs.

So that's not the assumption that we made in our study. We assumed that every time a new bulb was installed, if you credited that to the program, we paid the rebate, we paid the incentive. So there was no free market transformation, no free upward swing in our study. So to compare apples to apples, we just want to make sure we understand the assumption that KEMA's making for theirs.

The third issue I'll talk about is avoided costs. We compared the file -- sample economic file.XLS that KEMA provided with the avoided costs that we're currently projecting on the market for our IRP planning process and we see some discrepancies. So we just wanted to understand more about where those came from. And I think that topic was brought up yesterday in the agenda meeting as well, so I think that they're aware that clarity is wanted there.

One particular issue I'd point out is that it -- so -- so to -- to value energy efficiency looking into the future, how much is one saved kilowatt hour worth to us, you look at -- you look at the energy costs and then you look at the infrastructure, the capacity cost that's given to serve that kilowatt hour. If you can reduce that, that's worth that money per kilowatt hour per kilowatt to you.

And for gas, it's worth a dollar amount per therm, it's worth that to you. So the capacity cost is -- that is a cost of how -- how much does it cost to go out and get that capacity on -- and what Ameren seeing is on the market, we can go out and buy it on the market -- instead of buying a new peaking generator, instead of buying a new natural gas turbine plant, we can go out on the market and buy a kilowatt of capacity for, you know, a few dollars right now.

And so our near-term projections of the value of capacity are very low. But KEMA seems to be using -- they're assuming they're not going out to market. They're going to buy build new power plant. So that's their proxy for the avoided capacity costs. So that's, you know, hundreds -- near a hundred dollars per kilowatt. So we wanted to understand

their assumptions behind that.

So that -- what that would tend to do is say if an energy efficiency measure is impacting the peak, if it's reducing the peak load, it's worth -- you know, it's worth its weight in gold, it's very valuable to us right now when, in fact, the capacity markets are depressed because of the economic slowdown. You can go out on the capacity market and buy capacity for chump change essentially right now. So that is something that perhaps should be looked at when putting the study together.

The fourth issue that I'll point out is the discrepancy we see in the peak demand contributions. So the three sectors, they all have different characteristics to them and they contribute to the peak, you know, again that capacity thing, what's happening at the time of system peak.

So we looked at the study that -- or the document with the inputs for KEMA on the right and we compared that to our current data on the left. And so what we see is that KEMA appears to be over-weighting the residential sector to the tune of 65 percent of the pie chart where we have 47 percent of our peak load is made up from the residential class.

While we recognize that there are --

there are other jurisdictions that may not be as urban and may not have the weight of industrial and commercial load that we do at Ameren Missouri, we think that this is -- it's pretty skewed, it's pretty far off. We can see it shifting a little bit, but for the -- for the peak load to be made up of 65 percent residential load, I think that will skew some things in the study.

And this is my final slide. Just a few -- just a few other things that we were wondering about. So we wanted to ask if KEMA and the staff and DNR were going to put cost estimates around the various potential estimates to see how much -- how much it would cost, you know, per kilowatt hour, per therm to deliver the programs.

If you have -- you have a program with -- you know, it delivers X percent reductions in the forecast by 2030 or 2020 but you don't have any cost associated with it, it's less helpful. I think it will help people in discussion to understand costs around them, which is something that we tried to go above and beyond the call of duty in ours to develop a supply curve.

When we did our study, we were very interested in what is the cost of each program, each

measure delivered to the customer and how much is it going to cost to incentivize, to deliver, to market, to educate the customers, all these things.

So that leads into the second bullet point. If KEMA does estimate achievable potential and gather utility program costs, where will they get that information? I don't know that we've provided information to this point about it. Will they use national standards again or will they just see what the costs really are to do business in Missouri in the energy efficiency market?

And then I don't think I've seen anything to date on what the time horizon of the study is. It's just a simple question. Is it going to be 2010 to 2030? I see some heads nodding. Okay.

And then the -- a question was how will KEMA account for municipal and co-op data? Will they extrapolate from IOU data? Will they make adjustments on the various inputs, all those? So I think those were the points that I'd wanted to make and so I will turn the floor back over.

MS. DIETRICH: Are there any questions on the Ameren study or on the Ameren presentation?

MR. HUGHES: Just out of curiosity, given your customer service size and the sample size, what

was the confidence interval in the Ameren study?

MR. COSTENARO: Right. We did not report on that specifically, but the -- I mean we are -- we're very confident that the -- the survey methodology was done in such a way that makes it rigorous and confident. We have not gone to the -- to the extent of going back in and calculating confidence intervals for all the various segments and slices and dices that we did. But with over 4,000 surveys on the customers, I mean you have well into the 90, 95, 98 percent confidence intervals depending on how you slice it up.

MS. DIETRICH: Please remember to identify yourself for the court reporter.

MR. KIND: Ryan Kind with Office of Public Counsel. And, Dave, your comment about the -- you having the ability to quantify confidence intervals, that's sort of puzzling to me. I guess I'd be interested in seeing some quantification if you think that's -- you know, you're able to do that.

And sort of, you know, backing up from that issue, I mean on your -- your second slide, you're saying that you used a stratified random sample of 4,000-plus Missouri customers. Usually when people say that they've used a stratified random sample, that

means that they have somehow divided customers up into strata based on, you know, usage levels or different end-uses and then once you've divided the customers into strata, you would have pulled a random sample within each of those strata by, you know, generating random numbers for say the account numbers within that strata and then matched up those random numbers with account numbers.

When you say you've used a random sample, are you saying that you've used an approach like the one that I just described? And if it was a --

MR. COSTENARO: Yeah. Exactly.

MR. KIND: It was? Because --

MR. COSTENARO: Yeah. Right. There was a lot of confusion and misunderstanding. I don't know if everyone in the room is familiar with the conversations that took place, but I think there was some miscommunication, some misunderstanding and we had some -- some -- some memos back and forth to try to clarify that.

But yeah, what we conducted was a stratified random sample exactly like you described. We divided into five usage groups and then pulled randomly from our entire customer base and then sent the survey invitations to that randomly selected group

of people.

MR. KIND: So you have some sort of document that describes that sampling instrument that's --

MR. COSTENARO: Uh-huh.

MR. KIND: -- available to stakeholders at this point?

MR. COSTENARO: I mean it's in the write-up, in the report. I think that it may have been -- you know, the final report of the study describes that all very thoroughly, but I think there may have been some miswordings and some miscommunications and misunderstandings of that.

MR. KIND: But you think it's a traditional random sample and you could, in fact, calculate the confidence intervals that were discussed?

MR. COSTENARO: Yeah.

MR. KIND: Is that something that you intend to do then? Because without the confidence intervals, it's really hard to -- to know. You know, you're talking about these different curves for participation rates that KEMA's considering using and how that would have such a big impact potentially, you know, on the confidence you would have in the results

of their study.

And so I guess I'm trying to -- and I think that's -- you know, that's understandable, that is an important piece of it that you'd like to see clarified, but on the other hand, there's pieces of your study that I'm still waiting to see clarified, I guess.

MR. COSTENARO: Right. You know, I think -- you know, I mean right now we're -- we're going full bore in our planning process with the IRP so we're using the results of the study. You know, I think we've presented at the -- at the agenda or various meetings why we consider the study to be, you know, iron clad as far as taking into account the risks and the uncertainties and the various concerns of confidence.

You know, statistical sampling certainty, you know, by doing the random sample and having all the surveys, we consider -- we consider that to be very robust, but then you plug that into the whole stream of the potential study with all of the other risks associated with it that you can't quantify with an error band, you know, to identify what the error band around that one part of the study is, you know, did your survey sample things correctly when you have

scenario analyses and different worlds and prices of gas and electricity going up and down and you have, you know, codes and standards in play and kind of all these other factors that you can't quantify with sampling reliability.

I think that, you know, the kind of scenario analysis that we've done very robustly takes care of and considers the risks and uncertainties.

MR. KIND: So was the point there that there's all these other uncertainties so that it didn't really -- wasn't worth their time maybe in calculating these confidence intervals? Is that --

MR. COSTENARO: It's true that there's all these other risks.

MR. KIND: Okay. Well, I'll look forward to seeing those calculations at some point. I didn't realize that you didn't have the kind of random sample that would permit that so that's encouraging follow-up on that.

MR. COSTENARO: Thanks.

MR. GILZOW: More a curiosity question than anything, but --

MS. DIETRICH: And your name?

MR. GILZOW: I'm sorry. Thank you. Floyd Gilzow with Missouri Public Utility Alliance.

When you talk about the results that you achieved through this survey, what accuracy verification did you go through to determine if the answers given by the respondents were, in fact, accurate?

And I base that on the fact that in many cases historically in surveys, self-reported activities that are generally perceived to be socially beneficial tend to come at a much higher rate. For instance, voting rates are typically 10, 15, 20 percent higher on self-reporting than actual activity. So can you describe what steps you took to verify the accuracy of the responses?

MR. COSTENARO: Yeah. Yeah. Definitely. Along with all kinds of checks that went into the surveying process like, Hey, do you work for a utility? You know, you can't participate in this. Did you just game the survey? You know, it kept track of, you know, response time. And if it took, you know, 45 seconds to fill out the survey, you know, it was just booted out by the system because the intelligence was there and it said, Okay, this person obviously didn't think about the questions. You know, if everyone answered C on all the thing, it threw that out. So along with all the kind of like operational checks, then the kind of semantic or structural or

meaning checks were there to ensure the reliability.

When people answered, Yes, I will do this activity; yes, I believe that climate change is real and I am motivated by it; no, the economics is not important for me, it's more the environment, so when people would make these attitudinal claims, we would adjust that by a factor that our contractor had developed with consumer research over, you know, 10 to 20 years. So this was a technique developed by Proctor and Gamble in their researching of consumer products.

So if people said, yes, I'm going to do this, you know, and it's a scale of zero to ten, if they would -- if they would say zero through I believe it was six, you threw that out and said, no, they're really not going to do it. If they said seven, you assigned a probability of I think 20 or 30 percent. If they said eight or nine, you assigned a probability of 50 percent. And if they said ten, you assigned a probability of 60. And those are aren't the exact numbers, but it's in our write-up.

But essentially what it does is it maps a zero through ten scale to a, you know, this is what really happens. So that was developed again by Proctor and Gamble and then adjusted by our research

contractor who do this kind of thing all the time. They look at what consumers say and then what they actually do. So those are kind of universal like mapping techniques. Does that answer your question?

MR. GILZOW: Thank you.

MR. DORITY: Good morning. Larry Dority with Fischer and Dority. I was -- just for a point of clarification, Ms. Dietrich in her remarks indicated the KEMA would be applicable to both electric and gas utilities. It's my understanding that the Ameren study was only involving the electric side of the house; is that correct?

MR. COSTENARO: That's correct.

MR. DORITY: Thank you.

MS. DIETRICH: Adam, if you could wait just a minute.

MR. JOHNSTONE: Yes. That's perhaps the downside of sitting in the back of the room. I'm Donald Johnston, consultant for Noranda Aluminum. I'm looking at your avoided cost chart, page 6. And the values in the KEMA file show, according to your chart, retail rates remaining flat throughout the time horizon.

Now, as I recall in your last IRP, you had your rates doubling in about ten years. And is it

your point that -- are you agreeing or commenting on the fact that they're assuming they'll be flat?

MR. COSTENARO: Oh, that was more informational. I don't know that it's at my pay grade to tell you what the rates should or shouldn't be. But yeah, I mean, it looked like they weren't even growing with inflation so I just call that -- I just -- you know, maybe this needs looking at.

MR. JOHNSTONE: Yeah. It seems to me to be a big deal to have them flat, no inflation versus doubling in ten years.

MR. COSTENARO: And they weren't flat, to clarify. They were relatively flat.

MR. JOHNSTONE: Relatively flat. I like that qualifier. That's a good one.

MR. COSTENARO: Right.

MR. JOHNSTONE: A question for you about the capacity cost. It seems to me that there was a dilemma here. If you use the current market, you get a study that's good for current conditions. If you take the other approach and use long-term values, you get a study that's perhaps not apropos in today's conditions but may be more valid in a couple of years. So I mean, does your avoided cost change through time or how would you deal with that?

MR. COSTENARO: Yeah. Well, that's a good question. So our avoided costs projections are low at the market rates until we -- until we can no longer see futures contracts or -- or the sorts of things that would pin that down and nail it in for us.

So then we transition linearly over time to -- to that new build curve where you would be building a new peaking generator. So our curve looks kind of like a -- whatever letter that -- two or a Z or -- it kind of -- it pops up step change about five to ten years out.

MR. JOHNSTONE: Right. So the difference is in the near term?

MR. COSTENARO: Correct. Which is important because everything's discounted. So the near term is -- is valued more in the decision making and the TRC analysis for the study, you know, then the outer years.

MR. JOHNSTONE: Right. I don't disagree with that. It also depends on whether the study going to be used this year or next year --

MR. COSTENARO: True.

MR. JOHNSTONE: -- or that sort of thing. I had I guess maybe one more question on your chart where you were talking about translating economic to

achievable potential. And you talk about one- to five-year pay-backs corresponding to benefit cost ratios of one to five. It seems to me like there's an inverse relationship between those two.

MR. COSTENARO: Yeah.

MR. JOHNSTONE: And the very short pay-back could actually be a higher benefit-cost ratio.

MR. COSTENARO: Right. So I guess I should have -- I should have listed them one-year to five-year pay-backs correspond to a five-to-one benefit-to-cost ratio. I just ordered them numerically instead of the way that they correspond to each other.

MR. JOHNSTONE: But I guess in any event, your point is that you see penetrations of 3 to 47 percent versus 2 to 82 percent?

MR. COSTENARO: Uh-huh. Uh-huh. Yeah.

MR. JOHNSTONE: With the 47 versus 82 being the big one?

MR. COSTENARO: Right. Right.

MR. JOHNSTONE: Okay. Thank you.

MR. BICKFORD: Hello. Adam Bickford, DNR. I had a question about your peak demand summary slide.

MR. COSTENARO: Okay.

MR. BICKFORD: The --

MR. COSTENARO: Slide seven, I think. One more

MS. DIETRICH: I'm sorry. I'm not familiar with the slides.

MR. BICKFORD: The pie that you have documented by -- attributed to KEMA apparently, according to KEMA's report on October 27th, comes from the Federal Energy Regulatory Commission's national assessment of demand response potential --

MR. COSTENARO: Oh, right.

MR. BICKFORD: -- as is cited here. And I gather that your class make-up in 2010 comes -- applies to your service area?

MR. COSTENARO: Uh-huh. Uh-huh.

MR. BICKFORD: Do you believe that -- I guess two questions. First of all, do you believe that the material cited by KEMA are necessarily incorrect? And do you maintain that your service area or the make-up of your service territory is representative of the entire state?

MR. COSTENARO: I don't know that we necessarily have a -- a set-in-stone opinion on it. I think it was -- you know, the spirit was just to kind

of point out things that we thought needed understanding and investigation. So I'm not sure where I would say it should end up, but I think it needs to be looked at.

MR. BICKFORD: Do you think this illustrates some of the differences in focus between low level -- pardon me, highly detailed utility-specific studies and more aggregate studies?

MR. COSTENARO: Yeah. I could see the difference, yes.

MR. BICKFORD: Thank you.

MR. GELLER: Hi. Greg Geller from EnerNOC. I was wondering if you saw any variation in responses between the residential sector and commercial and industrial? Any more willingness to participate?

MR. COSTENARO: In our attitudinal research, I think it -- it was pretty similar. There was a lot of cost focus; if this isn't going to save me money, I'm not going to do it. I think, you know, in general, anecdotally, yeah, the business customers were -- they were more about the dollar, they were more about the pay-back than I think the residential customers were. But they were both very much aligned with the dollar and not as -- not as apt to uptake

energy efficiency actions and measures than other jurisdictions that our market researcher had dealt with.

MR. GELLER: Okay. Thanks.

MR. COSTENARO: Good question. Thanks.

MR. KIND: Ryan Kind with Public Counsel. Dave, on the avoided cost and the 113 per KW and capacity costs that you guys I guess picked out of the study as their value for 2010, is your point here, you know, when you talk about, you know, sort of a glut currently in the capacity market -- which incidentally, I think our views have finally coincided on that. We were arguing over that maybe six or eight years ago, whether or not there was a glut and I think we might be on the same page at this point.

MR. COSTENARO: All right.

MR. KIND: But anyway, is your point here that really we should be using market prices in the early years if there is an excess of capacity and then transition over to something like, you know, levelized peaker costs in a few years? I guess I just want to clarify. It doesn't -- I'm assuming you're not arguing that we should be looking at really cheap capacity over a 20-year time horizon. Correct?

MR. COSTENARO: Yeah. Correct. That's

what our analyst had projected out, so yeah, I think I could safely say that's what we recommend.

MR. KIND: So you move over to cost in the event -- or something like that --

MR. COSTENARO: Yeah.

MR. KIND: -- within a few years is the idea?

MR. COSTENARO: For sure.

MR. KIND: Thanks.

COMMISSIONER DAVIS: This is Commissioner Davis. I've got a few questions so I'm just going to sit here at the microphone.

Mister -- is it Castenaro?

MR. COSTENARO: Costenaro.

COMMISSIONER DAVIS: Costenaro. I'm sorry.

MR. COSTENARO: That's okay.

COMMISSIONER DAVIS: I guess the first point you made or first assertion is that national attitudes aren't necessarily reflective of Missouri attitudes in terms of desire to participate in energy efficiency programs; is that correct?

MR. COSTENARO: Yeah. Definitely.

COMMISSIONER DAVIS: And you also said that based on your view of some of the other KEMA

studies, it appears that they take a -- this is -- these are my words, but a one-size-fits-all approach in terms of participant benefit-cost ratio?

MR. COSTENARO: It looks like they have the same analysis process available to all their studies.

COMMISSIONER DAVIS: Right. And that is -- Natelle, that was page 16 -- or I want to say page 22 of the KEMA PowerPoint from the October 4th kickoff meeting that we had that's also one of the online presentations. And I can't remember what their response was, but I believe I asked about that in the agenda meeting and I don't recall what the response was.

But obviously I mean -- and I guess, David, I guess my first question is, should we have different curves for industrial, commercial and residential users in terms of what their likelihood of participation is? Because they're three different classes of customers and I would -- I would think that those numbers would be different, but --

MR. COSTENARO: Right. That's a good question. That kind of harkens back to the gentleman from EnerNOC that spoke about the differences in attitudes between the residential and the business.

We didn't -- oh, right.

So the question was, are there differences between the residential and the business attitudes of customers.

COMMISSIONER DAVIS: Right. Should -- and I don't know this, but I'm suspecting that KEMA may offer us a range of curves where -- you know, a low participation curve, a medium participation curve and a high participation curve. I'm guessing -- I guess what I'm asking is, would those -- I mean it just appears to me off the cuff that your residential, your commercial and your industrial participation curves are going to be different.

MR. COSTENARO: Yeah.

COMMISSIONER DAVIS: And not -- you know, I'm just not sure where it all shakes out in terms of if you have one curve, a high/low curve, where those are going to fall in that -- in that curve assuming they give us more than -- assuming they give us a range, I'm just trying to figure out, you know, would it be better to have a curve for each class?

MR. COSTENARO: Right. Yeah. I'm -- you know, I'm not sure to what, you know, decimal point they're taking the curves out. It might be that they're close to each other and just a little bit off.

We didn't find super big differences between the different sectors in classes, but we found them all to be kind of equally lower than national averages. But it's definitely something worth looking into, like if there are meaningful differences between the classes.

COMMISSIONER DAVIS: Natelle, John Rogers, Randy, have you guys looked at that at all?

MS. DIETRICH: No. Not at this point.

MR. ROGERS: Not yet.

COMMISSIONER DAVIS: You talked about this a little bit, but in some of my notes I have that KEMA is using -- and I may not get this -- this right, but basically what I would call a -- like a 15 percent discount rate for -- for residential consumers basically saying, you know, this is all going to depreciate out in 6 and 2/3rds years roughly. And, you know, I think it gets down to -- you know, and then you reference a 20-year --

MR. COSTENARO: The measure life?

COMMISSIONER DAVIS: Yeah. The 20 -- 20-year measure life. And I'm just, you know, trying to figure out -- I mean, once again where, you know, a light bulb will -- a CFL will probably last six years, maybe eight years. You know, obviously an energy efficiency refrigerator would hopefully last longer,

other appliances would hopefully last longer. But there are programs that are going to be shorter.

And, Natelle -- I mean I guess I'll ask Natelle, John, Randy, do we know how they're coming up with that -- what appears to be one kind of blended number? How are they weighting that?

MS. DIETRICH: We don't know how they've come up with the rate or the weight. I have asked for some research on the 15 percent so we are getting into that.

COMMISSIONER DAVIS: Okay.

MR. JOHNSTONE: I'm sorry. With both of you, this is really hard to follow.

COMMISSIONER DAVIS: I'll just move back -- I'll move back here.

MS. DIETRICH: Well, my -- his question was have we talked to KEMA or do we have any information on how they've weighted the various rates I think is the word you used.

COMMISSIONER DAVIS: Right.

MS. DIETRICH: And I said we haven't received any information on their weighting, but that I have asked for some research on the 15 percent.

COMMISSIONER DAVIS: Right. And because -- I mean the utility rate I believe was kind

of like a weighted average of their cost of capital which appeared, you know, certainly reasonable to me and with -- but, you know, when you're making estimates about a consumer discount rate, you know, I mean it depends on what purposes that you're -- I mean we're using it for.

And I'm concerned that, you know, a 15 percent pay-back for residential customers, you know, if it's going to take them six years to recover their investment, I'm still not sure that that's going to be enough incentive for them. I don't know that that's going to get the, quote, desired participation rate. And so I mean, I guess I would like some clarification on that and it sounds like staff is going to try to get that.

Natelle, do you have any information about which curves that KEMA plans to use? That was one of David's questions and I thought it was a good one.

MS. DIETRICH: On most, if not all of the information that Dave raised, we have not received any information on nor have we asked. I mean we're still going through all this. But I have taken notes so that we can go back and ask KEMA all the various questions.

COMMISSIONER DAVIS: Okay. Let's see. Now I'm going -- I'm just going to speculate here, David. And this is just a statement, but my understanding is going back to the IRPs, in Ameren's IRP, you guys used a capacity market because you have a capacity market in MISO and I think it's fairly easy.

I mean, my impression is that because SPP does not have that capacity market yet -- and, Adam McKinnie, you're back there in the back of the room, you can correct me if I'm wrong on this, but I think in the Empire KCP&L and GMO IRP plans, there you just had, you know, the avoided costs of constructing CT turbines.

And, you know, quite frankly, I mean I assume that they're -- I mean it's interesting because, you know, I've heard from different municipal utility leaders around the states that they're saying pretty much all requirements contracts with Ameren, you know, at a specified dollar amount which would probably be more reflective of the MISO costs for capacity than the SPP, but on the other side of the state, I mean I think, you know, their capacity costs would be -- and I mean I guess that's the thing.

It's like, you know, when we're trying to

come up with this one number, I think we need to try to dig in and figure out, well, we may need a range, because I think the number for those -- I mean there's -- there's a capacity market coming in SPP, but I think we're a ways -- you know, a year or two away from that yet.

And, you know, once again, I think maybe we may need a range. I just don't know that you can peg one number to it because it appears that we have two very different, you know, modes of calculation. And I think at least, you know, right now for past purposes on the Empire KCP&L side of the state, you have to rely on whatever's in the IRP plan. So that's my speculation response to that question that you're having -- or you had.

And, Natelle, is the time horizon 20 years?

MS. DIETRICH: Yes. 2010 to 2030.

COMMISSIONER DAVIS: Yeah. And has staff compared the Ameren, Empire, KCP&L, KCP&L GMO rate projections in their IRPs with the -- with the KEMA? I mean it's -- I would assume it's supposed to be a blended average and -- I mean, have you guys done that yet or are you doing it or --

MS. DIETRICH: Not -- not yet. I mean we

started looking at some of the IRP information and comparing it to what KEMA has provided, but we haven't made it through yet.

Adam, did you want to add something?

MR. MCKINNIE: Just very briefly on that one. Dave, I don't know how much you've looked at the KEMA study itself, but one of the assumptions aiming on rates was that it was a calculation based on avoided costs.

MR. COSTENARO: That's right.

MR. MCKINNIE: So to the extent that your avoided cost number is a certain level, then that's going to be what's driving your rate projection. It's not one of those what do we think is going to happen. It's much more of a mathematical formula.

MR. COSTENARO: Yeah, that's right.

MR. MCKINNIE: And I know that the SPP capacity market's probably a ways off too while I'm up here so -- and I'm sorry, I'm Adam McKinnie and I work with staff.

COMMISSIONER DAVIS: And I don't think I have any more questions.

MS. DIETRICH: Are there any more questions for Dave? Okay. Thank you.

MR. COSTENARO: Thank you.

MS. DIETRICH: Chairman Clayton is in the room now. Chairman, do you have any comments?

CHAIR CLAYTON: Thanks, Natelle. I had every intention of being here on time this morning. I failed at being here on time this morning so I apologize to everyone.

I wanted to thank everyone in the room for their willingness to participate in this discussion here today. The Commission has not been in the habit of having these types of studies conducted in -- at least in my time at the Commission and this is an ambitious project. So I'm glad that we're able to have this discussion here today.

And I would agree with I think all of my colleagues that we want to ensure we have the most accurate study as possible, but I wanted to make sure that all the stakeholders are aware that there are no predetermined outcomes from my perspective or I believe from the Commission's perspective and that this study is going to provide an opportunity for us to view what potentials are out there for Missouri, can be used in comparison or -- or to sustain perhaps the Ameren study. It is a study that hopefully will provide us guidance as we do a policy making in the future and future Commissions have to make difficult

decisions.

As far as some discussions that we've had over the last couple of days, if time is necessary to make this happen, I'm certainly comfortable with allowing for additional time that will ensure additional confidence in the study. I'm -- I'm not sure how that will work with our contract negotiations with KEMA, but from my perspective, if there is a way of accommodating concerns and making sure staff's concerns and our partners, DNR's concerns if there are any are addressed, I want to make sure that we take action to deal with that.

So I appreciate everyone being here today and I'll let you all get back to your discussions. Thanks.

MS. DIETRICH: Thank you. We're scheduled for a break at 10:30. So instead of jumping in for ten minutes, why don't we go ahead and take our break now and come back and get started at 10:35.

(A recess was taken.)

MS. DIETRICH: Next on the agenda or the rest of the agenda is to discuss the various input files that KEMA provided. We have the measure inputs, the economic inputs and the baseline inputs.

For the measure inputs, KEMA defines

measure data as cost, savings, applicability and saturation. For economic data, KEMA identifies avoided costs rates, discount rates, including utility and society and participant, and inflation rates.

And for baseline data, KEMA identifies such things as total units, square footage household, et cetera by segment or sector and end-use data such as saturations, loads, shapes, those types of things.

In order to develop its baseline, KEMA has indicated that it calibrated a model to base usage and typically it calibrates to utility energy sales, either kilowatt hours or therms and peak demand, either megawatt or therms, for the most recent year.

The baseline represents current penetration of energy efficiency measures, current load shapes and rate forecasts assuming energy -- energy efficiency program funding. For its base year, it's the first year of avoided cost data in the year to which all costs and benefits can be normalized.

That just provides you a little bit of detail of what KEMA provided us as far as its definitions of the various items. Now, I will point out that KEMA is not in the room and not on the phone, so we will be taking your questions -- or your comments and questions and feedback and recording them

through the court reporter and also funneling them to KEMA depending on the schedule that's determined. So with that, I'll open it up for comments on the measure inputs. Any comments on measure inputs?

MR. KIND: Ryan Kind with OPC. I was just going to comment on the avoided cost and how, you know, in the write-up -- I'm just starting to get caught up a little bit with what's in the write-up.

But I noted that they talk on page 6 about using three different levels of avoided costs so they'd be doing scenarios analysis with a mid level and a high and low. And hopefully that would help address some of the concerns that we've heard today about if people don't necessarily agree with the level of avoided costs that's used as the mid point level, somebody could then argue that, well, I think this scenario makes more sense, it's more representative of today's avoided costs.

And I guess if people have a problem with that, you know, given that we have these different scenarios and people still see significant problems in this area, I'd like to hear why there would still be problems given that there will be these different ranges available.

MS. DIETRICH: Any -- go ahead.

MR. GELLER: Hi, Greg Keller from EnerNOC. So it seems like the study so far looks at a lot of measures that are -- it does a great job of looking at measures that have been traditionally effective for energy efficiency, like replacing lights.

One area where it seems like there can be some additions made is on commissioning, both retro-commissioning and monitoring-based commissioning. I'll just briefly explain kind of what those -- what those two terms are.

But basically, you know, when you commission a building, you're making sure that it's running efficiently. And so retro-commissioning, what often happens is buildings are built in 1950's or whenever they were built and they were never really checked out to make sure they're running efficiently.

And so this goes back and it says, well, the HVAC system, is it -- you know, is it costing the owners of the building thousands of more dollars than it should? Can it be running better? And if it can, then there's -- you know, there's a capital improvement made. And so-retro commission has been really effective. You know, Excel in Minnesota had a really successful retro-commissioning program

recently.

And so the issue with retro-commission is it's great, but then what happens is the building starts -- kind of slips and, you know, someone walks into a room and changes a thermostat and that throws off the whole building and costs skyrocket again and all -- you know, a lot of the savings you've achieved have gone out the window.

And so this is -- what monitoring-based commission does, is it has a lot of data points throughout a building. And it's able to look at, you know, is the building running efficiently and it does it in real-time. And if there -- if it's not running efficiently, if you have a broken thermostat or something wrong with, you know, heating/cooling systems or steam trap, whatever it is, monitoring-based commission is able to detect that in real-time and suggest a low-cost or a no-cost improvement.

And so what that does is the pay-back time is really brief. And so when you're talking about economic potential and needing quick pay-back, that's what monitoring-based commissioning is really good for. And the savings from it are usually 10 percent.

So that's just something that, you know, I wanted to throw out there because I think right now the study does not really look at those kind of measures. Just one example, Omaha, the utility there, they have something very similar called continuous commissioning and it's just kind of just making sure that whatever savings are achieved are -- you know, are persistent throughout and that you're not losing those savings.

I'm not going to bore everyone with details on that program, but if you -- if you want to talk off-line, I'd be glad to give some figures from the savings that have been achieved there. So thank you.

MS. DIETRICH: Thank you. Other comments on the measures inputs?

COMMISSIONER DAVIS: This is Commissioner Davis again. Just to respond to Ryan a little bit, I mean, I understand the high, average and low, Ryan, but my concern is what are the numbers that we use in there? I mean, I just pulled the SPP current monthly report. You know, the average price of a megawatt of power in SPP this past month was like 25, 26 bucks, you know, $32 is another average that they use.

And I think the average in MISO was $34.

I've seen MISO numbers, you know, ranging 32, 34. I mean -- also, I mean, at night, you know, the numbers for purchases go to virtually zero and in some cases you can even get paid to take electricity.

And, you know, we're looking at this, you know, avoided cost of, you know, $44 and that may be based on IRP plans, that may be based on, you know, electricity when we had $12 gas in 2007. I think that's -- that's a valuable scenario to probably run, because I think we can see $12 gas again, but it's just a question of -- I want to make sure that we have the high, low and middle variables correct to begin with and that we don't just have -- you know, 44 is the average and then take, you know, a low number and then a high number on top of it. I want to make sure that we get the best numbers possible there.

MR. KIND: Ryan Kind with OPC. I definitely agree with you about those points you made, Commissioner Davis. And, you know, referencing back to IRPs from a couple years ago might have had higher energy prices in them.

And I think it's important though that we don't rely solely on current market energy prices just because of the large economic downturn we're in the middle of right now. You'd want to look at that if

you're talking about just what sort of energy prices will we take into account in maybe developing off-system sales for a rate case that's, you know, just looking at where we're going to be in the next maybe two or three years, but if you're looking over a 20-year period, it's kind of important to get the starting point from which you have an escalation rate over time and you don't necessarily want to just look at today's energy prices as -- as being a good starting point to begin that escalation.

COMMISSIONER DAVIS: And I agree. You sound like me arguing with David Murray on the witness stand a few months ago. I did just want to point that out for you, Mr. Kind, but I agree --

MR. KIND: I'm not sure if that's a compliment or not. I hope it is, but --

COMMISSIONER DAVIS: You know, I guess, Natelle, I mean with regard to the -- to the measure data looking at cost savings, applicability and saturation, I mean that's what KEMA had in their original PowerPoint that they made on August 4th.

And, you know, I'm -- you know, I mean one of the things that -- you know, we've got KEMA relying on some residential and commercial building surveys for gas and electric in Indiana, Rhode Island,

Colorado. And I'm not sure what purposes they're relying on each of those studies, but, you know, I am concerned. I mean in terms of a refrigerator replacement program in a very compact state like Rhode Island is not going to have the same costs as a program for Ameren which basically stretches, you know, the length of the state north to south as well as for the co-ops who also are -- you know, my grandparents are co-op customers. I think they had three deep freezes and three refrigerators.

So I mean, you could say what you want to about that, but anyway, I'm -- I'm a little concerned about, you know, in terms of some of this measured data how that data is being extrapolated to Missouri, you know, particularly with costs savings, you know, applicability.

I mean saturation -- I mean we've talked about saturation a little bit. I mean obviously the Ameren study came in significantly lower than -- than what, you know, KEMA is projecting is -- you know, in terms of participation rates which, you know, theoretically I mean if we statutorily require it, then yeah, we could have 100 percent participation rate, but, you know, I'm -- I'm not concerned about what's economically or technically achievable, but I

am very concerned about the numbers that get plugged into the realistically achievable model in terms of what assumptions we're going to be making about even, you know, what -- what's average, what's high, what's low.

I mean, because if the starting place is higher than where it should be, you know, we're going to get -- you know, particularly when you extrapolate those numbers out, I mean, I can do a whole lot more energy efficiency at $44 a megawatt hour avoided cost than I can at 32.

And then when you go and figure some sort of inflationary rate in there and compound that over 20 years, then the gap is going to spread. So, you know, I think we have to be sure and get these things right, particularly, you know, with the saturation percentage because that's going to come down into what's measuring what's realistically achievable.

You know, the applicability issue where I'm not sure why they are using these -- I mean I know why they're using their Indiana, Rhode Island, Colorado and EIA information, but I mean, you have to make a lot of assumptions about, you know, is Missouri in line with that average or not. And I'm not exactly sure that we are.

I mean on some of these things, particularly anything that has to do with Rhode Island, not that I have any, you know, animosity towards the fine people of Rhode Island, but just because it's a small, northeastern, coastal state that in terms of weather patterns or anything else, I think it's going to be very hard to extrapolate any data from there and say that it's applicable to Missouri.

You know, same things -- I mean, I guess I'm not sure what the savings measure data is or the cost measure data is. And I mean, has John Rogers, have they looked at this? I mean do they know -- I mean what are we -- what are we estimating there?

MS. DIETRICH: We -- we don't know at this point to respond.

COMMISSIONER DAVIS: All right. And then --

MS. DIETRICH: I will make a comment on one of your points. The refrigerators that you --

COMMISSIONER DAVIS: Yes.

MS. DIETRICH: -- used as an example, that issue was actually raised in some conversations I had a couple of weeks ago and I have passed that concern onto KEMA. One of the things that they've said in the various conversations that we've had with

KEMA is that they won't necessarily respond to each individual comment, but they are considering it in their study. And so I find it interesting that you raise that same issue again.

COMMISSIONER DAVIS: Well, I mean I cannot say that that increases my confidence level when they say, You're just going to have to trust my profess-- because I raised this question on the call I think three, four weeks ago. They're like, Well, it's just a matter of our professional judgment. Well, I mean, I wish people wouldn't ask me tough questions either.

MS. DIETRICH: Well, and when I say they weren't going to respond to each one, respond individually to, you know, say, Okay, you said refrigerators should be considered, this is how we considered them. That's what I meant by they weren't going to respond.

COMMISSIONER DAVIS: Okay. And then you know, I mean I -- you know, I'm going to go back because I mean I've -- this chart was in the August 4th presentation and it's also on page 5-6 of their proposal to conduct the study.

I mean here we have this illustration of effect of incentives on adoption level as

characterized in implementation curves. And, you know, is there -- I mean I'd like to know if -- I mean from them if there is any basis in fact for that curve? I mean and if so, I mean what is the scientific evidence that they -- what is the study that they've done that supports this curve?

Because I mean right now all I have is a curve that says, you know, at -- with a 50 percent incentive, we're going to get roughly 37.5 percent participation.

MS. DIETRICH: What was that again; the references you gave?

COMMISSIONER DAVIS: The reference is Figure 5-3 on page 5-6 of their April 16, 2010 proposal to conduct a demand side management market potential study. It's their response to the RFP.

MS. DIETRICH: Okay.

COMMISSIONER DAVIS: I've seen that table there and then I saw it again in their August 4th PowerPoint presentation. I'm going to say maybe page 22, but that's just -- that's just me guesstimating at this point on that. But I have a copy of it here if you want to look at it.

But I'm just -- you know, and if -- if the gentleman from Ameren is correct and this to a

large degree in terms of what's realistically achievable hinges on participation rates, then, you know, these are some key assumptions about, you know, how we're measuring what's realistically achievable. And I think we need to -- to at least take some care in verifying them.

I mean, because, you know, a 50 percent incentive, if I understand that right, I mean, you know, I'm paying for half of someone's refrigerator plus hauling the old one off. And I think that is -- that is all I have on the measure data right now.

MS. DIETRICH: Okay. Thank you.

MR. KIND: This is Ryan Kind with OPC. Just wanted to follow up on Commissioner Davis's comment about the 50 percent incentives and paying for half of a refrigerator.

It probably would be a good idea to clarify really what KEMA was getting at when they were talking about 50 percent incentives, but usually in just terms of the industry normal terminology, when you refer to a 50 percent incentive, you're paying 50 percent of the incremental cost from going from a lower level of efficiency to a higher level of efficiency.

So, for instance, with a -- with an air

conditioner at a minimum SEER of 13 requirement, a 50 percent incentive would be 50 percent of the incremental cost going from a SEER of say 13 to a SEER of 15 air conditioner if that's the behavior that you're trying to incent.

MS. DIETRICH: Go ahead.

MR. VOYTAS: Hi. I'm Rick Voytas with Ameren. In regards to the measure inputs, it's difficult for us to -- to understand everything that's gone into there. We haven't seen that much.

But one comment I'd like to make and I'd like to build on Commissioner Davis's comments about some of the databases were from Rhode Island, Colorado, Connecticut, other sources. One of the a-ha moments that we had with our study is that we would compare the end uses for the various sectors with the EIA west, north, central region, which we normally fall in.

And there was some very, very significant differences. I mean some key end uses; heating, cooling, major -- I'm not talking 1 or 2 percentage points. I'm talking 10, 11, 12, 15 percentage points. So again, I don't know what impact, if any, that may have on the study, but again, it's just one of the things that you look for when you're using secondary

versus primary data.

MS. DIETRICH: Thank you. Anything else on measures data?

MR. MCKINNIE: Why not? I just miss talking to you all. Adam McKinnie here with the staff again. And I definitely agree with Rick to the extent that they do any census region data, that Missouri is at that southern end of the tip that includes like South Dakota and North Dakota and everything else.

But I think with at least some of these, if they use the RLW study for things like air conditioners, then I think they're a little bit better off at least. So I'm hoping that takes care of some of that problem, but I -- I agree it's a concern in things like the -- the FERC demand response information.

Because if at the FERC level they use the census region, then you -- you might be in trouble, but I think it might be a different thing for the energy efficiency versus demand response estimates. But that is something that does need to probably be looked at. I would agree.

MS. DIETRICH: Any other comments on measures inputs? Okay.

MR. SOCKS: This is Matt Socks. In going

through some of the KEMA files, I've noticed that in some of the background information, they've mentioned that they can apply a penetration curve or an implementation curve at the measured level within the sector.

And in their measure input files they have a space for implementation curve, but they don't actually give the curve. This kind of touches on what a lot of people have already discussed already. I think in order to really assess the input, we would need to see these penetration curves as well as how they were derived or calibrated from other studies.

And the second comment is that it's not clear to me how or to what extent the KEMA measures are considering retrofit opportunities as opposed to replace on burn out. Those two terms are thrown around in measure characterization, but it isn't clear if and how they're accounting for differences in baseline between the two applications and difference in costs and savings.

MS. DIETRICH: Thank you. Could you repeat who that was speaking, please?

MR. SOCKS: Yes, Matt Socks.

MS. DIETRICH: Could you spell that?

MR. SOCKS: S-o-c-k-s.

MS. DIETRICH: Okay. Thank you.

Other comments on the measures inputs from the phone or in the room?

Okay. Shall we move onto economic inputs? We've touched on them a little bit. Any additional comments on economic inputs?

COMMISSIONER DAVIS: This may be filibustering until anyone else decides that they want to jump in, but in going back to the October 27th narrative, you know, we've got -- you know, beginning on page 5 they start listing the economic inputs and you get down to Section 3.2 on page 6 which is avoided costs.

And it talks about, you know, we found partial avoided cost data in the IRPs for the investor-owned utilities, we found capacity costs for KCP&L and GMO, found energy avoided costs forecast for KCP&L and Ameren, we weighted this data using Ameren's business as usual forecast. Because the uncertainty in avoided costs, I mean the multiplicity of scenarios analyzed by the utilities and because we were not able to obtain data for all utilities, we plan to use this forecast as a base case and create a high and low avoided cost forecast.

And, you know, this gets into the price

of power, this gets into the price of electricity as referenced by Noranda's representative. And I see, you know, virtually, you know, there's -- I'm sure there are spreadsheets, you know, that back this information up, but, you know, I don't have time to go peeling through all of these spreadsheets. And I'm not sure that -- that staff particularly -- I mean we've got a whole economic analysis division I mean with some -- some highly competent people. I mean I'm assuming Dave Murray hasn't looked at any of this.

MS. DIETRICH: No.

COMMISSIONER DAVIS: And I mean, no offense to the engineering bunch over there, but I mean with regard to these economic assumptions, I mean, you know, 2.5 percent sounds like a reasonable estimate for an inflationary rate, but, you know, I guess I'd kind of like to know that someone from staff is actually looking at trying to verify these numbers.

You know, this discount rate of 15 percent for customers, I mean, you know, it's roughly twice the industrial rate from what I've gleaned, which, you know, depends -- you know, and the discount rates appear to me to be fine for the utilities because, you know, it pulled those right out of the IRPs and weighted them by sales, you know. And

I guess we're just going to assume that the discount rate for co-ops and Munis is still the same.

So, you know, once again we're making lots of assumptions there about people who aren't necessarily -- who we don't have data on, but, you know, we -- you know, I'm not sure -- I mean, 15 percent for use on these cost-benefits calculations.

And if you're talking about something that has 6.5- to 7-year pay-back for people, I mean I don't know -- you're going to have to up the incentives I think to get them to use that or else I don't think it's -- that's -- I mean I don't know what the right number is, but I'm concerned that 15 percent -- I mean once again, I think we're going to need a high and a low scenario on top of that because I'm just not sure where those things are going to shake out.

For some technologies, it's probably right. For some programs, it's probably too short. I mean insulation ought to, you know, have a much longer life span than that, but for other things it's, you know, probably too long.

3.6, Item No. 7, line loss rates. And this is for the electric utilities. And 5.5 percent,

I mean I think anything in the 5 to 8 percent I mean probably sounds like a plausible number to me for line losses, but once again, I mean I'm concerned that we're not breaking this out by customer class.

And you guy -- and we've already -- I mean we've already raised that issue with them, but your line losses for your residential customers are going to be much higher than your line losses for your industrial customers say, you know, particularly Noranda. I mean when you've got roughly a 97, 98, 99, 100 percent load factor, your line losses are going to be much less. You know, I mean there's a reason why they have their own rate classification, I would say.

And then one thing that I haven't seen in this input report that I've -- that I asked for comment on a while back is, you know, how do we account for the fact that, you know, under the -- the statute, you know, these -- a lot of industrial consumers can exempt themselves out voluntarily so they don't have to participate, or conversely, you know, to entice them to participate, you may have to offer more incentive than you would otherwise to get them to participate in the program.

And I asked Mr. Franks about that before and I still don't know that I've received a response.

I mean, industrial demand, you know, on the gas side and on the electric side is a significant portion, you know, of the base. So I'm just trying to figure out, you know, how that's going to be accounted for as well.

MS. DIETRICH: Thank you. And, Commissioner Davis, just so you know, even though John is an engineer, as the head of the department, we do have economists that I've been talking to that are looking at this too, although I have not talked to Dave Murray.

Any other comments on the economic inputs?

MR. KIND: Ryan Kind with Public Counsel's office. I guess the rate calculation in here, it was brought up before by Don Johnstone, but it's a concern for me as well. And I think the problem is we've got a formula in here for how they calculated the rates, but it's going to be important for somebody who's got time and more resources than my office to track down these numbers and see when you actually utilize this formula, what sort of rate increases are you getting over the 20-year period and how do those compare to the rate increases that we see coming out of IRP modeling.

As mentioned before, we -- you know, we've seen projections of doublings of utility rates over a 10-year period. Is this formula getting similar results? I have a concern that it's -- if it's really departing a whole lot from more precise rate projections than we're getting, we're going to get predictions of participation rates that really don't accurately reflect the future rate reality.

It's just -- it's pretty obvious that if you've got rates escalating pretty quickly, then you're going to get higher participation rates from customers through giving them incentives and other -- you know, other approaches to getting them to participate in the programs. But does this calculation get there?

Similarly with the discount rates, I think I -- you know, same concern shared by Commissioner Davis, 15 percent sounds quite high. I'm assuming that's a discount rate that you would apply to a future stream of benefits that come from implementing energy efficiency measures.

So when you apply that discount rate to the future stream of benefits in terms of avoided cost, you're going to be really, really discounting those benefits out there in year 10 and year 20,

almost assuming that there's really no benefit at all. And I -- I just don't think that's -- that's a realistic way to look at it. It could be that discount rates like these, you know, might have made sense if we were in a more high inflation environment than we currently are. You know, if we keep pumping money into the money supply, maybe we'll be able to get back there eventually, but, you know, it's -- it could be another one of those -- I think this is what Commissioner Davis pointed out, where there really should be, you know, a couple different ranges applied to the discount rate.

MS. DIETRICH: Thank you.

COMMISSIONER DAVIS: This is my last thought. I've got to sing Kumbaya with Mr. Kind one more time. And that is like with some of these measures if you're ri-- excuse me, wrapping pipes, you know, they're going to have a benefit that -- that's probably going to last six, seven years, maybe a little longer.

But, you know, over time they are -- you know, when you -- wrapping your pipes, for instance, is probably the prime example is over time those savings are going to diminish and you're going to have to re-wrap those pipes in six or seven years if not

earlier or at least in probably year eight because, you know, it's not going to be as effective insulating those. I mean there's going to be some -- some weatherization, some wear and tear, whatever.

You know, that's probably the prime example that I can think of right now is wrapping pipes, but I'm sure there are other examples, like you're going to have to change out CFLs and other things and I'm not sure how KEMA is accounting for those costs that, you know, will -- I mean will have to be -- I mean there's going to be either some renewed costs or some ongoing O and M.

And I'm just -- I didn't see anywhere in the narrative how that was being captured. I mean maybe it's there, maybe I'm just missing it because there is -- as you can see from my table there, I have a mountain of data that I'm trying to plow through.

MS. DIETRICH: Go ahead.

MR. VOYTAS: This is Rick Voytas with Ameren again. I don't know if this is the proper place to bring it in the economic input discussion, but when we look at the economics of our program and I look at the various risks, one of the largest risks that we consider is the risk of evaluation.

And the primary factor that's on our mind

is the net-to-gross ratio. And I'm not exactly certain how KEMA is considering that. I know they talk about naturally occurring energy efficiency in their baseline forecast, but I -- and I know we haven't even their programs yet. We've seen the measured inputs, the economic inputs. Things haven't been bundled into programs yet.

But it would be interesting -- well, interesting. We need to know how they consider the net-to-gross risk. That's especially important as we go into the future because of the -- you know, the plethora of federal legislation that's coming into effect that affects CFLs, that affects industrial motors, things that have a tremendous impact on the amount of KWH that we can achieve going forward.

So I wasn't able to glean yet from the limited information that I've seen on their approach to net-to-gross or specifically what the net-to-gross values would be for programs, but that would be an area that I know we would like to see developed.

COMMISSIONER DAVIS: Mr. Voytas, could you explain a little bit more what the net-to-gross issue is for those of us who aren't as in tune with this?

MR. VOYTAS: Yes. The net-to-gross ratio

is when we look at an energy efficiency program -- we'll keep this simple. We'll say that we sold 100 CFLs. That's what we're going to attribute to our program. But then we do some research and find out that 20 of those CFLs would have sold anyway without the help of our program.

So the net-to-gross ratio of our program, things that we directly contributed to, would be 80 percent. That would be 100 minus 20, which is 80, over 100 which is 80 percent. That at a high level is how the net-to-gross is determined. Some people take the energy efficiency route without our help and we've got to be able to glean that out of our numbers.

COMMISSIONER DAVIS: I think I may already have you covered on that. Going back to KEMA's initial presentation, you know, they actually listed four types of potential; the technical, economic, achievable, and then the naturally occurring DSM, which is what I think you're talking about.

And they have agreed on the phone call in agenda back two or three weeks ago that it would not cost any money and that they were going to provide us with a data file that would say, you know, this is the natural occurring DSM that you would have even if you did nothing.

So I'm -- I don't know how it would shake out on a program-by-program basis, but I know I've already asked for that data because, you know, in essence, you know, I mean I don't want them, you know -- I don't want to trade a pie for a donut in that -- I mean obviously, you know, that naturally occurring DSM is going to occur anyway and that's the center and it needs -- we need to be able to back that out and then have the rest of the donut to stare at.

MS. DIETRICH: And I did follow up that request with an e-mail and they did commit to including that. And I also asked them to provide a definition of naturally occurring so that everybody was on the same page with what they were looking at, how they were defining it.

MR. GILZOW: Floyd Gilzow with the Missouri Public Utility Alliance. I would like to commend KEMA on one issue and that is how they're dealing with avoided costs. They recognize the complexity of that issue. Particularly I would assume over time as more and more energy efficiency takes place, the mix of the generation portfolio that will be impacted will be changing and so they're going to be providing multiple scenarios.

Having said that, I'm a little surprised

that when we begin to deal with inflation rates, that we're simply taking a very narrow band, as I understand it, of inflation rates and plugging it into the model. If any of us, including our good friends with the IOUs, can accurately predict inflation, I'd like to meet with you off-line. I need some help on my investments.

The reality is that we are looking at an incredibly uncertain economic future. And as result, inflation rates are going to be -- the range among various economists will be wide and trying to identify a very narrow band in order to make an educated guess may prove extremely difficult and/or inaccurate. And so I do think that that the analysis should look at multiple scenarios for inflation rate.

MS. DIETRICH: Thank you.

MR. KIND: Ryan Kind with Missouri Public Counsel. We talked a little bit this morning about avoided costs for electric utilities and there's information in the report about that, but there really is not a lot of write-up that I've come across yet that concerns avoided costs for natural gas utilities.

And it's, you know -- it's something that perhaps they're going to use some scenarios again probably with the -- you know, the different

fluctuations in natural gas forecasts that have occurred over the last few years largely due to, you know, moving into a lot more Shell gas development. There's just -- it's sort of an unpredictable number where those natural gas prices will be in the future.

So presumably they're going to rely on some, you know, publicly available forecast like an EIA forecast of natural gas prices over the next 20 years, but someone -- someone should track that down and make sure it's reasonable and find out if they intend to use scenarios for natural gas avoided costs in addition to electric avoided costs.

MS. DIETRICH: Any comments from the phone on the economic inputs?

MR. SOCKS: Yes, this is Matt Socks again. KEMA mentions in their input report they're running a low and a high avoided cost scenario. And I think it would be helpful to get more specifics into what the two scenarios represent. And I haven't actually seen the values yet.

MS. DIETRICH: I'm guessing that's going to be in the next deliverable, but I'm not positive.

MR. SOCKS: Okay.

COMMISSIONER DAVIS: I mean, Natelle, isn't the next deliverable the preliminary report?

MS. DIETRICH: The preliminary findings. The --

COMMISSIONER DAVIS: I mean, but -- and I guess my concern is that the next report is the preliminary findings. And the range that Matt on the phone is saying is, you know, that's not a finding. That's an assumption that is, you know, going to shape the findings.

And so I think it's important -- I mean, I would think it would be important to know that information now than later. And so to say if -- hey, if we don't like this assumption -- I mean when we started this process, I had an assumption that we would use -- it would be based all on Missouri data and that, you know, the sun would shine and everything would be perfect.

And, you know, I mean we're really having to make some pretty stretch assumptions about -- I mean basically everything that's -- that the -- the investor-owned utilities have been -- have provided is being extrapolated to the co-ops and most of the municipals with the exception of city utilities, independents and Columbia.

And so, you know, I'm just concerned that -- I mean, once again, we're making assumptions

on assumptions on assumptions on assumptions. And I don't know what the sensitivity analysis is on any of these things, but obviously the avoided cost of power is a key assumption, the participation rate is a key assumption, inflation rate, you know.

And what the -- the base case that we're about to get to next, you know, which I think should be based on current data for the most part, that ought to be readily available here, but I'm just concerned that, you know, here we're going to get, you know, preliminary findings and, you know, once again, I'm going to have to go back and have this same conversation with KEMA about, you know, once we get the findings, I don't know that we're going to be able to say, well, this -- isolate this variable and it does this.

And I'm just trying to pick through these things and say what's really relevant here? I'm concerned that they're just getting enough facts, getting their base amount of information that they need to run through their model and going to run it through and it's going to generate some results.

But I'm just not sure that those results -- you know, I think there needs to be some sort of confidence interval and that's why I think we

need to know what those assumptions are and I think that's why Matt's question is important.

MS. DIETRICH: Any other comments on the economic inputs? Okay. We are scheduled to stop for lunch at 11:45. I assume everybody, since we're near the end, wants to keep working?

Okay. Baseline inputs, any comments on baseline input? Any comments on the phone on baseline inputs? Commissioner Davis, did you have anything you wanted to say?

COMMISSIONER DAVIS: I mean once again, I find the October 27th report, you know, fairly -- fairly vague. I mean it's -- you know, it would be nice to -- I mean, silly me, I just thought when the report came in, it was like, you know, these are the assumptions and we'd be able to take a look at that and see is this a valid assumption or not or this is the data. And we could say, Where did you get the data and what is it?

And maybe it's there and maybe in the back-up spreadsheets and maybe it's in the work papers, but it doesn't appear to be in the October 27th. I mean, John, have you had time to look at these -- these base year -- I mean assumptions yet or -- okay. Let the record reflect for the court

reporter that John -- John Rogers from PSC staff is shaking his head no.

And once again, the base is important because if we're going to extrapolate this thing 20 years out, you know, the starting point -- I mean if we're -- you know, I realize there's going to be a high, a low and a -- and, you know, the, quote, average starting point, but I think we need to be very clear about what those variables are. And I don't know that anybody knows right now.

MS. DIETRICH: Other comments on the baseline inputs? Comments from the phone?

MR. GILZOW: I don't want this to become the Floyd and Jeff show. Floyd Gilzow with the Missouri Public Utility Alliance. More a question than a comment. I know that there is great interest in moving ahead with this as quickly as possible, but I wonder if there might be benefit in delaying some of the analysis, particularly on building types, particularly as it relates to residential until the census report comes out.

I know that a lot of the cen-- a lot of the data is based on the 2009 census of residential property, residential structure projection by the Census Bureau. And while I have great confidence in

the Census Bureau, I also know that sometimes the -- their projections, particularly with data that's nine years old, can be -- cannot be as accurate as the -- as the counts. So that -- like I said, more of an observation than a question.

MS. DIETRICH: Other comments on the baseline data?

MR. VOYTAS: This is Rick Voytas with Ameren again. I mean the baseline data we took a look at and really the only thing we could do was compare it to the baseline data that we have from our data using primary market research. And I'll just reiterate some comments I made earlier.

In some areas they're very similar, but there's some key differences, especially in the commercial and industrial areas. And, you know, we just don't know how to do that gap analysis. Maybe we classified things differently, maybe we're really closer than we really think we are. We just don't have enough information to know if we really have significant differences or if it's just a classification type of thing.

But specifically in the commercial/industrial area we notice some significant differences in terms of end use intensities of various

energy efficiency measures.

MS. DIETRICH: Can you be more specific or just a general observation?

MR. VOYTAS: At this time it's just a general observation, but I could be at -- I could get back with you.

MS. DIETRICH: Okay.

COMMISSIONER DAVIS: Mr. Voytas, if you're going to get back with Natelle, I would encourage you to do it within the next 24 to 48 hours, preferably 24. Sorry. We don't have much time here.

Going back to page 7, the peak demand contributions, this is from the Ameren presentation that we just saw, I mean, you know, we've got the -- the KEMA number which, you know, they pulled from a national demand response, you know, study.

I mean, I guess, you know, we have -- we should have peak load data for all four of our investor-owned utilities. I mean with regard to the co-ops, I mean, my mental impression is that Citizens Electric Co-op is the only co-op left that has any real industrial demand. Now, somebody may throw a shoe at me and correct me on that, but the Munis I think are -- my impression is they are all over the board.

But -- and I would feel like we ought to be able to at least calculate a weighted average for -- for the Missouri investor-owned. You know, I would -- I don't want to assume much, but I would even be willing to make some assumptions about co-op load based on what I know in terms of the fact that there's very little industrial load left on that system, my impression, except for Citizens.

And then I have no idea about the Munis, but I'm just -- you know, once again, I'm curious as to why we're -- why KEMA would use a national number for Missouri when it appears that Missouri data was available, or I mean -- conversely, I mean if this is another one of those issues where the data is so disparate that they -- they can't make an apples to apples comparison, I mean, I'm still very concerned.

Because obviously when you're saying that, you know, on a national scale we've got 65 percent residential load, on Ameren it's only 47 percent, you know, I mean, I'd be very afraid to draw some conclusions from this report, you know, because it's talking about the entire state and then trying to make every utility group in the state fit into that so --

MS. DIETRICH: And, Brent, at the risk of

putting you on the spot, was the load data in the information that I provided to KEMA?

MR. STEWART: The -- what we provided you -- and this is where once again co-ops are different than everybody else -- what we provided you was a breakdown from all of our co-ops, all of our distribution co-ops distinguished between residential and then the other class, which is commercial/industrial. We don't break them out on -- most of them don't break it out.

Now, that was probably a year old information, but I think generally speaking, Commissioner Davis is correct. We have very, very little in what I would call industrial load, but you may at least be able to glean by looking at that commercial/industrial information that we gave you, it should give you some indication -- a ballpark indication of what -- the distinction there.

And I would say that's probably true, Citizens is probably the -- the only one I can think of right now who has any significant industrial. There may be some -- up in the northern part of the state, there may be some large agricultural operations, Premium Standard Farms or something like that, but that would be reflected I think

percentage-wise if you'll look at the residential versus commercial/industrial.

MS. DIETRICH: Thank you.

MR. VOYTAS: This is Rick Voytas. I apologize for this. I agree with everything that's been said. There's some discrepancies in the KW contributions of the various classes, but this is not a demand response study. This is strictly focused on energy efficiency and I can't -- I don't know how much emphasis to put on this point. I don't know if it's a big deal or a little deal.

I don't know if KEMA's model has a KWH to KWH relationship that they use to normalize things. I just don't have enough information to know if this is really a big deal. My first thought was this isn't such a big deal, but I tend to think they wouldn't have put it in the report if it wasn't, but I don't know what to make of it.

MR. KIND: Ryan Kind with Public Counsel. Back to this peak demand issue. I think there could be a misunderstanding of what the FERC data consisted of that was relied upon. It's my understanding and -- and they've relied upon the FERC demand response study and taken data from that study to represent the relative shares of peak demand for the different

classes in Missouri.

And I -- I think -- I got the impression that Commissioner Davis thought that they were using national data, a national breakdown of peak demand into the different customer classes, but I believe actually the FERC demand response study, it is a state-by-state study and it includes state-by-state breakdowns of the relative shares of peak demand by customer class.

And I don't know. Perhaps Ameren could comment on that since they had, you know, referenced that and they were comparing the data used by KEMA in their study with Ameren's data on its own service territory. If -- you know, if Ameren has the impression that I'm wrong in saying that KEMA's relying on a Missouri-specific estimate from the FERC demand response study, you know, let me know. I could be wrong, but I -- that's my -- my recollection of what it is.

MS. DIETRICH: Ameren, did you have any response or do you know?

MR. VOYTAS: I know the -- the FERC national study was also done on a state-by-state basis, but I don't know exactly what KEMA did or why they did it. I don't know that so --

MS. DIETRICH: And I actually have a copy of an appendix here which does have some Missouri information in it, but again, I don't know the extent to how they incorporated it into what they did, so -- any other comments on the baseline inputs?

MR. GELLER: Just one quick question.

MS. DIETRICH: Your name.

MR. GELLER: Sorry, Greg Geller from EnerNOC. You just mentioned that this is just an energy efficiency study and my understanding was that it was a demand side management potential study and that included demand response. So I just wanted to be clear on that.

MS. DIETRICH: That's correct.

MR. GELLER: It is -- it does include demand response as well?

MS. DIETRICH: Yes. Yes.

Any other comments or questions? Commissioner Davis, did you have any closing remarks?

COMMISSIONER DAVIS: I want to thank everyone for coming today. I think your input and your questions will be helpful. I am hopeful and optimistic that we will be able to use some of the questions today to have a dialogue with KEMA that will help us develop a better work product.

I'm assuming that staff will make a recommendation to the Commission here early this afternoon and then from there, the Commission will probably circulate something by delegation and at some point we'll be approaching our colleagues with DNR if we do have some suggestions about potentially altering the timetable by one or two weeks.

And I would point out that if we go back to the original August 4th PowerPoint, that would put us roughly on schedule with the August 4th PowerPoint time line that was originally -- before it was altered to -- to move up two or three weeks.

So also, I am -- Natelle and I are going to be having a telephone call with KEMA tomorrow where they're going to review the DSM assist model with me and kind of walk me through that and explain that to me in much greater detail. So if you have questions that you would like for me to consider asking about the DSM assist model, then I would encourage you to submit them to Natelle who will then get them to me.

So anyway -- and once again, I don't know if anybody else has any closing comments, but I want to thank everyone for their participation, particularly EnerNOC for coming a long way today. We appreciate that. And, you know, hopefully this will

help us develop a better work product. Thank you.

MS. DIETRICH: And I also would like to thank everybody for your comments today. We will take them into consideration and depending on what happens with the schedule, proceed accordingly. If you have anything that you think of between now and this time tomorrow and you want to send me an e-mail, that's great and I'll share it with the appropriate people. So once again, thank you all for coming.

(Meeting adjourned.)

CERTIFICATE OF REPORTER

I, Tracy Thorpe Taylor, CCR No. 939, within the State of Missouri, do hereby certify that the testimony appearing in the foregoing matter was duly sworn by me; that the testimony of said witnesses was taken by me to the best of my ability and thereafter reduced to typewriting under my direction; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this matter was taken, and further, that I am not a relative or employee of any attorney or counsel employed by the parties thereto, nor financially or otherwise interested in the outcome of the action.

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Tracy Thorpe Taylor, CCR