Missouri Statewide DSM Potential Study

January 20, 2011

Public Meeting Governor Office Building 200 Madison Street Jefferson City, Missouri

REPORTED BY:

Nancy Silva, RPR, CCR No. 890 TIGER COURT REPORTING, LLC

1	MS. DIETRICH: We do have a court	1	MR. FRANKS: Good morning. Tom Franks
2	reporter and she's going on the record, so if	2	here from KEMA here to present draft results on our
3	you could identify yourselves on the phone.	3	potential study for the state of Missouri. Sorry I
4	MR. McCORMICK: This is Jerry	4	brought this weather with me. It's what I'm used to
5	McCormick with Empire District.	5	in Vermont. I hope you get to enjoy it. I just
6	MR. BRUBAKER: Maurice Brubaker with	6	regret I didn't bring my snow blower.
7	MIEC.	7	You're welcome to ask questions during
8	MR. LINTON: David Linton with	8	the presentation and go through it, but please speak
9	Southwest Power Pool.	9	clearly and slowly, considering we're not all present
10	MR. EDWARDS: This is Troid,	10	and the technology may not live up to our
11	T-r-o-i-d, Edwards, Landis+Gyr.	11	expectations.
12	MR. MARK: Good morning. This is Dan	12	This is an overview of the agenda. We
13	Mark from Ameren, Missouri, and there's several	13	have an overview of the project, results summary, and
14	here with me: Steve Kidwell, Rick Voytas, and	14	then we'll go into the specific fuels, electricity,
15	Dave Costenaro.	15	and natural gas, and an overview of what we did for
16	MS. DIETRICH: Other people on the	16	the demand-response potential, for the appendices
17	phone?	17	that I have not planned to do a line-by-line review,
18	MS. TATRO: This is Wendy Tatro with	18	go over the what they contain, and if there's any
19	Ameren.	19	specific questions, we'll open those files and look
20	MS. DIETRICH: And did somebody else	20	at the lines in question and address them to the best
21	say something?	21	of our ability, and closing with the next steps.
22	MS. NIGAIL: Paula Nigail from	22	MS. DIETRICH: If I may, this is Natelle
23	Walmart. I'm sitting in for Ken Baker.	23	Dietrich. I should mention that we also received a
24	MS. DIETRICH: Anyone else on the	24	presentation from Ameren this morning, and so I have
25	phone?	25	that whenever it's appropriate to present it.
	2		4
1	MR. SHOFF: This is Kyle Shoff with	1	MR. FRANKS: Thank you.
1 2	MR. SHOFF: This is Kyle Shoff with Ameren.	1 2	MR. FRANKS: Thank you. This is a repeat of some of the materials
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1			
	Jefferson City and noticed that all the lighting was	1	which is behavior, and a little more challenging.
2	provided by LED. I was quite excited.	2	So here's a picture of the model, a
3	The next ring out is a small report. I	3	schematic. Key inputs. Many of you have reviewed
4	wish I could go from the outside. The greatest	4	our inputs or contributed to the creation of them.
5	amount of savings that could be achieved is called	5	Economic data; measure data, building data. I'm just
6	technical potential. That means if you took every	6	going to run through this quickly. Stop me if you
7	energy saving measure you could find, installed it	7	have questions, please. I won't see your hands
8	wherever it would fit and wherever it was necessary	8	probably.
9	and took out all of the less-efficient equipment,	9	THE COURT REPORTER: I may have to have
10	that's what you would save.	10	you talk a little slower too.
11	The next ring in is economic potential.	11	MR. FRANKS: I'm sorry.
12	That would be installing all the measures that are	12	So the first thing we do is develop a
13	cost-effective; in other words, your lifetime revenue	13	base case: What is the energy usage in whatever area
14	stream is greater than your lifetime cost stream.	14	we're studying? Take a year. We worked with the
15	The next one in is what's called many	15	PSC, who gave us direction on what many of the
16	different things, but the short word I used is	16	inputs, working with the stakeholder input.
17	"achievable potential." There are many flavors of	17	We've already been over it this is a
18	achievable, but it has to do with what you actually	18	more verbose description of technical potential, or
19	get in the marketplace. We are not perfect actors in	19	at least an accurate one. Here's a description of
20	a market, none of very few of us, at least. There	20	economic potential, and note the last line. We tend
21	may be some out there.	21	to work as incremental costs. That's important, what
22	So we may not make choices or decisions	22	we really focus on, just indicative to me as what
23	that are in our best economic interest all the time,	23	would be happening anyway, but what's there and what
24	so even if you offer to give somebody something that	24	you have to add for input, because there's some
25	will save them energy, you offer to give it to them	25	carrying costs, having the light on, regardless of
	6		8
1	for free and you offer to install it for them, and	1	its technology, so you assume your light whatever
2	all they have to do is say, Yes. A certain	2	your light costs to have it on now is your base and
3	percentage won't.	3	what the light costs for the new efficient measure is
4	And then there's a little piece that	4	your incremental costs.
5	happens anyway, which is where I start. This is an	5	And this microphone's not locked.
6	overview of our model. It develops technical and	6	The economic potential is the technical
7	economic and achievable potential. It's basically a	7	potential for all measures and market sectors with a
8	two-step a three-step model.	8	total cost rate it's just blank. Benefit cost
9	You gather all the inputs. We set up a	9	ratio greater than one; total resource cost;
10	large number of input files, which I believe most of	10	description of achievable potential. And this is
11	you on the phone have received as part of the ongoing	11	MS. DIETRICH: Your sleeve's blocking
12	interim memo communication. We then take those	12	MR. FRANKS: So the people aren't seeing
13	inputs and put them into the model and say, Tell us	13	this from the computer? They're seeing it from
14	what the technical and economic potential is. It	14	the
15	does that in one run.	15	MS. DIETRICH: By the projector on the
16	We look at those and say, Hmm. What did	16	screen.
17	we miss? What's wrong? And we go through it over	17	MR. FRANKS: Oh. Okay.
18	and over again until we say, Yeah, this looks right.	18	So anyway, this is where we look at
	After that we take those results and give the model	19	programs that exist, look at what the study sponsor
19		20	anticipates for a program, if they'd like to get out
	some more information: What do we expect to be	20	anticipates for a program, in they drike to get out
19	some more information: What do we expect to be happening in the world?	20 21	of those programs, and adjust and design some basic
19 20	-		
19 20 21	happening in the world?	21	of those programs, and adjust and design some basic
19 20 21 22	happening in the world? Up till that you know, at the end of	21 22	of those programs, and adjust and design some basic program information to put into the model.
19 20 21 22 23	happening in the world? Up till that you know, at the end of economic potential the model doesn't care what the	21 22 23	of those programs, and adjust and design some basic program information to put into the model. For Missouri we took, basically, a sector

1	what your program design was. It's not in our	1	was developed.
2	mandate to do such.	2	MR. FRANKS: You were breaking up a little
3	We said, Okay, in general, if you want	3	bit, and maybe it's because someone else hasn't
4	to looking at the technical and economic savings,	4	muted, but just as a courtesy, if you're not
5	what would you want to get for programs to achieve	5	speaking, please mute your phone.
6	various scenarios, which I'll get to in a moment. So	6	I think I understood your question to be:
7	this is a key I think this microphone is dropping	7	How do we develop our base case? As per our project
8	out, so let me know.	8	proposal, we developed our base case primarily on
9	MS. DIETRICH: Let's try let me grab	9	secondary imports from the sources, such as the EIA
10	that one.	10	and others.
11	MR. FRANKS: Then we won't get the phone.	11	We were not able to acquire a complete
12	MS. DIETRICH: I was going to put this one	12	set of data for offhand. I can't think of any
13	over here. The wire's in the screen now.	13	input to the model that we had the same input and the
14	MR. FRANKS: Now I'd like to	14	same units for every utility, so what we did was we
15	MS. DIETRICH: Dan, from Ameren, Dan	15	took the information we had and looked at it to scale
16	Morris, if you have questions, go ahead and ask them,	16	and calibrate.
17	or anybody else at any time. You'll just have to	17	MR. COSTENARO: Sir, we're having a very
18	speak up so that we can hear you on the phone.	18	difficult time on the phone. Is there a way that you
19	MR. HUGHES: I have a question. Can I	19	can lose a microphone and put the telephone closer to
20	take it over here (indicated)?	20	the speaker?
21	MR. COITO: Uh-huh.	21	MR. FRANKS: I think
22	MS. TATRO: You have to speak up because	22	MR. COSTENARO: We were trying to
23	we don't hear you on the phone.	23	through the webcast, and there's a delay, so we have
24	MS. VOYTAS: All right. This is Rick	24	some communication problems.
25	Voytas with Ameren. Can you hear me?	25	MR. FRANKS: I think probably if you're
	10		12
1	MS. DIETRICH: Yes.	1	not if you're not speaking
2	MR. FRANKS: Yes, we can.	2	MR. COITO: What if you tried not to use
3	MS. VOYTAS: Okay. This is Rick Voytas	3	the mic and just talk right into the phone? Right
4	from Ameren. Can you hear me?	4	here. Doesn't that thing pick up?
5	MR. FRANKS: Yes, we can.	5	MS. DIETRICH: Yeah. I mean, this has its
6	MS. DIETRICH: Can you hear us on the	6	own microphone. If everybody on the other end can
7	phone? I think we have some communication problems.	7	mute, because we're getting feedback from our
8	Rick?	8	presentation here and hearing it over the phone, too,
9	MS. VOYTAS: I'll try it again. This is	9	so that might help.
10	Rick Voytas. We have some questions on the	10	MR. FRANKS: Okay.
11	development of the base case. Would now be an	11	MR. COITO: Sit down and talk into that
12	appropriate time to ask those?	12	and see if it works.
13	MR. FRANKS: Sure. We're go ahead.	12	MR. COSTENARO: Natelle, we could hear you
14	MR. VOYTAS: All right. We don't	14	very well just then.
15	understand how the base case was developed. I think	14	
10	at the beginning of the presentation it was implied	15	MS. DIETRICH: Okay.
16		10	MR. FRANKS: Okay. I've been trying to
		17	
17	that the Staff provided some base case data from the	17	use the microphone for the conference room. It
17 18	that the Staff provided some base case data from the Missouri utility, but I guess, you know, I know	18	apparently is not working. How does this sound?
17 18 19	that the Staff provided some base case data from the Missouri utility, but I guess, you know, I know Ameren Missouri provided some base case data.	18 19	apparently is not working. How does this sound? MR. COSTENARO: That sounds great.
17 18 19 20	that the Staff provided some base case data from the Missouri utility, but I guess, you know, I know Ameren Missouri provided some base case data. I'm trying to figure out all if we	18 19 20	apparently is not working. How does this sound? MR. COSTENARO: That sounds great. MS. VOYTAS: Oh, that's superb. That's
17 18 19 20 21	that the Staff provided some base case data from the Missouri utility, but I guess, you know, I know Ameren Missouri provided some base case data. I'm trying to figure out all if we used our forecast, if I really don't know at this	18 19 20 21	apparently is not working. How does this sound? MR. COSTENARO: That sounds great. MS. VOYTAS: Oh, that's superb. That's wonderful.
17 18 19 20 21 22	that the Staff provided some base case data from the Missouri utility, but I guess, you know, I know Ameren Missouri provided some base case data. I'm trying to figure out all if we used our forecast, if I really don't know at this point if you aggregated all the forecasts of the	18 19 20 21 22	apparently is not working. How does this sound? MR. COSTENARO: That sounds great. MS. VOYTAS: Oh, that's superb. That's wonderful. MR. FRANKS: We'll give up on third-order
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17 18 19 20 21 22 23 24	that the Staff provided some base case data from the Missouri utility, but I guess, you know, I know Ameren Missouri provided some base case data. I'm trying to figure out all if we used our forecast, if I really don't know at this point if you aggregated all the forecasts of the various utilities together or their own bottom-up type of and upgraded those forecasts. I'm trying	18 19 20 21 22 23 24	apparently is not working. How does this sound? MR. COSTENARO: That sounds great. MS. VOYTAS: Oh, that's superb. That's wonderful. MR. FRANKS: We'll give up on third-order technology for now. MR. COITO: Can everyone hear?
16 17 18 19 20 21 22 23 24 25	that the Staff provided some base case data from the Missouri utility, but I guess, you know, I know Ameren Missouri provided some base case data. I'm trying to figure out all if we used our forecast, if I really don't know at this point if you aggregated all the forecasts of the various utilities together or their own bottom-up	18 19 20 21 22 23	apparently is not working. How does this sound? MR. COSTENARO: That sounds great. MS. VOYTAS: Oh, that's superb. That's wonderful. MR. FRANKS: We'll give up on third-order technology for now.

1	MR. FRANKS: All right. Thank you.	1	it, so we do our own separate projection for base
2	THE COURT REPORTER: And if I could just	2	case.
3	say, the people on the phone need to introduce	3	And let me also just say that, you know,
4	themself each time because I cannot see who's	4	with our methodology, it's not a crucial part of our
5	speaking.	5	methodology. It's not you know, we build our
6	MR. FRANKS: Did you capture that?	6	energy savings up from the actual technologies out
7	MR. VOYTAS: Okay.	7	there and, you know, we have kind of move along
8	MR. FRANKS: All right. I'll start over.	8	assuming that things are constant efficiency, and the
9	I heard your question. You asked how we developed a	9	model actually predicts kind of a naturally-occurring
10	baseline. I won't go the long answer. The short	10	savings, you know, things people would do anyway, you
11	answer is: We took secondary data, such as EIA	11	know, somewhat like a price elasticity.
12	sources, we took what we could acquire, which was not	12	Then we also try to, you know and I
13	a complete set of utility data, reviewed it for to	13	don't like to use "predict," because they're really
14	see how we could scale the secondary data or adjust	14	just scenarios or potentials, you know, what we try
15	it based on what we knew from was happening in the	15	and build potentials on what would happen if you
16	state of Missouri, and we presented that in one of	16	actually run programs, increase awareness, give
17	our earlier memos for review and comment and that	17	people incentives, that type of thing. Does that
18	we there were several comments. We took direction	18	help?
19	from the PSC as to for all of the measure inputs	19	MR. VOYTAS: I'm a little bit I could
20	as to which to adjust, based on comments.	20	just spend another minute on this. I think the base
21	MR. VOYTAS: Okay. Tom, this is Rick	21	line is exceptionally important in this study. I
22	Voytas at Ameren again.	22	think it's the crucial piece of this study, and
23	I appreciate that explanation, and I'm	23	that's why we're trying to understand it.
24	most familiar with Ameren Missouri but, you know, our	24	Now, we had started off with that target
25	sales forecast you know, if you use the ones that	25	diagram of naturally-occurring energy efficiency, and
	14		16
1	I'm thinking about are complete forecasts,	1	that was the smallest circle in the set of circles,
1 2	I'm thinking about are complete forecasts, there's there's nothing, you know, incomplete	1 2	that was the smallest circle in the set of circles, but on Figure 522 in the draft report, there's a
2	there's there's nothing, you know, incomplete	2	but on Figure 522 in the draft report, there's a
2 3	there's there's nothing, you know, incomplete about it, so for our portion of the Missouri ties,	2 3	but on Figure 522 in the draft report, there's a graph of the cumulative annual KWh for all the
2 3 4	there's there's nothing, you know, incomplete about it, so for our portion of the Missouri ties, did you use the forecasts that we had provided or	2 3 4	but on Figure 522 in the draft report, there's a graph of the cumulative annual KWh for all the various forms of energy efficiency, and the
2 3 4 5	there's there's nothing, you know, incomplete about it, so for our portion of the Missouri ties, did you use the forecasts that we had provided or that we had not normally give Staff, or did you use EIA data to represent some of the Ameren Missouri service territory?	2 3 4 5	but on Figure 522 in the draft report, there's a graph of the cumulative annual KWh for all the various forms of energy efficiency, and the naturally-occurring energy is huge. It's, like, in
2 3 4 5 6	there's there's nothing, you know, incomplete about it, so for our portion of the Missouri ties, did you use the forecasts that we had provided or that we had not normally give Staff, or did you use EIA data to represent some of the Ameren Missouri	2 3 4 5 6	but on Figure 522 in the draft report, there's a graph of the cumulative annual KWh for all the various forms of energy efficiency, and the naturally-occurring energy is huge. It's, like, in the 40 percent range. It's almost as much as the
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	not we do not like I say, we use a frozen	1	MR. HUGHES: We've got three other than
2	efficiency forecast.	2	naturally-occurring, we've got three categories of
3	You know, our growth is based on, you	3	potential. The first is the technical potential,
4	know, new construction. You know, it's actually, you	4	which is the hypothetical possible using all the
5	know, customers out, assuming that they're using	5	technology that we're aware, and the second one, the
6	pretty much kind of what they're using now, so we do	6	economic potential we, again, use the term "technical
7	not build into our baseline forecast the naturally-	7	potential," and my question is: Is the definition of
8	occurring.	8	"technical potential" and "economic potential" the
9	We did not use your forecast, per se, of	9	same as "technical potential" and "technical
10	energy growth. We would, you know, if anything, use	10	potential"?
11	your forecast of customer growth, so that that's	11	MR. FRANKS: The phrase the word
12	where we go with that.	12	"technical" is engaged with what, are you
13	And, you know, we want we also want to	13	referring to a particular slide or page?
14	characterize our scenario as the one three-year	14	MR. COITO: Go to page 15, Tom. I think
15	payback scenario is the one that you say is, you	15	it's 15 that you're
16	know, just above naturally-occurring but, yeah, we	16	MR. HUGHES: I'm just working out of that
17	can we can get through that, too, but we do not	17	draft report.
18	build you know, we do not build in declining use	18	MR. FRANKS: Yeah.
19	per customer into your baseline initially, and	19	MR. HUGHES: And it's in the summary.
20	that's you know, like I say, if you want to put	20	MR. FRANKS: Effectively, economic
21	you know, put something down, we can address that and	21	technical potential and economic potential is the
22	we can confirm that with our analysts, but and I'm	22	same. It's the economic share of technical
23	pretty sure that's how you know, that's how we've	23	potential.
24	done it in most of our studies.	24	MR. COITO: Economic potential is the part
25	MR. FRANKS: And just for the audience,	25	of technical potential that's cost-effective
	18		20
1			
	please direct all questions and comments to the PSC	1	MR. HUGHES: Under the further limitations
2	please direct all questions and comments to the PSC directly.	1 2	MR. HUGHES: Under the further limitations described in economic potential?
2	directly.	2	described in economic potential?
2 3	directly. MR. COITO: Yes.	2 3	described in economic potential? MR. COITO: Yes.
2 3 4	directly. MR. COITO: Yes. MR. FRANKS: They're our client.	2 3 4	described in economic potential? MR. COITO: Yes. MR. HUGHES: Such as we then bring in the
2 3 4 5	directly. MR. COITO: Yes. MR. FRANKS: They're our client. MR. VOYTAS: Thank you. We can move on.	2 3 4 5	described in economic potential? MR. COITO: Yes. MR. HUGHES: Such as we then bring in the cost
2 3 4 5 6	directly. MR. COITO: Yes. MR. FRANKS: They're our client. MR. VOYTAS: Thank you. We can move on. We'll do we'll do	2 3 4 5 6	described in economic potential? MR. COITO: Yes. MR. HUGHES: Such as we then bring in the cost MR. COITO: Yes.
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1	of your view.	1	a rebate program through utility or would this be the
2	There's availability, awareness, and	2	benefit gained from implementing the technology to
3	adoption. Each of these general categories has	3	cost savings, or a combination of both?
4	various inputs that our model requires in order to	4	MR. FRANKS: That represents the incentive
5	run. Since the real world doesn't say, Here's an	5	to the customer for installing on installation
6	adoption rate, we need to generate those.	6	of the incremental costs.
7	We generate those by looking at studies.	7	MR. HUGHES: So if I understand this
8	In some potential studies we do perceive preference.	8	correctly, if I'm a customer of Jet Electra and I
9	We do telephone surveys. We didn't in this study, so	9	want to upgrade my water heater, and this would be
10	we took what we could find from studies that were	10	based on a 75 percent incentive that I would receive
11	conducted in the state of Missouri. We looked at	11	from the utility or the government to make that
12	studies from other jurisdictions and developed inputs	12	improvement, and there's no consideration in the
13	for these factors.	13	calculus of the cost savings in that determination?
14	Now, this will come this issue is	14	MR. FRANKS: No, in terms of the cost
15	important when we get to the scenarios. We were	15	savings to the customer.
16	directed by the PSC to match, or attempt to match,	16	MR. HUGHES: It's strictly incentive as
17	the outputs of the model that Ameren used, which were	17	opposed to
18	one-year and three-year payback scenarios.	18	MR. FRANKS: Yeah.
19	MR. HUGHES: If I could beg your	19	MR. HUGHES: energy
20	indulgence or another question.	20	MR. COITO: Exactly. Now, with the one
21	MR. FRANKS: Certainly.	21	one thing on the water heater, though, would be the
22	MR. HUGHES: While you're on the matter of	22	rebate would probably be based on you know, the
23	scenarios, it was my understanding, and according to	23	way we've run it would be what they call "replace
24	your report and what I sat through in the Commission	24	on burnout," so if you wanted to replace it and it's
25	hearings, that we now have the categories of the	25	still working really well, we didn't run that
	22		24
		_	
1	one-year payback, and I'm assuming that this what	1	scenario.
2	is your definition of "payback" in that model?	2	We assumed it had come up on its turnover
3	MR. FRANKS: Payback is that the costs are	3	cycle, and the only rebate is on the cost of the
4	recovered in one year from the savings in one year.	4	high-efficiency the 75 percent rebate would only
5	MR. HUGHES: So netting out the energy	5	be on the difference between the high efficiency and
6	savings of costs included over one year and three	6	the standard efficiency
7	year?		
	•	7	MR. HUGHES: Gotcha.
8	MR. FRANKS: Or in a more complex model,	7 8	MR. COITO: so it's not going to be the
9	MR. FRANKS: Or in a more complex model, because I know you're interested in the details, you	7 8 9	MR. COITO: so it's not going to be the whole water heater.
9 10	MR. FRANKS: Or in a more complex model, because I know you're interested in the details, you might also include operation and maintenance costs.	7 8 9 10	MR. COITO: so it's not going to be the whole water heater. MR. HUGHES: Gotcha.
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1	of you.	1	web?
2	MR. FRANKS: Oh. They can't hear the two	2	MR. VOYTAS: No.
3	of us?	3	MR. COSTENARO: There's a little bit of a
4	MS. DIETRICH: Right, because the webcast	4	delay. It might be coming up any second here.
5	is also broadcasting for us, so we have kind of two	5	MR. VOYTAS: All right. Now we see it.
6	issues. The people on the phone aren't necessarily	6	It just came up.
7	also on the webcast or vice versa.	7	MR. COSTENARO: Yes.
8	(A discussion was held off the record.)	8	MR. VOYTAS: So one of the things that we
9	MR. FRANKS: We are working with technical	9	wanted to do with this I know we've gotten several
10	issues for a moment.	10	KEMA drafts, the middle of December, January 6, and
11	(A discussion was held off the record.)	11	the current January 15th draft, and we didn't plot
12	MR. FRANKS: I think I have listened to	12	the middle of December, but the economic and
13	web broadcasts from the PSC in the past and had also	13	potential numbers are apparently there were some
14	called in, and I found I had to turn off the audio on	14	errors in the commercial database, December 15, and I
15	one of them.	15	guess those were corrected, and now on the early
16	MS. SUGGETT: It's the people that aren't	16	January and this current version, we note that the
17	on the phone but just on the broadcast that are	17	technical and the economic potentials have stayed the
18	having problems now.	18	same.
19	MR. FRANKS: Okay. My apologies.	19	There was some verbiage in the draft
20	So I think with that, we'll move on.	20	report that this is a really conservative estimate,
21	Here's the bottom line. We developed this is a	21	that behavioral modification, conservation-type
22	ten-year cumulative potential, so the total savings	22	measures were removed and that emergent technologies
23	over the ten years of up to 2020, and it's a	23	were removed.
24	summary. We show, you know, technical at 35 percent	24	Looking at the technical and economic
25	of the base energy use in 2020, absent any activity	25	potential, you know, I don't see any movement there,
	26		28
1	you know, just absent any activity.	1	but it sounded like some measures were removed. Then
2	Economic potential at 25 percent, and	2	we noted that in the last graph in the January 5th
3	then the potentials for the three different	3	version, we had a one-year payback estimate of
4	scenarios, 7 percent for a three-year payback, 10	4	6 percent. That's been decreased to 10 percent, I
5	percent for a one-year payback, and 13 percent at 75	5	guess, four over six is a 67 percent increase in
6	percent incentive design.	6	one-year potential, and then the three-year potential
7	MR. VOYTAS: Excuse me. This is Rick	7	increased from 5 to 7, a 2 percent over 5, a 40
8	Voytas at Ameren Missouri. May I interrupt at this	8	percent increase, and then for the first time
9	point?	9	we've never seen this here before there's an
10	MR. FRANKS: Please.	10	entirely new scenario based on a I don't know a
11	MR. COITO: Yes.	11	75 percent payment of incentives that achieved 13
12	MR. VOYTAS: One thing, we didn't send a	12	percent, so this is all new information. It doesn't
13	presentation. We sent one graph. Would it be	13	coincide with what we see in the report.
14	possible that the PowerPoint slide. Would it be	14	You know, when we look at the top 20
15	possible to display that on the web right now? It	15	measures that are attached to this report, we still
16	goes exactly with this table right here, and then	16	see the behavior modifications contributing a huge
17	we've got a few questions to ask from that. Would it	17	amount to the overall potential, but some of the
18	be possible to display that?	18	things we're going to want to talk you know, we
19	MR. FRANKS: Natelle has left. I don't	19	can go on with this but, you know, a very important
20	know whether to speak to the mic or the phone.	20	point to note is the huge difference in I'm
21	MS. SUGGETT: She said it's loaded. We'll	21	sorry the green line is the Ameren Missouri study,
22	look for it.	22	the study that we're most familiar with that we used
23	MR. VOYTAS: Yeah, if we could show that,	23	as a reference point, but one clear, clear outlier is
24	we just want to speak to that part a few moments.	24	the economic potential, you know, the 25 percent
24 25	MR. FRANKS: Are you seeing it over the	24 25	versus 14 percent, the statewide number versus the

			01-20-2011
1	Ameren Missouri number, that the statewide number is	1	designed to do, and Fred can speak to that directly.
2	an 80 percent increase over the Missouri number.	2	MR. COITO: Well, let me just we need
3	And if you think about it, at the end of	3	to check on this, you know, with our analysts, but I
4	the day we end up with the same just call them RAP	4	think a big a big change was that we tried to
5	and MAP numbers. I know there's some differentials	5	express things in gross savings.
6	and definitions.	6	I think I think initially we had
7	But if we end up at the same place there,	7	presented net savings in our initial memo, but as we
8	the statewide study starts at a much higher economic	8	looked through, you know, your report, we didn't see
9	potential. What that's saying is that the statewide	9	any net or net-to-gross. It just talked about
10	study is very pessimistic on how customers will	10	savings. So I think the big change there was to
11	accept energy efficiency, much more so than the	11	express, you know, the results in you know, in a
12	Ameren Missouri study.	12	comparable way as gross savings.
13	As we get into this, there's a lot of	13	Now, I think in our report we show both,
14	things going on. You can look at that economic	14	but the bottom you know, the results that are
15	potential. You can do some benchmarking, and there's	15	shown in the tables that Tom's presenting here today
16	all kinds of issues with that, or you can go to the	16	are gross savings, and like I say, we can we
17	actual database itself and see the parameters, the	17	can we need to confirm I need to confirm that
18	estimates, the incremental costs and the savings that	18	with our analysts, but my understanding is that's one
19	went into measures, and at some point today we'll	19	of the biggest adjustments that was made is just the
20 21	raise we'll point to numerous examples where we've	20 21	presentation.
21	got benefit cost ratios of 30, 40, 200, and then	21	MR. COSTENARO: Right, so that was a
22	we'll talk to the costs that underlie those, and	22	question.
23 24	we've got some real issues here that we're going to	23 24	MR. VOYTAS: Identify yourself. MR. COSTENARO: All right. Dave Costenaro
25	need to discuss at some point, say at least we'll key them up and we'll submit written questions to	24	with Ameren again.
25	30	25	32
1	pursue that.	1	So your comment on the net-to-gross
2	But most of every question that we'll	2	savings, I think that's definitely important until
3	have from this point forward will be kind of based on	3	one of the things that comes out now is that our
			one of the things that comes out now is that our
4	this graph, so there's no need to keep it up, but	4	baseline had the naturally-occurring efficiency
4 5	this this will be the central point of questions	4 5	baseline had the naturally-occurring efficiency removed beforehand, and then what we present coming
4 5 6	this this will be the central point of questions from which we'll be speaking.	4 5 6	baseline had the naturally-occurring efficiency removed beforehand, and then what we present coming out of that, there is no distinction between net-to-
4 5 6 7	this this will be the central point of questions from which we'll be speaking. MR. FRANKS: Thank you.	4 5 6 7	baseline had the naturally-occurring efficiency removed beforehand, and then what we present coming out of that, there is no distinction between net-to- gross because all of the savings and the study that
4 5 6 7 8	this this will be the central point of questions from which we'll be speaking. MR. FRANKS: Thank you. MR. VOYTAS: Just at a high level I	4 5 6 7 8	baseline had the naturally-occurring efficiency removed beforehand, and then what we present coming out of that, there is no distinction between net-to- gross because all of the savings and the study that GEP did for Ameren are net. The naturally-occurring
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4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	 this this will be the central point of questions from which we'll be speaking. MR. FRANKS: Thank you. MR. VOYTAS: Just at a high level I know we want to move on, but what was it, then, that changed between the January 5 version and the January 15 version to cause a 40 and 67 percent increase in achievable potential if several measures were removed from the database? MR. FRANKS: Let me address the "removed" comment. There were no measures removed from the database between the runs. What we did not do is start out by incorporating programs that addressed explicitly emergent technologies and behavioral conservation in that. The difference between the first run and which was delivered on January 5, the achievable high-level memo, and the results that are in the draft report, January 15, were based on 	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	baseline had the naturally-occurring efficiency removed beforehand, and then what we present coming out of that, there is no distinction between net-to- gross because all of the savings and the study that GEP did for Ameren are net. The naturally-occurring efficiency is taken care of beforehand, and then what comes out is what the programs will accomplish themselves. And so looking at your study, it seems that you have the net-to-gross thing taken care of after the fact, after the study is done, so the net savings in your study seem to be what we would compare to the savings in the Ameren study, and that being a potential range of 3.5 percent to 8.2 percent from Table 1.5. And I wasn't sure 'cause Table 1.5 has different potential numbers than Table 1.1 that appears in the summary. Are we talking about, you know, 11 percent that occurs in Table 1.5 or are we talking about 13 percent that occurs in Table 1.1,

1	MR. COITO: Are you going to answer that	1	included interchanging and and with the stock
2	one, Tom?	2	turnover and new technologies coming online, so we
3	MR. FRANKS: I'm not there yet.	3	kind of had all that included in the baseline.
4	MS. DIETRICH: Dave, can you repeat your	4	MR. COITO: Yeah. Let me also just
5	question?	5	address one more thing on the on the difference
6	MR. COITO: Can you say it again? We	6	between the economic potential. To some degree I
7		7	think our economic potential includes guite a bit of
7 8	didn't have the report open to those questions.	8	
	MR. COSTENARO: Yeah. Yeah. So Table		light savings that are going to be picked up in
9	1.1, which I think is in the executive summary, it	9	standards.
10	shows and I'll just talk about the 75 percent, the	10	We still showed it as economic potential
11	newly-added case.	11	for you know, for society, but when we get to our
12	MR. COITO: Okay.	12	achievables we you know, we net you know, we
13	MR. COSTENARO: It shows gigawatt hour	13	netted out lighting with the understanding, you
14	savings in 2020 of 11,942 or a 12.9 percent	14	know I think we showed a couple years of a
15	reduction, and so that, I assume, is gross gigawatt	15	lighting program for things like CFLs, and then those
16	hour savings. Then in Table 1.5 in the body of the	16	dropped you know, and then they dropped off so,
17	report, that 11,942 changes to 10,185, but then the	17	you know, that is one of the reasons the economic
18	net number is 7,561, so I don't know which one is the	18	potentials will look different is because, you know,
19	right number to compare to the Ameren report, and it	19	from what we can tell, yours excluded a lot of
20	seems to me the 7,561 is the corresponding number,	20	lighting that was going to go to standard, and ours
21	the program potential, you know, in the year 2020.	21	did not.
22	MR. FRANKS: We will need to check the	22	MR. COSTENARO: So would there the
23	MR. COITO: Yeah, clear there's clear	23	naturally-occurring efficiency then, should that be
24	there's inconsistency there but, you know, going from	24	backed out of all the potentials: The technical,
25	Table 1.5, I would say, yeah, that the that if you	25	economic and achievable potentials?
20		20	
20	34	20	36
			-
	34		36
1	34 want to compare I guess it would be the net,	1	36 MR. COITO: No. Yeah, like I said
1 2	34 want to compare I guess it would be the net, although, you know, based on reading how your study	1 2	36 MR. COITO: No. Yeah, like I said yeah, we yeah, I mean, it could if you're
1 2 3	34 want to compare I guess it would be the net, although, you know, based on reading how your study was put together, it was hard for us to understand	1 2 3	36 MR. COITO: No. Yeah, like I said yeah, we yeah, I mean, it could if you're trying to compare, I guess so. We just didn't you
1 2 3 4	34 want to compare I guess it would be the net, although, you know, based on reading how your study was put together, it was hard for us to understand how net and gross came together so, you know, to the	1 2 3 4	36 MR. COITO: No. Yeah, like I said yeah, we yeah, I mean, it could if you're trying to compare, I guess so. We just didn't you know, we do it that way but and you guys did so,
1 2 3 4 5	34 want to compare I guess it would be the net, although, you know, based on reading how your study was put together, it was hard for us to understand how net and gross came together so, you know, to the extent we're comparing net against gross in our, you	1 2 3 4 5	36 MR. COITO: No. Yeah, like I said yeah, we yeah, I mean, it could if you're trying to compare, I guess so. We just didn't you know, we do it that way but and you guys did so, yeah, there's a difference in methodology, so either
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1	penetration curves, and then what we do is say, You	1	efficiency." I think it's interesting how Ameren
2	know, we're increasing the cost effectiveness of a	2	uses this term as well to make sure we're all using
3	measure by giving an incentive and then you know,	3	the same terms in the same way. I don't know if
4	the model then picks up additional savings that	4	Ameren
5	would, you know, accrue to the program.	5	MS. DIETRICH: Ameren, did you hear the
6	MR. COSTENARO: I see. Okay. Thank you.	6	question?
7	MR. FRANKS: Any other questions?	7	MR. COSTENARO: We couldn't hear that very
8	MR. NOLAR: John Nolar, DNR.	8	well, no.
9	Is this mic working, by the way? I just	9	MR. NOLAR: Rick, this is John Nolar from
10	want to clarify I just want to clarify when	10	DNR. Both Ameren and KEMA have been using the term
11	when KEMA uses the word "naturally-occurring	11	"naturally-occurring potential," and what I did was
12	potential," does it incorporate potential I mean	12	ask KEMA to sort of explain what different categories
13	naturally-occurring efficiency sorry that that	13	that might be part of that term they were including
14	includes efficiency resulting from market-driven	14	into that term, and I was going to ask you the same
15	technology improvements and efficiency resulting from	15	question, because I wanted to know if we were all
16	customers responding to the kind of government and	16	using the same term of "naturally-occurring
17	other information that's not driven by the utility	17	efficiency" in the same way, and so how are you guys
18	and also responding and also efficiency resulting	18	using the term?
19	from market-driven innovations? Are all those	19	MR. VOYTAS: John, the easiest way I can
20	included in that term?	20	explain "naturally-occurring" is natural growth is
21	MR. COITO: It it picks up the market-	21	equated to the natural growth ratio in the free
22	driven. I think, you know, government initiatives,	22	ridership portion. These are both would do the
23	I we're not that we're not that exact. I mean,	23	energy efficient thing regardless of the utility
24	I think there's it's a gray area. We try we	24	program, so that's what we try to capture, and that's
25	haven't really done the attributions to government	25	how I think of naturally-occurring energy efficiency.
25	38	25	40
			10
1	initiates.	1	MR. NOLAR: All right. Rick, did you hear
1 2	initiates. MR. NOLAR: If there are new DOE	1 2	MR. NOLAR: All right. Rick, did you hear the discussion where I was asking about the several
2	MR. NOLAR: If there are new DOE	2	the discussion where I was asking about the several
2 3	MR. NOLAR: If there are new DOE standards, that also is a part of the	2 3	the discussion where I was asking about the several different categories?
2 3 4	MR. NOLAR: If there are new DOE standards, that also is a part of the MR. COITO: Yep. We we we try we	2 3 4	the discussion where I was asking about the several different categories? MR. VOYTAS: No, John. We couldn't really
2 3 4 5	MR. NOLAR: If there are new DOE standards, that also is a part of the MR. COITO: Yep. We we we try we pick up standards you know, and I could check	2 3 4 5	the discussion where I was asking about the several different categories? MR. VOYTAS: No, John. We couldn't really catch any of that.
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1	discussed them already. And these are all in present	1	
1	discussed them already. And these are all in present	2	MR. HUGHES: Right.
2 3	value. This chart summarizes the same for	2	MR. FRANKS: total cost, which would be
			incentives, and this includes participant costs,
4	natural gas energy only, and a benefit cost summary	4 5	because the net benefit includes the participant
5 6	for natural gas.	6	costs, which is not part of the program costs. In
6	MR. ROGERS: This is John Rogers. Tom,		other words, it includes incentives
7	looking at the one-year payback and the 75 percent	7	MR. HUGHES: Okay. So is that in the 75
8	incentive, the costs in the 75 percent incentive are	8	or not? Here's my question: Can I take that net
9	lower than the one-year payback costs and yet the	9	benefit, multiply by .75 MR. FRANKS: No.
10	MR. FRANKS: Are you on electric?	10	
11	MR. ROGERS: Yes.	11	MR. HUGHES: and determine the costs?
12	MR. FRANKS: Let me go back to that.	12	MR. FRANKS: No.
13	MR. ROGERS: And yet the net benefits in	13	MR. HUGHES: Okay. All right.
14	the 75 percent incentive are greater than the	14	Is there an appendix or something that
15	one-year payback.	15	claims to me why?
16	MR. FRANKS: That's correct.	16	MR. FRANKS: 75 percent is an incentive of
17	MR. ROGERS: Help me understand that.	17	incremental costs at one point in time.
18	MR. FRANKS: The 75 percent incentive,	18	MR. HUGHES: Okay.
19	it's an allocation of the program dollars	19	MR. FRANKS: Net benefits is a stream over
20	differently. In some cases the one-year payback	20	time adjusted to be in present value.
21	required an immense amount of money for certain	21	MR. HUGHES: In dollars but
22	measures to get it down to there, or a larger amount	22	MR. FRANKS: It's it's in term it is
23	of money, and therefore produced lower net benefit.	23	converted to dollars because you can't compare wants
24	Also in the 75 percent payback scenario,	24	of dollars and have a meaningful
25	our model develops developed a higher level of	25	MR. HUGHES: Okay. Very good.
	46		48
1	savings for some measures based on that when we had	1	MR. FRANKS: Or one hour.
2	the same awareness and other factors and	2	MR. VOYTAS: This is Rick Voytas at Ameren
2 3	the same awareness and other factors and availability, so it's a model output.	2 3	MR. VOYTAS: This is Rick Voytas at Ameren Missouri. Could I interrupt for a second?
2 3 4	the same awareness and other factors and availability, so it's a model output. It makes sense that if you're trying to	2 3 4	MR. VOYTAS: This is Rick Voytas at Ameren Missouri. Could I interrupt for a second? On the issue of costs, since we were just
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2 3 4 5 6	the same awareness and other factors and availability, so it's a model output. It makes sense that if you're trying to pay get everybody the same payback as opposed to offering a percentage of incremental. You can	2 3 4 5 6	MR. VOYTAS: This is Rick Voytas at Ameren Missouri. Could I interrupt for a second? On the issue of costs, since we were just
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		_	
1	some of these numbers.	1	MR. FRANKS: There is a woman laughing
2	And also we would've liked to have seen a	2	right now. Would you please mute your microphone.
3	little discussion on how KEMA approaches levelization	3	(A discussion was held off the record.)
4	of costs. Clearly, I mean, we're looking at a 2010	4	MS. DIETRICH: Somebody needs to put your
5	to 2020 time period, and we've got in terms of	5	microphone on mute or your phone on mute.
6	dollars per KWh, we've got a numerator of dollars and	6	(A discussion was held off the record.)
7	a denominator with KWh, and we'd like to know if you	7	MS. DIETRICH: Somebody about your little
8	discount KWh similarly to how you discount dollars.	8	book right there, can you put your phone on mute?
9	So those are some areas that, again,	9	MR. COITO: Maybe they have something good
10	we'll gladly put this in a memo for KEMA to chew on	10	in there.
11	after this date, but those are some issues that we	11	MS. SUGGETT: Dave Costenaro? Dave?
12	just couldn't find that information in the report.	12	MR. COSTENARO: Yeah.
13	MR. COITO: And some of that will probably	13	MS. SUGGETT: Can you guys put your phone
14	show up in the appendix. You know, some of that	14	on mute?
15	we actually, I think, have an Appendix H that hasn't	15	MR. COSTENARO: We have ours in Missouri
16	been completed yet that would speak to some of that.	16	on mute, yeah.
17	Having more detailed questions might allow us to be	17	MS. SUGGETT: Okay. There's somebody
18	more specific as we get into that appendix but, you	18	that's not. It almost sounded like you. Thanks.
19	know, that was not included in this in this draft.	19	MR. COSTENARO: Wasn't me. Sounds like we
20	MR. VOYTAS: All right.	20	have radio silence, so it's if you could continue.
21	MR. COSTENARO: This is Dave Costenaro	21	MR. COITO: Yeah.
22	from Ameren again.	22	MR. COSTENARO: You were saying that you
23	Do you have any insight that you can give	23	estimated
24	us about just general methodology of developing the	24	MR. COITO: So so we tried to bench
25	costs, what is in the measure with a certain	25	yeah, so we tried basically what we tried to do is
	50		52
		_	
1	incremental cost then levied with, you know, 20	1	benchmark our marketing costs to, you know, kind of
2	percent for admin costs and or 40 percent, or was	2	what would be, you know, an average of a, you know,
2 3	percent for admin costs and or 40 percent, or was that the type of methodology you used or a fixed cost	2 3	what would be, you know, an average of a, you know, typical I wouldn't say typical, because they
2 3 4	percent for admin costs and or 40 percent, or was that the type of methodology you used or a fixed cost added program build-up?	2 3 4	what would be, you know, an average of a, you know, typical I wouldn't say typical, because they bounce around, but, you know, fairly typical for a
2 3 4 5	percent for admin costs and or 40 percent, or was that the type of methodology you used or a fixed cost added program build-up? MR. COITO: Yeah, we yeah, let me just	2 3 4 5	what would be, you know, an average of a, you know, typical I wouldn't say typical, because they bounce around, but, you know, fairly typical for a certain size of the service territory baseload.
2 3 4 5 6	percent for admin costs and or 40 percent, or was that the type of methodology you used or a fixed cost added program build-up? MR. COITO: Yeah, we yeah, let me just real quick one of the things we did, like, our	2 3 4 5 6	what would be, you know, an average of a, you know, typical I wouldn't say typical, because they bounce around, but, you know, fairly typical for a certain size of the service territory baseload. We then, you know, kind of you know,
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1	MR. COSTENARO: Okay. So it sounds like	1	economic potential. Not on this chart, but I think
2	you applied a dollar amount that was kind of based on	2	in a subsequent table, you will see some measures
3	the size of the kilowatt hours of therm savings in	3	that have a TRC, total resource cost, test result of
4	the program.	4	less than one. That was for measures across all
5	MR. COITO: Yeah.	5	sectors.
6	MR. COSTENARO: Okay. All right. Thanks	6	In some sectors a measure may have a
7	for clarifying.	7	positive TRC to the extent and contributably a
8	MR. FRANKS: I think this is where we	8	large amount of savings, and those measures are
9	are. This is the result some of the results from	9	incorporated in these high-level summary tables, so
10	the Federal Energy Regulatory Commission model, just	10	this is in the top 20 residential measures broken out
11	showed that four different scenarios and at several	11	by measure name and building type. There were four
12	different time frames. We will address this in a	12	building types: Single
13	little more detail later.	13	MR. VOYTAS: This is Rick Voytas. Could I
14	Move on to the technical and economic	14	interject at this point?
15	potential. We developed this from Missouri-specific	15	MR. FRANKS: Sure.
16	input sources to the extent they were available, made	16	MR. VOYTAS: Okay. So one of the concerns
17	them available to PSC and stakeholders in interim	17	that we have, as I expressed earlier, is the really
18	memos for review and comment.	18	large discrepancy between economic potential between
19	The sample files were distributed in	19	the Ameren Missouri study and the draft statewide
20	advance so the folks would know what the at least	20	study. I mean, it's almost a two-to-one
21	have a sense of what the big spreadsheets were when	21	differential, and I think if we did a GAP analysis,
22	they got them. They included baseline data, building	22	there's probably a few technologies that are in the
23	characterization data, measure data and economic	23	statewide studies that are not in Ameren Missouri's.
24	data. These inputs are documented in the report	24	One is the streetlights. Things on the
25	appendices.	25	utility side of the meter we did not include in the
	54		56
1	Now we'll move on to electricity. This	1	Ameren Missouri study, but at the end of the day that
2	is the	2	gap you know, those type of issues are few and far
3	MS. DIETRICH: Please place your phones on	3	between. That gap is going to be huge.
4	mute.	4	I don't think it's due to and we look
5	MR. FRANKS: Especially if you're having a	5	at this top 20 measure list. We see some TRCs, our
6	lot of fun.	6	benefit cost ratio, in the stratosphere, you know,
7	We have base energy by sectors. This is a	7	20, 30, things of that nature. So one of the things
8	sector breakdown of the base, which is and	8	that we looked at was we just and this is hard to
9	demand. Shows that from what we you know, from	9	do when you have PDF files and you don't have all the
10	our research, Missouri is residential-driven, a	10	data. It's very difficult to manipulate this.
11	smaller industrial base and a moderate commercial.	11	We took a very unscientific sample of
12	And here's the summary, technical	12	measures and we compared those to the measure TRC in
13	potential and economic potential for both energy and	13	our database that we scrubbed rather thoroughly,
14	peak demand savings. These are all at 2020. This is	14	especially in preparation for our integrated resource
15	the savings broken down by sector, so each sector's	15	plan filing, and the discrepancies are just huge. I
16	contribution in gigawatt hours and then shown as a	16	mean, we're talking multiple, three to ten per
17	percent of sector load, not of full state load.	17	measure.
18	Now, this is contribution by sector,	18	And one measure I think everybody's
19	which you'll note is different. It's 43 percent of	19	familiar with, I'll just use as an example, is
20	the residential sector load can be saved in gigawatt	20	refrigerator recycling is a measure that both studies
21	hours, but that contributes 55 percent of the total	21	looked at. In the KEMA analysis, I think the benefit
22	state savings.	22	cost ratio is close to 30. On the 12/15 issuance it
23	Demand savings by sector; demand savings	23	was 29.75 and the latest one is 26.42. This is at
24	as a percentage of sector load; contribution to total	24	the measure level.
25	demand savings by sector, and the top 20 measures for	25	On the Ameren Missouri work the TRC is 4,
1	55		57

1			
	so what is that? A difference of a multiple of	1	the back end it's a little difficult. We tried to
2	seven? And when we try to understand what's going on	2	get we tried to get a lot of this data upfront,
3	in the KEMA database, an incremental measure cost of	3	and I don't think we got all of it.
4	\$25 is assigned to this. The Ameren Missouri	4	MR. FRANKS: I have a question. Dave?
5	database this is at the measure level, it's closer	5	MR. VOYTAS: Just one second. I
6	to 100. I mean, \$25 doesn't even represent the	6	appreciate that, and I've never been involved in a
7	incentive needed to acquire these.	7	study with a time frame like this, you know, where I
8	Then there's the cost to recycle these,	8	get a report two days before the meeting that's
9	which is extensive, so I could give another 20	9	several hundred pages and review it. But I
10	examples of these huge discrepancies. But it's	10	understand that but, please, I you know, Dave
11	things like this that I think are driving the	11	Costenaro and I are extremely familiar with the
12	economic potential because this contributes directly	12	Ameren Missouri report.
13	to the payback and things of that nature that	13	I don't recall having getting any calls
14	contribute to this huge two-to-one discrepancy in	14	from the KEMA team on this. We would have loved to
15	economic potential.	15	sit down and talked with you. Come to our place. We
16	MR. COITO: Can I say, first of all, I	16	would've loved I don't recall ever having done
17	appreciate your difficulty looking into your report.	17	that, and that offer was always open, and so to hear
18	We had a similar difficulty looking into your	18	that at this late date, there certainly was no
19	report. I don't think we could get your costs out of	19	intention to be nontransparent.
20	your report very easily, otherwise we would've	20	We would've opened all of our files,
21	probably done a little more sleuthing to see why some	21	books, and given you all the knowledge we have, but I
22	of these differences were available up-front.	22	don't recall that request ever happening
23	I don't have any direct answers right	23	MR. COITO: Okay.
24	now, but I also see quite you know, my	24	MR. VOYTAS: but going forward, we can
25	understanding is you guys don't have CFLs in your	25	talk.
	58		60
1	economic potential, but we can't tell exactly. But	1	MR. O'DONNELL: This is Joe O'Donnell.
2	that's all if you look at some of our top ten	2	May I speak?
3	measures, they show up pretty prominently here.	3	MR. FRANKS: Would you hold off a moment,
4	You start taking some of those out, and	4	Mr. O'Donnell? I'd like to ask Mr. Voytas a question
5	that bridges the gap quite a bit too. A TRC of 4 or	5	in relation to his last issue you raised.
6	a TRC of 24, there's still economic they would	6	MR. O'DONNELL: Mine's on the same issue.
7	still show up in the count of economic potential, so	7	MR. FRANKS: Well, let me yeah, please
8	I don't think that that comment was really relevant	'	with the weak, let the year, please
0	Tuont think that that comment was really relevant	Q	let me ask this question. We'll get right back to
0	to what's in economic notential or not but you know	8	let me ask this question. We'll get right back to
9	to what's in economic potential or not but, you know,	9	you.
10	I do believe we tried to probe into your report to	9 10	you. In regard to the economic potential, you
10 11	I do believe we tried to probe into your report to understand where you guys were coming from.	9 10 11	you. In regard to the economic potential, you said the and specific example of second
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1	incentive level, we see refrigerator recycling	1	expense. Typically you'll see TRC 30, 40, 50 when
2	programs that pay \$25 to the customer, the incentive,	2	you do that.
3	for the you know, to acquire the device. The	3	MR. VOYTAS: This is Rick Voytas at Ameren
4	other costs	4	Missouri again.
5	MR. VOYTAS: That is a fraction of the	5	And I know time is of the essence and we
6	cost but, yeah, I've seen \$25 incentives too.	6	will put some of our concerns in writing and get them
7	MR. FRANKS: Okay. So it just sounds to	7	to you, but I just used refrigerator recycling to
8	me like you might be incorporating program costs into	8	exemplify some of the issue, but clearly, you now,
9	economic potential, and I was that's a different	9	there's a number of LED measures that replace an
10	methodology.	10	incandescent bulb. We question whether the
11	MR. VOYTAS: No, we don't do that. We	11	incandescent bulb is appropriate baseline.
12	make a conscious effort to not do that, so pretty	12	After 2014, EISA will be the Energy
13	sure you won't find that.	13	Independence and Security Act will be the
14	MR. FRANKS: Okay. Thank you.	14	baseline, and we've got several examples there.
15	Mr. O'Donnell, sorry for interrupting. I	15	Other things, we see windows that got a really large
16	just wanted to clarify that point.	16	share of both electric and gas potential savings,
17	MR. O'DONNELL: Sure. I have a question	17	TRCs are high. They don't even come close to passing
18	that's related to Rick's observation. I've seen	18	our measure level screening. I'm not going to delay
19	measures with, you know, TRCs that are that high,	19	the point
20	and, you know, 30-plus, and sometimes I'd like to	20	MR. COITO: Excuse me. Excuse me. No,
21	know how you're handling the issue of incentive	21	no, let me just ask you about windows. We we
22	payments when the customer does not have any out-of-	22	we model the window as an incremental, so we're not
23	pocket expense.	23	saying go out and replace your window as a retrofit
24	Typically the incentive payment is a	24	and pay the full cost of a window. Ours is more
25	transfer payment from the utility to the customer,	25	incremental from, if you're going to replace your
	62		64
1	and the assumption is that it doesn't affect the	1	window anyway, let's go to the more efficient one,
2	total cost. You know, it increases the utility costs	2	so in fact, it shows up as a big chunk of economic
3	but reduces the customer's net out-of-pocket expense.	3	potential because it's calculated as everything
4	A lot of times that cost is excluded in	4	happens at once, but as achievable, you know, you're
5	the calculation, but if it's excluded in the	5	only going to get one you know, 1/40th of those
6	calculation where the customer does not have any	6	each year because, you know, people aren't replacing
7	direct out-of-pocket expense like you would see in	7	their windows, you know, every year.
8	the supply recycling program. Then you're going to	8	It's it's, you know, a 20- to 40-year
9	see TRCs that are through the roof because you're	9	cycle or some, you know, long-term renovation cycle
10	excluding costs that should be in there, and I'd like	10	so, you know, there are probably some approach issues
11	to know how you're handling that issue.	11	why things are different, and that's you know,
12	MR. COITO: Yeah, we don't have an answer	12	that's just something that we need to, you know
13	for that right now. That's a point we could take	13	you know, I mean, those are just differences that we
14	under consideration but, yeah, it's not a bad point.	14	have to understand.
15	MR. O'DONNELL: We use a software package	15	You know, when you see the achievables,
16	that, you know, generally makes the assumption that	16	you're not going to see windows being, you know, one
17	incentive payments are transferred and don't come	17	of the top measures.
18	into the calculation. But if you throw that out, you	18	MR. COSTENARO: I see. Yeah, I think for
19	know, typically with demand response programs where,	19	us we had a lot of costs associated with the windows
20	you know, the customer's not spending any money	20	and the same sort of issues with frequency of uptake,
20	considering, you know, payment to a loan or you have	20	so I guess it was just
21	an appliance recycling program where the customer is	21	
22		22	MR. COITO: Yeah.
23 24	not spending any money yet you get an incentive, you		MR. COSTENARO: looking at these
	cannot exclude that cost because, you know, it's a	24	economic top 20. So you're saying that they don't
25	program cost and it's not offsetting some customer's 63	25	appear as much in the achievable 65
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1	MR. COITO: No.	1	MR. COITO: No, but we can look at that
2	MR. COSTENARO: in light of the	2	one.
3	economic potential?	3	MR. VOYTAS: Okay. Enough said. Thank
4	MR. COITO: Right. And we you know,	4	you.
5	exactly. And some people will run an economic where	5	MR. FRANKS: The same for commercial, top
6	you you know, you do a stock adjustment through	6	20 economic potential measures. Comments noted
7	that. Our model doesn't work that way, so we don't	7	previously with regard to residential.
8	don't you know, we tend to have an instantaneous	8	The industrial top 20, and then one of
9	adoption of everything, and then it really the	9	the issues that came up was how much difference does
10	dynamics get into the achievable potentials so, you	10	the avoided cost make? And we tested the sensitivity
11	know, that might be just a you know, a difference	11	of avoided costs at the economic potential level, and
12	of modeling, so it may be a little difference of	12	this chart displays the differences in gigawatt hours
13	definition in the economic potential. Hopefully that	13	and megawatts.
14	will help a little bit.	14	Based on discussion with Staff, we
15	MR. COSTENARO: Gotcha.	15	proceeded to take just the database avoided cost
16	MR. VOYTAS: I'm sorry. This is Rick	16	scenario forward into the achievable potential.
17	Voytas.	17	Determining the sensitivity to avoided costs was
18	On the residential top 20 list, the	18	within acceptable range for the two scenarios we
19	incorrect feedback, is that the old power-of-	19	modeled, 20 percent below the database and 50 percent
20	behavior-modification-like type of thing?	20	above.
21	MR. COITO: Yes. Yeah, 2 percent savings	21	A more detailed description of those
22	for you know, I don't know what the exact cost is,	22	scenarios, and now to achievable potential
23	you know, whatever Opower you know, 10 or \$20 a	23	electricity.
24	year.	24	MR. BRUBAKER: Could I ask a question at
25	MR. VOYTAS: Okay. So that's a real	25	this point? This is Maurice Brubaker.
	66		68
1	measure in the analysis, and when I read on page 3	1	MR. FRANKS: Certainly.
2	that we excluded a general modeling of emergent	2	MR. BRUBAKER: I think there at Appendix C
3	technologies and behavioral conservation approaches,	3	of the report, at what point in time was the were
4	what I thought that meant that's really not what	4	the avoided cost numbers developed?
5	it meant. There actually is behavior modification	5	MR. FRANKS: Avoided cost numbers were
6	programs in this potential analysis.	6	developed as part of the economic data collection and
7	MR. FRANKS: Yeah, just the Opower.	7	review database, and they were direct and accepted,
8	MR. COITO: Yeah, but it's not in the		
	Mix. Corro. Tean, but it's not in the	8	and we took forward to avoid face avoided costs
9	achievables? We'll look yeah.	8 9	
9 10			and we took forward to avoid face avoided costs
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1	have an answer for that one.	1	from four years ago?
2	MR. BRUBAKER: I don't know who to ask. I	2	MR. FRANKS: I believe we responded by
3	suppose John or someone could answer that or maybe	3	saying we took direction from the PSC.
4	if I look at those numbers, they're roughly twice	4	MR. O'DONNELL: Okay. But I I e-mailed
5	what the current projections are. I'm guessing they	5	Natelle Dietrich tables showing the KEMA values for
6	came out of the last round of IRPs, which were	6	avoided energy and showing actual SPP historical
7	developed with prices.	7	prices for the last three years since the market went
8	MS. DIETRICH: That's correct, Maurice.	8	live, and these were based upon hourly actual
9	They were from the IRPs.	9	clearing prices, and then we also showed the KCPL
10	MR. BRUBAKER: In any of the forward price	10	forecast, and there was a big discrepancy.
11	curves I've seen lately and any of the utility	11	MR. FRANKS: We do not dispute that that
12	avoided cost data I've seen lately is a lot more than	12	happened.
13	20 percent lower than what those numbers are, so I	13	MR. O'DONNELL: So essentially we feel
14	just want to understand what the frame of reference	14	that your near-term avoided energy costs are
15	is.	15	overstated greatly.
16	MR. COITO: And you're looking by time of	16	MR. FRANKS: Noted.
17	use period that we've got in there.	17	MR. O'DONNELL: And we can validate this
18	MR. BRUBAKER: Yeah.	18	by calling historical SPP clearance prices out from
19	MR. COITO: Yeah, I'm not sure.	19	the market website.
20	MR. NOLAR: Hey, Maurice, this is John.	20	MR. BRUBAKER: The same thing is true if
21	I'm going off of memory now, but I think what you did	21	you look at the MISO prices.
22	was take the IRP avoided costs for Ameren and Kansas	22	MS. DIETRICH: Who was that speaking,
23	City Power & Light and weight by sales, retail sales.	23	please?
24	This is Joseph hi. This is Joseph	24	MR. FRANKS: Who spoke to the MISO prices,
25	O'Donnell, KCP&L. May I make a comment, a question?	25	please.
	70		72
1	MR. FRANKS: Please.	1	MR. BRUBAKER: Sorry. Maurice Brubaker
2	MR. COITO: Certainly.	2	again.
3	MR. O'DONNELL: We were provided with	3	MR. FRANKS: Thank you.
4	several tables showing KEMA's humpty, lofty summer-	4	Moving on to achievable potential
5			
6	winter avoided energy costs several months ago, and	5	MS. DIETRICH: Does she need a break?
	winter avoided energy costs several months ago, and when we kind of read in the description, it appeared	5 6	
7			MS. DIETRICH: Does she need a break?
7 8	when we kind of read in the description, it appeared	6	MS. DIETRICH: Does she need a break? MR. FRANKS: We should take a break. We
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2provide feedback to KEMA by the 25th, and so I think2The3we're going to have to have any kind of comments that3M4you might have by the first thing Monday morning, so4Would it58:00 a.m. Monday morning I need to have any comments5get the e6that you might have that we need to incorporate in6M7our feedback to KEMA and that I can share with KEMA,7the article8so anything you send me I will forward to KEMA.8is very cl9MR. FRANKS: Proceeding with achievable9California10potential for electricity10fluoresce11MS. WHEELER: This is Janet Wheeler. I'm11variety of	n the future. hank you very much.
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9 MR. FRANKS: Proceeding with achievable 9 California 10 potential for electricity 10 fluoresce 11 MS. WHEELER: This is Janet Wheeler. I'm 11 variety of	e, the question is pretty the question
10potential for electricity10fluoresce11MS. WHEELER: This is Janet Wheeler. I'm11variety of	ear from the article, because the
11 MS. WHEELER: This is Janet Wheeler. I'm 11 variety of	a Commission is indicating that the compact
	ent light bulb hasn't really delivered for a
12 Commissioner Jarrett's advisor. I hate to interrupt. 12 O	f different reasons.
	ne of them, not only the difficulty in
13 but I think my question would probably be best placed 13 measure	ment but that the life span of the bulb itself
14 before you kick off a new topic. 14 hasn't live	ed up to its expectation and that the
15 MR. FRANKS: Please. Go ahead. 15 Commiss	sion is reconsidering how they're going to pay
16 MS. WHEELER: I usually precede my 16 utilities for	or these incentives in energy efficiency
17 questions and workshops with a disclaimer that I am 17 and whet	ther it would be through a measurement tool or
18 not making a representation from the Commissioner, 18 through s	some other method.
19 but in this case I am actually making representation 19 M	S. DIETRICH: Okay.
20 on behalf of Commissioner Jarrett. 20 M	S. WHEELER: But, yes, I can get with you
21In particular, he read an article21later. Th	ank you.
22 yesterday in The Wall Street Journal regarding the 22 M	R. FRANKS: And now the promised scenario
23 titled, "The new light bulbs lose a little shine," by 23 description	on. For the one-year payback, database
24 Rebecca Smith, where the California Utilities 24 incentive	levels are set such that all measures have
25 Commission is rethinking its reliance on the CFL 25 a paybac	k period for the customer of one year, except
74	76
1 bulbs for use in energy efficiency, and in 1 for those	measures which inherently have a payback
2 particular, the Staff of the state utility commission 2 period of	less than one year, they have no incentive.
3 has said that utilities missed their overall energy 3 Th	he budgets for the program
4 savings target partly because of the difficult 4 administr	ration, marketing, et cetera, were set at
5 linking results from light bulbs, and his question is 5 moderate	ely aggressive, not full out, and that is
	n the kilowatt hours, you know, the savings
	e generated by the model not you know, it
	per kilowatt hour, you know, by measure.
	hree-year payback is a similar
	 Incentive level brings everything down to
	ear payback if it gets less than if the
	has inherently less than a three-year
	there was no incentive pay, and the program
	were where we would describe as modest. They
	tty much business as usual for a jurisdiction
	ere is a, you know, moderate level of ongoing
17 everybody's had an opportunity to read it, but 17 program.	
	nd then the third scenario that we did
	wn initiative was for comparison to do
	ig that we're familiar with. We the
	scenario was not a we didn't have a simple
	e could change on our model and say, Spit out
	payback.
	/e had to adjust many of the inputs from al procedures to try and track or follow
75	77

1	Amerun's, you know, to say saying that that was	1	"theoretical maximum achievable potential" isn't in
2	what a one-year payback would look like, but we	2	there.
3	didn't actually have you know, even if we had had	3	Is this theory or is this practice?
4	all the inputs that Global Energy Partners had used,	4	mean, the theory is if you get a college education
5	we might not have called them the same thing or used	5	you'll make a good salary. That's not always the
6	the same number of inputs broken out in the same way,	6	practice. I'm struggling with this new term, this
7	so there was an inherent challenge in trying to make	7	new definition and how it relates to the whole
8	a model do something that it wasn't designed to do.	8	maximum achievable potential thing.
9	MR. COITO: Well, and, I mean, one thing	9	MR. FRANKS: We do not use the word
10	to be clear, there's some measures that, you know,	10	"maximum achievable potential."
11	without any incentive, anyway, have paybacks less	11	MR. COITO: Well, I mean well, in this
12	than one year or less than three years. For those	12	context, at least.
13	types of measures, they get run through the model	13	We've used it where clients have asked us
14	with zero incentive, and the only program effects	14	to use it, but we I don't think we have a "maximum
14		14	
	would be from increasing customer awareness.		achievable" definition in this study.
16	MR. FRANKS: And that's very minimal.	16	MR. FRANKS: The 100 percent incentive, I
17	MR. VOYTAS: So one of the things I'd like	17	guess you could is meant to be a theoretical
18	to ask: On the KEMA report on page 1.2, you know,	18	maximum level. That's a qualifier and not a
19	KEMA talks to the Senate Bill 376, and apparently	19	technical term. I'd be glad to take the word
20	you've read it and saw the term "all cost-effective	20	"theoretical" out of the next draft.
21	energy savings" and so you took it upon yourself to	21	MR. VOYTAS: That's fine. I know in the
22	interpret that and ascribe the KEMA norm or 75	22	interest of time we should move on, so no more
23	percent incentive to that.	23	questions on this subject.
24	Can you talk just a little bit more about	24	MR. FRANKS: Here's what the scenarios
25	your reading of Senate Bill 376 and why you think	25	look like for energy savings, demand savings across
	78		80
1	this is equivalent to what might be meant by all	1	all three scenarios; summary of the results in
2	cost-effective energy savings.	2	numerical format across all three scenarios.
3	MR. FRANKS: That was based on our	3	MR. O'DONNELL: This is Joe O'Donnell. I
4	experience in other jurisdictions where programs have	4	have a question.
5	been when we've been asked to model various	5	MR. FRANKS: Please.
6	incentive levels.	6	MR. O'DONNELL: Can you provide a set
7	You know, we typically will use a 50, 75,	7	of specifically the quote "probability of adoption
8	and 100 percent incentive level. As a policy	8	curve" that shows the simple payback versus
9	initiative, 100 percent incremental incentive is not	9	percentage probability of adoption?
10	generally an option. 75 percent, on the other hand,	10	I mean, we have worked with consultants
11	is often seen as a I think I said a realistic a	11	where we developed similar curves to that. It's, you
12	realistic target, therefore	12	know, typically not a linear curve, you know. As you
13	MR. COITO: Well, it's a realistic it's	13	get down to a eight-year payback, the adoption could
14	an aggressive target, but it's an aggressive target	14	be 10 percent, and when you get to that three-year
15	that we've seen elsewhere.	15	payback, you get typically 70, 80 percent, and when
16	MR. FRANKS: So that was the rationale	16	you get to that 1 percent, the incremental would go
17	behind the determination of that.	17	from a three-year to a one-year increase while you
18	MR. VOYTAS: Well, I'm still confused. I	18	get more is not the same as going from a six-year to
19	want to read from the report and, again, on page 1.2	19	a three-year.
20	in the middle of that page it says, These incentive	20	It would be nice to see that data. I
21	levels correlate to average aggressive and	21	mean, can that be provided on what was the underlying
22	theoretical maximum levels of program effort.	22	assumption for the change in adoption versus the
22	I don't think Senate Bill 376	22	change in simple payback? I mean, what assumption
23		23 24	
	rulemaking I know the definition of the term		was used, you know?
25	"maximum achievable potential" is in there, but	25	MR. FRANKS: Joe, I think our model does
1	79	1	81

3 curves, which are not shown based on payback levels, 4 3 and, you know — you know, one-year payback is a 5 4 but they're based on incremental costs. 5 3 and, you know — you know, one-year payback is a 5 5 MR. COITO: Yeah, we – I mean, 1's not a 5 straight-line curve. It's an S-shaped curve, 5 4 nob-pariner for aden and 7's percent doption 4 9 MR. FRANKS: Reference the page number, 7 6 MR. COITO: Weil, I'you look at the 9 Ameren study, I'hink they disagree with you. 7 10 Frank. 7 MR. COITO: Weil, I'you look at Appendix A in our report, it 7 1 MR. COITO: Vait, Persenter the bast 11 place – if you look at Appendix A in our report, it 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7 MR. COITO: Yait, but it's not that – our 7	1	not use I think what the closest analog that our	1	characterize all three of these one-year, three-year,
4 but they're based on incremental costs. 4 no-brainer to a -even a three-year is very 5 MR. COITO: Yeah, we - i mean, it's not a 5 6 straight-incurve. It's an S-haped curve, 6 7 basically, which shows that, you know, that, you 7 8 MR. COITO: - lower benefit cost 7 10 Frank. 9 Ameren study, I think they disagree with you. 10 Frank. 10 They're showing nuch lower - much lower coustomer 11 MR. COITO: - lower benefit cost 11 They're showing nuch lower - much lower coustomer 12 ratios - Trip just trying to see where the bast 12 ware. 13 MR. COITO: Neal, we have a set 14 discusses some of these things. 16 GOTONNELL: Well, yeah, we have a set 17 ond hadpoin curve. 18 MR. COITO: Neal, but it's on that - our 19 MR. COITO: Neal, but it's on that - our 19 MR. COITO: Neal, but it's on that - our 19 MR. COITO: Neal, but it's on that - our 19 MR. COITO: Neal, but it's on that - our 10 NR. COITO: Neal, but it's on that - our 10 NR. COITO: Neal, but it's on that - our 10 NR. COITO: Neal, but's on that - our <	2	model uses and our modeling uses are penetration	2	and 75 percent as very aggressive incentive levels
5 MR. COITO: Yeah, we – I mean, it's not a 5 attractive, and 75 percent of the total cost – 6 straight-line curve. It's an 5-shaped curve. 6 typically you're up around 70.80 percent adoption already. 7 MR. FRANKS: Reference the page number, 7 7 7 10 Frank. 7 7 7 7 11 MR. COITO: - lower benefit cost 1 7 7 7 12 ratios - I'' you look at Appendix A in our report, it 1 7	3	curves, which are not shown based on payback levels,	3	and, you know you know, one-year payback is a
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8 know 8 MR. COITO: Well, if you look at the 9 MR. FRANKS: Reference the page number, Frank. 11 MR. COITO: lower benefit cost Theyse showing much hower much lower customer 12 ratios I'm just trying to see where the best 12 13 place I'm just trying to see where the best 12 14 discusses some of these things. MR. COTO.NELL: Well, yeah, we have a set 16 wersus the change in adoption potential, you know, MR. COTO.NELL: Well, evan, we have a set 17 and that's that directly speaks to the probability 17 18 MR. COTO. Y. Cash, but it's not that our 19 19 MR. COTO. Neal, but it's not that our 19 20 adoption curves are basically an S-shaped curve that 10 21 basically I mean, we don't model with payback 21 22 directly. Dur model doesn't use that. 22 23 scenarios because that is what we were asked to model a certain payback, and then hat gives a 24 24 that would, what nebate levels 1 definitely a one of the more difficuit pieces of a </td <td>6</td> <td>straight-line curve. It's an S-shaped curve,</td> <th>6</th> <td>typically you're up around 70, 80 percent adoption</td>	6	straight-line curve. It's an S-shaped curve,	6	typically you're up around 70, 80 percent adoption
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1	million at the All Programs Net Benefits. Sorry for	1	with Ameren Missouri. I'd like to just make a	
2	the labeling error.	2	comment. This is no big deal, but there's a lot of	
3	One year payback, same issue of free	3	silence on our part. We've been pretty vocal for	
4	riders; naturally-occurring, not free riders. Demand	4	most of the day, and I just wanted to state that with	
5	savings, and the numerical summary. Three-year	5	the limited time that we have, we put all of our	
6	payback scenario, and back to the electric benefit	6	energy on the electric energy efficiency side of the	
7	cost summary, a slide we've seen earlier with a	7	report, and although we looked at the natural gas	
8	little more context behind it now.	8	things in the prior graph report, we have not put	
9	We'll move on to natural gas, unless	9	energy into that now, so although we're quiet, it	
10	there are some remaining questions on electric.	10	doesn't mean we don't have questions.	
11	(No response.)	11	It just means that we have not had time	
12	MR. FRANKS: This is a breakout of the	12	enough yet to review this in depth, so perhaps we can	
13	sector contribution to the natural gas baseline	13	do that in the next few days and get the comments to	
14	load. This is a summary of the potential. It shows	14	you, but that's why there's very little comments on	
15	the baseline usage, the technical potential and the	15	this side of the microphone. Thank you.	
16	economic potential broken out by sector in millions	16	MR. FRANKS: Thank you. We'll look	
17	of therms, then displayed as a percentage the	17	forward to or the PSC, I'm sure, will look forward	
18	savings as a percentage of sector load.	18	to that.	
19	And then finally, the contribution by	19	MR. COITO: And, you know, the other	
20	sector of the total potential for technical potential	20	thing, Rick, the more specific you can be with your	
21	and economic potential. The residential top 20	21	questions or comments, you know, the better it will	
22	measures for economic potential; the commercial top	22	be.	
23	20 measures.	23	If we you know, if we get to some	
24	Now, here's where you'll note on	24	blanket statement that we think your measure costs	
25	installation of energy management systems, the TRC is	25	aren't right, there's not much we're going to be able	
	86		88	
1	less than one. We have ten building types in our	1	to do with that. If you can be specific on things,	
2	model for the commercial sector, so in some of those	2	it gives us just more you know, if we're going to	
3	building types, the overall TRC for that measure in	3	make adjustments, it'll make it easier. It makes it	
4	the commercial sector is .56; however, in some	4	real to us.	
5	building types is over one and they contribute	5	MR. FRANKS: As with the electric sector,	
6	984,000 decatherms to the potential.	6	we did two avoided cost scenarios aside from a	
7	This is now maybe a better example of a	7	database cost, and this shows the results using a	
8	high efficiency brittle that only shows up in one	8	database cost, avoided cost, a 20 percent lower	
9	sector, yeah, one of the building types.	9	avoided cost and a 50 percent higher avoided cost.	
10	MR. COITO: Where it's cost-effective.	10	We proceeded with just the database avoided cost into	
11	MR. FRANKS: Where it's cost-effective,	11	the achievable potential scenario; the same	
12	but since there's ten other nine other building	12	information in numerical format.	
13	types where it's not cost-effective, you get pretty	13	MR. COITO: I think, if anything, we	
14	low sector-based TRC.	14	showed gas had a little more variation in response to	
15	Industrial top 20 measures; maintain	15	avoided cost than the electric did.	
16	boilers jumps right out at you, but it does	16	MR. FRANKS: And now the achievable	
17	MR. COITO: Yeah, the thing about maintain	17	potential for natural gas; the three scenarios	
18	boilers, it's a high TRC, but typically when we	18	stacked on top of each other, which has an	
19	bottle it, you know, that's an information-only	19	incremental; a summary of the results, noticing at	
20	program because you really once people figure it	20	the bottom that the total scenario, total resource	
21	out, they should be doing it. We don't want to imply	21	cost goes up as the investment goes up.	
22	incentives on that type of measure because everyone	22	MR. McKINNIE: Adam McKinnie with the	
23	who is already maintaining their boiler would come in	23	Missouri Commission Staff. Oh, I get to stand up by	
24	looking for money.	24	the microphone? I feel bad for everyone. My name's	
25	MR. VOYTAS: Folks, this is Rick Voytas	25	Adam McKinnie with the Missouri Commission Staff. Do	
⁻	87	_	89	

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1	you adjust your naturally-occurring energy efficiency	1	300,000,000 therm.
2	with the result of the high, low, and middle gas	2	The detail on the three-year, and then
3	prices?	3	the benefit costs summary, as with the electric, are
4	MR. FRANKS: Um, no.	4	similar to the chart.
5	MR. COITO: Well, we would, but we didn't	5	We're going to shift gears quite a bit
6	do an achievable analysis where we do that. It	6	now. All the other results, inputs, have been based
7	would naturally-occurring would change if we were	7	on KEMA's DSM Assyst model. For the demand response
8	to run it all the way through.	8	we reviewed FERC national assessment of demand
9	MR. McKINNIE: And why wasn't it run all	9	response potential as it applied to the state of
10	the way through?	10	Missouri.
11	MR. COITO: I think they were close enough	11	We checked the values from the
12	to where we decided, you know, given the time frame	12	information the inputs we had gathered from our
13	for the study, thrown out the database case. We just	13	DSM Assyst model to see for the values that were
14	saw about a 40 percent difference or a bigger you	14	in the FERC model, and in most cases they were
15	know, a big difference in, you know, more	15	accepted. In some cases we did make some revisions.
16	sensitivity than would've merited running more	16	The FERC model is a bottom-up approach
17	achievables all the way through on the other	17	using four customer segments. It models five
18	scenarios.	18	different demand response program types, and it uses
19	MR. McKINNIE: Okay.	19	four different demand response scenarios: Business
20	MR. FRANKS: Are people listening on the	20	as usual, expanded business as usual, achievable
20	phone or the web hearing the static as well or the	20	penetration, and full achievable participation and
22		21	
22	popping sound? MR. O'DONNELL: Yes.	22	full participation.
23 24		23 24	Here's a tabular summary of the
	MR. COITO: Yeah, we don't know what's		difference in assumptions that go into that model.
25	causing that. 90	25	Notice that full participation is mandatory for 92
	30		32
1	MR. O'DONNELL: This is Joe O'Donnell.	1	dynamic pricing for those customers that are eligible
2	I'm getting static on both the web and my phone, so	2	for it.
3	it's coming from your end.	3	Here are the results summarized by at
4	MR. FRANKS: I guess we'll have to live	4	different years and by for the different
5	with it.	5	scenarios, both in megawatts and as a percentage of
6	MS. DIETRICH: I'm not sure what it is.	6	reduction.
7	MR. FRANKS: These are the results for the	7	MR. HUGHES: I have a question.
8	75 percent incentive scenario and the natural gas	8	MR. FRANKS: Yes, sir.
9	sector, total savings, cumulative annual therms in	9	MR. HUGHES: Is dynamic pricing the same
10	millions, the detail.	10	as time of day pricing?
11	This chart actually has all the labeling	11	MR. FRANKS: I'd have to look at the first
12	correct, and I'm aware that the next one, I think,	12	definition.
13	does not for the next incentive, so here's the	13	MR. HUGHES: In your definition, you know,
14	one-year payback. Yeah, this has the millions of	14	we have some voluntary
15	dollars, and the therms is not you're not getting	15	MR. FRANKS: Sure. The definition is a
16	1800 therms for a 20-year program.	16	FERC definition. I do not have it off the top of my
17	MR. COITO: Millions of therms; right?	17	head. It is in the report.
18	MR. FRANKS: It's millions of therms.	18	MR. COITO: I think it's real kind of
19	Actually, it's 100,000 therms, not millions. I'm not	19	like dynamic, kind of like a realtime pricing.
20	sure how the numbers came out that way.	20	MR. HUGHES: So it's synonymous with time
21	MR. COITO: We need to check our	21	of day pricing or
22	MR. FRANKS: Three-year scenario results.	22	MR. COITO: Yeah, but more than just
22	The scales are not the same as on the previous	22	block pricing. I think it's actually day-to-day
23 24	charts. This is a much finer grain with a peak at	23	you know, day-ahead pricing, that type of thing not,
24 25	about 120,000,000 therms compared to a peak of	24 25	you know you know, if you have a time and use rate
120	about 120,000,000 memos compared to a peak of	20	you know you know, if you have a little and use falle
	91		93

1	you set up, it stays fixed for the whole	1	MR. FRANKS: Yes. There's a problem with
2	MR. HUGHES: Okay. Got you.	2	that table.
3	MR. COITO: Versus this one, it's more	3	MR. COITO: No. Yes, that's right.
4	day-ahead type pricing.	4	That's right. So, like, for business as usual at
5	MR. FRANKS: I think that should be at	5	2010, the business as usual megawatt reduction would
6	about page 7.3 of the report, offer varying	6	be the 18102 minus the 17820.
7	electricity prices on day-ahead or realtime basis.	7	MR. O'DONNELL: Okay. So it's labeled
8	MR. HUGHES: Very good. Thank you.	8	wrong.
9	MR. FRANKS: I think I no, I didn't.	9	MR. COITO: Yes, it's labeled wrong.
10	Here's a benefit cut cost analysis summary of two	10	We'll that's
11	different scenarios. One of the issues that often	11	MR. O'DONNELL: All right. Thank you.
12	comes up with demand response is the cost as a	12	MR. FRANKS: Thank you, Joe.
13	barrier to entry, and the analysis for Missouri	13	MR. COITO: And the percent reductions are
14	showed that largely these have positive benefit cost	14	correct though, I believe.
15	ratios, which is not necessarily enough for a	15	MR. FRANKS: Yeah, the numbers don't work
16	customer to take action, but it's worth a policy	16	on that though.
17	consideration.	17	MR. COITO: No.
18	And successfully rush to essentially the	18	MR. FRANKS: Are there any questions
19	last slide, I believe. There are several appendices	19	regarding a specific appendix?
20	attached to the report. Rather than going through	20	MR. COSTENARO: This is Dave Costenaro
21	them line-by-line, which would be a challenge,	21	from Ameren. We were looking through Appendix F, and
22	even if we had had more time, this basically this	22	I think that there was some of the tables of the
23	shows what's in each of those appendices, and I open	23	different sectors were they didn't appear to have
24	it up if there's specific questions regarding any of	24	all the columns, so maybe when you're compiling them
25	the appendices.	25	for the final, make sure not to cut off columns on
	94		96
1	We can try and find the page and go to	1	the right.
1	We can try and find the page and go to them and discuss it, and I have those loaded, I	1 2	the right. MR. COITO: Yeah.
			-
2	them and discuss it, and I have those loaded, I	2	MR. COITO: Yeah.
2 3	them and discuss it, and I have those loaded, I believe. Here they are. So are there any	2 3	MR. COITO: Yeah. MR. FRANKS: Thank you, Dave.
2 3 4	them and discuss it, and I have those loaded, I believe. Here they are. So are there any MR. O'DONNELL: This is Joe O'Donnell.	2 3 4	MR. COITO: Yeah. MR. FRANKS: Thank you, Dave. MR. COITO: Yeah, thank you. Those
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2 3 4 5 6	them and discuss it, and I have those loaded, I believe. Here they are. So are there any MR. O'DONNELL: This is Joe O'Donnell. This is Joe O'Donnell. I have a question regarding the sliding to the model's results.	2 3 4 5 6	MR. COITO: Yeah. MR. FRANKS: Thank you, Dave. MR. COITO: Yeah, thank you. Those appendices were put together a little quick, and we'll check that, we'll make sure we get a page
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	<pre>them and discuss it, and I have those loaded, I believe. Here they are. So are there any</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	MR. COITO: Yeah. MR. FRANKS: Thank you, Dave. MR. COITO: Yeah, thank you. Those appendices were put together a little quick, and we'll check that, we'll make sure we get a page number on the last appendices. MR. FRANKS: I'm not going to take silence as acceptance, but I appreciate that there will be much more review on all by all parties and that we will be getting comments. MR. BICKFORD: I'll jump in. MR. COITO: Oh, there we go. MR. FRANKS: Oh, good. MR. BICKFORD: This is Adam Bickford from DNR. You can stop anywhere. MR. FRANKS: I just want to make people dizzy. MR. BICKFORD: Yeah, can you go back to the definitions of one-year and three-year and 75 percent scenarios, please? MR. COITO: Be page 42, I believe. MR. BICKFORD: Okay. There we go.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	<pre>them and discuss it, and I have those loaded, I believe. Here they are. So are there any</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	MR. COITO: Yeah. MR. FRANKS: Thank you, Dave. MR. COITO: Yeah, thank you. Those appendices were put together a little quick, and we'll check that, we'll make sure we get a page number on the last appendices. MR. FRANKS: I'm not going to take silence as acceptance, but I appreciate that there will be much more review on all by all parties and that we will be getting comments. MR. BICKFORD: I'll jump in. MR. COITO: Oh, there we go. MR. FRANKS: Oh, good. MR. BICKFORD: This is Adam Bickford from DNR. You can stop anywhere. MR. FRANKS: I just want to make people dizzy. MR. BICKFORD: Yeah, can you go back to the definitions of one-year and three-year and 75 percent scenarios, please? MR. COITO: Be page 42, I believe. MR. BICKFORD: Okay. There we go.

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1	measures that had a incentive, a payback value less	1	So I think it's not an exact one-for-
2	than one-year, and they were left out of your	2	one. Does that help, Adam?
3	calculation of savings; is that correct?	3	MR. BICKFORD: So so okay. Hence my
4	MR. COITO: No. My understanding my	4	question: You have two approaches using the same
5	understanding is we and we can check on this, but	5	terms, but sounds like there are really different
6	my understanding is that what we did if it had less	6	definitions.
7	than a one-year payback, we were not given an	7	MR. COSTENARO: Yeah, I think
8	incentive.	8	MR. BICKFORD: Is there going to be a way
9	MR. BICKFORD: Okay.	9	to reconcile those at all?
10	MR. COITO: It would stay in the measure	10	MR. FRANKS: I don't I can't imagine it
11	mix with the understanding that we could increase	11	offhand, and if there were, I would it would have
12	awareness and that the naturally-occurring	12	been appropriate to have done that several months ago
13	penetration, you know, whatever the pay if it's	13	in terms of the project time line.
14	.75 payback, it would show up.	14	MR. COITO: What we will do is probably
15	MR. BICKFORD: Okay.	15	what we can we will do in our appendix is by
16	MR. COITO: So in some cases this is why,	16	measure. We'll put the percent incentive of
17	you know you know, there's not as big a program	17	incremental cost that we assume that we got for
18	impact there because it's just education versus some	18	each one so you'll see, you know, in the one-year,
19	other measure where you're given a 50 or 75 percent	19	three-year and 75 will all be 75, except some will be
20	rebate, which, you know, some rebates in the one-year	20	0, because, like I say, some of the maintenance,
21	payback are pretty high 'cause you're getting a	21	O&M measures, we don't believe they're really
22	measure from a five-year or six-year payback down to	22	those types of measures that you should provide
23	one year.	23	incentives for, but we can present that as part of
24	Other measures, like, you get zero, but	24	our appendix so you can at least see what how we
25	we left them all in. The ones that get zero just get	25	backed into our incentives.
	98		100
1	a boost from increased awareness because you're out	1	MR. BICKFORD: Great. Thank you.
2	there trying to market the programs and giving	2	This is Joseph O'Donnell. I have a
3	information about a lot of measures.	3	related question.
4	MR. BICKFORD: So you're saying that	4	MR. COITO: Yes.
5	there's no cost associated with that.	5	MR. O'DONNELL: Regarding the definition
6	MR. COITO: No rebate costs. General	6	of "one-year payback," I'm assuming you mean to the
7	marketing but, yeah, you would not see that exactly.	7	participant, and that means the net the customer
8	And also that measure wouldn't have much net savings,	8	bill savings plus the reduction in taxes divided by
9	if you look at the net savings.	9	the growth I mean, rather, the net participant
10	MR. BICKFORD: Okay. My question for	10	cost. Is that a correct definition?
11	Ameren, who also use these terms: Is that the same	11	MR. COITO: Yeah, I don't think we
12	way that your modeling some of these measures?	12	don't factor taxes in. It's it gets it our
13	MR. COSTENARO: This is Dave Costenaro.	13	model just doesn't pick that up, but it would be, you
14	That is an issue that has a little nuance around it.	14	know, minus the tax effects.
15	Our RAP was generally tied to incentive levels that	15	MR. O'DONNELL: But at the basic level
16	were associated with the three-year payback but that	16	this is the payback to the participant?
17	did not mean that they all were across the board,	17	MR. FRANKS: Yes.
18	that was not the calculation method, you know, a	17	MR. COITO: Yes.
19	three-year payback, this is it, go, that's the	19	MR. O'DONNELL: Thank you.
20	incentive level, but the same thing with MAP.	20	
	-	20	MR. HUGHES: In a general presentation
21	They were generally tied to measures that		application and during our discussions on the
22	had paybacks at one year, so we had you know, this	22	one-year payback and the three-year payback as
23	is a scatter plot all around the one-year payback in	23	specified by the Commission and the KEMA norm of 75
24	the some in terms of percent of incremental cost,	24	percent, there's an indication that those are two
25	some in terms of payback and that sort of thing.	25	different measures, and you indicated that there was
	99		101
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1	significant adjustment to your modeling that had to	1	take it that you're the project manager for this
2	be made to comply with the Commission's request;	2	statewide potential study.
3	however, in the presentation of the data output they	3	MR. FRANKS: That's correct.
4	are side-by-side.	4	MR. VOYTAS: And not that you're not a
5	MR. COITO: Yeah.	5	worker bee, but who actually is it who's running the
6	MR. HUGHES: And I would caution you that	6	models, putting the inputs, doing that work? Is that
7	very different metrics presented in an identical	7	a person or group of people?
8	format could confuse those who simply look at the	8	MR. FRANKS: It's a group of analysts.
9	numbers that come out, that there are distinctions	9	MR. VOYTAS: Okay. And are they with
10	there, so I would hope in the final report and	10	the budgets that you were given for this project, are
11	this is just a personal observation I'm not	11	they senior analysts or junior analysts
12	speaking for Commissioner Davis, but in the final	12	MR. FRANKS: A mix.
13	report that you be aware of that potential for	13	MR. VOYTAS: or somewhere in between?
14	confusion and that those are very different matrix,	14	MR. COITO: We have a mix. Some are
15	and you can't look at a one-year and a 75 percent	15	senior; some are a little more junior, you know.
16	payback and draw a straight line between them on a	16	Most our key analysts that have worked on this
17	slope.	17	have done other potential studies.
18	MR. COITO: No. Yeah. Can I address that	18	MR. VOYTAS: Okay. What's the process for
19	for a second, because I think Tom might have	19	internal review? I know we've talked about a lot of
20	misspoke.	20	inconsistencies and errors and some mismatches of
21	I don't think we did the model. What we	21	data, but when the analysts get done with their work,
22	had to do was we had to do some calculations to get	22	what is the review process within KEMA before it
23	at the rebate incentives, and that just took	23	comes back to your client, before the draft product
24	significant effort, so it wasn't like we ran the	24	goes out the door and goes to the Missouri Public
25	same model, same everything.	25	Service Commission?
	102		104
1	The only thing that changed was in one	1	MR. COITO: We review it at several
1	The only thing that changed was in one case we had 75 percent of incremental measure cost	1 2	MR. COITO: We review it at several levels. The review is time-dependent, so the more
2	case we had 75 percent of incremental measure cost	2	levels. The review is time-dependent, so the more
2 3	case we had 75 percent of incremental measure cost for each measure; other case we had to do the	2 3	levels. The review is time-dependent, so the more time we have, the more review we get. There's lots
2 3 4	case we had 75 percent of incremental measure cost for each measure; other case we had to do the calculations to actually figure out measure by	2 3 4	levels. The review is time-dependent, so the more time we have, the more review we get. There's lots of numbers in there. We we try to you know,
2 3 4 5	case we had 75 percent of incremental measure cost for each measure; other case we had to do the calculations to actually figure out measure by measure what the incentive was based on, you know, to	2 3 4 5	levels. The review is time-dependent, so the more time we have, the more review we get. There's lots of numbers in there. We we try to you know, first of all, we review the overall results, to start
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1	was some updates between our, you know, economic	1	actually the ones that negotiate and administer the	
2	potential change and our final report, 'cause	2	contract, and we're not allowed to extend a contract	
3	we're you know, as time goes, we continue to	3	without being able to give them very good reasons as	
4	review this.	4	to there was something that happened like, you	
5	This is a very tight deadline project so,	5	know, the computer failed and we had to wait for them	
6	you know, I would argue that probably the review is	6	to get the computer fixed. I mean, it has to be a	
7	not as you know, if we'd have had more time, we'd	7	pretty big thing in order to extend the contract.	
8	have done more review.	8	We were able to do it once, but they've	
9	MR. VOYTAS: All right. I appreciate	9	already told us that unless the sky is falling, it	
10	that. Thank you.	10	probably won't happen.	
11	MR. FRANKS: Are there any other comments?	11	MR. VOYTAS: Well, Natelle, I appreciate	
12	MR. VOYTAS: this is Rick Voytas. Could I	12	that. Not having been a government employee, I don't	
13	ask one more	13	appreciate all the bureaucratic things that you have	
14	MR. FRANKS: Oh, sure.	14	to address, but I do know the issues of quality and	
15	MR. VOYTAS: This is a question it's	15	schedule, and sometimes, like in this case, you can	
16	not intend to be flippant or anything, but so	16	have one or the other, you know, but the study is	
17	everybody is busy. You know, Staff, consultants, the	17	important. That concerns me but, you know, we work	
18	utilities. Everybody's busy, and there's such tight	18	within the constraints that we have, and if that's	
19 20	time lines associated with this study.	19 20	what it is, that's what it is, but at the end of the	
20	You know, the next time line is the 25th, and we've got an IRP filing going out our door which	20	day that's a shame. MS. DIETRICH: And the commissioners	
22	requires a lot of work, and everything's due just	22	recognize that, too, and they've had discussions	
23	immediately and drop everything else and get this	22	about, you know, they're just going to have to accept	
24	done.	24	the limitations also, not only with time but with	
25	We're struggling. This is important	25	budget.	
20	106	20	108	
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1	work, and it's going to guide some of the policies of	1	MR. COITO: Yeah, and for us, you know,	
2	this state going forward, I'm sure, but why is	2	it's been a challenging project. We typically do not	
3	everything so why do we have to kill ourselves,	3	do these studies in 120 days but, you know, we we	
4	perhaps skim some data and not give it the attention	4	understood at the time that the Commission had a, you	
5	it deserves because there's not enough time? What is	5	know, a time frame that they needed to work with, so	
6	driving the very, very tight time schedule that we	6	we you know, we're doing our best, you know, given	
7	have here at the end of this project?	7	the time frame.	
8	MS. DIETRICH: Rick, this is Natelle.	8	MR. NOLAR: This is John Nolar, DNR.	
9	Basically, the contract was set up for "X" number of	9	When Fred was answering the question	
10	days, and so the time line was derived from that. We	10	about review, he mentioned that the results of the	
11	have done a slight contract amendment extending it a	11	study could be compared to other studies that KEMA	
12	little bit because, if you recall, we had some	12	has done in other jurisdictions.	
13	issues, maybe November, something like that, where we	13	MR. COITO: And others, too, not just	
14	had a Commission decision item that we were not able	14	KEMA.	
15	to get in time to meet the deadline so we had to do a	15	MR. NOLAR: And others as well, so I guess	
16	contract amendment, but basically we have the	16	our feeling is, I know the time is limited, but to	
17	contract with a drop-dead date, so we're having to	17	the extent that KEMA could provide, you know, those	
18	work back from that to meet that date.	18	comparisons of studies done using comparable	
19	MR. VOYTAS: But if we extended the drop-	19	methodology by KEMA or by others in other	
20	dead date but didn't require KEMA to do any more	20	jurisdictions, we certainly would appreciate seeing	
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21	work, just the stakeholders had more time to review,	21	those results to help us get a more comprehensive	
22	work, just the stakeholders had more time to review, what harm	22	view of the work that has been done.	
22 23	work, just the stakeholders had more time to review, what harm MS. DIETRICH: It's not between the	22 23	view of the work that has been done. MR. FRANKS: In response to that question	
22 23 24	work, just the stakeholders had more time to review, what harm MS. DIETRICH: It's not between the contract's between the PSC and KEMA, but we have to	22 23 24	view of the work that has been done. MR. FRANKS: In response to that question and a previous question, I believe, by another	
22 23	work, just the stakeholders had more time to review, what harm MS. DIETRICH: It's not between the	22 23	view of the work that has been done. MR. FRANKS: In response to that question	

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1	review of the results, we did as I believe	1	of good questions and feedback.
2	Mr. Voytas pointed out, we did discover an error. We	2	Like I said earlier, if you could get me
3	corrected it, and we responded to it.	3	any comments, suggestions that you have by first
4	Part of that effort was to look at you	4	thing Monday morning, 8:00 a.m. Monday morning, then
5	know, show what we do, and this little table shows	5	I can pass those on to KEMA, and then also Staff can
6	the very current KEMA study for a territory with a	6	use that as guidance when we make a recommendation to
7	very you know, a long history of aggressive energy	7	the Commission on any changes that we need to see in
8	efficiency, and then, you know, we did a potential	8	the final report.
9	study for them, and it breaks out the potential, an	9	With that, thank you.
10	achievable potential by sorry achievable no,	10	MR. FRANKS: Thank you all.
11	an economic potential by sector.	11	MR. COITO: Thank you.
12	We showed the results as they were as	12	(The meeting ended.)
13	we first saw them before we discovered the error and	13	(
14	we saw, you know, 30 percent for residential compared	14	
15	to 20 percent in light of Missouri's past program	15	
16	history, that did not seem at all out of line.	16	
17	Commercial, industrial thought, Okay.	17	
18	That seemed reasonable, you know, at a high level to	18	
19	expect that in a jurisdiction where there is has	10	
20	been comparatively low energy efficiency program that	-	
21	you would have a higher potential.	20	
22	And then we show to the right, V-2,	21	
22	the results when we revised the baseline, so that's	22	
23		23	
	the part of the review and also a partial answer	24	
25	to Mr. Nolar's question. 110	25	
	110		112
1	MS. DIETRICH: Are there any other	1	CERTIFICATE
1 2	MS. DIETRICH: Are there any other questions or comments from anyone?	1 2	CERTIFICATE I, Nancy L. Silva, RPR, a Certified
	-		
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2 3	questions or comments from anyone? MS. SUGGETT: I have a question real	2 3	I, Nancy L. Silva, RPR, a Certified Court Reporter, CCR No. 890, the officer before
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