BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Investigation of the Costs and Benefits of PacifiCorp's Net Metering Program	) Docket No. 14-035-114)) HEARING)

October 6, 2015

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Location: Utah Public Service Commission
160 East 300 South, Fourth Floor
Salt Lake City, Utah 84111

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For Sierra Club: Travis Ritchie

For Utah Clean Energy: Sophie Hayes

For Alliance for Solar Choice: Thad Culley, Bruce Plenk

For Salt Lake City Corporation: Catherine Brabson

For Vivint Solar: Steve Mecham

For Office of Consumer Services: Rex Olsen

For Division of Public Utilities: Justin Jetter

For Rocky Mountain Power: Yvonne Hogle, Matt Moscon

For Utah Citizens Advocating Renewable Energy: Stan Holmes

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Tuesday, October 6, 2015; 9:00 a.m.

P R O C E E D I N G S

CHAIR: Good morning.

MR. RITCHIE: Good morning.

CHAIR: We are here for the docket in the -- for Docket -- Public Service Commission Docket No. 14-035-114 In the Matter of the Investigation of the Costs and Benefits of PacifiCorp's Net Metering Program.

We will start with appearances. And I guess we'll just go in the order of -- that's been agreed to for presentation, so starting with the three parties on the joint proposal.

MR. RITCHIE: Good morning, Commissioners. Travis Ritchie appearing on behalf of Sierra Club.

MS. HAYES: Sophie Hayes on behalf of Utah Clean Energy. Good morning.

CHAIR: Good morning.

MR. CULLEY: Good morning. Thad Culley, law firm Keyes, Fox & Weidman, on behalf of the Alliance for Solar Choice, part of the -- part of the Joint Parties. And with me is Bruce Plenk, our Utah counsel.

CHAIR: Okay. Thank you.

MR. PLENK: Good morning.

CHAIR: Good morning. For the -- for Salt

Lake City Corporation?

MR. POULSON: Yeah. Tyler Poulson with Salt Lake City Corporation.

CHAIR: Okay. Thank you. Vivint Solar?

MR. MECHAM: Steve Mecham appearing on behalf of Vivint Solar.

CHAIR: Okay. Thank you. Office of Consumer Services?

MR. OLSEN: Rex Olsen on behalf of the Office.

CHAIR: Thank you. Division of Public Utilities?

MR. JETTER: And I'm Justin Jetter representing the Utah Division of Public Utilities.

CHAIR: Okay. Thank you. Rocky Mountain Power?

MS. HOGLE: Good morning, Your Honor. Yvonne Hogle on behalf of Rocky Mountain Power. With me here today is Mr. Matt Moscon, outside counsel for Rocky Mountain Power.

CHAIR: Okay. Thank you. Utah Citizens Advocating Renewable Energy?

MR. HOLMES: Stan Holmes.

CHAIR: Okay. Thank you. Any other -- any other parties here to make a -- to make an appearance

in the room?

Okay. Thank you. Just a few preliminary matters to deal with, then. I wanted to ask the three parties who have a joint proposal, Utah Clean Energy, The Alliance for Solar Choice, and Sierra Club, do you intend to have one attorney present each witness, or are you going to rotate that among yourselves?

MR. RITCHIE: Go ahead.

MS. HAYES: We have planned that each one of us will present one witness.

CHAIR: Okay. And then for cross-examination, what's the plan? Or do you plan to cross-examine jointly or separately?

MS. HAYES: We've divided the cross-examination task among ourselves --

CHAIR: Okay.

MS. HAYES: -- so we won't be -- each of us won't be cross-examining all of the witnesses.

CHAIR: Okay.

MS. HAYES: We've divided that task among ourselves.

CHAIR: Okay. I'll go to you as we move forward, and you'll let me know who's -- who's doing each one.

MS. HAYES: Okay. Thank you.

CHAIR: Thank you.

One other preliminary matter, an issue I wanted to raise and ask the parties if they would be willing to comment on, not necessarily now, but before the end of the hearing.

Considering -- a few issues. Considering that the stipulation in the most recent general rate case provided that the next general rate case would not be filed before January 1st 2016, considering that we also expressed last November that we intended to conclude this phase of the docket during the third quarter of this year, which obviously we've not accomplished, I just want to ask the parties if they have any comment to make on the timing of issuing our order and in terms of being useful in advance of -- of future dockets. And if anybody wants to comment on that now, that would be fine. If anyone wants to think about that and comment on that at the conclusion of the hearing, whenever we finish, that's -- that's fine also. I just wanted to raise that issue and let -- and let parties know that we'd be willing to listen to what they had to say on it.

The last preliminary reminder I'm aware of, we have a request from Mr. Holmes with Utah Citizens Advocating Renewable Energy that we notice to parties

the request he had made to participate in the hearing. So I'd like us to address that at this point.

So I'd like to go to Mr. Holmes and ask you to describe what you -- what you envisioned as your participation in the -- in this hearing.

MR. HOLMES: Mr. Chairman, thank you.

CHAIR: It might be better for purposes of streaming -- just to know -- let all parties know we're streaming this through a -- through a You Tube live stream -- it might be better to have you close to a microphone.

Oh, and I forgot to ask. Do we have anyone on the phone, listening on the phone?

No. Okay. Thank you.

MR. HOLMES: Thank you, Mr. Chairman. And I'm speaking not just for Utah Citizens Advocating Renewable Energy, but also other intervening parties to the docket that may wish to present a statement in the context of the -- the daytime hearings between today and Thursday.

Basically, what you -- so I think perhaps this ruling would extend to the other intervening parties that are -- that have not submitted testimony, rebuttal, or surrebuttal testimony, but wish to make a statement as they have intervened and have been

following this docket.

Basically, what UCARE would like to do is to present a statement at some point that it would -- it would be a summary of the main points that we've raised during the course of this docket process, also, some observations on the process itself, and then several recommendations for the current analytical framework and recommendations for future -- future dockets that may -- may incorporate the proceeds of this docket into their deliberations.

CHAIR: Okay. So -- so you're seeking a statement summarizing those -- those positions?

MR. HOLMES: Those three areas, yes, sir.

CHAIR: Okay. Let me go to parties, then. What -- does any party have any comment on this -- on this request? I'll -- let me start -- we'll stay in order of presentation, I think, so starting with -- with --

MR. RITCHIE: Thank you, Commissioner. Travis Ritchie with the Sierra Club. We have no objection to making a statement. I think this docket is somewhat unique in that it was kicked off by the workshops. Mr. Holmes participated in the workshops. And this has really been kind of an information and policy gathering docket. We understand you would, of

course, be somewhat limited by evidence on the record, but from what Mr. Holmes said, I believe that the way he's to state is kind of pulling together the information that's already on record and expressing opinion on that.

CHAIR: Okay. We'll go to the Office of Consumer Services.

MR. OLSEN: Thank you. The Office objects, actually, to allowing this to go in in this context. It's -- puts the -- puts the Office, and I suppose the other parties, at an unfair disadvantage because there's no opportunity for us to provide the Commission with a considered rebuttal whatever positions UCARE might choose to take.

And I think that allowing statements on the record at this time in the context which I believe Mr. Holmes is advocating would be really inconsistent with R746-110-G, which talks about written testimony and says that the minimum amount of time that the other parties should have to see that is at least ten days, for the purposes of allowing that kind of preparation and the opportunity for rebuttal, and the cross-examination that's contemplated in that same part of the rule.

So as we -- if -- I'm fairly new at this

game, and where he would participate, I think he certainly would not be prevented from saying whatever he would choose to say at the public -- public hearing and you take whatever cognizant of that you chose, but I think it's inappropriate at this late date for him to begin to offer testimony of any kind now. So that would be our position.

CHAIR: Okay. Thank you, Mr. Olsen. And in staying in order of presentation, I skipped Mr. Mecham, so I'm sorry. Did you have anything you wanted to comment on?

MR. MECHAM: Thank you, Mr. Chair. Vivint Solar would not object to having him participate and offering testimony. Whether it's in the nature of a public witness or whether it's otherwise would be fine. I mean, public witnesses have typically presented sworn testimony, have presented written testimony that has been crossed on, so I just don't see the problem with it at all.

CHAIR: Okay. Thank you. Mr. Jetter?

MR. JETTER: On behalf of the Division, I think it would -- it would create a troubling precedent to start allowing intervening parties to start presenting evidence and testimony at the hearing, where the remaining parties -- and presumably all of the

interveners were aware of the Commission's scheduling orders -- and the process of providing direct and rebuttal and surrebuttal testimony, where other parties bringing in new evidence, for example, even at the rebuttal stage, I think the Division would object to that because we have a process that's set up to provide the best opportunity for parties to evaluate the evidence provided by the other parties. And in this case, I think the precedent of allowing new testimony at hearing today that hasn't followed the same scheduling order of -- of the other parties is -- would be a troubling precedent to set.

With respect to the issue of providing statements at the public witness hearing, the Division would support that.

I'm also a little concerned about providing the equivalent of a public witness statement during these hearings, simply because that may be unfair to other public witnesses who might also like that opportunity.

Based on the last rate case involving this matter, the public witness hearing was long and somewhat limited for each of the public witnesses. And I -- I would suggest treating all public witnesses similarly.

My suggestion might be to -- to give those who haven't filed testimony and wish to speak at the public witness hearing an opportunity to sign up to the list first so they're beginning at -- at the earliest time.

So that -- that's, I think, the position of the Division on this.

CHAIR: Okay. Thank you, Mr. Jetter.

Ms. Hogle or Mr. Moscon?

MR. MOSCON: Thank you. Rocky Mountain Power shares in the objection, as voiced by the Office and Division. Although we adopt the reasoning that they articulated, I won't simply repeat that. I will note a couple of additional facts, though, I think the Commission could consider.

The first is, as the Commission may recall, when the net metering conversation began during the last rate case, UCARE was an intervener and a party to those proceedings as to provide testimony. Similar discussion ensued. And the Commission bent over backwards, but kind of gave an instructive curative advice to UCARE explaining the proceedings under which the Commission's proceedings function with respect to the rules in prefiled testimony.

So to the extent the Commission feels like we

need to bend over backwards and allow a party that may not be familiar with the rules an opportunity to speak, we'll note that UCARE actually received that at that -- at the last proceeding.

The second thing that I'd like to point out, that UCARE did intervene at an early point in this proceeding, meaning that it was involved in the scheduling orders. It was involved as the parties were filing their own prefiled testimony, which means that if UCARE had a bonafide question, as it submitted to the Commission just the other day, about, "Hey, should we be doing this if we want to have a role at the hearing?"

It would have been appropriate for UCARE at that time to raise the question with the parties or raise the question with the Commission and say, "Hey, does this prefiled testimony order in the schedule, does that apply to us?"

And instead, UCARE remained silent, but was able to gather the evidence as filed by the other parties.

So we echo the sentiments that UCARE or its members should be allowed to speak at the public witness session, but for all the other reasons articulated, we would object to them proceeding in this

fashion at this hearing today.

CHAIR: Okay. Thank you. I anticipate that we -- and I didn't ask Mr. Poulson if Salt Lake City had a position on this, since you're not represented by counsel. Did you want to say anything?

MR. POULSON: Yeah. No position. And my legal counsel will be here.

CHAIR: Will be here? Okay.

MR. POULSON: Yeah.

CHAIR: We anticipated at some point in mid-morning we'll take a break, and we will address Mr. Holmes' participation at this hearing after our first break. So, thank you.

MR. HOLMES: Okay. Thank you.

CHAIR: Any other...

MR. CLARK: I just wonder if he has anything to say.

CHAIR: Oh, sure. Mr. Holmes, do you have anything that you'd like to -- anything else you'd like to say before we consider your -- your request?

MR. HOLMES: No. I'll defer to your decision, certainly. Thank you.

CHAIR: Okay. Thank you.

Any other preliminary matters before we move into testimony? Yes.

MS. HOGLE: Your Honor, I just have one clarification? I just want to make sure that -- that the pleadings that have been filed in this case are already on the record and we don't have to move to admit them, the legal briefs, et cetera, that those will be considered part of the record when you make -- as you consider the questions in this case.

CHAIR: Okay. So, is your motion to -- to enter into evidence now everything filed in this docket previous to the -- the testimony that we'll be hearing today, or including the testimony, or just the legal briefs?

MS. HOGLE: It would be limited to the legal briefs, the legal briefing that has been done to -- for you to reach conclusions of law, whatever that -- they may have been, so that would be a limited motion. And it doesn't have to be now. I just wanted to make that clarification before we actually get on the record.

CHAIR: Okay. So as I -- as I hear it, we have a motion to enter into evidence the legal briefing that's -- that's been done in this -- in this case. I'll go to parties for if they have any comments on that.

MR. RITCHIE: No objection.

MR. CHAIR: Mr. Mecham?

MR. MECHAM: None.
CHAIR: Mr. Olsen?
MR. OLSEN: We have no objection.
CHAIR: Mr. Jetter?
MR. JETTER: And no objection from the Division.
CHAIR: Okay. Those will be entered. Thank you.
MS. HOGLE: Thank you.
CHAIR: Anything else preliminarily?
Okay. We'll go to the first witness.
MR. RITCHIE: Thank you, Commissioners. Joint Parties will call Tim Woolf.

(Tim Woolf is duly sworn.)

CHAIR: Mr. Ritchie?

TIM WOOLF,

called as a witness at the instance of the Joint Parties, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. RITCHIE:

Q. Thank you, Mr. Woolf. Mr. Woolf, did you prepare and submit what have been marked here as your direct testimony Joint Exhibits 2.0, 2.1, 2.2, 2.3, 2.4, and 2.5?

A. Yes, I did.

Q. And to the best of your knowledge, is that -- are those testimony and exhibits true and correct?

A. Yes, they are.

Q. And did you prepare and submit prefiled rebuttal testimony, which has been marked as Joint Parties 5.0?

A. Yes.

Q. And did you submit prefiled Surrebuttal testimony, which has been marked as Joint Parties Exhibit 7.0?

A. Yes.

Q. Oh, I'm sorry, and I missed 5.1 as an exhibit to your rebuttal as well.

A. That's correct.

Q. And are those testimonies and exhibits true and correct, to the best of your knowledge?

A. Yes, they are.

Q. And Mr. Woolf, have you prepared a summary of those testimonies today?

A. I have.

Q. With Commission's leave, I would ask Mr. Woolf to provide that summary.

CHAIR: Thank you.

A. Good morning, and thank you for allowing me a

chance to summarize. I'd like to start with a brief summary of what we're proposing. The Commission's been clear throughout this docket that the purpose is to develop a framework that indicates the cost and benefits to net metering on all customers, including those that do not participate in net metering.

In order to meet this objective, it's necessary to consider two key impacts. One is the costs and benefits to the utility system as a whole, and the other is the potential for cost shifting between net metering customers and non-net metering customers.

We propose two straightforward, transparent analyses to do this. First, a cost impact analysis, and secondly, a rate impact analysis.

The cost impact analysis would indicate the impact of net metering on the net present value of revenue requirements, which is indication of the impact on all utility customers.

The rate impact analysis would represent the impacts of any cost shifting that might occur between net metering and non-net metering.

Now, together these two analyses will provide the Commission with the information necessary to assess the benefits and costs on all customers, including

nonparticipants.

This information would then be used as a critical input to the rate design process. The results of these analyses would be used, along with standard cost of service studies and practices, for making rate design systems.

So in my written testimony, I prepare illustrative analyses to indicate how our proposal would work in practice and what kind of information it would reveal.

In order to indicate the range of potential impacts, my analyses used low and high penetration rates of photovoltaics and low and high value of solar benefits.

For simplicity, I'm just going to focus on the scenarios with relatively high penetration rates where I assume that one percent of customers install a rooftop PV each year. So after ten years, 2024, we have 10 percent of customers with rooftop PV, residential customers.

Now, I present the cost impact results using two standard metrics commonly used in benefit cost analyses, the net benefits and a benefit cost ratio.

So, my analysis indicates that the net benefits of net metering could be in the range of $287

million, assuming the low value of solar, to $1.2 billion, assuming the high value of solar.

Secondly, my analysis indicates that the benefit cost ratio of net energy metering could be roughly 12 to one, assuming a lower value of solar, to as high as 24 to one, assuming a higher value of solar.

In order to highlight the significance of my results, I'm going to focus on those benefit-cost ratios particularly in the case where I assume a low value of solar, where I assume that this would be $60 a megawatt hour, which in my mind is relatively low, given other studies I've seen and my assessment of what I've seen so far in Utah.

My analysis shows that, even assuming this low value of solar, the benefits of net metering exceed the cost by a factor of 12 to one. This means that every rate payer dollar spent on net metering, rate payers will see $12 in benefits.

So, if you remember nothing else from this hearing today, make sure you remember at least this one fact. Net metering represents the lowest cost resource available to the company, by far. No other resource even comes close to this, being so cost effective.

Energy efficiency, something that I have great deal of expertise in, is widely accepted to be

the least cost resource. These resources typically have benefit-cost ratios of two to one or three to one, and here we have a benefit-cost ratio of 12 to one.

It's also important to realize that no party in this docket has contested this general result. By that, I mean no party has argued that the net present value of revenue requirements does not present an indication of costs and benefits, and in fact, several parties have acknowledged that it does. And no party has challenged this critical finding for my analysis that the benefit-cost ratio is likely to be very high.

Now, the parties do challenge my assumptions, especially the avoided cost assumptions. They prefer a number closer to $52 a megawatt hour, so I put that into my model, and it shows that the benefit-cost ratio is ten to one. The results are still very, very strong.

So why is this so? Why -- I found this result striking. You know, how can it be that net metering resources are so low? And the answer is really quite simple. It's because that the host net metering customer pays for the cost of installing and operating the resource. Unlike any other resources the company purchases, where they have to pay for those costs, in this case, the company incurs all those

costs.

So, this brings us to the very heart of the questions before the Commission in this docket. While net metering is likely to be very cost effective, give or take, you know, depending upon the numbers you use, it's going to be very cost effective.

It can also, in some circumstances, lead to shifting of cost. So note, though, at this point that the potential for shifting costs is really the only downside to an otherwise very, very cost effective resource.

So, for this reason, it's critical to address this issue of cost shifting head on. It's critical for the Commission, the Company, and the others to have the information available to understand whether and how costs might be shifted across customers.

This is why we have proposed a rate impact analysis that can be used as the second element of our framework in assessing costs and benefits. The rate impact analysis is the best way to provide a meaningful indication of how costs might be shifted under net metering.

Now, the rate impact analysis will be most relevant and most meaningful if it's based on the way the costs can actually be shifted in practice in the

rate making process. At the time of a new rate case, the Company will identify its revenue requirements and its billing determinates for the test year.

When net metering generation is included in the test year information, both the revenue requirements and the billing determinates are affected. Revenue requirements will be reduced as a result of the avoided cost. This will push rates down. Billing determinates will also be reduced sales as a result of the net meter customer generation. This will push rates up. So there's the two effects going on at once.

The combined effect of these two changes will lead to rate impacts for all customers. Now, in general, if the value of solar, the benefits, the avoided costs, are below the credit paid to customers, then the long-term rates will increase and there will be some amount of cost shifting.

If, on the other hand, the value of solar is below -- I'm sorry, above the credit paid to customers, then long-term rates will decrease and there will be no cost shifting. This is a scenario that's very likely and doesn't get much attention in these discussions, but it's very likely, and it's an important consideration in this whole picture.

So it's really critical to recognize at this

point that any cost shifting will be offset by the value of solar. And if that value is high enough, there will be no cost shifting.

So, with that as background, I'm just going to briefly summarize my results for the rate impact analysis, again, using the scenario one percent of customers install rooftop PV each year for ten years.

Under my low value of solar scenario, the low avoided cost, rates are estimated to increase by .3 percent per year. And over ten years, that would accumulate to 3.7 percent increase relative to no net metering at all.

Under my high value of solar scenario, rates are estimated to decrease. In that case, the value of solar is assumed to be higher than the credits paid to customer, and so rates will decrease by .14 percent each year, for a accumulative rate reduction of 1.4 percent each year.

In my view, these rate impacts are quite small, particularly in light of the fact that they're caused by acquiring very low-cost resources. It's that this balance that the Commission and the Company has to make.

And, of course, the results from my illustrative analysis shouldn't be used in setting

rates. I'm not suggesting that. Instead, the Joint Parties' framework should be used, with inputs and assumptions approved by the Commission, to come up with more accurate and more up-to-date results that would then be used in designing rates.

And if I may, I'd like to just take a minute to respond to some of the rebuttal from other parties. Probably the most prominent rebuttal from other parties has been that our proposed framework cannot be used for setting rates. This has been made many times by all the other parties. However, this argument is simply not correct.

First, cost effective analyses are not typically used to set rates; that's not their purpose.

Second, the net metering statute and the Commission's orders. The Commission's order in July 1st of this year couldn't be more clear on this, that the cost effectiveness analysis should be separate from the rate setting process and should be used to inform rate design.

Third, and most importantly, our proposal can be used in setting rates. It's just used indirectly. It's used to inform rate design, that the numbers don't directly flow into the -- into some formula in rate design, but they are used in informing rates.

The second most prominent argument from the other parties is that the benefit cost analysis should be based upon short-term cost and benefits, as opposed to long term, because this is the timing of the cost and benefits that's consistent with the timing of the inputs to cost-of-service studies.

Again, this argument is simply not correct. There's no reason why the time period used for benefit-cost analyses has to be the same as the time period used to set rates. And the other parties have not provided any such reason as to why they should.

Secondly, all benefit-cost analyses should include a time period that encompasses the number of years in which the cost and benefits will be experienced. This is fundamental economics. Otherwise, the analysis would lead to skewed results.

The result of the benefit-cost analysis can be used to inform the cost-of-service study and the rate design decisions, regardless of the fact that they cover different time periods.

Finally, one last rebuttal that the Company's -- the other parties mention. The other parties have not provided a single piece of compelling evidence to explain why net metering should be evaluated differently from all other electricity

resources. They have provided several arguments. I find none of them to be even close to being compelling.

Remarkably, the Company argues that net metering should be evaluated -- evaluated differently because it's not an electricity resource. This argument has no merit at all. This line of argument implies that net metering offers no value at all to the utility system in terms of energy, capacity, transmission, or distribution costs that are avoided, no value.

This, of course, is not true. Net metering does have value. It's a resource that provides significant benefits to the grid. This is why so many states allow net metering, and even offer additional incentives for rooftop photovoltaics.

The question for this Commission is not whether net metering is an electric resource, but instead, what value that resource provides to the utility system and what impact that resource has on all customers, including nonparticipants.

I'm almost there. I have one last point that I think is really critical. The Joint Parties have said several times that the other parties in this docket have conflated cost effectiveness in rate design. And we argue this is a fatal flaw with their

proposal.

This is such an important point that I would like to provide some very clear evidence as to how the Company is conflating the two. Note that for -- one of the more important issues in rate design is whether to establish a separate rate class. This decision will have tremendous implications for the customers that would be assigned to that class, as well as the customers that are not assigned to that class. It's huge in terms of affecting how customers' rates will be set.

In its proposal, the Company has already made this key rate design decision. It's already decided that there should be a separate class for net metering customers, and it has made this decision prior to concluding the benefit-cost analysis.

This is how the Company has confused, compressed, conflated cost effectiveness with rate design. And I -- I believe their argument is consistent with the Commission's guidance here, very clear guidance, that rate design decisions should be made in light of the cost effectiveness results.

So, thank you for allowing me all this time. And I look forward to your questions.

CHAIR: Thank you. Mr. Ritchie?

Q. (By Mr. Ritchie) Just a few clarifying questions. Mr. Woolf, have you reviewed Mr. Clements' position matrix, which was marked as Exhibit PHC-1SR?

A. Yes, I have.

Q. And did Mr. Clements consult you when he constructed this matrix?

A. No, he did not.

Q. Does it accurately reflect the position of the Joint Parties?

A. No. I'll start by saying that I appreciated the effort here because I think it helps to have the positions laid out like this, but there was one point that is incorrect, and it's really important to correct for that. Shall I take a moment to let you get it in front of you?

CHAIR: Sure. That would be helpful. Thank you.

A. I could describe it. It's fairly brief. Or you could look at this.

CHAIR: Sure, if he's -- oh, we're there. Thank you.

A. One of the cost categories that is identified here is -- for being included in the analysis is lost revenues. And under the Joint Parties column, it says that no value, and lost revenue should not be

considered.

We've been pretty clear throughout our testimony that, in fact, it should. But I think part of the confusion stems from, in the cost-impact analysis, lost revenue should not be included because that's not how cost-benefit analyses are done. But in the rate impact analysis, lost revenues are one of the factors that play into the outcome of those analyses.

Q. (By Mr. Ritchie) Thank you, Mr. Woolf. Are those all the corrections that you have for that exhibit?

A. Yes.

MR. RITCHIE: Commissioners, Joint Parties' direct examination of this witness is done. I would move to submit his prefiled joint testimony in exhibits into the record. And Mr. Woolf is available for cross-examination.

CHAIR: Thank you. Any objection from anyone to entry of his testimony and exhibits?

MR. OLSEN: No objection.

CHAIR: Seeing no objection, they'll be entered. Thank you.

We will move to cross-examination, starting with Mr. Mecham.

MR. MECHAM: I have no cross for this

witness. We support his testimony, Vivint Solar does.

CHAIR: Thank you. Mr. -- Olsen, sorry, Mr. Olsen?

MR. OLSEN: We have no cross-examination.

CHAIR: Mr. Jetter?

CROSS-EXAMINATION

BY MR. JETTER:

Q. I do have a few cross-examination questions. Good morning, Mr. Woolf.

A. Good morning.

Q. I'm Justin Jetter. I represent the Utah Division of Public Utilities. You've compared -- is it correct that you've compared your cost analysis, your utility cost analysis, to the IRP process where we choose future resources, and that effectively offers a prior review of what the Company would do going forward and whether those actions are prudent when they make them?

A. What I have done is compared the methodology for the benefit-cost ratio for this purpose to the methodology used for integrated resource planning. I'm referring specifically to the standard practice of using the net present value of revenue requirements as the primary criteria for making decisions on what's cost effective.

Q. Okay. And if you did that and net metering had a net present value that was positive, meaning it would cost more than the other lowest cost scenarios, would you recommend not having a net metering program or prohibiting it?

A. So, as I mentioned a minute ago, the net present value of revenue requirements is often the primary criterion, not the only one. In an IRP there's lots of other factors that are considered. And I haven't reviewed the rules in Utah to know exactly what they are, but there might be other considerations that would suggest that the resource should nonetheless be -- be adopted.

Q. And is there a scenario where you would say that you would recommend not having a net -- a net metering program?

A. Oh, certainly. If -- if the costs significantly exceed the benefits and there were no other compelling rationale or reasons for installing the measures, then I would say yes. I haven't seen anything that comes even close, but there could be such a scenario.

Q. And if there were a statute that required a net metering program, would there -- would there be much purpose in trying to evaluate whether or not we

should have one? Isn't -- wouldn't that be a foregone conclusion, that --

A. It's a bit of an --

Q. -- we already have one?

A. -- abstract question. If I could -- maybe you could just frame it in terms of the statute that we have before us in Utah.

Q. I'm just saying, in a hypothetical scenario, if -- if it was a predetermined conclusion by statute that a net metering program would exist, would there any be -- be much utility in running an IRP type analysis to then determine again whether it should exist?

A. Oh, yes. Two things. There would be lots of reasons to do a cost-benefit analysis to get a sense of just how cost effective it is because, as I've said, those results can be used to inform rate design.

Secondly, when you say an IRP analysis, if there is such a policy in place, the practice in place, then it will affect the Company's resources, and that should be included in the IRP itself.

Q. Okay. And you've referenced how that would be used to inform the rates going forward. Is your idea that the present value analysis results in a -- ultimately, a discrete numerical value, and then that

numerical value would be a benefit or a cost that would be applied to those customers, the net metering customers, that are essentially either causing the benefit or the cost?

A. Oh, no. That's an important clarification. The results of any inputs of the benefit-cost analysis would not be used directly to say, "This cost goes to these customers." That's the purpose of the cost of service study.

The -- the whole objective of the benefit-cost analysis is to get a sense of the value that net metering and rooftop PV provides to the system as a whole and also on non-net metering customers.

So I'll give you two examples. If the results of the analysis, based upon our framework, were to indicate that there's no cost shifting at all and there's significant benefits that exceed the -- exceed the costs, then in doing rate design, the Commission doesn't even have to worry about cost shifting. It's just not an issue because it won't happen. And that would mean for a very simple rate design.

If, instead, there was outcome that there would be net benefits, but there is some cost shifting and rates would go up by a very small amount, then the Commission could find, you know, that's such a small

rate impact, given that this is such a low-cost resource, we're going to allow it just as it is.

One more scenario. If, for some reason, the Commission found that, you know, I understand there's the significant net benefits, there is a rate impact, it's a little bit more than I want to stomach, they could do a modest adjustment to rate design.

One example would be, you could institute a minimum bill approach so that you have a little bit of protection in case there is any cost shifting.

So that's what I mean by the information is to inform the thinking about rate design. But the numbers don't flow right into the rate design model.

Q. Thank you. You stated in your opening statement that no parties challenged your conclusion of a net benefit on a net present value analysis; is that correct?

A. Yes.

Q. Is it also correct that throughout your testimony you've captioned your analysis as merely illustrative?

A. Yes.

Q. Okay. And no one's challenged your illustrative example based on the outcome?

A. Well, no, no, that's not true. Many parties

have questioned the results, mostly based upon critique of the avoided costs. So I -- I would not say that they haven't contested my results. My -- if I may go back to my opening statement and clarify. Is that what you are getting at?

Q. Well, my question goes to the point of, you've described it in your testimony as being illustrative, and then you've told the Commission that there is a discrete outcome that you've calculated --

A. Yes.

Q. -- is that correct?

A. There is an outcome from the illustrative analysis.

MR. JETTER: Okay. And I think that that's all the cross-examination questions I have. Thank you.

CHAIR: Thank you.

MR. JETTER: Thank you.

CHAIR: Ms. Hogle or Mr. Moscon?

CROSS-EXAMINATION

BY MS. HOGLE:

Q. I just have a few questions. Thank you. Good morning, Mr. Woolf.

A. Good morning.

Q. You mentioned in your summary that there is a net -- metering net benefit at a ratio of 12 to one,

correct?

A. That's correct.

Q. Isn't it true that the information needed to prove that conclusion is still being studied, the Company is performing a load research study, correct?

A. That's correct. My results are illustrative.

Q. Thank you. In your summary, you also criticized the Company's recommendation to create a separate class for net metering customers, correct?

A. That's correct.

Q. Isn't it true that the Company qualifies that recommendation by indicating that it's based on the results of its load research study?

A. That is true.

Q. Thank you. You mentioned the net metering statute in your summary.

A. Yes.

Q. You're familiar with it?

A. I am.

Q. Does a net metering statute include the words "long term" or "cost-benefit analysis"?

A. I would have to double check. May I do that?

Q. You may.

A. No, I do not see that -- the term "long term" anywhere. The statute is clear about evaluating the

benefits and the costs and standard economic practices to account for the full benefits and costs over the duration of the period in which they're incurred.

Q. Thank you. In your summary and in your rebuttal testimony, lines 202 to 30 -- 204, you testify that you're not aware -- I'll let you turn to that.

A. In my rebuttal testimony?

Q. Lines 202 through 204.

A. Yes.

Q. You testify that you are not aware of any state or province that uses a cost of service study as the basis for determining cost effectiveness of an electricity or gas resource option, correct?

A. Yes, that's what I state.

Q. Are you, by chance, familiar with the most recent study in California from E3, a CPUC 2013 study titled "Introduction to the Net Energy Metering Cost Effectiveness Evaluation," published in October 20 -- 2013?

A. I'm not familiar with that.

MS. HOGLE: Your Honor, may I approach the witness?

CHAIR: Yes.

MS. HOGLE: Thank you.

Q. (By Ms. Hogle) These are comments that were

filed by you earlier in this proceeding.

A. In this docket?

Q. In this docket. I'm going to ask a question about page 29. Page 29.

MR. RITCHIE: Commissioners, could I -- Commissioners, if I could ask for a clarification on whether Ms. Hogle intends to submit this as evidence.

MS. HOGLE: This is a pleading in this proceeding, therefore it's already in evidence.

MR. RITCHIE: Oh, it's a pleading in this proceeding.

MS. HOGLE: In this proceeding. And I'll -- I'll point you to it. I'll let you know which one it is.

MR. CULLEY: Pardon me, Mr. Chair. Just for clarification, the initial motion by Rocky Mountain Power today was for the briefing. And this occurred prior to intervention, so TASC was not a party at this time. And I do not believe Mr. Woolf has -- is familiar with this. That might be a question you can ask him, if he's reviewed all the filings up to this point. But it was not my understanding this was actually in the record at this point.

CHAIR: You know, I'll say at least my understanding of the motion was for legal briefing. I

don't -- I don't know that we've entered all comments into evidence at this point, unless -- if you view your motion differently than I'm understanding it, please let me know.

MS. HOGLE: Your Honor, I'm -- I'm not sure that it needs to come into evidence. I'm just going to ask him -- lay the foundation to see if he's familiar with these comments.

CHAIR: Okay. Thank you.

A. So, I have not reviewed these comments before just now.

Q. (By Ms. Hogle) Okay. Okay. In your summary, you also criticize the Company, indicating that the Company conflated the -- the purpose of the net metering statute, or conflated the two different frameworks within the net metering statute, and that -- by offering a cost of service study. Is that about correct?

A. Well, it's more than that. It's by using the cost of service study methodology in and of itself to identify the costs and benefits.

Q. Is it possible, assuming that the Commission decides that a long-term cost-benefit analysis is useful, is it possible that a long-term -- both a long-term benefit study and a cost-of-service study can

be performed at the same time?

A. Yes, that's my recommendation.

MS. HOGLE: Okay. I have no further questions. Thank you.

CHAIR: Thank you. Any redirect, Mr. Ritchie?

MR. RITCHIE: No redirect. Thank you.

CHAIR: Okay. Thank you, Mr. Woolf.

THE WITNESS: Thank you.

CHAIR: And we'll go to the next witness.

MS. HAYES: Thank you, Mr. Chair. The Joint Parties now call Mr. Benjamin Norris.

CHAIR: Thank you. Okay. I forgot to ask my other commissioners if they had any questions for Mr. Woolf, but it seems we don't, so we'll move on. Thank you. I'll try to do a better job of remembering that as we move on today. My apologies.

(Benjamin Norris was duly sworn.)

CHAIR: Thank you. Ms. Hayes?

MS. HAYES: Thank you.

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BENJAMIN NORRIS,

called as a witness at the instance of the Joint Parties, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. HAYES:

Q. Good morning, Mr. Norris. Please state your name and business address for the record.

A. I'm Ben Norris. I'm with Clean Power Research at 1541 Third Street, in Napa, California.

Q. Did you submit direct testimony, marked as Joint Parties' Exhibit 3.0, along with your résumé, marked as Exhibit 3.1?

A. I did.

Q. Did you submit rebuttal testimony, marked as Joint Parties' Exhibit 6.0?

A. Yes, I did.

Q. And did you submit surrebuttal testimony, along with one attachment, marked as Joint Parties' Exhibits 8.0 and 8.1?

A. Yes, I did.

Q. Do you have any corrections to make to this testimony?

A. No, I do not.

Q. So if I asked you the same questions today as

set forth in your written testimony, would your answers be the same?

A. They would.

Q. All right. Did you review the Commission's Prehearing Notice, issued on September 21st, 2015, including the questions about tools and time periods for use in the Joint Parties' recommended analytical framework?

A. Yes, I did, I saw that notice.

Q. Have you prepared answers to the Commission's questions?

A. I have some comments on them.

Q. Let's talk about those. If you could speak first to what tools are required to perform the valuation analysis recommended by the Joint Parties?

A. Sure. So -- good morning. So, the way I see it, when you do a cost-benefit analysis, there's different tools for different purposes, and these tools are readily available. And to give an example, we can step through some of the -- the parts of this analysis that would be required and I can comment on what such tools might be.

So, for example, the first part -- and this goes along with my testimony, that the first thing you need to do is to establish an hourly production profile

for solar, and -- and, in particular, a production profile that represents the resources out there on the system.

And so there are numerous solar modeling tools available. When we do studies like this at Clean Power Research, we use our internal tools that we provide as software products, and that includes data, solar -- solar resource data, as well as solar simulation tools, and specifically SolarAnywhere FleetView. That's the tool that, if I was to do this analysis, I would use SolarAnywhere FleetView to give you the total output of these distributed resources in the Utah service territory.

There's other models as well, so -- for example, PVsyst or PVWatts, those are commonly used tools. And -- and what those do is -- is simulate solar photovoltaic systems, with the inputs being solar resource and the output being kilowatt hours delivered AC to the grid.

Our data, SolarAnywhere FleetView, allows the user to indicate exactly, within a -- approximately a ten kilometer sort of resolution, to -- to access data for that specific tile.

There -- there are -- and the reason that that's possible is that this data derives from

satellite measurements, that is satellite imagery that is then converted to what's called solar irradiance. And then we also use temperature data as well.

So -- however, Clean Power Research is not the only one that provides this data, so there's other data sets available by -- by other companies.

So, that -- that sort of, in a nutshell, that kind of describes PV simulation to produce this important input to the analysis.

Okay. Then there's -- then there's other tools. For example, how do you do the avoided energy calculations? And in my testimony I described a couple of different methods that could be used. And so the tools that would be required for this type of analysis kind of depends on which methodology is ultimately decided.

So if you, for example, decided to base the analysis on the hourly dispatch of units on the system, you would use a production cost model. And those tools are readily available, and there's many of them, such as PROMOD and Strategist and others, and those are very commonly available.

I also described a method that could be used for avoided energy costs, a simplified method, that would simply be based on a single resource. If you,

say, assumed the -- that the displaced resource was a peaking gas turbine, while you would -- there would really not be a tool required for that, you could do that in a spreadsheet, for example, and just multiply the -- the energy by the heat ray and the -- and the cost of fuel and you could -- you could get that answer, so really not -- there's no tool that's required for that -- that part of the analysis.

And then sort of the final step in -- in evaluating these costs and benefits, again, you think of these as each component, whether it's energy or capacity or distribution costs, each of those are kind of treated separately as a -- as a component. And the cost impact is then calculated separately.

So -- so what has to happen, then, is, for every year in the analysis period, you want to calculate these. So, for example, if you did the an avoided energy calculation, you might look at future years over this defined period and -- and you would, say, assume fuel prices go up by a certain rate, that's one of the assumptions that go into this study, and -- and so you would need a tool that could calculate year by year what the total impact is and then discount it. So -- so you would -- you could do that sort of analysis simply in a spreadsheet and develop a table,

you know, each row would be a year, and you calculate each cost that's impacted for each year, and then discount those to get the net present value. So that spreadsheet would be a, you know, sort of customized spreadsheet.

We've done that, so we have a spreadsheet that does that if -- there's a -- this tool is available, if you will. We call it DGValuator -- we've licensed that -- for example.

I -- and I also wanted to mention that one of the projects that we did was for the Minnesota Department of Commerce, and -- and our role there was to actually put a detailed methodology together. So that's just kind of a step-by-step recipe for how you do this analysis. And that -- that was a report that was issued. It's publicly available. It was adopted by the Minnesota Public Utilities Commission for the basis of doing this for their purposes.

And -- and so this is a report that could be used and easily kind of adapted into a -- into a spreadsheet model if -- if that was desired. It's -- it's -- it lends itself to that type of analysis.

So the tool itself isn't really so critical, so long as, you know, the tables are set up properly and all the equations and whatnot are kind of in there

and -- and they could be used for this purpose if that was desired. And -- and again, that's all public information, so -- so that kind of summarizes the tools.

Q. So will any new -- excuse me. Will any new tools be required in order to value any components?

A. No, there's no new tools required for this.

Q. And what periods of time do you recommend for performing value analysis?

A. I -- I have an opening statement where I touch on that, but --

Q. All right.

A. -- briefly can I...

Q. Let's -- let's get to your summary, then. But before we do, let's -- let me ask this. Have you reviewed Rocky Mountain Power's Exhibit PHC1SR?

A. Yes, I have.

Q. Were you consulted in the development of that exhibit?

A. No, I was not.

Q. Do you have any corrections to Mr. Clements' representation of any of your recommendations?

A. I have one.

Q. Would -- would you please explain that?

A. Sure. So, I'm looking at this chart here,

and the column headed "Joint Parties," and there's -- there's -- this is sort of a minor clarification, if you will, but there's a row here called "Of Weighted Capacity Costs," and under the Joint Parties' position, it's described -- and I realize this is very high-level overview, but it says, "Average solar fleet production in the top 100 hours..." and then goes on. And I agree with the second part of that.

The -- the first part was simply used as an example. So the -- the issue is how do you account for the fact that -- that solar is not dispatchable, that it rises and falls with the sunlight, and how do you account for that behavior?

And there's different methods to do that. There's a -- there's a -- the general term might be, say, "effective capacity." And rather than using what's stamped on the name plate, you'd have to come up with an effective capacity for solar.

There's different methods out there for doing them, there's several. And I -- and I described that one as an example, and I'm perfectly comfortable with that as an example, but that -- that was simply meant to be an example, and so that's not a recommendation that that is necessarily used.

Q. Thank you. Do you have a summary of your

testimony?

A. I do.

Q. Please proceed.

A. Chairman LaVar and Commissioners, in my testimony I presented some methods that may be used to calculate costs and benefits of net energy metered systems, that is distributed solar resources.

These methods have been developed and applied by Clean Power Research and others in similar cost-benefit evaluations in other jurisdictions in North America. These methods have evolved and improved over time and represent the current state of the art in solar valuation.

My testimony includes, first, a method for producing an hourly time series of solar fleet production, and describes the means for incorporating the diversity of geographical location and design configuration, such as tilt angle and azimuth angle, and the means for ensuring that the solar production and load are taken for the same time intervals, that is to say, they're time synchronized.

In my testimony, I differentiate between a load analysis period, which takes place in the past, and an economic study period, which takes place in the future. The use of past data is necessary to obtain

certain technical results, whereas the avoided costs always take place in the future.

Normally -- and this kind of follows along the lines of what Tim said earlier -- an economic analysis looks at the cost and benefits over the service life of an asset. So in this case, it would be over the life of the distributed energy resource.

So the economic study period is normally selected in cost-benefit studies like this as 20, 25, or 30 years in the case of distributed solar. And this is then consistent with the life of that resource. So costs and benefits are evaluated, first of all, only in the future, because that's the only possible time that costs could be avoided, and that that study period is -- it doesn't have to be, but it's typically defined as the service life of that asset. I then describe some cost categories and some methods that may be used to estimate the cost impacts.

In the case of avoided energy costs, I include two alternative methods. The first is to use a production cost model. The second is to assume a single displaced generation resource, such as a peaking natural gas turbine. Regardless of the method, the purpose is to estimate the future avoided costs, calculate the net present value, and then levelize

them.

I then describe how avoided capacity costs may be calculated. The first step is to assign an effective capacity as to the -- as a technical metric to the distributed solar resource.

There are several methods for doing this, and I do not recommend any particular one, but I did include an example of determining the average production in the top N hours of load. I then describe how costs are applied and levelized.

Next, I provided a broad overview of avoided transmission costs. As these are the most difficult to quantify, a simplifying method was presented. I also describe methods for avoided distribution costs, including the important technical step of considering the match between solar production and distribution peak.

I also explain how the study could be built around local distribution benefits or aggregated distribution benefits, depending upon the level of granularity desired.

My testimony then describes other benefits that could be incorporated, such as environmental benefits and the reduction of risk.

Methods for calculating avoided losses are

then described. These losses occur in both the transmission and the distribution systems and touch on all the other costs and benefits.

Some considerations are offered for calculating these, such as the recommendation that they should be calculated on a marginal basis; that is, the difference in two scenarios, one without solar and one with solar, and that they should be done on an hourly basis.

Finally, existing costs that may be reallocated among states could be included, if desired, to include the impact of solar on cost allocation.

MS. HAYES: Thank you. Mr. Norris is -- now available for cross-examination. But, first, I would move the admission of his filed testimony.

CHAIR: Any objection to that motion?

MR. OLSEN: No objection.

CHAIR: Hearing none, it will be entered. Thank you.

MS. HAYES: Thank you.

CHAIR: Mr. Mecham, any -- any questions from you?

MR. MECHAM: I have no cross-examination for Mr. Norris. And like Mr. Woolf, Vivint Solar supports Mr. Norris's testimony.

CHAIR: Thank you. Mr. Olsen?

MR. OLSEN: We have no cross-examination.

CHAIR: Mr. Jetter?

CROSS-EXAMINATION

BY MR. JETTER:

Q. I have a few questions. Mr. Norris, good morning.

A. Good morning.

Q. In your opening statement, as well as in your testimony, you've described a recommendation for forecasting future value, future cost savings, on the distribution to grid, for example, on an hourly basis; is that correct?

A. Correct.

Q. And to do that, you recommended using a model that uses satellite imagery compared to cloud cover; is that essentially what you're recommending to -- to reach each hourly data?

A. No. I indicated that that would be one approach.

Q. One approach. Okay. Would another viable approach be to use historical actual data from solar systems within the area?

A. Yes, and we've even done that in some of these studies.

Q. Okay. And would you -- would you say that actual data is, in fact, the best data to use?

A. If -- certainly having direct measurements of power output, that would be preferable to modeling. It would reduce the -- the error if -- the problem with doing that often, and I -- I don't know if that's the case here, but the problem can be that that data simply is not available or that only, say, net load, including the customer usage, is -- is available, and that confounds the study.

But if you have direct output of PV systems, that would be better, and -- and, for example, we did a study for Salt River Project where we did that very thing. In the case -- I believe it was the residential -- we did modeling using -- based on the satellite resource, and the commercial was based on actual measured output. Maybe it was vice versa, I forget. But -- but along the lines of what you said, that's -- that would be perfectly valid.

And -- and it would be necessary, then, to kind of -- for the same reason, to include sort of the diversity of systems, have a good sample of this -- of this data.

Q. Thank you.

A. Yep.

Q. With respect to the reduced fuel cost risk that you've discussed in your direct testimony as well as this morning, your recommendation, I believe, and correct me if I'm wrong, was to estimate that out through the service life of the facility, whatever that is, the solar panels, 20 to 30 years, and then give a normalized value over that period for -- for that reduced risk; is that right?

A. If that component was included in this cost-benefit analysis, the -- that is -- that's the purpose -- that would be the purpose that -- that you would look over the service life of that unit or the defined economic analysis period and calculate an equivalent hedge value.

I might add that this term "hedge value" is -- is confusing in some cases because utilities don't hedge for that period of time, typically, or never. They may hedge for a year or two. And so -- so this -- this is -- this is a benefit category who -- whose intent is to put solar and conventional resources on a common basis to make that apples-to-apples comparison, one being dependent upon the fluctuations in fuel price and whatnot.

Q. Okay. And to the extent that those values will be realized in the future period, normalizing that

is effectively prepaying ahead, to some extent, to -- to use your words, to hedge that risk; is that accurate?

A. I don't know if it's exactly prepaying, but it's a -- it's a -- it's a value that recognizes the -- the benefit that you get from not being exposed to this uncertainty in fuel price.

MR. JETTER: Thank you. I have no further questions. Thank you, Mr. Norris.

CHAIR: Thank you. Ms. Hogle or Mr. Moscon?

CROSS-EXAMINATION

BY MR. MOSCON:

Q. Good morning, Mr. Norris. I really only have one kind of follow-up that Mr. Jetter's line of questioning brought to my mind. Do you have in front of you your direct testimony?

A. I do.

Q. If you would turn to page 3 of that testimony. Are you there?

A. I've got it. Thank you.

Q. If I understand what you're indicating correctly here, beginning on line 51, you indicate that the purpose of your testimony is to provide the overview for calculating the benefits of solar electric production. And you indicate that your colleague, Mr.

Woolf, is the individual that identified which benefits should be calculated; is that correct?

A. That was the list I was using. There's other benefits that it provides that have been advanced in other studies that were not on this list, so I didn't address those.

Q. Okay. And that really is my point, is your testimony doesn't provide for the Commission actual analysis of what benefits do or do not exist, but rather, your testimony is limited to providing a framework for calculating benefits for the seven topics identified by Mr. Woolf; is that correct?

A. That's right. The testimony is methods for calculating these, yep.

MR. MOSCON: Okay. Thank you. No further questions.

CHAIR: Thank you. Ms. Hayes, any redirect?

MS. HAYES: No. Thank you.

CHAIR: Okay. Commissioner Clark, do you have any questions for --

COMMISSIONER CLARK: No questions.

CHAIR: -- Mr. Norris?

Commissioner White?

COMMISSIONER WHITE: No questions.

CHAIR: I have none. Thank you, Mr. Norris.

We'll go on to the next witness.

MR. CULLEY: Mr. Chair, Thad Culley on behalf of TASC and the Joint Parties. We'd like to call Pamela Morgan.

CHAIR: Thank you.

MR. CULLEY: Thank you.

(Pamela Morgan was duly sworn.)

CHAIR: Okay. Mr. Culley?

MR. CULLEY: Thank you, Mr. Chair.

PAMELA MORGAN,

called as a witness at the instance of the Joint Parties, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CULLEY:

Q. Ms. Morgan, could you state your full name and business address for the record?

A. Certainly. Pamela Morgan, 17 M-a-s-a-r-y-k, that's Masaryk, Lake Oswego, O-s-w-e-g-o, Oregon 97035.

Q. And Ms. Morgan, did you cause to be prefiled in this proceeding direct testimony, consisting of nine pages, also including an exhibit, which was your résumé, and rebuttal testimony, consisting of 24 pages?

A. Yes, I did.

Q. And those have been premarked as Joint

Parties' Exhibits 1.0, 1.1 for the résumé, and 4.0 for the rebuttal. And to the best of your knowledge, is that testimony still true and correct?

A. Yes, it is.

Q. Ms. Morgan, have you prepared a sum -- a brief summary of your direct and rebuttal testimony?

A. Yes, I have.

Q. And with leave of the Commission, could you please provide that?

A. Certainly. Good morning, Commissioners. Try and get myself situated here. So, the purpose of my opening testimony was to introduce the framework that the Joint Parties designed to enable the Commission, as needed, to examine the costs and benefits of net metered generation to the utility, in other words, to its revenue requirement, and to utility rate payers, in other words, in terms of rates.

Our framework proposed a cost impact analysis to enable assessing costs and benefits, in terms of revenue requirement over time, and a rate impact analysis to enable assessing costs and benefits to other rate payers over time.

These two framework components together produce outputs that will inform the Commission's exercise of its rate-making authority with respect to

these net metered accounts.

I outlined five baseline expectations the Joint Parties urge the Commission to establish as it approves a framework.

Breadth. So, economic regulation and rate making frequently use averaged inputs as representative and good enough. For a framework that must inform decision making, however, rather than be the decision, capturing a full range of data and reasons why it's as broad or as narrow as it is will do a far better job supporting the Commission. This is true whether the time frame is of a -- of a given input is over one day or many years.

Second, change. Except in the very near term, we know that change in technology, in behavior, in beliefs, is inexorable and can occur at a price -- a pace that surprises us. The costs and benefits of net metered distributed generation to utility revenue requirement and rates will certainly change over time, and we urge the Commission to expect those working on the framework to expect and even look for those changes.

Data. What we don't look for, we tend not to see. The Commission should set an expectation that it expects an effort to improve the data being collected

and expand it, to ensure it enables seeing everything that is relevant to the costs and benefits of this net metered generation.

Uncertainty. This expectation captures what happens when change in data interact over time. We acknowledge uncertainty about what will happen in the future, whether that's next year or a decade away. The framework should highlight, and not bury, the uncertainty.

And finally, minimum filing requirements. This expectation is just based on years of experience with other cost-benefit frameworks or utility studies. We usually get to a point where it's fairly standard what information the utility provides up-front, such as all the actual data inputs used, the sources of those inputs, and the logic applied to them. I suggest this Commission simply jump start this learning process by expressing the minimum filing up front.

My rebuttal had two major purposes, both of which were occasioned by the direct testimony of other parties to this case. The majority of what I raised related to their framework proposal. While not all the other parties use exactly the same words or propose the same techniques, all suggest a framework that considers only short term, as in a test year, costs and benefits

for the framework and assume a requirement that this short-term framework produce outputs directly applicable to rate making.

First, I express the Joint Parties' belief that this suggestion collapses the two-part statutory charge to the Commission that's the reason why we're having this proceeding.

It might be useful to think about cost-benefit analysis and rate making as spheres of inputs and outputs. The spheres overlap, but they do not occupy the same space. There are considerations in the cost-benefit analysis that are not in rate making, and vice versa.

Second, because several parties specifically suggest using cost-of-service studies for purposes of assessing the costs and benefits of net metered generation, I explained how the backward-looking nature of these studies, which are used to inform rate spread and design, is not useful for assessing decisions such as energy efficiency programs or new generation or transmission investments.

Spreading revenue requirement requires numerous decisions about how to allocate the costs of tangible and intangible things and the work of people that does not relate to any one type of rate payer

account, let alone one rate payer. Designing tariffs is the art of finding some ways to provide price signals to rate payers about future costs, notwithstanding that the costs being signalled are past costs.

Both exercises are extremely challenging and there's never a right answer, but neither is how economic regulation decides the types of and particular actions that will influence future revenue requirements.

My third concern with the short-term frameworks being proposed was that it ignored a vital piece of context. Net metering exists, and the statute driving this proceeding exists, and the Commission opened this docket because home owners, businesses, and other organizations are acquiring their own electricity-generating capacity.

This ultimately will change what we presently call the distribution system, but what we might some not too distant future call the electricity transportation system. The sooner utilities begin adapting their processes and procedures to accommodate this, the larger the benefit to all rate payers is likely to be. Focusing the cost-benefit framework on the short term makes this future opaque, at best, and

invisible, at worst.

Fourth, I took issue with some parties' efforts to distinguish net metered generation from energy efficiency, as far as the underlying account holders interaction with the utility system and the future costs of that system. Both postpone and/or reduce the need for future utility system investment, whether that's generation, transmission, or distribution.

The future utility simply will need to convert fewer primary fuels to electricity and move less electricity over long distances because of these end-user investment decisions.

How any one such investment decision, an individual energy efficiency measure or a fuel cell investment, say, affects how much electricity that account, with whatever person is holding it, takes from the utility in any given month or year, will vary considerably.

I agree that energy efficiency investments do not produce any power for the utility. They're negawatts. But I disagree that the fact they don't produce and export electricity means that nothing in how we've looked at energy efficiency over these last three decades is relevant to net metered generation.

I also addressed Rocky Mountain Power's rate-making proposals, which were to make net metered residential accounts into a separate rate payer class and design a tariff for that class that places virtually all costs, except fuel and other small variable costs, into demand-driven charges. These proposals are premature for this proceeding, which is about a cost-benefit framework.

In summary, I'd say that -- only that both will require a lot of scrutiny, should they resurface, in a general rate case. Do residential accounts with net metering take electricity from the utility differently than any other residential customer? That's unanswerable if we only look at the net metered accounts. One will have to look broadly at all residential accounts, and not just based on overall usage levers, if we're going to be able to -- if the driver of the discrimination is alleged peak use.

If there is a separate class for residential accounts using net metering, should that tariff -- should the tariff for that class use the heavily demand charge base rate design? That will depend, among other things, on what the consequences of that are likely to be.

That concludes my summary of my direct

rebuttal testimony. Thank you.

MR. CULLEY: Thank you, Ms. Morgan. Thank you, Ms. Morgan.

And at this time I would move that Ms. Morgan's testimony be -- be entered into the record as Exhibit 1.0, 1.1, and 4.0.

CHAIR: Any objection from my party?

Hearing none, it will be entered. Thank you.

MR. CULLEY: Okay. Thank you, Mr. Chair. And this witness is available for cross-examination.

CHAIR: Thank you. Mr. Mecham?

MR. MECHAM: Again, no cross-examination, but we support Ms. Morgan's testimony.

CHAIR: Thank you. Mr. Olsen?

MR. OLSEN: We have no cross-examination at this time.

CHAIR: Thank you. Mr. Jetter?

CROSS-EXAMINATION

BY MR. JETTER:

Q. I do have a few questions. Good morning, Ms. Morgan.

A. Good morning.

Q. Starting -- I'm looking at -- get my mic on here. I'm looking at your rebuttal testimony on page 2, at lines 37 and 38, and you had said that, "Concerns

about utility financial health should not influence the development of a cost-benefit analysis framework for net metering;" is that correct?

A. That's correct.

Q. Would you apply that, then, to rate making, or would you say that -- that the process of collecting funds during a current period to pay for the current period's costs of the utility, in that scenario the financial health of the utility is important, is it not?

A. One of Bonbard's famous considerations for rate making, rate design, and rate spread is utility financial health, right up there with price signals and ease of administration, or something like that, that he puts in his list that's classically been used.

Q. That's because we like reliable electric service; is that right?

A. I'm not sure if I would say it that way. That's one of his considerations, because generally the deal is that rates are designed to recover the costs that have been found to be prudent. But they're not in a -- that's not a consideration in a what do we do next in the future. So in a -- in deciding, on the next new resource, how much money the utility is going to make off of that resource, potentially, is typically not a

factor.

Q. And so it's your testimony that you would then ignore it during the cost-benefit stage, but you would consider it during the stage where you would set rates?

A. Sure. There's two stages. That's why.

Q. You had mentioned in your opening statement, and I may misquote you here, correct me if I'm wrong, that customer own generation is changing the nature of the distribution system; is that correct?

A. I believe so, if everything I read that crosses my computer screen daily is to be believed, yes.

Q. Okay. And so you would agree that those customers are, in fact, using the distribution system differently than other customers?

A. Then, I think, to make sure we agree, we'd have to be clear about what we mean by "use." So, the level -- at a broad level, yes. If you want to get down into the particular costs of what everybody is doing, that's not where that statement would be intended to go.

Q. Okay. But if these customers are going to change how the distribution system is used, there must be something different about them from traditional

customers who are not providing energy back into the grid or having generation on site; is that correct?

A. Yes. Other customers are not providing energy to be used to serve all other customers.

Q. Finally, at the beginning of your opening statement today, you discussed there's a significant amount of uncertainty going forward; is that correct?

A. Generally speaking, yes.

Q. And so even -- even ten years out, we really don't know a whole lot about what -- what the net metering will look like, whether we'll have, for example, more folks going off the grid with batteries, whether we'll have different types of solar technology; is that correct?

A. That's correct, just as with any of the long-term resource decisions that we're making, investment decisions that the utility industry is being required to make. It's very challenging times right now.

Q. When a utility contracts for, let's say, a utility-scale solar, and they're signing a 20-year contract --

A. Right.

Q. -- for delivery of energy with a specific amount every hour, every 8,000-and-some-hours per year

for the next 20 years, that's a little bit more certain than a net metering customer's output, is it not?

A. That's been a classic concern throughout all these years of looking -- considering energy efficiency and other resources that the utility does not hands-on directly control, whether through contractual rights or physically hands on on the dials.

With those numerous resources, the more instances there are, the more you can count on the behavior that they exhibit. Certainly, the more we know about what -- the range of what the rate payer accounts with rooftop solar actually use -- I'm sure there's a minimum, there's probably a maximum, just as there are with other rate payer accounts.

The more we know about that, put that together with what Ben talked about in terms of knowing the solar, the better off we'll be in understanding. Particularly, then, if you track that over time, you will begin to get patterns that can be counted on.

Q. Thank you. I have one -- just one further question. The data is pretty critical to this, isn't it, to collect data from -- from the actual customers that are on the net metering tariff?

A. I think data -- data is incredibly important. That's why it was one of my five expectations that I

thought the Commission should set. I think that not all of that data needs to come from exactly in Rocky Mountain Power territory. Other data will probably be useful. But I would encourage processes to be put in place to begin to collect as much as possible.

And I would say that about load generally, because I think one of the things that is changing is how people are using electricity equipment and what electricity equipment they have on their premises, whether those are business premises or households. And the more we know about that, the better we will see what is happening right now, and therefore, the better we will have a sense of what's coming down the road.

Q. Thank you. And do you think it's reasonable, in light of the need for some of that data, for us to expect, or even require, customers who move into one of these net metering tariffs, to require them to allow either the regulators or the Company to actually receive that data, to come in and put in some type of measurement device to -- to track that data?

A. That would probably be a fair requirement. I -- but again, it's not going to be enough just to meter these customers and just to find out what they are doing. You need to know how they are different from everybody else. And unless you are gathering that

data from a really wide selection of everybody else, you're only going to have one side of the story.

MR. JETTER: Thank you. I have no further questions. Thank you, Ms. Morgan.

THE WITNESS: Yes.

CHAIR: Okay. Thank you. It probably is a good time for a brief break. And unless the -- either cross -- you don't expect your cross-examination lasting very long, we -- do you have any comment on that?

MS. HOGLE: Just a minute. The Company would like to take a break, yes. Thank you.

CHAIR: And since we have a pending preliminary matter to rule on, why don't we make this break a little bit longer than normal. Why don't we break for 15 minutes, and we'll come back at 10:45. We are in recess.

(Recess from 10:30 - 10:49 a.m.)

(Exhibits OCS-1R and OCS-1SR were marked.)

CHAIR: We'll be on the record. So, before we continue with cross-examination of Ms. Morgan, we'll -- we'll address the preliminary motion from Mr. Holmes.

And just as a way of a little background and information explanation, our typical practice is to

have two types of hearing, an evidentiary hearing and a -- and a public witness hearing.

Typically, the purpose of the evidentiary hearing is to allow parties to present and cross-examine on -- on evidence where there has been filed testimony, for the purpose of giving all parties the opportunity to evaluate both the qualifications, the expert qualifications, and the substance of that testimony.

We have typically allowed sworn testimony, subject to cross-examination, during the public witness hearings, and so if Mr. Holmes intends to provide sworn testimony, subject to cross-examination, you're certainly more than welcome to do that during the public witness hearing on Thursday.

Now, if -- also, though, as an intervening party, I think we're inclined to give you the opportunity, if you -- if you would like, to present unsworn, basically opening statement during this hearing, we'd like to afford you that opportunity, if -- if you'd like to choose to do so, that would not be subject to cross-examination.

So we'll give you that option, if you would like to choose that. Do you -- do you want to make that choice now, or do you want to think about it

before the next break?

MR. HOLMES: Mr. Chair, if I could think about it, I'd appreciate that, some time.

CHAIR: Okay. We will address that after the next break.

And at this point, we'll move on to Rocky Mountain Power's cross-examination of Ms. Morgan. Thank you.

CROSS-EXAMINATION

BY MS. HOGLE:

Q. Good morning again, Ms. Morgan.

A. Good morning.

Q. In your summary, I believe that you testified that the future is changing rapidly, and customers and businesses are procuring their own generation, that the grid will become the transportation system, both in and out. Do you recall that?

A. It certainly may. Yes, I do recall.

Q. I'd like to pose a hypothetical for you. In a world where all of our customers have their own intermittent resource and the utility pays a retail price for their generation, under the current net metering structure, who would pay for that transportation system?

A. So, I'm a little uncomfortable with the

hypothetical, because assuming a future that doesn't exist yet, with a present that does exist, is always pretty iffy, that you would hold something constant while things are busy changing, and there would be a lot changing along the way, to a time, if and when -- and I don't know if this is the way the change is going to be -- that most of what in the utility business we call customers, other people call rate payers -- that -- that all those buildings, let's put it that way, I'm really comfortable calling them buildings and accounts, because that makes it really easy -- that will most those buildings and accounts have their own generation or not? I don't know that that's the direction the change will go, what will be called upon from the system.

Right now, we have the system where it is all you want, whenever you want it, as far as electricity. Will that be held constant all the way into that future with all these things changing? I think it's a hypothetical I can't answer because I really can't envision it.

MS. HOGLE: I have no further questions. Thank you.

CHAIR: Mr. Culley, any redirect?

MR. CULLEY: No redirect. Thank you.

CHAIR: Commissioner Clark, anything for this witness?

MR. CLARK: No questions.

CHAIR: Commissioner White?

COMMISSIONER WHITE: No questions.

CHAIR: I don't have any. Thank you.

THE WITNESS: Thank you.

CHAIR: Anything further from the Joint Parties?

MR. CULLEY: Nothing further. Thank you.

CHAIR: Okay. Thank you. Mr. Mecham? Oh, sorry, Salt Lake City Corporation is next. If you would --

MS. BRABSON: Yes.

CHAIR: -- make your -- make your appearance.

MS. BRABSON: Certainly. Is this on? Mr. Chairman, my name is Catherine Brabson, and I am counsel for Salt Lake City. At this time, we will call Tyler Poulson --

CHAIR: Okay. Thank you.

MS. BRABSON: -- to testify.

(Tyler Poulson is duly sworn.)

CHAIR: Thank you. Ms. Brabson?

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TYLER POULSON,

called as a witness at the instance of Salt Lake City, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. BRABSON:

Q. Can you please state your name, employer, position, and business address, please?

A. Yes. My name is Tyler Poulson. I am a sustainability program manager for Salt Lake City Corporation. My office is located at 451 South State Street, in Salt Lake City.

Q. And how have you participated in this docket thus far?

A. I've participated in all of the technical workshops associated with this docket. Salt Lake City Corporation submitted public comment in February 2015, and I drafted rebuttal testimony on behalf of the City that was submitted in September 2015.

Q. Do you have any changes to your rebuttal testimony?

A. No.

Q. And if I asked you the same questions today as set forth in your rebuttal testimony, would your answers be the same?

A. Yes.

MS. BRABSON: Mr. Chairman, I would like to move to enter this rebuttal testimony into the record.

CHAIR: Any objection from any party?

Hearing none, it will be entered.

Thank you.

Q. (By Ms. Brabson) Mr. Poulson, do you have a summary statement prepared related to your testimony?

A. I do.

Q. Please present that statement.

A. So, my testimony addressed the analytical framework and process for evaluating the costs and benefits of Rocky Mountain Power's net metering program.

The City supports the framework detailed by the Joint Parties, consisting of Utah Clean Energy, The Alliance for Solar Choice, and Sierra Club. This framework consists of two analyses, a cost impact analysis and a rate impact analysis.

Salt Lake City supports this framework because it is the only framework proposal that will adequately evaluate the long-term costs and benefits of distributed solar on the utility system, while also quantifying the financial impacts of the net metering program on all rate payers.

This wholistic approach will best inform future decision on rate making and treatment of the net metering program.

Salt Lake City Corporation supports the concept advocated for by the Joint Parties that the Commission should evaluate rate payer impacts from both a short-term and long-term perspective in order to sufficiently gauge net metering outcomes and inform the best possible decisions in this docket, as well as other rate-making proceedings.

The City believes its recommendations are in line with the net metering related requirements of Utah Code 54-15-105.1, as well as the guidance provided by the Commission for this docket.

In prior notice, the Commission laid out the intent of this docket related to establishment of an analytical framework for evaluating the costs and benefits of net metering, and the City has tried to make its recommendations consistent with that guidance.

From the City's perspective, the Joint Parties have recommended an analytical framework to accomplish these stated goals, while not straying into rate design elements intended for future proceedings.

In closing, Salt Lake City Corporation supports the framework laid out by the Joint Parties

and recommends that the Commission move forward with approving this approach. We thank the Commission for supporting a careful and comprehensive evaluation of the net metering program.

Net metered systems are an increasingly important energy resource for rate payers and Utah as a whole. It is crucial to properly evaluate this resource from both short-term and long-term perspectives and allow for a comprehensive cost-benefit analysis such as that presented by the Joint Parties.

Q. Mr. Poulson, does this conclude your comments?

A. Yes.

MS. BRABSON: Mr. Poulson is now available for questions.

CHAIR: I'll go first to the Joint Parties.

MS. HAYES: No questions.

CHAIR: Thank you. Mr Mecham?

MR. MECHAM: No questions.

CHAIR: Mr. Olsen?

MR. OLSEN: No questions.

CHAIR: Mr. Jetter?

MR. JETTER: No questions.

CHAIR: Ms. Hogle?

MS. HOGLE: No questions.

CHAIR: Thank you, Mr. Poulson. Oh, I'm sorry, Commissioner Clark?

MR. CLARK: No questions.

CHAIR: Commissioner White?

COMMISSIONER WHITE: No questions.

CHAIR: Thank you.

MS. HAYES: Excuse me. I don't believe you moved the admission of his testimony.

MS. BRABSON: I did that before the summary, I believe.

CHAIR: I think we did.

MS. HAYES: Oh, I missed it. I'm so sorry.

MS. BRABSON: Thank you, though.

CHAIR: Okay. Thank you.

MS. BRABSON: Thank you, Mr. Chairman.

CHAIR: Mr. Mecham?

MR. MECHAM: Okay. Thank you. Vivint Solar calls Mr. Dan Black.

(Dan Black is duly sworn.)

CHAIR: Thank you. Mr. Mecham?

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DAN BLACK,

called as a witness at the instance of Vivint Solar, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MECHAM:

Q. Thank you. Would you please state your name, business address, and for whom you're testifying for the record, please?

A. Yes. My name is Dan Black. I am testifying on behalf of Vivint Solar. And my office address is 3301 North Thanksgiving Way, Lehi, Utah.

Q. Thank you. Did you prepare, or cause to be prepared under your direction, rebuttal testimony, which for our purposes now we'll mark as Vivint Solar 1, and -- and that's consisting of seven pages, and surrebuttal testimony, consisting of four pages, with a 27-page report titled "Shining Rewards," marked as Exhibit A, attached to your surrebuttal testimony?

A. Yes, I did.

Q. And if I were to ask you the questions in those pieces of testimony today, would your answers be the same?

A. Yes, they would.

Q. Have you prepared a short summary of your --

of your exhibits, your testimony?

A. I have.

Q. Thank you.

A. Commissioners, I appreciate the time. In my rebuttal testimony, I express Vivint Solar's support for the approach and the recommendations of the Joint Parties, Tim Woolf, Ben Norris, and Pamela Morgan.

Vivint Solar believes the Joint Parties' proposal conforms with the Commission's intent to establish an analytical framework in which to determine the costs and the benefits of the net metering program, as required by Utah Code Section 54-15-105.

I also testify that the Joint Parties' proposals appear to follow Commission precedent set forth in Docket No. 09-035-27.

By failing to account for all of the long-term benefits of solar party -- solar power, no other party in this case, other than the Joint Parties, gives solar its real value.

In the 2014 general legislative session, I was involved in the development of Section 54-15-105. During these discussions, it was clear the legislature intended for the Commission to consider all the benefits and all of the costs of the net metering program. Anything less is contrary to the

legislature's intent and the law itself.

In my surrebuttal testimony, I continue my objections to the other parties' undervaluation of distributed solar power generation. I disagree with Rocky Mountain Power's treatment of distributed rooftop solar generation as just another qualifying facility.

I support Joint Parties' witness Ben Norris's description and treatment of the differences in the value between a QF and rooftop solar power generated right where it is used.

I maintain that rooftop solar power provides benefits described by the Joint Parties that go unrecognized and undercompensated by the other parties' proposals.

In his surrebuttal testimony, Mr. Clements for Rocky Mountain Power suggests that renewable energy credits retained by net metering customers raises a question about whether net metering confers environmental benefits without compensation.

In Utah, where there is no mandatory renewable portfolio standard, there is no market for RECs, they have almost no monetary value, and they do not compensate solar power for the benefits it confers.

In Ms. -- in Ms. Steward's rebuttal testimony for Rocky Mountain Power, she states that there is no

foundation for my statement in my rebuttal testimony that Vivint Solar will have to devote resources elsewhere if the full value of solar power is not recognized here.

When a utility in Arizona persuaded the utility board there to adopt a net metering proposal similar to what Rocky Mountain is proposing in this case, Vivint Solar, along with other providers, immediately stopped expanding business in that service territory, and we deployed our resources where the value of solar power is properly recognized.

Thank you.

Q. Does that conclude your summary?

A. It does.

MR. MECHAM: And I would move the admission of Vivint Solar 1R and Vivint Solar 1SR, with Exhibit A attached.

CHAIR: Any objection from any party?

Hearing none, they'll be admitted.

Thank you.

MR. MECHAM: And Mr. Black is available for cross-examination.

CHAIR: Thank you. We'll go to the Joint Parties.

MR. CULLEY: No questions.

CHAIR: Mr. Olsen?
MR. OLSEN: No questions.
CHAIR: Mr. Jetter?
MR. JETTER: No questions. Thank you.
CHAIR: Okay. Ms. Hogle or Mr. Moscon?
MR. MOSCON: No questions.
CHAIR: Thank you.
Commissioner Clark?
MR. CLARK: I don't have any questions.
CHAIR: Commissioner White?
COMMISSIONER WHITE: No questions.
CHAIR: I had one question. You spoke some in your testimony about benefits related to clean power plant compliance.
THE WITNESS: Yeah.
CHAIR: At some point in the future, the Department of Environmental Quality will make a decision on mass based versus rate based compliance. Does that future decision impact your testimony at all?
THE WITNESS: So, while I'm certainly not an expert in quantitating the -- the cost of complying with a future plan, I do believe it should be considered as part of the Commission's analytical framework as one of the many avoided costs that solar power -- solar provides and value that it provides to

rate payers and the public at large.

CHAIR: Okay. Thank you. Thank you, Mr. Black.

Anything else, Mr. Mecham?

MR. MECHAM: No. Thank you.

CHAIR: Okay. We will go to Mr. Olsen.

MR. OLSEN: Thank you, Commissioner. We would call Michele Beck.

(Michele Beck was duly sworn.)

CHAIR: Thank you. Mr. Olsen?

MICHELE BECK,

called as a witness at the instance of the Office of Consumer Services, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. OLSEN:

Q. Thank you. Ms. Beck, could you state your full name for the record and your place of employment?

A. Michele Beck. I'm the Director of the Office of Consumer Services.

Q. In that capacity, did you create, or cause to be created under your direction, direct testimony on July 30th, 2015, labeled OSC-1D Beck?

A. OCS-1D?

Q. OCS, yes.

A. Yes, I did.

Q. And did you, likewise, draft, or cause to be drafted under your direction, rebuttal testimony on September 18th -- or September 8th, 2015, denoted OCS-1R Beck Exhibit?

A. Yes, I did.

Q. And likewise, did you cause -- create, or cause to be created under your direction, surrebuttal testimony dated September 29th, 2015, denoted OCS Exhibit 1SR-Beck?

A. Yes.

Q. If I were to ask you all the questions that were presented in that testimony, would your responses be the same?

A. Yes, they would.

MR. OLSEN: We would move for the admission of those.

CHAIR: Any objection?

Hearing none, they'll be admitted.

MR. OLSEN: Thank you.

CHAIR: Thank you.

Q. (By Mr. Olsen) Ms. Beck, do you have a summary for the Commission?

A. Yes, I do.

Q. Proceed, please.

A. Certainly. Good morning, Chairman LaVar, Commissioners Clark and White. As you know, the Office has a statutory duty to represent residential and small commercial customers. Today I will present the Office's policy position in this net metering case.

In my testimony, I began by identifying two important policy considerations that were underlying principles used by the Office in developing its position.

These considerations are, first, consistency with Commission guidance regarding the types of costs and benefits to include. The Office only includes costs and benefits that are reasonably quantifiable and verifiable.

And second, use of the proper time horizon. While we propose a cost-benefit analysis that measures impact to the utility over the long term, for informational purposes, we assert that it is important to measure impact to customers over a shorter term. This shorter term evaluation helps to avoid intergenerational inequity and is more reflective of the time horizon used to set rates.

The Office presented most of the technical details of its proposal through our expert witness, Phil Hayet, from whom you will hear later today.

I rebutted the conclusion of one proposed benefit. The Office asserts that it would be inappropriate to include the value of expiring net metering credits in assessing the impact of the net metering program. To do so doesn't reflect the manner in which these credits are actually used or the operations of the low-income program to which credits are assigned. To do so may also provide incentive to oversized net metering systems.

My testimony also addressed some rate design considerations. However, the Office is not proposing or supporting any particular rate design outcome in this proceeding and believes that they properly belong in the step two identified by this Commission, which will likely occur in the next general rate case.

For example, the Office believes that the Company's net metering research will be presented in the next case and will provide important evidence for examining the ways in which net metering customers are different from those who have adopted energy efficiency measures to lower their demand.

We do disagree with the Joint Parties that numerous customer inequities currently exist in rates, and that inequities caused by net metering should be evaluated in that kind of context.

While the Office agrees that no one program should be held to a strict standard of absolutely no cross-subsidation -- subsidation -- sorry, I said that twice -- we disagree that small rate impacts should simply be ignored.

It is my experience that many, if not all, of the issues the Office pursues on behalf of small rate payers are relatively small in magnitude. However, absent oversight and scrutiny, these small rate impacts would quickly add up to significant dollars.

In summary, the Office has proposed a framework for analyzing the costs and benefits of the net metering program on both the Company and other non net metering -- non-net metering customers, as required by the statute.

The Office has appropriately identified all costs and benefits that meet the requirement of being reasonably subject to quantification and verification. We recommend that it is important to use a short-term analysis in this step one in making the determinations that will lead to step two.

The short-term analysis proposed by the Office is consistent with the time horizon used in setting rates, which will be applicable in step two when the Commission determines a just and reasonable

charge, credit, or rate-making structure.

A further and important advantage to the short-term analysis we propose is that it can and will be updated over time as new rates are set. This allows the analysis to capture changes in the underlying assumptions, including new costs and new benefits that emerge over time.

Finally, the Office also believes it is reasonable to conduct a longer term study for informational purposes to assess the overall value of the net metering program. And that concludes my summary.

MR. OLSEN: Thank you. Ms. Beck is available for cross-examination.

CHAIR: Okay. I think it would be appropriate to change the order a little bit of cross-examination to avoid the friendly cross to go -- with the next three parties, to have the Division, Office, and utility to cross-examine first, followed by --

MS. HAYES: All right.

CHAIR: -- the other parties. Any objection to moving forward in that order?

Okay. So we'll go to Mr. Jetter.

MR. MECHAM: Mr. Chair, I would -- are you

going to have the Joint Parties go before me?

CHAIR: Is there a preference?

MR. MECHAM: It would reduce or eliminate what I had if they go before I do.

CHAIR: Okay. I'll certainly do that, then.

Mr. Jetter?

MR. JETTER: No questions from the Division. Thank you.

CHAIR: Okay. From the utility?

MS. HOGLE: No questions.

CHAIR: Okay. Thank you. From the Joint Parties?

CROSS-EXAMINATION

BY MR. RITCHIE:

Q. Just a couple of questions. Good morning, Ms. Beck. How are you?

A. I am well, thanks.

Q. Travis Ritchie with the Sierra Club.

A. Hi Travis, Mr. Ritchie.

Q. So, just a few questions. You mentioned, I think, at the end of your testimony and at the end of your statement that a long-term study would be useful for informational purposes; is that correct?

A. Yes, it is.

Q. And do you think that the present value

revenue requirement analysis presented by the Joint Parties is that type of long-term study that could provide useful information?

A. Well, we recommend the long-term study as outlined by Mr. Hayet. And there are -- as he observed in his rebuttal testimony, there are certain similarities to yours, although some of your witnesses disagree with him that we have similarities. So I don't feel like I'm qualified to answer whether it would or would not serve the purpose.

We recommend the study that we proposed. And I think Mr. Hayet would be a better witness for evaluating the similarities and differences, because clearly that we don't have a shared understanding.

Q. If I could ask about the long-term study that you envision and whether it's the Joint Parties' or another one. You mentioned consistency and wanting to have quantifiable and verifiable cost inputs going into -- into all of the studies; is that correct?

A. Yes.

Q. So, speaking to the long-term study, is it correct that the Office believes that issues like environmental compliance costs, direct costs, to comply with environmental regulations, is something that that type of long-term study should consider?

A. So, I guess -- I'm going to answer, but I want to suggest that the details of our -- of our proposal are in Mr. Hayet's testimony. But I will say this. To the extent that they are quantifiable and verifiable, then we support their inclusion.

Q. And do you think that lost revenue should be included in that type of long-term study?

A. Yes, to measure impacts on non-net metering customers, absolutely.

Q. And speaking just to the long-term study again at this point, are lost revenues quantifiable and verifiable over a long time period?

A. I think they're as quantifiable and verifiable as any other projection.

Q. So you would agree there's some uncertainty with what those would be over the long term?

A. I would agree that all projections contain uncertainty.

Q. Now, moving on a little bit, Ms. Beck, I believe you said that -- let me rephrase the question.

Is it correct that the legislature in the statute in giving direction for this docket, do they require the elimination of interclass cost shifting --

A. No.

Q. -- related to net metering? Sorry. I'll let

you answer.

A. No.

Q. And would -- would that goal, do you think, of eliminating residential interclass cost shifting be a reasonable goal?

A. Well, I think that I characterized it fairly clearly and exactly the way I want to in my testimony and in my summary. And we do not think that cross-subsidation needs to be eliminated to absolute zero. I mean, that would result in, you know, one rate class per one customer. I mean, it eliminates the idea of average rate making.

But it would be a reasonable goal to eliminate the majority of cross-subsidation. I mean, it's -- we tend to want to pursue rates that are set based on cost causation.

Q. Now, speaking of lost revenues again, do you believe that utility's lost revenues increase the utility's cost of service to its customers?

A. I believe that when the utility loses revenues from one subset of customers it increases the costs collected from another set of customers. It does not typically, depending -- again, we may have to more carefully define terms, but it does not typically increase the Company's revenue requirement, but it does

increase costs to other customers.

Q. Thank you. And one final topic. I believe it's correct you said that rate design -- it's not the Office's position that rate design is at issue in this proceeding; is that correct?

A. That's correct.

Q. And you mentioned that additional information from the utilities -- that should be provided by the utility would be necessary before moving to that step; is that correct?

A. I agree.

Q. Do you envision that in a subsequent phase of this proceeding, or do you envision that as a part of a rate case going forward?

A. I envision that the -- the evidence on which rate design would be determined would be presented in a general rate case, not part of this proceeding.

But I also think that the Commission has a lot of discretion, so if they want to define the proceeding in a different way or some interim proceeding, I think that would be within their ability.

Q. And when that rate design happens -- let's assume, for instance, that the Company -- the net metering facilities charge similar to what the Company had previously proposed is something that's proposed.

Does that type of rate design send a price signal to customers, and specifically to net metering customers?

A. That's a difficult question for me to answer. When I started in this business 20 years ago, fresh out of grad school, studying economics, I would have instantly said, "Yes, it does provide a price signal."

Since then, I have learned that -- that residential customers don't receive price signals in the same way that larger customers do. So it does, theoretically, provide a price signal. To what extent that price signal would actually be received and acted upon, I think would be -- would depend very much on the specific rate design, the -- the magnitude of any proposed changes, and -- and I think a whole other set of circumstances, in terms of what kind of customer, how much do they pay attention. So I think that the signal it sends will be mixed because of the level of understanding on the part of customers.

Q. Do you think it's fair to say that there are at least some customers, potentially, those who are paying attention and who are engaged, that would interpret that as a price signal?

A. Depending on the magnitude, yes.

Q. And do you think that that could affect the acquisition of net metering as a resource by some of

those customers?

A. Well, to be perfectly honest, that is not a question that I've contemplated. It's not really inside the duties as laid out for our Office in our statute. So we -- you know, we're -- we're charged with evaluating rate impacts on residential and small commercial customers, not evaluating the impacts on other segments of our economy.

Q. Do you think that the level of acquisition of net metering as a resource could impact the cost and benefits of net metering to the utility system?

A. Yes.

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

CHAIR: Thank you.

Mr. Mecham?

MR. MECHAM: Thank you.

CROSS-EXAMINATION

BY MR. MECHAM:

Q. Good -- good morning --

A. Good morning.

Q. -- Ms. Beck. How are you doing?

A. Doing well. Thank you.

Q. I've just got one or two questions here. In your rebuttal testimony, at lines 154 through 156, you

state that the Office's views have evolved and that you no longer support the concept of small-scale renewables to be evaluated on an ESM basis. Do you see that in your testimony? It's page 7 of your rebuttal, lines 154 through --

A. Right. Yes, I see that.

Q. What accounts for that evolution? And the reason I ask is because in that 09-035-27 docket, didn't the Office support that, fairly adamantly, in a memorandum?

A. Well, again, our -- our views evolved. And so what accounts for that? Any number of factors. I think -- I think it's perfectly reasonable to evaluate technology or programs when they're in their early adoption, pilot type phases on a different basis than when you start to see a more significant penetration. So that would be one of the elements that we looked at, is -- is -- is that level of penetration.

I think we didn't have a lot of experience with these kinds of -- of analyses when we wrote those comments. And when I say "these kinds of analyses," I mean analyzing small-scale renewable.

So we -- we hadn't done in -- we had -- we did not have in-depth experience, and we had not done in-depth research to evaluate what other alternatives

there are.

As net metering has emerged as a more, I guess, hot topic here in Utah, we've done a lot more research on that and then evaluated what other options for -- for analysis exist. Those are some of the factors that has led to the evolving position.

Q. So did it just have a different result than what you anticipated back in 2009, or...

A. I can't say that we anticipated anything in particular in 2009, so no, it's not result driven.

Q. Okay. And is it the Office's view that any benefit suggested here should be quantified in this proceeding right now?

A. No.

MR. MECHAM: Okay. Thank you. That's all I have, Mr. Chair.

CHAIR: Thank you.

Any redirect?

MR. OLSEN: No. Thank you.

CHAIR: Okay. Commissioner Clark?

COMMISSIONER CLARK: No questions.

CHAIR: Commissioner White?

COMMISSIONER WHITE: Yes, just one question. With respect to the long-term cost-benefit analysis, does the Office have an opinion as to how that would

work in terms of timing, coordination with, I guess, the second part of the statute requirement for rate making? Was it supposed to be an ongoing kind of investigative docket that would serve as a check?

THE WITNESS: Well, we think that this long-term evaluation for informational purposes most likely only needs to be conducted one time. You know, if it -- if it showed that costs exceed benefits over the long term, I'm not sure what anyone would do, since net metering is in statute. But I presume that it would be taken to policy makers, you know, with, perhaps, recommendations.

If it shows that there are benefits over the long term, then I think we'd proceed, but from there on out, we'd just need to set rates, and so at that point it would be our recommendation that it would be the short-term analysis that would need to be conducted on a regular basis as part of adjusting and resetting rates.

COMMISSIONER WHITE: So, for the -- for purposes of the -- if, for example, Rocky Mountain Power were to propose a rate structure charge such, or would this -- would this occur in advance of that, the long-term study, or are you -- this would just be, again, something in a separate docket or proceeding

that would potentially be used as a...

THE WITNESS: Well, so, I didn't include that, our process recommendation, in my summary because I know it's not well received among my colleagues, and we don't feel strongly about it.

But it is our view that -- that -- that the specific costs and benefits and the methods for it, and even potentially filing requirements, as suggested by Ms. Morgan earlier, should come out of this proceeding.

And we appreciate very much the questions that were asked, the prehearing questions that were asked by the Commission, to help focus the thinking on that, and Mr. Hayet will have a specific response to that.

And so to extent your evidence isn't sufficient, we do think that a second phase here so we can all kind of comment on that and come to a clear shared understanding would be useful, although we don't feel strongly about that. So that recommendation was just that, just a suggestion.

We think that this long-term study could come in the next rate case, but also as I said earlier, I -- I believe you have broad discretion, and it may be that you think it would be -- aid an efficient process to ask for that to come in in advance of the rate case.

We do always have plenty of issues that we're covering inside a rate case, so, you know, that might be a challenge, but absent you setting something else up, then I would envision that's where it takes place.

COMMISSIONER WHITE: Thank you. I have no further questions.

CHAIR: Okay. Thank you.

I have one question. This question, I'd like to ask your opinion on an issue that I don't believe you addressed in your testimony, so feel free to object to the question on that basis, but Mr. Jetter earlier this morning asked Ms. Morgan her thoughts on regulatory options to increase production meter data from net metering customers. Do you have any opinions or thoughts on that issue?

THE WITNESS: Well, I -- I thought that was a very interesting question and was -- and haven't -- I haven't considered it coming in. And I -- I want to -- I would want to consider further any privacy implications. And I presume that those could be addressed with protocol.

But I -- I do believe that it has been frustrating to the Company to -- and to us, who want the data, to get the data, because I know that the Company has struggled -- and I'm sure you'll ask them

this question as well and they'll have more specific information -- but they've struggled getting enough net metering customers to agree to put the -- the meters on their system so that we can get a statistically significant load data study.

So I do find it to be disingenuous of parties -- and I'm not making this accusation of our Joint Parties in any way, but it's disingenuous in general when parties say, "Well, we need data. We need data." And then they refuse to participate in programs that would get data.

So, again, I know that our Joint Parties here are not in a position that they're directly connected to the people making those decisions, but I think that -- and this is, I'm sorry, a little wandering and a little nonresponsive, but I think it's an issue that I would hope the Commission would carefully consider and potentially pursue.

CHAIR: Okay. Thank you. That's all I have. Thank you, Ms. Beck.

Mr. Olsen?

MR. OLSEN: I have nothing further for this witness.

CHAIR: Okay. Continue with your next witness.

MR. OLSEN: Okay. Thank you. I'd like to call Phil Hayet.

(Phil Hayet was duly sworn.)

CHAIR: Thank you. Mr. Olsen?

PHIL HAYET,

called as a witness at the instance of the Office of Consumer Services, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. OLSEN:

Q. Mr. Hayet, could you state your name for the record, and your place of employment, and for whom you are testifying today?

A. My name is Phil Hayet. I work for J. Kennedy & Associates. My address is 570 Colonial Park Drive, Suite 305, Roswell, Georgia, 30075.

Q. Mr. Hayet, did you --

COMMISSIONER WHITE: You have a green light.

THE WITNESS: Should I repeat that, or...

CHAIR: Does he need to repeat that? I'll ask the court reporter.

COURT REPORTER: No.

CHAIR: Okay. Thank you.

MR. OLSEN: Thank you.

Q. (By Mr. Olsen) Mr. Hayet, did you draft

testimony in this docket, specifically direct testimony, on -- dated July 30th, 2015, with exhibits, including your qualifications and illustrative examples of net metering impacts, which are labeled, respectively, OCS-2D, Exhibit OCS-2.1D, and OCS-2.2D? And on September 28th did you prepare, or cause to be prepared under your direction, rebuttal testimony, which is labeled as OCS Exhibit 2R Hayet? And on September 29th, 2015, surrebuttal testimony on September -- dated September -- labeled OCS Exhibit 2SR-Hayet, along with an illustrative example of net metering impacts, labeled Exhibit OCS-2.1SR?

A. I did, but I may have heard something that -- if I heard this wrong, I apologize, but I may have heard you say September 28th for the rebuttal testimony. It was September 8th --

Q. September 8th.

A. -- but I -- I'm not sure if I heard that correctly.

Q. Yeah. Thank you. If I said September 28th, it was an error on my part, I'm sorry.

Did you create those -- did you prepare those documents, or cause them to be prepared?

A. Yes, I did.

Q. If I were to ask you the questions that you

were posed and answered in those various submittals, would your answers be the same?

A. They would.

MR. OLSEN: We would ask that the direct rebuttal and surrebuttal testimony, along with the relevant exhibits, be admitted at this time.

CHAIR: Any objection from any parties?

Hearing none, they'll be admitted.

Thank you.

Q. (By Mr. Olsen) Mr. Hayet, are you familiar with the exhibit which we discussed earlier in these proceedings that is the matrix prepared by Rocky Mountain Power, labeled PHC-1SR?

A. Yes.

Q. Do you have any corrections or observations about the characterizations that the Company made regarding the positions of the Office?

A. I have some minor -- minor adjustments that I would like to make to some of the items that are included in the matrix.

Q. Would you proceed with those?

A. Yes. I have four items that I would like to address. The first item is regarding time frame. And I know that there's a very small amount of space, and the attempt here was to be very succinct; however, I

would use the following to characterize the OCS position.

If the objective were to determine long-term impacts on the utility, we believe a long-term evaluation of cost-benefit impact should be performed on a one-time basis for informational purposes. But to calculate costs and benefits, particularly on net metering customers, a short-term study should be performed.

Next, distribution costs. We believe that distribution costs should be included; however, the distinction that we make is that we believe that they would be insignificant, essentially zero.

Avoided distribution costs. Once again, we believe they should be included; however, we believe that they would be insignificant, essentially, zero.

Avoided cost in environmental compliance. Once again, we believe in the formula, in the calculation, we believe that there needs to be a place holder for avoided costs of environmental compliance. In other words, we believe it should be included, but only if it is found to be quantifiable and verifiable. And I have more that I'm going to have to say on that in my summary.

Q. Do you have any further modifications to

Exhibit PHC-1SR?

A. No, I do not.

Q. Thank you. Have you prepared a summary for the Commission today?

A. Yes, I have.

Q. Could you proceed, please?

A. I think I can still say good morning, Commissioners. I have sponsored the Office's recommended analytical framework for determining whether the benefits exceed the costs of the Company's net metering program.

The framework that I proposed in my direct testimony included identifying the appropriate costs and benefits to use in the analysis, determining the appropriate time period for the analysis, which could vary, depending on study objectives, and computing the net benefits by subtracting the costs from the benefits.

I emphasized that to meet the Commission's requirements the costs and benefits considered in the analysis had to be quantifiable and verifiable. I noted there is a difference -- and this is important -- there is a difference between studying the costs and benefits of distributed generation and studying the benefits of net metering, which is a rate design

matter.

Our primary recommendation is for the evaluation of the costs and benefits to be performed over a short-term horizon, as it better matches the time horizon upon which rates are set. However, I also noted that we would not object to the evaluation also being performed over a longer-term horizon, for informational purposes, on a one-time basis, not for determining inputs that would be used for setting rates, charges, or credits, but for the evaluation of the benefit to customers as a whole.

The evaluation that I propose would basically be the same, regardless of whether a short-term or long-term evaluation is performed. The only difference would relate to the study length and inputs used in the analysis. The evaluation would require performing two analyses, one with and one without net metering customers.

In the rebuttal testimony of the Joint Parties, it was clear that the difference really came through as to the position of the parties. Contrary to the view of the Joint Parties, I believe that the cost impact should be studied on the Company as a whole, with all residential customers, and individually on the subset of net metering residential customers and

non-net metering residential customers.

By contrast, the Joint Parties insist on only determining whether the benefits exceed the costs on the Company as a whole. That is the key point in this in their position.

I do not believe the Joint Parties' framework meets the requirements of the statute. The Joint Parties steadfastly refuse to also determine whether the benefits exceed the cost to non-net metering customers.

Pay attention -- I recommend that you pay attention to the words that the Joint Parties use. They indicate that they would do a two -- a two -- would do two analyses. One analysis would be the cost impact on the utility where they look at the dollars. And then the other impact -- the other analysis would be a rate impact analysis where they say they would give you an indication of the impact on non-net metering customers.

There is a difference between giving an indication of impact on non-net metering customers and telling you the cost and benefit, and calculating the difference in costs and benefits to the net metering and non-net metering customers. They don't provide that information in their analysis. They don't discuss

it in their testimony.

My framework examines both. And because I also evaluate impacts on non-net metering customers, I am able to demonstrate how non-net metering customers in -- how the net metering customers cause fixed costs to be shifted from net metering to non-net metering customers.

In the evaluation of the framework that I performed, I demonstrated that the costs that non-net metering customers incur exceed the benefits they receive from PacifiCorp's net metering program.

And here's another important point. Through both my rebuttal and surrebuttal testimonies, I also demonstrated that the non-net metering customers are harmed, using the same evaluation that the Joint -- the Joint Parties perform, using its framework, using its assumptions. You can see the same thing, that the -- the non-net metering customers are harmed, there is a cost shift.

Furthermore, based on the costs and benefits that I recommend being included in the Office's framework, and based on the magnitude of the costs and benefits that I believe would be reasonable to use in the cost-benefit analysis, I found that the rate impact result may be more consequential than what the Joint

Parties would have the Commission believe.

You have to accept, in the Joint Parties' analysis, their assumptions to believe the results they have. And they say that they are hypothetical assumptions. They're indicative assumptions. You have to accept all the costs and benefits that they have included, which I disagree with. But to -- to include all of those, they achieve the results that they do. And I show, even with all of those results, there are still harms to the non-net metering customers.

At this time, we would like to offer a hearing exhibit. Do you want me to -- and that concludes the summary portion.

Q. Thank you. So, do you -- Mr. Hayet, are you aware of the September 21st, 2015 prehearing notice that was prepared by the Commission --

A. Yes, I am.

Q. -- regarding the nature of -- directives regarding how -- the kind of information they expected to be produced?

A. Yes, I am.

Q. Have you prepared a -- have you prepared a summary of that, of our positions --

A. Yes.

Q. -- regarding that?

A. Yes. I believe it's a hearing exhibit that I would like to provide.

Q. Well, we'll -- if the Commission wishes, we'll -- that you've committed that to writing as well?

A. Yes.

Q. Then I'll --

A. I could give a summary.

Q. -- submit it at your discretion. Do you want to do it now, or...

CHAIR: Yeah. Are you making that motion to submit it, or --

MR. OLSEN: I was going to -- I'm going to wait until after he's done testifying --

CHAIR: Okay. Why don't you move forward, then.

MR. OLSEN: -- but I'll do it -- probably for ease of -- for utility, we'll do it -- to use a phrase, we'll do it now, so that the other parties have an opportunity to review it while he's testifying.

CHAIR: Okay. Why don't you pass it out, and then I'll see if there's any objection to entering it.

Does anyone need time to decide if you have any objection to entering this as an exhibit?

MR. MECHAM: Mr. Chair, what's the objective of this?

MR. OLSEN: Well, Your Honor, Mr. Chair, what -- all we were attempting to do was -- my -- our expectation was that he would read these into the record, and then this would just simply be a written recitation of what his testimony was for latter review, if you wanted it. That was the sole reason for presenting it. But we would like him to testify too. Perhaps why don't I just ask him to continue the testimony, and then we could --

CHAIR: Yeah, why don't we go forward with testimony --

MR. OLSEN: Yes.

CHAIR: -- and then we'll deal with -- if you want to make a motion to admit it, we'll deal with it at that time.

MR. OLSEN: That -- let's do that. Thank you.

Q. (By Mr. Olsen) Could you provide the Commission with a summary of your results?

A. Yes. Essentially, the objective of this is to address the prehearing questions that the Commission laid out for the parties to think about when we committed this to -- to writing.

The Commission requests the parties to be prepared to testify at hearing in the following

matters: What tools, in part -- what tools, example grid, that the parties recommend using for valuing each metric in the framework the Party is advocating.

Number two, to the extent a new tool will be required in order to implement a party's recommendation, specific recommendations as to how the tools may be feasibly designed.

And three, the period of time the party recommends analyzing for each component of its recommended framework, including whether such period is historic of forecast, and the duration of the period to be analyzed.

And we have responses to each of these questions. And in addition to that, we have additional information covering the costs and benefits that we believe should be included in the framework.

Q. Would you proceed with that now, please?

A. Yes. Number one, what tools the parties -- the party recommends for -- using for valuing each metric in the framework the party is advocating.

The tools that would be used in valuing the metrics would include Excel, the company's class cost-of-service model, and the Commission approved avoided cost models, which includes the use of grid.

In addition, the Company may need to conduct

some evaluations using T&D planning tools that already are in use at PacifiCorp.

Number two, to the extent a new tool will be required in order to implement a party's recommendation, specific recommendations as to how the tool may be feasibly developed.

The Office does not anticipate that new tools would need to be developed. Tools that already exist would be adapted for use in the analysis. For example, the Company would need to separate NEM administrative costs from the cost-of-service service study. And while that would not require a new tool to be developed, it could require a spreadsheet analysis to be performed.

And number three, the period of time the party recommends analyzing for each component of its recommended framework, including whether such period is historic of forecast, and the duration of the period to be analyzed.

Our recommendation is for the evaluation of the impact to non-net metering customers to be performed or -- over a short-term horizon, such as one year, as it better matches the time horizon upon which rates are set. However, we would not object to the evaluation also being performed over a longer term

horizon, but for informational purposes, on a one-time basis, not for determining inputs that we -- that will be used for setting rates, charges, or credits.

And then I -- I address the costs and benefits that we believe should be included in the analysis.

The program administrative costs. This includes costs associated with setting up new customers, engineering support, metering, billing, and other customer support.

In a short-term analysis, these net metering administrative costs should be developed based on information found in PacifiCorp's most recent cost-of-service study, which relies on information PacifiCorp tracks in its FERC accounts.

For a long-term analysis, PacifiCorp would have to derive administrative costs consistent with a long-term economic evaluation.

Integration costs. This addresses the need, the increased need, for operating reserves, regulating and flexible reserves, caused by intermittent resources. The Office recommends PacifiCorp use the same solar integration costs as used to develop Commission approved Schedule 37 QF, Avoided Energy Cost Estimate.

Distribution costs. And again, there is a corollary to distribution costs found under benefits. It is possible that utilities would incur increased distribution network costs due to altered power flows that occur on the distribution system. However, these costs are difficult to analyze and are likely to be insignificant.

Over time, circumstances could change, and these costs could become more significant. Models used in PacifiCorp's distribution planning department could be used to assess these costs.

Lost revenues. Lost revenues due to net metering result in fixed costs being shifted from net metering to non-net metering customers. In a short-term analysis, these fixed costs should be developed based on information found in PacifiCorp's most recent cost-of-service study, which relies on information PacifiCorp tracks in its FERC accounts.

For a longer-term analysis, PacifiCorp would have to derive fixed costs consistent with a long-term economic evaluation.

In order to evaluate the impacts of lost revenues, it's important to identify impacts on net metering and non-net metering customers separately in the cost-benefit analysis.

Benefits. The Office -- avoided energy costs. The Office recommends using the same technique used to develop Commission approved Schedule 37 QF Avoided Energy Cost Estimate. The method uses a differential production cost approach and relies on the grid model. PacifiCorp's avoided costs include both short-term and long-term avoided energy costs.

Avoided capacity costs. Again, the Office recommends using the same technique used to develop Commission approved Schedule 37 Avoided Capacity Cost Estimates. The approved method accounts for sufficiency and deficiency periods and accounts for the capacity contribution of solar resources.

The Office recommends using 34.1 percent, which was determined to be the capacity contribution value associated with fixed tilt solar QF resources, as ordered by the Commission in a recent decision associated with Schedule 38 avoided costs.

Avoided transmission costs. A load flow analysis could be performed to determine if transmission costs could be avoided with net metering. Based on the load flow analysis, the Company could determine the magnitude of the costs that might be avoided by the distributor generation resources.

However, there may be a simpler

alternative -- there may be simpler alternatives that the Company could employ that would lead to similar avoided transmission costs that could be used as part of the framework.

Avoided distribution costs. This is a potential benefit that could possibly occur from PacifiCorp incurring lower distribution costs as a result of having distributed generation. As noted earlier, these distribution costs are difficult to analyze and are likely to be insignificant.

Over time, circumstances could change and these costs could become more significant. Models used in PacifiCorp's distribution planning department could be used to assess these costs.

And we're getting to the finish line. Avoided T&D line losses. These avoided costs are quantifiable and verifiable, and the Office recommends that PacifiCorp rely on a fixed percentage estimate, such as what the Company uses in rate making analyses. The same estimate could be used in both short-term and long-term studies.

Avoided environmental compliance costs. The Office supports including quantifiable and verifiable avoided environmental costs. It must be emphasized that avoided environmental costs should be -- should

only be included if it can be demonstrated that the cost could be avoided by the distributed generation resources.

For example, at the present time, the Office does not believe that potential benefits associated with Utah's compliance with EPA 111(d) regulations could meet these requirements. However, if these conditions could be met at some future time, then the Office believes they should be included in the framework at that time.

Q. Does that conclude your summary?

A. Yes, it does.

MR. OLSEN: At this time, I'd move to admit the written portion that he was -- that the witness just did regarding the tools to be used as Hearing Exhibit, I guess, 1, however you would denote it.

CHAIR: Any objection to that motion?

MR. MECHAM: After having read it completely into the record, I'm not sure it needs to be, but no objection.

MR. RITCHIE: Just one minute. No objection to putting it into the record.

CHAIR: Okay. Thank you. It will be admitted OCS Hearing Exhibit 1.

MR. OLSEN: Thank you. Mr. Hayet is

available for cross-examination.

CHAIR: Thank you. Mr. Jetter?

MR. JETTER: No questions from the Division. Thank you.

CHAIR: Thank you.

Ms. Hogle or Mr. Moscon?

MS. HOGLE: No questions from the Company. Thank you.

CHAIR: Okay. From the Joint Parties?

MR. RITCHIE: Thank you, Commissioners.

CROSS-EXAMINATION

BY MR. RITCHIE:

Q. Mr. Hayet, how are you doing today?

A. Very good, thank you.

Q. I'm Travis Ritchie with the Sierra Club. I'd like to start off asking a question where I finished with Ms. Beck before, and that is with respect to rate design and price signals.

Do you believe that a rate design for net metering customers that imposed a facility charge or something similar could send a price signal to those customers?

A. I'm not sure I'm going to provide you with a different answer than you already received from Office witness Beck.

Q. Do you recall what that answer was?

A. Yes, that it's -- it's -- depends on the -- the design. And I agreed with her point about -- I would have thought the same thing, that -- that rate design does send signals, would send signals.

But in the case of a residential customer, it's debatable and it depends on the magnitude of the signal, how much they pay attention, which customers specifically there are of the -- of the residential. So it's not clear that it would or would not.

Q. Based on your experience in the utility industry and looking at rate design, isn't it true in your testimony that you said part of the function of rate design is to send a price signal?

A. Can you show me that in my testimony so I know the context?

Q. I believe I can. In your rebuttal testimony, at page 4.

A. Which line are you on?

Q. Bear with me. I'm sorry, bear with me. I may have that page wrong or the wrong set.

MR. OLSEN: It's at line 86.

Q. (By Mr. Ritchie) We can start here with line 86. I think in lines 84 through 86 you were quoting part of Ms. Steward's testimony and saying that: Rate

designs cannot be completely separated from evaluating net metering costs and benefits because -- and this is quoting Ms. Steward -- it's how customers receive price signals and compensation for distributed generation.

Did I read that correctly?

A. Yes.

Q. So, based on that assessment, do you believe, in your experience in the utility industry, that customers receive price signals and compensation for distributed generation through rate design?

A. I'm sorry. Based on this, this is saying that rate design cannot be separate from evaluating net metering costs and benefits. Now, from that, I'm to answer your question?

Q. The question there was -- because based on that inability to separate, because it sends price signals, it can't be separated from the costs and benefits. Do you agree that --

A. It doesn't say "price signals."

Q. So you don't agree with that statement?

A. No, I didn't say I don't agree with the statement. I agree with the statement. I wrote the statement. I wrote that I agree with Ms. Steward.

But I think you're -- you're jumping -- using this and jumping into an area of price signals. And I

think certainly Ms. Beck addressed the policy issues such as that.

Q. I think what I'm getting at here is, isn't it true that sending price signals is one of the fundamental principles of rate design?

A. I think that there's -- that certainly is an objective of rate design, and I think that certainly does have a large impact on it, depending on the customers that you're talking about.

Industrial customers, it would have a different impact, perhaps, than residential. And I think that's a point Ms. Beck made, which is that it's not clear that -- that rate signals, depending on -- it depends on a whole host of factors, but it's not clear that the price signals are received and acted upon by residential customers in the same way as other customers, and I agree with that.

Q. I believe Ms. Beck also followed up to say that with a particular customer, if you had a residential customer who was paying attention and who was interested in such things, that if the magnitude of the price signal was sufficient, that that could send a price signal to that customer. Do you agree with that?

A. I -- I recall her saying that, yes.

Q. And do you agree that that price signal could

impact whether or not that customer decides to acquire the resource?

A. I think it could, but I think it depends on other factors as well.

Q. Now, Mr. Hayet, I believe you said, or the Office has testified here, that the long-term -- a long-term study would be useful information for the Commission to consider; is that correct?

A. Yes.

Q. Okay. Now, speaking just to that type of long-term information -- or long-term study, is the type of information provided by the Joint Parties in their present value revenue requirement assessment the type of study that could provide useful information?

A. No.

Q. You don't believe that it would provide any useful information to consider the present value revenue requirement difference of a system with net metering compared to a system without net metering?

A. Well, that's a different question. You're saying would it provide any useful information? I think it would. Is it the information of a long-term study that I think should be provided to the Commission? No.

Q. Sorry if it was unclear. I'm not asking you

to adopt Joint Parties' recommendation, that's clear. I'm saying would it provide some useful information to the Commission and parties in this proceeding?

A. It could. But I certainly would like to clarify that there's information that's definitely missing from the Joint Parties having to do with impacts on, not just the Company, but impacts on the net metering and non-net metering customers, and providing indications of is insufficient.

Q. And those impacts are a result of the reduced contributions to fixed costs that come from net metering; is that correct?

A. Those impacts are fixed costs that have to be, by rate design, by the current rate design, have to be shifted from the net metering to the non-net metering customer.

And because of that, while the utility may appear to be getting a big benefit, the net metering customers are getting a benefit, but the non-net metering customers are being harmed.

Q. Now, and that's a result of the Utility recovering the lost revenues when they adjust rates in a rate case; is that correct?

A. That is correct.

Q. So between rate cases, that harm is not

compounded, correct?

A. Well, I -- I find that hard to -- I don't -- I could say technically, maybe, you're talking about a lag. However, rate cases happen frequently, and given that they're happening frequently, we -- and I would -- given that they happen frequently, the answer is that that is addressed pretty darn quickly.

Second, I would say that both my analysis and Mr. Woolf's analysis both adopted the same idea, that the cost shift would occur, and that it would happen -- that any costs that were -- that were avoided by the non-net metering customer -- by the net metering customer would be shifted to the non-net metering customer.

Q. And I'm sorry, you just said Mr. Woolf's testimony also recognized that; is that correct?

A. Yes. Yes.

Q. So Mr. Woolf did address the impact to the non-net metering customer due to that cost shift; is that correct?

A. No. No, no. You're mixing up -- I'll have to clarify what I'm saying. You might recall that in my rebuttal testimony I went through and I analyzed Mr. Woolf's own testimony. And I took the same exact analysis that we performed using our framework. I

performed it with our assumptions, I used it through Mr. Woolf's, and I was also able to show that there is a cost shift taking place using the framework, if you show certain results that Mr. Woolf is steadfastly refusing to show.

In the surrebuttal testimony, I took Mr. Woolf's own analysis, I added a few lines to it, and once again, I showed that non-net metering customers have costs that are shifted to them through the framework that Mr. Woolf is demonstrating.

So, for that reason, I say Mr. Woolf's analysis has it. It can be shown through Mr. Woolf's analysis. He's -- he's dogmatically saying, "We are not going to show it." And he is saying that -- that he can give an indication of, but that is not the same thing as calculating the costs and the benefits and doing the subtraction, which I do to our framework, and I did taking Mr. Woolf's framework and applying the same exact thing that we did in our framework.

Now, if they were to -- if he were to adopt those additional calculations that I performed, a few lines that I added to his evaluation, it might be a different matter, but there's a refusal to include those lines.

Q. So I'm a little confused here on when you say

there's a refusal. Are you saying Mr. Woolf refused to acknowledge that cost shift is going on?

A. No, I'm not. Mr. Woolf's testimony here, he did say a cost shift. Then he said that to -- to evaluate that cost shift he can give an indication of, a way of giving an indication of how that cost shift takes place, by doing a rate impact evaluation.

And in his rate impact, there's no calculation of the cost, there's no calculation of the benefit, and there's no subtraction of the costs from the benefits to determine a net.

What there is in the rate impact evaluation is, "Oh, here's the effect of net metering. It -- I acknowledge it causes rates to go up. And I can even" -- he says, "I can even tell you what portion of that rate going up can be attributed to the reduction in -- caused by avoided costs, and I can show you what portion of that rate impact can be attributed to the cost shift."

But that isn't the same thing, because then he says that that rate impact analysis leads to having a very small impact. But that isn't the same -- first of all, I dispute that it may be small. And I think you heard Ms. Beck say that even with small impacts there are concerns that we express that we are

concerned about.

But second of all, that rate impact doesn't even meet the statute. It doesn't even provide the Commission with the information that the statute asks. And the statute says, provide information about costs and benefits on the utility and on the non-net metering customers, or on other customers, which through the Commission's guidance, has been made clear to be non-net metering customers.

Q. So, I want to -- let's break this down a little bit. And I think we're clear now that there were two -- two studies, two sides of the analysis, that Mr. Woolf did, and the first one that we discussed was the cost impact analysis. And I believe we agree that that is a cost to the utility; is that correct?

A. We agree that Mr. Woolf shows just a cost to the utility. What I'm saying --

Q. I just want -- let's start there. And I'm not -- I'm not asking what you're saying. I'm asking about your critique of Mr. Woolf.

A. Okay. Then I -- then I will leave it at that. I will say that it shows the cost impact to the utility only.

Q. And that was done on a long-term basis by considering present value revenue requirement?

A. Yes.

Q. Now, that did not include Mr. Woolf's analysis of the cost impact -- the lost revenues in that cost impact analysis; is that correct?

A. It did not show the impacts of lost revenue. And if he had showed the impacts of lost revenue, he could have said -- he could have simply showed impacts on the non-net metering customer over the long term and impact on the net metering customer on the long term, and that's where the cost shift occurs. That's where the lost revenue can be seen.

Q. Mr. Hayet --

A. Because all he showed was the long-term impact on the Company, and refused to show the other, you would not see the cost shift in the cost impact analysis.

Q. Do lost revenues increase the cost to the utility to provide electric service?

A. Lost revenues do not, but lost revenues are being shifted between one group of customers and others. So if all you look at, all you're willing to show, is impact on the utility, you will not see the impact on the non-net metering customer caused by the net metering customer.

Q. Okay. I think you answered my question.

Mr. Hayet, if you were tasked to consider whether the costs to build a new natural gas plant would exceed the benefits to build a new natural gas plant, would you look at a long-term present value revenue requirement as a useful piece of information for that question?

A. So what we're talking about here is resource acquisition, correct?

Q. A hypothetical, if you were considering the costs of acquiring a new natural gas plant compared to the benefits of acquiring a new natural gas plant.

A. And -- and that natural gas plant, ultimately the costs of that plant will be charged to PacifiCorp's rate payers, all the PacifiCorp rate payers, correct?

Q. Let's assume that the Company is proposing to build the resource itself and put it into rate base.

A. And all customers will ultimately have to pay for that resource.

Q. And so the question was, would you consider a present value revenue requirements analysis to be useful information for considering the costs and the benefits of acquiring that resource?

A. And I will answer by saying yes, on an evaluation of a resource acquisition, where all customers are going to pay for that resource, yes, it

would be important to perform a long-term evaluation, and I would conduct a present-value analysis, yes, I would.

I would be clear, however, to point out that net metering is not a resource acquisition question. It's different.

Q. If I could direct you, please, to your surrebuttal testimony, page 14.

A. What page? I'm sorry.

Q. Page 14. It's the chart, so easy to see.

A. Yes.

Q. Now, Mr. Hayet, is this correct that this was your surrebuttal response where you -- I believe you said you took Mr. Woolf's illustrative example and separated out the non-net metering impacts; is that correct?

A. Yes.

Q. So, I have a question about the heavy black bar that you titled "Utility Impact." That -- that's the number that you got from Mr. Woolf's example; is that correct?

A. Yes.

Q. And that shows the net present value revenue requirement impact of net metering versus non-net metering; is that correct?

A. Well, this is not showing -- this is showing an impact in one year, a specific year.

Q. In a specific year. Okay.

A. And I'm not attempting to suggest anything different would be shown, or trying to not show the net present value. I'm just trying to demonstrate what happens, because I'm putting it in the context of the way I showed my analysis.

Q. Right. And this -- and I believe your analysis also showed that the present value revenue requirement impact to the utility system showed a benefit for net metering on a systemwide basis; is that correct?

A. Right. But let's look at why. If you, perhaps, look at year ten, focus on year ten, you can see that the net metering gets a huge benefit. The non-net metering gets no benefit whatsoever. They only -- they only receive a cost, no benefit.

Q. We'll get to that point, Mr. Hayet. But the first question right here is just, the impact to the utility of the present value revenue requirement in both your analysis and Mr. Woolf's cost-impact analysis showed that the benefits to the utility under these assumptions exceeded the costs on a systemwide basis, is that correct, for both your testimony and Mr.

Woolf's testimony?

A. Yes. Plus, I also show, between Mr. Woolf and mine, I -- I address the rest of the statute, which is also saying do the costs exceed the benefits to the non-net metering customer? And no, they do not. They do not exceed the benefits for the non-net metering customer.

Q. And if I could direct you to line 289 through 291 on that same page, you state, "Mr. Woolf believes that the cost impact on non-net metering customers is an unimportant aspect of the study and should not even be reported."

Did I read that correctly?

A. Yes.

Q. And did you review Mr. Woolf's surrebuttal testimony in this proceeding?

A. I did.

Q. Did anything in Mr. Woolf's surrebuttal testimony cause you to rethink that conclusion?

A. No.

Q. Do you have a copy of Mr. Woolf's surrebuttal testimony?

A. No. I do. I think I do. But I could explain why I say no.

Q. I'll ask a question on it.

A. Sure. I have it in front of me.

Q. Okay. If I could direct you to page 7, please. And starting at the top there, line 115, Mr. Woolf states, "Lost revenues from customer sited PV are an important issue because they can ultimately lead to cost shifting between NEM and non-NEM customers."

Did I read that correctly?

A. You did.

Q. So based on Mr. Woolf's statement there, do you believe that he is stating that the impact on non-net metering customers is important or unimportant?

A. He is saying that it's -- he is saying that it's important.

MR. RITCHIE: Thank you. I have no further questions. Thank you, Mr. Hayet.

CHAIR: Mr. Mecham?

MR. MECHAM: Thank you.

CROSS-EXAMINATION

BY MR. MECHAM:

Q. Good afternoon, Mr. Hayet.

A. Good afternoon.

Q. As I was listening to you this afternoon, I wondered if your recommendation is dependent or at least based on an assumption that rate cases will happen every two or three years.

A. Certainly it requires resetting rates to be correct, and history would show the rate cases have happened plenty of times one year following the next.

Q. Weren't you involved during the late '80s and mid-'90s where we went about eight or nine years without a rate case?

A. I think -- I think I was. Mr. Falkenberg, you might recall, was also involved, and he was the witness, but -- at more times than I was, but yeah, yes, I was involved during that period of time.

Q. And if there were those kind of intervals, would your recommendation have to change, in other words, longer periods of time?

A. No, because I don't think that -- I mean, here you're now speculating on whether rate cases are going to be long, short. Our history recently has certainly suggested that the rate cases have taken place on a frequent basis, and up until this most current one that we have now, they were -- they were essentially one after the next.

Q. I would agree with you. Unfortunately, my history goes back further than that.

You know, in following your recommendation through your various pieces of testimony, you seem to have started out in your direct testimony, around lines

120 to 127, being a little bit more enthusiastic about this longer-term analysis to judge the impact on the utility, and maybe using a DSM-like instrument to do it. Have I misread that?

A. Well, I'm not quite sure what you mean by "more enthusiastic" and how that compares to how I became less enthusiastic. I'm not sure what you mean by that.

Q. Well, it seems -- I'm trying to figure out exactly how you use it, because initially it looks like you would have used it in accordance with the statute. And by the time you end in surrebuttal, it's just for informational purposes.

A. No, I don't think that the statute says long term, short term, that's first of all, so I could never have said that you use long term -- you know, that this should be done for long term.

So we -- and I think if you dissect my testimony you will say -- you will see that what I wrote in direct is, if the objective is such and such, then a long-term study could be performed. If the objective is to perform a short-term analysis, then here's how it would perform.

So I used the word "if," and I did not exclude the possibility that long term would be

performed. But I did -- I did make it more clear further on that clearly for evaluating for rates, because this is rate design impact, that a short -- because you're going to evaluate the cost and benefit impact on the non-net metering customer, I believe that should be a short term. So I did make that more clear.

MR. MECHAM: Okay. I think that's all I'll ask, Mr. Chair.

CHAIR: Okay. Thank you.

Mr. Olsen, any redirect.

MR. OLSEN: We have no redirect.

CHAIR: Commissioner Clark?

COMMISSIONER CLARK: Chair LaVar, could we recess for lunch before my questions?

CHAIR: Certainly.

COMMISSIONER CLARK: Is that...

CHAIR: Why don't we reconvene -- should we just round down to 1:30 to reconvene? And let me just state we'll -- I think, at the conclusion of the Office's testimony, if Mr. Holmes intends to give a statement as we discussed, that might be the appropriate time to do so, after we return. So we're adjourned until 1:30. Thank you.

(Lunch recess from 12:19 - 1:34 p.m.)

CHAIR: Okay. We're back on the record.

MR. OLSEN: We are.

CHAIR: And Mr. Hayet, you're still under oath. I think we were to Commissioner Clark.

COMMISSIONER CLARK: Good afternoon. And I appreciate Chair LaVar giving me the lunch recess to ponder a bit.

My first question relates to your simple dispatch spreadsheet model that you talk about, I think, on page 15 of your direct, and I'm interested in understanding better how, if at all, it addresses changes in load created by net metering customers in their generation.

THE WITNESS: I can answer that. As you -- as I stated and as you recounted, it was a simple spreadsheet model, so it wasn't intended to be something that somebody could use as an alternative to do a production cost dispatch.

It was intended to look at a few resources, look at the full load of the PacifiCorp system, dispatch those resources in an economic way to meet the load of the system.

And the load of the system, to begin with, included the load of the net metering customer as if -- as if they did not have net metering going on, distributed generation.

So there was one dispatch, a set of units, a determination and economic order of the dispatch of those units to meet the load. Therefore, the cost that each unit would generate was determined to meet that load.

Then the next step was to essentially assume that net metering takes place, the load is revised, the load is changed, because the net metering customers generate -- it's a lower -- effectively, it lowers the load shape across the hours. And then we reperform the same dispatch.

And in economic order, once again, you would find that the most expensive units would be backed down, essentially, compared to the initial dispatch. In other words, the higher cost units would run less, and you would find out your base load units would run basically the same. Your intermediate could be affected. And the highest cost unit would dispatch lower as a result of the reduction in load. And it would then produce results by unit.

And I computed generation by unit, cost by unit, and I was able to see the difference in cost and the amount of fuel cost, essentially, that was saved by the net metering. And it was saved as the avoided cost of the highest unit.

On average, it made -- since the amount of net metering, at least in this case, having 3300 customers, having -- at this time having net meter, on an average fuel basis, based on the assumptions I made, it had a very small impact. It -- on an average fuel impact.

It affects the most expensive resources, those are the ones that are backed down, so the average. The avoided cost clearly is the highest cost resource, but rates are paid on an average basis, and so on an average fuel basis, it had a very small impact on the -- on the result.

COMMISSIONER CLARK: Thank you. Regarding both the longer term and the short term analyses that you've provided, and maybe take each of them in turn, I think at least some of the values that are employed are system values. Are those translated in some way to Utah's jurisdictional values in your approach?

THE WITNESS: In --

COMMISSIONER CLARK: And if so, how?

THE WITNESS: The -- the approach would translate, ultimately, on a Utah jurisdiction, but the system has operated its dispatch as a single system. So when you're looking at production costs and avoided production costs, you're looking at overall to the

entirety of the utility, but ultimately then you do allocate, using the -- the jurisdictional allocation procedures, you do allocate down to the individual states and individual class, ultimately.

But the assumption that I made in the dispatch that I did is, this is consistent with the way PacifiCorp operates its system and performs studies. It dispatches the entirety of the system and impacts are determined across the entirety.

COMMISSIONER CLARK: So if we were to implement, for example, your proposal, then at some point the jurisdictional allocation model would be employed, the one that the Company customarily employs --

THE WITNESS: That's right.

COMMISSIONER CLARK: -- to develop the Utah jurisdictional --

THE WITNESS: Right.

COMMISSIONER CLARK: -- values or --

THE WITNESS: That's correct.

COMMISSIONER CLARK: -- costs? Thank you. That's all my questions.

CHAIR: Thanks.

Mr. White?

COMMISSIONER WHITE: With respect to your

proposal, and I -- regarding a long-term analysis as a check, there is discussion, or I guess you've referred to like IRP type analysis or inputs or data. I mean, are you familiar at all with their course --

THE WITNESS: Very much so, yes.

COMMISSIONER WHITE: -- IRP?

THE WITNESS: Yes, I am.

COMMISSIONER WHITE: I mean, is there any potential translation or benefit, or is that a complete wholly separate type?

THE WITNESS: Well, when we do talk, and I'll talk the same way, I use the same lingo, I think, in the Joint -- as the Joint Parties.

When we do talk about long-term economic evaluations, that's essentially what is being performed in an IRP. They're evaluating resources typically over the long-term. Those resources could be demand side or supply side resources.

But you typically are evaluating and comparing one resource against the next, and you're typically trying to do this long-term evaluation on the utility, figure out -- you're -- oftentimes, you're doing optimization, where your optimization technique is stacking, is determining your optimal expansion plan across 30 years.

And in that evaluation, in that optimization, it's looking at the best resources for the utility to determine for its expansion plan.

And then, yes, of course, the next step in the process, then, is that's the assumption that, well, the best resources that are going to be needed, maybe one is picked. That resource, at the appropriate time, then, is then determined for being added to the rate base.

And when it's added to the rate base, rate making treatment is determined, and those costs generally are shared across the entirety of the customers. And so that's -- that's what's done in resource acquisition.

This isn't resource acquisition. This is looking at a statute, wanting to examine costs and benefits, and it's not looking -- and it doesn't say to do it on distributed generation. It says look at net metering to derive costs and benefits on net metering.

Net metering, essentially, by definition is a rate making issue. It's a rate -- it's a development of a rate that determines how costs and benefits -- that determine how costs are handled, our charges to the rate payer are handled, when they're a net metering customer.

So, because of that, and also one other point, and because the statute also says you have to look at impact on the non-net metering customer, essentially, it says on other customers, but it's been interpreted to mean on a non-net metering customer.

Because of that, because it's a rate making issue, net metering, and so forth, it's important to do it on the short term.

And -- and that is also important in long-term resource acquisition. While you do the long-term study to determine if it's a good resource, you always bring it back to the short term and you use the assumptions, you use the costs, the embedded costs, and the cost of that asset in the given year.

You don't now look over 30 years to decide on what your rate impact your rate design is going to be. You look at it on a short-term basis. So that's why we feel it's important.

And looking at the costs and benefits that -- that you're doing then feed into the next step, which is the rate, this rate making decision. It says: In light of the cost-benefit impacts, the rate making decision will be decided. So that's why we believe it's a short-term consideration.

COMMISSIONER WHITE: Thank you. I have no

further questions.

CHAIR: Thank you, Mr. Hayet.

In your rebuttal, I believe, you raised, or you commented on a couple of issues with respect to Rocky Mountain Power's proposal, line losses, and SOx and NOx compliance?

THE WITNESS: Yes.

CHAIR: Mr. Clements addressed those in surrebuttal. I was just wondering if you had any comments on the surrebuttal.

THE WITNESS: I -- it is my belief that in the issue of line losses that -- first of all, remember that we say that these assessments will be done ongoing and things will change, but I believe with 4,000 customers, 3,300, 4,000 customers, I believe that when you do an assessment of transmission and distribution losses you will find that the power that's generated, say, by a residential customer located in a neighborhood is going to stay there. It's not going to travel to Wyoming or somewhere, you know, far away where line losses could occur.

Essentially, you'll generate, you know, a certain number of kilowatts in an hour, and it will get -- that number of kilowatts will be consumed, essentially. So I don't believe that line losses --

that you're going to incur some line loss of the distributed generation that's generated at -- at the residential customer location.

So, for that reason, if you're competing a distributed generation resource located in a neighborhood against something located 100 miles away, something 100 miles away is going to have line losses getting to the customer. Something generated right at the neighborhood level is not going to incur a line loss.

So that's where I think if you're going to do cost-benefit analysis I think you ought to -- you know -- you ought to say that a benefit is avoided line losses.

On the other question of the SO2, I agree with Mr. Clements, with -- you know, after having reviewed his testimony, I agree with that. If -- again, it comes back to the basic theory that we believe in that only if something has a quantifiable and verifiable impact does it get included in the framework.

And SO2 and NOx isn't something that distributed generation affects, if -- having that distributed generation will never affect the amount of costs that PacifiCorp will spend on buying NOx

allowances to SO2, then it never avoids it, therefore should not be treated as -- as a benefit, so I agree with that.

CHAIR: Thank you.

Mr. Olsen, anything else from you?

MR. OLSEN: Nothing. Nothing further at this time.

CHAIR: Thank you, Mr. Hayet.

THE WITNESS: Thank you.

CHAIR: Mr. Holmes, would you like to provide a statement during this hearing?

MR. HOLMES: Yes, Mr. Chairman, I would like to do so.

CHAIR: Why don't you go ahead and do that now, then. You can feel free to sit there or stand here, whichever you prefer.

MR. HOLMES: And first of all, Mr. Chairman, I'd like to say thank you as well for giving me the lunch break to ponder what I'm about to say.

UCARE is the Utah Citizens Advocating Renewable Energy and was formed in February of last year. We formed in response to the utility's, to Rocky Mountain Power's, proposed fee on -- on solar net metering customers.

We intervened as a party, I think, at this

time last year, or I guess a little earlier. Mike Rossetti, the founder of UCARE, was here to testify.

The organization has also intervened and been accepted, thank you, to intervene as a party to the current docket. What we've done thus far is we've had several opportunities for input, which we very much appreciate. We feel the process has been open in that regard, and we appreciate your facilitating our sharing of information and ideas.

We first submitted input to this Docket, 14-035-114, October 9th, in which we thanked the Commission for their decision of August 2014 to further study the costs and benefits of solar, of net metering solar.

We also appreciate the legislature's support of this effort in Senate Bill 208 of the 2014 session. UCARE supports a comprehensive examination of all cost-benefit factors, not only selected within grid factors.

We also suggested at that time the inclusion of commercial net metering customers, if for no other reason than to get a larger net metering database generated, and also for the fact that SB208 did not specify residential, so we wanted to have commercial net metering included.

We referenced at that time two SINAPS

studies, one for Mississippi and one for Utah, that identified a broad range of avoided costs due to solar net metering, both within grid and the so-called externality costs.

The SINAPS study, or one of the SINAPS studies, the one that was done for Utah in 2010, actually got into premature deaths and other morbidity costs associated with fossil fuel combustion.

We also submitted at that time as an exhibit an NAACP report that was issued last year looking at how the human health economic and environmental costs of fossil fuel combustion have an even greater impact on low-income families and communities of color.

On October 20th, we, along with the Joint Parties, submitted questions about the scope and depth of the Rocky Mountain Power load research study proposal. Of course, we still wanted to have commercial NEM included. We had some questions about the data input process, in terms of subject selection, granularity, and other factors.

And then on December 5th of last year, we submitted, along with the Joint Parties, another request for an expansion of sample size and some more customer specific data.

This year, in January, UCARE submitted a

technical conferences proposal in response to the Commission's request. We proposed four workshops for identifying and assessing the health, economic, and environmental impacts of displacing fossil fuel energy generation with net meter solar generation. And we also wanted to -- suggested that a look be taken at the impacts of pacificwide regulatory factors, not just Utah specific, but how they might impact the situation in our state.

February 9th, we submitted a revised proposal for technical conferences. We suggested four technical conferences. One would look at the grid system impacts and benefits directly experienced by all parties to the grid. The other three would look at the direct and indirect costs and benefits to all Utahans in the areas of health, economics, and the environment. So, in other words, we wanted the public at large, impacts to the public at large, to be assessed, for the purposes of putting together a comprehensive analytical framework.

We cited several studies validating our requests. We also agreed with the Commission that the five demand site management cost test models -- and this was a Commission decision or ruling in 09-035-27 -- that the five test suite for DSM might

prove inadequate to the task at hand, which is assessing costs and benefits of solar NEM, PacifiCorp's NEM program.

We found all five of them were lacking, to greater or lesser degrees. And we suggested that the Public Service Commission consider adapting and using other models, such as the Regional Economic Model -- Models, Incorporated, which is REMI, and that is a model that is specifically advocated in the governor's, Governor Herbert's, ten-year energy strategy.

On April 2nd, we were granted intervention as a party to this docket.

On May 12th, UCARE made a presentation to the working group, the technical working group, and essentially what we did was we identified a whole host of what it costs within grid and also societal. And I won't belabor you with -- or the audience with all the points that we raised because I think that a lot of them have been addressed and they've been submitted for the record.

But we just felt that the -- the legislature did not call for a limited study, and we took the SB208 at its face. All the cards should be put on the table. Everything should be accessed fairly and fully.

On June 4th, we submitted -- and when we say

"we," I submitted, on behalf of UCARE, a data request to the Office of Energy Development. And that was ruled inappropriate because the Office of Energy Development was not then a party to the docket, and still is not officially a party to the docket, although in a statement that was made by the OED, the Office of Energy Development, to the Natural Resources Interim Committee in July, they did state that they are, in fact, working with the Commission on solar issues. So hopefully there is a connection now that didn't exist before.

In any case, this was -- we were advised to file a GRAMA request, Government Records Access and Management Act request, which we did. And this was with -- in an attempt to get information that was related to the governor's energy report that was issued in May of this year, which we felt gave solar energy short shrift, and we wanted to find why -- you know, among other things, why they didn't take compliance and other issues into account. This was the energy and -- energy mining report.

And so, in any case, we wanted to find why they used that particular model, rather than the REMI model, which the governor's plan advocates, why they didn't include externalities, and there were several

others, other requests. That's also been -- it's on the record, so I won't go into that with any greater depth.

But what -- and that GRAMA request is ongoing. But what we found was that it was interesting that the -- there was a footnote in that report in which the Office of Economic Development acknowledged that they weren't able to hold solar to the same standards as the other energy sectors because the North American Industrial Code System, NAICS, didn't have a sufficient coding system. They didn't even have any codes for solar until 2012, and so that is a national systemic problem. If you -- if you go to the NAICS system, you'll find one code for solar. You'll find over 20 if you enter petroleum, coal, or natural gas.

So what -- what we would recommend or ask that the Commission consider is that when you are -- when someone presents a case that the impacts are not quantifiable, part of the problem is that they're hidden. They're hidden in other sectors.

For example, economists at the Workforce Services Department indicated that solar economic impacts might be found under construction, something more general. So that is something I hope that the Commission will take into -- into account, is the

systemic bias of some of these econometric models in terms of finding the true impacts of solar.

And I think that that is pretty much what I'd like to say for this statement. I would just ask that the Commission keep in mind that these questions are sure to be asked in future dockets. How will all consumers, the Utah public, be affected by energy decisions, not just within grid and the rate payers, but the entire -- the entire state of Utah, all Utahans.

And so we would call for more comprehensive research and a reworking of the tools so that there's something -- a tool is devised, or tools are devised, that can more accurately reflect what solar net metering brings to the system.

And that, Commissioner, is what I have to say right now. Thank you very much for allowing this.

CHAIR: Thank you, Mr. Holmes.

We will go to Mr. Jetter now.

MR. JETTER: Thank you, Mr. Chairman. The Division would like to -- excuse me. It still works. The Division would like to call to the stand and have sworn in Mr. Robert A. Davis.

(Robert A. Davis was duly sworn.)

CHAIR: Thank you.

ROBERT A. DAVIS,

called as a witness at the instance of Division of Public Utilities, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. JETTER:

Q. Mr. Davis, would you please state your name and occupation for the record?

A. My name is Robert A. Davis. Excuse me. I go by Bob. I'm a utility analyst for the Division of Public Utilities.

Q. Thank you. And in the course of your employment and involvement with the docket that we're here presenting testimony on today, did you prepare and cause to be filed direct, rebuttal, and surrebuttal testimony, along with Exhibits DPO Exhibit No. 1.0D, 1.1D, 1.0R, 1.0SR?

A. Yes.

Q. If you were asked the same questions that are contained within each of those three sets of prefiled testimony today, would your answers remain the same?

A. They would. However, I would like to clarify. Page 2 of my rebuttal, lines 29 and 30, where I was referring to Mr. Hayet's method, I stated in there that given more realistic nonhypothetical inputs.

That was a mischaracterization on my part, and what I should have said is that I agree with his illustrative example.

Q. Thank you. And with that minor clarification, is there any other changes or edits that you would like to make?

A. No, there's not.

MR. JETTER: I would move at this time that Mr. Davis's direct, rebuttal, and surrebuttal testimony, along with the attached exhibits, be entered into the record of this hearing at this time.

CHAIR: Any objection?

Hearing none, they'll be entered.

Thank you.

MR. JETTER: Thank you.

Q. (By Mr. Jetter) Mr. Davis, have you prepared a brief summary of your testimony and the position of the Division of Public Utilities?

A. I have.

Q. Please go ahead and read that.

A. If my voice will hold. Good afternoon. My summary has two parts. I will summarize the Division led work groups, and second, the Division's position in this matter.

The Division led work groups, on March 19th,

2015, the Public Service Commission of Utah issued its first order amending scheduling order and notices of work group meetings, hearing, and public witness hearing. Parties at the scheduling conference agreed to form an informal work group led by the Division of Public Utilities to discuss various topics, including the topics identified in the Commission's notice dated March 9th, 2015.

These work group sessions were intended to be a presentation of facts and not a forum for advocacy. The topics of discussion, as requested by the Commission, were as follows.

Number one, applicability, modification, and usefulness of the traditional demand side management costs and benefits test equations. Two, net metering program impacts on the distribution system. Three, adapting an avoided cost model to evaluate net metering program benefits. And four, integrated resource planning perspective.

The presentations throughout the course of the work group sessions addressed the suggested topics of discussion offered by the Commission. The work group participants came away with a better understanding of the parties' positions and knowledge of distributed generation's impact on utility's

distribution systems.

Work group sessions one and two helped provide a basic understanding of utility system, solar net metering system, and system impacts. Just prior to the Commission's July 1st, 2015 order during work group three, the parties offered and discussed numerous costs and benefits associated with distributed generation. However, little, if any, consensus could be achieved as to the relevancy of the costs and benefits of from whose perspective the costs and benefits should be weighed, nor could the participants reach a conclusion about the relevance of the Commission approved demand side management tests or how they would be modified to be applicable and usable to the net metering program.

Between work group three and four, the Commission issued its July 1st, 2015 Order Re: Conclusions of Law and Statutory Interpretation and Order Denying Motion to Strike.

Among other things, the Commission ordered that the relevant costs and benefits are those that accrue to the utility or its non-net metering customers in their capacity as rate payers of the utility.

Through the course of the work group sessions, the participants were never certain whether the framework was to include all net metering customers

or only residential rooftop solar customers. As a result, it was not clear what the goal of the work group sessions should be.

Division summary. The Commission should adopt a framework based on a cost-of-service principles if such principles are widely used and accepted. Most of the identifiable and quantifiable costs and benefits are already included in the revenue requirement calculation cost-of-service study.

Any other appropriate costs and benefits not already included in the revenue requirement process could be identified and considered along with the cost of service study as proposed by the Division.

The net metering customers should be compensated fairly for their excess generation, while other customers should not bear additional costs as a result of net metering customers' unique use of the electrical system.

The Division supports the Company's proposal of using avoided costs to compensate net metering customers for their excess generation.

Current rate structures are not well suited to residential net metering customers because the energy output from the customers is netted against bundled rates comprised of energy in the fixed grid

costs.

As a result of this mismatch between what is being netted on each side, net metering based on current residential retail rates does not adequately collect revenue for fixed costs related to services received by such customers.

The rates may also overcompensate such customers for excess generation, and even if current retail rates are not overcompensating customers for their excess generation under the current compensation scheme, higher rates of penetration may lead to higher retail rates, and thus windfalls to net metering customers.

Therefore, the Commission should choose an analytical framework that will accurately identify these costs and benefits and be applicable to rate setting. The Division's, Company's, and Office of Consumer Service's proposals as detailed in their testimony will accomplish this.

The Division agrees that certain adjustments may need to be made for unique aspects of customer generation. The Division believes this can be accomplished without the need of new complex avoided cost studies. Rather, adjustments to existing tools are more likely to result in accurate conclusions

applicable in rate setting contexts.

The intermediate goal of this process is to reasonably ascertain the costs and benefits of net metering programs with the ultimate goal of fairly apportioning those costs and benefits through reasonable rates and within a time period relating to those costs and benefits. This can be done without creating new costly and burdensome tools and studies.

Dr. Artie Powell provided a brief summary of the Division's framework proposal. He will briefly explain the Division's concern with the Joint Parties' criticisms of using the cost-of-service study as a framework and oversimplification of Utah Code Annotated 54-15-105.1.

He will also attest to usefulness of the Division's, Company's, and Office of Consumer Services' framework proposals, closely aligned proposals.

The Division responds to the three questions requested by the Commission in this prehearing notice. Number one, the Division proposes using the same cost-of-service study that has been used and accepted in past proceedings to determine the net costs and benefits of the net metering program.

Two, the Division's proposal of using a with and without cost-of-service model to determine the

costs and benefits of the net metering program will encapsulate on a net basis the costs and benefits to the Utility and its other rate payers.

Three, the Division believes that the time period should be commensurate to the timing of rate making allowed under state statute, and as adopted by the Commission, on a case-by-case basis.

MR. JETTER: Thank you. That concludes my direct questioning of Mr. Davis, and he's available for cross-examination.

CHAIR: Thank you.

Mr. Olsen.

MR. OLSEN: We have nothing.

CHAIR: Ms. Hogle?

MS. HOGLE: No questions.

CHAIR: Thank you.

Joint Parties?

MS. HAYES: A few questions. Thank you.

CROSS-EXAMINATION

BY MS. HAYES:

Q. Good afternoon, Mr. Davis.

A. Good afternoon.

Q. Does the Company use the cost-of-service model to evaluate the cost effectiveness of its DSM resources?

A. I'm not that familiar with the DSM test, so I can't answer that.

Q. All right. Does the Company use the cost-of-service model in its IRP analysis?

A. I don't believe so.

Q. You -- you testify that the -- that the DSM test should not be used to evaluate the cost effectiveness of the net metering program, so I would like to ask you a little bit about the utility cost test. Are you familiar with the utility cost test?

A. Not that familiar, no.

Q. Okay. Well, we'll see how far we can get.

A. Okay.

Q. Do you know what a utility cost test result of one or greater indicates?

A. One or greater, I believe, means that it's a good thing.

Q. Yes. In other words, it indicates it would be more economically efficient to acquire a given demand side resource than not to acquire it; is that correct?

A. I believe that's correct.

Q. And that's just another way of saying that without that particular resource costs will otherwise be higher; is that correct?

A. Say that again, please.

Q. Yeah. So, that if you have a utility cost test result of one or greater, that's another way of saying -- and I'll just say all other things being equal, that that's another way of saying that without that resource costs will otherwise be higher?

A. I believe that's correct.

Q. Let's see. The net metering program generates electricity for the utility system; is that correct?

A. Yes.

Q. And it also reduces electricity consumption from its participants; is that correct?

A. That's the theory.

Q. And the Company's IRP looks at both electricity generation and load reduction from a long-term revenue requirement perspective; is that correct?

A. That's correct.

Q. And according to the Company's IRP modeling, those characteristics, electricity, generation, and load reduction, have long-term value; is that correct?

A. Yeah.

Q. So shouldn't we, in the context of net metering cost-benefit analysis, look at the long-term

value of the net metering resource?

A. I think it's illustrative. I think it's, as everyone before me has said, that it's informative.

Q. All right. Throughout your testimony, you admit that some costs and benefits of the net metering program may not be captured in your proposal, but that they could be identified and treated separately?

A. That's correct.

Q. And I think you say this about both the cost-of-service analysis, as well as avoided costs. And so I guess my first question is, is it your recommendation -- well, and then you -- and then you -- so I guess I'm wondering about how -- how you propose to identify and treat those separately.

Is it your recommendation to reopen the avoided costs method in order to capture the benefits of distributed generation?

A. No. I think that's been well vetted in Schedule 37 --

Q. Okay.

A. -- and in part of that that --

Q. Okay.

COURT REPORTER: I didn't hear what you said, the last part. "I think that's been well vetted in Schedule 37 -- "

THE WITNESS: Correct.

COURT REPORTER: And what after that?

THE WITNESS: I don't think I said anything after that.

COURT REPORTER: Okay.

Q. (By Ms. Hayes) Okay. So your testimony, admittedly, leaves benefits such as avoided distribution level line losses on the table with no proposed method to calculate them; is that correct?

A. I didn't offer any method to calculate that, no.

Q. Okay. But -- okay. And there is no -- otherwise no proposal to reopen avoided costs to address benefits that may be left on the table?

A. No.

Q. Okay. And that -- and so -- and that goes for benefits that may not be captured both in the cost-of-service study as well as benefits that may not be captured from the avoided costs for excess generation?

A. I'm sorry, are you asking me if they should be in cost of service or...

Q. Well, let me -- let me go back to your testimony. So -- let's see. I'm going to go to page 8 of your surrebuttal testimony.

A. Okay.

Q. I wish I had put the line number. Okay. You say -- this is lines 154 to 157-ish -- "Instead of creating another complex avoided cost study, the Division believes the parties to this matter should look at Schedules 37 and 38 and identify overlooked costs, if any, and use those schedules to maintain some consistency through all of the Company's operations."

A. Okay.

Q. So, are you saying that we can use Schedules 37 and 38 to identify overlooked costs from this docket?

A. I think what I'm seeing is look for -- identify overlooked avoided costs in applying to Schedule 37 and 38.

Q. Okay. But you haven't specified necessarily what those overlooked costs and benefits are?

A. No, I haven't.

Q. I see. Okay. And then, finally, I'll just point out, on page 6 of your surrebuttal testimony, you mention some costs associated -- life cycle costs associated with distributed generation systems. I'm looking at lines 108, starting, through 110.

A. Uh-huh.

Q. These are not costs the utility pays, are they?

A. Let me think about that for a minute. I'm going to say that there's a possibility, but probably not.

MS. HAYES: Okay. All right. Those are all my questions for you, Mr. Davis.

THE WITNESS: Thank you.

MS. HAYES: Thank you.

CHAIR: Thank you. Mr. Mecham?

MR. MECHAM: Thank you, Mr. Chair.

CROSS-EXAMINATION

BY MR. MECHAM:

Q. Good afternoon, Mr. Davis.

A. Good afternoon.

Q. I am here representing Vivint Solar. In your discussion with Ms. Hayes, you were talking about the various benefits that may not be captured by your cost-of-service analysis. I think you identify those on page 11 of your direct, lines 180 through, perhaps, 187, something like that. Are you --

A. 180 through 187?

Q. Yeah.

A. Okay.

Q. Are those the benefits that are not captured, or possibly not captured, by your cost-of-service study?

A. I think on a net basis the cost-of-service study would pick those up.

Q. So these wouldn't be those things you're contemplating outside of the study?

A. No, they would not.

Q. And so what would there be outside of the study that's not being captured?

A. Possibly, distribution level line losses, for example.

Q. Okay. Is that comprehensive, or are there others that you -- you just haven't been able to identify them, or...

A. I haven't been able to identify or quantify them.

Q. So -- okay. So you don't anticipate anybody quantifying the costs or benefits in this proceeding?

A. They could, yeah.

Q. How?

A. I don't know or I would have done that.

Q. So you weren't able to do it; is that correct?

A. I didn't try.

Q. But had you tried, would you have had to get the Company to provide data? Or how would you have done it?

A. I'm not an engineer, so I don't know if I could do that, so I probably would have relied on someone.

Q. I'm a lawyer, and I know I couldn't do it. How do you anticipate this proceeding moving forward? How is the Division -- if this isn't where we're quantifying costs and benefits, where are we going to do that?

A. I would say in the next general rate case.

Q. Will the Commission have to decide what those benefits are before they do that?

A. I don't know if I can speak for the Commission on what they think they need to do.

Q. Okay. How would you suggest they do it from the Division? If you were testifying before the Commission in the next round, how would you suggest they do it?

A. I think they would have to rely on the evidence before them.

Q. Clearly. Okay. Let me ask you this about your direct testimony on lines 147 through 152. There you talk about, at lower penetration levels, the differences are not a considerable problem. Is distributed generation causing a problem on the system right now?

A. What lines were those?

Q. I'm sorry. Line 147 through -- oh, you can go as far as 152.

A. What was your question?

Q. Is distributed generation causing a problem on the network today?

A. I don't know. I work for the Division. I don't work for the Company.

Q. Right. You regulate the Company, though.

A. Correct.

Q. You're -- you are -- you have information available to you that others on the outside don't. Do you have any opinion as to whether or not there's a problem?

A. The information suggests the penetration level is not high enough yet to be causing problems.

Q. Okay. Thank you. And do you have -- is there a tipping point? I mean, do you have any idea when would you reach a point where there is a too much distributed generation and it is causing a problem? What's the tipping point?

A. Based on, I think it was Ms. Morgan's, everything that comes across the Internet seems to be around 10 percent penetration. Whether that's right or wrong, I don't know.

Q. Okay. And the Division's position -- you stated in your summary and in your testimony, written testimony, as well, you said that distributed generation customers or net metering customers need to be fairly compensated for their excess power generated. And your position is, or the Division's position is, that the avoided costs of the Company is the -- is the fair compensation?

A. Correct.

Q. So three or four cents, or whatever the avoided cost is, per kilowatt hour?

A. Correct, whatever that is.

Q. Okay. And as that is used by their neighbors, they're paying eight, 11 or 14 cents?

A. What's being used by the neighbors?

Q. The excess power that's generated by a rooftop solar customer.

A. There's no indicator that somebody side by side, one with rooftop solar and one without, receives that excess generation.

Q. Wouldn't it -- did you say you're an engineer? I can't remember.

A. I'm not an engineer.

Q. Okay. Wouldn't it -- well, I'll just ask you your opinion. Wouldn't it likely stay close by in the

neighborhood? Isn't that typically what electricity does? It doesn't go back out on the grid and go some distant place, does it?

A. I hate to say it this way, but I have no idea of the free will of an electron.

(Laughter.)

MR. MECHAM: Okay. I think that will do it for now.

CHAIR: Any redirect, Mr. Jetter?

MR. JETTER: I do have a few brief redirect questions.

REDIRECT EXAMINATION

BY MR. JETTER:

Q. The first one was, looking at your direct testimony in response to a question asked by Mr. Mecham regarding the problem for the utility, with that statement that you said: At lower penetration levels, the differences are not a considerable problem for the utility. If there are cost shifting involved to other customers, do you consider that a problem? Was that supposed to be included in that statement or do you believe that's a separate problem?

A. I believe that should be included in that statement. It is a problem for the utility.

Q. Okay. Just to make sure I clarify this, the

cost shift is a problem for the utility that is independent of physical constraints on the distribution grid?

A. Say that one more time for me. Sorry.

Q. The problem that you're referring to of not being a considerable problem in your testimony is the physical constraints on the grid not being a problem at the current penetration levels?

A. Yes.

Q. And you're not testifying that cost shifting is not a problem at current penetration levels?

A. That's correct.

Q. Thank you. In reference to the other question by Mr. Mecham regarding the line of questioning about whether it's reasonable to pay a customer the avoided cost, let's say, for example, a Schedule 38 avoided cost of 5.2 cents, or somewhere in that ballpark, for a kilowatt hour of generation, and selling it to the neighbor for the retail rate. When the utility purchases energy from an actual QF, do they purchase it at 5.2 cents and then sell it along with the distribution and transmission services to other customers at the retail rate?

A. I believe that's correct.

Q. And do you believe that's a problem?

A. No.

MR. JETTER: Thank you. That's all of my redirect.

CHAIR: Okay. Thank you. I believe the redirect all related to Mr. Mecham's questions, so I'll go to you, if you have any recross.

MR. MECHAM: I'm fine. Thank you.

CHAIR: Okay. Thank you. Mr. White? Commissioner White?

COMMISSIONER WHITE: I have no questions. Thanks.

CHAIR: Commissioner Clark?

COMMISSIONER CLARK: No questions.

CHAIR: I have -- I have a couple, Mr. Davis. How does your proposal address program administration costs?

THE WITNESS: I think I would have to defer that to Dr. Powell.

CHAIR: Okay. And I'll save that question for later.

Do you have an opinion regarding the adequacy of production meter data to run your proposed cost-of-service study?

THE WITNESS: Again, I would have to --

CHAIR: You'd defer that to Dr. Powell?

THE WITNESS: I'd have to defer that to Dr. Powell. I just don't understand that --

CHAIR: Okay.

THE WITNESS: -- as well as I should yet.

CHAIR: Okay. Thank you. I don't have anything further. Thank you, Mr. Davis.

THE WITNESS: Thanks.

CHAIR: Mr. Jetter?

MR. JETTER: Thank you. The Division would like to call a second witness, Dr. Artie Powell.

(Artie Powell, Ph.D. was duly sworn.)

CHAIR: Thanks.

THE WITNESS: Go ahead.

ARTIE POWELL, Ph.D.,

called as a witness at the instance of Division of Public Utilities, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. JETTER:

Q. Thanks. Dr. Powell, would you please state your name and occupation for the record?

A. My name is Artie Powell, P-o-w-e-l-l. I'm the manager of the energy section within the Division of Public Utilities.

Q. Thank you. And in the course of your

employment and your involvement with the dockets that we're here for today, did you prepare and cause to be filed surrebuttal testimony along with DPU Exhibit 1.0D?

A. Yes, I did.

Q. If you were asked the same questions contained therein today, would your answers remain the same?

A. They would, but I think there's one clarification I would like to make.

Q. Please go ahead.

A. This is on page 6 of my testimony. It's on line 107. The question -- or the response to a question, actually, begins on line 105.

Excuse me. That -- let me start over there. The question -- or the response starts on 107. The correction is on line 108. It says, "The Division has not proposed a particular rate design, and therefore are not collapsing."

It might be more grammatically correct to say "Therefore, the Division is not collapsing." It just makes it a little bit more clear.

Q. Thank you.

A. There's probably other grammatical mistakes too, but...

Q. Thank you. And I've noticed something, just as I'm looking at -- the Division handed out -- and we're not asking to put this in the record -- a witness and exhibit list, and I believe we identified Dr. Powell's testimony as rebuttal on this, but it was, in fact, surrebuttal, so if anybody is looking at this particular piece of paper we've handed out, there's a slight correction to that as well.

Dr. Powell, have you prepared a statement summarizing the Division's position?

A. Yes, I have.

Q. Please go ahead.

A. Good afternoon. I will try to make my summary pretty brief, especially since my testimony was brief.

My surrebuttal testimony addresses two issues. First, the Joint Parties' claim that by recommending a cost-of-service framework for the cost-benefit analysis. The Division is suggesting that the Commission consolidate Sections 1 and 2 of the statute. The Joint Parties' claim misconstrues the Division's position.

Second, issues related to the compensation for excess generation for net metering customers. Specifically, the Division is generally supportive of

the Company's proposal to use avoided cost method to value that excess generation.

The Division recommends the use of a cost-of-service framework to effectuate the cost-benefit analysis under Section 1 of the statute.

While the Division believes there is a strong connection between Sections 1 and 2 of the statute, the Division has not proposed a specific rate spread or design in this phase of the proceedings. Therefore, the Division is not trying to collapse, or propose that the Commission collapse, the two processes that are contemplated in the statute.

The Division has, however, argued that having a framework that will naturally inform rate spread and design is beneficial to the process and will be an efficient use of resources.

The Division also believes that because the long-term analysis proposed by the Joint Parties has no direct impact on the Company's call to service, it will be of little value in an extended phase addressing Section 2 of the statute, in other words, rate spread and rate design.

The Division believes that the type of long-term analysis endorsed by the Joint Parties is better suited to addressing the appropriate

compensation for any excess generation provided by the net metering customers than in determining a cost-benefit analysis under Section 1 and 2 of the statute.

As discussed in Mr. Davis's testimony, the Division believes the Joint proposal is fundamentally flawed. As an alternative to the Joint Parties' proposal, Division generally supports the Company's recommendation to use avoided cost methods to value excess generation.

The Company's proposal has the advantage of using methods that are well known and regularly reviewed and vetted before the Commission. Any changes to these methods to accommodate future circumstance can be quickly identified and incorporated going forward.

The Company's proposal also addresses the Division's concern that under the current rate structure, where excess generation is valued at retail rates, increased penetration of distributed generation creates, contrary to sound economic principles, a windfall for net metering customers, specifically, increasing penetration of net metering will lead to higher retail rates. The use of avoided cost methods disconnects compensation from the retail rate and would eliminate this windfall.

I'd also like to clarify the Division's position regarding lost revenues, if it hasn't already been made clear. We do believe that lost revenues is a problem that the utility faces. We also believe that lost revenues can increase the Company's costs through its cost of capital. If the rating agencies determine that there is an increase in the Company's risk relative to its lost revenues, or any other treatment in the regulatory arena, then they have the ability to downgrade, would be one option, the Company's bond rating, and that would increase the cost of capital, and thus it would increase the Company's revenue requirement and the cost to customers.

Likewise, if the equity community believes that there's an increased risk of the Company in facing lost revenues, or any other decision that the Commission makes, then that will also increase the cost of capital and would be reflected in a higher cost to customers as well.

And that concludes my summary. Thank you.

MR. JETTER: Thank you, Dr. Powell. That concludes my direct questioning, and Dr. Powell is available for cross.

CHAIR: Thank you. Mr. Olsen?

MR. OLSEN: We have no cross.

CHAIR: Thank you.

Ms. Hogle?

MS. HOGLE: No cross. Thank you.

CHAIR: Thank you.

Joint Parties.

MR. RITCHIE: No questions. Thank you.

CHAIR: Thank you.

Mr. Mecham?

CROSS-EXAMINATION

BY MR. MECHAM:

Q. Dr. Powell, good afternoon.

A. Good afternoon.

Q. I understand your approach and I understand the Division's recommendations. Tell me, the benefit -- are there benefits outside the cost-of of service analysis that the Commission should take into account? It's the same question I asked Mr. Davis.

A. We haven't identified any. I think when he -- Mr. Davis mentioned that line losses could be included into a cost-of-service type of study, and certainly those could be.

The Commission has already determined that if a party wishes to pursue a benefit or cost to include in its study, then it has the obligation to identify, quantify, and verify those costs or benefits.

And so we're assuming that once the Commission makes a decision, chooses a framework, then there will be a litigated process to determine exactly which costs and benefits will go into those studies.

Q. In a rate case, or in something subsequent to this that isn't a rate case?

A. I think the -- I think that the Commission probably has the flexibility to decide that. It certainly could be in a rate case. We're not guaranteed that the Company is going to turn around and file a rate case in January. The stipulation in the last rate case said they would stay out at least until January. So a whole host of circumstances will determine when that next rate case would be.

If we thought that it might be too long, then I would think the Commission could determine that another proceeding could address the implementation of those studies.

Q. But it could be as soon as this January?

A. Yes, it could be.

Q. Okay. And do you have an opinion -- and if you don't, that's fine, but do you have an opinion as to what effect the Division's recommendations will have on net metering?

A. Yes, I do. This question actually came up in

the last rate case, specifically with regards to the Company proposal of a surcharge for net metering customers.

It was claimed in that particular proceeding that this would have a detrimental impact, solar, rooftop solar, would disappear in Utah. But a few quick calculations just demonstrate that that surcharge that the Company proposed was very minimal and relative to the cost of a system over its lifetime.

And so my opinion is, is that no, imposing a cost or the -- the framework that the Division is proposing will not have a detrimental affect on net metering in Utah.

Q. Thank you. But I guess the proof will be in the pudding?

A. The proof, or the details, or what's the word -- I can't think of the phrase, too nervous sitting here --

Q. So --

A. The devil's in the details, that's right.

MR. MECHAM: Okay. Thank you very much. That's all I have.

CHAIR: Any redirect?

MR. JETTER: No. Thank you.

CHAIR: Thank you.

Commissioner Clark?

COMMISSIONER CLARK: Dr. Powell, I have just a couple of questions to clarify my understanding of the Division's proposal. I think you're advocating capturing the impacts of net metering on both the system and at a jurisdictional level; is that correct.

THE WITNESS: Yes, we are proposing that. We think our framework would accomplish that. But it would also capture it at the class cost-of-service levels.

COMMISSIONER CLARK: And in applying the framework, do you contemplate using the models that are typically used in -- in a rate-making setting to achieve those results, the class cost-of-service study, the grid model, the JAMS (phonetically) model?

THE WITNESS: Yes.

COMMISSIONER CLARK: Would you advocate using a historical or a future period in applying the framework that you're recommending?

THE WITNESS: I would apply the same time period that would be applied in a rate case, so I don't want to get into interpreting statutes, but the way I understand the test year statute is, is that a strictly historical test year would not be allowed. So maybe some combination of historical versus forecasted or in

the -- I think in the last few rate cases we've used a forecasted test year.

COMMISSIONER CLARK: What I think I'm understanding you to say is whatever period the rate case functions around would be the one that you would -- you would advocate using in this setting as well; is that --

THE WITNESS: Yes.

COMMISSIONER CLARK: -- what you're saying?

THE WITNESS: Now, we also have taken a position and tried to explain that we think there's actually two issues that are being kind of meshed together, and one is pointed towards cost recovery, which obviously, I think, the cost-of-service type of study would do. It's going to directly inform rates.

On the other hand, compensation may be a long-term analysis that you would undertake, such as an avoided cost type of analysis.

Now, I know that there's an open docket, and there's a dispute about how those avoided costs should be calculated going forward for Schedule 38, so without getting into the Division's position in rebuttal, the Company's application, it could go -- the -- like I said, the compensation could be based on a long-term analysis.

COMMISSIONER CLARK: Finally, is there sufficient net metering production data available to the parties, and to the Division particularly, to implement your framework, in your view?

THE WITNESS: At the current time, there is not. Excuse me. The Company -- I think it was in response to an office data request -- they did provide some load research data that they had for -- I believe, if I remember right, years 2013 and 2014. There was only one customer in that data set that was identified as being a net metering customer.

So, again, currently we don't have that information. But my understanding with discussions with the Company is, is that their current load research study, which they've originally projected that it would be done at the end of September, and I'm not sure where that study is at, at this moment, but our understanding is, is that that study will provide the data that we need to implement the Division's framework.

COMMISSIONER CLARK: That concludes my questions. Thank you, Dr. Powell.

THE WITNESS: Thank you.

CHAIR: Commissioner White?

COMMISSIONER WHITE: I have no questions.

Thanks.

CHAIR: I have nothing.

Thank you, Dr. Powell.

THE WITNESS: You bet.

CHAIR: Anything further, Mr. Jetter?

MR. JETTER: No. Thank you.

CHAIR: Thank you.

It might be a little bit early for a break, but this might be convenient for one, since we're down to the last party. Maybe ten minutes. We're adjourned -- in recess, not adjourned. We're in recess.

(Laughter.)

(Recess from 2:44 - 2:59 p.m.)

CHAIR: We're on the record. And before we move forward, just to address the question that the Office raised and the -- after the last break, I think what we'll do is we will keep a list at the Commission, and from now until five o'clock on Thursday, the Commission staff will maintain a list, and anyone who calls in will get that -- the next spot available, if they call or e-mail in, subject to their being here, when it's time for their spot on the list.

We'll ask the Office if you wouldn't mind helping starting about five o'clock on Thursday to keep

that list moving. But between now and then, we'll maintain the list at the Commission, and just give first-come first-serve on it to whoever contacts us and requests the next placement on the -- on the public witness list.

MR. OLSEN: We'll be happy to help with that. Thank you.

CHAIR: Thank you.

With that, we'll go to Rocky Mountain Power.

MR. MOSCON: Thank you, Mr. Chairman. Rocky Mountain Power will call as its first witness Mr. Paul Clements.

(Paul Clements was duly sworn.)

CHAIR: Thank you.

PAUL CLEMENTS,

called as a witness at the instance of Rocky Mountain Power, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MOSCON:

Q. Mr. Clements, would you please state and spell your name for the record?

A. Yes. It's Paul H. Clements, C-l-e-m-e-n-t-s.

Q. And would you please identify for the Commission your current position with Rocky Mountain

Power, and give a little brief background of your history with the Company?

A. Certainly. My current position is Director of Commercial Services for Rocky Mountain Power. I've been with the Company for over ten years.

My primary responsibility has been negotiating commercial power purchase agreements, qualifying facility agreements, including wind and solar contracts, and also large industrial special contracts.

Q. Thank you. In that capacity, Mr. Clements, did you prepare and cause to be prefiled in this proceeding direct rebuttal and surrebuttal testimony?

A. Yes, I did.

Q. Did your surrebuttal testimony contain two exhibits identified as PHC-1SR and PHC-2SR?

A. Yes.

Q. Mr. Clements, with respect to your direct rebuttal, surrebuttal testimony, and Exhibit PHC-2SR, do you have any changes to that testimony that need to be made at this time?

A. I do not.

Q. I'd like to direct your attention to your Exhibit PHC-1SR, which is the chart that has garnered significant attention up to this point in this

proceeding, which is the table that various parties referred to.

A. Okay.

Q. Do you have any changes that you feel need to be made to that exhibit in your testimony?

A. I do not. I prepared that matrix with the intention of providing the Commission, and quite honestly, providing myself an overview of the positions of the parties on the material issues in the docket. It was intended to be my understanding, at a very high level, of each party's position on those particular issues.

As noted by some of the witnesses here today, due to space limitations, I had to be very general in nature.

I noted the issues raised by several parties regarding their individual positions, where they added information to what I had in the matrix. I do not object to those additions and have no issues with those. I don't propose to amend or change or edit my exhibit, but I do note that I have no objections to those issues raised by the parties.

Q. Okay. So Mr. Clements, if I were to ask you the same questions here today that are stated in your prefiled testimony, would your answers be the same as

in your prefiled documents?

A. Yes, they would.

MR. MOSCON: Based on that, we would move for the admission into evidence the direct, rebuttal, and surrebuttal testimony of Paul Clements, together with Exhibits PHC-1SR and PHC-2SR?

CHAIR: Any objection?

Hearing none, they'll be entered.

Thank you.

MR. MOSCON: Thank you.

Q. (By Mr. Moscon) Mr. Clements, have you prepared a summary of your testimony today?

A. I have.

Q. Would you please share that with the Commission?

A. Yes, I will. Good afternoon. Recognizing that the prefiled record is quite robust, I will limit my summary today to the four items that I believe are the most critical points in my testimony.

First, I will introduce the Company's proposed framework. Second, I will summarize my part of the Company's framework, in which I describe how best to evaluate the costs and benefits of the excess energy that's pushed to the grid by net metering customers. Third, I will answer the questions posed by

the Commission in their prehearing notice. And fourth, I will summarize, briefly, the material flaws in the Joint Parties' proposal.

First, I'll introduce the Company's proposed framework. Our proposed framework consists of two parts. Part one evaluates the costs and benefits related to the excess energy that net metering customers push to the grid. I present this part in my testimony.

Part two evaluates the costs and benefits related to scenarios in which the net metering customers' generation output is not sufficient to meet their entire retail load. When this occurs, the Company must provide partial or at times full requirement service to these customers. Company witness Steward presents this part of the framework.

I included in my surrebuttal testimony Exhibit RMPPHC-2SR. This exhibit is a diagram that illustrates the major components of the Company's framework and shows the mechanics of how the framework would be enacted.

The second part I'd like to address today is to summarize my part of the Company's framework. My testimony provides a framework for evaluating the costs and benefits of excess energy pushed to the grid by net

metering customers.

When a net metering customer's generation is greater than their own usage, the excess energy is pushed to the grid for the Company to manage. This is sometimes referred to as the meter spinning backwards or -- which is not, in practice, how it actually happens, but when energy goes from the home of a net metering customer out to the grid.

This is very similar to what occurs with a qualifying facility, or QF, where the QF has the option to put their energy to the grid, and the Company must manage it. Because of the similarities between rooftop solar and QF solar, the value of the excess energy from net metering customers is best determined by using the same avoided cost model that is used to set the QF rates.

The Commission recently established a QF avoided cost method in two dockets, Docket No. 03-035-14 and Docket No. 12-035-100.

I note that Mr. Norris this morning provided a lot of details about various models and methods that could be used to establish avoided capacity, avoided energy. He spoke of production cost dispatch models and other models. We've covered that ground, and we've covered it in great detail, and we've covered it

recently.

Those two dockets established a QF avoided cost method, and those methods were established through full evidentiary proceedings, and those methods were implemented and resulted in hundreds of megawatts worth of solar QF contracts. We've been down this road before.

The QF avoided cost method is easily applied to the rooftop solar generation most commonly associated with the net metering customers and is truly the best reference for valuating the benefit of that excess energy.

On the cost side, recognizing there's benefits and costs, net metering customers receive a credit for excess energy equal to their full retail rate.

Now, earlier today, and in his testimony, Mr. Woolf stated that the cost shift is best measured by comparing the value of solar to the retail credit that net metering customers receive.

And then in his testimony, and again today, he's provided some illustrative examples or calculations as to what that formula -- when he puts in his proposed numbers, what that results for illustrative purposes today.

What I find interesting about Mr. Woolf's proposal is that he uses hypothetical avoided costs, high, low, but he fails to use actual avoided costs, when actual avoided costs are readily available on the Company's website. We have Schedule 37.

And in my testimony, I provide an example, using the same formula that Mr. Woolf used, but using actual avoided costs. So, for the cost side, you look at the retail rate for residential customers, and that ranges 8.8 cents to 14.5 cents. It tends to average about 10.6 cents per kilowatt hour. In my framework, that would represent the cost.

And then in my testimony I described how we should use a short-term study period, and I'll talk more about that in a minute. The short-term avoided cost rate for calendar year 2016 was 3.5 cents per kilowatt hour at the time I prepared my testimony. In my framework, this would represent the benefit, or the value of solar.

So, in this example, this illustrative example, the cost would be 10.6 cents, which is the average retail rate, and the benefit would be the 3.5 cents. And the difference between those two numbers would represent the cost shift.

Mr. Woolf may say that we should use a

long-term period. Again, I don't propose to use a long-term period, but if we were to use a long-term period, the long-term avoided cost would be 5.2 cents. So now we're comparing 10.6 cents to 5.2 cents.

In this illustrative demonstration, it shows that the costs of the net metering program exceed the benefits for excess energy.

Moving on to my third topic, in a September 21st, 2015 prehearing notice in this docket, the Commission requested that the parties come ready to address three questions. I will address those on behalf of the Company.

Regarding the first question, which is: What tools should be used to calculate the value for each metric included in the evaluation? The Company recommends using the QF avoided cost model to evaluate excess net metering energy and the cost-of-service model to evaluate scenarios in which the net metering customer takes partial or full retail service from the Company.

Regarding the second question, which was: If a new tool would be required, how may the tool be feasibly developed? The Company's framework does not require any new tools. It instead uses tools that have been vetted by this Commission in multiple proceedings.

Regarding the third question, which is: What time period is appropriate for use in the evaluation? The Company recommends using a short-term study period. This is consistent with the time period used to establish rates.

Using a short-term study period aligns the cost and benefit evaluation that's required in part 1 of the statute with the rate-making process that's required in part 2.

I will note the DPU's proposal also uses a short-term study period, and I will note as well that the OCS proposal uses a short-term study period, when the objective is to determine the impact on the utility and on the non-net metering customers.

The Joint Parties recommend using a long-term study period. My testimony demonstrates how a long-term study period is more useful as a tool for long-term resource acquisitions.

A long-term study period is not useful in evaluating the impact to the utility's customers, and is therefore not informative in completing step 2 of the statute, which is the rate-making step.

A short-term study period better aligns the actual costs and benefits that accrue to customers of the utility, and therefore, I recommend it be used in

the final framework.

Moving on to my last item, and that is an overview of the flaws of the Joint Parties' proposal, my testimony illustrates several material flaws in the Joint Parties' proposed framework.

I will summarize just those that I find most critical. First, as I mentioned, the Joint Parties utilized a long-term study period. This is not consistent with the Commission's direction to evaluate only costs and benefits that accrue to the utility's customers. The NEM statute, or the net metering statute, does not require a long-term study period.

Second, the Joint Parties include several benefit metrics that are speculative in nature. These items should not be included in the evaluation framework because the parties have not met the burden of demonstrating these costs as being quantifiable and verifiable.

Third, the Joint Parties use a method for calculating avoided costs that is inconsistent with the current Commission approved avoided cost models.

And last, the Joint Parties argue that the rate impact to non-net metering customers will always be small, and perhaps even negative. I disagree, and believe that the rate impact can be significant, if

proper assumptions are used in the analysis. And I further state that the rate impact to non-net metering customers simply cannot be ignored in this proceeding.

In conclusion, I'll condense my testimony into three key points. First, excess net metering energy is very similar to QF energy and should be valued using the QF avoided cost model that was recently approved by this Commission.

Second, the credit net metering customers receive at their full retail rate is a real cost that accrues to non-net metering customers. This cost must be considered in a cost-benefit evaluation.

And last, a short-term study period must be used to align a cost-benefit evaluation with the rate making process required in step 2 of the statute. And that concludes my summary.

MR. MOSCON: Thank you. Mr. Clements is available for cross-examination.

CHAIR: Thank you.

Mr. Jetter?

MR. JETTER: No questions. Thank you.

CHAIR: Mr. Olsen?

MR. OLSEN: We have no questions. Thank you.

CHAIR: Thank you.

Joint Parties?

MR. CULLEY: Yes. Thank you, Mr. Chair.

CROSS-EXAMINATION

BY MR. CULLEY:

Q. Good afternoon.

CHAIR: I don't think your microphone is on.

Q. Try that again. Good afternoon, Mr. Clements.

A. Good afternoon.

Q. Thad Culley, counsel for the Alliance for Solar Choice, but asking questions on behalf of the Joint Parties.

A. Okay.

Q. Good to see you today. So, if a Rocky Mountain customer, Rocky Mountain Power customer, today wants to install rooftop solar, what options do they have?

A. If they want to install rooftop solar, they can do so.

Q. Okay. What options do they have under the Company's tariffs?

A. Under the Company's tariff, if they qualify, they would qualify for the net metering tariff. If they participate in the Utah Solar Incentive Program, they could qualify for that programming as well.

Q. And how about as a QF?

A. If they desire to self certify as a QF, they could do so and become a QF.

Q. Okay. And are you aware of any residential customers that are currently doing that?

A. Not to my knowledge, no.

Q. Okay. And for customers that are QFs and sell power to the Company, does the Company issue, say, a 1099 for the purchases from electricity from those customers?

A. Not to my knowledge, no.

Q. Okay. And are you generally familiar with the history of net metering in Utah?

A. In general, yes.

Q. So you're aware that the statute has been modified several times since it was first enacted?

A. Yes.

Q. And were you aware that prior to 2009 that a net excess generation was credited at what it cost?

A. I believe that's correct, yes.

Q. And are you familiar that there was a Commission proceeding in 2008 where the Commission adopted the current kilowatt-hour-for-kilowatt-hour credit?

A. I did not participate in that proceeding.

Q. Okay. Are you aware that it was the

Company's position at that time that it preferred that approach because it was going to be simple, easy to explain to customers, and easy to administer, as it is the same method they use in other states?

A. Again, I didn't participate in that proceeding.

Q. Okay. Are you aware if other -- other PacifiCorp states still have kilowatt-hour-for-kilowatt-hour net metering?

A. I'm not aware.

Q. Are you familiar with the Commission's notices and orders in this proceeding?

A. Generally, yes.

Q. Okay. And did the Commission give notice that it would be examining the value or credit that net excess generation gets for net metering customers?

A. I believe the Commission said they'd be evaluating whether the costs exceed the benefits or the benefits exceed the costs, consistent with the statute, and I believe that falls under that umbrella.

Q. Okay. And so you wouldn't be aware that in the 2008 docket they gave explicit notice that that was on the table?

A. Again, I'm going off of what Commission orders are in this particular docket, and it was an

umbrella view of the costs and benefits. And I believe the excess generation needs to be viewed under that umbrella.

Q. Okay. Fair. So, the Company's proposal, as you've included in your testimony would set a rate of compensation for all customer exports of electricity; is that correct?

A. That's correct.

Q. And would you agree that there's a distinction between all electricity exports and net electricity? And if you'd like, I can define what I think net electricity is.

A. Yeah, why don't you go ahead and clarify that question.

Q. Sure. Sure. So, instead of just looking at all exports, you'd be looking at, if the customer supplied more electricity to the Company than they consumed that month, then that would be a net electricity.

A. Yes. My portion of the framework only applies to the energy that's pushed to the grid, so it would be only energy that's produced in excess of what the customer uses in any instance.

Q. Right. But your proposal would be to value all exports at avoided cost, essentially?

A. Yes. If by "exports," you mean energy that flows to the grid from net metering customers, then yes.

Q. Right. So all exports are not net electricity?

A. Again, I'm not sure how you're defining net electricity, but...

Q. If there's excess generation at the end of the month, that's what I mean by it.

A. No. Again, our -- my proposal and my framework looks at instantaneous exports, so any energy that is pushed to the grid at any given time.

Q. Okay. And is it your understanding that the Company's proposal is still technically net metering?

A. Yes.

Q. Okay. So under the Company's proposal, will you treat excess generation as a purchase of electricity from that customer?

A. No, it would not be a specific purchase.

Q. Okay. So if this were a QF and this was a purchase, would you pass that through to customers, do a dual clause, or if there's something like that?

A. Yes, if it were a QF, that would be a system allocated resource, subject to the allocation factors.

Q. Okay. But, under your proposal, if all

exports are valued to avoided costs, this would not be passed through that same mechanism?

A. Not exactly, no.

Q. Okay. Thanks for clarifying.

So, you say under the current net metering tariff that the Company doesn't know what the exported kilowatt hour credit is worth to the customer until the end of the month; is that correct?

A. That's not what I said, no.

Q. But would you agree that that is the case, that you don't know what the kilowatt hour credit is worth to the customer when it's exported?

A. Yes, we do. We'd be able to -- our little research study will have production meters and we'll be able to measure what's produced at the panel. We also have the meter in place and the data in place to measure what's pushed to the grid at any given time. So our proposal will value any energy that's pushed to the grid at the time it's pushed to the grid.

Q. Right. But you note that the value a customer gets for a credit could be -- on one of your rate years, it might -- it depends at the end of the month where they land; is that correct?

A. True.

Q. Okay. So you don't know exactly the credit

they're receiving at the moment it's exported. It has to be accounted for at the end of the month?

A. Well, the cost-of-service study that Ms. Steward described in her testimony would account for that.

Q. Right. So on a longer -- this is like a year basis, that's your basis, you'd be able to determine that?

A. Yes.

Q. Okay. Let me shorten this down for everyone.

And so it's your testimony -- maybe I'll rephrase that. Is it your testimony that there's absolutely no difference between QFs and net metered systems from valuing the resource as an injection to the grid?

A. No, that's not my testimony, and in fact, I point out in my testimony some of the key differences, primarily being the obligations that are placed upon the QF compared to what's placed upon the home owner.

Under most of our QF agreements, we have robust credit terms, robust performance guarantees, step-in rights, other credit provisions that ensure that that project will be producing during the contract term.

No such protections exist with a rooftop

solar or net metering customer. If their inverter breaks, we have no obligation -- they have no obligation to replace it. If a tree grows in front of their panel, we can't tell them to cut it down. So we don't have the same protections in the rooftop solar that we do in QF contract.

Q. Okay. Well, let's just assume this whole -- say, a rooftop solar system on a home and a QF that's out 100 miles in a field. Let's say they have the same protections in place, from the Company's perspective. Is it your position that there's no difference in the value of that electricity to the Company, whether it's produced from the rooftop solar on the house or in the field?

A. From a capacity and an energy standpoint, no, I believe there's no difference.

Q. But would you acknowledge that there may be line loss differences between an exported electron from a household might be consumed nearby, and it would have less line losses than if it was exported from a QF 100 miles away?

A. Yes, conceptually, I agree with that. I struggle quite a bit with our position on line losses because it does seem to make sense that if there's a solar panel on the Wasatch Front, it would incur fewer

line losses than a solar farm down in central Utah.

Why I struggle with that is, we actually had a proceeding back in 2006, 2007, with Spanish Fork Wind Park 2 where we tried to actually measure the line losses that were avoided or incurred by that particular 18-and-a-half-megawatt wind farm down in the mouth of Spanish Fork Canyon.

And we ran all these power flow studies and have very detailed engineering analysis, and determined that we could not measure the impact on line losses.

And so I struggle quite a bit with the -- with the issue of line losses. And our position is, if you can measure them and identify them and demonstrate that you are actually avoiding the line loss, then it should be included in the metric. But I would purport that that's very difficult to do.

Q. Okay. In your value that you would give to an exported kilowatt hour, you do not in your testimony address like behind the meter benefits that might flow; is that correct?

A. I don't know what you mean by "behind the meter. "You'll have to be more specific.

Q. So, say, a customer that is consuming -- let's just call it a demand reduction benefit, so they're reducing their demand on the grid by consuming

on site, so the portion they're not exporting.

A. Again, that's covered by Ms. Steward in terms of what they're offsetting their own load. I would equate a demand reduction is equivalent to a capacity payment, in my mind. If they're reducing their own usage at the time of peak, that's very similar to a capacity payment, or a capacity contribution, by a normal resource, so I would equate those two things. And my method does pay a capacity payment.

Q. Okay. Now, you list, I think, in your direct testimony at -- starting with line 346 -- and I'll let you open that up.

A. Okay.

Q. It's a question starting at 346. Now, you give an excerpt of some of the FERC regulations governing the rate for purchases from QFs.

Now, as we just discussed about potential behind-the-meter benefits, do the FERC regulations take account for the fact that a QF may be serving on-site load and producing some system benefit?

A. No, again, and I didn't characterize it that way in my testimony.

Q. Okay. But you don't -- you're very familiar with the FERC regulations, I imagine?

A. Yes.

Q. And have the FERC regulations -- has the Utah implementation of these regulations attempted to value any of these behind-the-meter contributions?

A. No, because a QF is not behind the meter. It's not applicable. That's not an apples-to-apples comparison. A QF is a meter. It's not behind the meter. We purchase energy from a QF at a meter, and so there's no part of a QF that's behind the meter.

Q. Okay. But theoretically, if, say, a cogeneration facility is producing a system benefit, they're still getting the avoided cost rate that was determined based on the ejections, not on any benefit they provide behind the meter; is that correct?

A. Yes. A cogeneration facility -- we have a lot of those, and a cogeneration facility typically takes one of two paths, the first path being they could sell all of their generation to us as a qualifying facility, and they would get a capacity and an energy payment accordingly, or they could elect to offset their own usage, which may reduce their demand charge, it may reduce their facility charge, it may reduce their energy charges, and they can elect to sell only their excess to us. And that's been in place for many years and has worked quite well for those partial requirement customers.

MR. CULLEY: Okay. Thank you, Mr. Clements. I don't have any further questions for you today.

CHAIR: Thank you.

Mr. Mecham?

MR. MECHAM: Thank you, Mr. Chair.

CROSS-EXAMINATION

BY MR. MECHAM:

Q. Good afternoon, Mr. Clements.

A. Afternoon.

Q. In your summary, you said that no one had met their burden to quantify the benefits. Is there any data available to be able to do that? I didn't see any party do it.

A. I didn't see any party provide a path or a model that would quantify those particular items that I note in my testimony.

Q. But I guess there's a disagreement over whether or not that's -- clearly everybody disagrees on that point, but there isn't data -- I haven't seen any good data, they're all the illustrative examples, guesses. We're all sort of waiting for better information and data to come, are we not?

A. Well, not necessarily. We covered some of those items in the last avoided cost document, like hedging value and fuel price volatility, and some of

those items that I note in my testimony as things that are not measurable or accruable to customers.

And the Commission determined that those items are not incremental benefits and should not be included in the QF price, and so I leaned heavily on that recent order on those particular items.

Q. But again, there's not agreement that avoiding costs is the correct compensation. You suggested it is, but other parties, of course, do not?

A. That's correct.

Q. Okay. You mentioned in your summary that completing the avoided cost docket resulted in hundreds of contracts. Did I understand that correctly, or did I miss it?

A. Hundreds of megawatts.

Q. Oh, hundreds of megawatts. Okay. How many of those --

A. Still pretty good.

Q. Excuse me?

A. Still a lot of solar.

Q. Okay. How many of those do you expect to come to fruition?

A. We expect all of them to come to fruition.

Q. How many -- how many contracts individually are there?

A. Subject to check, there's probably 20, around 20, I would say.

Q. Okay.

A. 20 to 30.

Q. Is that typical -- is the track record you're giving me typical, they're 100 percent, they're all going come to fruition?

A. No, not necessarily. Typically, certain projects are unable to meet their outlined dates for various reasons. Based on our evaluation of the current status of these Utah solar projects, we expect all of them to reach commercial operation. None have indicated that they'll be unable to do so at this point.

MR. MECHAM: Okay. All right. Thank you. That's all I have.

CHAIR: Thank you.

Any redirect?

MS. MOSCON: Just one question.

REDIRECT EXAMINATION

BY MR. MOSCON:

Q. Mr. Clements, you recall the line of questioning from the Joint Parties distinguishing between net electricity and the net metering that looks at the total import, total export. Do you recall that

line of questioning?

A. Yes.

Q. For purposes of my question, I want you to assume a net meter customer that nets out at zero, meaning, just coincidentally, they produce as much as they consume, not necessarily without exporting or importing, but it just nets out at zero. Does that customer still use the Company's system?

A. Yes, absolutely. And why I struggled a bit to answer that question that was originally posed to me is net metering is really a billing scheme. He was talking about a billing scheme where at the end of the month you could have technically no energy usage because you overproduced at some times and you -- we held that for you in storage and gave it back to you at the time when you needed it, and at the end of the month, you have a zero on your meter.

And that's a billing scheme, which is not reflective of what I have in my framework, which says, every instance, I'm going to look at whether you're using the system to take energy from me or using the system to export energy that I have to do something else with.

So the fact that that meter is a billing scheme compared to the flow of electrons is -- is

different.

MR. MOSCON: Thank you. No other questions.

CHAIR: Thank you.

Mr. Culley, any recross?

MR. CULLEY: None. Thanks.

CHAIR: Okay. Thank you.

Commissioner Clark?

COMMISSIONER CLARK: I have a question or two about the docket in the 2006 time frame that addressed the wind farms in Utah County.

THE WITNESS: Yeah.

COMMISSIONER CLARK: And I think you were -- you told us that the Company was unable to measure line losses or determine them. I'm just looking for more information about why that might have been the case.

Was there something peculiar about that particular arrangement that made it difficult? Because we typically see line loss calculations and estimations in other settings. So will you help me with that, please?

THE WITNESS: Yes. So, that was a 2006 docket in Spanish Fork Wind Park 2. And if you recall, in Docket 03-035-14, which was the big QF docket from several years ago, the Commission determined that avoided line losses should be determined on a case-by-

case basis, and that's been the premise under which we've been operating for all QF contracts since that time.

In that particular instance, we did not believe there were line losses. Spanish Fork Wind Park thought there would be. And we had a litigated docket.

The Company prepared multiple power flow studies, so there was a model that our engineers ran that basically said, "Here's the entire system without that wind project." And then they dropped in that 18-and-a-half megawatt wind project at its location on the system, the Spanish Fork Substation. And they recalculated the power flow study to see what the impact was on avoided line losses.

And the determination by our engineer was it's well within the noise in the model, is the best way to describe it. The model did not provide conclusive results that said, because this project was added in this location, line losses increased or decreased. It was simply too small to have an impact on the system as a whole. And this was an 18-and-a-half megawatt project.

COMMISSIONER CLARK: So it was the scale in that instance --

THE WITNESS: Yes, it was the scale.

COMMISSIONER CLARK: -- you think, that was responsible for the -- for the outcome?

THE WITNESS: Yes. What our engineer testified at that time was that that scale was within the margin of error, within the noise, of the model, and it was not large enough to impact the power flows enough to change the line losses on the system.

COMMISSIONER CLARK: Thank you. That concludes my questions.

CHAIR: Commissioner White?

COMMISSIONER WHITE: I have no questions.

CHAIR: I have none.

Thank you, Mr. Clements.

THE WITNESS: Okay. You're welcome.

MR. MOSCON: Rocky Mountain Power would like to call Dr. Douglas Marx for its second witness.

(Douglas Marx, Ph.D. was duly sworn.)

CHAIR: Thank you.

DOUGLAS MARX, Ph.D.,

called as a witness at the instance of Rocky Mountain Power, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MOSCON:

Q. Mr. Marx, could you please state and spell

your name for the record?

A. My name is Douglas Marx, M-a-r-x.

CHAIR: I believe your microphone is not on.

THE WITNESS: Is that better?

COMMISSIONER WHITE: Just looking for the green lights.

A. Here we go.

Q. Thank you.

A. Okay. My name is Douglas Marx, M-a-r-x.

Q. Thank you. What is your position at Rocky Mountain Power?

A. I am the Director of Engineering Standards and Technical Services.

Q. In that capacity, did you prepare and file rebuttal and surrebuttal testimony in this proceeding?

A. Yes, I did.

Q. Did you have any exhibits with your testimony?

A. There's figures and tables in it, but no exhibits.

Q. Okay. Are you aware of any changes that need to be made to your testimony, as you sit here today?

A. No.

Q. So if I were to ask you the same questions that are set forth in your prefiled testimony, would

your answers be the same?

A. Yes.

MR. MOSCON: Mr. -- or Chairman, I move for the admission into evidence of the rebuttal and surrebuttal testimony of Mr. Marx.

CHAIR: Any objection from any party?

Hearing none, they'll be admitted.

Thank you.

Q. (By Mr. Moscon) Mr. Marx, have you prepared a summary of your testimony that you could share with the Commission?

A. Yes, I have.

Q. Would you please?

A. Okay. Thanks. Good afternoon. The purpose of my testimony, I was brought in to rebut some testimony filed by other parties concerning the costs and operations of the distribution system. So, Company witnesses Clements and Steward, they're going to talk about the regulatory framework and the cost stuff. That's not my bailiwick. I'm going to talk about the technical aspects of the electrical grid.

I've worked for Rocky Mountain Power for over 34 years, and it's principally in distribution and metering, but I've worked in the transmission and substation areas as well. And so my job, and that of

my colleagues, is to engineer and design an electrical network that is economical and cost effective and in conformance with all applicable operational codes and reliability standards.

In the last few years, I've spent a considerable amount of time studying distribution generation and the impact it has on our network. And so based on my experience, rooftop solar is not going to provide any benefits that will make my system cheaper to operate. In fact, I believe it will actually increase the cost to operate and maintain the distribution system.

So, my key points are that NEM customers utilize the distribution network every day, all day, but they use it in a different manner than NEM customers, and that solar generation is variable and any design must account for both the inclusion and the absence of that resource at any time.

The second point is, distribution systems are designed based on peak energy transfer requirements, not on the total energy used, and the peak generation level of net zero energy production can exceed the peak hold requirements of that customer, and that becomes the driving influence on system designs.

And the third point is that high penetrations

of solar generation will create operational and voltage challenges that require additional design and equipment to mitigate their effects. And a lot of these effects were presented and discussed during the technical workshops over the last couple years.

So, to my first point, in my rebuttal testimony, on page 2, there's a figure labeled as "Figure 1." It looks like -- it looks like this.

CHAIR: I think you mean surrebuttal.

A. I thought it was in -- yes, yes, yes, yes. I'm sorry. Okay. There's a very similar chart that was developed by CrossBorder, and it was presented in some past testimony, but they're very similar.

And what I want to talk about is, on this chart, there's -- there's two curves. One is the curve of a typical residential load profile, that's the red curve. And the other one is the very clean solar production profile, that's the bell-shaped curve in the dark line. Now, this is a typical fundamental chart, and we're going to talk about how the customers use it.

So, we'll start at midnight and end at midnight in a 24-hour day. So, the first part, in the very dark brown area, there is no solar generation going on and the Company is providing 100 percent of the customer's load requirements during that time.

As we move into the morning hours into the orange zone, we come into the partial service requirements of the customer where their solar is providing part of their load and we're providing the other part.

As we move into the blue zone, anything above that red line is excess generation being pushed onto my grid. And the stuff below the red line is the customers using their own generation for their own purposes.

In evening hours, as the customer's load starts to peak and the solar is starting to diminish greatly, that's where we go back to the partial service requirements.

And then, you know, as the sun goes down, we end up in the brown zone where we're providing 100 percent of the power at that time.

So, I mean, it's simplistic, but it makes a point. So, as I mentioned, the solar curve here is very clean. And the reason why that's important is, this chart doesn't show the interference that can occur in a day.

Now, with a day change, the customer's load changes, the sun availability changes, and during this blue zone time, any change in that resource, especially

if it drops below that red line, means my grid is sitting there as the standby generation resource for the purposes of that customer to use to augment their load when their own self-generation cannot do that.

The other thing that's important from this chart is, other than the two instantaneous times when the lines cross, that's the only time that the customer is not using the grid for either the purposes of exporting power or bringing power in to support their loads. So I think that kind of gets into the key fundamental differences of what they do and how they use our grid.

My second point is that the distribution systems are designed on peak energy transfer requirements and not total energy used. So, Mr. Norris, in his rebuttal testimony, he included the statement that: NEM generation occurs adjacent to the point of consumption, and he implies that this avoids losses for transmission lines, substation transformers, and distribution lines.

I reply to that that that statement is only true if the generation occurs at the same time and produces the same quantity of energy as the load that's immediately adjacent to the point of generation.

So, to illustrate, let's go back to my curve,

Figure 1, and we're going to deal with the area under the blue zone here, that it's being exported. And I'm going to make this a very simplistic view.

So, the producer of that generation is not using that. It's going out onto the grid to be managed by us and to be delivered somewhere else. So, let's say that it is, in fact -- his neighbor sitting next door, has exactly the same load requirement as that excess generation at the exact time.

What happens is, the power has to come from their meter, where we've given them a credit for a kilowatt hour. We have to push that back out onto the service wires, possibly the secondary wires, and back in the service wires of the neighboring customer to get it to their meter.

Now, there's losses along this path. So when you look at system losses as a whole, that varies from about eight to 10 percent, and that's kind of the stuff you would have mentioned earlier.

About three percent of that is in local system losses in the local neighborhood facilities. So to push that power to the neighbor, I'm not getting a full kilowatt hour over to the neighbor instantaneously. I have to augment that with resources from the grid. Okay. So that's a simplistic view of

it.

So now what happens, that producer has been building up credits, and now they're going to cash them in and get their energy back. Well, now I've got to bring that energy from some other resource across the entire grid, per se, back to their meter. Now, remember, they -- we gave them a full kilowatt hour credit. They expect a full kilowatt credit in return.

So that means I have to produce more energy to account for the line losses coming back to them, so thus, the round-trip value of the energy credit is hit twice with losses, both on the export, and then again on the delivery when we have to replace it. And those are real costs that are associated with the losses. They occur regardless of the direction of the energy flow.

Now, we heard the comment about a customer that may be a net zero customer on an annual basis. What this means, to be considered a net zero customer, is you need to generate enough energy in the course of a year to replace all of the energy you consume during the year.

So I'm going back to my Figure 1 again because it's actually pretty cool. What you see here as you look, this area above the red line in this blue

zone, that's the excess energy that they're going to get credit for.

That area underneath that curve has got to be able to replace all of the area under this curve here and all the area under this curve over here.

And what we found when we started doing studies was most of that production has to occur during the summer months because that's when they get the most solar production, because it diminishes during the winter months, and there's also some other factors.

So, when you take a typical residential profile and you calculate what do they need for rooftop solar to displace their annual energy requirements, this peak, minus their incidental load at the same time, is still greater than their peak demand.

Now, that can vary customer to customer, but it's a reality. So now I'm having to look at my facilities that I'm sizing for that customer, and they're increasing because of the export peak energy transfer.

So, as we see, the NEM customers come in, and we've had a couple cases where they have exceeded these local system capacities, that we've had to increase those.

So I went on further in my surrebuttal to

actually show this. And it's in the surrebuttal. It's in Figures 2 and 3, if you want to look at them. But it shows that, in reality, the customer's peak load typically occurs in the hottest months of the year. And in the hottest months of the year is actually when the generation is not at its full 100 percent capacity. Full 100 percent capacity usually occurs in springtime or in the late fall, and that's also when their load is down, and thus you can see in Figure 3 that the reverse flow energy is actually a lot higher than their peak load would ever be.

So when you take all that into consideration and you look at the compounding effect of multiple NEM customers on a transformer or circuit, as they start to come together, we're starting to increase the size of our facilities in the local neighborhood to service them.

So Mr. Woolf stated in his rebuttal that the Company will not incur any additional costs in terms of revenue requirements from NEM in any one hour or month. So I think I've proven that statement is false, because NEM does increase both my system losses and my infrastructure costs to serve those customers.

My final point is that high penetrations of solar generation create operational and voltage

challenges that will require us to put in additional design and equipment to mitigate their effects.

So, when asked about, what are some of the costs that should be included in this framework, Mr. Norris stated in his testimony that costs for reliability related purposes should not be included because they are not avoidable by distributed solar.

In fact, what happens is distributed solar creates additional problems in outage management and in voltage management, both of which come in to take care of the reliability standards that we're bound by.

So, in my surrebuttal -- I think, no, in my rebuttal I provided standard equipment cost, because today we operate mostly in a one-way power flow direction. In a new world, where the power can flow in two directions, we have to put in bidirectional equipment, and you can see the cost comparisons between those.

The -- the Table 1 is equipment that's used for outages. That's necessary to reduce the outages and also to reduce the outage duration so that we can maintain the reliability levels.

The second set of equipment in Table 2 is really the voltage management equipment that's necessary to maintain our delivered voltages within the

defined parameters as specified by the American Standards National Institute, or ANSI.

And the other thing we don't really talk about is, there's one piece of equipment that every NEM customer has to have, and that's the meter. And that meter costs about three times what my standard meter costs for residential. So you couple the meter costs, my local infrastructure costs, my outage management costs, my voltage management costs, it's -- they are going up to manage a distributed world.

And in reality, when you look at the transmission network, the transmission network is distributed already because resources are available in different parts of the -- the state, and those operate, and it's a very complex system.

What's happening with this is, the distribution system is also becoming very complex, more engineering time, more equipment that's going to be required to operate that, and it's just added to the complexity of the network and the cost of the equipment.

So that kind of summarizes what my testimony was. Thanks.

MR. MOSCON: Thank you Mr. Marx.

Chairman LaVar, Mr. Marx is available for

cross-examination.

CHAIR: Thank you.

Mr. Jetter?

MR. JETTER: No questions. Thank you.

CHAIR: Mr. Olsen?

MR. OLSEN: No questions. Thank you.

CHAIR: Joint Parties?

CROSS-EXAMINATION

BY MR. CULLEY:

Q. Thank you, Mr. Chair. Good afternoon, Mr. Marx. I just have a few questions for you.

We were just talking about, in rebuttal, Table 1 and Table 2, and these are, I guess, devices or standard protective devices.

So, do you know for -- let's start with Table 1 -- whether the need for these types of standard protective devices can be identified at the time of interconnection or they have -- during that area connection application process?

A. This equipment is going to be dictated as multiple NEM customers come on line and we hit a certain saturation point that causes the operation of levers. To me, the question is like asking me, "Which raindrop caused the dam to break?" Okay.

So, the reality is, we will get to a point

when we start having reliability issues that we can't manage with the standard equipment, and that time will -- as we start to run the models of this, more NEM customers on the line, we'll start putting more and more advanced equipment. We've got to build other intelligence to respond to those issues.

And like you say, Table 1 is for outage management, so, you know, standard fusing, it doesn't work anymore because all it responds to is a change in current flow. It doesn't know whether it's going forward or backward.

In the new world, I've got to be able to determine whether it's a fault and in reality a very high impedance fault, or whether it's just a reversal of current flow on my system. So that's why that equipment becomes so much more costly. It has to do a lot more.

Q. Okay. But is this something that could be identified during the interconnection process? Are the current interconnection rules adequate to identify these potential problems?

A. I'm thinking of how to phrase this, because a singular NEM customer, we do not do a full-circuit modeling when they apply. We do local analysis of the local transformer, the local service. We don't do a

full-service model.

What we do do is, as we're running models and as new NEW customers come in, we'll start to include those in the models, we'll start to see the tipping point where it requires it.

So, you could say, as an engineer, I may have a circuit that I say, "Wow, one or two more customers and we've got to start changing some equipment out." Do you go to that customer and say, "You caused the problem. You're paying for all the system upgrades." Or not?

Q. But currently, would you agree that when a generator or customer wants to interconnect to the system you'll go through a certain number of screens and run some -- you know, as you say, with your customers you don't run a full-circuit analysis at this point, but if a customer triggers that cost, they pay for it; is that correct?

A. Yes.

Q. Okay. So is what you're describing, this dealing with complexity, is this something that maybe should be addressed in interconnection rules?

A. It could be.

Q. Okay. And would you agree that the potential distribution system impacts that you discussed are not

occurring at this time because of low penetration?

A. Not on the magnitude that I've discussed. We've had a couple cases where we've had to change out a transformer to handle the -- the new customer.

Q. And has the -- has the study undertaken or taken steps to undertake a distribution system integration study, or something of that sort?

A. I guess I don't understand that question.

Q. Okay. Has the Company begun to study the level at which PV penetration will start triggering these events, either locally or systemwide?

A. Yes, we have. We've done a few models to see how and when it will occur.

Q. Okay. But none of these are publicly available at this point?

A. Nothing that we've produced, no. We can talk about it, but, you know what I mean? You get into parameters like 15 percent of the line load characteristics of the circuit, you know, and that's not a lot when you look at it, as compared to 10 percent of the full load, which is another parameter people use.

So your light load characteristics start to become drivers too in residential areas because you'll notice that that light load condition actually occurs

when the solar is at its peak, which exacerbates the problem.

Q. So let me ask you again, if -- with any of these studies, have you considered whether new technology or changing practices might mitigate any of those impacts?

A. Yeah, that's what we've talked about. That's what the Table 1 and Table 2 equipment do.

Q. How about customer side technologies, like, you know, so-called smart inverters?

A. Smart inverters are really not available yet, but they don't handle all of the issues. What they cannot do is help me in an outage detection in an isolation standpoint. It cannot help me with midpoint voltage problems. They can help me with end-of-line voltage problems or voltage problems right at the customer's premise, but they do not cure the -- they are not a cure-all for what we're talking about.

Q. Does the Company have an estimate of how long -- how long it might take before you start seeing these impacts amplify?

A. Yeah. Yeah. When you start getting these conditions we talked about, you know, 15 percent of the light load or 10 percent of full load, when those start to come. At the current rate of growth, we have not

put a time frame to that.

Q. So is it possible there might be technological advancements that mitigate those impacts, and not only that, provide the Company new tools to coordinate with customers and provide system benefits?

A. Oh, yeah, there's always the possibility of new technology helping us. That's what a lot of the supposing is, is real new technology that's going to be used in this world.

Q. And that's something the company would embrace, I imagine?

A. Oh, yeah.

MR. CULLEY: Okay. Thank you. No further questions.

CHAIR: Thank you.

Mr. Mecham?

MR. MECHAM: I have nothing, Mr. Chair.

CHAIR: Thank you.

Any redirect?

MR. MOSCON: No questions.

CHAIR: Commissioner White?

COMMISSIONER WHITE: No questions.

CHAIR: Commissioner Clark?

COMMISSIONER CLARK: No questions.

CHAIR: Thank you, Mr. Marx.

THE WITNESS: Thank you.

MS. HOGLE: The Company calls as its final witness Joelle Steward.

(Joelle Steward was duly sworn.)

CHAIR: Thank you.

JOELLE STEWARD,

called as a witness at the instance of Rocky Mountain Power, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. HOGLE:

Q. Good afternoon.

A. Good afternoon.

Q. Can you please state and spell your name for the record?

A. Joelle Steward, J-o-e-l-l-e, S-t-e-w-a-r-d.

Q. And can you state your position and maybe give us a little bit of your background?

A. I'm the Director of Rates and Regulatory Affairs for Rocky Mountain Power. In my role, I oversee the regulatory affairs for Rocky Mountain Power, as well as the pricing and cost-of-service analysis for all six states.

Q. And in that capacity did you prepare, or cause to be prepared, direct testimony with exhibit,

rebuttal testimony, and surrebuttal testimony in this case?

A. Yes.

Q. And do you have any changes to that testimony?

A. No, I do not.

Q. So if I were to --

COMMISSIONER WHITE: I'm sorry, I don't think your microphone is on.

THE WITNESS: Or it's not close enough.

COMMISSIONER WHITE: Or it's not close enough.

THE WITNESS: There we go.

COMMISSIONER WHITE: Sorry.

MS. HOGLE: Do you need us to repeat that?

COURT REPORTER: No.

Q. (By Ms. Hogle) So, if I were to ask you the questions in that testimony again here today, would your answers be the same?

A. Yes.

MS. HOGLE: Your Honor, I move for the admission of the direct testimony and attached exhibit, rebuttal testimony and surrebuttal testimony of Joelle Steward.

CHAIR: Any objection?

Hearing none, they'll be admitted.

Thank you.

Q. (By Ms. Hogle) Ms. Steward, have you prepared a summary for the Commissioners today?

A. Yes, I have.

Q. Please proceed.

A. Thank you. The purpose of my testimony is to explain the use of the cost-of-service study in the Company's proposed framework for evaluating the costs and benefits of net metering.

The cost-of-service study is an analytical model that examines how different types of customers use all aspects of utility service. This includes the transmission, distribution, generation services that we provide.

The cost-of-service model is used to assign cost to different types of customers based on characteristics of how those customers use service.

It also guides the development of rates in the rate setting process. The model is well known and an existing tool that is used for establishing rates for all customers.

For net metering, the Company proposes using the cost-of-service model to directly examine the cost required to serve residential net metering customers.

I provide an overview in my direct testimony about how the cost-of-service study will be used, but in short, the Company proposes creating a separate class in the model, using the load profile for residential net metering customers that is being developed with the load research study that is currently underway.

Our cost-of-service framework examines the near term impact that net metering installations have on the utility's cost of service. The Company's approach is the only one offered that will directly consider the cost of serving net metering customers.

This will show the Commission whether or not any cross-subsidies arise due to the presence of net metering installations from an embedded cost perspective, consistent with how all rates are set.

The load profile in the cost-of-service study will reflect when customers with distributed generation require more or less of the resources that they would rely on for reliable ongoing service. We would then assign the cost of that service to that class of customers.

For instance, if net metering customers have reduced usage during distribution peaks, they would receive a lower allocation of the cost of those

distribution facilities, in this way, the measurable and quantifiable benefit that will flow through to that residential net metering class.

The cost of providing service can be compared to the revenues received from these customers in order to determine if they are fairly contributing to the costs or if the costs are being shifted to other customers.

And this approach will also directly -- this approach also directly responds to the Commission's order in the last rate case where the Commission expressed concern about not having enough evidence that would show that net metering customers displayed different characteristics, and therefore a different treatment is warranted.

The two parties -- or no. The Joint Parties make two claims that I would like to specifically address. First, they claim that the net metering customers should not be treated differently than other customers that adopt energy efficiency.

However, distributed generation is not the same thing as energy efficiency. While it is true that a customer with distributed generation reduces their usage, or their overall energy usage, that they may take from the grid, they will not, however, always

reduce their overall energy usage, unlike energy efficiency. DG, or distributed generation, just offsets usage at certain times of the day.

This is important for three reasons. They are -- they become, essentially, partial requirement customers, they have a different load profile, and they continue to rely on the grid for exporting the power.

So, as partial requirement customers, the customer relies on the grid for the backup when that facility is not operating at full capacity or if it's out of service. So the Company has to continue to maintain the facilities necessary to serve that customer's peak usage.

Second, because -- just because DG offsets usage at times, rather than reduces usage at all times, it creates a different load profile for the customers. The load profile being developed from the load research data will show if customers are placing less demand on the system at the time the system peaks.

And in order to provide reliable service, the system is built to serve those peaks. Accordingly, a significant portion of costs are based on that demand, which is how much -- how much power a customer needs at any one point in time.

So, while a customer may reduce his or her

overall average usage, they won't necessarily reduce the need for peaking resources. Therefore, the infrastructure is still necessary to serve that customer, and that's what separating them in a cost-of-service study will help us show.

The third reason net metering customers are different from energy efficiency is because net metering customers also rely on the grid to export the power. And as Mr. Marx just explained, this may actually place additional requirements on the distribution system.

The second general point made by the Joint Parties that I want to address is their criticism that the Company conflates rate design with cost effectiveness of net metering.

They make this claim because, in my testimony, I explained how the current residential rate design shift results in cost shifting, and how the nonresidential rate design actually helps mitigate cost shifting from net metering.

However, because net metering itself conflates rate design with cost effectiveness, we cannot ignore rate design and how that influences the costs and benefits of net metering.

The problem with this relationship can

clearly be seen by comparing the incentive or the compensation for the same distributed facility that the different customers may put on their roof. So, for a residential customer, they can receive compensation up to 14-and-a-half cents per kilowatt hour for a rooftop solar facility.

A small general service customer, such as one on Schedule 23, can receive compensation up to 11 cents for the exact same facility just as a result of rate design.

And both of these would compare to the qualifying facility, or QF, under avoided costs that would receive compensation at, you know, somewhere from three to five cents.

This clearly shows that rate design matters under net metering, and it also shows how net metering differs from any other acquisition that we do for resources.

One of the concerns that I've heard today is that -- that the Joint Parties mentioned is that we have -- we're somehow presupposing by talking about rate design the outcome of the framework, and that is absolutely not the case. We're not presupposing the outcome.

What I have done is think through how our

framework will inform phase two and rate design, because the two are conflated.

So, sort of in closing, the practical effect of using a cost-of-service study, and in particular, separate -- separately evaluating the residential class within the cost-of-service study, will be to determine whether or not the revenues from net metering customers exceed the cost or whether the cost exceeds the revenue.

Using the cost-of-service study is a test of the costs and benefits and will meet the intent of the law, and it will also provide practical information on how to design rates for the next phase.

That concludes my summary.

MS. HOGLE: Ms. Steward is available for cross-examination. And thank you.

CHAIR: Thank you.

Mr. Jetter?

MR. JETTER: No questions. Thank you.

CHAIR: Thank you.

Mr. Olsen?

MR. OLSEN: No questions. Thank you.

CHAIR: Thank you.

Joint Parties, Ms. Hayes?

MS. HAYES: A few. Thank you.

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CROSS-EXAMINATION

BY MS. HAYES:

Q. Good afternoon, Ms. Steward.

A. Good afternoon.

Q. I'm going to ask you a couple questions about the cost-of-service study, which will be really fun because you're the expert and I need remedial cost-of-service study classes.

So, the cost-of-service study allocates test period revenue requirements among customer classes based on allocation factors, size of customer classes, and contributions to monthly peaks, among other things. That's -- is that sort of a simple assessment?

A. That is a simple characterization of the cost model, yes.

Q. Okay. It's not a model that calculates costs, rather, it allocates the revenue requirement that has been put into it?

A. That is correct.

Q. Okay. So the model divvies up costs such that one customer class can see a relative benefit compared to another class; is that correct?

A. Yes, based on their different characteristics.

Q. Okay. So if net metering reduces test period

revenue requirements for all customers, how would you see that in a cost-of-service study?

A. Can you say that again? If revenue requirement reduces cost revenue--

Q. No, if net metering --

A. Oh.

Q. -- reduces the revenue requirement for all customers, how would you see that in a cost-of-service study?

A. You would not directly see that. You would see the cost of serving -- you can compare how the cost of serving that net metering customer compares to the cost of serving other types of customers.

The cost-of-service study has various different summary pieces that can be broken down, not just overall revenue requirement, but also the cost of serving them on a different unit cost basis, based on different categories of service for distribution, transmission, and generation. It has an excruciating amount of detail.

Q. Yes. I've seen your binders from the rate case. So -- but if it reduced the whole revenue requirement for all customers, you wouldn't -- that's not something that you would see in the cost-of-service study?

A. Correct.

Q. Okay. And the cost-of-service -- did you say cost-of-service study or cost-of-service model? Does it matter?

A. Study.

Q. Study?

A. Yeah. It doesn't matter, though.

Q. Okay. The cost-of-service study does not reflect the avoided cost value of behind-the-meter distributed, generation-lowering, future revenue requirements, does it? Sorry, I said that very awkwardly. I can rephrase, if you want.

A. Okay.

Q. So, if net metering resources have the effect of avoiding future costs or lowering revenue requirements in future years, the avoided -- or the cost-of-service study would not show that; is that correct?

A. No. Since net metering customers are unlike others in our cost-of-service study, what we would propose to do in our cost-of-service study for implementing this framework would be to reflect that excess generation at the avoided cost, and that would apply to the net metering customers with that avoided cost cost allocated to the other customers, it would --

so it would essentially even out.

Q. Okay. So you're -- and that was Paul Clements' testimony?

A. Yes. There was -- the second diagram in his surrebuttal showed how that would work in that particular manner.

Q. Yeah. So -- and one question I have about that -- that diagram is -- is the benefits on the squares on the left side, under the cost-of-service model, don't match the benefits on the right side, and I'm wondering, if the benefits exist in the cost-of-service study, why -- as benefits of net metering, why don't they exist on the right side?

A. Which benefits? So, I'm seeing program administration costs are not an avoided cost. I think that's a --

Q. Right. So, I mean --

A. You're talking about benefits.

Q. Sorry.

A. Sorry. So, we have avoided -- energy avoided capacity, avoided transmission, avoided distribution, avoided costs of environmental compliance, and reduced losses.

Q. So, if they're benefits of net metering over here, why aren't they benefits of net metering --

A. -- on the avoided cost side?

Q. Yeah.

A. Because these are the benefits that are being captured in current costs. And, you know, I think as Mr. Marx talked about, we don't believe there are benefits to avoided distribution. Avoided transmission, I can't testify to that. Avoided compliance cost, I think Mr. Clements has already addressed. And reduced line losses has already been addressed as well.

Q. Okay. So they're -- so you're saying that you can avoid -- or the net metering customers can avoid these costs relative to other customers within a test period revenue requirement?

A. Correct.

Q. But -- but you're not valuing the extent to which they can reduce those costs for all customers in the future?

A. Unless it can be measured and quantified, yes.

Q. But where would you do that?

A. If they can be measured and quantified, they would be on both sides. In the cost-of-service side, we're allocating -- we're giving them the benefits to the extent that they have reduced their usage and

they've reduced their contribution to those costs.

Q. Haven't the Joint Parties offered a proposal for how to quantify those?

A. I --

MS. HOGLE: Objection. I'm not sure that Ms. Joelle Steward can -- can state what the Joint Parties' position is. I think the Joint Parties are best suited to answer that question.

CHAIR: I'll ask Ms. Hayes, are you aware, has Ms. Steward addressed this question in her rebuttal or surrebuttal?

MS. HAYES: I don't know that, off the top of my head. But I'll just go on.

CHAIR: Okay. Thank you.

Q. (By Ms. Hayes) You propose to include lost revenues as a cost of the net metering program in your cost-of-service analysis; is that correct?

A. Our cost-of-service analysis will actually help quantify the cost shifting for lost revenues. We don't have an explicit cost that we incorporate in.

Q. Okay. That's a good clarification. So -- so you would agree with me that lost revenues is a different issue from lost fixed cost recovery; is that correct?

A. No.

Q. No? What I'm trying to get at is whether -- let me start with this. Is -- is lost revenues a cost component of revenue requirement?

A. Lost revenues or -- they -- they result in a higher, or increased, deficiency in the revenue requirement, and so it just means we have to ask for more money in order to recover the revenue requirement we're asking for. That's essentially -- I mean, lost revenues are in between rate cases. In a rate case, you're recovering a revenue requirement. Lost revenues contribute to the deficiency in your revenues that you're seeking in -- for the -- the revenue requirement.

Q. Right. So -- so when you -- in this chart, when you say that lost revenues are a cost in the cost-of-service model, you're not allocating -- I'm trying to figure out if you're -- if you're just trying to figure out whether the net metering customers are covering their costs of service or whether you're imputing additional lost revenues to them beyond whether they're covering their costs of service.

A. Right. I see your confusion. And it probably should not say "lost revenues" there.

Q. Okay.

A. We're not adding any additional cost from the

revenue requirement to that class in order to cover that.

Q. Okay. Okay. Thank you. That's a very helpful clarification. Can you hang on one moment?

Okay. One question about the revenues that you're putting in the cost-of-service study associated with net metering customers. Are you -- are you putting in the billing month revenues or the revenues associated with net metering customers pre-netting?

A. We don't have revenues associated within pre-netting. We would put in the revenues that we actually receive from them, so it would be post-netting.

Q. So how are you going to get the avoided cost value for the exports?

A. It's Schedule 37 rates, as Mr. Clements testified.

Q. All right. One more question about this -- this exhibit. Is it your understanding that the benefits of net metering, at least as far as your testimony is concerned, are the revenues from net metering customers?

A. Not that simplistically, no. I mean, that we -- we compare the cost. The cost will reflect -- be net of the benefit that they receive from their reduced

usage and their -- their customer profile. And then that will be compared to the -- to the revenues.

Q. Okay. Okay. You've -- you've talked about how net metering itself conflates rate design with cost effectiveness, and -- let's see. On page 4 of your surrebuttal testimony, and I'm looking at lines 73 to 80, and I'm going to paraphrase, so correct me if I get anything wrong. You say: Since net metering is the law, we're not deciphering that -- we're not deciding whether net metering should be offered. We're figuring out how to get net metering rates to reflect net metering's cost of the service. Is that roughly correct?

A. Roughly, yes.

Q. Do you want to -- do you want to correct me?

A. Well, I mean, it's -- it's talking about how we're comparing the actual costs of serving them compared to the revenues they're receiving. And the costs of serving them will reflect the benefits that they bring to the system through their different load profile.

Q. And so would you agree or disagree with me that net metering does function as a resource to the Company like an electricity generating resource or a demand side management program?

A. No.

Q. I thought you might say that. But it does generate electricity, the net metering resource, or the -- the distributed generation resource that comes as a result of the net metering program?

A. Yes. They generate electricity, yes.

Q. And it reduces load?

A. It reduces energy usage, yes.

Q. Okay. That's fair.

A. Offsets energy usage, I should say. It does not reduce, necessarily, that customer's energy usage. It just reduces the energy they're taking from the grid --

Q. Okay.

A. -- at different times.

Q. Okay. So would it be fair to say that you'd say that the -- the customer side resource functions as the resource, while the net metering defines the relationship between the utility and the customer generator?

A. Net metering is the billing scheme for how the customer is compensated for their distributed generation.

Q. Have you -- did -- have you read the definition of the net metering program in the statute?

A. I have. I don't know it off the top of my head.

Q. Well, we don't -- we don't need -- we don't need to get into that. I guess what I'm getting at is, I'm trying to figure out if you're saying that we should ignore the value of the actual resource because -- because you think net metering is a billing scheme or if we should actually value the -- you know, quantify the full value of the resource and just remember that we need to take into account the fact that there is this, nevertheless, important relationship component that -- that involves the rate relationship with the utility?

A. Net metering equates because it relies on rate design. It equates the value of that resource to the retail rates. And the retail rates are not designed to accord -- acquire a resource.

If we came in and wanted to pay a resource 14 cents per kilowatt hour, it would probably be immediately deemed imprudent as well above the cost of any other resource. And so it equates the price of paying for this generation with a retail rate design.

Q. And so the fact that there is this rate design component means that we should ignore the fact that this is a resource that otherwise generates

electricity for the utility system for 20, 25, 30 years, and could otherwise be looked at in the same way as any other electricity generation resource, we can ignore all of those values?

A. No. In fact, we're saying let's treat it the same as any other generation resource and pay it the avoided cost. We don't want to ignore the value to it. We want to keep it the same and equate it to how we acquire and measure the value of any other resource.

Q. But you're not -- but you're using a cost-of-service study to do that?

A. We're using a cost-of-service study to compare whether the cost of serving these customers is fully capturing the benefits and the revenues we're receiving from these customers or whether we're shifting those costs to other customers.

Q. So the only benefits from net metering are the revenues?

A. No.

Q. You just -- you said you're comparing the costs of serving customers and you're comparing those to the revenues.

A. Yes. We're comparing the cost of serving to the revenues. Those costs will already be net of the benefits if they have reduced their usage on our

system. As any other energy efficiency customer, if they reduce their usage, they get sort of the value of that through the cost-of-service model at the embedded cost.

That gets captured in a cost-of-service study. We're not adding additional benefits on top of that, except for the value of that excess generation, which we're placing at avoided cost.

Q. Right. And I'm -- and I'm suggesting that you're not not adding additional value, but rather that you're leaving value off, because you've got the cost-of-service study, which is --

MS. HOGLE: Your Honor, excuse me. I am just wondering if counsel is testifying and if there's a question that she would like to ask. It appears to me that she is testifying.

MS. HAYES: I'll get to some questions.

CHAIR: Ms. Hayes, do you want to respond to the objection?

MS. HAYES: Well, it's not actually -- well, yeah. Okay. Yes, I'll ask some questions.

CHAIR: Okay.

MS. HAYES: Thank you.

Q. (By Ms. Hayes) So, I guess what I'm trying to clarify -- and I'm sorry if it's not an actual

question, but I am -- it is -- I am trying to figure it out, it is a question in my mind. Whether or not I am phrasing it as a question, it is a sincere question.

So if -- if you are arguing that we should ignore the value of the net metering resource, the customer sited resource --

A. And I have not said that. We have not said that.

Q. Well, and -- well, and that's why -- but I got in trouble for --

A. Okay. I'm sorry. I'll let you finish.

Q. -- trying to explain what I meant because it wasn't a question, so I'm -- so I'm -- if I could explain sort of where I'm going.

The -- you've got the cost-of-service study, which -- which will, as you say, recognize the benefits within the net metering class of their usage characteristics, that's -- those are -- that's one bucket of benefits, if you will, that you're recognizing, and then you've got the avoided costs for excess -- for exports that you're valuing at avoided costs, that's one bucket of benefits.

And what I'm trying to figure out is, we've got this resource that, like other resources, arguably lends value to the utility system in -- by reducing the

Company's revenue requirements over the life of the resource because customers are investing in it, and I'm wondering if your proposal takes those benefits into account anywhere, because I -- I don't see them. So I'm wondering if your proposal takes future revenue requirement reduction benefits of net metering into account.

A. No.

Q. Thank you.

A. And -- right. No.

Q. So, this is something that hasn't been clear to me this entire time. How are you proposing to meter what is being exported?

A. Our current net meters have two channels, so it measures what is coming in and what is going out. And in our billing system it's called the deduct usage, and that's the amount that is being exported out. So we have that data.

Q. Okay. If you'll give me one minute. I've crossed off a lot of questions.

Okay. I think I just have a couple more questions. So, you've said that rate design is how customers receive price signals and compensation for distributed generation. This -- I'm looking specifically at your surrebuttal testimony at page 8,

lines 145 to 55.

A. I don't think it says it there, but I know I said it.

Q. Okay. Sorry. I'm flipping back and forth a lot through my paper. I'm wondering if you think it's possible, if we have this two-part statute, the look at the costs and benefits, and then do the rate design, because the legislature wanted the Commission to look at the cost effectiveness of the net metering program as a resource, and then decide what sort of price signals to send the customers investing in that resource, in light of the costs and benefits?

A. I guess I'm not sure what that question was.

Q. Okay.

A. And I'm not sure I agree with that characterization of the statute. It doesn't say cost effectiveness. It says look at the costs and the benefits for utility and the other customers.

Q. Okay. That's fine. I -- so -- well, so I'm wondering if the purpose of the current docket, if you think it's possible that it could be that we're looking at the costs and benefits of the net metering program from a sort of resource acquisition perspective so that we can evaluate what price signals we want to send the net metering customers in light of those results.

A. I guess that's a leap I'm not quite willing to take. I mean, it's looking at net metering. Net metering is a billing scheme. I think Mr. Hayet articulated that quite well, as we also discussed in my testimony.

Q. All right. So, the residential class is made up of hundreds of thousands of customers; is that correct?

A. Yes, about 550,000.

Q. Okay. Lots of them. And would you agree that the members of the residential class have diverse characteristics?

A. Each individual customer will, but generally, a residential load profile is relatively consistent.

Q. But would you agree that the residential class as a whole benefits from the general size and diversity of its customer base?

A. I don't know. I mean, it may.

Q. Okay.

A. But it is a large class, yes.

Q. Yeah. Yeah. Do you think it's possible that singling out just a few thousand customers from the hundreds of thousands of residential customers may subject that small group of customers to cost impacts that are wholly independent from the impacts of their

participation in net metering?

A. No. In fact, we have other customer classes that are significantly smaller than what this customer class would be for residential net metering. I think our Schedule 6 and 8, those number of customers are in the hundreds, whereas this would be in the thousands for residential net metering. So no, we -- we have several schedules that are even more tightly defined.

Q. But that doesn't necessarily mean that they don't not benefit from having the diversity of a large customer class, correct?

A. Who's "they"?

Q. Those small, discrete customer classes.

A. They don't. I -- I don't know. I mean, they have a different rate design. They have different usage characteristics. They have -- that that rate design better captures for those customers those different types of usage characteristics because it can more independently for each customer capture demand versus energy usage, whereas residential, it's a pretty blunt instrument with just energy based charges.

Q. All right. That blunt instrument. I have no further questions.

CHAIR: Thank you.

Mr. Mecham, unless you think you're going to

be really short, I wonder if a very brief recess might be appropriate right now.

MR. MECHAM: Actually, I have no questions for this witness.

MR. OLSEN: Oh, that's short.

CHAIR: That's short. Thank you.

Any redirect, then?

MS. HOGLE: Just maybe one or two questions.

REDIRECT EXAMINATION

BY MS. HOGLE:

Q. Ms. Steward, Ms. Hayes asked you several questions about net metering as a benefit and maybe distributed generation issues, interchanging them. Would you agree with me that net metering policies are not the source of the benefit from distributed generation, rather distributed generation is the source of the benefit itself?

A. Yes.

Q. Ms. Hayes also asked you about whether the cost-of-service framework proposed by the Company captures future costs and benefits of net metering customers. Do you agree that as the Company files rate cases, in each rate case, those costs and benefits will be recognized?

A. Yes.

MS. HOGLE: Thank you.

CHAIR: Any recross?

MS. HAYES: No. Thank you.

CHAIR: Commissioner White?

COMMISSIONER WHITE: No questions. Thanks.

CHAIR: Commissioner Clark?

COMMISSIONER CLARK: No questions.

CHAIR: I have one -- one two-part question. In his -- in his surrebuttal, Mr. Hayet, for the Office, stated that in his opinion the current load study contains sufficient production meter data to complete the Office's proposed framework. And in response to a question from Commissioner Clark, Dr. Powell stated the same thing, with respect to the Division's proposed framework. Do you agree with those two statements?

THE WITNESS: I can tell you the production side meters that we have installed. We have 42 meters installed. We were hoping to get 60. We have 60 load research meters on the usage side, which is statistically significant.

My load research colleagues do believe that that production meter will provide us a defensible production profile for use in evaluations. But it is not the 60 we wanted to be statistically significant.

CHAIR: Okay. Thank you.

Anything further?

MS. HOGLE: The Company rests its case. Thank you very much.

CHAIR: Okay. Thank you.

Before we adjourn for the day, at the beginning of the hearing, I raised the issue of timing of the order that we'll issue following the hearing. I'll state that of course we always endeavor to issue perfectly written orders without taking any longer than we need to. But having said that, if any party wants to comment on this issue, this would be an appropriate time to do so.

MR. MECHAM: Mr. Chair, is there any value to recessing for just a minute to allow us to visit with one another?

CHAIR: Yeah, maybe until 4:45. Is that -- is that too much time?

MR. MECHAM: No, that's good.

CHAIR: Okay. We'll be -- we'll be in recess until 4:45.

(Recess from 4:36 - 4:44 p.m.)

CHAIR: Okay. We'll be back on the record.

And in terms of whether there's comments from the parties, I guess I'll go back to our original

presentation order, so I'll start with the Joint -- Joint Parties.

MR. RITCHIE: Thank you, Mr. Chairman. So, we have a few thoughts on this. I think part of what our concern is here is that, you know, we've put a lot of effort into this proceeding, the Joint Parties have, beginning with the workshops, bringing our experts out from across the country, bringing our experts out from across the country here, and several rounds of briefing.

I think we have a robust record about the agreements and disagreements of where the parties are at this point. I think that the Joint Parties have put forth a framework that we think, based on our illustrative example, provides a good -- a good framework to go with. The other parties have put forward their information.

But after all that effort, I tend to agree somewhat with Ms. Beck's surrebuttal testimony when she suggested that even after all of this, we seem to be at a point where we may not be able to flesh out this framework enough, because we still don't even necessarily agree on what the framework should be telling us, and we don't necessarily know what the data input should be, and then what the output should be.

So, to that extent, in asking about what are -- what are the next steps, and what does an order seek, I think we agree that, as Ms. Beck suggested, that an interim procedural step in this proceeding could be helpful, perhaps with guidance from the Commission of how to flesh that out. And whether that's informed by the load study that the Company is preparing, once we can see the results of that, or whether, at the direction of the Commission, it gets informed by fleshing out the data from the illustrative examples provided by the Joint Parties, offering that extra round, and then having parties be able to focus and comment on those data inputs to inform the final framework. We think that would be the best -- the best way forward.

Our concern, I think, is that if you just push it to the rate case we'll kind of be back to where we were in the last rate case. And, one, that a lot of this information can get buried in the rate case. There's a lot to deal with in the rate case.

And also, I feel like a lot of the effort and momentum that we had potentially built in this case will be drowned out in -- in what is a -- a fairly unwieldy docket. And the Joint Parties, at least for -- speaking for Sierra Club, can be difficult to

intervene in a -- for a full rate case.

So that's our position on that, is that the interim procedural step, with an opportunity to comment on data inputs, would be -- would be helpful in this proceeding.

CHAIR: Thank you.

Mr. Mecham?

MR. MECHAM: I agree with that.

CHAIR: Okay. Thank you.

Mr. Olsen?

MR. OLSEN: Our concern is that the timing of all this be sufficient to work for the Company when it decides that they need to do a rate case, I guess, and so I guess ours -- our decision will be informed somewhat by what -- how they perceive they need to move forward. I don't mean to pad that, but that really moves where we are on that.

CHAIR: Okay. Thank you.

Mr. Jetter?

MR. JETTER: On behalf of the Division, I think that our preference is as soon as practicable. I think we would like to have something to use and sufficient time to collect whatever data they need, based on the outcome, going into the next rate case.

I think it would be a problem for us, in some

respects, to punt this down the road with an interim step that delays beyond the next rate case, potentially having laid effective on this issue as long as two or three years down the road.

So we would like to see something in the process that allows us enough time to work with it before the Company's next rate case filing. And unfortunately, we don't know when that is. So I, like the Office, would have to, to some degree, defer to the Company, just since we do have a stay out that is until January 1, but there's no guarantee or assurance that they don't know that they're going to file then.

CHAIR: Do you have any comments on this issue?

MR. MOSCON: Yes. Thank you, Mr. Chairman. I'd like to respond to the comments of the Joint Parties, and then, I believe, answer the question that was actually put forward to all the parties.

First is, I think it would be an unnecessary step and a mistake of the Commission to rise to the bait of saying let's do yet another proceeding.

This started in a rate case a year ago. It was pushed to this proceeding. In this proceeding, the Commission has, I believe, gone out of its way to issue interim orders, giving parties the ability to say what

questions do we have, to file briefs, to get feedback from the Commission, the Commission's framed up questions that it wanted answered by the parties during this proceeding.

And so to say, "Well, we need yet another proceeding," we believe would be a mistake. We believe that not only does the Company need to be able to make its plans and to -- to implement policy, but candidly, so do the solar customers or other distributed generation customers in the State of Utah, I think, deserve to kind of understand where the Commission is going on this important topic. So we think that the record is sufficiently clear for the Commission to make a decision.

And -- and as to the point that it would all get buried in a rate case, I suppose that begs the question of what's in the order? If the order is clear as to what will happen or won't happen in the rate case, then nothing needs to get buried.

Having said that, I believe the question that the Commission asked the parties is when? When does this Commission need to issue an order?

My client would like to -- recognizes the schedule of the Commission, but is anxious to implement whatever the order of the Commission is, so we suggest

a time frame of 30 days, which we hope is a sufficient time to write up an order.

We know that the Commission has been reviewing the testimony as it's been coming in because, again, as it's been seeing the testimony, it sent out notices to the parties, saying, "We've read your testimony. Here are the questions that we have."

We think that in a docket in a rate case, you know, four to six weeks is a typical time frame for an order, so our recommendation is 30 days.

CHAIR: I want to thank all the parties for this -- for this feedback at the end. This is helpful to us. Obviously, we're not ready to make a commitment at this time, but we will endeavor to -- to take our next action in the appropriate time frame.

And we will be adjourned until five -- until the public witness hearing begins at 5:00 p.m. on Thursday afternoon, unless -- unless there's any other matter that anyone needs to bring forward.

Okay. We're adjourned.

(Hearing adjourned at 4:52 p.m.)

--oo0oo--

C E R T I F I C A T E

STATE OF UTAH)
:ss
COUNTY OF SALT LAKE)

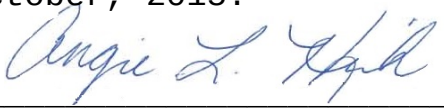
I, Angela L. Kirk, a Registered Professional Reporter, Certified Court Reporter, and Notary Public in and for the State of Utah, do hereby certify:

That the foregoing hearing was taken on October 6th, 2015.

That the proceedings were reported by me in stenotype, and thereafter transcribed by computer, and that a full, true, and correct transcription of said testimony so taken is set forth in the foregoing pages;

I further certify that I am not of kin or otherwise associated with any of the parties to said cause of action, and that I am not interested in the event thereof.

WITNESS MY HAND and official seal at Salt Lake City, Utah, this 20th day of October, 2015.



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