

BEFORE THE PUBLIC SERVICE COMMISSION

Civil No. 17-035-61

PUBLIC HEARING

DAY 4

October 02, 2020

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BEFORE THE PUBLIC SERVICE COMMISSION

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Application of Rocky)
Mountain Power to Establish)
Export Credits for Customer)
Generated Electricity)
Civil No. 17-035-61
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PHASE II VIRTUAL PUBLIC HEARING, DAY 4
TAKEN THROUGH ADVANCED REPORTING SOLUTIONS

Taken on October 2, 2020

9:00 a.m. to 1:12 p.m.

Reported by: Michelle Mallonee, RPR, CCR

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P R O C E E D I N G S

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CHAIRMAN LEVAR: We'll go on the record this morning.

It is Friday, October 2, 2020. We are here for the fourth day of Utah Public Service Commission Phase II hearing in Docket 17-35-61, for the application of Rocky Mountain Power to establish export credits for customer generated electricity.

And we'll go to Vote Solar now for your next witness.

MS. ROKITO: Good morning, Chair Levar.

Vote Solar calls Dr. Michael Milligan as its next witness.

CHAIRMAN LEVAR: Good morning, Mr. Milligan.

THE WITNESS: Good morning.

CHAIRMAN LEVAR: Do you swear to tell the truth?

THE WITNESS: I do.

CHAIRMAN LEVAR: Okay.

Go ahead -- Ms. Rokito, right?

MS. ROKITO: Sure. Yes, for the record, it's Shelby Rokito on behalf of Vote Solar.

CHAIRMAN LEVAR: Thank you.

1 MICHAEL MILLIGAN,
2 was called as a witness, and having been first duly
3 sworn to tell the truth, the whole truth, and nothing
4 but the truth, testified as follows:

5

6 DIRECT EXAMINATION

7 BY MS. ROKITO:

8 Q. Please state your full name and business address
9 for the record.

10 A. My name is Michael Milligan. My address is 9584
11 West 89th Avenue, Westminster, Colorado.

12 Q. Dr. Milligan, have you reviewed and analyzed the
13 testimony submitted by the other parties to this case?

14 A. Yes, I have.

15 Q. And have you prepared direct, rebuttal, and
16 surrebuttal testimony in this case?

17 A. Yes.

18 Q. Do you have any changes to offer to any of that
19 testimony?

20 A. No.

21 Q. If you were asked the same questions included in
22 your written testimony here today, would you give the
23 same answers?

24 A. Yes.

25 MS. ROKITO: Mr. Chairman, Vote Solar moves for

1 the acceptance of the testimony of Dr. Michael Milligan
2 into the record in this proceeding.

3 CHAIRMAN LEVAR: If anyone objects to that
4 motion, please unmute yourself and indicate your
5 objection.

6 I'm not seeing or hearing any objections, so the
7 motion is granted.

8 Ms. Rokito, you can go ahead.

9 **Q. (BY MS. ROKITO:) Dr. Milligan, have you**
10 **prepared a summary of your testimony that you would like**
11 **to present to the Commission?**

12 A. Yes.

13 **Q. Please go ahead and present your summary.**

14 A. Thank you. Good morning, Commissioners.

15 My name is Michael Milligan, and I'm principal
16 at Milligan Grid Solutions, an independent power system
17 consulting firm. I specialize in the integration of
18 renewable energy into the power grid. I have over 30
19 years of experience in renewable energy research and the
20 power system industry.

21 I appreciate the opportunity to testify on
22 behalf of Vote Solar today to briefly summarize my
23 opinions in this matter.

24 CG exports offer value in many forms, including
25 the form of avoided energy costs and avoided generation

1 capacity costs. These values can be quantified and must
2 be accounted for in the export credit rate to their
3 fullest extent to ensure that CG customers receive just
4 and reasonable compensation for the value they provide.

5 My calculation of avoided energy costs utilizes
6 PacifiCorp's official forward price curve for 2021
7 through 2040 and for each of the relevant trading hubs.

8 The OFPC, which the Company has said is the best
9 representation of future market prices, is the best
10 available method for calculating avoided energy costs.
11 It is forward-looking and accounts for future changes to
12 the grid.

13 The Company has presented two approaches for
14 calculating avoided energy costs in this proceeding. One
15 rests on the soon-to-be-outdated GRID model that is
16 shaped using historical EIM prices, while the other rests
17 solely on that historical pricing data. Neither reflects
18 the state of the future grid.

19 Perhaps recognizing some of the shortcomings of
20 its GRID model, the Company has indicated that it plans
21 to retire the GRID model by 2021.

22 However, the Company continues to recommend
23 using backward-looking EIM prices to calculate avoided
24 energy costs instead of its own OFPC, which is the best
25 information we have right now about future energy

1 pricing.

2 In addition to avoided energy costs, CG exports
3 offer material benefits in the form of avoided generation
4 capacity costs. This value can and must be quantified
5 and included in the export credit rate. When CG energy
6 is exported during time of the system peak, the Company
7 requires less capacity to serve its demand. This value
8 is not rendered null simply because CG customers do not
9 sign a contract with the utility.

10 Regardless of any so-called firm commitment on
11 the part of CG customers, they are beholden to the
12 Company in every way. They cannot sell their excess
13 energy to any other utility or in any other market.
14 Contract or not, all excess exports are sent back to the
15 grid. For the vast majority of CG customers, this is not
16 a short-term arrangement. Behind-the-meter technology
17 has an operating life of 20 or more years, meaning that
18 when a customer makes a long-term investment in CG solar,
19 they are also making a long-term commitment to deliver
20 exports to the Company.

21 By failing to include capacity contribution in
22 the proposed export credit rate, the Company unduly
23 diminishes the value of CG solar, depriving CG customers
24 of the full value of their contribution.

25 The Company's proposal to use integration cost

1 to adjust the CG avoided cost calculation downward
2 without a reliable method for calculating integration
3 cost improperly diminishes the value of CG solar.
4 Including these costs in the export rate, particularly
5 where the Company has put forth no evidence to show CG
6 solar imposes integration cost, unjustifiably treats CG
7 differently than non CG resources and undercompensates
8 them for the value they provide to the grid.

9 A just and reasonable export rate should not
10 stifle CG growth nor should it create a scenario where CG
11 customers are subsidizing non CG customers by providing
12 substantial uncompensated value to the grid.

13 Encouraging investment in energy-efficient
14 resources like CG solar requires appropriately
15 calculating the costs and the benefits of exported CG
16 solar using the best available data, recognizing that the
17 capacity contribution of CG solar is material and
18 quantifiable, and excluding from the calculus those costs
19 for which we have no basis to include.

20 Beginning with avoided energy costs, the Company
21 is able to reduce its delivery requirement to customers
22 based on CG exports. As I mentioned, in my calculation I
23 rely on the OFPC, which is a forward-looking price
24 developed by PacifiCorp, RMP's parent company, that
25 accounts for anticipated future changes to the grid.

1 In developing the OFPC, PacifiCorp accounted for
2 planned developments in the western interconnection,
3 including planned additions and retirement. The OFPC
4 accounts not only for the changing resource mix, but also
5 for changes to neighboring systems which could also
6 impact prices. The Company has recognized that the
7 methodologies to develop the OFPC produces the best
8 representation of future market prices.

9 Instead of using its own OFPC to perform the
10 avoided energy cost calculation, the Company has elected
11 to use either a soon-to-be retired GRID model or
12 historical EIM prices alone.

13 Because, by the Company's own admission, the
14 GRID model's results are insufficiently granular to
15 determine an export credit, the Company has applied a
16 shaping algorithm using historical EIM pricing.
17 Historical pricing data bears little relationship to
18 future prices on which the avoided energy cost and RMP's
19 shaping leads it to assign avoided cost, or hours when
20 solar power is not generating, such as nighttime hours.

21 GRID is also flawed because it assumes that all
22 IRP resources, including those that are yet to be built,
23 will be developed and deployed ahead of the already
24 installed CG. This unduly reduces the value of CG solar.

25 So, too, does the fact that natural gas plants

1 in the GRID model, which is an economic dispatch model,
2 locked into a commitment schedule, even if there's a
3 change in solar energy export levels. All these issues
4 damage the integrity of GRID's so-called economic
5 optimization.

6 As an alternative to the GRID model, the Company
7 proposes an avoided energy calculation using historical
8 EIM prices alone and states that this approach would
9 offer greater transparency than the GRID model. This,
10 too, suffers from the fact that the EIM prices are
11 necessarily historical and do not account for future coal
12 plant retirements, increasing renewables, changes in
13 demand, changes in gas prices, changes in the
14 transmission network, changing reserve margins, gas
15 pipeline tariffs, or any other anticipated technological
16 advances and market evolution.

17 The Company criticizes my method of utilizing
18 market prices to allocate the avoided energy cost of CG
19 exports because they attribute the use of market
20 prices -- pardon me -- because they attribute the use of
21 market prices to value energy with the physical ability
22 to export to external markets and because there's a
23 significant risk premium attached to the OFPC that makes
24 it an inappropriate price benchmark.

25 In response, I note that, (A), RMP proposes the

1 use of EIM pricing as an alternative to the grid method
2 of valuing CG exports. Although I object to the use of
3 historical pricing to estimate future value, in
4 principle, RMP and Vote Solar and most of the other
5 parties in this proceeding endorse the use of market
6 pricing to value CG export avoided energy cost.

7 The risk premium that RMP focuses on is, on
8 average, about 7 percent of the OFPC. Accounting for
9 this would require a minor adjustment to my avoided
10 energy cost. However, the data provided by RMP to
11 calculate the risk premium appears to be significantly
12 flawed.

13 It is my recommendation that the Commission
14 approve a calculation of avoided energy costs that is
15 based on forward-looking prices developed and used by
16 PacifiCorp itself rather than a calculation based upon
17 backward-looking price data or a GRID model that depends
18 on manual manipulations, flawed inputs, and problematic
19 assumptions.

20 Turning to avoided capacity costs. If CG
21 exports are to be justly and reasonably compensated in
22 this proceeding, the Company must also account for CG
23 solar's capacity value. Every party here today has
24 conceded that the capacity value of distributed solar is
25 non zero. CG exports that are produced during times of

1 system peak decrease the amount of capacity the Company
2 requires to serve its demand.

3 I have quantified avoided generation capacity,
4 and this value should be factored into the export rate.

5 While testifying in this docket on
6 September 30th, the Office of Consumer Services' witness
7 Mr. Hayet recommends an avoided capacity cost that he
8 represented was based upon some combination of Vote
9 Solar's value and Vivint Solar's value.

10 I do not support or particularly understand
11 Mr. Hayet's methodology, which was not set forth in any
12 of his filed testimony. However, I do support the OCS
13 decision to quantify avoided capacity value.

14 The argument has been made in this proceeding
15 that CG exports should not be credited at all for avoided
16 capacity because it is non-firm because there is no
17 contractual obligation existing on the part of the CG
18 customers to deliver to the grid. But this argument
19 ignores the crucial fact that CG customers are not only
20 captive customers of the Company, but they are also
21 captive producers. Regardless of any legally-binding
22 obligation to deliver energy, every single kilowatt hour
23 of CG export is necessarily sent back to the grid for the
24 Company to resell at full cost.

25 During peak or near peak periods, every kilowatt

1 of CG capacity that is online will reduce RMP's need for
2 generating capacity. And there is no disagreement with
3 RMP on this point. There is no other market and no other
4 utility for CG customers to sell their excess energy to.
5 And this arrangement is not short-lived. When CG
6 customers invest in behind-the-meter technology, they
7 make, in most cases, a 20- or 30-year commitment. Thus,
8 the argument that CG's capacity contribution should be
9 wholly discounted because of its non-firm nature simply
10 doesn't square with reality.

11 It has also been argued that the variable nature
12 of CG solar means that it cannot offer value in the form
13 of capacity contribution. But that argument is not
14 valid. The Company already calculates avoided capacity
15 costs for other variable energy resources like wind and
16 utility scale solar. The same fundamental algorithms can
17 be used to determine the capacity value of CG energy.

18 Moreover, as I describe in my testimony, the
19 variable nature of CG energy can be accounted for in the
20 mathematics of resource capacity value. Aggregating all
21 CG customers' exports, as I have done, results in a
22 realistic calculation that takes into account the
23 variability of CG as a resource.

24 The Company has criticized my valuation
25 purportedly because it does not consider the declining

1 capacity contribution of solar as its penetration
2 increases on the grid, but that is simply not true.

3 My approach does recognize that the capacity
4 value of the next added resource declines as the utility
5 adds more resources to its system, and this decline in
6 capacity value occurs even over the top load hours that
7 are utilized in my algorithm.

8 In contrast, the Company's loss of load
9 probability method, which comes from the 2019 IRP, adds
10 CG energy last, even after IRP resources that have yet to
11 be built, thereby unduly reducing the capacity value of
12 CG solar.

13 RMP's main criticism of my estimate of avoided
14 capacity cost is this, and I quote: "Most importantly,
15 Dr. Milligan disregards the impact of the Company's
16 current resource portfolio and its optimized expansion
17 plan on the risk of loss load events."

18 However, in PacifiCorp's 2021 IRP, Public
19 Meetings, the Company reverses course and states that,
20 and I quote, "Interactions of the portfolio, including
21 solar with wind and energy storage, are complex." And
22 they continue: Solar capacity contribution was
23 previously evaluated as a function of a single variable:
24 Solar capacity. Instead, a multi-various solution should
25 be pursued so that solar capacity contribution is

1 calculated, and I quote again, "as a function of the
2 characteristics of all other resources." These
3 statements by the Company support my arguments.

4 To encourage CG adoption to ensure that CG
5 customers are appropriately compensated for the value
6 they provide and to prevent a scenario where CG energy
7 actually subsidizes non CG resources, the export credit
8 rate must assign value to avoided generation capacity
9 contribution.

10 Before I move on to address the Company's
11 proposed integration cost, I should note that my analysis
12 of avoided energy cost and avoided capacity cost focused
13 only on the value that CG exports contribute. However,
14 behind-the-meter production and consumption of CG solar
15 also offer substantial benefits in these areas, although
16 they are uncompensated in this proceeding. And these
17 benefits, too, will be lost if the Commission adopts an
18 unreasonable export credit rate.

19 The final point I want to address pertains to
20 the Company's proposed integration cost. The proposal to
21 deduct cost of integration from CG's value should be
22 rejected for several reasons. First, the Company has not
23 provided evidence in this proceeding showing that CG
24 solar imposes integration cost on the grid. RMP cites
25 PacifiCorp's flexible reserve study as part of its 2019

1 IRP to support its proposal. But this study does not
2 specifically address what costs, if any, RMP incurs as a
3 result of CG resources.

4 RMP shows that the variability of CG exports is
5 higher than utility scale PV on a percentage basis. From
6 this, IRP implies that integration costs for CG are
7 therefore comparable, if not higher, than utility scale
8 PV. But this implication is demonstrably false.

9 Second, there's no generally-accepted method for
10 calculating integration cost. This makes the analysis
11 inherently subjective, and it will remain so unless and
12 until a peer-reviewed method can be developed and the
13 same metric applied to all resources in a
14 nondiscriminatory fashion.

15 Third, in deducting integration cost from the
16 export rate, the Company fails to account for the fact
17 that wind and solar resources can provide many of the
18 grid services for which they are supposedly assessed
19 integration cost.

20 Smart inverters have capabilities that can
21 offset the integration cost for which the Company is
22 proposing to charge CG customers. CG exports should be
23 compensated, not penalized, for the essential grid
24 services they provide.

25 Finally the Company's deduction of integration

1 cost singles out CG solar and wind and solar energy from
2 other resources. Conventional resources, whether gas,
3 coal, or nuclear, do not incur the same assessment in
4 spite of the fact they may also impose the integration
5 cost, sometimes even in excess of those imposed by
6 renewable resources.

7 Such discriminatory treatment of CG solar is
8 inconsistent with principles of performance-based
9 compensation, power market design, and is, frankly,
10 unfair.

11 For these reasons I would urge the Commission to
12 reject the Company's proposal to include integration
13 costs to the export rate. To ensure the export rate is
14 just and reasonable, I recommend that the Commission
15 adopt Vote Solar's proposed calculation for avoided
16 energy, avoided capacity, and reject RMP's proposed
17 integration cost, which is unsupported by the evidence.

18 Thank you.

19 **Q. Thank you, Dr. Milligan.**

20 MS. ROKITO: Vote Solar tenders Dr. Milligan for
21 cross-examination.

22 CHAIRMAN LEVAR: Thank you, Ms. Rokito.

23 I'll go to Mr. Holman next.

24 Mr. Holman, do you have any questions for
25 Dr. Milligan?

1 MR. HOLMAN: I have no questions. Thank you,
2 Chair Levar.

3 CHAIRMAN LEVAR: Okay. Thank you.

4 Mr. Mecham, do you have any questions for this
5 witness?

6 MR. MECHAM: I do not. Thank you.

7 CHAIRMAN LEVAR: I will go to Mr. Jetter next.

8 Do you have any questions for Dr. Milligan?

9 MR. JETTER: Thank you, Mr. Chairman. I do have
10 just a few brief questions.

11
12 CROSS-EXAMINATION

13 BY MR. JETTER:

14 Q. Good morning, Dr. Milligan.

15 A. Good morning.

16 Q. You would agree with me, wouldn't you, that if a
17 capacity contributing resource is available and there's a
18 variety of them on the market that when an electric
19 utility like PacifiCorp seeks to acquire capacity, they
20 should do it at the lowest cost available?

21 Would you agree with me?

22 A. Generally, but you need to balance cost and
23 benefits and look at the resources that are available on
24 the grid.

25 Q. Okay. And if there are two comparable resources

1 and one were cheaper than the other, it would be the
2 prudent choice to choose the less-expensive alternative?

3 A. All else being equal.

4 Q. And you would say the same, all else equal for
5 energy; is that correct?

6 A. Generally, yes.

7 Q. Okay. And you haven't -- well, I'll ask a more
8 open question here.

9 Do you have any reason to believe that the
10 energy from the utility scale PV panel is different from
11 the energy from a rooftop solar panel?

12 A. We've had a lot of discussions preceding about
13 that. And yes, the behind-the-meter generation, such as
14 CG solar, is put in by customers primarily to avoid their
15 energy costs through the utility. I -- you know, they
16 both use the sun to get their power. I don't think that
17 they have too much else in common.

18 Q. Okay. They would typically use the same type of
19 PV panel, wouldn't they?

20 A. They could.

21 Q. And they could use the same inverter technology?

22 A. Roughly. I mean, it's scaled quite differently.

23 Q. That might be correct. And ultimately, a
24 kilowatt hour of electricity exported by a rooftop solar
25 system is roughly fungible with a kilowatt hour of energy

1 **delivered from a utility scale solar; isn't that correct?**

2 A. No -- well, if you ignore a lot of the other
3 differences in the technologies, yes. I mean, the
4 distributed solar is locally generated. It doesn't need
5 to be transmitted on the transmission system that will go
6 to the neighbors.

7 Utility scale solar is delivered differently and
8 goes through the transmission system. You may have
9 transmission constraints, and you may not be able to
10 deliver it. I mean, there's a lot of differences.

11 I mean, if you're talking about the energy as a
12 fungible resource, then yeah, a kilowatt hour is a
13 kilowatt hour. But kilowatt hours are not equivalent in
14 different times and places on the grid.

15 **Q. Okay. And you think that the -- you could**
16 **adjust for the location of that energy being imported to**
17 **the grid, couldn't you?**

18 A. Perhaps.

19 **Q. And, in fact, Vote Solar's witnesses in this**
20 **case have done that, haven't they?**

21 A. I don't understand your question.

22 **Q. The transmission line loss calculation that is**
23 **submitted by Vote Solar in this docket accounts for that**
24 **difference in location; does it not?**

25 A. Yes, to the extent that it calculates the

1 avoided transmission distribution costs, yes.

2 Q. Okay. And you -- do you have any reason to
3 believe that the output from a rooftop solar in terms of
4 timing throughout the day is different from that of a
5 utility scale solar facility?

6 A. Not without studying it. I mean, they're going
7 to be -- they both generate when the sun shines.

8 Q. And the sun generally shines in Utah at about
9 the same time throughout the state; is that accurate?

10 A. I don't know. Perhaps. I mean generally, but
11 you've got local cloud cover and things that would, you
12 know, not -- you know, the solar isn't necessarily doing
13 the same thing across the whole state at the same time.

14 Q. Okay. And you would say that rooftop solar is
15 fairly distributed throughout the state; is that
16 accurate?

17 A. Yes.

18 Q. And you could have, for example, ten utility
19 scale solar facilities distributed throughout the state
20 that would offer a similar output profile; could you not?

21 A. I don't know. I haven't studied that.

22 Q. Okay. But you don't have a reason to believe
23 that you couldn't do that, do you?

24 A. Well, sure. You could build distributed utility
25 scale solar, if that's a term.

1 But if you're asking me if the output profile is
2 similar, I don't know. You've got -- in a utility scale
3 solar facility, you've got concentrated panels,
4 concentrated in the sense of geographically concentrated;
5 whereas, with rooftop solar, it's spread over a larger
6 area. And so you could imagine -- and I haven't studied
7 this in detail -- but you could imagine cloud cover going
8 across one of those utility scale PV plants, causing a
9 larger fluctuation in output than the equivalent cloud
10 would cause if it's moving over rooftops. But I haven't
11 studied that.

12 So I don't think putting multiple utility scale
13 PV plants around the state is going to be equivalent to
14 rooftop solar.

15 **Q. And so would you agree with me that when the**
16 **Company contracts for output from a utility scale solar**
17 **facility, as part of that contract, they could include a**
18 **performance guarantee that would either provide energy**
19 **during those hours or require that facility to compensate**
20 **the utility for its purchase to make up that lost energy?**

21 A. You know, I don't know what can be put in a
22 contract. I guess you could do that.

23 **Q. Okay. And if you added, for example, a battery**
24 **system of sufficient size, that could alleviate the issue**
25 **with cloud cover, for example, for a period of time; is**

1 that accurate?

2 A. Potentially, yes.

3 Q. Okay. I'd like to ask you, I guess, another
4 question regarding a little bit different line of
5 questioning here regarding smart inverters.

6 Do you know what percentage of customers are
7 currently installing smart inverters?

8 A. I don't.

9 Q. Do you know if any of them are in Utah?

10 A. Some are. I don't know specifically. These
11 are -- primarily the newer inverters do have smart
12 capability.

13 Q. Okay. And so if that were the case that some
14 subset of DG customers have smart inverters, and those
15 inverters could provide value to the grid, would you
16 suggest that that value be spread across all DG
17 customers, or would you suggest that a new subset of DG
18 customers be created to incentivize the use of those
19 smart inverters?

20 A. I'm generally in favor of performance-based
21 rates or tariffs, so it would be reasonable to me to
22 separate them. You know, there's always an
23 administrative cost to do that. But it's more of a, kind
24 of pay-for-performance type of approach.

25 Q. Okay. Thank you. Those are the only questions

1 that I have. Thank you for your time, Dr. Milligan.

2 A. Thank you.

3 CHAIRMAN LEVAR: Thank you, Mr. Jetter.

4 Mr. Snarr, do you have any questions for
5 Dr. Milligan?

6 MR. SNARR: The OCS has no questions for
7 Dr. Milligan.

8 CHAIRMAN LEVAR: Okay. Thank you, Mr. Snarr.

9 Ms. Wegener or Mr. McDermott, do either one of
10 you have questions for Dr. Milligan?

11 MS. WEGENER: I just have very few questions.

12 CHAIRMAN LEVAR: Okay. Go ahead.

13

14 CROSS-EXAMINATION

15 BY MS. WEGENER:

16 Q. Good morning, Dr. Milligan.

17 A. Good morning.

18 Q. You cite the Company employee Rick Link's
19 (phonetic) testimony in an Idaho docket a couple of
20 times, where he says, "The Company's OFPC is the best
21 representation of future market prices and is
22 appropriately used for the central forecast in the
23 Company's economic analysis"; is that right?

24 A. Yes.

25 Q. Are you aware that the Company doesn't use the

1 OFPC on its own but rather applies it to a production
2 cost model?

3 A. Yes, more or less.

4 Q. And it's actually the production cost model that
5 is used for any assessment of resource economics?

6 A. Right. But the model that's used to develop the
7 OFPC is a broader market that's looking at how the RMP or
8 the PacifiCorp system interacts with the rest of the
9 West.

10 Q. Okay. So the OFPC uses market prices, not
11 PacifiCorp's cost of generation. It's just market prices
12 that are paid on the market for energy; is that your
13 understanding?

14 A. Right. It's not identical but similar to the
15 EIM prices. There is a difference, but those are both
16 fundamentally market prices for electricity.

17 Q. Would you agree that customer generation is more
18 variable than market transaction prices?

19 A. I have not studied that.

20 Q. Okay. Would you also agree that the market
21 transaction points are located pretty far away from
22 Utah's concentrated service territory, where most of the
23 customer generation would be?

24 A. Yeah, I roughly know where they are.

25 Q. Is there a relationship between the capacity

1 contribution of customer generation and the amount of
2 solar on the system? And actually, I think you mentioned
3 this in your summary, that you think there is; is that
4 right?

5 A. I'm sorry, could you repeat that?

6 Q. A relationship between the capacity contribution
7 of customer generation and the amount of solar -- the
8 amount of total solar on the system?

9 A. I said that, but I tend to agree more with
10 PacifiCorp's statement in their 2021 IRP, that this is
11 not a single variable. It's -- I mean, yes, to an
12 extent, the more solar you have in the system the more
13 the capacity contribution declines. But that's not a
14 function purely of solar, it's a function of all the
15 other resources. And PacifiCorp is doing a lot of work,
16 and they're still in process doing this, which I think
17 would actually improve what their view is of solar
18 capacity value.

19 Q. So, yes. But the amount of solar is one
20 variable. The amount of solar on the system is one
21 variable that affects the capacity contribution of solar?

22 A. Yes. It's one variable, yes.

23 Q. And is it -- is it true that your capacity
24 contribution calculation, the one that we were talking
25 about -- or that you were talking about in your summary,

1 you didn't account for utility scale solar, you only
2 accounted for customer generated solar?

3 A. Yes.

4 Q. Okay. Thank you.

5 MS. WEGENER: That's all the questions I have.

6 CHAIRMAN LEVAR: Thank you, Ms. Wegener.

7 Ms. Rokito, do you have any redirect questions
8 for Dr. Milligan?

9 MS. ROKITO: Sorry. I was having trouble
10 finding my mute button, but I do not. Thank you very
11 much.

12 CHAIRMAN LEVAR: Thank you.

13
14 CROSS-EXAMINATION

15 BY CHAIRMAN LEVAR:

16 Q. Dr. Milligan, thank you for being with us this
17 morning. I have one or two questions, and then I'm going
18 to go to the other two Commissioners.

19 A. Okay. Thank you.

20 Q. Mainly one question, but it may take a little
21 explanation.

22 Do we need to have consistency between how we
23 calculate avoided energy cost and how we calculate
24 capacity contribution values? And let me explain what I
25 mean by that.

1 If we calculate avoided energy using forward
2 price curves, projected future prices, then shouldn't we
3 also calculate capacity contribution values, considering
4 future planned resources that will be added to the mix in
5 the IRP?

6 On the other hand, if we calculate avoided
7 energy cost using 1-year historical prices from the EIM
8 with annual updates, would it, under that scenario, be
9 appropriate to only consider existing resources as we
10 calculate capacity contribution values?

11 And I'm sorry if that's a convoluted question.
12 But any thoughts you have, I would appreciate them.
13 Thank you.

14 A. So I think I understand your question. So
15 you're asking whether we should be consistent in the way
16 we utilize either historical data or forward future data
17 in calculating capacity or energy value?

18 I think yes. You know, the difficulty with
19 doing, you know, using future data is, of course, there's
20 always a probably good chance that you're wrong. But,
21 you know, there is a 100 percent chance that you're wrong
22 if you use historical data because last year is never
23 going to repeat itself. You know, I'm not talking about
24 pandemic times. But, you know, generally, the years
25 don't repeat themselves. The weather is different.

1 Consumer behavior is different. And, of course, the
2 generating mix is different.

3 But using something like effective load carrying
4 capability or equivalent from capacity that PacifiCorp
5 has used in their loss-of-load probability modeling, that
6 method is good for establishing whether or not you have
7 resource adequacy in the future. But it is not good, and
8 I argue this in my surrebuttal testimony, it poses
9 several difficulties in the way that you allocate the
10 contribution of capacity to resources such as wind and
11 solar, whether it's CG solar or utility scale solar.

12 So generally, yes, I think I agree with your,
13 sort of your direction of saying if we're going to use
14 future energy prices, we should use future grid portfolio
15 capacity prices.

16 But we also have to be really careful of how we
17 allocate the capacity contribution, particularly to wind
18 and solar. And that's partly why my method uses an
19 approach of choosing the top 10 percent load hours. So
20 you take the year, basically rank the demand from high to
21 low, pick out the top 10 percent 876 hours. Because in
22 the future, I don't know exactly when my risks are going
23 to occur.

24 And the modeling that RMP/PacifiCorp has done,
25 it's actually very good modeling in their loss-of-load

1 probability modeling. But they assume that the risks in
2 the future are going to be exactly like the risks in the
3 past. And my method says, Look, I don't know exactly
4 when that risk is going to occur. It's likely to be in
5 the top 10 percent of load hours. And so I don't want
6 to -- I don't want to artificially constrain the problem
7 because, you know, the future is uncertain.

8 I'm sorry, I may not be making sense here. But
9 I think I'm generally supporting the idea that sure,
10 future energy and future capacity, or, you know, last
11 year's capacity and last year's energy, although I prefer
12 looking forward than looking backwards.

13 I'm not sure. Did I answer your question,
14 Mr. Chairman?

15 **Q. Yes, you gave a thorough answer. I think you**
16 **covered the issue.**

17 **You did raise one issue that I'd like to ask a**
18 **follow-up. It's on a separate topic but still somewhat**
19 **related.**

20 **Your statement that forward price curves carry a**
21 **risk of being inaccurate, but historical prices are**
22 **guaranteed to be inaccurate. Let me just follow up on**
23 **that statement a little bit.**

24 **If we were looking to estimate next year's**
25 **prices, just one year in isolation, what's more likely to**

1 be closer to next year's prices, last year's EIM prices
2 or the forward price curve?

3 A. You know, I'm not sure if I could answer that.
4 I think the forward price curve is not -- is not
5 calculated with the EIM in mind. And so I guess in
6 principle what I would do is create a more accurate
7 modeling of the future that would sort of take a future
8 EIM, basically, and say, okay, the next year the EIM is
9 going to have these new participants and model the system
10 to figure out what the prices are based on that EIM.
11 That would be my first choice.

12 Using historical prices one year -- you know,
13 one year ago for next year is -- I mean, typically the
14 prices are a year old by the time the actual year starts.
15 It's not as good, but, you know, I know that that happens
16 sometimes. And if there's no other alternative, then you
17 use historical prices.

18 But I do think it's better to look forward and
19 do -- do the modeling and figure it out that way.

20 CHAIRMAN LEVAR: Thank you. I appreciate your
21 answers to those questions.

22 I'll go to Commissioner Allen now.

23 Do you have any questions for Dr. Milligan?

24 COMMISSIONER ALLEN: Thank you. I have no
25 questions.

1 CHAIRMAN LEVAR: Thank you, Commissioner.
2 Commissioner Clark, how about you?

3 COMMISSIONER CLARK: No further questions.
4 Thank you.

5 CHAIRMAN LEVAR: Okay. Thank you for your
6 testimony, this morning, Dr. Milligan.

7 THE WITNESS: Thank you.

8 CHAIRMAN LEVAR: And we'll go back to Vote Solar
9 for your next witness.

10 MS. ROKITO: Thank you, Chair Levar.

11 Vote Solar calls Mr. Curt Volkmann as its next
12 witness this morning.

13 THE WITNESS: Good morning.

14 CHAIRMAN LEVAR: Good morning, Mr. Volkmann.
15 Do you swear to tell the truth?

16 THE WITNESS: I do.

17 CHAIRMAN LEVAR: Okay. Thank you.
18 Go ahead, Ms. Rokito.

19

20 CURT VOLKMANN,
21 was called as a witness, and having been first duly
22 sworn to tell the truth, the whole truth, and nothing
23 but the truth, testified as follows:

24

25

DIRECT EXAMINATION

BY MS. ROKITO:

Q. Please state your full name and business address for the record.

A. My name is Curt Volkmann. My address is 132 Lake Vista Circle in Fontana, Wisconsin 53125.

Q. Mr. Volkmann, have you reviewed and analyzed the testimony submitted by the other parties to this case?

A. I have.

Q. And have you prepared direct, rebuttal, and surrebuttal testimony in this case?

A. Yes, I have.

Q. Do you have any changes to offer to any of that testimony?

A. I do have two minor clerical errors that I'd like to correct in my rebuttal testimony, specifically at Lines 246 and 458, where values should be 1.86 cents per kilowatt hour instead of 2.02 cents.

Those are my only corrections.

Q. Thank you. If you were asked the same questions included in your written testimony here today, would you give the same answers?

A. Yes, I would.

Q. With the exception of the changes that you indicated?

1 A. Yes. Thank you.

2 MS. ROKITO: Mr. Chairman, Vote Solar moves for
3 the acceptance of the testimony of Mr. Curt Volkmann into
4 the record in this proceeding.

5 CHAIRMAN LEVAR: Thank you.

6 If anyone objects to Ms. Rokito's motion, please
7 unmute yourself and indicate your objection.

8 I'm not seeing or hearing any objection, so the
9 motion is granted. Thank you.

10 You can go ahead.

11 **Q. (BY MS. ROKITO:) Mr. Volkmann, have you**
12 **prepared a summary of your testimony that you would like**
13 **to present to the Commission?**

14 A. Yes, I have.

15 **Q. Please go ahead and present your summary.**

16 A. Thank you.

17 Good morning, Chair Levar, Commissioner Allen,
18 and Commissioner Clark. My name is Curt Volkmann, and I
19 am the president and founder of New Energy Advisors, an
20 independent consulting firm.

21 I have 35 years of experience in the utilities
22 industry, primarily in electric distribution and
23 transmission. I spent nine years at Pacific Gas &
24 Electric in various transmission and distribution
25 engineering roles, and 18 years at Accenture, where,

1 among other roles, I served as executive director in the
2 North American utilities practice.

3 Thank you for allowing me to appear today on
4 behalf of Vote Solar, and I appreciate the opportunity to
5 briefly summarize my testimony.

6 A just and reasonable export credit rate must
7 compensate CG customers for the value that exports
8 provide in the form of avoided transmission and
9 distribution, or T&D capacity costs.

10 The Company and the Division recommend excluding
11 this value entirely from the export credit because T&D
12 capital investment deferral is difficult to quantify.
13 But the Company already credits energy efficiency
14 programs for avoiding T&D capacity investments so it can
15 do the calculation. Additionally, every single
16 jurisdiction that has established a value of solar
17 methodology includes credits for avoided T&D capacity.

18 There is robust and growing evidence that CG,
19 despite its variability, materially reduces peak loads
20 and the corresponding need for T&D capacity related
21 capital investments.

22 RMP should not zero out such value. RMP should
23 acknowledge this value, as it does with its energy
24 efficiency programs, and include it in the export credit
25 rate to ensure that CG customers are justly and

1 reasonably compensated.

2 The same is true of avoided line losses. As the
3 Company has now conceded, the avoided line loss
4 calculations must account for the full value of avoided
5 losses, which means including avoided line transformer
6 losses.

7 Although I don't agree with other aspects of
8 Mr. MacNeil's corrected methodology, I recommend that the
9 Commission adopt the Company's revised value of 9 percent
10 for avoided energy losses due to CG exports. Although
11 the Company has not included in its proposed export
12 credit rate any costs for changes to its distribution
13 system to accommodate CG, Company and Division witnesses
14 discuss wear and tear of voltage-regulating equipment
15 from CG variability.

16 I agree with Mr. Barker, as he repeated on
17 Tuesday, that CG variability is only one of many factors
18 that impact the operation of this equipment and that
19 quantifying the impact solely from CG is extremely
20 difficult, if not impossible. And it's appropriate to
21 exclude any related cost in the export credit.

22 I would also like to address the Company's
23 proposed metering fee. There is no question that
24 charging Schedule 137 customers a \$160 fee will result in
25 the unfair treatment of CG customers. The Company

1 wouldn't ask non CG customers to incur the same cost for
2 precisely the same meter upgrades or reprogramming,
3 making the fee inherently discriminatory and unfair. I
4 will explain each of these points in turn.

5 When CG customers serve their own load and
6 export excess energy to the grid, it not only reduces
7 system load but also alleviates the need for future
8 capacity-related capital investments. The benefits that
9 CG solar provides in the form of avoided or deferred T&D
10 capacity are particularly important at times of local
11 circuit peak demand.

12 As Mr. Meredith explained on Tuesday, CG output
13 reduces demand during peak and near-peak periods and the
14 amount of power that would otherwise be flowing on the
15 transmission and primary distribution system decreases.
16 This can delay or avoid the costs of upgrading T&D
17 infrastructure.

18 Let's take a recent example. Southern
19 California Edison, or SCE, proposed a T&D capacity
20 upgrade project that was originally estimated to cost
21 \$154 million. After factoring in CG adoption and its
22 load-reducing effects, SCE eliminated the need for a new
23 substation, and that project now costs \$90 million,
24 representing a savings of \$64 million.

25 RMP's failure to consider the tangible impacts

1 of CG adoption on the deferral or avoidance of capital
2 expenditures unfairly undervalues CG solar. The Company
3 argues it should not consider this value because it's too
4 difficult to quantify. But as I explain in my testimony,
5 utilities in other jurisdictions use methodologies to
6 reliably calculate a solar resource's contribution to
7 peak load reduction.

8 The Company already assigns value to avoided T&D
9 capacity from load-reducing energy efficiency programs in
10 its IRP. Mr. Barker on Tuesday stated that areas with no
11 load growth have no T&D deferral value. But RMP's
12 methodology for quantifying T&D deferral value from
13 energy efficiency through the use of a utilization
14 weighting explicitly accounts for the fact that some
15 areas may have no load growth in excess capacity.

16 In Mr. Barker's rebuttal testimony, he offers
17 the 90th South Substation project as an example of how CG
18 cannot defer T&D investment. His back-of-the-napkin
19 analysis, as he described it on Tuesday, is a simplistic
20 example of what's commonly referred to as a "non-wires
21 alternative" for a known specified project.

22 It's not surprising that solar alone could not
23 defer the 90th South Substation upgrade because non-wires
24 alternatives typically require some combination of solar
25 and other distributed resources, such as storage or

1 demand response. But this is not what I'm recommending.

2 Chair Levar, I appreciated your questioning of
3 Mr. Hayet Wednesday afternoon about the aggravated
4 load-reducing impacts of CG. This is exactly the avoided
5 T&D capacity value that I'm referring to, the deferral of
6 future, unspecified capacity upgrades across RMP's system
7 that are no longer needed due to shifts or decreases in
8 load from CG. Every other jurisdiction I'm aware of that
9 has established a methodology for quantifying the value
10 of solar -- and these include California, New York,
11 Oregon, Minnesota, and the city of Austin -- include a
12 credit for avoided T&D capacity. In fact, RMP's sister
13 company, Pacific Power, includes a component for T&D
14 capacity deferral in its value of solar calculation.

15 There is no reason for the Company to not credit
16 CG solar for the value it provides in the form of avoided
17 T&D capacity costs. Dr. Yang has determined that this
18 value, due to CG exports in RMP's service territory,
19 amounts to at least 1.86 cents per kilowatt hour.

20 Although previously the Company argued that it
21 should credit CG exports for only avoiding transmission
22 and primary distribution losses, it has since revised its
23 avoided line loss calculation to also account for the
24 impact of avoided line transformer losses. This makes
25 good sense. Again, I recommend that the Commission adopt

1 the Company's revised value of 9 percent for avoided
2 energy losses due to CG exports.

3 Adequately compensating CG customers also
4 necessitates some consideration of what costs should not
5 be included in the export credit rate. And certainly,
6 the Commission should not take into account those costs
7 that the Company cannot prove.

8 The Company has appropriately excluded from the
9 export credit rate any costs related to modifying the
10 distribution system to accommodate CG or replacing
11 equipment due to wear and tear from CG variability.

12 In my experience, distribution systems are
13 capable of accommodating solar at much higher levels than
14 RMP's existing CG penetration. At 1.7 percent
15 penetration, CG does not impose a need for significant
16 investment due to exports.

17 It's been a common rule of thumb in many states'
18 interconnection rules that detailed studies of potential
19 negative impacts from solar aren't required until
20 penetrations exceed 15 percent of circuit peak load.
21 There is no evidence in this proceeding to show that the
22 Company is incurring significant distribution integration
23 costs.

24 Furthermore, future technology advancements,
25 such as smart inverters, will help the Company mitigate

1 any impacts from increasing CG penetrations in a
2 cost-effective way. The Company does not fully recognize
3 this.

4 Mr. MacNeil, in his testimony in
5 cross-examination on Tuesday, fails to acknowledge that
6 smart inverters can provide voltage regulation services
7 by injecting or absorbing reactive power.

8 Mr. Barker's claim that determining the right
9 smart inverter settings requires a "thorough
10 investigation of each feeder" and "considerable analysis
11 and upfront costs" is an exaggeration.

12 Many states, including Hawaii, California,
13 Minnesota, and Illinois, have adopted default voltage
14 regulation smart inverter settings without analyzing
15 every feeder.

16 The final point I will make is by proposing to
17 charge Schedule 137 customers a \$160 metering fee, the
18 Company is proposing to treat CG customers differently
19 than non CG customers who do not have to pay any fee for
20 meter upgrades, new meters, or meter reprogramming.

21 As Mr. Meredith acknowledged on Tuesday, AMI
22 meters are capable of measuring bidirectional power flow
23 after reprogramming the meter remotely. No field visit
24 is required.

25 The Company is proposing to charge all

1 customers, including Schedule 137 customers, to cover the
2 costs of deploying AMI meters through base rates. But
3 the Company is also proposing to charge all new Schedule
4 137 customers an additional \$160 metering fee, even if
5 they already have an AMI meter. I can think of no
6 reasonable justification for these discriminatory
7 proposals.

8 To conclude my opening remarks, I believe a just
9 and reasonable export credit rate must take into account
10 the value CG provides in the form of deferred or avoided
11 T&D capacity costs. As the Company has now conceded, it
12 should take into account the full value of avoided line
13 losses, including the value of avoided line transformer
14 losses. The Company has appropriately excluded any wear
15 and tear costs from the export credit rate, and there is
16 no evidence to suggest it is incurring these costs at the
17 current CG penetration level.

18 Finally, because the proposed metering fee
19 arbitrarily singles out CG customers without
20 justification, the Commission should reduce it from \$160
21 to zero.

22 Thank you. This concludes my opening statement.

23 **Q. Thank you, Mr. Volkmann.**

24 MS. ROKITO: Vote Solar tenders Mr. Volkmann for
25 cross-examination.

1 CHAIRMAN LEVAR: Thank you, Ms. Rokito.

2 I'll go to Mr. Holman next.

3 Do you have any questions for Mr. Volkmann?

4 MR. HOLMAN: I don't. Thank you, Chair Levar.

5 CHAIRMAN LEVAR: Okay. Thank you.

6 Mr. Mecham, do you have any questions?

7 MR. MECHAM: I don't either. Thank you,

8 Mr. Chair.

9 CHAIRMAN LEVAR: Okay. Thank you.

10 I'll go to Mr. Snarr next.

11 Do you have any questions for Mr. Volkmann?

12 MR. SNARR: Just one, I think, or a couple here.

13

14 CROSS-EXAMINATION

15 BY MR. SNARR:

16 Q. Good morning, Mr. Volkmann. How are you?

17 A. Good. I'm fine, thank you.

18 Q. You've testified related to the avoided
19 transmission distribution capacity costs. And to begin
20 with in your testimony, you indicate, and I think OCS
21 agrees, that there's a value, a non zero capacity value
22 that can be associated with T&D costs; is that correct?

23 A. That's correct, yes.

24 Q. I'd like to just give you a hypothet and get
25 your reaction because of the difficulty in figuring out

1 exactly how to value T&D costs.

2 Let's suppose you lived on a cul-de-sac where
3 one of your neighbors had installed solar panels, and
4 where your power utility relied upon your neighbor's
5 solar generation to supply transmission distribution
6 capacity to deliver power throughout the cul-de-sac.

7 If your neighbor's solar panels got damaged by
8 high-powered winds, would you be satisfied with the power
9 company telling you that they wouldn't be able to deliver
10 firm energy service to you because the as-available
11 transmission distribution facilities were inadequate to
12 meet the needs of your cul-de-sac?

13 A. As I tried to clarify in my opening statement,
14 there are at least two ways that CG distributed solar and
15 other distributed resources can provide value to the
16 distribution grid. One in the form of what's referred to
17 as a "non-wires alternative," and this is the
18 substitution, if you will, of a distributed resource for
19 a conventional utility infrastructure investment, like a
20 new transformer, a new circuit, reconductoring a circuit,
21 et cetera.

22 Those non-wires alternatives are evaluated on a
23 project-by-project basis to determine if the DER --
24 again, distributed energy resources, or combinations of
25 portfolios of DER can adequately and reliably satisfy the

1 grid need, whether, in your case, it's serving the
2 neighbors in the cul-de-sac or whatever. That's one type
3 of analysis. But that's not what we're referring to.

4 We're talking about aggregated impact of CG
5 across the various planning areas, across the various
6 substations that, over time, can defer unspecified
7 capacity projects, T&D capacity projects.

8 And this methodology that I recommend in my
9 testimony is the same methodology that the Company uses
10 for crediting energy efficiency programs for that same
11 unspecified, load-reducing effect over time.

12 **Q. So if we're not looking at kind of the**
13 **one-for-one capacity replacement in a particular**
14 **cul-de-sac, you're suggesting that there is at least some**
15 **value that can be attributed when you look in the**
16 **aggregate of all the CG that is coming on.**

17 **Is that basically what you said?**

18 A. That's correct, yes.

19 **Q. All right. And the challenge is to figure out**
20 **how to quantify that second level of CG penetration as it**
21 **might affect the transmission and distribution systems;**
22 **is that right?**

23 A. It often is. I was delighted through discovery
24 last year to learn that the Company has developed a
25 methodology for crediting energy efficiency programs for

1 this same effect. I reviewed their methodology. I
2 reviewed the planned capital projects over, I believe it
3 was a 5-year period that they included in the
4 calculation. I determined that those were reasonable
5 projects. I determined that the costs of those projects
6 were reasonable.

7 And therefore, my recommendation, and I believe
8 my affirmative testimony was that we use that same
9 methodology, those same projects that the Company applies
10 for energy efficiency, for the impact of CG. That's not
11 always the case at every utility. That's why I say I was
12 delighted when I saw that the Company had already
13 established a methodology.

14 **Q. Thank you for your answers. I have no other**
15 **questions.**

16 A. Thank you.

17 CHAIRMAN LEVAR: Thank you, Mr. Snarr.

18 I'll go to Mr. Jetter next.

19 Do you have any questions for Mr. Volkmann?

20 MR. JETTER: Just a very few brief questions.

21

22 CROSS-EXAMINATION

23 BY MR. JETTER:

24 **Q. Good morning, Mr. Volkmann.**

25 A. Good morning.

1 **Q. The adjustments that you've made, or the values**
2 **you've calculated for transmission line loss as well as**
3 **the capacity adjustments, those represent the adjustments**
4 **you'd make to -- you're making those adjustments to**
5 **essentially try to reach an equivalent value between a**
6 **different type of generation not distributed and the**
7 **distributed generation; is that accurate?**

8 A. No. The approach I took from the analysis was
9 at the request of Vote Solar to quantify specific value
10 elements of customer generation. And I focused on
11 distribution capacity and avoided line losses and
12 distribution generation costs. I did in no way attempt
13 to compare that with another form of solar resource.

14 **Q. And those are values compared to what might**
15 **otherwise happen with the utility's service to customers;**
16 **is that accurate, then?**

17 A. Again, I did not make any comparison of CG to
18 another type of resource. I focused on the value
19 elements that I just described of customer generation.

20 **Q. And those must be of value compared to**
21 **something, are they not?**

22 A. Again, no. I did not compare the value elements
23 that I calculated for customer generation with any other
24 resource.

25 **Q. Okay. And so how would you go about calculating**

1 transmission capacity if you don't consider the cost of
2 the transmission system as it otherwise would be?

3 A. Again, my focus was on the distribution capacity
4 component. Dr. Yang developed a methodology. I think he
5 used what he calls the "current tariff approach" for
6 determining the avoided transmission capacity. And
7 you'll have to ask him about that after me.

8 Q. Okay. Well, let's talk about the distribution
9 capacity, then.

10 You're comparing -- you're creating a value with
11 the basis of Rocky Mountain Power's current and/or future
12 distribution costs; is that correct?

13 A. The value is based largely on their planned
14 distribution capacity additions over the next 5 years.
15 And again, I'm pretty sure it was a 5-year look.

16 Q. Okay.

17 A. Cost of those projects, the incremental
18 megawatts of distribution capacity added, and that's kind
19 of the foundational elements that go into the
20 calculation, again, for both what I did and for the
21 Company's energy efficiency programs.

22 Q. Okay. And the baseline for those studies would
23 assume the utility provides electric service without the
24 DG resources that we're talking about here; is that
25 correct?

1 A. Can you repeat your question?

2 Q. The baseline value for those studies that you're
3 calculating a savings as compared to would rest on an
4 assumption for the baseline that the Company would serve
5 customers with its traditional generation resources or
6 whatever else the Company had planned to use to serve
7 those customers?

8 A. The projects that were used in the calculation
9 of distribution deferral value for both energy efficiency
10 and CG are based on distribution load forecasts. And, I
11 mean, this basically is the planners, the engineers,
12 saying, Here's what we forecast load to be over the next
13 3 to 5 years. Here's where we determine that there may
14 be deficiencies or insufficient capacity; therefore, we
15 need to plan a capacity upgrade. And again, that can be
16 a new substation. It can be a new feeder. That's the
17 project list, or that's how the project list is
18 determined.

19 Q. Okay.

20 A. I'm not intimately familiar with the Company's
21 load forecasting, distribution load forecasting
22 methodology. Through discovery, we did ask some
23 questions about it, and my understanding is that they do,
24 in fact, incorporate solar, utility scale and some level
25 of CG, in the load forecast. So I don't think I agree

1 with your question.

2 Q. Okay. So the Company's forecast for those
3 various transmission -- excuse me, distribution upgrades
4 that might occur in the future, those planned
5 distribution upgrades are based on the assumption of
6 service from the utility with its traditional generation
7 fleet; is that accurate?

8 A. I followed you until the very end with the
9 "traditional generation fleet."

10 Q. With generation resources that would not include
11 distributed generation.

12 A. I think I just answered that.

13 That list of projects is based on the load
14 forecast in each of the planning areas. And based on my
15 limited understanding of how the Company does
16 distribution load forecasting, I do believe they factor
17 in current and forecasted CG, I believe.

18 Q. Okay. And I guess let me -- maybe let me try to
19 ask this a different way.

20 The reduction in the cost of those or the
21 necessity of the distribution system upgrades is the
22 result of using CG, whether for load reduction or for
23 exports, as compared to using an off-site generation?

24 A. I'm not sure I follow your question. Can you
25 repeat it, please?

1 **Q. Sure. The value that you've calculated for the**
2 **benefits to the distribution cost is based on the**
3 **difference in load and/or exports generated by the CG**
4 **customers as compared to serving customers in the**
5 **distribution system with off-site generation?**

6 A. Again, the underlying data that went into the
7 calculations which, as I explained earlier, is this list
8 of projects, list of distribution capacity projects, is
9 based on the load forecast.

10 That load forecast, I understand, includes a mix
11 of both CG and utility scale solar. Again, I'm not
12 intimately familiar with the Company's load forecasting
13 process, so I don't think there's any type of a
14 comparison that you're describing. So I think I disagree
15 with that premise.

16 **Q. Okay. Let me back up to a higher level, then.**
17 **What is the value of CG in reducing distribution**
18 **costs?**

19 A. We -- the combined effect of T&D was 1.86 cents
20 per kilowatt hour, and I believe the distribution element
21 of that -- I can check my testimony, but it was in the
22 0.56 cents, and the transmission was in the 1.3 cents, as
23 I recall. If you want me to look it up, I can.

24 **Q. No. No. That's fine.**

25 **And how does DG provide that incremental**

1 **savings?**

2 A. Again, it's the aggregate impact of
3 geographically-disbursed CG that, over time, has a
4 load-reducing and a peak load-reducing effect that
5 ultimately can result in avoided or eliminate
6 distribution capacity costs.

7 In my rebuttal testimony, I give a recent
8 example in Southern California Edison, where every year
9 they do their load forecast, much like RMP does. And in
10 years prior, they had identified a need for what they
11 call their "Circle City Substation." And, as I said in
12 my opening statement, it was originally close to
13 \$150 million, as I recall.

14 When they redid their load forecast, they
15 changed their methodology for accounting for the impact
16 of distributed solar. And the load forecast in that area
17 was significantly lower than it had been the year before,
18 which made them rethink the entire project. And they
19 directly attribute that load-reducing impact to
20 distributed generation.

21 And, again, when they redid their forecast, they
22 reassessed the project plan and eliminated the need for
23 the substation, resulting in significant capital savings.

24 So that's the impact that we're talking about
25 here. And there are probably lots of ways to quantify

1 it. But again, when I saw that the Company had developed
2 a methodology for quantifying a very similar impact from
3 energy efficiency in its IRP, I evaluated it, looked at
4 the projects, and determined that that was a good way to
5 also value the impact from CG.

6 Q. Okay. So let me follow up on that.

7 The load-reducing impact is a load-reduced
8 reduction and resulting in, I guess, generation,
9 transmission service reduction from what otherwise would
10 have been required had there not been CG; is that
11 accurate?

12 A. Yes, I believe I agree with that.

13 Q. Okay. And that's the same principle underlying
14 your calculation of at least the distribution savings; is
15 that correct?

16 A. Yes.

17 Q. Okay. Those are all of my questions. Thank you
18 for your time, Mr. Volkmann.

19 A. Thank you.

20 CHAIRMAN LEVAR: Thank you, Mr. Jetter.

21 I'll go to Ms. Wegener next.

22 Do you have any questions for Mr. Volkmann?

23 MS. WEGENER: Yes, I do. Thank you. I've got
24 two mute buttons here, so I don't know when I'm off mute
25 sometimes.

1 CROSS-EXAMINATION

2 BY MS. WEGENER:

3 Q. Good morning, Mr. Volkmann.

4 A. Good morning.

5 Q. I want to start out with your reference to
6 Mr. Barker's 90th South Substation example.

7 A. Okay.

8 Q. And you said in your summary that he didn't
9 properly account for the fact that in order to defer T&D
10 investments, more than just customer generation would be
11 required; is that right, like batteries and DSM?

12 A. I characterized that example that he provided as
13 an example, a simplistic example of an analysis
14 considering non-wires alternatives. And that, again, is
15 where you explicitly consider how distributed energy
16 resources could substitute for conventional utility
17 infrastructure investments, in this case, that
18 substation.

19 Q. Okay. So (inaudible) --

20 A. I'm sorry?

21 Q. I was just going to say, so it sounds like in
22 that 90th South example when you're talking about taking
23 into account customer generation, that customer
24 generation alone wasn't sufficient to defer that upgrade.
25 Would you agree with that?

1 A. The way he looked at it, it -- he determined it
2 was insufficient. And the point I was trying to make was
3 that it didn't surprise me. Because when you're looking
4 at a specific project, a specified planned project in
5 evaluating it as a non-wires alternative, almost always
6 solar alone is insufficient to reduce the peak
7 sufficiently.

8 What I'm referring to, and I tried to be clear
9 in my opening statement, is the broader aggregate effect
10 of distributed generation -- customer generation across
11 the various planning areas over time that has a
12 load-reducing effect that can, at some points, result in
13 the deferral or avoidance of a capital project, not just
14 the individual project analysis that he described in his
15 testimony.

16 **Q. Okay. Thank you. The gist of your testimony is**
17 **that customer generation can defer the transmission- and**
18 **distribution-related investments, and in the future, the**
19 **Company may be able to defer those.**

20 **But it requires a sufficient amount of CG**
21 **penetration for that deferral to occur, doesn't it?**

22 A. Potentially. It also depends on how the Company
23 factors the impact of CG in its load forecasts. I
24 previously explained that's really kind of a key
25 foundational capability in doing what we're talking about

1 here, is being much more sophisticated in load and DER
2 forecasting.

3 If the Company improves -- again, I'm not
4 intimately familiar with how it does it today,
5 forecasting today -- but if, as its capabilities become
6 more sophisticated, it can factor in these impacts much
7 more explicitly that could result in capital savings, as
8 I've described.

9 **Q. Okay. So it might be able to figure out if**
10 **there's a possibility that capital savings could possibly**
11 **occur if the forecasts were improved?**

12 A. Potentially, yes.

13 **Q. Okay. But right now, I mean, you could probably**
14 **say that a single panel, a single rooftop panel wouldn't**
15 **defer any capital investments, right?**

16 A. On the distribution system?

17 **Q. Umm-hmm.**

18 A. A single CG panel deferring a distribution?

19 I could think of a scenario where it might.

20 **Q. Is it a pretty far-fetched scenario?**

21 A. No, not necessarily. I describe in detail in my
22 testimony the impact of smart inverters to regulate
23 voltage. And I can envision a scenario where the
24 Company, because of CG adoption in a certain area, is
25 sensing there might be some high voltage problems. And

1 by requiring customers to activate certain settings on
2 their inverter, those types of problems can be addressed
3 without the need for the utility to put in a voltage
4 regulator or a capacity --

5 Q. Okay. So --

6 A. -- piece of equipment. So I --

7 Q. -- if the customer generator has a smart
8 inverter, if there are a sufficient number of people in
9 an area with customer generation with a small inverter,
10 then that's when you might be able to defer that
11 distribution-related investment?

12 A. That's the scenario I'm describing, yes.

13 Q. Okay. But it sounds like that might be more
14 than one rooftop solar panel because you need a few in
15 the area for that scenario; is that right?

16 A. Potentially, yes.

17 Q. Okay. Have you been able to calculate the point
18 at which customer generation installations would be able
19 to provide a T&D deferral?

20 A. No.

21 Q. If you can't calculate -- sorry.

22 You agree with the Company that we should not
23 include the impact to our system for increased
24 variability due to the exports, right?

25 A. The distribution integration costs, is that what

1 you're referring to?

2 Q. So the extra taps on the system that result from
3 the exports, so like the extra use of the equipment
4 because there's exported electricity. Just the wear and
5 tear. We didn't include it -- we didn't include it, and
6 you agree that we shouldn't include that as a deduction
7 to the amount of export credit, right?

8 A. I agree, because there's no evidence in the
9 record that there are costs associated with that at your
10 current penetration levels.

11 Q. Okay. And I think you said it's because there's
12 no costs incurred now.

13 But it sounds like you also just said to me that
14 there's no costs incurred for T&D deferral now, either;
15 is that right?

16 A. I don't believe I said that, no.

17 Q. You talked about an example in California of an
18 avoided investment as a result of customer generation,
19 right?

20 A. Yes.

21 Q. Would you say there was more customer
22 generation -- more penetration of customer generation in
23 California than in Utah?

24 A. Yes.

25 Q. You say that the solar profile in California

1 could be different and could align differently with
2 production than in Utah?

3 A. It's possible in the case of Southern California
4 Edison. They actually have eight regional profiles to
5 take into account different -- they've got a pretty large
6 service territory, and there's different levels of
7 insulation, and temperature, cloud cover, et cetera. So
8 they've broken their service territory into eight regions
9 for quantifying the impact of solar. One of those might
10 be similar to RMP's service territory. I can't say.

11 Q. Okay. And you're not sure which one would have
12 been at issue in the example that you cited earlier, the
13 Circle City Substation, right?

14 A. Which region?

15 Q. Yeah, and whether it was similar to Utah.

16 A. Oh, I don't know that.

17 Q. Okay. In your testimony, you state that the
18 grid can accommodate a 1.7 percent penetration level of
19 CG, right?

20 A. I said in my experience, I do a lot of work in
21 distribution, and that's a comfortable level of
22 penetration in many of the utilities that I've looked at
23 for accommodating CG without the need for significant
24 investment.

25 Q. Okay. Does that assume a uniform penetration

1 where the customer generation is distributed uniformly
2 across the service territory?

3 A. Not necessarily.

4 Q. Have you looked at whether particular areas with
5 high penetration could -- could cause voltage
6 variability?

7 A. In RMP's service territory?

8 Q. Anywhere.

9 A. I am familiar with utilities that have
10 concentrated high penetrations of customer generation
11 that do have to make investments --

12 Q. Okay.

13 A. -- to address that.

14 Q. You talk a lot about smart inverters and how
15 they could help regulate voltage and decrease capital
16 investments, right?

17 A. Yes.

18 Q. But there's no evidence that there's a
19 sufficient number of smart inverters in the Utah market
20 right now to defer any capital investment, right?

21 A. It would surprise me if there are any. I
22 explained in my testimony that the technical standard
23 that defines the new inverter capabilities was recently
24 finalized. The testing standard that supports that was
25 recently approved, and inverter manufacturers outside of

1 California and Hawaii and other parts of the world that
2 are already using these are now in the process of
3 certifying their equipment to the new testing standard.

4 Given that, based on what I'm told, smart -- a
5 broad range of smart inverters may be available in Utah
6 this quarter, sometime early next year. So it would
7 surprise me if you have any smart inverters in your
8 service territory at this point, which was my --

9 **Q. Okay. Um --**

10 A. -- (inaudible) that the Company update its
11 interconnection standards, you know, do the legwork and
12 the thinking now as to what those required settings are
13 going to be. Get those in place in your Policy 138, your
14 interconnection standard, such that when those inverters
15 become available, you can immediately start taking
16 advantage of them.

17 **Q. Okay. Thank you.**

18 MS. WEGENER: That's all the questions I have.

19 THE WITNESS: Thank you.

20 CHAIRMAN LEVAR: Thank you, Ms. Wegener.

21 Why don't we take a 15-minute break, and then
22 we'll come back and see if Ms. Rokito has any redirect
23 for Mr. Volkmann.

24 (A break was taken from 10:19 a.m. to 10:35 a.m.)

25 CHAIRMAN LEVAR: We're ready to start again.

1 Ms. Rokito, do you have any redirect for
2 Mr. Volkmann?

3 MS. ROKITO: I do. Thank you.
4

5 REDIRECT EXAMINATION

6 BY MS. ROKITO:

7 Q. Mr. Volkmann, in your analysis of the value of
8 CG generated power, did you look only at the component of
9 CG power that is exported to the grid?

10 A. Yes, I did.

11 Q. Would there be additional benefits if you looked
12 also at the component of CG power that is consumed behind
13 the meter?

14 A. Yes.

15 Q. Thank you.

16 MS. ROKITO: I have nothing further.

17 CHAIRMAN LEVAR: Thank you, Ms. Rokito.

18 Let me just ask: If any party has an interest
19 in recross based on those questions, please indicate to
20 me. Take a moment and unmute yourself.

21 Okay. I'm not seeing anyone with any recross
22 questions, so I will go to Commissioner Clark.

23 Commissioner Clark, do you have any questions
24 for Mr. Volkmann?

25 COMMISSIONER CLARK: Yes.

1 CROSS-EXAMINATION

2 BY COMMISSIONER CLARK:

3 Q. I have a question related to the benefits that
4 you just referred to associated with consumption behind
5 the meter.

6 In your mind, are those fairly compensated by
7 the retail rate, in effect, credit, or by the full offset
8 of the cost of consumption -- I mean, of the savings that
9 occur at the full retail rate in relation to that
10 generation that's consumed?

11 A. I've not analyzed it in any detail. But that
12 form of compensation in the form of the retail rate has
13 been considered to be a fair compensation in other
14 jurisdictions. But I've not analyzed it specifically in
15 RMP service territory.

16 Q. Thank you.

17 COMMISSIONER CLARK: That concludes my
18 questions.

19 THE WITNESS: Thank you.

20 CHAIRMAN LEVAR: Thank you, Commissioner.

21 Commissioner Allen, do you have any questions
22 for Mr. Volkmann?

23 COMMISSIONER ALLEN: I have a clarifying
24 question. I wanted to make sure that I heard something
25 that he said correctly.

1 CROSS-EXAMINATION

2 BY COMMISSIONER ALLEN:

3 Q. Mr. Volkmann, as you were beginning your
4 summary, did you say that all other jurisdictions,
5 regulatory jurisdictions that are considering CG have
6 included transmission and distribution in their tariff,
7 in their rate?

8 A. All other jurisdictions that I'm familiar with
9 that have an established Commission-approved methodology
10 for valuing the contribution of solar include an avoided
11 T&D capacity contribution element.

12 Q. And do you have an idea how many that is, what
13 number that is that you're familiar with?

14 A. I rattled them off in my opening. I'm referring
15 to California, Minnesota, city of Austin, New York. I've
16 got to find my notes here.

17 Yeah, California, New York, Oregon, Minnesota,
18 and the city of Austin are the ones I'm familiar with.
19 There may be more, but those are the ones that I'm
20 familiar with.

21 Q. Okay. Great. Well, I wanted to make sure I
22 heard you correctly. And, of course, I understand that I
23 work for the State of Utah and for the Utah Commission.
24 But it was an interesting piece of information. So thank
25 you.

1 A. Thank you.

2 CHAIRMAN LEVAR: Thank you, Commissioner Allen.

3 I don't have any additional questions for you,
4 Mr. Volkmann. So thank you for your testimony this
5 morning.

6 THE WITNESS: Thank you.

7 CHAIRMAN LEVAR: And we'll go back to Vote Solar
8 for your next witness.

9 MR. GOTTLIEB: Thank you, Chairman. This is
10 Spencer Gottlieb.

11 Vote Solar calls Dr. Spencer Yang as its next
12 witness.

13 CHAIRMAN LEVAR: Good morning, Dr. Yang. Can
14 you hear me?

15 THE WITNESS: I can hear you, Chair. Can you
16 hear me and see me?

17 CHAIRMAN LEVAR: Yes, I can hear and see you.

18 THE WITNESS: Excellent.

19 CHAIRMAN LEVAR: Thank you.

20 Do you swear to tell the truth?

21 THE WITNESS: Yes.

22 COMMISSIONER CLARK: Okay. Thank you.

23 Mr. Gottlieb, go ahead.

24 MR. GOTTLIEB: Thank you, Chairman.

25

1 SPENCER YANG,
2 was called as a witness, and having been first duly
3 sworn to tell the truth, the whole truth, and nothing
4 but the truth, testified as follows:

5

6 DIRECT EXAMINATION

7 BY MR. GOTTLIEB:

8 **Q. Please state your full name and business address**
9 **for the record.**

10 A. My name is Spencer Yang. And my business
11 address is 2001 K Street, Washington, DC 20006.

12 **Q. Have you reviewed and analyzed the testimony**
13 **submitted by the other parties to this case?**

14 A. Yes, I did.

15 **Q. Have you prepared affirmative and surrebuttal**
16 **testimony in this case?**

17 A. Yes, I have.

18 **Q. Do you have any changes to offer to any of that**
19 **testimony?**

20 A. No.

21 **Q. If you were asked the same questions included in**
22 **your written testimony here today, would you give the**
23 **same answers?**

24 A. Yes.

25 MR. GOTTLIEB: Mr. Chairman, Vote Solar moves

1 for the acceptance of the testimony of Dr. Yang into the
2 record in this proceeding.

3 CHAIRMAN LEVAR: If anyone objects to that
4 motion, please unmute yourself and indicate your
5 objection.

6 I'm not seeing or hearing any objections, so the
7 motion is granted. Thank you.

8 Q. (BY MR. GOTTLIEB:) Dr. Yang, have you prepared
9 a summary of your testimony that you would like to
10 present to the Commission?

11 A. Yes.

12 Q. Thank you. Please proceed.

13 A. Thank you.

14 Good morning, Chair Levar and Commissioners.
15 Thank you for allowing me to testify on this important
16 matter. My name is Spencer Yang, and I am a principal
17 with Bates White, an economic consulting firm. I'm
18 testifying on behalf of Vote Solar today.

19 After reviewing the testimony and analysis made
20 in this matter, I find that RMP has incorrectly assigned
21 zero value for avoided T&D benefits provided by CG
22 exports. Utilities like RMP plan their T&D system to
23 reliably meet their peak demands. By reducing peak
24 demand and system losses, CG exports help RMP to defer or
25 avoid additional investment in T&D assets. Each of these

1 benefits is demonstrable and quantifiable as evidenced by
2 my analyses and many others'.

3 After conducting my analysis, I concluded that
4 the value of avoided transmission costs from CG exports
5 is 1.34 cents per kilowatt hour, and the avoided
6 distinguishing value is 0.52 cents per kilowatt hour for
7 a total 1.86 cents per kilowatt hour.

8 Because RMP will enjoy these cost savings from
9 CG exports, these values should be included in any just
10 and reasonable export credit rate. Today, I'll explain
11 each of these benefits and how I calculated them.

12 RMP has claimed that CG exports may defer
13 capital investments in the short term but could never
14 eliminate necessary investments to maintain a safe and
15 reliable grid. However, it is evident that CG exports
16 are fully consumed by the neighbors of CG exports, and
17 thus eliminate RMP's commensurate need to generate,
18 transmit, and deliver power from the centralized power
19 plants which are typically located far from the point of
20 consumption.

21 Moreover, it is logical to conclude that if CG
22 exports can avoid T&D investment in the short term, it
23 can avoid even larger T&D investment in the long term
24 over its entire lifetime, thanks to the solar industry's
25 continuing innovations, deployment of complementary

1 technologies, and relentless cost reductions through
2 competition.

3 For example, complementary technologies like
4 battery storage will increase the value of CG exports
5 because CG customers can control their timing and amount
6 of exports to reduce more peak loads, and thus increase
7 the capacity value associated with CG exports.

8 Furthermore, it is important to note that these
9 cost savings accrue automatically because CG exports act
10 as negative load by providing valuable energy to the
11 nearest neighbors and thus avoiding the RMP's need for
12 incremental T&D investments to serve their customers.

13 Given this automatic reduction of peak loads by
14 CG exports, I conclude that RMP lacks any support to
15 ignore the value of CG exports in avoiding T&D costs.
16 And the Commission should include my conservative
17 estimate of 1.86 cents per kilowatt hour for avoided T&D
18 capacity costs into the just and reasonable export credit
19 rate.

20 Talking about T&D capacity costs, the T&D
21 capacity benefits of CG exports in RMP service territory
22 represent the avoided or delayed costs of maintaining and
23 upgrading infrastructure related to the transmission and
24 distribution of electricity across the grid.

25 By reducing peak demand and system losses, CG

1 exports can help RMP defer or avoid additional investment
2 in T&D assets.

3 To determine deferred or avoided T&D investment,
4 two key inputs are needed. No. 1, the effective load
5 carrying capacity, or ELCC, associated with CG exports;
6 and No. 2, RMP's T&D capacity costs.

7 ELCC associated with CG exports refers to the
8 capacity contribution that CG exports make in reducing
9 the peak loads on the transmission and distribution
10 system that drives the utilities to incur T&D capacity
11 costs. For example, if the ELCC is 30 percent, 1
12 kilowatt of CG exports can avoid 0.3 kilowatt of the
13 utilities own T&D capacity investments. Avoided T&D
14 capacity costs are the product of the ELCC and the RMP's
15 T&D capacity costs.

16 To quantify avoided transmission capacity costs,
17 the CG solar -- it is important to note that CG solar
18 provides important and quantifiable value in the form of
19 avoided transmission costs by reducing system demand
20 during the peak times. Avoiding transmission capacity
21 costs are the costs that utilities and ratepayers can
22 save from avoided or postponed transmission
23 infrastructure upgrades.

24 When non CG customers consume their neighbor's
25 CG exports, RMP's obligation to supply power to that

1 location using its transmission network is diminished,
2 thereby reducing transmission congestion and constraints,
3 transmission losses, and the need for additional
4 transmission capacity.

5 There are many valid methods to calculate the
6 avoided T&D costs. I calculated transmission capacity
7 costs using the specific costs from transmission rate to
8 serve its native load customers as a proxy for avoided
9 transmission costs. The basis logic behind this method
10 is that reduced peak loss on the transmission system
11 would commensurately reduce RMP's need for incremental
12 T&D investments to reliably service native load
13 customers.

14 This method has been used in many studies to
15 quantify the avoided transmission costs, and other
16 witnesses in this docket find that my approach is
17 reasonable.

18 Specifically, I determined the annual avoided
19 transmission rate attributable to CG exports by
20 multiplying PacifiCorp's current form transmission rate
21 of \$32.74 per kilowatt year, and the effective CG export
22 capacity of about 28 percent calculated by Dr. Milligan.

23 My analysis produced an annual avoided
24 transmission cost of 1.23 cents per kilowatt hour,
25 excluding line losses, or 1.34 cents per kilowatt hour,

1 inclusive of line losses.

2 RMP argues that not all transmission costs are
3 avoidable. However, I did not assume that all
4 transmission costs included in PacifiCorp's form OATT
5 transmission rate are avoidable. By multiplying
6 Dr. Milligan's CG exports capacity contribution factor
7 and PacifiCorp's OATT form transmission rate, I only
8 allocated a fraction of transmission costs that
9 PacifiCorp would otherwise have to incur before CG
10 exports.

11 OCS asserts that it is not appropriate to use
12 PacifiCorp's OATT transmission rate for the avoided
13 transmission capacity costs because there is no liquid
14 market for form transmission capacity. However,
15 PacifiCorp does not have to post incremental additional
16 capacity for sale to other transmission customers to
17 monetize the benefit from reduced peak loads. Rather,
18 the benefits accrue automatically because CG exports to
19 the grid at peak times automatically reduce PacifiCorp's
20 peak load, thus avoiding and deferring the need for its
21 incremental transmission investment.

22 I can find no viable reason for RMP's assignment
23 of zero value to the avoided transmission capacity costs
24 associated with CG exports.

25 Moving to avoided distribution capacity costs.

1 To determine RMP's distinguishing investments that are
2 deferrable by CG exports, I relied on Mr. Volkmann's
3 calculations. He calculated the amount of RMP's
4 deferrable distribution investments in Utah is \$123 per
5 kilowatt. To annualize this investment amount, I adopted
6 a carrying charge PacifiCorp used in its marginal cost of
7 service study. I adopted PacifiCorp's 10.79 percent
8 carrying charge rate, which is in line with typical
9 carrying charge factor assumptions, to calculate annual
10 per unit distribution costs of \$13.24 per kilowatt year.

11 As I did with avoided transmission value, I
12 calculate the annual avoided distribution rate
13 attributable to CG exports by multiplying the annual per
14 unit distribution costs of 13.24 per kilowatt year, and
15 Dr. Milligan's calculated effective CG export capacity of
16 28 percent. I then calculate the total avoided
17 distribution costs per year using the RMP-specific annual
18 amount of the CG exports calculated by Dr. Lee, another
19 Vote Solar witness. This analysis produced a levelized
20 annual avoided distribution cost of 0.5 cents per
21 kilowatt hour or 0.52 cents per kilowatt hour, inclusive
22 of line losses.

23 RMP, on the other hand, has included zero value
24 for these benefits in its proposed ECR.

25 In terms of T&D line losses, the value of

1 avoided T&D line losses attributable to CG exports is
2 real and quantifiable. Solar energy produced by CG
3 customers in excess of their own use is automatically
4 exported to the grid and physically consumed by their
5 neighbors. When CG customers' neighbors utilize exported
6 solar energy, line losses on the upstream portions of the
7 distribution system and the entirety of the high voltage
8 transmission system are avoided. Notably, RMP sells that
9 exported solar energy to the CG customers' neighbors at
10 the full retail rate of about 10 cents per kilowatt hour.

11 Mr. Volkmann calculated both transmission and
12 distribution line loss factors for CG exports, and I
13 adopted his calculation.

14 These calculations yielded a 0.11 cents per
15 kilowatt hour value for avoided transmission line losses,
16 and a 0.02 cents per kilowatt hour value for avoided
17 distribution line losses attributable to CG exports.

18 Given their real and quantifiable value, the
19 value of avoided line losses associated with CG exports
20 should be included in any just and reasonable ECR. RMP,
21 again, however, has provided zero value for these avoided
22 T&D losses on its system.

23 To summarize, RMP plans its T&D capacity
24 investments to meet the peak system demands. There is no
25 question that the reduction in customer demand resulting

1 from CG exports will decrease the need for PacifiCorp's
2 investment in new transmission and distribution assets,
3 regardless of whether or not CG exports are firm or
4 non-firm in nature.

5 For reasons explained in my testimony and
6 opening statement today, I recommend the Commission to
7 include avoided T&D capacity costs as part of any just
8 and reasonable export credit rate.

9 I thank the Commission for its time, and I'm
10 ready for questions.

11 **Q. Thank you, Dr. Yang.**

12 MR. GOTTLIEB: Vote Solar tenders Dr. Yang for
13 cross-examination.

14 CHAIRMAN LEVAR: Thank you, Mr. Gottlieb.

15 I'll go to Mr. Holman first.

16 Do you have any questions for this witness?

17 MR. HOLMAN: I do not. Thank you, Mr. Chair.

18 CHAIRMAN LEVAR: Okay. Thank you.

19 Mr. Mecham, do you have any questions for
20 Dr. Yang?

21 MR. MECHAM: Thank you, Mr. Chair. I do not,
22 either.

23 CHAIRMAN LEVAR: Thank you.

24 I'll go to Mr. Jetter next.

25 Do you have any questions for Dr. Yang?

1 MR. JETTER: I have no questions. Thank you,
2 Mr. Chair.

3 CHAIRMAN LEVAR: Thank you.

4 Mr. Snarr, how about you?

5 MR. SNARR: The OCS has no questions of
6 Dr. Yang.

7 CHAIRMAN LEVAR: Okay. Thank you.

8 Ms. Wegener?

9 MS. WEGENER: I do have just a few questions.

10 CHAIRMAN LEVAR: Okay. Go ahead.

11
12 CROSS-EXAMINATION

13 BY MS. WEGENER:

14 Q. Good morning, Dr. Yang.

15 A. Good morning.

16 Q. I believe you used Dr. Milligan's avoided
17 generation capacity contributions to calculate your
18 avoided distribution capacity; is that right?

19 A. That's correct, both avoided transmission and
20 distribution capacity costs.

21 Q. Okay. Do you know, is it true that residential
22 and small commercial customers have distribution peaks
23 that are different from the system peaks?

24 A. It could be different. At issue is how
25 different it is. And in my assertive testimony, opening

1 testimony, I actually compare the system peak with
2 coincident distribution peak. I don't remember the
3 figures, but it's reported in my testimony.

4 And by reviewing that material and data, I
5 concluded that there's a significant overlap between the
6 system peak and the distribution peak; therefore, it's
7 reasonable to use the ELCC value that Dr. Milligan
8 calculated for generation capacity.

9 Q. So you wouldn't say that the distribut- -- that
10 there are differences -- excuse me.

11 But there are differences between the
12 distribution peak and the total system peak?

13 A. Yes.

14 Q. And you justified using the same number because
15 there's overlap?

16 A. There's a significant overlap, yes.

17 Q. Would the differences be that the distribution
18 system peaks later in the afternoon? Is that what the
19 difference is? Even with that overlap, the distribution
20 peak is later in the afternoon?

21 A. Can we look at the figures that you're referring
22 to and talk about it?

23 Q. We can. I'm actually not 100 percent sure which
24 figure I'm talking about because it was just something
25 that was referred to yesterday in testimony, so.

1 A. I see. It's Figure 2, Line 130 of my
2 affirmative testimony.

3 So this -- are you there?

4 **Q. Yes, I'm there.**

5 A. Okay. So this figure illustrates that for
6 summer months, May through September, there's a
7 significant overlap with system peak and distribution
8 coincident peaks. That's the top chart.

9 The bottom chart, in the winter months, there's
10 significant overlap in the afternoon, let's say starting
11 from like 5:00 through 7:00 or even 8:00.

12 **Q. Okay. And it looks like there isn't a peak in**
13 **the distribution at the same time as the system peak in**
14 **the morning in that winter chart; is that right?**

15 A. Yes. The sun is not shining very much those
16 times, 7:00 a.m. to 11:00 a.m. Sun is peaking around
17 like noon to 5:00 or 6:00.

18 **Q. Is it possible that that lack of coincident peak**
19 **could make the distribution capacity contribution lower**
20 **than the system -- than the generation capacity**
21 **contribution?**

22 A. It could go either way because I didn't quantify
23 the distribution effective load-carrying capacity. And
24 depending on -- there are many variables to determine the
25 ELCC, as Dr. Milligan testified in this proceeding. And

1 unless you actually calculated whether the ELCC for
2 distribution, distribution is higher or lower is
3 undetermined. Definitely, this is a one factor, and this
4 factor will tend to decrease the ELCC for the
5 distribution.

6 **Q. Okay. So this particular factor may decrease**
7 **the capacity contribution, but there may be other**
8 **factors --**

9 A. That's correct.

10 **Q. -- that aren't taken --**

11 A. Yes.

12 **Q. Okay. Thank you, Dr. Yang.**

13 MS. WEGENER: I have no further questions.

14 CHAIRMAN LEVAR: Thank you, Ms. Wegener.

15 Mr. Gottlieb, do you have any redirect?

16 MR. GOTTLIEB: I have no redirect. Thank you,
17 Mr. Chairman.

18 CHAIRMAN LEVAR: Okay. Thank you.

19 I will go to Commissioner Allen next.

20 Do you have any questions for Dr. Yang?

21 COMMISSIONER ALLEN: Thank you, Chair. I have
22 no questions. Thank you.

23 CHAIRMAN LEVAR: Thank you, Commissioner.

24 How about Commissioner Clark? Do you have any
25 questions for this witness?

1 COMMISSIONER CLARK: I have no questions.

2 Thank you, Dr. Yang.

3 CHAIRMAN LEVAR: Okay. Thank you.

4 And I don't think I have any, either. So thank
5 you for your testimony this morning.

6 THE WITNESS: Thank you.

7 CHAIRMAN LEVAR: And we'll go to Vote Solar for
8 your next witness.

9 MR. SELENDY: Good morning, Chair Levar.
10 Vote Solar calls Dr. Albert Lee as its next
11 witness.

12 CHAIRMAN LEVAR: Good morning, Dr. Lee.

13 THE WITNESS: Good morning, Chairman.

14 CHAIRMAN LEVAR: Thank you.

15 Do you swear to tell the truth?

16 THE WITNESS: I do.

17 CHAIRMAN LEVAR: Okay. Thank you.

18 Mr. Selendy, go ahead.

19 MR. SELENDY: Thank you, Chair.

20

21 ALBERT LEE,

22 was called as a witness, and having been first duly
23 sworn to tell the truth, the whole truth, and nothing
24 but the truth, testified as follows:

25

DIRECT EXAMINATION

BY MR. SELENDY:

Q. Dr. Lee, would you please state your full name and business address for the record.

A. I am Albert Lee. My address is 601 New Jersey Avenue NW, Suite 400, Washington, DC 20001.

Q. And Dr. Lee, have you reviewed and analyzed the testimony submitted by the other parties to this case?

A. Yes, I have.

Q. And have you prepared direct, rebuttal, and surrebuttal testimony of your own?

A. Yes, I have.

Q. Do you have any changes to offer to any of your testimony?

A. No, I don't.

Q. If you were asked the same questions included in your written testimony here today, would you give the same answers?

A. Yes.

MR. SELENDY: Mr. Chairman, Vote Solar moves for the acceptance of the testimony of Dr. Albert Lee into the record of this proceeding.

CHAIRMAN LEVAR: Thank you.

If anyone objects to that motion, please unmute yourself and indicate your objection.

1 I'm not seeing or hearing any objections, so the
2 motion is granted. Thank you.

3 MR. SELENDY: Thank you.

4 **Q. (BY MR. SELENDY:) Dr. Lee, would you like to**
5 **present a summary of your testimony to the Commission?**

6 A. Yes, I would. Thank you.

7 Good morning, Commissioners. Thank you for
8 allowing me to testify on this matter.

9 My name is Albert Lee. I am the founding
10 partner and lead economist at Summit Consulting. I
11 submitted written and live testimony during Phase I of
12 this proceeding in April 2018, and I submitted written
13 affirmative, rebuttal, and surrebuttal testimony for this
14 Phase II. I am, once again, testifying on behalf of Vote
15 Solar.

16 In Phase I of this proceeding, I submitted a
17 testimony based on my review of the design of Rocky
18 Mountain Power's proposed load research study. As I
19 explained then, RMP's sampling methodology was
20 statistically flawed, and this Commission ordered RMP to
21 correct certain of these flaws.

22 The first part of my testimony today will be a
23 brief refresher on the flaws with RMP's LRS.
24 Specifically, I would explain that the sample excluded a
25 sizable portion of the population of interest, was

1 improperly drawn using multiple designs, and was too
2 small to reach prescribed level of precision.

3 The second portion of my testimony will address
4 the load research study that I conducted on behalf of
5 Vote Solar as well as the serious flaws in RMP and DPU's
6 analyses in their direct, rebuttal, and surrebuttal
7 reports. Specifically, DPU witness, Mr. Davis, relies on
8 the flawed RMP study and also makes fundamental
9 computational errors, rendering his analysis unreliable.

10 The third portion of my testimony will show that
11 RMP's proposed export rates result in only small credit
12 relative to the costs borne by the customer. Even
13 assuming RMP's highest peak export rate being applied for
14 all exports, CG customers would be paying for the
15 privilege of exporting the energy back to the grid for
16 more than 3 years before they earned export credits equal
17 to the fees RMP proposes.

18 In Phase I of this proceeding, RMP witness,
19 Mr. Elder, designed a load research study for the purpose
20 of determining the full requirement of CG customers,
21 which is production plus delivery minus exports. I found
22 that Mr. Elder's sample design had several fatal defects
23 in his attempt to meet the stated purpose of the study.

24 First, the production sample was not drawn from
25 the population of interest, which would include -- which

1 would be all customer generators. Instead, it was drawn
2 from a subset, namely, about 140 customers drawn
3 exclusively from Schedule 135 customers, which includes
4 the original 36 customers.

5 As a result, full requirement estimates from the
6 sample could not be extrapolated to the full population,
7 which also includes Schedule 136 customers.

8 The Commission agreed that RMP's sample design
9 did not "conform to standard statistical practices" and
10 ordered RMP to select a new sample that "either gives
11 each member of the class an equal chance of being
12 selected or each member of separate strata an equal
13 chance of being selected." RMP did not make these
14 changes due to the omission of not allowing Schedule 136
15 customers to be included in the sample.

16 Second, the sample was drawn using different
17 sample designs. Mr. Elder selected certain participants
18 based on energy build but selected other participants
19 based on nameplate capacity. As a result, standard
20 extrapolation formulas fails to account for this
21 difference, and no alternatives were provided.

22 Third, several factors indicated that RMP's
23 sample size was too small to achieve Mr. Elder's stated
24 precision of plus or minus 10 percent and 95 percent
25 confidence. Although Mr. Davis did not calculate

1 confidence intervals for RMP's study, my calculation
2 shows that the sample fails to achieve the
3 statutorily-prescribed precision requirement.

4 With the Commission's purpose for the LRS and
5 Mr. Elder's design in mind, I oversaw the design and
6 implementation of Vote Solar's load research study.
7 Although I understand that my findings play a role in
8 shaping policy and that Vote Solar's other experts relied
9 on them in forming their opinions, I approach my work
10 objectively based on fundamental principles of
11 statistics.

12 First, I identified characteristics that
13 influence the production and exports of CG customers.
14 Then I directed the collection of relevant customers in a
15 way that gave all CG customers the possibility of being
16 included.

17 RMP also provided its own data to Vote Solar,
18 including monthly export data for 2015 through 2019, for
19 more 30,000 unique customers. RMP likewise provided the
20 data they collected for RMP's load research study.

21 I then calculated statewide estimates for
22 exports and production of CG. Because production is
23 largely a function of weather and time, it is possible to
24 estimate the production for the entire population of
25 installed capacity.

1 To determine the statistical relationship
2 between generation, nameplate capacity, and other
3 location data, I developed a regression model to estimate
4 solar production based on the 2019 data. My regression
5 model demonstrates how much of a CG customer's solar
6 production was affected by variables like weather and
7 cloud coverage.

8 I then applied the relevant data to predict
9 productions for the nearly 38,000 CG customers whose data
10 were not collected as part of the Vote Solar study and
11 whose data were not collected as part of the RMP study.

12 Similarly, I developed regression models for
13 customers without export information. Using these
14 regression models, I was able to calculate statewide
15 exports and production statistics for the entire universe
16 of RMP's CG customers.

17 There are several key differences between the
18 data gathered by RMP and Vote Solar. Unlike RMP, Vote
19 Solar collected data from Schedule 135 and 136 customers,
20 and Vote Solar calculated not just exports but also
21 production statistics.

22 The measure of how strong a relationship is in a
23 regression model is called an "R-squared value."
24 Mr. Davis criticizes the R-squared value in my regression
25 as being relatively low, even though that it was above

1 0.6. Mr. Davis is incorrect. An R-squared value of 0.6
2 to 0.7 is not a low indicator of model explanatory power.

3 I have developed and reviewed many regression
4 models, studies, analyses, and critiques in my 20-year
5 career. And the R-square in these models are high
6 R-square statistics for this type of study.

7 Moreover, R-squared is a single gauge of a
8 model's fit, and my models are highly statistically
9 significant, meaning that they contain important
10 predictors and explain both the production and export
11 data patterns.

12 Mr. Davis also asserts that my study must be
13 flawed because DPU found a small number of instances
14 where exports equal production.

15 But in any large database, a small number of
16 outliers and data anomalies are always expected. And
17 significantly, the raw data received from RMP
18 contained -- showed analogous data anomalies, like
19 showing certain time periods when exports were greater
20 than production and solar exports in production at night
21 when there is no sun.

22 The small percentage of such issues in Vote
23 Solar's base data is expected and has no material impact
24 on Vote Solar's conclusions.

25 Turning to RMP's proposal. Mr. MacNeil was

1 tasked with calculating an export credit rate for RMP's
2 customers. Notably, he entirely abandoned Mr. Elder's
3 studies and used only RMP's provided export data.

4 As I have explained, this impacted the
5 reliability of RMP's export estimates because they failed
6 to account for how much CG customers are producing. In
7 fact, Mr. MacNeil appears not to have considered
8 production at all, which could lead to an export rate so
9 low that it renders future CG installations uneconomical.

10 RMP's proposed ECR schedule contained rates that
11 differ by month of the year and hours of the day. RMP
12 proposes an average ECR of 1.53 or 2.22 cents per
13 kilowatt hour split into seasonally-adjusted,
14 time-varying peak and off-peak rates.

15 I used this proposed ECR framework and my
16 estimates of total exports for each day and hour in 2019
17 to determine the expected exports and credits per
18 customer that would accrue over a year under RMP's rate.
19 My data shows that in 2019, the average CG customer
20 exporting under RMP's rate would have received an average
21 of \$94 in credits.

22 Assuming that all exports were at peak rates, an
23 entirely counterfactual assumption, the credits received
24 would raise to an average of \$158 annually. Yet, RMP
25 also proposes fees on customer generators to enroll in

1 the CG program of \$310. At an average of \$94 in annual
2 credits, it would take more than 3 years of customers to
3 start accruing credits in excess of these fees. Even
4 assuming export credits of \$158 annually, a customer
5 would need to export for nearly 2 years. Meanwhile, RMP
6 would collect \$1,833 annually from selling these exports
7 to other customers each year.

8 The result is that RMP proposed an export credit
9 so low that customers are effectively paying to export
10 electricity, even when ignoring the cost of installing
11 their solar systems. In essence, RMP proposes a rate
12 that may end future CG installations and sacrifices the
13 benefit from all CG production, not just CG exports.

14 Mr. Davis concludes in his testimony that RMP's
15 LRS clearly shows that solar customers currently export a
16 small amount of energy during the Utah peak and non-peak
17 hours. His findings are unreliable for several reasons,
18 starting with the fact that there was no correction of
19 the statistically flawed -- statistical flaws in the RMP
20 sample.

21 Ignoring the Commission's instruction, Mr. Davis
22 compounded those flaws with his own computational errors.
23 First, Mr. Davis analyzed the data supplied by Mr. Elder,
24 which, as I described, did not include the entire
25 population of interest. Rather than accounting for this

1 discrepancy, Mr. Davis justifies his use of Mr. Elder's
2 sample data by arguing that there are no discernible
3 differences between Schedule 135 and 136 customers.
4 Specifically, he says that he is unaware of any evidence
5 that suggests that Schedule 135 customer exports are
6 materially different from Schedule 136 exports. This is
7 incorrect.

8 I compared the excluded Schedule 136 population
9 to include a Schedule 135 population and found that the
10 average nameplate capacity, which is what Mr. Elder
11 himself used in designing his study, varied significantly
12 between Schedule 135 and 136 customers.

13 For Schedule 135 customers, average nameplate
14 capacity was 6.4 kilowatts. For Schedule 136 customers,
15 however, it was 6.9 kilowatts.

16 That difference is statistically significant and
17 has a large impact on Mr. Davis's analysis because
18 Schedule 136 systems have more capacity. They are more
19 likely to produce more electricity and return more energy
20 to the grid. Excluding them in the sample biases
21 production estimates downward.

22 Nor is it logical for RMP or DPU to exclude
23 production data from Schedule 136 customers since that
24 subset continues to be a larger and larger portion of
25 RMP's CG customer base. The number of Schedule 136

1 customers grew significantly over 2019. In January of
2 that year, there were 3,211 Schedule 136 customers, or
3 approximately 8.3 percent of CG connections. By December
4 of 2019, there were 7,858 Schedule 136 customers, or
5 approximately 20.2 percent. Today, that figure is
6 presumably even higher.

7 Second, Mr. Davis made a computational error
8 that significantly skewed his export total estimate. He
9 calculated sampling weights incorrectly.

10 Sampling weights are important because, as the
11 name suggests, they are used to weight various sample
12 outputs to extrapolate to the larger population.

13 According to Mr. Davis's work papers, the sampling
14 weights were calculated by dividing the number of
15 customers of the respective strata, or subgroup, by the
16 total number of customers in the population.

17 For Stratum 1 of Schedule 135 residential
18 customers, for example, he divided 6,364 by 29,183 to
19 reach a sampling weight of 0.22. But that's not a
20 sampling weight at all. It is simply the percentage of
21 the entire population size that Stratum 1 makes up.

22 What he should have done was to divide each
23 stratum's population size by the sample size, or in the
24 case of Stratum 1, divide 6,364 by 10. This shows that
25 each sample customer from Stratum 1 represents 634

1 customers in that stratum. That is the correct sampling
2 weight which, by definition, can never be less than 1.

3 These errors mean that when DPU extrapolates
4 RMP's sample to represent the entire customer generation
5 pool, DPU understates the export total by a factor of 25
6 to 1. Notably, even after I raised these errors in my
7 testimony, Mr. Davis did not correct or amend his
8 sampling weights. He did not even address his error in
9 his surrebuttal; instead, deferred to DPU witness,
10 Dr. Abdulle, who says he is unable to verify my work
11 papers, completely ignoring that Mr. Davis's sampling
12 weights are drawn from his work papers in his report.
13 And DPU simply accepted RMP's representation that the LRS
14 sample met the stated precision level. My calculations,
15 however, show that it did not.

16 In summary, my opinion is that Mr. MacNeil's
17 proposed ECR rate is inefficient, potentially
18 uneconomical, and that might stop the growth of CG
19 installation and exports. RMP's load research study
20 should not be credited because its sampling methodology
21 was flawed.

22 Vote Solar's load research study is sound and
23 adheres to basic norms of statistical analysis, and it
24 should be credited.

25 Mr. Davis's analysis of RMP load research

1 studies makes fundamental computational errors and draws
2 incorrect conclusions based on these computational
3 errors.

4 This concludes my summary of my opinion for this
5 matter. I thank the Commission for its time in listening
6 to my testimony. I am ready for questions.

7 **Q. Thank you, Dr. Lee.**

8 MR. SELENDY: Chairman Levar, Vote Solar tenders
9 Dr. Lee for cross-examination at this time.

10 CHAIRMAN LEVAR: Thank you.

11 Mr. Holman, do you have any questions for
12 Dr. Lee?

13 MR. HOLMAN: I have no questions for Dr. Lee.
14 Thank you, Mr. Chairman.

15 CHAIRMAN LEVAR: Thank you.

16 Mr. Mecham, do you have any questions?

17 MR. MECHAM: Nor do I, Mr. Chairman. Thank you.

18 CHAIRMAN LEVAR: Okay. Thank you.

19 Mr. Jetter?

20 MR. JETTER: Hi. Good afternoon -- I guess it's
21 good morning, Dr. Lee.

22 I do have a few questions, Mr. Chair.

23 CHAIRMAN LEVAR: Okay. Go ahead.

24

25

1 CROSS-EXAMINATION

2 BY MR. JETTER:

3 Q. You spent quite a bit of time in your summary
4 and testimony discussing the differences in the modeling
5 and conclusions on the exported energy, both volumes and
6 timing.

7 Have you compared the final results of your
8 analysis with that from Rocky Mountain Power and from
9 Division witness Mr. Davis?

10 A. Could you define "final results"?

11 Q. So let's say the calculated total exports in
12 kilowatt hours on an annual basis.

13 A. From Mr. Davis's rebuttal testimony,
14 affirmative, or surrebuttal?

15 Q. So, for example, I believe it's in DPU
16 Exhibit 1.3, Davis surrebuttal. So that would be
17 Mr. Davis's surrebuttal attached Exhibit 1.3.

18 A. Give me a minute so that I can look it up.

19 Q. And I'd like to caution you at this time that
20 that number is confidential, and so what I'm just going
21 to ask you is to compare that to your total export
22 calculation and tell me if it's higher or lower.

23 A. Sure. Thank you for that caution.

24 If I remember Mr. Davis's surrebuttal testimony,
25 he offered a number that is higher than my estimate. But

1 you did not ask, but I want to let you know that that
2 calculation was incorrect.

3 Q. Okay. And I'm just trying to make it clear on
4 the record that -- whether Mr. Davis's calculation was
5 correct or not is really not part of this question.

6 I'm just asking: Is his conclusion he reached,
7 result in his analysis, a higher estimated export number
8 of kilowatt hours per year?

9 A. Based on my recollection, he reported a higher
10 export total estimate.

11 Q. Okay. And I guess following up on that
12 question, is it also correct that Rocky Mountain Power's
13 reported number was very close to yours but slightly
14 lower; is that accurate?

15 A. Yes. Rocky Mountain Power reported a number
16 that is close to my estimate.

17 Q. Okay. And so despite potential flaws in how the
18 parties reached those numbers, the DPU came up with a
19 higher number, Rocky Mountain Power came up with a little
20 bit lower number, and they were all relatively similar in
21 magnitude?

22 A. Let me say that the number that Rocky Mountain
23 Power offers is closer to mine, and Mr. Davis's number in
24 his surrebuttal testimony is further apart.

25 Q. Okay. His is more like 10 percent or something

1 or more higher than yours?

2 A. I will take your math. I think that sounds like
3 the right ballpark.

4 Q. I'm not estimating that or calculating that,
5 that's just a rough guess to stay out of confidential
6 material here.

7 I'd like to change lines of questioning here
8 just a little bit, so bear with me. You've discussed the
9 fees that are included in the proposal by Rocky Mountain
10 Power.

11 Are you aware that various jurisdictions also
12 charge fees for permitting and other various, I guess,
13 building permits, that type of thing for installing
14 solar?

15 A. That's not my area of expertise. It's not part
16 of my assignment to research whether or not other
17 jurisdictions charge fees.

18 Q. And I guess I will not ask you any further
19 questions given that.

20 Would you agree with me that selling electricity
21 as a service with 24-hour reliability voltage support and
22 things like phase balancing is a different product or
23 service than the commodity of electric energy?

24 MR. SELENDY: Excuse me. Chair Levar, I would
25 like to object that this falls outside the scope of the

1 report submitted by Dr. Lee.

2 MR. JETTER: May I respond, Mr. Chair?

3 CHAIRMAN LEVAR: Respond and identify where you
4 believe it falls within it.

5 MR. JETTER: I think this falls squarely within
6 Dr. Lee's opening statement where he described Rocky
7 Mountain Power as selling the same thing that they are
8 paying. I believe he calculated it as around \$158 per
9 year for \$1,333. And I'd like to know whether they're
10 selling the same thing or not.

11 CHAIRMAN LEVAR: Mr. Selendy, do you dispute the
12 statement from the summary, or do you --

13 MR. SELENDY: I didn't hear a quotation, but it
14 sounds like Mr. Jetter is talking about a comparison of a
15 rate and is using that to talk about a variety of other
16 factors on the system.

17 If Dr. Lee is able to respond to the question, I
18 don't object. But the line is obviously outside the
19 scope of the subject matter that's presented by Dr. Lee.

20 MR. JETTER: If you'd like to strike that from
21 his opening statement, I'd be happy to do that.

22 Alternatively, if it is the testimony of Dr. Lee
23 that Rocky Mountain Power is selling an equivalent
24 product being between an export credit and a kilowatt
25 hour of residential retail service, I think I have a

1 right to discuss that with him and ask some questions
2 along that line.

3 CHAIRMAN LEVAR: With all the discussion I've
4 heard, I think I'm going to allow the question to
5 continue at this point.

6 MR. JETTER: Okay.

7 CHAIRMAN LEVAR: Go ahead and ask your question.

8 Q. (BY MR. JETTER:) Maybe I'll lay a little more
9 foundation here.

10 Is it accurate that you said in your opening
11 statement that Rocky Mountain Power is providing \$158 per
12 year or \$94 per year, or somewhere in that range, of
13 credits for the export for an average customer?

14 A. Yes.

15 Q. And you also said that they are selling that for
16 \$1,833 at the average residential retail rate; is that
17 correct?

18 A. What I was referring to in my opening statement
19 is my calculation that if they were to sell the same
20 amount of electricity, that would be the revenue that
21 they generated.

22 Q. Okay. And would you agree with me that what
23 they are selling is not the same as the commodity of
24 electronic generation?

25 A. I don't have an opinion about that. I'm only

1 comparing the quantity, the revenues that a CG customer
2 would have received, and then the -- of the same quantity
3 of electricity if RMP were to sell them, that would be
4 the revenue that it would have generated.

5 Q. Okay. Thank you for that clarification.

6 And would you agree with me, then, if Rocky
7 Mountain Power were to purchase electric generation from
8 another source for 2 cents per kilowatt hour, they would
9 also sell the same energy for a residential retail rate
10 under their service for \$1,833?

11 A. I have not done that calculation. It's beyond
12 my scope of this particular assignment.

13 Q. Okay. Those are all of my questions. Thank
14 you, Dr. Lee, for your time.

15 A. Thank you, Mr. Jetter.

16 CHAIRMAN LEVAR: Thank you.

17 I'll go to Mr. Snarr next.

18 Do you have any questions for Dr. Lee?

19 MR. SNARR: The OCS has no questions for
20 Dr. Lee.

21 CHAIRMAN LEVAR: Okay. Thank you.

22 Ms. Wegener, do you have any questions for
23 Dr. Lee?

24 MS. WEGENER: Yes, I do. Just a few.

25

1 CROSS-EXAMINATION

2 BY MS. WEGENER:

3 Q. Good morning, Dr. Lee -- although if you're in
4 New York, it's good afternoon.

5 A. Good morning.

6 Q. You said that Mr. MacNeil's data is not reliable
7 because it only accounts for exports, right?

8 A. Can you repeat that question, please?

9 Q. Yes. Mr. MacNeil's data from the 136 customers
10 is less reliable because it doesn't -- because it only
11 accounts for exports, not the entire consumption?

12 A. What I meant to say there is Mr. MacNeil did not
13 take production into consideration.

14 Q. Right. Isn't it true this proceeding is about
15 the value of the exports, though, not about the value of
16 the total production?

17 A. Well, not from a statistical perspective
18 because, as I mentioned before, I got involved in this
19 case in Phase I. It was very clear in Phase I the
20 objective is to calculate full requirement, which
21 involves both export production, as well as deliveries.

22 Q. Can you explain to me your understanding of the
23 difference between the 135 and 136 customers?

24 A. Well, I'm not a regulatory expert, so I can only
25 briefly give you what I understood.

1 I believe that the 135 -- Schedule 135 customers
2 were referred to as "grandfathered" customers. And 136
3 customers, they were the transition customers.

4 Q. So the 136 customers as a group installed solar
5 later than the 135 customers; is that fair?

6 A. I believe that that's the case.

7 Q. Would you say that it's logical that more recent
8 installations under 136 are more indicative of what
9 future installations will look like than the 135
10 installations?

11 A. That could be, but I'm not in the position to
12 second guess what was the original intent of RMP's LRS,
13 which was subsequently approved and blessed by this
14 Commission.

15 Q. To get your samples for your load research
16 study, participants had to go to the -- or participants
17 first received a mailer, right, from Rocky Mountain
18 Power?

19 A. That is correct.

20 Q. And then they had to go to the Company's website
21 and opt into the study; is that right?

22 A. That is correct.

23 Q. Is it possible that only customers who were
24 particularly enthusiastic about solar would have the
25 motivation to go to the website and opt into the study?

1 A. It could be, but I don't know how that
2 particular fact, if it were to be the case, would
3 influence the reliability of my calculation.

4 **Q. Okay. So you can't say whether enthusiastic**
5 **customers may have larger systems?**

6 A. If it were, then they are accounted for in my
7 regression.

8 **Q. Okay. And if they had a different use**
9 **profile -- perhaps enthusiastic customers are more**
10 **cognizant of aligning their use and production -- would**
11 **your study account for that?**

12 A. Yes. As a theoretical matter, it could. But
13 also as an empirical matter, it turns out that the
14 underlying implications of your question, you know, did
15 not come to pass. Like, in other words, empirically, you
16 know, we have evidence to show that, you know, what you
17 have just described did not occur.

18 **Q. Okay. Did all of the opt-in customers, the**
19 **folks that went to the website and opted into the study,**
20 **did they all have an equal chance of being selected for**
21 **your study?**

22 A. Can you repeat that question, please?

23 **Q. Yes. So let me give a little bit of background.**
24 **I think you said in your summary that it's**
25 **important for a study to have participants who have an**

1 equal chance of being selected. It makes the study more
2 reliable, if that's the case. And I'm wondering if, for
3 your study, if each person who opted in on the Company's
4 website had an equal chance of being selected?

5 A. So they need not to be -- have an equal chance.
6 So if I were to use a design-based approach, like what
7 Mr. Elder has originally envisioned, then the members of
8 having an equal chance to be selected is very important.

9 But stylistically and methodologically, I used a
10 model base approach. The model base approach is
11 appropriate for a study where the underlying chance of
12 participation is not known. But using a regression
13 model, I would be able to appropriately account for their
14 differences in characteristics.

15 So your question, frankly, does not apply to the
16 method that I have adopted for Vote Solar.

17 Q. Okay. So for Mr. Elder's analysis, it was
18 important that each participant had an equal chance of
19 being selected for the study. But your study, because of
20 the other methods that you selected, it's not important.

21 Each participant doesn't need an equal chance of
22 being selected?

23 A. That's right.

24 Q. So would you agree with me that each person
25 who -- who opted in did not have an equal chance of being

1 **selected for your study?**

2 A. In fact, I do not know explicitly what the
3 chances are because I need not to have that piece of
4 statistics for me to conduct my analysis. So whether or
5 not they're equal chance or not is something that I
6 cannot say. But I would further say that it is
7 unnecessary for me to know, given the methods that I
8 adopted.

9 Q. Isn't it true that if a person opted in on the
10 website but the inverter that they used was manufactured
11 by a specific manufacturer, that you couldn't get the
12 data from that participant?

13 A. Sigh that again? I'm sorry.

14 Q. So if a customer chose to participate in the
15 study but their inverter was from, I think, SMA that you
16 weren't able to get data from their system. That's
17 right, isn't it?

18 A. That could be.

19 Q. And is it possible that the fact that a
20 participant has an inverter, an SMA inverter, could
21 relate to other characteristics that could influence your
22 study?

23 A. I guess as a theoretical matter, that could be.
24 But again, empirically, that concern did not really bear
25 out. R-squared statistics is a good way to judge that.

1 Q. And regression only takes into account factors
2 that you decide to account for, right?

3 A. Can you repeat your question?

4 Q. I might not be stating it well.

5 But regression only accounts for factors that
6 are included in the regression analysis, right?

7 A. Strictly speaking, I would not agree with that
8 statement.

9 Q. Did you collect any data to account for the
10 different inverter manufacturers in your regression
11 analysis?

12 A. Ask one more time, please?

13 Q. Did you collect any data on the effect of the
14 inverter manufacturer that you could use to account for
15 the different manufacturers through your regression
16 analysis?

17 A. I did not because I don't know how that would be
18 relevant.

19 Q. Okay. So you determined that the manufacturer
20 of the inverter wouldn't be relevant to the data that you
21 were getting, and so you didn't account for that in your
22 regression analysis?

23 A. I did not determine that. The literature
24 determines that. Moreover, Mr. Elder, in his 2018
25 testimony, gave a litany of factors about the mechanical

1 process of data production and data exports. Inverter
2 was not on that list. So that's No. 1.

3 And No. 2 is R-squared, the percentage of output
4 variabilities being explained by the model is very high.
5 And because of that -- let's just take your argument,
6 grant your argument for a moment, and say that inverter
7 matters. My R-square shows that it can only matter to a
8 very limited extent. So, empirically, it does not
9 matter.

10 Q. Isn't it possible that the inverter could matter
11 for reasons other than the output data that it provides
12 for you?

13 A. I don't understand that question.

14 Q. Well, say, for instance, that one neighborhood
15 has a high level of CG penetration from one particular
16 installer, and that installer uses SMA inverters. And
17 it's located maybe in the middle of the state. And
18 that's where the solar installer sent their summer sales
19 fleet, and so it's all Vivint in that area. It's right
20 in Provo, the hometown of Vivint. And there's a lot of
21 Vivint rooftop solar there. And they use a particular
22 manufacturer for their inverter.

23 But up north, perhaps there's a variety of
24 installers, and so there isn't the same concentration of
25 SMA inverters for that installation.

1 **Is that something that could affect the data**
2 **that you get concerning production?**

3 A. Well, I guess that it could, but it did not
4 then. Because, you know, we talked very, very much about
5 how close my estimation is to RMP's estimation. The fact
6 that they are so close -- RMP, presumably, has the
7 universe, and I have to do my own estimation -- I compare
8 how close those two numbers are. Even in your
9 hypothetical it could be true. Apparently, it's not true
10 enough to change my opinion about the reliability of the
11 model.

12 **Q. Okay. So you rely on your model because it's**
13 **close to RMP's census of the entire population of 136?**

14 A. No, I relied on my model because it is good
15 science. It is good statistics.

16 **Q. Okay. Thank you.**

17 **You mentioned that your results are similar to**
18 **Rocky Mountain Power's results.**

19 **What is the margin of error for your study?**

20 MR. SELENDY: Just a clarification, if I may.
21 When you said the "results," Ms. Wegener, what exactly
22 are you referring to?

23 MS. WEGENER: When I say the results, I mean
24 the export -- the information about the production, the
25 production data that came out of both studies.

1 THE WITNESS: Could you please ask your question
2 again, please?

3 Q. (BY MS. WEGENER:) Yes, if I can remember it, I
4 will ask it again.

5 Why don't I just ask: What is the margin of
6 error for your study?

7 A. There's not really one handy statistics that I
8 can actually describe it to you. But I do believe that
9 is either -- in my rebuttal testimony, I reported that
10 during peak hours, the exports -- precision statistics is
11 well within -- on average -- is well within the
12 statutorily precision requirement. And I want to say it
13 is actually, you know, plus or minus 5 percent of the
14 export total. Again, it is in my rebuttal testimony, I
15 believe.

16 Q. Would you say that the difference between the
17 export totals in Rocky Mountain Power's census of 136
18 customers and in your load research study is within the
19 margin of error for your study?

20 A. Say that once more?

21 Q. Would you say that the export credits -- or the
22 export production, the exported energy in Rocky Mountain
23 Power's census of 136 customers is -- and the difference
24 between that and the results of your study is within the
25 margin of error in your study?

1 A. I fear that I don't completely understand that
2 question.

3 Q. Let me see if I can ask it a little better.
4 On Line 186 of your testimony. And there's
5 confidential information here, so I don't want to talk
6 about specifics.

7 A. Which testimony?

8 Q. Excuse me. Of your surrebuttal. So surrebuttal
9 testimony, Line 186 is where I'm at.

10 A. I'm there.

11 Q. Okay. So that has the margin of error for your
12 export model; is that right? I'm not going to have you
13 read it because it's confidential.

14 But it has the margin of error, right?

15 A. That's correct.

16 Q. And then down on the previous page, in Footnote
17 20, you say that your estimated totals in Exhibit 1 of
18 your rebuttal report are within another percentage, a
19 different percentage that is also confidential, of the
20 Company's exports; is that right?

21 A. That's correct.

22 Q. So would you say that the estimated totals
23 provided by the Company are within the margin of error
24 for your studies?

25 A. Well, that number cannot be used that way. So,

1 among other things, the margin of error that I have shown
2 in Line 186 pertains to production only at peak hours.
3 And that's an average.

4 In Footnote 20, you are referring to a number
5 that is a total of the entire year. And so, you know,
6 one of them didn't really -- cannot compare to another.
7 In other words, 186 refers to an hourly production, and
8 then Footnote 20 refers to the total.

9 **Q. Okay. But you would say that the results of**
10 **your study were substantially similar to the results of**
11 **Rocky Mountain Power's census of Schedule 136 customers;**
12 **is that right?**

13 A. My export totals are close to what RMP reported,
14 yes.

15 **Q. Okay. Thank you.**

16 MS. WEGENER: That's all the questions I have.

17 CHAIRMAN LEVAR: Thank you, Ms. Wegener.

18 Mr. Selendy, do you have any redirect for
19 Dr. Lee?

20 MR. SELENDY: I do, Mr. Chairman. Thank you.

21

22 REDIRECT EXAMINATION

23 BY MR. SELENDY:

24 **Q. Very briefly, I have two questions for you,**
25 **Dr. Lee.**

1 **First, you were asked by Ms. Wegener about**
2 **whether each participant had an equal chance of inclusion**
3 **in the sample.**

4 **Do you recall that question?**

5 A. I do.

6 **Q. Are your extrapolations fairly representative of**
7 **the sampled population?**

8 A. Yes.

9 **Q. And would you explain why, please.**

10 A. It is because I used a regression model. And so
11 as the -- so No. 1, going back to the process. When we
12 sent out letters to the entire population of 38,000 RMP
13 customers, they all have some chance to reply and to
14 participate. So that's No. 1.

15 And No. 2 is, among those who actually provided
16 us information, we also have other characteristics of
17 these customers. And by leveraging these
18 characteristics, we developed a regression model. And so
19 for those people who did not explicitly participate in
20 our study, we likewise leveraged their characteristics in
21 order to perform that calculation.

22 In that regard, you know, the Vote Solar load
23 research study is representative of the RMP CG customer
24 population.

25 **Q. Thank you. Now, Ms. Wegener also asked you**

1 about possible variations that might be attributable to
2 different inverters that are used by consumers. And you
3 referred to the R-squared value.

4 Why does the R-squared value show that this
5 hypothetical concern does not actually present problems?

6 A. Right. So an R-squared essentially is a measure
7 of the explanatory power of the model as it is currently
8 constituted. So R-squared is bounded between zero
9 percent when the model is not providing a whole lot of
10 explanatory power, to a model that has 100 percent
11 R-squared that explains all the possible variations.

12 The model at very high R-squares, that is to say
13 that it leaves the difference between 100 percent and
14 that .7 to be relatively low, and that is to the extent
15 that these inverters might have a meaningful impact on
16 the estimates, it is actually bounded -- bounded, you
17 know, to be lower than 30 percent. So that is one
18 theoretical understanding.

19 The other understanding is much more empirical;
20 and that is, when I compare my estimates, export
21 estimates to the actual number -- the truth,
22 presumably -- we are very, very close to each other.
23 That empirical number tells me that if there were any
24 differences about these inverters, they really cannot
25 move the needle.

1 **Q. Thank you, Dr. Lee.**

2 MR. SELENDY: Mr. Chairman, I have no further
3 questions.

4 CHAIRMAN LEVAR: Thank you, Mr. Selendy.

5 I'll just ask: If any of the parties have any
6 recross based on Mr. Selendy's questions, please unmute
7 yourself and indicate to me that you have some questions.

8 I'm not seeing anyone with recross, so I'll go
9 to Commissioner Clark.

10 Do you have any questions for Dr. Lee?

11 COMMISSIONER CLARK: No questions. Thank you
12 very much.

13 CHAIRMAN LEVAR: Thank you, Commissioner Clark.
14 Commissioner Allen?

15 COMMISSIONER ALLEN: I do have one question.

16

17 CROSS-EXAMINATION

18 BY COMMISSIONER ALLEN:

19 **Q. And thank you, by the way.**

20 **And thank you, Mr. Lee, for your help today.**

21 **When you started your summary or your**
22 **discussion, I believe you said that the difference in the**
23 **export factor was 25 to 1. But yet later during**
24 **cross-examination, there seemed to be some discussion**
25 **that indicated that the numbers were not that far apart.**

1 **Are we talking about apples and oranges? Did I**
2 **misunderstand that? Or could you help clarify that,**
3 **please?**

4 A. Commissioner Allen, thank you very much for that
5 question to clarify the record.

6 There are sets of numbers, you know, that is
7 being passed around. And one has to listen very, very
8 carefully in terms of which number is which.

9 So Mr. Davis, on behalf of the Division, used
10 RMP's LRS for his projection. And his projection,
11 unfortunately, used the wrong weights. And if we were to
12 rely on his projection, then we have the 25 to 1
13 calculation.

14 If I may, you know, for the record, show you in
15 my rebuttal testimony, and I understand that some of
16 these numbers, you know, could be confidential.

17 Maybe just for edification, Commissioner, if you
18 take a look at my rebuttal testimony in Table 1, page 16,
19 you would get a sense of appreciation of that
20 understatement.

21 So that was Mr. Davis's calculation as presented
22 in his affirmative.

23 Then later on, RMP provided a different set of
24 numbers that had nothing to do with Mr. Davis's
25 calculation. Those numbers are the total exports. So,

1 Mr. Davis set aside, RMP provided the total export
2 number. And when I compare my estimates to that set of
3 total exports, that's when we get very close.

4 **Q. Okay. Great that's actually very helpful.**

5 **Thank you.**

6 CHAIRMAN LEVAR: Thank you, Commissioner Allen.

7 And Dr. Lee, I don't have any further questions
8 for you. So thank you for your testimony today.

9 THE WITNESS: Thank you, Mr. Chairman.

10 CHAIRMAN LEVAR: Mr. Selendy, is there anything
11 else from Vote Solar at this point?

12 MR. SELENDY: That concludes the presentation of
13 witnesses by Vote Solar. Thank you, sir.

14 CHAIRMAN LEVAR: Okay. Well, I think that
15 concludes all of our witnesses.

16 Let me raise this issue: (inaudible) to holding
17 closing arguments Tuesday afternoon, starting at
18 1:00 p.m.

19 Any objection to that? And I'm asking this to
20 everyone.

21 MR. JETTER: My schedule is pretty wide open, so
22 I would be happy to do it then.

23 MR. HOLMAN: That works for Utah Clean Energy as
24 well, Chairman Levar.

25 MR. MECHAM: It also works for Vivint Solar.

1 Thank you.

2 MR. SNARR: And on behalf of OCS, we could do
3 that.

4 MS. WEGENER: That works for the Company as
5 well.

6 But I would like to say we have one short line
7 of questioning on rebuttal for the afternoon today.

8 CHAIRMAN LEVAR: Oh, you're asking to present a
9 rebuttal witness?

10 MS. WEGENER: Yes, I am.

11 CHAIRMAN LEVAR: Okay. Do you want to lay any
12 groundwork for that, or would you rather just discuss it
13 after a break?

14 MS. WEGENER: I can discuss it after a break.
15 But I can say briefly that it really is to the capacity,
16 the amount of capacity contribution that should be
17 accounted for in the rate. And it's the Company's
18 position that there should not be a capacity
19 contribution.

20 There is data in Mr. MacNeil's testimony for a
21 calculation that can be applied to other data that's
22 already in testimony to come up with what his 4 percent
23 number that he -- he testified that if there's any
24 capacity contribution, that number should be 4 percent.
25 But it's not a straightforward math problem. It's got

1 models and stuff involved.

2 And so I just want to put Mr. MacNeil back on to
3 do the math for everyone to see what that would be if you
4 took his 4 percent number from his surrebuttal and
5 applied it with other data in this case.

6 CHAIRMAN LEVAR: Okay. Thank you. I think
7 that's helpful to give everyone that background on your
8 request. And I think we will then address that issue
9 after a break.

10 I'm not hearing any objections to planning oral
11 arguments at 1:00 p.m. Mountain Daylight Time on Tuesday,
12 so I think we'll plan on that.

13 And we will break for one hour and then return
14 to address Ms. Wegener's request. Thank you.

15 (A break was taken from 12:02 p.m. to 1:01 p.m.)

16 CHAIRMAN LEVAR: Okay. Welcome back, everyone.
17 I think we're ready to begin and go on the record.

18 Ms. Wegener, do you have anything you want to
19 add to your request before we go to other parties for
20 their positions?

21 MS. WEGENER: Just that our proposed rebuttal is
22 very limited, and it's a result of the updated OCS
23 calculation that they provided just at the outset of this
24 proceeding.

25 CHAIRMAN LEVAR: Okay. Thank you.

1 Mr. Jetter, do you have a position on this
2 request?

3 MR. JETTER: I don't have a position either way.

4 CHAIRMAN LEVAR: Okay. Thank you.

5 Mr. Snarr? I may have started not quite an hour
6 after we broke. It doesn't seem that we have Mr. Snarr
7 on the call. So maybe I didn't check the list to see
8 that everyone was connected before we started.

9 Mr. Snarr, is that you who just joined?

10 Okay. I think I started maybe a minute or two
11 too early. So Ms. Wegener, why don't you repeat what you
12 said one more time. I asked if you had anything to add
13 to your request. You made a brief statement. Why don't
14 you repeat that, and then I'll start going to the parties
15 for any positions. Thank you.

16 MS. WEGENER: Okay. I believe I said that our
17 request for rebuttal is very limited and is justified by
18 the OCS's adjustments to their expert credit proposal
19 that was made at the outset of the proceeding.

20 CHAIRMAN LEVAR: Okay. Thank you.

21 And Mr. Jetter, I can't remember if you said you
22 had no objection or no position.

23 MR. JETTER: I have no position. I guess that
24 includes I have no objection.

25 CHAIRMAN LEVAR: Sure.

1 MR. JETTER: Yeah. I guess we're probably
2 indifferent.

3 CHAIRMAN LEVAR: Okay. Thank you, Mr. Jetter.
4 Mr. Snarr, do you have any objection to the
5 request?

6 MR. SNARR: No. No objection.

7 CHAIRMAN LEVAR: Mr. Selendy?

8 MR. SELENDY: Thank you, Mr. Chairman.

9 We do object to the introduction of new
10 testimony. I will note that Mr. MacNeil addressed the
11 issues of capacity contribution at Lines 289 to 868 of
12 his rebuttal and also Lines 526 to 598 of his
13 surrebuttal. There was every opportunity to address the
14 matter further in cross-examination of the OCS witness,
15 which RMP's counsel elected to decline to do.

16 We now face a situation where all other experts
17 have concluded their testimony, and we submit it would be
18 prejudicial for newly-introduced testimony by
19 Mr. MacNeil, particularly, as I say, after RMP's counsel
20 declined to examine the OCS witness on that subject. So
21 we do object.

22 CHAIRMAN LEVAR: And let me just ask one
23 follow-up question.

24 Is there any process or opportunity that could
25 be offered to Vote Solar that would cure the objection?

1 MR. SELENDY: I don't know what the -- I'm
2 sorry. Thank you. I don't know exactly what testimony
3 is to be proffered since we have just the very short
4 description by Ms. Wegener. But if you were to overrule
5 our objection, we would like an opportunity to discuss
6 whatever testimony comes in with our own experts and to
7 consider whether it's appropriate to present further
8 rebuttal testimony of our own. And that could be done,
9 for example, on Monday morning or potentially Tuesday
10 morning at the convenience of the Commission.

11 CHAIRMAN LEVAR: Okay. Thank you, Mr. Selendy.
12 Mr. Holman, do you have any objection to the
13 request?

14 MR. HOLMAN: Thank you, Chair Levar.
15 I would object to the request on similar grounds
16 to what Mr. Selendy just outlined. Mr. MacNeil spoke
17 about the Company's position on capacity values and
18 capacity contribution in his testimony and his rebuttal
19 testimony and his surrebuttal testimony. And again, the
20 Company had an opportunity to solicit additional
21 information from MacNeil during the hearing this week.

22 So with regard to additional testimony from
23 Mr. MacNeil on issues outside the scope of OCS's new
24 proposal in Mr. Hayet's settlement -- or excuse me,
25 hearing statement, I think Mr. MacNeil's had ample

1 opportunity to provide whatever information he would like
2 to provide to the Commission and to supplement his
3 position for the record.

4 With regard to the information that the Office
5 proposed in Mr. Hayet's hearing statement, I would say
6 something similar to -- something along the lines of what
7 Mr. Selendy just said. It doesn't seem particularly fair
8 to create this new paradigm where witnesses get to come
9 back under the -- it seems somewhat similar to me to the
10 conversation we had at the beginning of the hearing about
11 reopening cross-examination to an extent.

12 If one party is allowed to reopen
13 cross-examination, it presents an issue: Do others get
14 to reopen cross-examination? And it becomes somewhat
15 circular. The parties have already had their
16 opportunity, so I would continue to object on those
17 grounds.

18 CHAIRMAN LEVAR: Thank you, Mr. Holman.

19 Mr. Mecham?

20 MR. MECHAM: I also object. We object both from
21 Vivint Solar's standpoint as well as the Association's
22 standpoint for the reasons stated by both Mr. Holman and
23 Mr. Selendy.

24 I actually do see this as different than
25 allowing people to go back on cross because the hearing

1 was alive and everybody had a shot at it. This, all the
2 witnesses have now testified. If we have witnesses come
3 back, how many more bites at the apple does each other
4 party get? I think this could go on for quite some time;
5 and therefore, we object.

6 CHAIRMAN LEVAR: Okay. Thank you, Mr. Mecham.

7 Ms. Wegener, do you have anything to add to your
8 motion? I'll give you the last word.

9 MS. WEGENER: Yeah. I would just like to note
10 that rebuttal is not a procedurally irregular thing to
11 request. It's our application, and our request is very
12 limited.

13 I do believe our rebuttal would be helpful to
14 the Commission. We're hoping to address a question that
15 came up after our case that relates to this issue and
16 also to the OCS proposal. And I think it would be
17 helpful to the Commission. And I'd ask that we can
18 present this limited testimony.

19 THE HEARING OFFICER: Okay. Thank you.

20 And we appreciate the interest to be helpful and
21 make sure calculations are accurate.

22 I think, considering the objections -- and I'll
23 see if the other two Commissioners want to weigh in on
24 this -- I'm inclined to deny the request. One of the
25 most salient points that's been made is that Rocky

1 Mountain Power did not cross-examine Mr. Hayet on this
2 issue. So that gives me some trouble in allowing this
3 rebuttal witness over the objections of those parties.

4 Commissioner Clark or Commissioner Allen, any
5 thoughts from either of you, or anything you want to ask
6 anyone or add? I'm not hearing any.

7 Oh, go ahead, Commissioner.

8 COMMISSIONER CLARK: I want to speak just so
9 that there's no uncertainty about my view of this. And
10 so to be brief, I generally favor the Commission gaining
11 access to as much information as it can in making its
12 decisions. But in the circumstances presented here, I
13 believe Rocky Mountain Power has had an ample opportunity
14 to address this, and that at this stage, it would be -- I
15 would vote against permitting further presentation from
16 the Company.

17 COMMISSIONER ALLEN: I concur with my
18 colleagues. And I'm always open to trying to get as much
19 information as possible, but procedurally, I find myself
20 in agreement with the people -- with the Chair's
21 decision. So thank you.

22 CHAIRMAN LEVAR: Okay. And with that, we're
23 denying the request for a rebuttal witness.

24 I will note to the extent the issues are
25 mathematical rather than substantive, it never bothers us

1 if anyone corrects our math during the reconsideration
2 period. That is something that's built into the
3 administrative procedures, where if we have a calculation
4 error -- we do our best not to. And we have our own
5 experts in the staff that will be evaluating all the
6 testimony. But there is that opportunity for correction
7 of math if there is something in our order to that
8 effect.

9 With that, unless there's anything further from
10 anyone else, we're going to plan on closing arguments
11 Tuesday at 1:00 p.m. Mountain Daylight Time.

12 Our intention is that the order of the
13 cross-examination would be -- I mean the order of the
14 closing statements would be similar to the order of
15 cross-examination. The order will be Rocky Mountain
16 Power, the Division of Public Utilities, the Office of
17 Consumer Services, Vote Solar, Utah Clean Energy, and
18 Vivint Solar.

19 Is there any objection to that order for closing
20 statements on Tuesday afternoon?

21 MR. SELENDY: No objection. Thank you.

22 CHAIRMAN LEVAR: Okay. Thank you. I'm not
23 hearing from anyone else.

24 So if any of you want to join us for eight hours
25 Monday afternoon and evening, you're welcome to. There's

1 certainly no expectation of that.

2 Mr. Jetter, do you want to add something?

3 MR. JETTER: No. I had just, I think, turned my
4 video and mute off, and it took a little bit of delay. I
5 was just going to say there was no objection to your
6 order of closing statements.

7 CHAIRMAN LEVAR: Okay.

8 MR. JETTER: I apologize for interrupting.

9 CHAIRMAN LEVAR: No problem.

10 And as we said yesterday, we do not intend to
11 judge anyone's evidence based on how much time you spend
12 summarizing it, but we also recognize that some parties
13 have a lot more evidence to summarize than others. So
14 we're going to allow up to 30 minutes apiece for closing
15 arguments.

16 And with that, we'll see any of you who want to
17 join us Monday. For that one, again, there's no
18 expectation. Other than that, we will be in recess from
19 the evidentiary hearing until 1:00 p.m. on Tuesday.
20 Thank you.

21 (The matter adjourned at 1:12 p.m.)

22

23

24

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CERTIFICATE

1
2
3 State of Utah)
4 County of Salt Lake)

5 I, Michelle Mallonee, a Registered
6 Professional Reporter in and for the State of Utah, do
7 hereby certify:

8 That the proceedings of said matter was
9 reported by me in stenotype and thereafter transcribed
10 into typewritten form;

11 That the same constitutes a true and correct
12 transcription of said proceedings so taken and
13 transcribed;

14 I further certify that I am not of kin or
15 otherwise associated with any of the parties of said
16 cause of action, and that I am not interested in the
17 event thereof.

18 WITNESS MY HAND at Salt Lake City, Utah,
19 this 15th day of October, 2020.

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Michelle Mallonee, RPR, CCR
Utah CCR #267114-7801
Expires May 31, 2022

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