

In the Matter Of:

In RE: RMP - Approval of Resource Decision to Repower Wind Facilities

HEARING, DOCKET NO. 17-035-39

May 03, 2018

Job Number: 434925

1 BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

2

Voluntary Request of Rocky Mountain Docket No. 17-035-39
3 Power for Approval of Resource
4 Decision to Repower Wind Facilities

5

6

HEARING PROCEEDINGS

7

TAKEN AT: Utah Public Service Commission
8 4th Floor
160 East 300 South
9 Salt Lake City, Utah

10

11 DATE: Thursday, May 3rd, 2018

12 TIME: 9:00 a.m.

13 REPORTER: Mary R. Honigman, R.P.R.

14 Job No. 434925

15

16

17

18

19

20

21

22

23

24

25

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

APPEARANCES

COMMISSION CHAIR:
Thad LeVar

COMMISSIONERS:
David Clark
Jordan White

FOR ROCKY MOUNTAIN POWER:
Katherine A. McDowell
MCDOWELL RACKNER GIBSON, PC
419 Southwest 11th Avenue, Suite 400
Portland, Oregon 97205
(503) 595-3924
katherine@mrg-law.com

Adam Lowney
MCDOWELL RACKNER GIBSON, PC
419 Southwest 11th Avenue, Suite 400
Portland, Oregon 97205
(503) 595-3926
adam@mrg-law.com

Yvonne R. Hogle (appearing telephonically)
ROCKY MOUNTAIN POWER
1407 West North Temple, Suite 320
Salt Lake City, UT 84116
(801) 220-4050
Yvonne.hogle@pacificorp.com

FOR THE DIVISION OF PUBLIC UTILITIES:
Patricia E. Schmid
Justin Jetter
160 East 300 South, Fifth Floor
Salt Lake City, Utah 84114
(801) 366-0335
pschmid@agutah.gov
jjetter@agutah.gov

FOR THE OFFICE OF CONSUMER SERVICES:
Robert Moore
Steven Snarr
160 East 300 South, Fifth Floor
Salt Lake City, Utah 84111
(801) 366-0158
rmoore@utah.gov
steven.snarr@agutah.gov

1 FOR THE UTAH ASSOCIATION OF ENERGY USERS:
Philip J. Russell
2 HATCH, JAMES & DODGE, P.C.
10 West Broadway, Suite 400
3 Salt Lake City, Utah 84101
(801) 363-6363
4 prussell@hjdllaw.com

5 FOR INTERWEST ENERGY ALLIANCE:
Lisa Tormoen Hickey
6 TORMOEN HICKEY, LLC
14 North Sierra Madre
7 Colorado Springs, Colorado 80903
(719) 302-2142
8 lisahickey@newlawgroup.com

9 Mitch M. Longson
MANNING CURTIS BRADSHAW & BEDNAR, PLLC
10 136 East South Temple, Suite 1300
Salt Lake City, Utah 84111
11 (801) 363-5678
mlongson@mc2b.com

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1	INDEX OF EXAMINATION	Page 4
2	WITNESS:	PAGE
3	GARY W. HOOGEVEEN	
	Direct Examination by MS. MCDOWELL	9
4	Cross-Examination by MS. SCHMID	21
	Cross-Examination by MR. RUSSELL	33
5	Redirect Examination by MS. MCDOWELL	42
	Recross Examination by MR. JETTER	47
6	Recross Examination by MR. RUSSELL	50
	Examination by COMMISSIONER CLARK	51
7	Examination by COMMISSIONER WHITE	54
8	RICK T. LINK	
	Direct Examination by MS. MCDOWELL	59
9	Cross-Examination by MR. SNARR	69
	Cross-Examination by MR. JETTER	75
10	Cross-Examination by MR. RUSSELL	86
	Redirect Examination by MS. MCDOWELL	90
11	Recross Examination by MR. RUSSELL	92
	Examination by COMMISSIONER WHITE	94
12	Examination by COMMISSIONER CLARK	98
13	TIMOTHY J. HEMSTREET	
	Direct Examination by MR. LOWNEY	100
14	Cross-Examination by MS. SCHMID	109
	Cross-Examination by MR. SNARR	117
15	Cross-Examination by MR. RUSSELL	127
	Redirect Examination by MR. LOWNEY	131
16	Recross Examination by MS. SCHMID	135
	Examination by COMMISSIONER CLARK	137
17	Examination by COMMISSIONER WHITE	140
	Examination by COMMISSIONER LEVAR	142
18	NIKKI L. KOBLIAH	
19	Direct Examination by MR. LOWNEY	144
20	JOELLE R. STEWARD	
	Direct Examination by MR. LOWNEY	149
21	Cross-Examination by MR. MOORE	155
	Cross-Examination by MS. SCHMID	166
22	Cross-Examination by MR. RUSSELL	172
	Redirect Examination by MR. LOWNEY	173
23	Recross Examination by MR. SNARR	174
	Examination by COMMISSIONER WHITE	176
24	Examination by COMMISSIONER CLARK	178
	Examination by COMMISSIONER LEVAR	181
25		

1	DAVID THOMSON	
2	Direct Examination by MS. SCHMID	184
	Examination by COMMISSIONER WHITE	188
3	Examination by COMMISSIONER LEVAR	189
	Examination by COMMISSIONER CLARK	190
4		
	DR. JONI S. ZENGER	
5	Direct Examination by MS. SCHMID	191
	Cross Examination by MS. MCDOWELL	201
6	Redirect Examination by MS. SCHMID	227
	Redirect Examination by MR. JETTER	230
7	Recross Examination by MS. MCDOWELL	236
8	DANIEL PEACO	
	Direct Examination by MS. SCHMID	238
9	Cross-Examination by MS. HICKEY	261
	Cross-Examination by MS. MCDOWELL	261
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

1 E X H I B I T S

2 DIVISION OF PUBLIC UTILITIES:

3 EXHIBIT NO.	DESCRIPTION	PAGE
4 DPU CROSS NOS. 1, 2	Case No. PAC-E-17-06 Idaho Stipulation	22
5 DPU CROSS NO. 3	Case No. PAC-E-17-06 Wyoming Stipulation	32
7 DPU NOS. 3DIR, 3SR, 3.1SR, 3.0RESP	Mr. Thompson's Direct, Surrebuttal, and Response	185
8 DPU NOS. 2.1, 2.2DIR	Testimonies and Exhibits	
9 DPU CONFIDENTIAL EXHIBIT 1	Confidential Chart	259

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 PROCEEDINGS

2 COMMISSIONER LEVAR: Good morning.

3 We're here in Public Service Commission Docket No.
4 17-035-39, Voluntary Request of Rocky Mountain Power
5 for Approval of Resource Decision to Repower Wind
6 Facilities. Before we go to appearances, are there
7 any preliminary matters we need to address? I'm not
8 seeing any indications -- Ms. Schmid.

9 MS. SCHMID: Only that Division
10 witness, Mr. Thompson, would request to be put on
11 today as he has an obligation out of state tomorrow.
12 And the parties have agreed to that, if that's
13 acceptable to you.

14 COMMISSIONER LEVAR: Okay. And maybe
15 early afternoon, we'll see where we are on Rocky
16 Mountain Power's witnesses and see if there's a need
17 to take him before the conclusion, but we might want
18 to address that in the early afternoon.

19 MS. SCHMID: Thank you.

20 COMMISSIONER LEVAR: Thanks. I'll
21 make a note of that. Any other preliminary matters?
22 I'm not seeing any, so we'll go to appearances.
23 We'll start with the Utility.

24 MS. MCDOWELL: Good morning,
25 Chair Levar and Commissioners White and Clark. So

1 pleased to be here this morning. I'm
2 Katherine McDowell, on behalf of Rocky Mountain
3 Power, and with me is my partner, Adam Lowney.

4 COMMISSIONER LEVAR: Thank you. To
5 the Division of Public Utilities.

6 MS. SCHMID: Good morning.
7 Patricia E. Schmid with the Utah Attorney General's
8 Office for the Division of Public Utilities. Also,
9 Justin Jetter is here representing the Division from
10 AG's office as well.

11 COMMISSIONER LEVAR: Thank you.
12 Office of Consumer Services.

13 MR. SNARR: Yes. I'm Steven Snarr
14 with the AG's office, representing the Office of
15 Consumer Services. With me for this case is
16 Mr. Robert Moore, also with the AG's Office and
17 representing the Office of Consumer Services.

18 COMMISSIONER LEVAR: Utah Association
19 of Energy Users?

20 MR. RUSSELL: Good morning.
21 Phillip Russell on behalf of UAE.

22 COMMISSIONER LEVAR: Any other
23 appearances?

24 MS. HICKEY: Yes, sir. Good morning,
25 Mr. Chairman and Commissioners.

1 Lisa Tormoen Hickey. I represent the Interwest
2 Energy Alliance. With me to my right is
3 Mitch Longson, also representing Interwest.

4 COMMISSIONER LEVAR: Thank you. Any
5 other appearances or other preliminary issues from
6 anyone? I'm not seeing any indication, so I'll go
7 to Ms. McDowell.

8 MS. MCDOWELL: Thank you so much.
9 Before we call our first witness, can I approach and
10 give you our exhibit list?

11 COMMISSIONER LEVAR: Certainly. It's
12 just a list of exhibits? Do the other parties have
13 that list? Just make sure our court reporter gets a
14 copy of that also.

15 MS. MCDOWELL: I've given it to them.
16 Thank you. We call Mr. Gary Hoogeveen.

17 GARY HOOGEVEEN,
18 having been first duly sworn to tell the truth, was
19 examined and testified as follows:

20 DIRECT EXAMINATION

21 BY MS. MCDOWELL:

22 Q Good morning, Mr. Hoogeveen.

23 A Good morning.

24 Q Can you state your name and spell it for
25 the record?

1 A Gary Hoogeveen, G-a-r-y, last name,
2 H-o-o-g-e-v-e-e-n.

3 **Q Mr. Hoogeveen, how are you employed?**

4 A I am Senior Vice President and Chief
5 Commercial Officer with Rocky Mountain Power.

6 **Q In that capacity, have you prepared or**
7 **adopted testimony in this proceeding?**

8 A I have.

9 **Q And is that testimony the direct rebuttal**
10 **and supplemental direct testimony of Cindy Crane,**
11 **and then the supplemental rebuttal testimony of**
12 **Gary Hoogeveen?**

13 A That's correct.

14 **Q Do you have any changes or corrections?**

15 A I do not.

16 **Q If I asked you the questions that are in**
17 **that testimony, would your answers here be the same?**

18 A Yes, they would.

19 MS. MCDOWELL: Commissioners, would
20 you like me to offer these at the time that I'm
21 presenting the witness, or do we stipulate them all
22 in at one time?

23 COMMISSIONER LEVAR: There have been
24 occasions where we've done a stipulation, but I
25 think typically parties make motions to present each

1 witness's testimony as we go. Unless there's been
2 an agreement among the parties to do it en masse.

3 MS. MCDOWELL: So we would offer the
4 direct rebuttal, supplemental direct testimony, and
5 supplemental rebuttal testimony as previously
6 identified.

7 COMMISSIONER LEVAR: If anyone
8 objects to this motion, please indicate to me. I'm
9 not seeing any objections, so the motion is granted.

10 MS. MCDOWELL: Thank you.

11 BY MS. MCDOWELL:

12 Q Mr. Hoogeveen, have you prepared a summary
13 of your testimony today?

14 A I have.

15 Q Can you please present your summary to the
16 Commission?

17 A Good morning, Chairman LeVar,
18 Commissioner Clark, Commissioner White. As Senior
19 Vice President and Chief Commercial Officer of Rocky
20 Mountain Power, I'm pleased to serve as the
21 Company's policy witness in this case. I appreciate
22 the opportunity to testify in support of the
23 Company's request for approval of its resource
24 decision to repower 12 wind facilities with install
25 capacity of approximately 1,000 megawatts. I also

1 want to thank the Commission, the staff, and all
2 parties in this case for their extensive work
3 leading up to this -- today's hearing.

4 I believe that repowering is a great
5 opportunity for our customers. By using production
6 tax credits -- or PTC -- benefits to upgrade the
7 company's wind fleet, we can reduce production
8 costs, increase reliability, and deliver significant
9 savings to customers.

10 We estimate that repowering will cost
11 approximately \$1 billion -- which, by the way, is
12 2.4 percent less than our original filing -- but it
13 will generate \$1.26 billion of production tax
14 credits over ten years.

15 With me today are key team members who
16 have worked very hard over the last year to deliver
17 this opportunity to our customers: Vice president
18 of resource -- excuse me -- Vice President of
19 Resource and Commercial Strategy, Mr. Rick Link;
20 Director of Renewable Development,
21 Mr. Tim Hemstreet; Vice President, CFO and
22 Treasurer, Ms. Nikki Kobliha; and Vice President of
23 Regulation, Ms. Joelle Steward.

24 So what is repowering? If I may, it's a
25 simple wind turbine upgrade that adds new rotors

1 with longer blades and new nacelles with
2 higher-capacity generators to existing towers. If I
3 may, I'll use a simple analogy, albeit an imperfect
4 analogy, but I think it's helpful. Repowering is
5 like reinvesting in and expanding your home. Let's
6 suppose your current home was aging and experiencing
7 increased maintenance costs. In addition, let's
8 suppose your family would benefit from a larger
9 home. Finally, let's suppose that there were
10 significant federal tax credits available for home
11 upgrades. In such a case, you might gut your
12 existing home and replace it with entirely new
13 appliances, and updated, and even upgraded
14 furnishings. You might replace your 10-year-old
15 inefficient furnace with a new high-efficiency
16 model. You might even expand your house by adding
17 on a new room. That, simply, is repowering. You
18 keep the foundation and the towers -- the shell of
19 the old house -- and upgrade the technology in the
20 new nacelles -- the new furnace and appliances --
21 and you even do so with larger blades that produce
22 more energy -- the expanded new room. And to top it
23 all off, the entire cost of upgrading your home is
24 more than paid for by federal tax credits. You get
25 a bigger, newer, upgraded home for free.

1 Repowering will result in energy
2 production at the lowest reasonable costs to our
3 customers and meets the public interest standard
4 under the Commission's resource approval law.

5 Repowering has five main benefits: First,
6 repowering increases the energy production of the
7 Company's wind fleet by an estimated 26 percent. We
8 hired an engineering firm, Black & Veatch, to help
9 us substantiate that estimate. They used
10 millions -- literally millions of data points from
11 our actual operation of our facilities. This
12 increased energy translates into approximately 750
13 gigawatt hours annually before 2037, and after 2037,
14 3,500 gigawatt hours annually. And that's from 2037
15 to the depreciable life of 2050.

16 Second, repowering reduces ongoing capital
17 costs, for example, by providing a two-year warranty
18 on all the new turbines.

19 Third, it extends the useful life of the
20 wind facilities by up to 13 years.

21 Fourth, it enhances voltage support and
22 power quality.

23 And fifth, it requalifies our wind
24 facilities for 100 percent of PTCs for another ten
25 years.

1 Quantifying these benefits shows present
2 value savings between \$1.14 billion and
3 \$1.48 billion over the life of the facilities,
4 again, compared to project costs of \$1.1 billion,
5 this clearly demonstrates that repowering is very
6 much in the best interest of our customers.

7 The Company recognizes that full PTC
8 qualification is critical to delivering the benefits
9 to repowering to our customers. For this reason,
10 the Company has agreed to guarantee PTC benefits,
11 except in extraordinary cases like change in law or
12 force majeure.

13 The Company has also worked hard to ensure
14 it will meet the three factors for PTC
15 qualification. Let me describe them. I think of
16 them as, you have to start by wind, you have to
17 finish by wind, so a little more on that. So you
18 have to start by wind is really the 5 percent "safe
19 harbor," how we qualify. According to the IRS tax
20 laws, you have to purchase at least 5 percent of the
21 cost of the facilities in 2016, which we did in
22 December of 2016. In fact, we purchased enough to
23 cover a little more than 6 percent, so that's
24 clearly covered. For the finish by wind, we are on
25 track to finish these by the end of 2020, which they

1 have to be finished by 2020 in order to qualify. In
2 fact, we plan to have 11 of the 12 facilities online
3 in 2019, more than a year ahead of time, so it
4 clearly qualifies. The 12th one is Dunlap, and we
5 have chosen to do that in 2020 to maximize the
6 current PTC benefits for customers.

7 And then, finally, 80/20 rule. We
8 retained Ernst & Young to verify that the value of
9 the retained equipment is less than 20 percent of
10 total value of the facility. So in my example, that
11 would have been the foundation, the walls, the shell
12 of the house has to be less than 20 percent than the
13 total value of the new facility.

14 Our analysis shows that repowering is
15 likely to lower costs to customers in any reasonable
16 forecast. The Company looked at this in two ways:
17 Total project basis and then on a
18 facility-by-facility basis using two different
19 models, nine price scenarios, and multiple
20 sensitivities. While the various scenarios are used
21 to measure risk, the Company strongly urges the
22 Commission to principally rely on the medium/medium
23 case. And that's the medium natural gas forecast
24 and medium CO2 forecast. This forecast is based on
25 the Company's official forward price curve, which is

1 currently used for setting Utah rates and avoided
2 costs.

3 Through the life of the repowered
4 facilities, the Company shows net benefits of
5 \$273 million. So that's, again, through the life of
6 the facilities, which we have as 2050. Through
7 2036, the Company shows net benefits of between
8 \$189 million and \$204 million. On a
9 project-by-project review, all facilities show net
10 benefits through 2050. All facilities, except
11 Leaning Juniper, show net benefits through 2036.
12 2036 is the IRP time frame, 2050 being the entire
13 life of the assets. And Leaning Juniper, in 2036,
14 is really a break-even. It's a zero-cost,
15 zero-benefits.

16 The 2036 analysis, I want to point out, is
17 conservative because it does not consider
18 substantial benefits in years after 2036, in which
19 the current turbines would reach their depreciable
20 end of life and be shut down. So the 2036 analysis
21 really doesn't consider or incorporate any of those
22 benefits. Because of that, we believe that the
23 Leaning Juniper decision should be made to go
24 forward with it.

25 While the DPU, OCS, and UAE oppose

1 repowering, their own analyses actually confirm that
2 repowering will reduce costs to customers. Under
3 the medium/medium case, DPU shows net benefits for
4 all facilities except Leaning Juniper. I understand
5 that the Commission also reviews risk in determining
6 whether repowering is in the public interest. The
7 Company's extensive scenario modeling addresses
8 price and policy risk, and its substantial modeling
9 of historical wind operations addresses performance
10 risk. We delayed this case to address tax risk, and
11 the results of tax reform are now reflected in our
12 economic models.

13 Thanks to our excellent project team,
14 other risks have steadily decreased as this project
15 has taken shape. Virtually all of the turbine
16 equipment and installation costs are now fixed or
17 near final. The turbine contracts provide
18 production and availability guarantees, making
19 production estimates more certain. The GE contract
20 for the eight Wyoming facilities includes full
21 damages if GE fails to meet the deadline for PTC
22 eligibility; the Vestas agreement for the other four
23 facilities has liquidated damages, or LDs, to deter
24 construction delays. The eight Wyoming facilities
25 are covered by a full-service agreement with GE,

1 meaning that the costs for O&M for the first ten
2 years after repowering are fixed.

3 Permitting risk is largely revolved. The
4 Company has filed for permits for 11 of the 12 wind
5 facilities and expects to complete permitting for
6 the final facility soon.

7 And finally, engineering studies are
8 substantially complete, meaning that this project is
9 now ready to move forward once the Company receives
10 regulatory approval from this Commission and from
11 the Wyoming Commission, where a partial stipulation
12 is now pending. The Idaho Commission approved the
13 Company's stipulation in December 2017.

14 Given the low risk profile of the
15 repowering project and the substantial savings it
16 promises to deliver to customers, there's simply no
17 justification for imposing the onerous conditions
18 proposed by some parties in this case, or for
19 approving only a portion of the project. The
20 analysis shows that not repowering or repowering
21 only some of the facilities, is likely to result in
22 higher energy production costs to our customers,
23 contrary to the public interest considerations in
24 this resource approval statute.

25 As the project moves forward, the Company

1 will prudently respond to new information and
2 changed conditions. In the event of a major change
3 in circumstances, including project-specific
4 changes, the Company will return to the Commission
5 for an order to proceed under section 54-17-404.

6 The Company has committed to delivering
7 the near-term benefits of repowering to customers
8 without an immediate rate increase. Through the
9 resource tracking mechanism, or RTM, the Company
10 will align the benefits and costs of repowering and
11 pass along net benefits to customers, but not net
12 costs.

13 For the future energy needs of our Utah
14 customers, I firmly believe that wind repowering is
15 a prudent and beneficial investment, and its
16 implementation is in the public interest.

17 Respectfully, I ask the Commission to approve,
18 1) the resource decision to repower the 12 wind
19 facilities included in the Company's request, and
20 (2) the recovery of the remaining costs of the
21 legacy equipment. That concludes my summary.

22 MS. MCDOWELL: Thank you,
23 Mr. Hoogeveen. This witness is available for
24 cross-examination.

25 COMMISSIONER LEVAR: Thank you.

1 Ms. Schmid, does the Division have any questions for
2 Mr. Hoogeveen?

3 MS. SCHMID: We do.

4 CROSS-EXAMINATION

5 BY MS. SCHMID:

6 Q Good morning.

7 A Good morning.

8 Q The application discusses wind projects in
9 various states. Is there an agreement among the
10 states and the state commissions as to how expenses
11 and allocation of costs with this requested approval
12 will be handled?

13 A The allocation of costs will be handled
14 through the typical allocation process, which is
15 agreed through -- currently through the MSP 2017
16 protocol.

17 Q And the 2017 protocol has been extended
18 through December 31st, 2019; is that correct?

19 A Subject to check, I believe that's
20 correct.

21 Q So after December 31st, 2019, we don't
22 have an agreement; is that correct?

23 A That's correct.

24 Q You mentioned the stipulation in Idaho
25 that has been approved and the stipulation in

1 Wyoming that is pending. I'm not going to ask you
2 any questions about those because they were
3 settlements, except that I will ask you if you will
4 accept DPU Cross-Exhibit 1 and DPU Cross-Exhibit 2
5 which I will represent to you to be a copy of the
6 Idaho stipulation, and at the back of DPU Exhibit 1,
7 there's a copy of the Idaho order. And I will note
8 that the Idaho order did require a supplemental
9 filing if the tax law changed, and Rocky Mountain
10 Power has made that, but I have not included that in
11 this packet. And then, if you will accept, subject
12 to check, that DPU Exhibit No. 2 is the Wyoming
13 stipulation which, as you said, is pending.

14 A That appears to be so.

15 MS. SCHMID: I'd like to move for the
16 admission of DPU Cross-Exhibits 1 and 2.

17 COMMISSIONER LEVAR: If any party
18 objects, please indicate to me.

19 MS. MCDOWELL: No objection.

20 COMMISSIONER LEVAR: I'm not seeing
21 any objection, so the motion is granted.

22 (DPU Cross-Exhibits Nos. 1 and 2 admitted.)

23 BY MS. SCHMID:

24 Q In your summary and in your testimony, you
25 talked about mitigation of risks. You said that the

1 Company would guarantee -- and I'll use that term
2 qualified -- risks of the PTCs not occurring except
3 for extraordinary circumstances outside the
4 Company's control. Is that a fair representation?

5 A That's fair. We've carved out change of
6 law and force majeure.

7 Q If there is a change in law and it is
8 something that the Company has not agreed to -- a
9 risk the Company has not agreed to assume, who
10 assumes that risk? Is it true that it's the
11 ratepayers?

12 A It would be the normal course of
13 proceedings between utility customers and the
14 Commission, that's correct.

15 Q Is it likely that the Company would seek
16 to have the ratepayers absorb or pay for any
17 discrepancies or differences?

18 A Per the normal course of business, when we
19 should incur a cost that's outside of our control
20 that hasn't been agreed to in a separate settlement,
21 yes, that would most likely be filed for recovery.

22 COMMISSIONER LEVAR: Ms. Schmid, I'm
23 sorry. I think we need one more copy of Exhibit 1
24 up here.

25 BY MS. SCHMID:

1 Q And I have some questions that refer to
2 Mr. Peaco's testimony. Do you have his testimony in
3 front of you?

4 A I do not.

5 Q Okay. This is not a cross-exhibit, but it
6 is portions of Mr. Peaco's testimony that I've had
7 copied for your convenience. And I will represent
8 that they are true and accurate copies of his
9 testimony. I'll give you just a minute. This is on
10 white paper and the title does say Confidential, but
11 there is no confidential information in the portion
12 that I've copied. So if you would, turn to line 565
13 of Mr. Peaco's testimony.

14 A I'm there.

15 Q Have you had a chance to read that?

16 A Yes.

17 Q So is the Company willing to assume the
18 risk of federal legislation? And we've already said
19 no, so I don't need to ask that. What about a
20 change in the IRS private letter ruling that affects
21 collection of the PTCs? Is the Company willing to
22 accept that change or that risk?

23 A I believe that would qualify under a
24 change in law.

25 Q If we look at Peaco's 575 and 578, and I'm

1 contrasting this against your testimony, lines 31
2 and 32, is the Company willing to assume the risk
3 that market conditions prove to be unfavorable to
4 the project economics?

5 MS. MCDOWELL: I'm sorry to
6 interrupt, but you were saying you're contrasting it
7 to Mr. Hoogeveen's testimony? What cite are you --

8 MS. SCHMID: His supplemental
9 rebuttal at lines 31 and 32.

10 MS. MCDOWELL: Thank you.

11 BY MS. SCHMID:

12 Q And I will read that. You state that the
13 Company has addressed or mitigated the major risks
14 identified by the parties, including cost overruns,
15 facility-specific economics, permitting, tax reform,
16 PTC qualification, and wind performance. And I'm
17 just seeking to explore what that means in a little
18 bit more detail.

19 A Okay.

20 Q So is the Company willing to assume the
21 risk that market conditions may prove unfavorable to
22 the project economics?

23 A No. The Company, I think -- we've listed
24 there in what you've just read, a rather extensive
25 list of things under our control that we have an

1 ability to make an impact on.

2 **Q Isn't it true that the project economics**
3 **are based largely on forecasts and assumptions?**

4 A So the forecasts -- excuse me, the
5 analysis -- is based on a considerable amount of
6 analysis based on wide-ranging forecasts, precisely
7 in order to test the theory of whether this is in
8 the customer's benefit or not. And I think you
9 would agree that the vast majority, in fact, nearly
10 all of the model runs in the different scenarios
11 show that there's substantial customer benefits in
12 this project.

13 **Q But if those forecasts are wrong, the**
14 **benefits won't materialize as projected; is that**
15 **correct?**

16 A So the reasons for a wide range in
17 forecast is because you're not going to know what
18 the forecast is going to be, so you take a wide
19 range from low natural gas costs to high natural gas
20 costs, from low CO2 to high CO2, and everything in
21 between. And I think the analysis that Rick Link
22 has done is fantastic. It's one I would encourage
23 you to explore with him. He can explain, certainly,
24 the nuances of the modeling better than I can, but
25 it is certainly my opinion that the wide range in

1 forecasts is exactly meant to answer the question
2 from Counsel about will the forecast be wrong, yes,
3 and it will be higher or lower, and so therefore
4 we've taken a high-end, a very low -- aggressive
5 low, low numbers and aggressive high, high numbers,
6 and everything in between in order to account for
7 that.

8 Q What about the risks that actual costs are
9 higher than projected? You said that the Company
10 could and would come back again for approval of more
11 capital expenses; is that correct?

12 A I'm not sure where that was said.

13 Q I thought that was in your summary. I
14 thought you said that under the statute, the 402
15 statute, if the Company needed to, it could come in
16 due to the changed circumstance?

17 A Yes. Due to a changed circumstance, yes,
18 that's correct.

19 Q You said, also, that the Company has --
20 scratch that. Is the Company willing to assume the
21 risk that the actual incremental production proves
22 to be less than the Company's estimated production?
23 In other words, the wind doesn't blow or the
24 turbines don't produce as much as forecasted?

25 A So the contract negotiations that we've

1 achieved with GE and Vestas both have some
2 performance guarantees, and I would encourage you to
3 ask Mr. Hemstreet the details of that when he's up
4 here, but I think they're rather fantastic contracts
5 for the customer's benefit. There will be some
6 guarantee of availability and perhaps performance,
7 depending on which contract we talk about. So that,
8 we are willing to stand behind as per the contract
9 negotiations. The fact of the wind blowing or not,
10 we do not guarantee, of course, but I think we have
11 substantial analysis with millions of data points
12 that we've used. And again, these aren't new sites;
13 these are the sites we've been operating in for
14 years. We have a plethora of data, and we're
15 certainly able to say that this is a very solid
16 forecast of what's going to happen.

17 **Q But you're taking out the existing**
18 **equipment and putting in new equipment. So that is**
19 **a change; is that correct?**

20 A So the new equipment we're putting in,
21 again, has the guarantees per the contracts.

22 **Q If the Company needs to seek remedies**
23 **under those contracts, would the Company need to go**
24 **to litigation, or do you expect the companies just**
25 **to pay per the contract, in your experience?**

1 A I can't comment on that.

2 Q Okay. If we turn to lines 154 to 156 of
3 your testimony --

4 A Which testimony is that?

5 Q Sorry. Your testimony, the supplemental
6 rebuttal testimony.

7 A I'm sorry. Which lines?

8 Q 154 to 156.

9 A I'm there.

10 Q Is a fair characterization you assert that
11 the Division's analysis of results through 2036
12 shows all facilities show net benefits in
13 medium/medium and low/no scenarios?

14 A That's correct.

15 Q Do you know the source of the DPU analysis
16 you referenced, where you're using to base your
17 testimony upon?

18 A I can't quote you the line number or the
19 exact spot, no.

20 Q If we turn to what you passed out, the
21 little packet --

22 MS. SCHMID: Can I have just one
23 moment, please?

24 COMMISSIONER LEVAR: Yes.

25 MR. JETTER: What I'm passing out is

1 not an exhibit, but it will just be a few pages of
2 copies from testimony from our witness that we don't
3 intend to enter into the record, but we'll pass it
4 to the parties for convenience.

5 MS. SCHMID: And what Mr. Jetter is
6 passing out contains confidential information, so it
7 is on yellow paper. And I'm not going to refer to
8 numbers, so we don't need to close the hearing.

9 BY MS. SCHMID:

10 Q In the packet that you have just been
11 handed, do you see Table 1? You'll have to flip
12 through a little bit, but Table 1 is in there.

13 A I see it.

14 COMMISSIONER LEVAR: Ms. Schmid,
15 would you mind letting us know what testimony you're
16 referring to.

17 MS. SCHMID: Sorry. Mr. Peaco's
18 response testimony, Table 1.

19 COMMISSIONER LEVAR: Thank you.

20 BY MS. SCHMID:

21 Q When you look at that, do you agree that
22 the numbers are sourced from Rocky Mountain's
23 testimony, not Mr. Peaco's? I think if we check the
24 footnote, it cites the source.

25 A I see that.

1 Q And do you agree that's what it says?

2 A I have no reason to question that.

3 Q Are all the values presented there
4 positive?

5 A No, they are not.

6 Q Then yesterday, Rocky Mountain Power filed
7 an integrated resource plan update. Are you
8 familiar with that filing?

9 A I'm aware of the filing.

10 Q We'd like to pass out just some points of
11 interest in the filing. We haven't had a chance to
12 analyze the impact of these, but we would like to
13 bring them to the Commission's attention. And we
14 will ask that this be a cross-exhibit.

15 COMMISSIONER LEVAR: You did move for
16 this to be entered as an exhibit?

17 MS. SCHMID: I will. And if we could
18 pre-mark this as DPU Cross-Exhibit No. 3.

19 BY MS. SCHMID:

20 Q Will you accept, subject to check, that
21 what you have been handed and what's been identified
22 as DPU Cross-Exhibit No. 3, consists of page 23 and
23 page 24 from the 2017 IRP update that the Company
24 filed yesterday?

25 A That appears to be correct.

1 MS. SCHMID: The Division would like
2 to move for the admission of DPU Cross-Exhibit
3 No. 3.

4 COMMISSIONER LEVAR: If anyone
5 objects to this motion, please indicate to me.

6 MS. MCDOWELL: No objection.

7 COMMISSIONER LEVAR: I'm not seeing
8 any, so the motion is granted.

9 (DPU Cross-Exhibit No. 3 admitted.)

10 BY MS. SCHMID:

11 Q So looking at this, is it true that the
12 IRP update, the 2017 IRP update as compared to the
13 2017 IRP, shows a decrease in annual forecasted
14 load?

15 A That is what it appears to show.

16 Q And then if we turn the page over, we see
17 figure 4.2 which is a forecasted annual coincident
18 peak load, and is it true there, that the graph
19 shows a decrease in forecasted annual coincident
20 peak load from the 2017 IRP to the 2017 IRP update?

21 A I agree that's what it appears to show.

22 Q And that appears to be roughly -- because
23 we're just looking at a graph -- that it's an
24 approximate 500-megawatt decrease, starting in, say,
25 2022 and moving through 2027, and that the decrease

1 in 2018, '19, '20, and '21, appears to be, maybe,
2 250 to 400 megawatts, a rough approximation?

3 A Rough approximation. I would not dispute
4 the rough approximation.

5 MS. SCHMID: And can I have just one
6 more moment?

7 COMMISSIONER LEVAR: Yes.

8 MS. SCHMID: Thank you. The Division
9 does not have anything else for this witness.

10 COMMISSIONER LEVAR: Thank you.

11 Mr. Snarr, do you have any questions?

12 MR. SNARR: No questions from the
13 Office.

14 COMMISSIONER LEVAR: Thank you.

15 Mr. Russell.

16 MR. RUSSELL: Thank you. I do have a
17 number of questions for Mr. Hoogeveen.

18 CROSS-EXAMINATION

19 BY MR. RUSSELL:

20 Q I'm going to start in -- most of these
21 questions, Mr. Hoogeveen, will relate to your
22 supplemental rebuttal testimony. Do you have that
23 testimony in front of you?

24 A I do.

25 Q You indicate a couple of times in that

1 testimony that the Company's economic evaluation is
2 based on the IRP models. Do you recall that?

3 A That's correct.

4 Q When you refer to the IRP models, I assume
5 you're referring to the SO, the system optimizer
6 model, and the PaR, the planning and risk model; is
7 that correct?

8 A That's correct.

9 Q In your summary and also -- the summary
10 you have given today and also in the supplemental
11 rebuttal testimony, you cite certain numbers for
12 projected benefits for these projects, right?

13 A I do.

14 Q And in doing so, you are using numbers
15 provided, presumably by Mr. Link, in his most recent
16 economic analysis; is that correct?

17 A That's correct.

18 Q Is it your understanding that Mr. Link, in
19 his most recent economic analysis of these projects,
20 uses nominal values for production tax credits
21 rather than levelized values for production tax
22 credits?

23 A That's correct. I believe that there was
24 a change and improvement in methodology that was
25 introduced in the February 2018 filing.

1 Q Do you acknowledge that in the IRP
2 planning process, the IRP models you referenced
3 earlier use levelized production tax credits rather
4 than nominal production tax credits?

5 A That's my understanding, yes.

6 Q I'm going to have you jump to your
7 testimony at lines 150 to 175. It's actually the
8 same portion of your testimony in your supplemental
9 rebuttal testimony that Ms. Schmid directed you to
10 earlier. And this is a portion of your testimony
11 where you indicate that while other parties
12 recommend against approval of the repowering
13 project, their own analysis shows repowering
14 provides customer benefits. Do you recall that?

15 A I do.

16 Q I'm going to focus on the portion of your
17 testimony related to the UAE analysis. In that
18 portion, which starts at line 168, you reference
19 three tables, really, of Mr. Higgins' April 2
20 response testimony, and those tables are KCH-7-RE,
21 KCH-13-RE, and KCH-14-RE, correct?

22 A That's correct.

23 Q And is it your understanding that each of
24 those tables uses nominal values for PTCs rather
25 than levelized values for PTCs?

1 A I believe that's correct. Subject to
2 check, yes.

3 Q And do you understand that Mr. Higgins
4 also presented analysis using only levelized values
5 for PTCs in his testimony?

6 A I agree, he did.

7 Q Okay. And you've reviewed his testimony?

8 A I have.

9 Q Okay. And is it your analysis or your
10 testimony that the portion of Mr. Higgins' testimony
11 using levelized values for production tax credits
12 shows that repowering provides customer benefits
13 under nearly every scenario studied?

14 A I almost had it. Repeat that question,
15 please.

16 Q Sure. Up above in lines 151 to 153, you
17 indicate that other parties' analysis "Shows that
18 repowering provides customer benefits under nearly
19 every scenario studied. And then in referencing
20 UAE's analysis, you reference three tables from
21 Mr. Higgins's testimony that use nominal values for
22 PTCs, and I'm asking whether Mr. Higgins' tables
23 using levelized values for PTCs shows that
24 repowering provides customer benefits under nearly
25 every scenario studied?

1 A No, I don't believe they do.

2 Q Okay. I'm going to direct you to the
3 question and answer in your testimony, starting at
4 line 128. Rather than read the question and answer,
5 I'll give you a minute to read it if you need it,
6 but you indicate in your response to the question
7 here that you disagree that the Commission should
8 approve the wind repowering project only if it meets
9 a specified threshold for benefits under every
10 scenario studied. You indicated earlier, I think,
11 that this project -- sorry. If you need time to
12 read it, I'm happy to give it to you.

13 A I've read it.

14 Q You indicated earlier that this project
15 will cost approximately \$1.1 billion; is that
16 correct?

17 A That's correct.

18 Q Is there a level of benefits that the
19 Company would consider to be insufficient to pursue
20 these projects?

21 A So the level of benefit really, I think --
22 the Commission, I would encourage to look at, as
23 I've said before, the medium/medium case, but to
24 really take into account the full breadth of the
25 analysis that we've done. The -- from low/low to

1 high/high and everything in between with the
2 different models and so forth. And in particular,
3 the different time frames, the 2036 for the IRP
4 window, the 2050, the full life. And we really
5 think it's most appropriate in order to capture the
6 full benefit in this project, which occurs for the
7 full life of the project, you should look throughout
8 2050.

9 Counsel has been asking questions around
10 nominal versus levelized. Maybe I'll just share the
11 way I'm thinking of this and the way I've digested
12 and understood it if it's helpful. If not, I think
13 it's certainly germane to the questions that have
14 been asked. The testimony that I've provided points
15 out that the intervenors -- I'll just call them the
16 DPU, OCS, and UAE -- that their testimony shows
17 positive numbers, if you will, beneficial numbers in
18 nearly every case, that is using what Counsel is
19 referring to as nominal values. But I think there's
20 an easier way to talk about this. It was
21 identified -- and Mr. Link can provide, again, the
22 full accounting of how and when this all happened --
23 but the valuation of the PTCs was done very
24 conservatively, and I might even say inaccurately,
25 including the 2017 IRP. It was something that

1 nobody caught for years, and it hasn't been around
2 for a long time. However, what the change is, the
3 improvement in the analysis, is that in the
4 levelization calculation, it levelizes over 30
5 years.

6 MR. RUSSELL: Mr. Chairman, I
7 apologize. I'm going to interrupt the witness here
8 because I don't think any of what he's said thus far
9 is responsive to the actual question that is before
10 him.

11 THE WITNESS: Give me a second, I'll
12 get there.

13 COMMISSIONER LEVAR: To deal with the
14 objection, could you repeat the question that you
15 asked?

16 MR. RUSSELL: Sure. The question
17 that I asked Mr. Hoogeveen was, is there a level of
18 benefits that the Company would consider to be
19 insufficient to proceed with the project.

20 COMMISSIONER LEVAR: I think I'm
21 going to rule that, at least so far, the answer is
22 still relevant to that question. If you feel that
23 changes, feel free to object again, but I don't
24 think we've gotten past it.

25 A I'll remember that. That's what I'm

1 trying to get to, is there a level. What I'm trying
2 to get to is how to look at it, which numbers to
3 look at and should there be a level given those
4 numbers. So to resume, the argument around nominal
5 versus levelized for the PTCs is really around which
6 period to levelize those PTCs. I will explain.
7 It's my understanding that if you levelize the PTCs
8 over the appropriate ten-year period -- the ten
9 years in which they exist -- you will get to the
10 same answer as nominal using nominal values. If you
11 levelize over 30 years, which was done previously
12 and to which the intervenors have continued to use,
13 you get an inappropriate answer because you levelize
14 something that has values for 10 years and 0 for 20.
15 That gives you an incorrect value when you do the
16 analysis.

17 So getting to the answer, I expect I would
18 recommend, if you will, that the Commission should
19 look at the 2050 analysis, the full life of the
20 project, using the appropriate period for
21 levelization of the PTCs, which is 10 years, which
22 is equivalent to nominalizing them, so look at that
23 analysis and then look at the full breadth.
24 Concentrate on the medium/medium. And to answer the
25 question, if it is a benefit, and in our opinion if

1 there's any benefit, if it's a beneficial number,
2 that would imply that it will most likely deliver
3 the lowest cost resource portfolio for our
4 customers. And so that's how I would answer the
5 question, if it's beneficial at all looking at those
6 number and for those reasons.

7 **Q Any benefit at all, even if the benefit**
8 **were a dollar?**

9 A Again, looking at -- through the lens of
10 looking at the entire analysis, I would say that if
11 all the numbers, except a handful in the low/low
12 case for certain projects only -- if you look at it
13 as a complete project basis, that they're all
14 beneficial. And, yes, if they're just a dollar
15 beneficial, that means that through all the
16 analysis, the wide ranging of inputs, this is the
17 lowest cost option and that should be the one that
18 is chosen.

19 MR. RUSSELL: I don't have any
20 further questions.

21 COMMISSIONER LEVAR: Thank you,
22 Mr. Russell. Ms. Tormoen Hickey, do you have any
23 questions?

24 MS. HICKEY: No, thank you.

25 COMMISSIONER LEVAR: Ms. McDowell, do

1 you have any redirect?

2 MS. MCDOWELL: Yes. One moment.

3 REDIRECT EXAMINATION

4 BY MS. MCDOWELL:

5 Q Mr. Hoogeveen, do you remember when
6 Ms. Schmid asked you some questions about your
7 statement in the summary regarding changed
8 circumstances to what might require the Company to
9 come back to the Commission? Do you remember that?

10 A I do.

11 Q And Ms. Schmid asked you whether you were
12 saying that the Company might come back under that
13 provision for cost overruns. Was that the intention
14 of your statement with respect to changed
15 circumstances?

16 A So the changed circumstances I'm referring
17 to is if, for example, in the event of some major
18 change, which might include some project-specific
19 changes that occurred due to various circumstances
20 that would change the economics themselves, we would
21 come back to the Commission.

22 Q So if there are costs overruns, do you
23 understand that the benefit approval -- or excuse
24 me -- the resource approval that the Company is
25 seeking in this case would have a cap that would

1 require the Company to come back and establish the
2 prudence of any cost over that amount that was
3 approved in this docket?

4 A That's correct. A complete cap on the
5 entire project, I believe, is the commitment.

6 Q So Ms. Schmid also asked you about whether
7 the Company assumes the risk of performance with
8 respect to the wind blowing and the energy
9 production from the wind facilities. Is it your
10 understanding that customers currently bear the risk
11 of energy performance from wind facilities?

12 A That's correct. In our current wind
13 facilities, they certainly benefit when the wind
14 blows more and do not when it blows less. And
15 that's kind of a characteristic of wind facilities
16 that is natural to them.

17 Q So there's no increase or decrease in that
18 risk?

19 A It's the same.

20 Q So Ms. Schmid also asked you about your
21 statement on page 7 of your supplemental rebuttal,
22 and specifically with respect to lines 154 though
23 156?

24 A Yes.

25 Q Do you have Mr. -- the exhibit in front of

1 **you that contains Mr. Peaco's Table 4? I think it**
 2 **is the confidential exhibit.**

3 MS. SCHMID: That would be DPU
 4 Cross-exhibit No. 3. Pardon me. That is not a
 5 cross-exhibit.

6 BY MS. MCDOWELL:

7 **Q So let me hand you Mr. Peaco's testimony.**

8 COMMISSIONER LEVAR: If you would,
 9 just indicate to us where you are so we can find it.

10 MS. MCDOWELL: Of course. I'm at
 11 Mr. Peaco's confidential response testimony. I'm at
 12 Table 4, which begins at line 399.

13 COMMISSIONER LEVAR: And do you
 14 anticipate that we'll be discussing confidential
 15 numbers in this discussion?

16 MS. MCDOWELL: No. I'll try not to.

17 MS. SCHMID: Objection. This was not
 18 part of what I asked on cross, so I would object
 19 that it's beyond the scope of cross.

20 COMMISSIONER LEVAR: Ms. McDowell,
 21 can you identify what part of the cross-examination
 22 this is relating back to?

23 MS. MCDOWELL: This is about the
 24 cross-examination on lines 154 through 156.

25 COMMISSIONER LEVAR: And you're using

1 this table to clarify those statements from
2 Mr. Hoogeveen's testimony. I think we probably have
3 to let the questions go forward before we decide
4 whether it's relevant to the cross-examination. But
5 if you feel like it's going beyond the scope, feel
6 free to restate your objection.

7 MS. SCHMID: Thank you.

8 BY MS. MCDOWELL:

9 Q So, Mr. Hoogeveen, your testimony at lines
10 164 through 162 was referring to the Division's
11 analysis in Table 4; is that correct?

12 A That's correct.

13 Q And in that first bullet from 154 to 156,
14 were you referring to the first two columns where
15 the DPU calculated the cost benefit analysis of the
16 various cases that the Company had provided?

17 A That's correct.

18 Q So I'll just represent to you that that
19 chart contains analysis through 2050. So in that
20 case, do we -- is a correction required to your
21 testimony at line 154 that should say "through 2050"
22 instead of "through 2036"?

23 A Can you point me to where it says 2050?

24 Q The previous page, I think, should say the
25 testimony -- let me find you a reference. Is page

1 23 on the backside of that?

2 A Correct, yes.

3 Q So do you see at line 389, it refers to
4 the study period through 2050?

5 A Yes, thank you. I see it. I stand
6 corrected.

7 Q So just to clarify, on line 154 it should
8 say "through 2050"?

9 A That's correct.

10 Q With respect to the Table 1 that
11 Ms. Schmid did refer you to, Mr. Peaco's Table 1,
12 which is -- that is the cross-exhibit, the
13 confidential cross-exhibit. Do you have that?

14 A I do.

15 Q This table refers to levelized PTCs. Do
16 you see that?

17 A I do.

18 Q And do you agree that that method of
19 calculating PTC benefits is not appropriate in this
20 case?

21 A I agree that the appropriate way to look
22 at it is the nominal PTC benefit column, not the
23 levelized PTC for the reasons I explained earlier.

24 MS. MCDOWELL: That all I have.

25 COMMISSIONER LEVAR: Thank you. Any

1 recross, Ms. Schmid or Mr. Jetter?

2 MR. JETTER: Thank you. I'd like to
3 ask just a few brief recross-examination questions.

4 RECROSS EXAMINATION

5 BY MR. JETTER:

6 Q Mr. Hoogeveen, in your redirect, you
7 mentioned that it's your opinion that the risk of
8 wind fluctuation or variation in wind outlet would
9 be the same with the current wind turbines over the
10 next, let's say, 20 years, as compared to the
11 repowered wind turbines. Is that accurate?

12 A Whether it's exactly the same or not, it's
13 certainly similar.

14 Q Okay. Is it correct to say that with the
15 current wind turbines, beyond two years from today,
16 there are no production tax credits associated with
17 each kilowatt hour of output?

18 A Could you repeat the question?

19 Q Let me -- I'll rephrase it a little bit.
20 Is it accurate that the production tax credits for
21 the existing turbines you're seeking to repower will
22 run out in the near future?

23 A That's correct.

24 Q And after that date, is it accurate that
25 the variation in wind output would affect customers

1 by increasing or decreasing the generation from
2 those turbines?

3 A That's correct.

4 Q And the risk that ratepayers would have
5 then, would be solely the cost of replacement
6 energy. Is that accurate?

7 A That's correct.

8 Q And with repowered wind turbines, is it
9 accurate to say that the Company's modeling
10 forecasts for the value rely on the production tax
11 credits from each of those kilowatt hours' output to
12 pay for both the continued amortization of the costs
13 of the existing wind turbines along with the new
14 ones?

15 A Yes. The new wind turbines have more
16 benefit associated with the production tax credits.

17 Q Is it fair to say as a result of that,
18 that the value of each kilowatt hour of output is
19 higher?

20 A I agree with that.

21 Q And so is it fair to say that the
22 variation in wind output has greater dollars per
23 kilowatt hour variation under the proposal than
24 going forward with the existing turbines?

25 A Going forward, yes. I believe the

1 question was -- or my answer was, it's similar to
2 the risk associated with the turbines in the past
3 during PTC years.

4 Q Okay. But you would agree with me that
5 the value of that risk is significantly higher under
6 this proposal?

7 A Precisely why I think we should be doing
8 it, yes.

9 Q Okay. So yes, it is more risky?

10 A There's more value associated with it, I
11 agree with that.

12 Q And you also agree that the risk is
13 higher?

14 A I agree that the variability will be
15 higher and if we hadn't done the work that we've
16 done, we would be more uncertain. But given where
17 we are, we have a very high certainty that we will
18 be capturing the PTC values that we have forecasted
19 going forward.

20 Q I think we're not quite getting the answer
21 to the question I'm asking, which is, is it accurate
22 that the variability of wind risk holds a higher
23 dollar value under the proposal than it would have
24 continuing with the existing turbines?

25 A Yes. I'm trying to answer in the

1 affirmative there.

2 MR. JETTER: Okay. Thank you. Those
3 are my questions.

4 COMMISSIONER LEVAR: Thank you.
5 Mr. Russell, any recross?

6 RECROSS EXAMINATION

7 BY MR. RUSSELL:

8 Q I do have a question that relates to -- I
9 think it was Ms. McDowell's last question, which
10 asked you your view on whether it was more correct
11 to use nominal or levelized PTCs. Do you recall
12 that question?

13 A I do.

14 Q And your testimony is you think it's
15 correct to use nominal values for PTCs and not
16 levelized values?

17 A That's correct. Again, through the
18 description I had earlier, the levelizing over ten
19 years is equivalent to nominal, and that's the basis
20 for my answer.

21 Q You acknowledge, though, that the Company
22 used levelized values for PTCs in its 2017 IRP
23 planning process, correct?

24 A I agree.

25 Q It also used levelized values for PTCs in

1 **its direct testimony in this case?**

2 A It did.

3 Q **And in its rebuttal testimony in this**
4 **case, filed in October?**

5 A Yes.

6 Q **And its surrebuttal testimony filed in**
7 **November of 2017?**

8 A That's correct. The change in modeling
9 happened between -- just prior to the February 2018
10 submission.

11 Q **And you acknowledge that the Company has**
12 **used levelized values for PTCs in IRPs prior to the**
13 **2017 IRP planning process?**

14 A Subject to check, that's my understanding,
15 yes.

16 MR. RUSSELL: Thank you.

17 COMMISSIONER LEVAR: Thank you.

18 Commissioner Clark, do you have any questions for
19 Mr. Hoogeveen?

20 COMMISSIONER CLARK: Yes, thank you.

21 BY COMMISSIONER CLARK:

22 Q **Good morning, Mr. Hoogeveen. It's my**
23 **understanding that this matter is before us on the**
24 **basis of the Company's volunteer request for**
25 **approval of a resource decision. Has the Company**

1 determined whether it would go forward with these
2 projects without the approval that you're seeking
3 from us?

4 A We have thought of it. We have not made a
5 decision. It is much riskier for the Company.
6 You're talking about a billion-dollar investment
7 with, in essence, no expectation or -- that's not
8 the right word -- certainly no commitments from the
9 Commission for recovery. That makes it very
10 difficult to get past. I think it would be very
11 difficult to go forward.

12 Q Looking at it from, again, from that
13 perspective and from the elements of benefit and
14 risk that the Company would evaluate in making the
15 business decision about these investments, what
16 would you or how would you summarize the benefits
17 that would potentially exist for the Company in
18 making the investments?

19 A Just so I can clarify your question, are
20 you asking if we go forward with it under this --

21 Q No, no. I'm speaking of in the absence of
22 Commission approval, you are addressing this as a
23 business decision exclusively and without that
24 assurance --

25 A Yes.

1 Q -- but assuming that standard ratemaking
2 remains in force with respect to rate base and
3 investment and prudence and all of those principles.
4 On the benefit side, can you summarize how you would
5 evaluate this set of projects from the Company's
6 perspective?

7 A Sure. As with anything, it's a playoff
8 between the risks and the benefits, so you're asking
9 about benefits appropriately.

10 Q We'll get to risks.

11 A Fair enough. The benefits certainly would
12 be the ability to invest and the opportunity to, you
13 know, achieve our return from the shareholders'
14 perspective. From the customers' perspective, I
15 think I've been clear that there's tremendous
16 benefits as well.

17 Q And on the risk side, you've mentioned the
18 greater assurance of recovery that you would have
19 under the statute. In the absence of that, you
20 would not have the assurance. But to be more
21 granular in your assessment of risks, are there
22 risks other than the ones that have been discussed
23 in the prefiled testimony that the Company would
24 consider?

25 A I think all of the risks have been

1 discussed. And related to -- relating to your
2 question that if we do not get a pre-approval and
3 just go through the normal process as you describe
4 it, would indicate to us, inevitably, that it would
5 be riskier, recovery would be riskier. The fact
6 that we have the statute and this fits very well
7 within it, we believe indicates that it should be
8 approved and adjudicated in this hearing this
9 morning. And for it not to be, I think would be an
10 indication of high-risk for our recovery.

11 **Q So the Company would infer some things**
12 **from the disapproval, I suppose.**

13 **A** It would be hard not to, I think.

14 COMMISSIONER CLARK: That includes my
15 questions.

16 COMMISSIONER LEVAR: Thank you.
17 Commissioner White.

18 BY COMMISSIONER WHITE:

19 **Q Just going back to a question from**
20 **Ms. McDowell about the total cost for approval and**
21 **potentially going back and you know, requesting a**
22 **change to that. There was some discussion, I**
23 **believe, in Mr. Hemstreet's testimony about**
24 **potential change in cost based upon modified**
25 **transmission interconnection agreements. I guess my**

1 question is, is there a -- you said a billion, but
2 what would be the number that would be on the order
3 if it were to be approved, of the total cost for
4 what the Company is asking for?

5 A So specifically, the filing that we've
6 made has a commitment that if we come in above 1.1 I
7 believe the number is, whatever the exact number is,
8 we would have to show prudence for that. So that is
9 the number that we're talking about, and that's the
10 commitment, that we would come back in. The change
11 in conditions -- and I apologize if there's some
12 confusion there -- really is if there's a major
13 change or even on a project-by-project basis, if
14 something should change regarding the cost or
15 performance that we're aware of, then we would come
16 back in and talk to the Commission about that.

17 Q That's the 1.1?

18 A Yes.

19 Q The other question I had is, I guess,
20 there's been a lot of discussion testimony about
21 project-by-project economics, the benefits of it.
22 If we're looking at the total public interest and
23 other standards, is it an all-or-nothing
24 proposition? How are the -- why should we be
25 looking at it on a project-by-project basis for the

1 public interest or the, you know, the economics of
2 each of these projects.

3 A No, I think it is appropriate to look at
4 it on a project-by-project. I think it's
5 instructive to know what the total basis is and,
6 again, it's our position that each project stands on
7 its on own and is beneficial to customers.

8 Q Let me ask about this. Mr. Russell was
9 asking you about this nominal versus levelized.
10 Help me understand -- again, you mentioned
11 something, it was determined that it was, maybe, a
12 potentially inappropriate -- give me some more color
13 on that, I guess. And then the second part of that
14 question is, now that the Company has discovered
15 that was potentially inappropriate, what is the plan
16 for consistency going forward?

17 A Whether it's inappropriate or not is not
18 the right characterization. I'd say it's an
19 improvement in the analysis and as I say, we've
20 been -- and as Counsel has said -- this has been
21 going on for years. We realize now that the way
22 that the PTCs were handled should be over ten years,
23 they should be levelized over ten years, or done on
24 a nominal basis. Those are equivalent. So I would
25 defer you to talk to Mr. Link about what he plans

1 going forward. I do know that the IRP update that
2 we just filed includes this change in methodology
3 because it is a more accurate way of looking at it.

4 **Q In your mind, is there a distinction**
5 **between the type of look or methodology as between**
6 **an IRP picking projects on an optimized basis versus**
7 **what we should be looking at here, or should those**
8 **be one and the same?**

9 A I think they're one and the same. This
10 really is an effort to establish -- again, per the
11 statute -- what is most likely to result in the
12 lowest cost to our customers. That is precisely
13 what is done through an IRP process in a model. And
14 I recognize this was inserted late into the
15 process -- the IRP process and through the IRP
16 acknowledgment that the commission -- it was
17 certainly noted it was not given fair time. I think
18 that the expansion of this 10 to 12 months of doing
19 this IRP analysis that you talk of is helpful to
20 continue to ferret out the right answer, but I think
21 it is exactly the right model. Because what you
22 want to know is, does this set of assets, is it the
23 lowest cost, most reasonable portfolio to serve our
24 needs. And that's precisely what those models show.

25 **Q Is this, in your mind, something different**

1 than the typical -- I mean, typically in the statute
2 we forecast, you know, need for energy capacity,
3 whatever, in IRP, and we need, let's just say, a gas
4 plant, or et cetera. Is there any distinction --
5 this is partially playing off of
6 Commissioner Clark's question -- is there any
7 distinction in terms of, like, what the drivers
8 behind this project are versus, say, just the
9 typical, vanilla need for energy and capacity?

10 A I think the difference here is the PTC
11 capturing and the fact that we've got to act in a
12 very time-constrained manner, and we need to
13 operate to make the decision quickly. And again, it
14 fits very directly, I think, within the statute
15 of -- of the pre-approval statute for a resource
16 acquisition. I think it's for that reason. That's
17 the reason we're here.

18 Q And the other benefits, the reliability
19 benefits, is that something -- I'm kind of curious
20 about that, to understand a bit more. Maybe that's
21 a better question for Mr. Link, but do you have any
22 thoughts on that? It doesn't seem like that was
23 something addressed in great detail, but it was
24 something that was, at least, put forward as a
25 potential benefit.

1 A I agree. And I think Mr. Hemstreet
2 probably answers that better.

3 COMMISSIONER WHITE: That's all the
4 questions I have. Thanks.

5 COMMISSIONER LEVAR: I don't have any
6 additional questions at this time, so thank you for
7 your testimony, Mr. Hoogeveen. And why don't we
8 take a ten-minute break and then we'll come back to
9 your next witness. Thank you.

10 (A recess was taken.)

11 COMMISSIONER LEVAR: We're back on
12 the record. Ms. McDowell.

13 MS. MCDOWELL: We call Mr. Rick Link
14 to the stand.

15 RICK LINK,
16 having been first duly sworn to tell the truth, was
17 examined and testified as follows:

18 DIRECT EXAMINATION

19 BY MS. MCDOWELL:

20 Q **Good morning, Mr. Link.**

21 A Good morning.

22 Q **Could you please state your name and spell**
23 **it for the record?**

24 A Yes. My name is Rick Link, last name is
25 L-i-n-k.

1 Q Mr. Link, how are employed?

2 A I am vice president of resource and
3 commercial strategy with PacifiCorp.

4 Q In that capacity, have you prepared
5 testimony and exhibits in this proceeding?

6 A I have.

7 Q So I'll state for the record, the
8 testimony you've sponsored in this proceeding is
9 your direct testimony and exhibits, filed on
10 June 30th, 2017; your rebuttal testimony and
11 exhibits, filed on October 19th; your supplemental
12 direct testimony and exhibits, filed on
13 February 1st, 2018; and your supplemental rebuttal
14 testimony filed on April 23rd, 2018. Have I
15 included all of the testimony and exhibits you've
16 filed in this case?

17 A Yes.

18 Q If I were to ask you the questions that
19 are set forth in your prefiled testimony today,
20 would your answers here be the same?

21 A Yes.

22 Q Do you have any changes or corrections to
23 your prefiled testimony or exhibits?

24 A I do not.

25 MS. MCDOWELL: So we would offer

1 Mr. Link's direct, rebuttal, supplemental direct,
2 and supplemental rebuttal testimony and exhibits.

3 COMMISSIONER LEVAR: If anyone
4 objects to this motion, please indicate to me. I'm
5 not seeing any objections, so the motion is granted.
6 And as is the case with Mr. Link and several other
7 witnesses in this proceeding, there's some
8 confidential material -- we've already discussed
9 this -- but I'll ask all the attorneys to be mindful
10 if we start to move into that area, there would be a
11 need for a motion and thus to consider whether it's
12 in the public interest to close the hearing if we
13 need to do so.

14 BY MS. MCDOWELL:

15 Q Mr. Link, have you prepared a summary of
16 your testimony?

17 A I have.

18 Q Please proceed.

19 A Good morning, Chairman Levar,
20 Commissioner Clark, and Commissioner White. I am
21 pleased to summarize my testimony supporting the
22 Company's proposal to repower 12 existing wind
23 facilities.

24 By upgrading its wind resources, the
25 Company can lower customer costs by generating wind

1 production tax credits, or PTCs, producing
2 additional zero-fuel cost energy, improving system
3 reliability, and extending the operating life of
4 these assets. It is my understanding that in order
5 to approve the Company's voluntary resource request,
6 the Commission must determine that repowering is in
7 the public interest after considering several
8 factors. My testimony primarily addresses three of
9 these considerations identified in the voluntary
10 approval statute, and these factors generally
11 address cost, near-term and long-term impacts, and
12 risks.

13 First, and importantly, the Commission
14 must determine that repowering will likely result in
15 the acquisition, production, and delivery of utility
16 services at the lowest reasonable cost to the retail
17 customers of an energy utility located in this
18 state. The economic analysis which relies on the
19 same models used to develop our IRP has been
20 extensive. This analysis measures customer benefits
21 under nine different price policy scenarios, each
22 containing their own assumptions for market prices
23 in CO2 price inputs. This analysis also considers
24 how uncertainties in load, market prices,
25 hydrogeneration, and thermal unit outages affect the

1 benefits of repowering. Through a number of
2 sensitivities, this analysis further quantifies how
3 customer benefits are affected by other system
4 variables, like the new wind and transmission
5 projects proposed in a different docket.

6 The economic analysis was prepared for all
7 12 wind facilities on a project-by-project basis.
8 Study results were also presented over the 20 year
9 time frame that's used in the IRPs through 2036 and
10 through the 30-year life of the repowered
11 facilities, or through 2050. The economic analysis
12 shows that repowering all 12 wind facilities will
13 lower customer costs in all nine price policy
14 scenarios studied, and this result holds true
15 whether analyzed through 2036 or 2050.

16 When using base case assumptions, the
17 present value net benefits of repowering total
18 \$180 million dollars when assessed through 2036, and
19 when assessed through 2050 using base case
20 assumptions, the present value net benefits total
21 \$273 million. The present value of gross benefits
22 range between \$1.4 billion and \$1.48 billion, and
23 the range depends on the price policy scenario,
24 which is well in excess of the present value project
25 cost totaling \$1.02 billion. The project-by-project

1 analyses also show that repowering each project is
2 most likely to lower customer costs over the life of
3 the repowered wind facilities.

4 In addition to the Company's economic
5 analysis showing that repowering is most likely to
6 lower customer cost, the record now contains
7 alternative analysis from the Division of Public
8 Utilities, the Office of Consumer Service, and the
9 Utah Association of Energy Users that largely
10 confirm the Company's results. Although these
11 parties emphasize a different approach in its
12 economic modeling and each party chose to interpret
13 those results differently, their analyses show that
14 repowering is expected to lower customer's costs.
15 The comprehensive economic analysis in this case
16 shows that repowering satisfies the lowest
17 reasonable cost standard.

18 Regarding short-term and long-term
19 impacts, in the short-term, repowering will generate
20 \$1.26 billion in PTC benefits over a ten-year
21 period. This is nearly 115 percent of the
22 1.1 billion in service capital costs of repowering
23 12 wind facilities. The economic analysis
24 summarized in my testimony shows that revenue
25 requirement will be lower with repowering than

1 without repowering from 2021 -- which is the first
2 year that the projects will be in full operation
3 with new equipment -- straight through to 2029. The
4 long-term impacts of repowering are also favorable
5 to customers. Repowering will reset the useful life
6 of these wind facilities, extending the life of the
7 assets by 10 to 13 years, which results in a
8 significant increase in energy and capacity over the
9 2037 to 2050 time frame.

10 The Company's economic analysis shows that
11 nominal revenue requirement is projected to be lower
12 than with repowering than without repowering in all
13 years over this period. And these results are
14 conservative, considering that this analysis assigns
15 no incremental capacity benefits to this project.
16 The present value benefits discounted back to
17 2030 -- which is the year that the PTCs would expire
18 from repowering -- is over \$210 million. The
19 comprehensive economic analysis in this case shows
20 that the short-term and long-term impacts of
21 repowering are to deliver substantial benefits for
22 customers.

23 The statutory factors addressed in my
24 testimony -- or the third statutory factor -- is
25 risk. And risks are evaluated in several ways.

1 First, the Company tested the benefits of repowering
2 under several different price policy scenarios, and
3 this analysis confirms that repowering provides
4 customer benefits in all of those cases.

5 Second, the Company's economic analysis
6 captures stochastic risk in a way that is identical
7 to how these risks are analyzed in our IRP, which is
8 to factor in volatility, load, hydrogeneration,
9 thermal unit outages, and market prizes.

10 Third, the Company has updated its
11 analysis three times since this case was filed to
12 account for changes in cost, performance, and load.
13 And I'll note that the load assumption update is
14 identical to the load forecast that's in our
15 recently filed IRP update. It was also updated to
16 account for tax reform and price policy inputs.
17 Changing conditions over the last year demonstrate
18 the durability of the net benefits from repowering.

19 Fourth, the Company included several
20 sensitivities to test how customer benefits are
21 affected by other changes in our system, notably,
22 benefits of the repowering project are retained if
23 the new wind and transmission projects proposed in a
24 separate docket move forward.

25 While the Company analyzed various

1 scenarios to measure risk and to ensure customer
2 benefits under a range of market conditions, as
3 Mr. Hoogeveen noted, I, too, recommend that the
4 Commission principally rely on the medium case,
5 which is based on our official forward price curve.
6 It's the same used to set Utah rates and to
7 establish avoided-cost pricing for qualifying
8 facility projects. When assessing the risk of
9 repowering, it is also important to consider the
10 risk of not moving forward with this amazing
11 project. Choosing not to repower would leave
12 substantial PTC benefits on the table, it would
13 increase net power costs and increase customer
14 exposure to market volatility. The economic
15 analysis in this case overwhelmingly shows that
16 without wind repowering, revenue requirements will
17 be higher.

18 Parties have explicitly or implicitly
19 suggested that repowering is higher risk than doing
20 nothing, because the Company has no need for the
21 resources. But this position is contrary -- is
22 contradicted by some facts. First, repowering
23 provides incremental, low cost energy that will
24 displace higher cost energy resources when balancing
25 our system. To argue that wind facilities should

1 not be repowered because they're not needed is the
2 same as arguing that the Company should not optimize
3 its system resources in real time to minimize net
4 power costs simply because that activity is not
5 required to serve customers.

6 Second, it is my understanding that the
7 voluntary resource decision approval statute does
8 not require a resource need in order to approve a
9 decision like this one, where repowering involves
10 upgrading and optimizing an existing resource to
11 reduce customer costs.

12 In conclusion, taken together, the
13 economic analysis provided by the Company, the
14 Division of Public Utilities, the Office of Consumer
15 Services, and the Utah Association of Energy Users
16 demonstrates that the wind repowering project is in
17 the public interest. Repowering is most likely to
18 lower customer costs, has beneficial near-term and
19 long-term customer impacts, and the robust customer
20 net benefits of repowering have withstood
21 significant stress testing, demonstrating that
22 repowering is not only lower costs, it is lower
23 costs across a broad range of potential future
24 market and system conditions. And that concludes my
25 summary.

1 MS. MCDOWELL: Thank you, Mr. Link.

2 This witness is available for cross-examination.

3 COMMISSIONER LEVAR: Thank you.

4 Ms. Tormoen Hickey, do you have any questions for
5 Mr. Link?

6 MS. HICKEY: No thank you, sir.

7 COMMISSIONER LEVAR: We'll go to
8 Mr. Snarr next. Do you have any questions?

9 MR. SNARR: Yes, I do. Thank you.

10 CROSS-EXAMINATION

11 BY MR. SNARR:

12 Q Good morning, Mr. Link.

13 A Good morning.

14 Q I have just a few questions, and they
15 focus on some of the issues that I'm sure you're
16 familiar with.

17 Isn't it true that the Company changed its
18 2036 study analytical approach in showing how the
19 recovery of production tax credits would impact the
20 Company's cost and benefits in its February 2018
21 filing?

22 A Yes. The Company improved its approach to
23 account for the PTC benefits from the project.

24 Q Is it fair to say that -- we talked about
25 it here -- that involves a changing from showing the

1 production tax credits on a levelized basis to a
2 nominal basis that would coincide with the
3 anticipated taking of the tax credits?

4 A Yes. The change is as you described it.

5 Q And this is a change from what the Company
6 used in prior IRP filings?

7 A Yes, that's correct.

8 Q And as was pointed out, also a change from
9 the two initial filings in this docket; is that
10 right?

11 A Correct.

12 Q Isn't it true that using the levelized
13 approach as you have done in the past at looking at
14 PTCs provides a consistency with the way that the
15 capital revenue requirements are modeled?

16 A I disagree.

17 Q But the capital revenue requirements are
18 modeled over the life of the assets; is that
19 correct?

20 A The capital revenue requirement when we're
21 running our models through the IRP window, so
22 through 2036, are levelized through the full life of
23 the asset, and then only accounted for through the
24 2036 period.

25 Q And so that is a method that is used for

1 the capital requirements, which is inconsistent with
2 what you're currently planning to use for the PTCs;
3 is that correct?

4 A It's not correct. I disagree with the
5 fact that you're characterizing it as inconsistent.

6 Q Isn't it true the new tax law does not
7 require any different approaches as to how you would
8 look at or take the PTCs?

9 A I'm not aware of -- if I understand the
10 question correctly -- of how any tax law would
11 suggest analyzing the potential tax benefits of
12 PTCs.

13 Q And was -- is it true to say that the
14 coming forth of the new tax law didn't have any
15 relationship to the impact or to the decision that
16 you made to change the approach you're taking to
17 PTCs?

18 A Correct. The changing tax law had no
19 bearing on our decision to improve the
20 representation of PTCs in our IRP modeling.

21 Q When did you make that decision to change
22 the modeling?

23 A So we -- really, it dates back to the
24 separate docket I mentioned in my opening comments
25 in speaking to the new wind and transmission

1 projects that we're proposing there. In that
2 forum -- and I have to kind of explain that to
3 address the question -- it's the first time that we
4 have ever used our IRP models to optimize or select
5 from specific commercial structures, actual bids
6 submitted through a competitive solicitation, where
7 we had PPA, power purchase agreement proposals, and
8 bill transfer agreement or owned asset where PTCs
9 are taken upfront. It's the first time that I'm
10 aware of in my role in running the IRP models and
11 implementing RFPs where that model, that tool, was
12 used in that type of situation.

13 So as we were progressing to evaluating
14 bids through that competitive solicitation process,
15 we made this improvement to the modeling methodology
16 to accurately account for the very fact that under
17 one commercial structure where it's an owned asset,
18 that those PTCs are taken in the front ten years,
19 they're front-end loaded, and that the present value
20 calculations should appropriately account for the
21 timing of that benefit occurring -- relative to an
22 alternative structure, say a power purchase
23 agreement -- where those circumstances don't apply
24 and you're faced with a power purchase agreement
25 cost that's consistent or increasing that inflation

1 or some other rate, or the term of that proposed
2 agreement. So in that setting, that is what
3 triggered our review of making this modeling
4 improvement for that intended purpose.

5 Considering the concurrent timing of that
6 process with this docket in this proceeding, we made
7 that same adjustment there -- here, in this
8 proceeding -- because it is more accurate and more
9 correct. The old approach was essentially
10 understating quite significantly the value of PTCs
11 in that IRP viewpoint. Traditionally, in the IRP
12 itself outside of an RFP solicitation, that
13 differentiation is not an issue. We don't model in
14 an IRP framework, owned assets, power purchase
15 agreement assets, different commercial structures.

16 From a planning perspective, we assumed
17 one structure and then the RFP dictates, ultimately
18 through market bids, which one to pursue. And so it
19 was in that process -- again, to restate that that
20 was the first time we needed to account for this --
21 and then applied it for consistency in this
22 proceeding because it is more accurate. And then in
23 addition, as Mr. Hoogeveen mentioned, we've adopted
24 that path forward for the IRP update which was just
25 filed this week, and intend to continue down that

1 path in future IRP filings.

2 Q Now, in your summary today, you pointed
3 out, I believe, that the range of benefits that you
4 had determined were in the range of \$180 million to
5 \$273 million, depending on the length of the term of
6 what you're looking at in 2036 to 2050?

7 A Yes.

8 Q And so isn't it true that the change in
9 PTC's methodology makes a difference of
10 approximately \$200 million that, in effect, if we
11 had maintained the levelized approach in taking
12 PTCs, that the benefits might be -- that you have
13 referenced here -- might be less by about
14 \$200 million?

15 A I'm familiar with that number. It's a bit
16 less than \$200 million, but for the sake of
17 discussion, I'm fine with that characterization.
18 But I would highlight that it's not that the
19 benefits would be less, it's that the prior
20 benefits -- given my comments on why we changed the
21 approach to begin with -- were overly conservative
22 by about that same amount, so roughly \$200 million.

23 Q Isn't it true that levelizing the capital
24 revenue requirements over the life of the asset is
25 inconsistent with the way that capital costs are

1 **recovered in rates?**

2 A Capital costs are not recovered on a
3 levelized basis, yes.

4 MR. SNARR: Thank you. I have no
5 other questions.

6 COMMISSIONER LEVAR: Thank you.
7 Ms. Schmid or Mr. Jetter?

8 MR. JETTER: I have a few questions.

9 CROSS-EXAMINATION

10 BY MR. JETTER:

11 Q Good morning. I'll start out with just a
12 few questions about the PAR and the SO models. Are
13 you the lead individual at the Company or the head
14 of the team that develops, maintains, and runs those
15 models?

16 A Yes. I'm responsible for the team that
17 runs and maintains the models.

18 Q And how confident are you on the accuracy
19 of the outcome of those models?

20 A I'm confident.

21 Q And is that confidence both in the
22 calculation accuracy as well as the accuracy of the
23 forecast's information that you put in?

24 A Yes.

25 Q And so if, let's say, the CEO comes to you

1 and says, We didn't get pre-approval for this
2 project, but we recognize that if it turns out to be
3 in the black throughout its life -- meaning it
4 actually does lower revenue requirement throughout
5 its life -- we want to go forward with the project.
6 Would you tell her or him -- I believe it's a her in
7 this case -- would you tell her, yes, go ahead and
8 do the project?

9 A Under such a hypothetical, I don't know
10 all the other conditions and parameters around
11 which that hypothetical discussion might occur. I
12 would say that this -- consistent with my testimony
13 in this case -- that this is an amazing project, it
14 is expected to deliver benefits over the life of the
15 project, both near-term and long-term, under the
16 broadest range of scenarios we've analyzed.

17 Q Okay. And so you would -- is it fair to
18 say that you would recommend, if the Commission were
19 to deny pre-approval but in its order make it clear
20 that you may come in for prudency review -- you
21 would be confident that this would be found as a
22 prudent project?

23 A I'm not a regulatory specialist in that
24 regard. Again, I would provide my input to those
25 who would have more experience and direct knowledge

1 of the regulatory processes, the risks associated
2 with it, the accounting under such a circumstance,
3 but my role in that hypothetical scenario would be
4 to advise that team that this is an amazing project,
5 it will deliver near and long-term benefits, and it
6 is a project worth pursuing.

7 Q Okay. Thank you. With respect to the
8 inputs to those models, are you familiar with the
9 IRP update that the Company has recently filed in
10 its Henry Hub gas forecast pricing?

11 A Yes.

12 Q And are you familiar with the 2013 IRP
13 that the Company filed?

14 A I'm familiar with it, I haven't memorized
15 that one as well as the more recent.

16 Q Would you accept, subject to check, that
17 in the 2013 IRP model, that the gas forecast prices
18 through the current period and now through years,
19 let's say, 2023, were over a dollar higher than they
20 are in the current IRP forecast?

21 A Without checking, but subject to check,
22 they are what they are in the IRP.

23 Q Okay. And would you also accept, subject
24 to check, that the low gas scenario that you have
25 used in this case was approximately 30 to 75 cents

1 lower over that same time period?

2 A Again, subject to check, the numbers are
3 what they are.

4 Q Okay. And so, subject to check, if those
5 numbers are accurate, would it be fair to say that
6 the current IRP forecast would be outside of the
7 same range that you've used in this IRP forecast and
8 model as the lowest reasonably likely gas price?

9 MS. MCDOWELL: Objection. I don't
10 think that question is clear for the record. If you
11 would restate which forecast you're talking about.

12 BY MR. JETTER:

13 Q So I'll restate for the record that I
14 believe the witness has agreed, subject to check,
15 that the 2013 IRP forecast is more than a dollar
16 higher, which is about 35 percent higher than the
17 current IRP forecast for gas prices. And what I'm
18 asking -- the question is, is it accurate that the
19 use of the low gas forecast in your modeling in this
20 instance is somewhere in the range of, let's say, 30
21 to 75 cents, depending on year, lower than the
22 middle case forecast that you view as the most
23 likely?

24 A Again, subject to check, if I understood
25 the question, was what do the numbers in the

1 document say?

2 Q Yes.

3 A They speak for themselves.

4 Q Okay. Does that represent to you that
5 your -- had you done this model in 2013, the
6 Company's current middle case gas forecast would
7 have been outside the range of what you consider
8 reasonable, given the reasonable range you're using
9 in this forecast?

10 A I don't know that I understand the
11 question. What I believe you've stated to me,
12 again, subject to check on whatever the numbers say,
13 is that in 2013 -- which, presumably is probably a
14 2012 price curve, something six years ago, I'm
15 guessing -- was about a dollar higher than our
16 current base case projection, and that our low case
17 is 30 cents-ish, if I recall your statement, again,
18 whatever the numbers say, lower than our current
19 medium case. And I'm not quite sure if you're
20 saying if our current medium is outside the balance
21 of what?

22 Q So what I'm trying to get to here is that,
23 if you used a low gas price case scenario in the
24 2013 numbers, it would have resulted in the low gas
25 price being projected through years 2023 somewhere

1 in the range -- if you were dropping those by, let's
2 say, 50 cents -- you would have projected the low
3 gas scenario today being around \$3.75, subject to
4 check.

5 MS. MCDOWELL: I just object to this.
6 I don't think there's any foundation for these
7 questions. I know there's a fair amount of subject
8 to check, but now we're asking questions that are, I
9 think, pretty vague in terms of the range and the
10 comparison. So without more foundation, I don't
11 think this question is proper.

12 COMMISSIONER LEVAR: In context of
13 that objection, if you'd like to clarify where this
14 is going, maybe, that might help.

15 MR. JETTER: I think where this is
16 going is pointing out that the low gas case is not
17 even as low as changes in IRP change in the gas
18 price. That the Company's projected, kind of, outer
19 bound low gas price is so close to the middle gas
20 price that it's outside the range of what we would
21 have been using -- what we would have projected
22 today -- using the 2013 IRP. And so the core of the
23 question is, is the range broad enough in the model
24 to be confident in the results? Is the range, away
25 from the projected gas price, broad enough, is the

1 low gas price low enough to be a reasonable
2 representation of the future range of what we would
3 expect to see?

4 MS. MCDOWELL: I just want to restate
5 my objection. I don't think that helps at all. I
6 think it's still vague in terms of what's being
7 compared, the time frame in which it's being
8 compared, and what the ratios are that he's trying
9 to compare. I don't object generally to some
10 subject to check questions and some questions around
11 comparisons, but they need to be clear on the record
12 and I don't think these are at all.

13 COMMISSIONER LEVAR: Based on the
14 explanation, I don't think I'm prepared to rule that
15 that issue is not relevant or has some value. I
16 think I'll let you continue on, but I note the
17 concern, and I was having some challenge following
18 where we were going.

19 BY MR. JETTER:

20 Q Okay. Maybe I'll ask a few questions to
21 kind of let them speak for themselves, let's say
22 that, which I think we've sort of covered but we'll
23 reiterate. Would you accept, subject to check, that
24 the 2013 Rocky Mountain Power filed business plan
25 would have shown 2018 natural gas prices at just

1 over \$5?

2 A I do not know.

3 Q Okay. Would it surprise you if it was
4 just over \$5 in that model and just a few years
5 later, we're at a point where, in the same year of
6 forecasts, the Company's high gas price range is
7 about \$4.25?

8 A Again, I'm not sure what number was used
9 in a business plan from five years ago and how to
10 compare that to where current markets are.

11 Q Would you accept, subject to check, that
12 your projections in the 2013 IRP weren't very
13 accurate?

14 A I disagree.

15 Q Would you say that gas prices today are in
16 the range of \$4 to \$5?

17 A I'm not sure over what time frame.

18 Q Let's say, the prices between 2017 and
19 2018, average?

20 A So I'm going to check my testimony. I
21 believe I've got a graph that tells us what the
22 market prices are. If we want to go down that path,
23 I can point you to the exact figure if you give me a
24 moment.

25 Q Okay.

1 A So for the record, I'm looking in my
2 supplemental direct testimony, line 97, which shows
3 our figure 1-SD --

4 MS. MCDOWELL: Mr. Link, I don't want
5 to interrupt you -- but I just did, so sorry. I'm
6 just saying I need to because I know you're looking
7 at a yellow piece of paper, so I just want to
8 caution you if you do get into confidential
9 information, give me the signal so I can then make
10 the appropriate motion.

11 A Thank you for the reminder. Nothing that
12 I say will, I think, be confidential. That graph
13 speaks for itself, in terms of what the current base
14 assumptions are for Henry Hub natural gas prices
15 included in the economic analysis for this case, the
16 most recent.

17 BY MR. JETTER:

18 Q And so why should we be more confident?
19 We know that the next most recent ones were off by
20 significant margins. Why should we be confident
21 this one is more accurate?

22 A Given the back and forth that we've had,
23 I'm not sure that I can say with certainty --
24 because I'm a little confused around which
25 references we were pointing to up to this point --

1 that these are any less accurate than anything from
2 prior forecasts. But I will say that these are
3 nothing more than projections of forward market
4 prices. In fact, through the front end of our
5 forecast period, we don't really do a forecast. We
6 rely on observed market quotes at a given point in
7 time, which is applicable through about a six-year
8 window. They have an influence through the first
9 seven years of our forward price curve, so this is
10 through approximately, I think, the 2024 time frame
11 if I did my math correct there, and then beyond that
12 period, we go through a pretty extensive review of
13 the most current baseline forecast.

14 Our methodology is not to do a regression
15 off of, let's say, past history, and that history is
16 an indicator of where prices will go moving forward.
17 We rely on these third-party experts over the long
18 term and fundamental assessments of what it costs to
19 produce gas, what is -- where pipelines are likely
20 to be constructed, what policies might influence
21 those prices, and factor those variables into our
22 long-term projections. And so from that standpoint,
23 I believe they are the most accurate and
24 representative projection that we have available to
25 us at this time.

1 **Q Would you agree that the forecasts have**
2 **substantial risk in fluctuation up or down?**

3 A There is no question that any forecast is
4 uncertain, that they can go up and that they can go
5 down from current expectations. And I'll mimic some
6 comments that Mr. Hoogeveen mentioned in his remarks
7 this morning, which is that this is precisely why we
8 look at a range of scenarios and sensitivities also
9 informed by the most recent review of fundamental
10 factors that could cause gas prices and therefore,
11 power prices to go lower or higher over time. And
12 I'll also say the further out you go, the less
13 certain, I think, those things get over time.

14 **Q If your gas forecast price were a dollar**
15 **high throughout the range, would that substantially**
16 **change the economics of this project?**

17 A I don't know that I have the ability to
18 tie it to a specific gas price assumption. We ran
19 the high gas and the low gas case, and so I think
20 there's probably some inferences that could be made
21 from that. I just don't have it at my fingertips
22 right now.

23 **Q Thank you. I'm going to change direction**
24 **just a little bit here. You mention in your opening**
25 **statement that there would be a reliability benefit**

1 from these turbines. Could you explain what
2 reliability benefit, as compared to the existing
3 fleet of utility generation assets, would be the
4 result?

5 A I can generally respond to this question,
6 which is, the new equipment has better controls and
7 ability to improve power quality on the system, they
8 provide additional voltage support. Beyond that, I
9 think Mr. Hemstreet is best if we want to dive into
10 the specifics of that information, but generally,
11 that's the intent. And I would note that there's no
12 specific value attributed to that dollar value in
13 the economic analysis, it's simply a recognition
14 that this more modern equipment provides those
15 additional reliability services that are not
16 available with the current equipment.

17 MR. JETTER: Thank you. I have no
18 further questions.

19 COMMISSIONER LEVAR: Thank you,
20 Mr. Jetter. Mr. Russell.

21 CROSS-EXAMINATION

22 BY MR. RUSSELL:

23 Q Thank you, Mr. Chairman. I have a few
24 questions, and I want to focus our discussion on the
25 use of nominal PTC values while using levelized

1 capital costs. You mentioned in response to a
2 question -- and I apologize, I don't remember
3 whether it was a question from Mr. Snarr or
4 Mr. Jetter -- but you indicated that capital costs
5 are not recovered on a levelized basis; is that
6 right?

7 A That's correct.

8 Q Okay. The justification for using nominal
9 values for PTCs is that that's a more accurate
10 reflection of how PTCs will flow through in rates;
11 is that right?

12 A It's a -- that's correct. It is a more
13 accurate representation of how they flow through in
14 rates. And it's also a more accurate and consistent
15 treatment with how we handle costs, levelizing of
16 costs, over different time periods within our IRP or
17 IRP models in this instance. As Mr. Hoogeveen noted
18 this morning, essentially -- and I complete agree
19 with his testimony -- using a nominal stream of PTC
20 benefits over 10 years would, by definition,
21 generate the precise same present value stream of
22 benefits of those PTC benefits over that same
23 10-year window. The issue here is that PTCs have a
24 10-year life, not a 30-year life. If they had a
25 30-year life, then our approach of levelizing them

1 all the way out for the 30 years would have been
2 more appropriate.

3 Q If at least part of the justification for
4 using nominal values for PTCs is that it more
5 accurately reflects how PTCs flow through to rates,
6 why is it appropriate to use levelized capital costs
7 because you've acknowledged are not recovered on a
8 levelized basis?

9 A The easy and quick answer is that the
10 capital costs are spread over the full life of the
11 asset, so through 2050, let's say, in this instance,
12 which goes beyond the forecast period that we're
13 using when running our IRP models, which terminates
14 in 2036. For PTCs, they fall within, wholly within,
15 the 20-year forecast period within the 2036 time
16 frame. That's the quick and easy explanation for
17 why there's a differentiation. The logical
18 rationale as to why that makes sense is because with
19 the capital costs, not only are we not -- we're not
20 capturing the way it's capturing rates when we
21 levelize those, but we're also not accounting for
22 any benefits that that capital cost provides -- that
23 opportunities provides for the last, in this
24 instance, 13 years of the asset life. And so that's
25 the primary justification.

1 I will highlight, though, that the
2 analysis performed by parties in the most recent
3 round of testimony that attempts to provide nominal
4 capital costs and nominal PTCs through 2036 without
5 going all the way to 2050, shows that these projects
6 provide economic benefits in all cases. So while I
7 do not agree with that approach, that's where my
8 statement in my opening comments of my summary comes
9 from. I don't agree with the approach, but it still
10 shows that our conclusions are valid.

11 I will also say that if one has concerns
12 with this whole levelization issue, it's a complete
13 nonissue when looking at the results through 2050.
14 Which, again, as Mr. Hoogeveen stated and I support,
15 is the appropriate time frame to analyze for the
16 unique opportunities here in these specific
17 projects, because right after the IRP models stop
18 forecasting, right after 2036, that is the timing
19 when these assets, without repowering, would
20 otherwise hit the end of their lives, essentially
21 retire, and so the incremental energy that they
22 produce goes from roughly 750 gigawatt hours a year
23 up to 3,500. They also, at that time, begin
24 contributing system capacity. So that's the
25 appropriate time frame for those specific reasons

1 on this project to look at, and in that instance,
2 all costs are nominal. And the reason we're able to
3 do all costs nominal -- tying back to my earlier
4 comments in response to the question from Counsel --
5 is that we're covering the full life of the asset.
6 So in that instance, using nominal capital revenue
7 requirement, nominal PTCs together, makes sense.

8 **Q Doesn't pushing the analysis to 2050 get**
9 **us away from the 20-year planning process that's**
10 **used in the IRP, though?**

11 **A** I will say that going out to 2050 is
12 longer than the 20-year IRP planning window.

13 **MR. RUSSELL:** Okay. I don't have any
14 further questions.

15 **COMMISSIONER LEVAR:** Thank you. Any
16 redirect?

17 **MS. MCDOWELL:** Yes, thank you.

18 **REDIRECT EXAMINATION**

19 **BY MS. MCDOWELL:**

20 **Q Mr. Link, you had some questions from**
21 **Division's counsel around the forward price curves**
22 **used in this case. Can you clarify, has the Company**
23 **updated the forward price curve throughout this**
24 **case?**

25 **A** Yes.

1 **Q And in which analysis did the Company**
2 **update its forward price curve?**

3 A Well, we had our original filing, and I
4 believe we made an update -- you're challenging my
5 memory on this -- I believe we made an update in our
6 rebuttal and again, we made our final update with
7 our supplemental direct filing.

8 **Q In all of the analysis that incorporated**
9 **those forward price curve updates, did the Company**
10 **continue to show net benefits associated with the**
11 **repowering project?**

12 A Yes. Throughout the entire analytical
13 time frame of this docket, every time that we made
14 an update, the projects continued to show net
15 economic benefits for customers across all the
16 cases, supporting my comments in my opening summary
17 that the fact that we're updating to account for the
18 most current information and circumstances related
19 to this project demonstrates the durability of the
20 benefits that we're projecting for this investment
21 opportunity.

22 **Q And with respect to issues around the low**
23 **natural gas price curve, does the project continue**
24 **to show benefits in that low price curve scenario**
25 **also?**

1 A Yes. There's three low gas curve
2 scenarios with varying CO2 assumptions. All three
3 of them, even the one with no CO2 price assumptions,
4 shows benefits for these projects.

5 MS. MCDOWELL: That's all the
6 questions I have. Thank you.

7 COMMISSIONER LEVAR: Any recross,
8 Mr. Snarr?

9 MR. SNARR: No.

10 COMMISSIONER LEVAR: Thank you.
11 Mr. Jetter?

12 MR. JETTER: No, I don't have any
13 recross. Thank you.

14 COMMISSIONER LEVAR: Mr. Russell?

15 MR. RUSSELL: I do have one question,
16 just on that last one.

17 RE CROSS EXAMINATION

18 BY MR. RUSSELL:

19 Q **Not all of the individual repowering**
20 **projects show benefits in the low gas scenario,**
21 **correct?**

22 A I believe that's a fair statement. I will
23 clarify that when we go out through the 2050 time
24 horizon, the Leaning Juniper project in the worst,
25 worst, worst case outcome with low gas, zero CO2, is

1 essentially, I believe, break-even economics.

2 Q In the 20-year look -- and I'll just refer
3 you to your Table 2-SD in your supplemental direct
4 testimony --

5 A I'm sorry. Could you repeat the table
6 number?

7 Q Yes. Table 2-SD. It's on page 14.

8 A I'm there. Thank you.

9 Q Okay. In that table -- correct me if I'm
10 wrong -- this is through 2036, correct?

11 A Yes.

12 Q And in that table which shows each
13 individual project in the low natural gas, zero CO2
14 price policy assumption, the Leaning Juniper project
15 shows greater costs than benefits in all three of
16 the model runs that were used in that scenario,
17 correct?

18 A Yes, it does. I think in my response to
19 the previous question, I noted it was through the
20 2050 year results, which consist of with my prior
21 comments, as what I see is the best way to look at
22 these projects. And so, yes, in that one scenario
23 under the 2036 analysis, Leaning Juniper shows costs
24 slightly higher -- or shows a roughly slight net
25 cost for that for this particular project.

1 Q Okay. Let's turn back one page to Table
2 1-SD, which is a similar table except this is each
3 project in the medium natural gas, medium CO2 price
4 policy assumption. And in that price policy
5 assumption, the Leaning Juniper shows zero benefits
6 in each of the model runs. And again, this is
7 through 2036, correct?

8 A Yes, that is what the table shows. And
9 maybe I'll take this moment to highlight that I'm
10 also framing up my comments from a perspective of
11 the conservatism built into our analysis,
12 recognizing there's no capacity value captured in
13 these analyses, that the 2036 does not account for
14 the significant energy increase that occurs right
15 after this time horizon in the capacity value.

16 MR. RUSSELL: Nothing further.

17 COMMISSIONER LEVAR: Thank you.

18 Commissioner White, do you have any questions for
19 Mr. Link?

20 BY COMMISSIONER WHITE:

21 Q There's a wide range of different
22 scenarios based upon gas prices, carbon outlook, et
23 cetera. Is it -- I understand that some of the
24 projects maybe have potentially higher risk or
25 potentially less benefits. Is the total value

1 proposition dependent on the entire package, I
2 guess, or is it something from the Company's
3 perspective where it's like, well, yes, we could
4 drop this or not this, you're not -- even the
5 customers are not going to get as many benefits?

6 A Again, I'll try to -- I'm willing to make
7 Mr. Hoogeveen's comments on this, that it is fair to
8 look at each project on a project-by-project basis
9 to ensure that we're making the right decisions on a
10 project-by-project basis. And I think we view the
11 Leaning Juniper project as an example as one that
12 shows under -- out of nine price policy scenarios,
13 there is one, potentially, out of nine, that shows
14 it to be unfavorable under one look, under a look
15 that does not account for any of the long-term
16 benefits that I've mentioned. And that when you
17 look at the longer term analysis -- which I believe
18 is the most appropriate in this particular
19 instance -- that does show benefits and accounting
20 for the conservatism. And so, again, taken on a
21 whole, most likely deliver these benefits, one out
22 of, say, nine price policy scenarios under one view
23 is not sufficient to say that that project is not
24 most likely and why we're still supporting the fact
25 that that is a worthwhile and valuable project that

1 we should proceed.

2 Q I understand that wind is -- you know,
3 it's an intermittent source of energy and there's a
4 lot of wind on the system -- and I apologize if this
5 is in your testimony -- but was the potential effect
6 on how other of the Company's resources are utilized
7 in this new world of, you know, increased wind, was
8 that ever modeled as a cost -- in other words, I'm
9 talking specifically about heat rates of plants.

10 A Yes, and that's partly why this
11 modeling -- these modeling tools are the appropriate
12 tool to analyze these sort of investments where this
13 incremental energy from these projects will be about
14 26 percent higher than their current level of
15 production once repowered. That added energy on the
16 system was modeled with an hourly shape and profile
17 that mimics the type of volatility that we have seen
18 in operating these facilities since they've been
19 brought online, roughly ten or more years ago, such
20 that when the output actually increases over time,
21 our system has to redispatch and in fact, when -- in
22 my testimony, I make reference to net power cost
23 benefits and those sorts of things, it's really that
24 dynamic where in hours where the wind is up, it may
25 back down, let's say, an existing generating unit or

1 redispatch a coal or gas plant, avoid the fuel costs
2 there, that is the net power cost benefit accounting
3 for redispatching our system and why it makes sense,
4 again, to analyze these projects in that type of
5 model.

6 **Q So even though it may affect efficiency of**
7 **certain plants, the overall net power cost benefit**
8 **is a plus, is what you're saying?**

9 A Yes. Absolutely accounts for -- our
10 models account for heat rate curves and the fact
11 that if they're running at lower levels, that the
12 heat rate goes up, essentially.

13 **Q I just have one other question. I think I**
14 **heard you correctly -- in your summary, you**
15 **mentioned something about it's your understanding**
16 **that the statute by which we're looking at the facts**
17 **and applying it to the law would not necessarily**
18 **require need. Can you expand on that? I wasn't**
19 **sure if that's what you said, and I apologize if**
20 **I --**

21 A That's my read of the language, you know,
22 that lays out the various factors when determining a
23 request is in the public interest, in this case, and
24 I don't recall seeing the term "resource need." In
25 that instance, it talks about those considerations I

1 mentioned that I cover, I think in my testimony,
2 most likely to deliver the lowest reasonable cost,
3 risk, near-term and long-term impacts, and those
4 elements. So my basis for that statement is on my
5 interpretation of those factors in the statute.

6 COMMISSIONER WHITE: That's all I
7 have. Thank you.

8 COMMISSIONER LEVAR: Commissioner
9 Clark?

10 BY COMMISSIONER CLARK:

11 Q Thank you. Just a few questions. Good
12 morning. First, can we assume that the cost
13 information on a per unit basis that's in the
14 Company's presentation would apply were the Company
15 to only build one of the projects? Another way to
16 ask that, I suppose, is, is there some element of
17 synergy that's operating in this portfolio of
18 projects and bringing them to fruition that we
19 haven't yet been told about?

20 A My understanding is that the pricing that
21 we have modeled is a direct reflection of the
22 progress we've made in negotiating agreements with
23 GE and Vestas. And I believe Mr. Hemstreet is
24 certainly better equipped to directly hit on that
25 question.

1 Q Okay. We'll come back to that, then.

2 Thank you. I thought that might be the case. Now,
3 on the subject of looking at the PTCs from a nominal
4 perspective and the cost -- well, I'll call it the
5 cost stream -- from a levelized perspective, in the
6 case of the 30-year study horizon, did I understand
7 you to say that as you've evaluated that 30 years of
8 costs, that you looked at that on a nominal basis,
9 or was it only nominal from 2036 to 2050?

10 A The entire time period uses nominal
11 revenue requirement for capital and for the PTCs.

12 COMMISSIONER CLARK: Thank you. That
13 concludes my questions.

14 COMMISSIONER LEVAR: I don't have any
15 additional questions, Mr. Link. Thank you for your
16 testimony today. Ms. McDowell.

17 MS. MCDOWELL: Mr. Lowney is going to
18 handle our next witness, so I'll turn it over to
19 him.

20 MR. LOWNEY: Rocky Mountain Power's
21 next witness is Tim Hemstreet.

22 TIM HEMSTREET,
23 having been first duly sworn to tell the truth, was
24 examined and testified as follows:

25 DIRECT EXAMINATION

1 BY MR. LOWNEY:

2 Q Mr. Hemstreet, could you please state and
3 spell your name for the record?

4 A Tim Hemstreet, last name is Hemstreet,
5 H-e-m -- street, like a road -- s-t-r-e-e-t.

6 Q And how are you employed, Mr. Hemstreet?

7 A I'm the director of renewable development
8 for PacifiCorp.

9 Q And in that capacity, did you file
10 testimony in this case?

11 A Yes, I have.

12 Q And I will represent to you that the
13 testimony you've filed is your direct testimony and
14 accompanying exhibits, your rebuttal testimony, your
15 surrebuttal testimony, your supplemental direct
16 testimony, and your supplemental rebuttal testimony.
17 Does that sound correct?

18 A Yes.

19 Q And, Mr. Hemstreet, do you have any
20 corrections to that testimony today?

21 A I have two corrections to typographical
22 errors in my testimony. The first is on line 350 in
23 my direct testimony. On that line, I said 10 of 32
24 wind turbines that would not need to be repowered;
25 that number should actually be 12. And that's the

1 number that's correctly reflected in our economic
2 analysis. And my second correction is in my
3 rebuttal testimony filed in October 2017, at line
4 503. I stated that 160 million data points were
5 used to assess the energy production estimates, and
6 that number should be corrected to 130 million
7 points.

8 Q Thank you, Mr. Hemstreet. And with those
9 two corrections, if I were to ask you the same
10 questions today, would your answers be the same?

11 A Yes, they would.

12 MR. LOWNEY: The Company moves to
13 admit Mr. Hemstreet's testimony into the record as
14 just described.

15 COMMISSIONER LEVAR: Thank you. If
16 anyone has any objection to that, please indicate to
17 me. I'm not seeing any objections, so the motion is
18 granted.

19 BY MR. LOWNEY:

20 Q Mr. Hemstreet, have you prepared a summary
21 of your testimony for the Commission today?

22 A Yes, I have.

23 Q Please proceed with that summary.

24 A Commissioners, thank you for the
25 opportunity to testify today on an amazing project

1 that's available to our customers.

2 I have worked as an engineer and project
3 manager for the Company since 2004. In 2016, I
4 assumed the role of Director of Renewable Energy
5 Development. In this role, I oversee the
6 development of the Company's renewable energy
7 resources. I feel very fortunate to have a role in
8 this project, which is going to deliver
9 extraordinary benefits to our customers. My job in
10 delivering this project is to help expand the
11 Company's supply of zero-fuel cost energy resources
12 and to achieve the lowest cost of energy for our
13 customers. I look forward to a couple of busy years
14 ahead as they have been in the past, as we work to
15 make this opportunity a reality.

16 Today's hearing is an important step in
17 this project and in this process. I appreciate the
18 opportunity to testify on the technical aspects of
19 the repowering project, our due diligence in the
20 development of the project, and the favorable
21 commercial arrangements the Company has negotiated
22 with it's suppliers.

23 At the outset, I want to be clear that the
24 repowering project is on schedule and on budget.
25 Assuming the Commission approves the project by

1 early June, we'll begin work this summer improving
2 foundations and engaging in other construction
3 activities necessary to bring most of the facilities
4 to commercial operation in 2019. This will ensure
5 qualification for PTCs with ample time for
6 unanticipated project issues.

7 First, I will provide some engineering
8 and commercial background on the repowering project.
9 Wind technology has advanced substantially since the
10 facilities were first constructed between 2006 and
11 2010. Improvements in materials and design have
12 allowed blades to become longer, and have allowed
13 new control and sensor technologies to mitigate the
14 loads on existing wind turbines. This now allows
15 for our existing towers and foundations to be fitted
16 with more efficient, larger, more reliable
17 equipment. The improved sensor and condition
18 monitoring systems in these new turbines will also
19 allow us to more accurately diagnose and predict
20 maintenance failures so that we can address those
21 before they become issues.

22 The turbines with which the Company
23 proposes to repower will also include enhanced
24 voltage power quality and inertial support to the
25 transmission system. This will make it easier to

1 integrate wind energy into our system while
2 enhancing grid reliability. The repowering project
3 will also allow the Company and its customers to
4 realize these technological advancements while
5 qualifying the repowered facilities for a hundred
6 percent of the value of production tax credits,
7 resulting in the lowest cost alternative through
8 the continued operation of these facilities.

9 In November 2016, the Company determined
10 that repowering can be implemented at a subset of
11 our facilities. Our group then moved quickly to
12 secure safe harbor equipment before the end of 2016.
13 This enabled subsequent repowering projects to
14 qualify for that 100 percent of the production tax
15 credit. We then negotiated commercial arrangements
16 with General Electric and Vestas to implement the
17 repowering project, bringing these turbines online
18 in 2019 and 2020. Subsequent refinement of the
19 equipment specifications has materially increased
20 the value of the repowering project and materially
21 decreased uncertainty and risk.

22 Our eight Wyoming facilities employ GE
23 turbines. For these facilities, the Company has
24 negotiated a turnkey master retrofit contract that
25 provides for repowering at a fixed price with

1 significant risk mitigation provisions that ensure
2 that the repowering can be delivered consistent with
3 the Company's economic analysis. Significantly, the
4 GE master retrofit contract mitigates risk related
5 to achieving commercial operation of the repowered
6 turbines by the end of 2020. This certainty on
7 operations costs provided by a service agreement
8 with the GE turbines also significantly reduces
9 customer risk related to the ongoing operations
10 costs of our wind fleet.

11 The Company's negotiated contract with
12 Vestas, for the facilities in Oregon and Washington
13 provides similar attractive pricing at fixed cost.
14 We are now finalizing negotiations with wind energy
15 construction companies for the installation of these
16 turbines, and we expect to conclude that process
17 shortly.

18 Over the last year, we have completed
19 significant due diligence on the repowering project.
20 This increases the certainty that we can deliver all
21 of the benefits described in the Company's
22 testimony.

23 First, the Company retained Ernst & Young
24 to conduct an independent evaluation analysis of the
25 retained components of the wind facilities to ensure

1 that the retained value of the components does not
2 exceed 20 percent of the final value of the
3 repowered turbines. This is necessary for these
4 turbines to be eligible for the PTCs.

5 Second, the Company's engineering
6 consultant, Black & Veatch, verified that all the
7 foundations of the facilities are suitable to accept
8 the new equipment with modifications to two of the
9 facilities. Additionally, Black & Veatch has
10 verified that the foundations can withstand
11 additional loading for the longer service lives
12 anticipated through 2050 for these repowered
13 facilities.

14 Third, we also worked with Black & Veatch
15 to develop estimates of the increase in generation
16 that will result from repowering. We developed the
17 production estimates using the extensive generation
18 data history available for these facilities,
19 incorporating millions upon millions of data points
20 reflecting actual operating conditions to assess the
21 expected generation increases. These estimates also
22 incorporated additional modeled wake losses that
23 will result from the installation of larger rotors
24 to more accurately reflect expected generation. The
25 energy production estimates we have developed are

1 conservative, because they do not take into account
2 additional generation that we expect as a result of
3 increased turbine availability that will be
4 delivered pursuant to the Company's negotiated
5 contracts for service and maintenance.

6 Fourth, we diligently pursued the
7 permitting necessary to implement the repowering
8 project and now have the major permit approvals
9 required for 11 of the 12 facilities.

10 What are the benefits of repowering from
11 an operations perspective? As mentioned before,
12 repowering is estimated to increase energy
13 production by approximately 26 percent, with
14 production increases ranging from 17 to 39 percent,
15 depending on the facility.

16 Repowering will also avoid capital
17 expenditures to address certain major components in
18 the wind fleet that are experiencing significantly
19 higher failure rates than similar equipment. Given
20 the two-year warranty periods for the Wyoming
21 facilities and for the Vestas facilities, repowering
22 also provides a greater certainty related to ongoing
23 operations cost.

24 Being designed to the same standards as
25 new wind projects, repowering will also extend the

1 asset lives of the repowered facilities by up to 13
2 years, creating significant additional energy and
3 capacity after the existing facilities would have
4 otherwise retired. The repowered turbines, being of
5 more modern design, will also provide enhanced
6 voltage, power quality, and inertial support, and
7 make it easier to integrate this energy into our
8 portfolio.

9 As Mr. Link has explained, our economic
10 analysis demonstrates that repowering is the least
11 cost alternative available for the continued
12 operation of these 12 wind facilities. There has
13 been much testimony regarding which projects provide
14 the greatest benefits to customers on an absolute
15 basis, relative to their costs, or relative to other
16 projects. But it is important to remember that the
17 Company's analysis, as well as that performed by
18 others, demonstrates that repowering all these
19 facilities is the least-cost alternative.

20 Our goal is to operate the Company's wind
21 generation assets in an efficient, cost-effective
22 manner that reduces risk for the long-term benefit
23 of our customers. Repowering offers us the
24 opportunity to do just that and provides us that
25 least-cost, least-risk alternative for the

1 continued operation of these facilities.

2 Repowering makes sense for customers, and
3 everyone in my group is fully committed to bring
4 this project to reality. I respectfully request
5 that the Commission approve the Company's resource
6 decision and allow the repowering project to proceed
7 so that these substantial benefits can be delivered
8 to our customers.

9 This concludes my summary. Thank you.

10 MR. LOWNEY: Mr. Hemstreet is
11 available for cross-examination.

12 COMMISSIONER LEVAR: Thank you.
13 Ms. Tormoen Hickey, do you have any questions for
14 Mr. Hemstreet?

15 MS. HICKEY: No, thank you.

16 COMMISSIONER LEVAR: Ms. Schmid or
17 Mr. Jetter?

18 MS. SCHMID: My turn.

19 CROSS-EXAMINATION

20 BY MS. SCHMID:

21 Q Good morning.

22 A Good morning.

23 Q At lines 396 through 434 of your
24 supplemental rebuttal testimony, you address
25 concerns --

1 A I'm sorry. Can I catch up with you? This
2 is my February testimony?

3 Q No. Your supplemental rebuttal. That
4 would be April.

5 A And line 396?

6 Q 396 to 434. Here you respond to concerns
7 that Dr. Zenger and Mr. Peaco raised on the
8 estimates of the wind resources, and I have some
9 questions pertaining to your responses.

10 A Okay.

11 Q Is it true that you consider the long-term
12 average value to be the appropriate estimate of the
13 energy value to use in the Company's economic
14 analysis?

15 A Yes. We have used the full output history
16 of these facilities as our baseline assumption for
17 generation.

18 Q Have you done other estimates regarding
19 uncertainty? So apparently, a P-10 value means that
20 the value will be met or exceeded 10 percent of the
21 time. Have you done any analysis of the range of
22 uncertainty on the annual production, such as
23 estimating the P10, the P50, and the P90 values?

24 A No, we have not. That's an analysis you
25 do for wind modeling for resources that you're

1 planning to construct, not resources that you have
2 actually operational data from.

3 Q But despite the fact you have some
4 operational data, you're putting new equipment in;
5 is that right?

6 A Correct.

7 Q If we turn now to your chart, your
8 Table 2, which is at line 421 at the bottom of that
9 page.

10 A Okay.

11 Q Do you agree that the chart shows an
12 asymmetry of outcomes, some are higher, some are
13 lower?

14 A I agree that it shows variability in wind
15 production and estimates.

16 Q Given that for 2015, the value is
17 12.6 percent lower, do you have an estimate of what
18 the lower bound value might be?

19 A No, I do not. I believe that was provided
20 in discovery for each year of that four-year period,
21 but I don't have it in front of me.

22 Q Do you agree that the economics of the
23 project are particularly sensitive to production
24 levels in the first ten years, which is the PTC
25 period?

1 A I actually don't, because the PTC is
2 earned on the entire output of the facility, you
3 know, the actual energy production increase. You're
4 earning the full PTC on the entire output, and so
5 the production increase is actually a relatively
6 small increment of the economic return of the entire
7 project.

8 Q What happens, however, if the PTC output
9 for the whole project is lower than -- or the
10 production of the project is lower than anticipated?
11 Won't the PTC values be less?

12 A Yes. The benefits from the PTC will be
13 less.

14 Q For my hypothetical, do you know how much
15 less the PTC benefits would be reduced if there were
16 a 10 percent drop?

17 A I do not.

18 Q And I don't know if this number is
19 confidential or not. Can you give me just one
20 second?

21 COMMISSIONER LEVAR: Yes.

22 BY MS. SCHMID:

23 Q Since the number I want to use is
24 confidential, can I just say that would you accept,
25 subject to check, it could be a significant drop?

1 A No.

2 Q Okay. We'll leave that. You offer
3 reasons why the Company didn't offer an analysis,
4 prepare an analysis, of a plan to do repowering only
5 on -- I'm going to call them the problematic
6 turbines -- the turbines that are likely to have
7 failed components. And I'm referring to your
8 testimony at lines 435 through 467, and this is also
9 your supplemental rebuttal testimony. I'll give you
10 a chance to get there.

11 A Okay.

12 Q Some of this is confidential, so I will
13 steer away from that. For example, one of the
14 issues is confidential. And so it's number three,
15 which is not a confidential thing, so I'm going to
16 refer to it as the third issue. So is it true
17 that -- are the Glenrock I and III and the Rolling
18 Hills facilities each going to be completely
19 repowered?

20 A No. There are 32 turbines that will not
21 be repowered at those facilities.

22 Q In your testimony at lines -- around 435
23 to 467, you say that -- and if I read this
24 correctly, it's on line 439 -- "The analysis that
25 Mr. Peaco suggests presents many challenges as it

1 would be inconsistent with negotiated contracts with
2 turbine suppliers to repower all turbines at its
3 facilities that can be repowered and qualify for
4 PTCs."

5 A Yes, I see that.

6 Q Then you say that repowering certain
7 turbines but not others would implicate the service
8 and maintenance agreements. Is that a fair
9 representation of your testimony on 442 to 444?

10 A Yes.

11 Q So how -- with regard to the Glenrock I
12 and III and Rolling Hills facilities, how did you
13 address the issues that you state here? And in your
14 testimony, you list five, the third of which is
15 confidential.

16 A So you want me to go through each of those
17 five?

18 Q If you could.

19 A Sure. So the first issue relates to
20 pricing, essentially, for the amount of turbines
21 that we have proposed to repower and so that -- from
22 the get-go, once we had identified through our
23 evaluation analysis that we wouldn't be repowering
24 those 32 turbines, that's a negotiated element of
25 part of our GE master retrofit contract, so they're

1 aware of that. That's also included into our
2 service and maintenance agreement with them, that
3 they will maintain as well, the existing turbines
4 that won't be repowered, and they will provide the
5 same exact availability guarantees for those
6 turbines as the remainder of the new turbines. So
7 that's the first two.

8 The third, I'll just say that that issue
9 can be resolved -- given that General Electric would
10 be working on all those turbines -- that that's not
11 an issue for them since it's a GE turbine facility
12 that we repower with GE turbines.

13 Fourth, regarding the land rights issue,
14 the Company owns the Glenrock/Rolling Hills project
15 sites, so land rights are not an issue for that
16 facility.

17 And then, fifth, that's not really an
18 issue that's resolved in terms of -- that would
19 still be an issue in this case because if we were
20 to -- our economic analysis just assumes that those
21 32 turbines that won't be repowered falls away and
22 so we don't have any -- because we own the land
23 there, we don't have any land lease issues and we
24 also don't really have any issues in terms of
25 needing to use that site later on and finding a new

1 way to repower those 32 turbines in the year 2038.

2 Q Since you were able to resolve these
3 issues for this subset of projects, why couldn't you
4 have resolved these issues with regard to the other
5 projects? Why did you have to do -- let me
6 rephrase. Why couldn't you have resolved these
7 issues the same in the other contracts?

8 A Well, I guess I would explain it that my
9 testimony doesn't say that they are unresolved. I'm
10 simply saying that they have been resolved, where
11 this is an issue at the one project site where we
12 are not repowering all turbines. For others project
13 sites, we are not repowering turbines with the same
14 manufacturer, and so that creates an issue in terms
15 of control of that project. And we also have not
16 entered into discussions with landowners about
17 potentially retiring turbines. We're not impacting
18 the land leases in a way that would substantially
19 drop off production from their land as we retire
20 turbines earlier than others.

21 MS. SCHMID: Thank you. Those are
22 all my questions.

23 COMMISSIONER LEVAR: Thank you.
24 Mr. Snarr or Mr. Moore?

25 MR. SNARR: Yes. We have just a few

1 questions.

2 CROSS-EXAMINATION

3 BY MR. SNARR:

4 Q Mr. Hemstreet, in your April 2018
5 testimony, back to line 14, you indicate the
6 Company's cost and performance estimates have become
7 more certain, resulting in decreasing risk; is that
8 correct?

9 A Correct.

10 Q And in the following line, you also state
11 that the cost estimates are largely fixed. What do
12 you mean by largely fixed?

13 A I mean that for the GE -- for the turbines
14 that will be repowered by GE, we have a turnkey
15 contract that essentially sets the price, and we
16 don't have any uncertainty about construction delays
17 or other -- I guess to say, if they're doing the
18 whole project at a fixed price, and so we have very
19 known costs, and because these projects -- as well
20 as the Vestas projects because, say, 80,
21 86 percent -- some range of 80 percent or higher --
22 of these project costs really relate to the turbine
23 supply, bringing the turbines to the site, and
24 that's the bulk of the cost. The installation cost
25 is much less in the project than just the actual

1 equipment. Those equipment prices are now fixed,
2 and so we have great certainty about the majority of
3 the costs of these projects.

4 **Q** You talked about the mitigation of risks
5 related to construction delays and any concerns
6 that might compromise the production tax credits
7 eligibility. I believe that's referenced in lines
8 15 and 16. Do you have any provisions in your
9 contract that provide some recompense for the
10 failure to get the project completed timely, and the
11 failure being, the inability of the Company to take
12 any of the production tax credits?

13 **A** In our GE contract, we have -- we have a
14 guarantee that these projects will be brought online
15 by the end of December 2020, or any turbine not
16 brought online by that deadline will essentially be
17 repowered for free.

18 **Q** Do you view that as an appropriate
19 offset -- or is it a comparable offset to what the
20 costs would be and the production tax credits might
21 be if it were brought online timely?

22 **A** I think that's -- it may even be -- well,
23 I don't want to overstate. I don't want to -- this
24 is not a confidential discussion, so I would just
25 say, I think that very fairly reflects the loss of

1 production tax credits because in that instance, the
2 Company, its customers, would have received a
3 repowered turbine that will last ten years longer
4 and produce, say, 22 percent more energy, and all
5 that will be offered, essentially, for free. From
6 General Electric, there would still be costs on the
7 Company's side of implementing the cost of that
8 turbine retrofit.

9 **Q Do you have similar -- and are there**
10 **similar guarantees or protections with the Vestas**
11 **contracts?**

12 A No, there are not.

13 **Q And isn't it true that both for the GE**
14 **activities that are required, as well as the Vestas**
15 **activities that are required to accomplish the**
16 **repowering, that there may be a whole host of other**
17 **contracts dealing with other contractors to**
18 **accomplish the task?**

19 A Well, there's really just for each project
20 one other -- for the Vestas projects, there will be
21 Vestas and then there will be for turbine supply,
22 and then there will be, essentially, one major
23 contractor for installation. There will be other
24 project management personnel that the Company will
25 hire, engineering oversight, but the major -- for

1 GE, really, one contractor, GE for Vestas as well as
2 an installation contractor.

3 Q So with respect to the GE contract, if the
4 repowering wasn't accomplished timely, basically it
5 would be zero cost to you and then that would be
6 zero cost flowing through to the customers; is that
7 right?

8 A I believe so. Still, I would say we will
9 have management costs, project management costs,
10 related to oversight of getting a turbine repowered.
11 So that would -- those costs, I'm sure we would seek
12 to bring into rates, but also remember in addition
13 to that contractual provision from GE, the Company
14 has also guaranteed PTC qualification for all of
15 these turbines. And so whether it be contractual
16 mitigation through the GE contract or just the
17 Company's assumption of that risk, the customers
18 would be held harmless for that failure to qualify
19 for PTCs.

20 Q But the way in which that would be
21 implemented would be to -- basically, you're selling
22 this project based upon the idea that we have
23 certain costs and we have a certain number of PTCs
24 to offset that cost. So if there's a failure of
25 meeting a deadline to acquire the PTCs, then are you

1 **suggesting, basically, the guarantee that the**
2 **Company is providing that no cost associated with**
3 **any of those repowered facilities might come on too**
4 **late to acquire PTCs, that basically there will be**
5 **no cost flow through to the customers with respect**
6 **to those specific facilities; is that right?**

7 A I don't think that's the nature of the
8 guarantee. I think the guarantee of the Company is
9 guaranteed PTC qualification so you know, there
10 would be project management costs of bringing that
11 turbine online. So let's say, as a hypothetical, a
12 turbine was brought online on January 2nd and didn't
13 qualify for PTCs. I think we would treat that
14 turbine -- there would be costs of that
15 installation. The Company would assign its normal
16 project management cost allocation to bringing that
17 turbine online, but you know, presumably, the PTC
18 value would be imputed in our rates because the
19 Company would have assumed that risk and of course,
20 the GE contract provides for that to be reimbursed
21 to the Company, or the value of that to be -- that
22 turbine would be repowered for free. So exactly how
23 that would show up in rates, I would refer to
24 Ms. Steward. But essentially, it would be -- it's a
25 zero-risk proposition for the Company and the

1 customers.

2 Q And because you said zero risk, I'm going
3 to pursue this a little bit further. You could
4 accomplish that zero risk for the ratepayers by not
5 charging anything for the repowered facility that
6 might not acquire the PTCs. Or alternatively,
7 couldn't you accomplish that by charging for the
8 costs that you've incurred, but then imputing the
9 full value of PTCs, which basically the Company
10 would eat if they weren't actually being able to
11 take that under the IRS code?

12 MR. LOWNEY: Objection. I believe
13 Mr. Hemstreet indicated that the ratemaking
14 consequence of the Company's guarantee is better
15 addressed by Ms. Steward, who is our witness on
16 regulatory policy issues and ratemaking issues. So
17 I believe these question would be better directed to
18 Ms. Steward who is available and will testify
19 shortly.

20 COMMISSIONER LEVAR: Mr. Snarr, do
21 you want to respond to the objection?

22 MR. SNARR: I'll wait and we'll
23 consider pursuing the issue with Ms. Steward.

24 BY MR. SNARR:

25 Q You do talk about risks associated with

1 the repowering projects, do you not?

2 A I do.

3 Q I want to focus just a minute about the
4 risks of cost overruns. Do such risks exist?

5 A I think such risks always exist in any
6 type of project. I think we've really mitigated the
7 risks of that with our fixed price contracts that
8 we've negotiated.

9 Q Now, you've mitigated them, but to the
10 extent that construction costs still could rise,
11 that risk is an element in connection with pursuing
12 this project; is that right?

13 A Yes, it is.

14 Q And aren't there also risks associated
15 with this project, associated to the ultimate
16 performance, even if that's dependent somewhat on
17 wind on a given day?

18 A I'm sorry. I want to correct my last
19 response. I would say the construction costs
20 related to the Vestas turbines, those are still
21 subject to change as we complete the negotiations
22 for the GE projects, which are two thirds of these
23 projects. Those costs are fixed.

24 Q I appreciate that clarification. With
25 respect to the risk of whether these completed

1 projects will actually perform to bring on the
2 energy that has been projected, how have you
3 addressed that in any of the contracts?

4 A The contracts have standard performance
5 guarantees in terms of the power curve that's
6 represented, so the manufacturers essentially
7 guarantee that -- have a warranty provided for the
8 power curve, meaning that the amount of energy that
9 you expect to get -- you know, that they're not
10 misrepresenting the amount of energy that you would
11 anticipate getting from the installation of these
12 turbines. So a standard provision of every turbine
13 supply contract I've ever seen is a power curve
14 guarantee. So that's -- we have the ability to hold
15 them to that guarantee contractually. And so if we
16 see production being less than we think it ought to
17 be, or if we have a suspicion that they've
18 overrepresented what these turbines can do, we can
19 initiate a test that would allow us to verify that
20 the production from a nominated turbine is --
21 matches their power curve.

22 Q Hypothetically, if you did one of those
23 tests and you were able to verify that the energy
24 being produced from a particular turbine after
25 repowering is coming in at, let's say, 93 percent of

1 **what the guarantee was or the production curve was,**
2 **what would the remedy be and how will that be**
3 **provided to the Company?**

4 A There are liquidated damage provisions in
5 the turbine supply contract that say, you know, for
6 each incremental percent off that they are, they
7 will pay liquidated damages for that amount and
8 that's supposed to represent, essentially, the lost
9 energy that you're not achieving by having a
10 deviation from that power curve.

11 Q And I'm curious, then, as to how those
12 liquidated damages -- in the event that something
13 happened that would require the payment of
14 liquidated damages -- how that would provide any
15 kind of compensation or benefit to the ratepayers
16 who would be otherwise sitting there without the
17 promise to energy that has been projected in this
18 docket.

19 A Well, again, those liquidated damages are
20 intended to reflect, you know, the economic harm
21 that that would cause and so again, how that would
22 be passed to customers, I would refer to Ms. Steward
23 about that.

24 Q With respect to the possibility of cost
25 overruns, or even the possibility of lack of full

1 production of the energy that is projected -- two
 2 risks that we've just talked about -- isn't it true
 3 that this Commission could require the Company to
 4 meet certain conditions or provide certain
 5 recompense in order to ensure that the customer
 6 might be protected, based upon the suggested
 7 guarantees the Company is making?

8 A I would really have to defer that also to
 9 Ms. Steward in terms of the regulatory authority of
 10 the Commission to impose certain conditions on the
 11 performance of a project.

12 MR. SNARR: I have no further
 13 questions.

14 COMMISSIONER LEVAR: Why don't we go
 15 ahead and take a break, and we'll continue at
 16 1:00 with Mr. Russell's examination of
 17 Mr. Hemstreet. Thank you. We're in recess.

18 (A recess was taken.)

19 COMMISSIONER LEVAR: We will continue
 20 with Mr. Hemstreet's testimony. You're still under
 21 oath from this morning, and we'll go next to
 22 Mr. Russell, if you have any cross-examination.

23 MR. RUSSELL: Thank you,
 24 Mr. Chairman.

25 CROSS-EXAMINATION

1 BY MR. RUSSELL:

2 Q Mr. Hemstreet, I wanted to follow up on
3 some questions that you had discussed with Mr. Snarr
4 related to the fixed price contracts, the GE
5 contracts. You indicated that they are fixed price
6 contracts, and I'm curious whether there is any
7 opportunity for that fixed price to change as a
8 result of a work order, or a change order, or some
9 other similar mechanism?

10 A I think the opportunity for change orders
11 is very limited. I'd have to go back and review all
12 the contract provisions about change orders, but
13 they have assessed the sites, they've visited these
14 sites, and they've maintained these sites, and so
15 they really know what they're getting into. So we
16 really did our best to eliminate any opportunity for
17 changes. There are, of course, force majeure
18 provisions and standard contractual provisions
19 around changing law and other things like that that
20 could impact the overall price of the contract, but
21 it's really pretty locked down in terms of its
22 price.

23 Q In your summary, you indicated that -- and
24 if I'm wrong about this, please correct me -- I
25 believe you indicated that 11 of the 12 facilities,

1 you've received full permitting for. Is that
2 consistent with what you said this morning?

3 A Yes.

4 Q Tell me about the 12th one. Which
5 facility do you not have full permits for?

6 A That's the Leaning Juniper facility, and I
7 think we'll receive that approval in the next week
8 or so.

9 Q What permits are you waiting on?

10 A That is a conditional use permit from the
11 county, and in the state of the Oregon, that's what
12 governs our facilities.

13 Q Thank you. When the Company filed its
14 direct testimony, it provided its economic case for
15 this project based on certain rotors or blades. And
16 I gather that over the course of this case, the
17 rotors or blades that you intend to use has changed;
18 is that right?

19 A That's consistent with my testimony.

20 Q Can you explain what that change has been
21 and what the intention is now with respect to which
22 rotors and blades you intend to use?

23 A Over the course of the case, we did make a
24 change in October in rebuttal testimony. GE was
25 able to prove out a new rotor diameter, a 91-meter

1 rotor instead of an 87-meter rotor, that that would
2 technically work for our facilities. And so that
3 was the change that was reflected in our cost and
4 performance update back in October.

5 Q And will all of the repowered wind
6 facilities receive that new -- I think you said
7 91-meter blade?

8 A In Wyoming, yes.

9 Q But not in Washington and Oregon?

10 A No. Those are Vestas projects with
11 different equipment supply.

12 Q Okay. Thanks for that clarification. You
13 also indicated, I think, in your testimony and in
14 your summary, that certain of the facilities
15 required some work to be done, I think, on the
16 foundations, but it may have been something else.
17 Can you expound on that a little bit?

18 A Yes. So the foundations for the Leaning
19 Juniper and the Goodnoe Hills facility, those needed
20 standard retrofits, essentially, to strengthen the
21 foundations so that they will meet current code
22 related to the loads that they're subjected to.

23 Q And with those changes in foundation, will
24 the Leaning Juniper and Goodnoe Hills be able to
25 utilize the new blade technology? I understand that

1 those are in Oregon, I think, and so they're not the
2 GE blades, but will they be able to utilize new or
3 more economical blades?

4 A Those foundation retrofits are consistent
5 with the blade specification that we have for those
6 projects as reflected in the Company's economic
7 analysis.

8 Q There was also some discussion in your
9 testimony about new interconnection agreements for
10 the Marengo I and II facilities. Do you recall
11 that?

12 A I do.

13 Q Okay. And can you tell me what the status
14 of that is?

15 A We have been issued a new, large
16 generation interconnection agreement for the
17 Marengo I and II facility that allows us to add that
18 additional capacity to the transmission system.

19 MR. RUSSELL: Okay. That was all I
20 had.

21 COMMISSIONER LEVAR: Mr. Lowney, do
22 you have any redirect?

23 MR. LOWNEY: Yes, I do. Just a few
24 questions.

25 REDIRECT EXAMINATION

1 BY MR. LOWNEY:

2 Q Mr. Hemstreet, do you recall when you were
3 being asked by Ms. Schmid some questions about how
4 the Company has used its historical data to forecast
5 the energy production you expect to experience once
6 these projects are repowered? Do you recall those
7 questions?

8 A I recall general questions, but not
9 specific ones.

10 Q I'll ask you a more specific one.
11 Ms. Schmid asked you a question about whether or not
12 the historical data that was used can be applied to
13 the new technology and the new turbines that are
14 being applied. And I'd like to clarify for the
15 record, is it your testimony that that historical
16 data is valid on a reasonable basis to forecast --

17 A I do recall. I think the question was
18 about whether or not -- because the new turbines are
19 a different equipment type, whether using historical
20 generation data from our old equipment was relevant
21 to assessing the generation from the new equipment.
22 And so to clarify what was done, essentially, that
23 generation history tells us that, given the turbine
24 specifications and the power curve for the old
25 equipment and knowing that, at a moment in time,

1 that equipment was able to generate this amount of
2 energy, that equates, essentially, to a wind speed.
3 And so we can use that wind speed that we infer from
4 the generation output to use to apply to the new
5 power curve. And so it's really just a change in
6 the equipment specifications that allows us to use
7 that history to tell us what the winds were, and
8 then apply the new power curve to those winds to
9 generate our generation estimates.

10 Q Mr. Hemstreet, you were also asked a
11 question about, sort of, the consequence of a
12 10 percent decrease in the forecasted energy
13 production that's assumed as a result of repowering.
14 Do you recall that question?

15 A I do.

16 Q And in your professional judgment, do you
17 believe there's a material risk in this case that
18 your energy productions are going to be off by
19 10 percent?

20 A No, I don't. For our energy production to
21 be that low, that would essentially assume that our
22 energy production increases are overstated by about
23 125 percent. And so nobody, I think, has alleged
24 that there's any errors in what we've done in terms
25 of assessing the energy production. So for us to be

1 that far off of our estimates, we'd really have to
2 be -- I can't possibly imagine how that would come
3 into place.

4 Q Mr. Hemstreet, you were also asked some
5 questions about the feasibility of doing a more
6 detailed turbine-by-turbine economic analysis, as
7 was discussed in Mr. Peaco's testimony. Do you
8 recall some of those questions?

9 A I do.

10 Q Now, when you responded to Mr. Peaco's
11 analysis on these issues, did he demonstrate that
12 even the lower economic -- even the turbines that
13 have a lower economic value would be uneconomic to
14 repower?

15 A No. His analysis simply showed that it
16 would be more economic to repower turbines that you
17 knew you already had to spend capital to address
18 impacted equipment. And so his analysis didn't show
19 that it was not economic to repower all of the
20 turbines, just that it's relatively more economic to
21 repower those that you know you're going to have to
22 spend additional money on to keep running.

23 Q I think I have one more question. You
24 were asked, I believe by Counsel for the Office,
25 about the differences between the Vestas and GE

1 contracts in terms of the schedule guarantee
2 provision. Do you recall those questions?

3 A I do.

4 Q And I believe you testified that the
5 Vestas contracts do not have the same schedule
6 guarantees that exist in the GE contracts; is that
7 correct?

8 A Correct.

9 Q And despite the fact that they don't have
10 the same guarantees, has the Company taken other
11 steps to ensure, to the best of its ability, that
12 those projects will be online by the end of 2020?

13 A Yes. Although our installation contracts
14 will have liquidated damages for scheduled delays,
15 but also all of the Vestas turbines are planned to
16 be installed in 2019, so a full year ahead of the
17 deadline for achieving PTC qualification.

18 MR. LOWNEY: Thank you. I have no
19 further questions.

20 COMMISSIONER LEVAR: Thank you.
21 Ms. Schmid, do you have any recross?

22 MS. SCHMID: Can I have just one
23 moment?

24 COMMISSIONER LEVAR: Certainly. If
25 you'd like, I can go to Mr. Snarr first and see if

1 he has any recross.

2 MS. SCHMID: That would be
3 delightful. Thank you.

4 COMMISSIONER LEVAR: Okay.
5 Mr. Snarr?

6 MR. SNARR: We have nothing further.

7 COMMISSIONER LEVAR: Okay. Then you
8 can have a moment.

9 MS. SCHMID: I do have just a bit of
10 recross if now is appropriate.

11 COMMISSIONER LEVAR: Yes.

12 RECROSS EXAMINATION

13 BY MS. SCHMID:

14 Q In your redirect, you talked about using
15 performance of -- I'm going to call it the initial
16 equipment -- and taking that sort of data and using
17 it to help project output and other things
18 associated with the replaced equipment; is that
19 correct?

20 A Correct.

21 Q When you did that, did you also take into
22 effect the rate of outages and other things that
23 caused the old equipment to produce less than
24 anticipated and apply that sort of analogy or data
25 to the new turbines?

1 A We did. So essentially, we took our
2 entire data history that had outages for
3 curtailments, any offline turbines for maintenance,
4 and just essentially ran that new power curve
5 through all of that data, you know, at the wind
6 speed. So if the turbine wasn't operating because
7 it was down, then we did not assess a performance
8 increase at that moment in time. So essentially,
9 all of that downtime was baked into that four years
10 of data, so the estimates really reflect the
11 existing outage history that happened in those
12 years. Those performance estimate increases were
13 then applied to our entire generation baseline
14 history from these projects, which includes all of
15 that outage time, all of those curtailments or
16 transmission outages as well. So does that answer
17 your question?

18 Q That does. And I have just one, perhaps
19 two more.

20 A I guess I would clarify also, we did
21 not -- our performance -- our service and
22 maintenance agreements have higher availability
23 guarantees than that historic generation baseline,
24 and so because of that, the estimate is essentially
25 conservative because we anticipate that we will get

1 more generation than our historic baseline under
2 which we operated in our service agreements that had
3 lower availability guarantees, but we did not take
4 that into account.

5 MS. SCHMID: And I don't have
6 anything else. Thank you.

7 COMMISSIONER LEVAR: Thank you,
8 Ms. Schmid. Mr. Russell, do you have any recross
9 for Mr. Hemstreet?

10 MR. RUSSELL: I do not.

11 COMMISSIONER LEVAR: Thank you.
12 Commissioner Clark, do you have any questions?

13 COMMISSIONER CLARK: Thank you, yes.

14 BY COMMISSIONER CLARK:

15 Q Good afternoon, Mr. Hemstreet. Regarding
16 recent FERC orders on -- or requiring certain
17 inertial capabilities, or that new wind turbines
18 have certain inertial-providing capabilities, you're
19 aware of those? I think it's FERC order 842.

20 A Generally, I'm aware of them, yes.

21 Q And the equipment that we're addressing,
22 would it meet those capabilities or any issue about
23 additional costs that would be necessary to meet
24 those new requirements?

25 A My understanding is that those

1 requirements apply to new installations and
2 essentially, old projects are grandfathered so those
3 inertial requirements aren't applicable to existing
4 facilities. But the turbines we're installing will
5 meet those new standards and provide that additional
6 support. And I should clarify, I'm certain of that
7 in Wyoming; I'm less certain about the turbines that
8 we'll install in Washington because I haven't looked
9 at that issue specifically. But I would imagine
10 that because this is a new FERC requirement, that
11 all turbines manufactured and installed by the
12 manufacturers will be meeting these new
13 requirements.

14 Q Your direct testimony addressed wind
15 inertia control, I think was one of the -- and wind
16 free reactive power control features. Those are the
17 kinds of things that -- at least relative to the GE
18 turbines -- would satisfy these new requirements.
19 Am I right about that?

20 A Correct.

21 Q Okay. As you I'm sure are aware, if we
22 approve some or all of the application, we have to
23 make findings as to approve project costs. And I'm
24 interested in your view as to whether or not we have
25 in the record, the cost information that we would

1 need if we were going to choose among the projects
2 that have been proposed and not select all of them,
3 or not approve all of them. And I have particularly
4 in mind, the master agreement that -- there are
5 umbrella agreements that address the turbines in
6 question. So do we have those numbers? Do they
7 change if some are -- if some projects are selected
8 and not others?

9 A I think we would have to pursue into the
10 GE master retrofit contract, which kind of
11 anticipates repowering all of those projects. I
12 would want to go back and confirm with GE that that
13 price was still valid. So I guess there would be an
14 opportunity there to see if that changed their
15 efficiencies. It's a large contract, obviously, in
16 terms of the number of turbines that are being
17 repowered, so if there were fewer, then I'd have to
18 go back and check to see whether that would allow
19 them to reopen that.

20 Q But as you understand the contract terms
21 as they currently exist, at least, don't accommodate
22 that kind of adjustment?

23 A No, they don't. I think the contract was
24 essentially also built to allow -- essentially, if
25 regulatory approval didn't happen for a certain

1 project, then there's no automatic adjustment to the
2 contract price.

3 Q And what would be the best information in
4 the Company's presentation that we would look to to
5 identify the unit-by-unit cost?

6 A I think in our February 1st filing that
7 had a unit-by-unit project cost estimate, that all
8 added up to our 1.1 billion estimate.

9 Q Now is your chance to point to any
10 specific exhibits so we don't get confused. And
11 maybe you should do that.

12 A Yes. So in the supplemental filing, this
13 is my Exhibit TJH-1SD, page 1 of 3. And it's the
14 end of the base case repowering scenario. There's a
15 capital cost column --

16 Q Right.

17 A -- that adds up to our \$1.1 billion
18 estimate.

19 COMMISSIONER CLARK: Thanks very
20 much. That concludes my questions.

21 COMMISSIONER LEVAR: Thank you.
22 Commissioner White?

23 BY COMMISSIONER WHITE:

24 Q I'd like to follow up on that question of
25 the wind inertia. In your direct testimony, you

1 **mention that the benefits of having not been**
2 **quantified in terms of the current economics of the**
3 **project, but they are an ongoing study; is that**
4 **correct?**

5 A We had hoped that during the pendency of
6 this case, that we could get an analysis from our
7 transmission provider, PacifiCorp Transmission,
8 about the benefits and how those features offset
9 other reliability needs that would happen in
10 Wyoming. Unfortunately, we were unable to get that
11 study completed. I understand that study may be
12 part of a larger study that's kind of outside of
13 the -- essentially not a request a transmission
14 customer can simply make. So we took that,
15 essentially, out of the case, and the benefits
16 aren't reflected for that equipment, but the -- it
17 will be provided as far as this project, but we
18 haven't been able to assess what those benefits are.

19 Q **But at some point, we may be able to see**
20 **the potential --**

21 A I would hope that at some point, we can
22 get a transmission study that would reflect, you
23 know, here's what the cost would be if we didn't
24 have these features, and here's what the cost would
25 be if we can't. But I'm not a transmission planner,

1 I don't run that part of our business, so I don't
2 know if that will be able to be provided.

3 Q And then, just -- I was a bit intrigued by
4 that contract provision that essentially, you
5 know -- if construction schedules are not met by the
6 GE contract, that they will essentially do the
7 repower for free. Without disclosing any
8 confidential provisions in the contract, what is
9 that -- can you give me a ballpark number of what
10 that amount per turbine is, or is that confidential?
11 I'm trying to understand what the magnitude of what
12 the potential hit would be if that date was not met.

13 A I'm afraid that's confidential, the
14 turbine price.

15 COMMISSIONER WHITE: Okay. That's
16 all the questions I have.

17 BY COMMISSIONER LEVAR:

18 Q Thank you. I just have one question. In
19 your supplemental direct, you make a reference to
20 the current timeline for completing everything
21 except Dunlap in 2019, you make a reference to,
22 "based on the anticipated timing of the Commission's
23 order in this docket." What anticipated timing were
24 you using? Is there some point at which -- if we
25 haven't issued an order by some point -- that starts

1 **to affect the completion dates?**

2 A We really are planning on a June 1st
3 decision, and we're lining up all of our contracts
4 to be able to be executed immediately upon the
5 Commission's order in this case so that we can get
6 those contracts going and get the work done this
7 year that we need to do, and get turbine suppliers,
8 manufacturing equipment, for these projects.

9 COMMISSIONER LEVAR: Thank you. I
10 appreciate that. Thank you for your testimony
11 today. And I'll go to Ms. Schmid. I don't think
12 we're at the point where we need to change the order
13 of the witnesses to accommodate Mr. Thompson. If we
14 get into another hour or two and it looks like we
15 might need to, we'll reassess, but I think at this
16 point we should continue with the Utility's
17 witnesses. So either Ms. McDowell or Mr. Lowney?

18 MR. LOWNEY: Thank you. Rocky
19 Mountain Power's next witness is Ms. Joelle Steward.
20 I'm sorry, Nikki Kobliha.

21 NIKKI L. KOBLIHA,
22 having been first duly sworn to tell the truth, was
23 examined and testified as follows:

24 DIRECT EXAMINATION

25 BY MR. LOWNEY:

1 Q Good afternoon, Ms. Kobliha. Could you
2 please state and spell your name for the record?

3 A Nikki, N-i-k-k-i, K-o-b-l-i-h-a.

4 Q And how are you employed?

5 A I am the vice president, chief financial
6 officer and treasurer of PacifiCorp.

7 Q In that capacity, did you file testimony
8 in this case, and that testimony would be your
9 rebuttal testimony, surrebuttal testimony, and
10 supplemental direct testimony?

11 A Yes, I did.

12 Q And do you have any corrections to that
13 testimony today?

14 A No, I do not.

15 Q So if I asked you the same questions, your
16 answers would be the same?

17 A Yes, they would.

18 MR. LOWNEY: I'd like to move for the
19 admission of Ms. Kobliha's rebuttal, surrebuttal,
20 and direct testimony into the record.

21 COMMISSIONER LEVAR: If any party
22 objects to that, please indicate to me. I'm not
23 seeing any objections, so the motion is granted.

24 BY MR. LOWNEY:

25 Q Ms. Kobliha, did you prepare a summary of

1 **your testimony for the Commission today?**

2 A Yes, I did.

3 **Q Please go ahead and provide that**
4 **testimony.**

5 A Good afternoon, Commissioners. I
6 appreciate the opportunity to be here today to
7 discuss my testimony with you.

8 In my testimony, I discuss the relevant
9 provisions of the federal tax code that Company
10 relies on to obtain benefits of the federal wind
11 production credits, or PTCs, which provide
12 significant value to the repowering project. I also
13 outline relevant provisions of the federal income
14 tax reform enacted in December of 2017, and confirm
15 that there are no changes to federal income tax law
16 on PTCs.

17 The Internal Revenue Code provides that a
18 wind facility can generate a PTC equal to an
19 inflation adjusted 1.5 cents per kilowatt hour of
20 electricity that is produced and sold to a
21 third-party for a period of ten years, beginning on
22 the date the facility is placed in service. PTCs,
23 however, are being phased out. A wind facility is
24 eligible for 100 percent of the PTC only if it began
25 construction before January 1, 2017. A taxpayer can

1 demonstrate that construction began by incurring
2 five percent or more of the eventual total cost of
3 the wind facility. The Company relies on this
4 5 percent safe harbor method to demonstrate that
5 construction of the repowering project began before
6 January 1st, 2017, and are therefore eligible for
7 100 percent of the PTC.

8 In addition to the 5 percent safe harbor
9 requirement, the wind facility must satisfy the
10 continuity of construction requirements. The
11 Company intends to meet this requirement through the
12 four-year calendar safe harbor, which in our case
13 means that all facilities must be placed in service
14 no later than December 31st, 2020, in order to
15 qualify for 100 percent of the PTCs.

16 Repowered wind facilities also must meet
17 the IRS 80/20 test to qualify for the PTCs. The IRS
18 80/20 test says a repowered facility may qualify as
19 a new asset and originally placed in service for
20 purposes of starting a new 10-year PTC production
21 period, even if it contains some used property,
22 provided that the fair market value of the used
23 property is no more than 20 percent of the
24 facility's total value, which is defined as the cost
25 of the new property plus the value of the used

1 property.

2 To minimize the risks associated with the
3 80/20 test, the Company engaged a third-party expert
4 firm to value the retained equipment. In December
5 of 2017, Congress passed and the president signed
6 H.R.1, more commonly referred to as the Tax Act.
7 The passage of the Tax Act resulted in several
8 changes that impact the Company. Most notably, the
9 Tax Act lowered the federal statutory rate from
10 35 percent to 21 percent, and it modified the bonus
11 depreciation rules as it relates to regulated
12 utilities. The Tax Act, however, does not make any
13 modifications to the federal income tax code or any
14 Internal Revenue Service guidance related to the
15 values of the PTCs, or the methods by which the
16 Company intends for repowering the projects to
17 qualify for 100 percent of the PTCs.

18 The enactment of the Tax Act, therefore,
19 resolves the uncertainty that existed in late 2017,
20 because the impacts are now known and incorporated
21 into the Company's economic analysis. That
22 concludes my summary.

23 MR. LOWNEY: Thank you. Ms. Kobliha
24 is now available for cross-examination.

25 COMMISSIONER LEVAR: Thank you.

1 Ms. Tormoen Hickey, do you have any questions for
2 Ms. Kobliah?

3 MS. HICKEY: No, thank you, sir.

4 COMMISSIONER LEVAR: I'll go to
5 Ms. Schmid or Mr. Jetter.

6 MS. SCHMID: No questions from the
7 Division.

8 COMMISSIONER LEVAR: Mr. Snarr or
9 Mr. Moore?

10 MR. SNARR: No questions from the
11 Office.

12 COMMISSIONER LEVAR: Mr. Russell?

13 MR. RUSSELL: I have no questions
14 either, Mr. Chairman.

15 COMMISSIONER LEVAR:
16 Commissioner White?

17 COMMISSIONER WHITE: No questions.

18 COMMISSIONER LEVAR:
19 Commissioner Clark?

20 COMMISSIONER CLARK: No questions.
21 Thank you.

22 COMMISSIONER LEVAR: I don't have any
23 questions either, so thank you for your testimony.
24 Mr. Lowney.

25 MR. LOWNEY: Yes, thank you. I now

1 call Ms. Joelle Steward to the stand.

2 JOELLE R. STEWARD,

3 having been first duly sworn to tell the truth, was

4 examined and testified as follows:

5 DIRECT EXAMINATION

6 BY MR. LOWNEY:

7 Q Ms. Steward, can you please state and
8 spell your name for the record?

9 A My name is Joelle Steward, it's
10 J-o-e-l-l-e S-t-e-w-a-r-d.

11 Q How are you employed?

12 A I am vice president of regulation for
13 Rocky Mountain Power.

14 Q In that capacity, have you adopted or
15 filed prefiled testimony in this case?

16 A Yes, I have.

17 Q And that testimony was the direct
18 testimony, at the time, of Mr. Larsen. It was filed
19 in June, the rebuttal testimony of Mr. Larsen you
20 adopted filed in October, the supplemental direct
21 testimony filed in February of this year, and the
22 supplemental rebuttal testimony filed in April of
23 this year; is that correct?

24 A Yes.

25 Q And if I were to ask you the same

1 **questions that are included in this prefiled**
 2 **testimony today, would your answers be the same?**

3 A Yes, they would be.

4 MR. LOWNEY: The Company would move
 5 to admit Ms. Steward's testimony into the record.

6 COMMISSIONER LEVAR: If anyone
 7 objects to this motion, please indicate to me. I'm
 8 not seeing any objections, so the motion is granted.
 9 BY MR. LOWNEY:

10 Q **And Ms. Steward, have you prepared a**
 11 **summary of your testimony for the Commission today?**

12 A Yes, I have.

13 Q **Please proceed.**

14 A Good afternoon. My testimony explains the
 15 Company's proposed ratemaking treatment for the
 16 costs and benefits of the repowering project, as
 17 well as the proposed recovery for the original plant
 18 that is being taken out of service.

19 For the new cost and benefits, the Company
 20 proposes an interim mechanism, the Resource Tracking
 21 Mechanism or RTM, to recover the costs and pass back
 22 the full benefits of the project until the full
 23 costs and benefits are included in base rates. The
 24 RTM would work in conjunction with the Energy
 25 Balancing Account, or EBA, to match recovery of

1 costs for repowering with the benefits. The RTM
2 would include the capital costs of the projects and
3 the production tax credits. The EBA would include
4 100 percent of the incremental zero-cost energy from
5 the incremental generation from the projects.

6 Approval of the RTM is beneficial for a
7 couple of reasons. First, it matches costs with
8 benefits. Without the RTM or some other ratemaking
9 treatment, customers would begin receiving the
10 benefits from the incremental amount of generation
11 through the EBA without paying any of the costs
12 necessary to obtain those benefits.

13 Second, the RTM will allow the Company to
14 align several rate pressures into one general rate
15 case. Because the repowering projects go into
16 service across multiple years, the RTM will enable
17 the Company to bring all of the repowering
18 facilities as well as the new wind and transmission
19 resources in the 40 docket into base rates in one
20 rate case. This will help avoid the costs and
21 complexity of back-to-back rate cases. In addition
22 to aligning cost pressures into one rate case, the
23 RTM would provide a more timely pass-through of
24 benefits.

25 The Company has also proposed a cap on the

1 RTM so that it will not act as a customer surcharge,
2 thereby providing an asymmetrical customer benefit.
3 Following tax reform, however, the Company proposed
4 having the opportunity to defer costs over the cap
5 that are attributable to tax reform, with recovery
6 through an offset from the deferral of the tax
7 benefits. The parties criticized the Company for
8 what they consider a change in the Company's
9 proposal to remove the RTM's asymmetrical benefits.
10 However, we believe this characterization is
11 incorrect. First, the Company never committed to
12 absorb risk beyond its control, such as changes in
13 the tax law and instead, proposed to bring such
14 changes for review and consideration by the
15 Commission and parties, which is what we did in the
16 February filing following tax reform.

17 Second, the deferral would be related to
18 the change in the tax rate only. The Commission
19 would still absorb costs over the cap for any other
20 changes, and so it remains asymmetrical in the
21 customer's favor. The RTM would remain in effect
22 until the full, annualized cost and benefits of the
23 repowering project are included in base rates.
24 After that, the RTM would remain in effect simply as
25 a PTC tracking mechanism to ensure that customers

1 receive a hundred percent of the PTC benefits
2 resulting from repowering.

3 The RTM will not diminish the Company's
4 incentive to prudently manage the cost of repowering
5 because all costs and our management of the projects
6 will always be subject to a prudence review before
7 inclusion in rates.

8 Although the Company believes the RTM is
9 the best proposal to match costs and benefits, the
10 Company is open to alternatives, such as the
11 deferral proposal raised by the DPU, provided that
12 the ratemaking appropriately matches costs and
13 benefits.

14 In addition to the RTM, the Company is
15 requesting ongoing recovery of the original plant in
16 rates. The economic analysis included recovery of
17 this legacy plant in determining that repowering is
18 lower cost than other alternatives. As such, the
19 Company recommends these assets continue to be
20 recovered in rates, and further recommends that the
21 amortization period for these assets be addressed as
22 part of the next depreciation study, which we are
23 preparing for filing in September.

24 Several parties propose conditions that
25 they argue the Commission should apply if repowering

1 is approved. These proposed conditions are
2 unprecedented and entirely unnecessary because they
3 are premised on two misconceptions. First, parties
4 claim that repowering is not a traditional utility
5 investment because it is not tied to a need for
6 incremental energy. This premise is incorrect.
7 Repowering provides incremental energy that would
8 otherwise be purchased or generated and does so at a
9 lower cost. Imposing onerous conditions on
10 repowering would provide a powerful disincentive for
11 the Company to pursue economic opportunities for
12 customers in the future.

13 Second, parties claim that there is an
14 uneven sharing of benefits between the Company and
15 customers. This claim is also incorrect. The only
16 Company benefit is the recovery of its costs,
17 including its cost of capital. Customers benefit
18 through the \$1.2 billion in PTCs generated by the
19 repowered facilities, as well as through lower net
20 power costs. Importantly, the fact that customers
21 will receive net benefits indicates that the total
22 benefits received by customers is greater than the
23 costs recovered by the Company. There is no
24 inequity in this case. It's a balanced outcome for
25 both the Company and customers.

1 In closing, we requested the Commission
2 approve the RTM as an interim mechanism to provide a
3 matching of costs and benefits and recovery of the
4 replaced equipment through depreciation rates. That
5 concludes my summary.

6 MR. LOWNEY: Ms. Steward is available
7 for cross-examination.

8 COMMISSIONER LEVAR: Thank you.
9 Ms. Tormoen Hickey, do you have any questions for
10 Ms. Steward?

11 MS. HICKEY: No, thank you.

12 COMMISSIONER LEVAR: We'll go to
13 Mr. Snarr or Mr. Moore.

14 CROSS-EXAMINATION

15 BY MR. MOORE:

16 Q **Ms. Steward, were you here in the room**
17 **when Mr. Hemstreet testified?**

18 A Yes.

19 Q **Are you familiar with his testimony, his**
20 **prefiled testimony?**

21 A Yes.

22 Q **There were two questions that he sort of**
23 **shifted to you. Why don't we go through those**
24 **questions?**

25 A Okay.

1 **Q In the event of a delay that would trigger**
2 **the mitigation measures the Company has received**
3 **from its contractors, how would such mitigation**
4 **measures provide rate relief to Utah ratepayers?**

5 A I believe you're talking about the
6 liquidated damages?

7 **Q That's one of them, yes. Why didn't we**
8 **address that one first?**

9 A We would, based on what the -- what it was
10 that required the liquidated damages to be incurred
11 to the extent where we received the liquidated
12 damages, we would look at the appropriate accounting
13 treatment for those. And there are various ways
14 that those would flow back to customers. They could
15 probably flow back through the EBA -- I don't know
16 that we've done that in this state, we have done
17 that in other states where we've used the EBA -- it
18 could be a regulatory asset or a liability -- we get
19 those two mixed up, which way they go -- but they
20 would go back to customers to the extent that those
21 investments were in rates.

22 **Q Would such mitigation measures provide the**
23 **same extent of ratepayer benefits the Company is**
24 **claiming in its filing if the project had been -- if**
25 **there were no violation of the contract and, for**

1 instance, if a contract was violated and you didn't
2 receive the PTCs, would the ratepayers receive the
3 same benefits that they would if the contract was
4 actually completed on time and the PTC benefits were
5 realized?

6 A In terms of the liquidated damages in the
7 contracts, I am not familiar with the specific terms
8 of those contracts, so I could not answer if there
9 is, like, a dollar-for-dollar treatment. I'm sorry.
10 That question would have to go back to
11 Mr. Hemstreet.

12 Q He tossed it over to you.

13 A The ratemaking treatment, but not the
14 actual value of how those would be calculated
15 through the contract.

16 Q Has the Company not provided a witness
17 that can answer the question about how liquidated
18 damages compare to the PTC benefits?

19 MR. LOWNEY: Objection. Ms. Steward
20 just indicated if the question is about the terms of
21 contract, Mr. Hemstreet is available to answer. If
22 the question is about how the consequences of that
23 contract will flow through to customer rates,
24 Ms. Steward is the correct witness to answer that
25 question. We're happy to bring Mr. Hemstreet back

1 up if the question is more properly directed toward
2 the terms of the contract.

3 COMMISSIONER LEVAR: I think I'm
4 going to sustain that objection. The question to
5 Ms. Steward whether the Utility has provided a
6 witness to answer the question, I don't think is the
7 right question. To me, it's clear on which two
8 issues they can address. If there needs to be
9 supplemental responses on the contract damages, I
10 think we got some answers from Mr. Hemstreet
11 earlier. But it seems to me Ms. Steward has been
12 willing to answer the ratemaking result of those
13 contractual provisions.

14 BY MR. MOORE:

15 Q Can we turn to your testimony now?

16 A Okay.

17 Q Could you please turn to lines 125 through
18 128 of your April 23rd, 2018, supplemental rebuttal
19 testimony?

20 A Which lines again?

21 Q Lines 125 to 128.

22 A Okay.

23 Q It provides Ms. Ramas requested that if
24 approved, the Commission lock in Utah customers'
25 allocation share of repowering investment, based on

1 the Company's current interstate allocation method.
 2 Then it cites Ms. Ramas at lines 303 to 337. And
 3 the question was asked if this was reasonable, and
 4 you responded no. Did I correctly state your
 5 testimony?

6 A Yes.

7 Q Also, at lines 132 and 134 of the same
 8 testimony, you stated, "In effect, Ms. Ramas is
 9 recommending that the Commission predetermine the
 10 outcome of the current multi-state process." Is
 11 this correct?

12 A Yes.

13 Q Are you aware that after you filed your
 14 April 23rd testimony, the Office filed an errata
 15 concerning portions of Ms. Ramas' testimony that you
 16 reference in your April 23rd testimony?

17 A Yes.

18 Q In the context of the errata filing which
 19 is consistent with the Office's position throughout
 20 this docket, is it clear to you that the Office is
 21 proposing a cap only on the amount of costs that the
 22 Commission pre-approves?

23 A And I remember seeing Ms. Ramas' errata.
 24 I cannot remember exactly which line it was that she
 25 deleted.

1 Q Regardless of whether you're clear on the
2 Office's position, would you agree with me that
3 capping the pre-approved costs does not limit the
4 amount of costs the Company could request to recover
5 from customers?

6 A Yes.

7 Q Isn't it true that capping the amount on
8 the pre-approval costs does not violate the 2017
9 protocol?

10 A I believe that's correct, yes.

11 Q Now, let's turn back to lines 81 to 89 of
12 your June 30, 2017, direct testimony that you
13 adopted.

14 A I'm sorry. Which line again?

15 Q 81 to 89.

16 A Okay.

17 Q The question was asked, "Under what
18 authority is the Company proposing approval of
19 ratemaking treatment for the wind powering
20 projects?" The question was answered by referring
21 to three statutes: Utah Code section 54-4-23,
22 54-17-402, and 54-17-403; isn't that correct?

23 A Yes.

24 Q Isn't it true that none of these statutes
25 have a provision like Section 54-7-13(4)(C) of the

1 EBA statute which provides an energy balancing
2 account that is formed and maintained in accordance
3 with this section, does not constitute impermissible
4 retroactive ratemaking or single-issue ratemaking?

5 A I think we're going to have to piece
6 through that one. I don't have that statute you
7 just referenced in front of me.

8 Q May I give you my code book?

9 A It's okay with me.

10 MR. MOORE: May I approach?

11 COMMISSIONER LEVAR: Yes.

12 THE WITNESS: Okay. If you could
13 repeat --

14 BY MR. MOORE:

15 Q I direct you to 54-7-13.5.

16 A Okay.

17 Q And subsection 4, subsection C. It
18 provides, "An energy balancing account that is
19 formed and maintained in accordance with this
20 section does not constitute retroactive ratemaking
21 or single-issue ratemaking." Do you see that?

22 A Yes.

23 Q Isn't it true that the statutes I
24 referenced earlier do not provide a similar
25 provision?

1 A They do not, but that doesn't mean that
2 it's not feasible.

3 Q In fact, none of these statutes mention
4 the RTM, do they?

5 A No.

6 Q Isn't it true that nowhere in your
7 testimony do you make the contention that the RTM is
8 needed because of the occurrence of an unforeseen
9 event that is both beyond the Company's control and
10 has extraordinary impact on the Company's finances?

11 A No. We proposed the RTM for a matching of
12 costs and benefits.

13 Q Similar question: Isn't it true that
14 nowhere in your testimony do you make the contention
15 that the RTM taken as a whole is needed because of
16 increases and decreases in recurring costs that are
17 both unexpected and beyond the Company's control?

18 A No. Again, we proposed the RTM in order
19 to match costs and benefits that will -- since many
20 benefits will flow through the EBA without recovery
21 of the costs. We've also proposed the RTM in order
22 to align several cost pressures into one rate case
23 so we don't end up with back-to-back rate cases.

24 Q Now, turning to the cap on the RTM -- do
25 you know which cap I'm referring to?

1 A I believe so.

2 Q In lines 225 to 227, of your final
3 April 23, 2018, supplemental rebuttal testimony, you
4 stated, "The Company, by committing to repowering
5 the" -- let me wait until you get there.

6 A My supplemental rebuttal on line 225?

7 Q You stated the Company committed that
8 repowering the RTM would not impose a surcharge on
9 customers. The Company stands by this comment; is
10 that correct?

11 A By that commitment, yes.

12 Q I'm sorry. Now, let's turn to June 30,
13 2017, direct testimony that you adopted.

14 A Okay. Is there a line reference?

15 Q 40 to 43. The RTM as initially -- this is
16 not a direct quote, I'm just referencing the portion
17 of your testimony. The RTM, as initially proposed,
18 capped costs flowing through the RTM so that after
19 zero-fuel cost benefits are accounted for through
20 the EBA, the Company would not charge ratepayers any
21 additional costs; is that correct?

22 A It will not operate to surcharge
23 customers, correct.

24 Q Wouldn't charge them any additional costs?

25 A Correct. At that time, yes.

1 Q I'd like to direct you to lines 188 and
2 191 of the October 19, 2017, rebuttal testimony that
3 you adopted.

4 A Did you say line 188?

5 Q 188. Doesn't it provide, "To the extent
6 the cost exceeds the benefits" -- and we're talking
7 about the initial cap -- "To the extent the cost
8 exceeds benefits in any given year until the project
9 is fully reflected in rates, the Company bears the
10 risk. In other words, the RTM is asymmetrical in
11 the customer's favor." Did I read that correctly?

12 A Yes.

13 Q Will you look at your February 1, 2018,
14 supplemental direct testimony at lines 105 through
15 109?

16 A Okay.

17 Q You stated that because of change in
18 federal corporate income tax rate, the Company
19 proposes to alter the RTM cap so the costs in excess
20 of the RTM cap will be deferred and used to offset
21 the money owed to ratepayers as a result of income
22 tax deferring, addressed in docket 17-035-69. Does
23 that summarize your testimony?

24 A Yes.

25 Q Isn't it true that the change in the RTM

1 cap essentially reversed the position of the
2 ratepayers in the Company, such that the RTM cap is
3 no longer as asymmetrical to the same extent in the
4 customer's favor, and the ratepayers, not the
5 Company, bear the risk of costs in excess of the
6 cap?

7 A I would agree it's not as asymmetrical;
8 it is still asymmetrical. We would still absorb
9 costs in excess of the changes from the impact of
10 tax reform, but since tax reform benefits are being
11 deferred for customers, it's only fair that any
12 additional costs out of tax reform also be deferred
13 and recovered through customers. And that's what
14 our proposal is. Tax reform was clearly not
15 anticipated of this magnitude when we made that
16 filing in June.

17 Q Isn't it true that by initially proposing
18 that ratepayers are not responsible for costs in
19 excess of the RTM cap, didn't the Company commit to
20 bear the risk of absorbing excess costs? And the
21 Company is not standing by this commitment, is it?

22 A Again, absorbing costs that are outside of
23 our control and that were not anticipated of that
24 magnitude, no. We always said we would bring back
25 changes to the Commission for the parties to review,

1 and that's what we did in the February filing.

2 Q But the change does shift the position of
3 the ratepayer from one where the ratepayer was not
4 responsible for costs above the cap to a situation
5 where the ratepayer is responsible to costs above
6 the cap, although through a different docket?

7 A Correct. We're seeking recovery of those
8 tax impacts, yes.

9 MR. MOORE: That's all I have. Thank
10 you, Ms. Steward.

11 COMMISSIONER LEVAR: Ms. Schmid or
12 Mr. Jetter?

13 CROSS-EXAMINATION

14 BY MS. SCHMID:

15 Q In your summary, you talked about
16 traditional functions of a utility and -- were you
17 here when Mr. Hoogeveen talked about typical
18 ratemaking activities of a utility seeking cost
19 recovery as appropriate, et cetera?

20 A Yes. I was here when Mr. Hoogeveen
21 testified.

22 Q Is it traditional for a utility to replace
23 plant assets that have only gone through a third or
24 less than their full useful life for economic
25 reasons?

1 A I don't know that it's traditional, but
2 it's certainly not unprecedented. We have replaced,
3 for economic reasons, other assets that are in rates
4 early, or retired them early.

5 Q And were some of those a result of
6 settlements?

7 A Not the reasons for doing it. The
8 ultimate outcome -- there were settlements around
9 that ratemaking treatment, but not that decision.

10 Q You talked a lot in your summary about
11 matching, matching costs and benefits. You said
12 that matching was one of the reasons why the Company
13 urges the Commission to adopt the RTM; is that
14 correct?

15 A Yes.

16 Q Have you read Mr. Peterson's testimony on
17 intergenerational inequality?

18 A Yes.

19 Q And you understand that that's also a
20 matching sort of issue?

21 A Yes.

22 Q With the way the Company has set up its
23 economics and set up its rate recovery mechanism as
24 explained here, isn't it true that some ratepayers
25 would not benefit from PTCs because the PTC period

1 ends before the life of the asset?

2 A Yes. And that's the case now, if we don't
3 repower.

4 Q Is the \$1 billion investment greater than
5 the investment that is currently on the books for
6 the existing wind facilities that are going to be
7 repowered? Do you know?

8 A You mean the remaining plans?

9 Q Yes.

10 A It is greater, yes.

11 Q Also, coming back to the intergenerational
12 inequality argument, is it true that, depending on
13 how the PTC and the RTM works, that some ratepayers
14 will not recover as much of the PTC benefit as
15 expected?

16 A I guess I'm not sure exactly what you're
17 referring to.

18 Q Let me see if I can rephrase. Just one
19 second. I'm going to leave that and see if I can
20 come back to it. Were you here when Mr. Hoogeveen
21 talked about benefits and he and I believe,
22 Mr. Russell, discussed a dollar benefit, being a
23 dollar in the black after costs were counted for,
24 still being a benefit?

25 A Yes.

1 Q In your testimony, I believe it's line 15
2 of your surrebuttal, you talk about the fact that
3 the repowering projects --

4 A I don't have surrebuttal.

5 Q Your supplemental rebuttal. I believe
6 it's at line 15 of the April filing. You talk about
7 substantial benefits. Don't you say that the
8 repowering project provides substantial benefits to
9 the customers?

10 A Yes.

11 Q Is a dollar benefit, a dollar in the
12 black, a substantial benefit to customers?

13 A No. And the overall projects don't show
14 it's a dollar in the black. It's hundreds of
15 millions of dollars.

16 Q But that is based on if all the
17 projections and forecasts occur as anticipated; is
18 that correct?

19 A In our medium/medium and in most of the
20 scenarios, yes, it's well over a dollar. It's only
21 in the worst-case scenario that it would be, for one
22 project, less of a benefit.

23 Q And if the gas prices are lower, as were
24 shown in the 2017 IRP update just filed, isn't it
25 possible that benefits could be even smaller?

1 A I can't speak to the gas forecasts in the
2 IRP update and how those compare to the filing.
3 That would need to be addressed by Mr. Link.

4 Q **If actual gas prices were lower than**
5 **forecasted, would the benefits be smaller?**

6 A All else being equal, I believe that would
7 be true.

8 Q **If all else were equal and Utah didn't**
9 **have a pre-approval process, and the Company had to**
10 **bear the risk of those projects, and the risks of**
11 **getting approval after the projects were built,**
12 **would you recommend that the Company proceed with**
13 **the project?**

14 A What we're looking at right now in the
15 economic analysis, is our prudence determination,
16 and this is what we would ultimately end up filing.
17 We are at the decision point of going forward. So
18 based on this economic analysis, in my personal
19 judgment, yes, I think there are benefits here for
20 the customers to go forward. But I'm not the
21 ultimate decision maker for the Company.

22 Q **Would you go forward with all the wind**
23 **segments or with -- sorry. Would you propose going**
24 **forward with all the winds segments, or with just**
25 **some of them?**

1 A I think overall this is a great
2 opportunity to update our wind fleet and extend the
3 lives and have long-term benefits and near-term
4 benefits to customers. So in my personal opinion,
5 yes.

6 Q And the contracts that are for some of the
7 equipment are for the projects as a whole; is that
8 correct? Is that what I heard Mr. Hemstreet saying?

9 A That's my understanding of what
10 Mr. Hemstreet -- but again, he's the expert on what
11 those contracts look like.

12 Q Would the Company unconditionally go ahead
13 with these projects?

14 A No, I am not probably the person who could
15 answer that. I mean, I'm not sure what
16 unconditionally refers to. I mean, as we testified,
17 we think this is a great opportunity.

18 Q But isn't it true that the projects still
19 place some risks on the ratepayers, risks that the
20 Company was not willing to assume?

21 A There are risks on the ratepayers and
22 there are risks on the Company still. We have
23 assumed the risk of qualifying for the PTCs under
24 the pre-approval, we assume the risk that if there's
25 a change, we need to bring it back before the

1 Commission under the law. There are still risks to
2 the Company at this point, even with the
3 pre-approval.

4 MS. SCHMID: Those are all my
5 questions. Thank you.

6 COMMISSIONER LEVAR: Thank you.
7 Mr. Russell.

8 CROSS-EXAMINATION

9 BY MR. RUSSELL:

10 Q I have a few questions about a fairly
11 narrow issue, and it relates to the period of
12 amortization on the retired plant, which you brought
13 up in your summary and is also in your supplement
14 rebuttal testimony. As I understand it, the
15 Company's position is in -- your testimony was
16 responding to the period of time that that
17 amortization should take place, and the Company's
18 position as I understand it is, we should deal with
19 that in this separate docket on the depreciation
20 study that the Company intends to file, correct?

21 A Correct.

22 Q If the Commission were to decide to deal
23 with it in this docket, what is the Company's
24 position as to the period of time for that
25 amortization?

1 A Well, I think in our initial filing, we
2 did in Mr. Larsen's testimony, refer to it
3 amortizing that over essentially -- including in the
4 depreciation rates for the new resources, which
5 would be over 30 years. The economic analysis
6 includes them essentially over the current lives as
7 20 years. I don't have a strong position one way or
8 another, 20 or 30 years at this point. So it could
9 go either way.

10 Q I was confused about that, so that's why I
11 wanted to clarify. Thank you. That's all I have.

12 COMMISSIONER LEVAR: Thank you. Any
13 redirect?

14 MR. LOWNEY: I do have one question
15 for Ms. Steward.

16 REDIRECT EXAMINATION

17 BY MR. LOWNEY:

18 Q Following up on Ms. Schmid's questions
19 about the gas price forecast that was used in the
20 Company's analysis, Ms. Steward, isn't it true that
21 the 2017 IRP update that was filed earlier this week
22 used the same gas price forecast that was used in
23 the Company's supplemental filing in February of
24 this year?

25 A That's what I believe to be true, yes.

1 COMMISSIONER LEVAR: Any recross
2 based on that question?

3 MR. SNARR: Excuse me.

4 COMMISSIONER LEVAR: Would you like
5 to do a recross?

6 MR. SNARR: I have one element of
7 recross based on a response provided to the
8 Division's counsel.

9 COMMISSIONER LEVAR: I'm sorry. I
10 didn't ask because it was in response to her
11 question, but feel free.

12 RECROSS EXAMINATION

13 BY MR. SNARR:

14 Q In response to a question posed by the
15 Division, you stated the Company has assumed the
16 risk of qualifying for the PTCs as opposed to
17 laying that risk off on the ratepayers; is that
18 correct?

19 A We've assumed the risk that we will meet
20 that qualification, yes.

21 Q And Mr. Hemstreet did address, in large
22 measure, how the company has taken action through
23 the GE contract to assume that risk and has
24 described how that might play out in the event that
25 some particular project was not qualified. With

1 respect to the remaining projects not covered by the
2 GE contract, how is it -- how would you propose that
3 the Company cover any risk to the ratepayers for the
4 failure to qualify for the PTCs?

5 A So even with the GE contract and the
6 Vestas contract, our assumption -- what we've
7 assumed is that we will qualify for the PTCs to the
8 extent there are circumstances within our control.
9 Obviously, often -- or not often -- there are
10 circumstances where it's a force majeure or
11 something outside of our control. To the extent we
12 can control it under either contract, we're assuming
13 those risks. The GE contract has some additional
14 features built into it from the contractor to the
15 Company that we would pass back to customers.

16 Q Typically though, the word guarantee is to
17 infer that if something goes wrong, you've got me
18 covered for the downside risk. And I'm really
19 posing the question, what if something goes wrong,
20 that there is a timing problem and a project fails
21 to qualify for the PTCs? Your witness earlier has
22 said that the Company is going to guarantee the
23 risk, you said the Company would guarantee that
24 risk, and we're understanding the context is a
25 guarantee to the ratepayers for that eventuality.

1 I'm just asking, how would you manage to provide
2 that guarantee to the ratepayers as a matter of
3 ratemaking, which is within your stewardship?

4 A I see your question. There are a couple
5 of ways that could be done. We could either impute
6 the PTCs for any turbines that failed to qualify if
7 we put those turbines into rate base. We could also
8 not include those turbines in rate base and not have
9 customers pay for them. We probably wouldn't put
10 the energy in rates, either, but then customers
11 would not be harmed. And again, our qualification
12 is for circumstances within our control that we can
13 control.

14 MR. SNARR: Thank you. I have no
15 other questions.

16 COMMISSIONER LEVAR: Thank you.
17 Commissioner White, do you have any questions for
18 Ms. Steward?

19 BY COMMISSIONER WHITE:

20 Q Just a couple. I understand -- from what
21 I understand, there's a pretty illiquid REC market
22 right now. Is there any thought or discussion as to
23 how the potential REC revenues would be -- would
24 this be included in the new RTM, or would that still
25 be dealt with in the RBA?

1 A I think REC revenues would flow through
2 the RBA.

3 Q There's been a lot of talk about risk and
4 what the Company is -- I know that the testimony has
5 evolved during the course of the proceeding over
6 acceptance of risk, et cetera. I notice in Wyoming,
7 someone did -- I don't know which party -- file the
8 Wyoming stipulation or submitted a -- I'm just
9 wondering, are you in a position to maybe direct us
10 to potentially the differences in, kind of, risk
11 sharing as between what was currently reached in
12 Wyoming -- I know that's still pending -- as opposed
13 to what the Company's current agreement to take on
14 risk is in this docket?

15 A Yeah. I happen to, I believe, have that
16 stipulation. So the risk is actually very similar.
17 In the Utah stipulation, it's spelled out in a
18 little more detail from our discussions with
19 parties, and that would be in paragraph 32-C. And
20 you can see that explanation of the risk and how it
21 would be treated, as well as a dispute process is
22 spelled out in that section. And it's essentially
23 the same risk, it just adds a little bit more
24 process to it in the event there isn't an agreement
25 on what that circumstance was if we claim force

1 majeure and parties disagree, there's a dispute
2 process there to debate that. But it's the same
3 qualification of risk that we assume for the PTCs.

4 Q So it's fair to say it's essentially the
5 same proposal without the additional legal
6 mechanisms to deal with disagreements, et cetera?

7 A Yes.

8 COMMISSIONER WHITE: That's all the
9 questions I have.

10 COMMISSIONER LEVAR:

11 Commissioner Clark?

12 BY COMMISSIONER CLARK:

13 Q I just want to test my understanding of
14 what you're saying on page 7 of your supplemental
15 direct. Under the question, why is the RTM still
16 necessary?

17 A Okay. I'm there.

18 Q So under the assumption that the
19 application is approved and the Company goes forward
20 with the repower projects, then until the Company
21 files a rate case, the conditions that you're
22 describing here under lines 127 to 131 would exist.
23 Basically, that customers would receive the benefit
24 in net power costs of the zero-fuel cost energy, and
25 the Company would receive the benefits of the PTCs

1 and would also have the burden of the capital
2 investment without a return? Is that -- would there
3 been some ratemaking device that would operate to
4 cover the Company's capital costs there?

5 A So you're referring to without the RTM?

6 Q Right.

7 A So without the RTM or other treatment --
8 like, if there was an adjustment to the EBA to
9 remove that incremental generation -- absent that,
10 customers would have that zero-fuel cost energy
11 going through the EBA with no cost recovery, the
12 Company -- for the Company -- of capital costs, and
13 customers would not get the PTCs either.

14 Q And a rate case, then, would be the
15 opportunity to put all that back into ratemaking
16 balance, so to speak, right?

17 A Yes.

18 Q So the -- am I right that the need for the
19 RTM basically assumes no rate case -- general rate
20 case-type proceeding until sometime after the end of
21 2020?

22 A Yes. And I believe I said somewhere in
23 testimony that we currently anticipate the next rate
24 case to be in 2020, with rates effective 2021. That
25 will allow us to align both the repowering projects

1 that start going into service in 2019 and continue
2 into 2020, as well as the new wind and transmission
3 in the 40 docket. We also have new depreciation
4 rates from the depreciation study, which we
5 anticipate will have pressure on rates. That
6 proceeding should be completed by the end of 2019,
7 which will be put into that rate case. We also
8 hopefully will have resolution of a new, revised
9 protocol or a multi-state jurisdictional allocation
10 at that time. So we were trying to align all of
11 these cost pressures into one rate case, and that is
12 what the RTM allows us to do.

13 **Q Would the RTM then be -- would have**
14 **exhausted its purpose with the filing of the rate**
15 **case, or the adjudication of the rate case?**

16 **A** Yes. For repowering in particular, I only
17 see the RTM really, in effect for a year and a half,
18 that we would defer costs within the RTM. Although
19 we do propose to continue the RTM just for PTC
20 tracking after a rate case.

21 **Q So is it really the 2019 -- the completion**
22 **of many of the project elements in 2019 that's sort**
23 **of driving the Company's interest in the RTM or**
24 **advocacy of the RTM?**

25 **A** Yes. It's all those things that I

1 mentioned. I mean, we've been making a very
2 concerted effort to stay out of multiple rate cases.
3 We went through quite a period of back-to-back rate
4 cases, and so we are trying to push that as far as
5 we can. These are the first -- these align also
6 with the drop-off of the PTCs currently in base
7 rates that add additional pressure that would drive
8 us into a rate case, but this is the first cost
9 pressure that comes up that's pushing us into a rate
10 case, the repowering projects.

11 **Q So again, in the absence of an RTM, then**
12 **would we anticipate a 2019 rate case to address the**
13 **projects?**

14 **A** We would have to take that into
15 consideration. I couldn't affirmatively say yes or
16 no at this point, but in that period, we see the
17 drop-off, the pressures of the -- eliminating the
18 current PTCs in base as well as the new investments
19 coming on.

20 COMMISSIONER CLARK: Those are all my
21 questions. Thanks very much.

22 BY COMMISSIONER LEVAR:

23 **Q Just a couple more follows-ups. You had**
24 **indicated the Utility's openness to the Division's**
25 **proposed deferral method as long as costs and**

1 **benefits are matched somehow. Do you have any**
2 **elaboration on how would you view some kind of**
3 **alternative deferral working?**

4 A There's a couple ways that it could work.
5 Our primary principle here is the matching of the
6 costs and benefits, so either, if we don't have an
7 RTM where we try and pass back the cost and benefits
8 on a more concurrent basis -- which I think helps
9 address some of the intergenerational issues that
10 DPU raised -- but in lieu of that, we would defer
11 all the costs and benefits. I would propose even
12 deferring that incremental generation that would
13 otherwise flow through the EBA to help offset that.
14 So then, as you go to recover that in a future rate
15 case, that helps bring down some of those costs as
16 well. That's the primary alternative to the RTM.

17 Q Thank you. On a separate topic,
18 Commissioner White was asking you about the
19 provisions in Wyoming related to the regulatory
20 processes that are built into the stipulation --
21 that's, of course, still pending -- on change in law
22 or force majeure event. That Wyoming stipulation
23 lays out that the Company would file with the
24 Commission and parties would have an opportunity to
25 dispute it. In the absence of any, you know,

1 stipulated language like that in Utah, if this
2 project moves forward and there were some
3 significant change in law or force majeure event,
4 what would you anticipate the regulatory process to
5 be in Utah? What would be the typical utility
6 response to a situation like that?

7 A Well, in Utah, under the voluntarily
8 request for resource law that we filed under, there
9 is that provision that exists if there's a change in
10 circumstance or projected costs, we need to bring
11 that back to the Commission, and then there's a
12 process for a 60-day review. I think a force
13 majeure event like that would qualify under that
14 process that we would need to bring that back under
15 that statute.

16 COMMISSIONER LEVAR: Thank you. I
17 appreciate that clarification. I don't have any
18 further questions, so thank you for your testimony.
19 Ms. McDowell or Mr. Lowney, anything further from
20 the Utility?

21 MS. MCDOWELL: No. That concludes
22 the Company's presentation. Thank you.

23 COMMISSIONER LEVAR: Okay. Why don't
24 we take a 10 or 12-minute break. We'll come back at
25 2:30 and go to Ms. Schmid or Mr. Jetter.

1 (A recess was taken.)

2 COMMISSIONER LEVAR: We're back on
3 the record, and we will go now to the Division of
4 Public Utilities.

5 MS. SCHMID: Good afternoon. The
6 Division would like to call as it witness,
7 Mr. Dave Thomson. May he please approach the
8 witness stand?

9 DAVID THOMSON,
10 having been first duly sworn to tell the truth, was
11 examined and testified as follows:

12 DIRECT EXAMINATION

13 BY MS. SCHMID:

14 Q Could you please state your full name,
15 employer, and your business address for the record?

16 A My name is David Thomson, that's
17 T-h-o-m-s-o-n, without a "P." I'm a utility
18 technical consultant for the Division of Public
19 Utilities and have participated in this docket on
20 behalf of the Division. My business address is
21 160 East 300 South, Salt Lake City, Utah 84111.

22 Q In connection with your employment at the
23 Division and your participation on behalf of the
24 Division in this docket, did you prepare and cause
25 to be filed what's been identified as DPU Exhibit

1 No. 3.0, your direct, which was filed on
2 September 20th of 2017, your surrebuttal with an
3 exhibit, surrebuttal identified as DPU Exhibit No.
4 3.0-SR, and the exhibit number DPU No. 3.1-SR, both
5 of those filed on November 15th, and then finally,
6 your response testimony marked as DPU Exhibit
7 3.0-RESP, filed on April 2, 2018?

8 A That's correct.

9 Q Do you have any changes or corrections to
10 that prefiled testimony?

11 A I do not.

12 Q If I were to ask you today the same
13 questions that are contained in your prefiled
14 testimony, would your answers be the same today as
15 they are in the prefiled testimony?

16 A Yes.

17 MS. SCHMID: With that, the Division
18 would like to move for the admission of DPU Exhibit
19 No. 3.0 Direct, 3.0-SR, 3.1-SR, and 3.0-RESP of
20 Mr. Thomson.

21 COMMISSIONER LEVAR: If any party
22 objects to that motion, please let me know. I'm not
23 seeing any, so the motion is granted.

24 (DPU Exhibit Nos. 3.0 Direct, 3.0-SR, 3.1-SR and
25 3.0-RESP admitted.)

1 BY MS. SCHMID:

2 Q Mr. Thomson, do you have a summary to
3 present today?

4 A I do.

5 Q Please proceed.

6 A Thank you. The Division believes the
7 Revenue Tracking Mechanism or RTM, is unnecessary
8 because existing methods are adequate for rate
9 recovery if the proposed repowering projects are
10 approved. Therefore, we recommend that the
11 Commission deny the request for an RTM.

12 If the Commission approves the repowering
13 projects proposed by the Company, the Division
14 recommends that the Company should use a general
15 rate case for ratemaking associated with the
16 repowering. The Company is proposing to add
17 approximately over \$1 billion to the rate base. A
18 general rate case is a better mechanism to address
19 the Company's cost recovery concerns where
20 systemwide changes in costs and other issues can be
21 synchronized. The impact of rates and revenue
22 requirement of the above investments with their
23 associated costs and benefits should be synchronized
24 and in balance with other entity-wide changes.
25 Changes in class cost of service, revenue and

1 expense components, and many other factors would be
2 impacted by the addition of so much capital to rate
3 base. Having a general rate case to align rates to
4 match then-existing conditions, would be wise and
5 likely in the public interest, particularly given
6 that the last general rate case concluded in 2014,
7 employed 2013 data, and a 2015 test year.

8 The Utility suggests that the proposed RTM
9 is one way to avoid more laborious general rate
10 cases. This is not a valid argument in support of
11 the RTM. The general rate case is designed to
12 establish just and reasonable rates based on current
13 actual or close-in-time projected costs. Especially
14 given the costs of the proposed additions and the
15 time since the last general rate case, Rocky
16 Mountain Power's desire to avoid a new general rate
17 case, or the frequency of rate cases may not be in
18 the best overall interest of ratepayers or meet
19 public interest concerns.

20 And that concludes my summary.

21 MS. SCHMID: Thank you. Mr. Thomson
22 is now available for questions.

23 COMMISSIONER LEVAR: Thank you. I'll
24 go to Mr. Moore or Mr. Snarr next.

25 MR. MOORE: No questions from the

1 Office.

2 COMMISSIONER LEVAR:

3 Ms. Tormoen Hickey, do you have any questions for
4 Mr. Thomson?

5 MS. HICKEY: No, thank you.

6 COMMISSIONER LEVAR: Mr. Russell?

7 MR. RUSSELL: No questions.

8 COMMISSIONER LEVAR: Ms. McDowell or
9 Mr. Lowney?

10 MS. MCDOWELL: No questions. Thank
11 you.

12 COMMISSIONER LEVAR: Thank you.
13 Commissioner Clark?

14 COMMISSIONER CLARK: No questions.

15 COMMISSIONER LEVAR: Thank you.
16 Commissioner White?

17 BY COMMISSIONER WHITE:

18 Q Does the Division have a proposal -- if
19 the Commission were not to adopt the proposed RTM,
20 how would the Division propose tracking the costs
21 and benefits, or is there a proposal?

22 A If you adopted these repowering projects,
23 we would propose that you use the means already at
24 your -- that's already at your -- that you can
25 utilize, such as a general rate case. Deferred

1 accounting is something that's already available to
2 the Commission, and depending on the timing of the
3 rate case, the Company could file a major asset
4 addition filing to try to recover these costs.

5 COMMISSIONER WHITE: Thank you.

6 That's all questions I have.

7 BY COMMISSIONER LEVAR:

8 Q If this request, in whole or part, were
9 approved by the Commission, you said one option
10 would be deferred accounting. Do you have any other
11 thoughts to elaborate on how that might work, how
12 that might be structured?

13 A It would be structured very similar to how
14 the accounting is done in the RTM. It would have
15 benefits, it would have costs, and they would come
16 together every month for a balance. And that
17 balance, whether the costs were more or the benefits
18 were more, would be a liability of a deferral
19 liability. And they would stay in there, those
20 accounts, until a general rate case happened, and
21 then those deferral amounts would be part of the
22 filing and go into the whole synchronized, holistic,
23 generalized rate case. So it would be just a piece
24 out here, and then it would get plugged in with all
25 the other pieces into the big hole where everything

1 would be synchronized.

2 COMMISSIONER LEVAR: Thank you. I
3 appreciate that. Thank you for your testimony.

4 COMMISSIONER CLARK: Chair LeVar, can
5 I just follow up on that?

6 BY COMMISSIONER CLARK:

7 Q So Mr. Thomson, what would be deferred?
8 The PTCs would be deferred?

9 A They would.

10 Q What else would be deferred? Anything
11 else?

12 A Let's see. The cost of the investment
13 would be deferred; the actual rate base -- what they
14 pay every month -- that would be deferred; the costs
15 associated with those -- depreciation, those things
16 would be deferred; the PTCs would be deferred; and
17 then the energy component would be deferred. Well,
18 the energy component -- the incremental energy costs
19 would flow through the EPA, so there would have to
20 be some sort of adjustment for that.

21 Q Thanks. That's the piece I was wanting to
22 understand a little better.

23 COMMISSIONER LEVAR: Thank you,
24 Mr. Thomson. We appreciate you testimony.
25 Ms. Schmid?

1 MS. SCHMID: The Division would like
2 to request if Mr. Thomson could be excused for the
3 rest of the hearing if he needs to leave early
4 today, and he will not be able to attend tomorrow.
5 May we have your permission to bless his absence?

6 COMMISSIONER LEVAR: Let me as if any
7 party or Commissioner feels any need to recall
8 Mr. Thomson for any questions. I'm not seeing any
9 indication, so that sounds fine.

10 MS. SCHMID: Thank you very much.

11 THE WITNESS: I appreciate that.
12 Thank you.

13 MS. SCHMID: The Division would like
14 to call its next witness, Dr. Joni Zenger.

15 DR. JONI S. ZENGER,
16 having been first duly sworn to tell the truth, was
17 examined and testified as follows:

18 DIRECT EXAMINATION

19 BY MS. SCHMID:

20 Q Good afternoon. Could you please state
21 your full name, title, and employer, as well as
22 business address for the record?

23 A Dr. Joni S., like Sam, Zenger, with a "Z",
24 Z-e-n-g-e-r, technical consultant with the Division
25 of Public Utilities. My address is 160 East 300

1 South, Salt Lake City, Utah 84111.

2 Q In connection with your employment by the
3 Division and with your participation in this docket,
4 did you prepare or cause to be filed, your response
5 testimony called DPU Exhibit No. 1.0 -- sorry. DPU
6 Exhibit Number 1.0 Direct, in both confidential and
7 redacted form, and that was on the 20th of
8 September; your surrebuttal, marked as DPU Exhibit
9 No. 1.0-SR, filed on November 15th of 2017; your
10 response testimony, entitled DPU Exhibit No.
11 1.0-RESP, along with DPU Exhibit No. 1.1-RESP, and
12 DPU Exhibit No. 1.2-RESP, all filed on April 2nd of
13 this year?

14 A Yes.

15 Q Did you also cause to be filed yesterday,
16 an errata correcting two footnotes and one number in
17 your testimony?

18 A Yes, I did. I also brought copies in case
19 anyone didn't receive the errata exhibit.

20 Q Could you please just briefly describe
21 what was corrected in the filing made yesterday?

22 A Sure. In my response testimony, the one
23 that's dated April, there's a typo on line 143. The
24 number I have is \$1,337,000, and the number should
25 be \$1,137,000. Billion, actually, billion. It's

1 \$1,137,000,000.

2 **Q And then with regard to the footnotes?**

3 A So that was the first one. Then the
4 footnote on page 10, footnote no. 16, it should have
5 read, Supplemental Direct Testimony of
6 Mr. Timothy Hemstreet, February 1st, 2018, page 4,
7 lines 74 to 76. I had written ID at the same page 4
8 and line 74 to 76 when it was, in fact, his
9 supplemental direct testimony. Those two changes.

10 **Q Just those two changes. Only one change**
11 **to a footnote?**

12 A Yes.

13 MS. SCHMID: With that, the Division
14 would like to move for the admission of the
15 testimonies of Dr. Zenger as previously identified,
16 as well as the errata that was filed yesterday. We
17 do have copies showing clean and redacted portions
18 of the testimony that was corrected.

19 COMMISSIONER LEVAR: Okay. Thank
20 you. If anyone objects to this motion, please
21 indicate to me. I'm not seeing any objections, so
22 the motion is granted.

23 (DPU Exhibit Nos. 1.0 Direct, 1.0-SR, 1.0-RESP,
24 1.1-RESP, and 1.2-RESP marked.)

25 BY MS. SCHMID:

1 **Q Dr. Zenger, do you have a summary to**
2 **present today?**

3 A Yes, I do.

4 **Q Please proceed.**

5 A Good afternoon, Commissioners. I'm
6 grateful to be here today. It's getting close to
7 years since we started working on this case at the
8 Division.

9 The Division's opinion is the Commission
10 should reject Rocky Mountain Power's application
11 because the projects are not in the public interest.
12 The projects are not needed to provide reliable
13 service, and the risks surrounding the projects
14 outweigh even the latest iteration of the
15 speculative projected benefits. Additionally, even
16 if the benefits materialized over the life of the
17 projects, they would be unevenly distributed among
18 various generations of customers.

19 The new collection mechanism Rocky
20 Mountain Power proposes, the RTM, should be
21 rejected, too. The Division's witnesses will
22 address these and other points in their respective
23 testimonies.

24 Rocky Mountain Power's requested approval
25 of the projects in this case -- which include

1 repowering of 999 megawatts of its current wind
2 generating equipment -- the latest estimate puts the
3 project's capital costs at approximately
4 \$1.101 billion. This is a massive undertaking and a
5 magnitude that we have never seen before in one
6 filing before this Commission. Rocky Mountain Power
7 stopped pre-approval of this proposal, even though
8 most of the costs were not known and the forecast's
9 alternative costs that the projects are benchmarked
10 against are subject to significant variability.
11 Other technical uncertainties also remain, including
12 engineering and design studies that are still
13 incomplete. In addition to these uncertainties, the
14 fundamental risks of relying on projections built on
15 assumptions remains.

16 The Company presented this case involving
17 12 different wind repowering projects. They are
18 located in three different states and as one large
19 billion dollar project, when, in fact, there are
20 hundreds of wind turbine generators at 12 different
21 wind farms in Wyoming, Oregon, and Washington that
22 the Company is proposing to dismantle and repower.
23 Each repowered facility will be tested and
24 commissioned in order to individually qualify for
25 the production tax credits. The Company requests

1 approval to dismantle the existing equipment, bring
2 in new nacelles and towers and rotors -- not the
3 towers, they will remain, the rotors and the
4 blades -- earning a return on the new resources, as
5 well as continuing to earn on the old, retired
6 resources. The currently functioning equipment that
7 the Company wants to remove is less than 10 years
8 old, and it was installed and approved with a
9 30-year operating life.

10 This idling of functioning equipment is to
11 be undertaken on the hope that an assumed projected
12 future materializes, but further, Rocky Mountain
13 Power claims that its request is supported by an
14 analysis that aggregates purported benefits over the
15 project's lives, up to 30 years. This aggregation
16 of benefits over long time periods hides the fact
17 that even under Rocky Mountain Power's projections,
18 some customers will be worse off. Although the
19 projects could prove beneficial, even then, the
20 benefits would be relatively small compared to the
21 level of investment.

22 Nevertheless, there are too many unknowns
23 that could harm ratepayers. Even under those net
24 cost scenarios, Rocky Mountain Power would still be
25 granted an opportunity to earn a significant return.

1 And in short, ratepayers might see a modest net
2 benefit over the project's lives, but the Utility
3 will see a significant return if these projects are
4 approved. This disparity of risks and rewards for
5 unneeded projects is not in the public interest.

6 The Company has not reasonably
7 demonstrated or adequately proven that its decision
8 to repower most of its wind facilities will result
9 in the acquisition, production, and delivery of
10 utility services at the lowest reasonable cost to
11 customers -- to Utah customers, in fact. The
12 projects are not in the public interest and should
13 be rejected.

14 The remaining portion of my opening
15 statements contains my surrebuttal testimony
16 responding to the Company's April 23rd rebuttal
17 testimony. Rather than go through point by point
18 statements where my testimony was mischaracterized
19 or misconstrued, I'd like to address a couple of
20 points. And the first one I'd like to address is
21 the issue of uncertainties and risks.

22 Now, Mr. Hemstreet claims in his
23 supplemental direct testimony, lines 182 to 209,
24 that the Company has successfully mitigated much of
25 the risk associated with the repowering project.

1 While DPU acknowledges the efforts the Company has
2 made to mitigate the unknowns on line 182 to 209,
3 significant risk still exists for the ratepayers.
4 DPU is concerned with wind turbine performance,
5 reliabilities risks, ongoing maintenance costs and
6 risks. The construction costs overrun risks. DPU
7 witness Mr. Peaco will discuss the additional risks
8 and the potential concerns in great detail in his
9 testimony.

10 And second, I'd like to reemphasize that a
11 repowering project is not needed. Mr. Link states
12 in his supplemental and rebuttal testimony, lines
13 561 to 575, that the proposed repowering wind
14 facilities are needed. Contrary to Mr. Link's
15 statement, the Company has not proven that the
16 proposed repowering project is needed. From the
17 very beginning, the impetus of the project has been
18 the availability of production tax credits or PTCs.
19 This understanding was acknowledged by the Company
20 in data request 16.6, in which the Company stated,
21 "The Company's repowering project was developed as
22 an opportunity to capitalize on the continuing
23 availability of the production tax credits. The
24 Company would not move forward without the -- excuse
25 me. The Company would not move forward with the

1 repowering projects if there were no benefits from
2 the production tax credits, as those are required to
3 produce economic benefits for customers, which was
4 the Company's goal in pursuing this particular
5 project." That was directly quoted from DPU 16.6.

6 It wasn't until later, the Company changed
7 its position from pursuing an economic opportunity
8 to a need-based resource acquisition. This
9 sentiment is shared by many parties across multiple
10 jurisdictions. And in the IRP docket, we just went
11 through that same change of position. That was
12 Docket 17-035-16. And in fact, the Oregon
13 Commission staff in its recommendation in their IRP
14 Docket LC 67, on page 18, stated, "The understanding
15 that PacifiCorp did not need new resources in 2020
16 for capacity was not unique to Oregon staff. Many,
17 if not all parties in this matter, were also
18 similarly confused. Additionally, the Company still
19 has not explicitly identified the need for these
20 resources, especially considering the significant
21 risks that ratepayers are being asked to burden."

22 And then finally, in my response
23 testimony -- I know you guys have read all my
24 testimony -- but I did point out, "The ratepayer's
25 uncertain benefits could materialize or disappear,

1 depending on a suite of unknowns and risks that can
2 happen."

3 That concludes my summary. And Mr. Peaco
4 will go into detail on these risks, and
5 Mr. Chuck Peterson will talk about intergenerational
6 inequities as well. Thank you.

7 Q Dr. Zenger, you mentioned the public
8 interest. Utah Statute 54-17-402 states that when
9 the Commission is making a resource decision and
10 determining if it is in the public interest, the
11 Commission -- I'll just read it. "...is in the
12 public interest, taking into consideration:
13 (1) whether it will most likely result in the
14 acquisition, production, and delivery of utility
15 services at the lowest reasonable cost to the retail
16 customers of an energy utility located in this
17 state; (2) long-term and short-term impacts;
18 (3) risk; (4) reliability; (5) financial impacts on
19 the energy utility; and (6) other factors determined
20 by the Commission to be relevant." Is it your
21 testimony and the Division's position that in
22 determining whether or not approving the application
23 is in the public interest, the Commission should
24 consider that there is no need for these projects?

25 A Most definitely, yes.

1 MS. SCHMID: Dr. Zenger is now
2 available for questions.

3 COMMISSIONER LEVAR: Thank you.
4 Mr. Snarr or Mr. Moore, do you have any questions?

5 MR. SNARR: No questions.

6 COMMISSIONER LEVAR: Thank you.
7 Mr. Russell?

8 MR. RUSSELL: No questions. Thank
9 you.

10 COMMISSIONER LEVAR:
11 Ms. Tormoen Hickey, do you have any questions for
12 Dr. Zenger?

13 MS. HICKEY: No, thank you.

14 COMMISSIONER LEVAR: Thank you.

15 Ms. McDowell or Mr. Lowney?

16 MS. MCDOWELL: The Company does have
17 some questions for Dr. Zenger.

18 MS. SCHMID: May I have an additional
19 copy? Thank you.

20 BY MS. MCDOWELL:

21 CROSS-EXAMINATION

22 Q Good afternoon, Dr. Zenger.

23 A Good afternoon.

24 Q So I wanted to ask you a question about
25 your direct testimony if you can turn to that, and

1 specifically, the line reference is lines 241 to
2 243. It's the last page of your testimony. Do you
3 have that? So there, you ask the Commission to
4 reject repowering because there is not, using your
5 words, "A high probability of significant savings
6 when compared to the no-action option." Do you see
7 that testimony?

8 A Yes.

9 Q So now, Ms. Schmid just read a portion of
10 the voluntary resource decision statute to you, and
11 I specifically wanted to ask you a question about
12 the provision of the statute that requires the
13 Commission to consider as a part of its public
14 interest determination, whether repowering will most
15 likely result in the acquisition, production, and
16 delivery of utility services at the lowest
17 reasonable cost. Are you familiar with that
18 provision of statute?

19 A Yes, I am.

20 Q So I want to represent to you that in the
21 course of preparing for this hearing, I looked up
22 the term, "most likely" in merriamwebster.com, and
23 it says, "Most likely means either more likely than
24 not or probably." Does that seem like a reasonable
25 definition to you?

1 A It seems like I went to look up one, too,
2 and it was like, is it 50 percent or 60 percent?
3 What's more likely?

4 Q So their definition, "More likely than not
5 or probably." So applying that definition, the
6 issue here is whether repowering will probably
7 result in the production of the lowest reasonable
8 cost utility services here, correct?

9 A Yes.

10 Q So instead of reviewing the Company's
11 request under that standard, the Division is
12 applying a high-probability standard; isn't that
13 correct, based on your testimony?

14 A Yes.

15 Q So to your knowledge, has the Commission
16 ever applied that higher standard previously in a
17 voluntary resource case?

18 A They may have or may not. But I believe
19 the reason is so appropriate here because this is --
20 the magnitude and scope of this repowering
21 billion-dollar project is -- it demands a high
22 standard.

23 Q So the Division is asking the Commission
24 to reject the Company's filing under a
25 high-probability standard when that's not the

1 **standard imposed by the statute, correct?**

2 A My understanding of the statute is that,
3 besides the short-term and the long-term rate
4 impacts and things like that, there's other factors
5 that should be taken into consideration. And I
6 think the size and magnitude of this project
7 warrants that. And that being said, I don't have
8 the copy of the full statute in front of me. Maybe
9 my attorney can give it to me.

10 Q I can represent to you that you've quoted
11 it at line 130 of your direct testimony, also. So I
12 also wanted to ask you about a Commission decision
13 under the voluntary resource statute. It's from my
14 knowledge, the only litigated decision under that
15 statute involving the Bridger SCR determination.
16 Are you aware of that case?

17 A I'm aware of the case.

18 Q So I've handed you -- or I've had
19 distributed to you an excerpt from the Commission
20 order in that case, which has been marked RMP
21 Cross-Exhibit No. 1. Do you see that?

22 A Yes.

23 Q So the Company did cite this decision in
24 its testimony. Do you recall that?

25 A I do recall that. In fact, I think

1 Mr. Peterson addresses that in his testimony.

2 Q I'd like to just quickly go through the
3 order with you and talk about its application to
4 this case. Can you first refer to page 27 of that
5 order? Are you with me there on page 27 of the
6 order, Ms. Zenger?

7 A Yes.

8 Q So to be clear, the statute cited here
9 that the Commission was proceeding under was the
10 voluntary resource statute that we're talking about,
11 cited here on page 27. Does that seem right?

12 A Uh-huh (affirmative).

13 Q And then if you refer to page 12, going
14 back to page 12, there's a discussion of the
15 Company's proposal in that case and its analysis.
16 So I just wanted to quickly review that with you and
17 refresh your recollection about this case. So on
18 page 12 in the second full sentence from the top, it
19 says, "Second, the Company compared the difference
20 in the present value revenue requirement of the two
21 system optimizer SO model simulations to evaluate
22 costs with and without the project." Do you see
23 that?

24 A I see that.

25 Q So in that case, the Company used the same

1 SO model that it's using here to evaluate
2 repowering?

3 A Yes. You know, I really didn't work on
4 this case, so I don't know if they also used the PaR
5 model, and if they did the 20-year and the 30-year
6 model as well. So I'm probably going to defer any
7 questions on this case to Mr. Peterson.

8 Q Let me just ask you a few more. So that
9 analysis was, with and without the project, similar
10 to how the Company has analyzed, with and without
11 repowering in its economic analysis here, correct?

12 A The SO part is similar --

13 MR. JETTER: I object to that
14 question because it's misrepresenting the facts of
15 that case. In that case, I was a part of that case,
16 and the comparison was not with and without the SCRs
17 only. That case involved with and without --
18 without the SCR scenario, involved a natural gas
19 power plant as an alternative. So I believe that
20 question misrepresents --

21 COMMISSIONER LEVAR: Do you want to
22 respond to the objection, or would you like try to
23 say the question differently? Do you want me to
24 rule on it?

25 MS. MCDOWELL: I'm happy to restate

1 the question and just move on to the next question.

2 BY MS. MCDOWELL:

3 Q On page 13, if you could turn to that.

4 And according to the language of this order, it
5 says, beginning in the second paragraph, "According
6 to the Company, six of the nine cases modeled in its
7 updated analysis produced a PVRRD favorable to the
8 SCR investment." Do you see that?

9 A I see that.

10 Q And the Company further argued that the
11 PVRRD results are unfavorable to the SCR investment
12 only in cases that assume low natural gas prices.
13 Do you see that?

14 A Yes. And I see this case is totally
15 different. The first line includes the coal costs,
16 the load forecast, the mine capital. So without
17 knowing the case, to me it appears like they're not
18 analogous.

19 Q So let me ask you, you're aware, aren't
20 you, that the Commission approved the SCR voluntary
21 resource decision? And that's at page 32 if you
22 want that reference.

23 A Uh-huh (affirmative).

24 Q And are you aware also that the DPU in
25 that case supported the SCR?

1 A I believe they did. It was when the clean
2 power plan was issued.

3 Q Now, I just wanted to ask you very briefly
4 about a couple of other exhibits related to this
5 case. That would be Cross-Exhibit 2 and 3, if you
6 can pull those out. In Cross-Exhibit 2 -- that's
7 the testimony of George Evans, the Division's
8 witness in that case. Do you see that?

9 A Yes.

10 Q And on page 4 of that testimony -- if you
11 could turn to that -- there is a statement on line
12 52 where Mr. Evans is asked what he would recommend,
13 and he states on line 54 -- basically on line 53 --
14 that he recommends a redacted number as the
15 risk-weighted benefit of the Bridger SCRs. And then
16 explains that the value is the simple average of the
17 nine SO model results, including base, high and low
18 natural gas prices, and base, high and low carbon
19 dioxide prices discussed by Mr. Link. And then he
20 says using a simple average is equivalent to
21 assuming that each of the nine results is equally
22 likely. Do you see that?

23 A I don't see the last sentence you just
24 read, but I'm looking at page 4.

25 Q And that's on lines 57 through 58.

1 A I'm looking at that and it looks like they
2 had to correct errors concerning the mine capital
3 costs and make modified assumptions.

4 Q So I'm on line 57 where it says, "Using a
5 simple average is equivalent to assuming that each
6 of the nine results is equally likely." Do you see
7 that?

8 A I see that.

9 Q And then further on, Exhibit 3 -- that is
10 a copy of the transcript from that case -- where
11 Mr. Evans further explained this risk-weighted
12 average approach that the Division previously
13 proposed. And on page 164 of that transcript, he
14 says, basically, I feel the way to do it is to
15 combine the results of the nine different modeling
16 simulations that were performed. Do you see that
17 language?

18 A What lines are you on?

19 Q I'm on lines 23 through 25 at the bottom
20 of the page. That's an explanation of his
21 risk-weighted average.

22 A I see he has a disagreement with the way
23 the Company is doing it. Which way is the Company
24 doing it in this case?

25 Q And then he says, on basically line 24 and

1 beginning on line 23, he says, "I feel the way to do
2 that is to combine the results of the nine different
3 modeling simulations that were performed." Do you
4 see that?

5 A Yes, I see that. But in reading that same
6 page, it looks like Mr. Evans has a dispute over the
7 way the Company has done it, so I guess he's trying
8 to come to a resolution.

9 Q I think in that case the Company didn't
10 agree with the risk-weighted average. So just
11 quickly to finish up in terms of this review, on
12 page 165 where he's explaining to the hearing
13 officer about how his risk-weighted average -- on
14 lines 6 through 8, he says, "I think that's one way
15 to approach it, and a pretty good way, and one
16 that's neutral. It doesn't attempt to say that
17 lower gas prices are more likely or less likely in
18 the future, just that they are equally likely with
19 the base and high gas price forecasts." Do you see
20 that explanation of the risk-weighted average?

21 A I see that.

22 Q So what I want to ask you is, related to
23 your testimony and your summary where you say that
24 the Division can't say that repowering is the
25 least-cost resource based on the scenarios. Do you

1 have Mr. Link's testimony with you?

2 A Yes.

3 Q What I specifically wanted to ask you
4 about is his supplemental direct testimony.

5 A I have that.

6 Q Turn to his tables, which are -- those are
7 really the most up-to-date scenario tables on the
8 repowering project as a whole. Page 20 is the first
9 one I'm going to ask you about, Table 5-SD. And do
10 you recognize this as Mr. Link's scenario analysis
11 for the entire project for the 20-year period?

12 A Yes.

13 Q So I'll ask you to accept, subject to
14 check, that averaging the SO results on this chart
15 produces a net benefit of 212 million. Will you
16 accept that number, subject to check?

17 A Subject to check.

18 Q And also, subject to check, that would
19 create a benefit cost ratio equal to 1.21. Will you
20 accept that number, subject to check?

21 A I'm not sure how you're calculating the
22 benefit-to-cost.

23 Q I calculated the benefit-to-cost ratio
24 based on the 1.01 billion NPV cost, compared to
25 the --

1 A To the average of the SOs?

2 Q **Yes.**

3 A I don't agree with the predicate of this
4 exercise.

5 Q **I understand, but I'm asking you accept
6 those numbers, subject to check.**

7 A I accept the numbers.

8 Q **Basically, that you have a 212 average
9 benefit, your risk-weighted average, using the
10 Division's approach from that SCR case, and that
11 would equal a benefit-to-cost ratio equal to 1.21.**

12 A Excuse me, but the Division's approach was
13 not to average them.

14 Q **The Division's approach in the SCR case
15 used a risk-weighted average of the nine scenarios.**

16 A Okay. I can't comment on that because I
17 wasn't involved in the -- I believe Mr. Peterson can
18 comment on the Bridger case.

19 Q **And I'm not asking you to comment on that.
20 I'm asking you --**

21 A I know it was in this case.

22 Q **I understand. But if you apply that
23 methodology to this case, I'm asking you to accept,
24 subject to check, that the average of the benefits
25 would be 212 million, and the average of that**

1 benefit cost ratio would be 1.21. Will you accept
2 those numbers, subject to check?

3 A Subject to check.

4 Q So then, if you turn to page 22, which is
5 the same table -- this time for the 2050 benefits --
6 and doing the same analysis for the 2050 benefits,
7 an average of the scenario results here, would you
8 accept, subject to check, that that average is
9 281 million?

10 A So this is a different table. So are you
11 averaging the annual revenue requirement? Is that
12 what you're doing?

13 Q That's correct. I'm averaging the updated
14 annual revenue requirement.

15 A And what's the average?

16 Q That average is -- I'll represent to you
17 is 281 million.

18 A Okay. I don't think it's representative
19 of anything but an average.

20 Q Right. And the benefit-to-cost ratio that
21 you would derive would be 1.28. Would you accept
22 that, subject to check, as well?

23 A Yes.

24 Q So let me ask you a hypothetical that uses
25 those cost benefit ratios. If we were analyzing a

1 proposed DSM investment which requires a cost
2 benefit ratio of 1.0 or greater to demonstrate cost
3 effectiveness. With benefit-to-cost ratios of 1.21
4 or 1.28, that investment would clearly be
5 cost-effective, wouldn't it?

6 A I'm -- again, I don't do the DSM so I'm
7 not familiar with those calculations.

8 Q So if you assume for purposes of my
9 hypothetical that cost effectiveness requires 1.0 or
10 greater, cost benefit ratios of 1.21 or 1.28 would
11 demonstrate a cost-effective investment, correct?

12 A Yes, assuming both of those.

13 MS. SCHMID: Pardon me. With this
14 line of questions, the Division does have another
15 witness that is prepared to answer with more
16 familiarity considering these topics. And the
17 Division would like to note that Dr. William Powell
18 is available to testify and answer these questions.

19 MS. MCDOWELL: You know, I've just
20 concluded that line of questioning, so I'm ready to
21 move on.

22 COMMISSIONER LEVAR: I think that
23 addresses the objection at this point.

24 THE WITNESS: I don't see any
25 relevance to this case.

1 BY MS. MCDOWELL:

2 Q Now I'm going to shift and ask you some
3 questions about need. And first, before I ask you
4 about your testimony, I just wanted to ask about
5 your summary. You cited some comments from the
6 Oregon staff in the Oregon IRP process. Do you
7 recall that?

8 A Yes.

9 Q Isn't it true that the Oregon Commission
10 has acknowledged the IRP?

11 A I have not seen an acknowledgment order.
12 I know the Oregon staff recommended they not
13 acknowledge it and I heard that they were going to,
14 but I have not seen an order yet as of this time.
15 Have you?

16 Q I can represent to you that there was an
17 acknowledgment order issued last week.

18 A There was. So I have not seen that.

19 Q And the Commission actually acknowledged
20 it in a public meeting in December of 2017.

21 A I understand that they acknowledged it in
22 a meeting, but I haven't seen a written order.

23 Q I was going to ask you about your
24 testimony, but you also indicated in your summary
25 that your position is that need should be a

1 prerequisite for repowering. Is that your position
2 in this case?

3 A I think the need should be established
4 through an IRP stakeholder process, determined
5 there, and then from there, whatever reliability or
6 capacity resources come from that would be what the
7 need is.

8 Q So I wanted to ask you about your
9 definition of need in this context. So I think your
10 direct testimony has some insight into that. Can
11 you turn to that, please? Just let me know when
12 you're there.

13 A What page are you on?

14 Q It's your direct testimony at lines
15 207-209, which is page 11. So when you're talking
16 about the IRP and need, you say -- you refer to
17 operational need and indicate that there is -- on
18 line 207 -- a lack of operational need for the wind
19 repowering resources. Do you see that?

20 A Yes.

21 Q So when you talk about a resource need as
22 traditionally understood, you're referring to the
23 need for a new capacity resource; is that correct?

24 A It wouldn't have to be new capacity
25 resource. It could be, for instance, like the

1 scrubbers on the plants, you know, something that
2 goes through the IRP process where you have a CPCN
3 proceeding to determine if it's needed. So most
4 times, it could be a new resource.

5 Q Well, don't you agree that a resource
6 could be needed, as in the case of DSM, to more cost
7 effectively service current load?

8 A Yes, I do.

9 Q So I wanted to explore a little bit
10 further this question of need in your testimony.
11 Can you turn to page -- well, it's your surrebuttal
12 testimony at lines 193 to 195. Are you with me
13 there?

14 A Yes.

15 Q So there, you say, "The Division can say
16 that the wind repowered resources, if they were
17 actually needed, would displace resources such as
18 short-term market purchases." Do you see that?

19 A Yes.

20 Q So what we're talking about here in terms
21 of whether there's a need or not, is really around
22 whether there's a need for the 750 gigawatts of new
23 zero-cost, or zero-fuel-cost energy that repowering
24 would result in between now and 2037; is that
25 correct?

1 A That's what we're talking about in this
2 proceeding, yes.

3 Q And then, just to make sure we're all on
4 the same page, basically, the new energy that
5 repowering brings -- the incremental energy -- is
6 approximately 750 gigawatt hours through 2037, and
7 then thereafter would be 3,500 gigawatt hours. Will
8 you accept those numbers, subject to check?

9 A Subject to check. It's around 17 to
10 30 percent average capacity, I believe.

11 Q And so those -- that zero-fuel-cost
12 energy, just operationally, would displace market
13 purchases for the Company if they were lower cost,
14 correct?

15 A Yes. It could displace coal plants, it
16 could displace lots of resources.

17 Q And it would only displace those resources
18 if it were lower cost, correct?

19 A It depends if there's too much wind in the
20 system and they're experiencing the duck curve, they
21 might have to curtail wind, too, but that's not
22 necessarily the least cost.

23 Q In the normal order, that zero-fuel-cost
24 wind would displace other resources if it were
25 the -- only if it were the lowest cost resource,

1 correct?

2 A Right. You want to start with energy
3 efficiency and DSM and the low -- to displace
4 things.

5 Q So just focusing in on those market
6 purchases, the Company currently uses market
7 purchases to balance its system and serve load,
8 correct?

9 A Correct.

10 Q And in the current case, the status quo
11 case, customers bear all the risks associated with
12 those market purchases, correct?

13 A Well, I'm assuming as long as the Company
14 is following its hedging practices, it should.

15 Q And in fact, the Division has previously
16 expressed some concern about the Company relying on
17 market purchases to serve its need, correct?

18 A Yes.

19 Q And I wanted to give you -- an example of
20 that is in our Cross-Exhibit 5. Do you have that?

21 A Yes.

22 Q So I'll just represent to you, these are
23 the Division's comments on PacifiCorp's 2015 IRP.
24 Do you see that?

25 A Yes.

1 Q And you're listed as one of the authors of
2 these comments, so I take it you're familiar with
3 these comments?

4 A Yes, I am.

5 Q So if you turn to what's marked as page 16
6 of this exhibit, following up on my question to you
7 about the Division expressing concern about market
8 reliance, there in the -- basically the first
9 paragraph under the graph, and I want to just read a
10 sentence to you to direct your attention to it.
11 It's the last full sentence of that paragraph where
12 you say, "The reliance on FOT," and that would be
13 front office transaction. Is that the definition of
14 FOT? Can you help with that for a moment?

15 A Yes. That's the terminology we use.

16 Q And that refers to market purchases,
17 correct?

18 A Yes. Short-term. It could be hourly,
19 sub-hourly, a two-year --

20 Q Just a range of market purchases, correct?
21 So you could say, "The reliance on market purchases
22 continues to be a concern to the Division and to
23 other Utah parties. This reliance on the wholesale
24 electric market could result in ratepayers facing
25 greater price volatility and potentially loss of

1 power, except at very high prices, in the event that
2 the wholesale markets dry up due to environmental
3 concerns and the possible closure of existing
4 coal-fired generation facilities, among other
5 reasons." Do you recall those comments from the
6 Division?

7 A Yes, I do.

8 Q So I take it that by -- if the Company
9 takes steps to reduce its reliance on the market to
10 meet load, that would be consistent with the
11 Division's position that that would be risk reducing
12 to customers?

13 A You're making an extra assumption there.
14 I'm sure we filed those comments -- the Commission
15 issued an order requiring the Company to demonstrate
16 that it had the market depth and liquidity to
17 sustain that level of market purchases. And so ever
18 since the Company has included in Appendix J -- and
19 it's Volume 2 of its IRP, Western Resource Adequacy
20 study -- so these fears that we had back in 2011,
21 '15, the Commission ruled and those have been
22 somewhat gone, pretty much. We don't have to worry
23 much about that anymore.

24 Q Well, by -- repowering would basically
25 reduce the Company's reliance on market purchases by

1 750 gigawatt hours of new energy in the next 20
2 years or so. Do you accept that?

3 A Over 20 years or 30 years?

4 Q Well, through 2037. Would you accept
5 that?

6 A I don't know. I'd have to check that one.
7 I'm thinking more of the first 10 years while we
8 have the PTCs. And it seems like they would only
9 displace maybe 174 megawatts, and that's not very
10 much.

11 Q Well, if it's zero-fuel cost and 750
12 gigawatt hours, wouldn't the Company be using
13 that -- those gigawatt hours instead of market
14 purchases to serve and balance its load?

15 A I would think so.

16 Q And isn't that consistent with the
17 concerns the Division expressed, as recently as
18 2015, about the risk of the Company's reliance on
19 the market?

20 A Yes. It's consistent with that, but
21 again, that concern has been assuaged.

22 Q Can you turn to your direct testimony --
23 actually, excuse me -- your surrebuttal testimony at
24 lines 2014 -- surrebuttal, lines 214 to 216.

25 A Sure. What is the correct line?

1 Q 214. So let me ask you more generally,
2 your position is that repowering should be in the
3 IRP, correct?

4 A I'm sorry. Excuse me. I've got the wrong
5 testimony.

6 Q That's all right. I can just ask you more
7 generally.

8 A I have it right here. Okay.

9 Q So generally, this Q and A beginning on
10 line 207 indicates that your position is that the
11 repowering should be in the IRP. Is that a fair
12 summary of that Q and A?

13 A My position is that IRP stakeholders
14 should have been introduced so that IRP stakeholders
15 could have discussed it and expressed concerns over
16 it earlier in the process.

17 Q So can I turn your attention to the final
18 cross-exhibit in that stack, RMP Cross-Exhibit 6?
19 Do you have that? These are the comments,
20 PacifiCorp's comments -- or excuse me, the
21 Division's comments on PacifiCorp's 2017 IRP. Do
22 you have that?

23 A Yes.

24 Q So do you recognize these comments? It's
25 just an excerpt from the comments, from PacifiCorp's

1 2017 IRP.

2 A Yes.

3 Q So you assisted on these comments; is that
4 correct?

5 A Yes.

6 Q What I wanted to ask you about is on page
7 34 of this exhibit. And at the top of the page --
8 do you have that?

9 A Uh-huh (affirmative).

10 Q You talk about wind repowering, basically
11 beginning with "however." You say, "However, the
12 2017 IRP and its Action Plan include wind repowering
13 and new wind and transmission resources that are
14 based on an economic opportunity." Do you see that
15 sentence?

16 A Yes.

17 Q And then, I wanted to ask you about the
18 next sentence where you say, "Economic opportunities
19 are best evaluated in the context of a rate-based
20 setting, not an IRP setting." Do you see that?

21 A Yes.

22 Q So didn't the Division actually recommend
23 even considering repowering in the IRP?

24 A Did the Division recommend repowering?

25 Q Against considering repowering in the IRP?

1 A Yes, against. Yes.

2 Q So you indicated that the Commission
3 should not consider repowering in the IRP; it should
4 have instead considered it in a rate case?

5 A No, not instead. It should have gone
6 through an IRP stakeholder planning process and then
7 through a rate case.

8 Q That's curious, because your comments here
9 say, "Economic opportunities are best evaluated in
10 the context of a rate-based setting, not an IRP
11 setting." So I read those comments as indicating
12 that the Division did not believe that repowering
13 belonged in the IRP.

14 A Then if you want to read the very next
15 sentence, it says, "The Division recommends the
16 Commission direct the Company toward Utah's IRP
17 objectives, need-based resource planning, and
18 least-cost, least-risk objective, according to the
19 Commission's IRP Standards and Guidelines."

20 Q So I wanted to ask you about a statement,
21 and indicate whether you agree with it in the
22 context of repowering. And that is that regulators
23 should not discourage the Company from looking for
24 potential economic benefits for ratepayers, even if
25 the proposals seem unusual within a regulatory

1 **framework. Do you agree with that statement?**

2 A No. I think that companies should still
3 look for good opportunities. I don't want to
4 discourage the Company from looking for good
5 opportunities.

6 **Q So you do agree with that statement?**

7 A Uh-huh (affirmative).

8 MS. MCDOWELL: That's all I have. I
9 would like to offer our cross-exhibits, which are 1
10 through 3, and 5 and 6.

11 DR. ZENGER: We don't have the full
12 comments, we just have certain pages here.

13 MS. MCDOWELL: And they are just
14 excerpts. We did that in the interest of not
15 wasting a bunch of paper. I certainly would not
16 object to complete versions of any of these
17 documents being submitted into the record in lieu of
18 these cross-exhibits.

19 COMMISSIONER LEVAR: Do any parties
20 object to the admission of any of these
21 cross-exhibits? I'm not seeing any, so the motion
22 is granted. Ms. Schmid, any redirect?

23 MS. SCHMID: Yes.

24 REDIRECT EXAMINATION

25 BY MS. SCHMID:

1 Q You were asked a series of questions about
2 whether a project would most likely result in the
3 acquisition, production, and delivery of utility
4 services in the least reasonable cost to the retail
5 consumers of an energy utility located in this
6 state. Is that the only thing that the Public
7 Service Commission is required to take into
8 consideration when it is determining whether or not
9 to give pre-approval to a project like that
10 presented in the application before it?

11 A I closed my statute, but no. Definitely
12 not. There's the long-term impacts and short-term
13 factors, long-term factors, the financial impact on
14 the Utility, if there's any other factors that might
15 be deemed relevant at the time. Like, for instance,
16 when we were going through the '80s recession, that
17 was obviously a factor. So I think the magnitude
18 and scope of this project is a factor because this
19 is unprecedented. So no, it's not the only factor.
20 There are many factors.

21 Q So even if there were NPVs that were
22 positive, it's possible that customers might not see
23 the lowest reasonable cost because of other factors;
24 is that correct?

25 A That's true.

1 Q And I want to focus on this. The standard
2 is, isn't it, whether or not the Commission
3 determines that the decision is in the public
4 interest. The Division is really evaluating whether
5 or not it's worth taking a risk; is that correct?

6 A Yes.

7 Q You were asked about front office
8 transactions. Isn't it true that the Division has
9 expressed concern about reliance upon front office
10 transactions?

11 A Yes, yes.

12 Q But isn't it true that the Division thinks
13 that this application requesting a billion dollars
14 of pre-approval isn't the resource to eliminate all
15 reliance on front office transactions?

16 A Correct. This -- the small amount of
17 energy that comes from the repower of wind projects
18 wouldn't displace all the front office transactions.
19 And the Company needs to have a certain level of
20 transactions for balancing intra-hour and intra-day
21 hour balancing, so it's not like you want to get rid
22 of all of your front office transactions.

23 Q So is it true that front office
24 transactions replace capacity that the Company
25 doesn't have for, like, meeting its summer peak; is

1 **that true?**

2 A It could. They're basically considered a
3 proxy resource in the IRP. And then when we get to
4 all the tangible resources and what we need in
5 considering the 13 percent planning reserve margin,
6 then they usually fill in the numbers. But we've
7 always had them in the IRP.

8 Q And so with these front office
9 transactions, the Division is concerned but they may
10 be needed. Is that a fair statement?

11 A Yes.

12 Q And is it also a fair statement that when
13 the Company builds a resource, like a billion-dollar
14 resource, the ratepayers are locked in? And I'll
15 use that -- I'm trying to not use it as a pejorative
16 term -- but the ratepayers are committed to paying
17 not only for the cost of the project, its capital
18 costs, its expenses, but also a return on rate base
19 to the Company?

20 A That's right. And the rate base on the
21 unused equipment, too, that's being taken out.

22 Q So isn't it true that the Division is
23 really evaluating and saying it's not worth taking a
24 risk on this \$1 billion investment?

25 A Yes. The Division is not saying the

1 Company should not ever look for opportunities, new
2 battery technology and new advances that can cut
3 costs and improve system reliability, but this
4 particular acquisition presents too much risk.

5 Q And the Division isn't trying to
6 discourage the Company from looking -- is it true
7 that the Division just wants to make sure that if a
8 project is approved, it's in the public interest?

9 A Exactly. Yes. In the public interest.

10 MS. SCHMID: Now, it's Mr. Jetter's
11 turn to ask questions on a different topic.

12 REDIRECT EXAMINATION

13 BY MR. JETTER:

14 Q Thank you. I apologize for any disruption
15 this will cause, but because of my involvement in
16 the Jim Bridger SCR approval docket, I think it
17 would be reasonable for me to follow up with some
18 redirect questions regarding that topic and
19 distinctions between that and this case.

20 With respect to the Jim Bridger SCR
21 process -- I'm just going to ask a hypothetical, so
22 we don't even need to go into facts. But
23 hypothetically, would you view a resource decision
24 to add a pair of selected catalytic reaction
25 reduction systems to a coal power plant that would

1 allow it to stay in service and generate something
2 in the range of 500 megawatts of capacity -- in that
3 analysis where the alternative comparison, the need
4 to construct a very similar cost combined cycle
5 natural gas power plant in a different location, if
6 the scenario arose where those were two options --
7 neither existed in the current state -- and the
8 decision between the two was necessary to have one
9 or the other to keep the lights on, would you view
10 that as a different analysis as compared to an
11 analysis of whether we should spend a billion
12 dollars to try to make some extra money?

13 A Yes, definitely. And probably in the case
14 you described, it wouldn't have happened after the
15 fact. So here, the IRP is all done, we've done this
16 so we've got sensitivities. Is it better with, is
17 it better without? I think if you're doing two
18 complete alternate possibilities, you could do a
19 full analysis for alternatives.

20 Q Thank you. And if you were forced to
21 choose one of two alternatives, neither of which
22 were available as a no-action alternative, would it
23 be more reasonable to choose the one that was maybe
24 one dollar better than the other?

25 A Not if there is too much risk.

1 MR. JETTER: Okay. I'd like to
2 approach the witness and hand her -- what I'm going
3 to hand her is a copy -- and I don't intend to enter
4 this as an exhibit -- but it's Rocky Mountain
5 Power's 2017 integrated resource plan update,
6 May 1st, which was, I believe, yesterday or two days
7 ago, 2018?

8 COMMISSIONER LEVAR: Yes.
9 BY MR. JETTER:

10 Q And you were asked some questions about
11 the Division's concern in the 2015 IRP. Do you have
12 Rocky Mountain Power Cross-Exhibit 5? And
13 specifically, I'm looking at page 16. That includes
14 a chart titled, The 2015 IRP Load and Resource
15 Balance?

16 A Yes.

17 Q Is it accurate to say that in 2015,
18 looking at that chart, if you go out to 2024, that
19 chart shows that 2015 IRP total resource in
20 megawatts is 10,424, and the projected obligation in
21 reserve is 12,259?

22 A Yes.

23 Q And would you also accept, subject to
24 check, that the Company has represented that the
25 depth of front office transactions is

1 1,575 megawatts?

2 A Is that per year?

3 Q That's on an instantaneous basis, I
4 believe.

5 A Okay.

6 Q Would you accept that, subject to check,
7 that that is also in that IRP?

8 A Yes.

9 Q Now, would you turn to page 24 of the
10 Company's 2017 updated IRP. Do you see a chart at
11 the top, which is figure 4.2? And that shows the
12 forecasted annual coincident peak load. Are you
13 looking at that?

14 A Yes.

15 Q And is it accurate that, if you go out to
16 2024, which matches the end year of the 2015 IRP you
17 had commented about, in the gap between the
18 available resources and the projected load, is it
19 accurate to say that the current Company forecast
20 for 2024 for forecasted coincident peak load is
21 around 10,300 megawatts?

22 A Yes, yes.

23 Q And in fact, 10,300 megawatts, the Company
24 forecasted coincident peak load in its current
25 projections is less than the Company's 2015 IRP

1 projected total resources. Is that accurate?

2 A Yes, it is.

3 Q Does that cause a substantial change in
4 your concern about the number of front office
5 transactions available to meet that peak load?

6 A Well, yeah. I mean, with load changing,
7 if load is increasing, then of course, you have to
8 worry about when you're going to build the next
9 major plant. But with load being steady or
10 decreasing, you're in a no-build option and you
11 don't have the same concern over front office
12 transactions.

13 Q And so, in fact, if you have enough
14 generating capacity within the Company to exceed the
15 projected load, you may not need any front office
16 transactions. Is that accurate? You may end up
17 selling primarily through those transactions?

18 A Right, right. Short-term sales.

19 Q Thank you. With respect to the ability to
20 meet load, there was some discussion sort of mixing
21 in --

22 MS. MCDOWELL: I hate to interrupt,
23 but this is really extensive redirect. I really
24 can't remember any redirect I've ever seen that's
25 gone on this long. I understand and I hate to

1 interrupt anybody, but it does seem like we're well
2 beyond the scope of my cross-examination at this
3 point.

4 COMMISSIONER LEVAR: So that's your
5 objection, is that it's beyond the scope of cross?

6 MS. MCDOWELL: It seems like a lot of
7 this could have been covered in their testimony and
8 or in their direct filing. We don't have a chance
9 to cross-examine on all of this new information
10 that's coming out, so I guess I'm just objecting
11 because it seems like that is going beyond the scope
12 of normal redirect.

13 COMMISSIONER LEVAR: Well, I think
14 I'm going to rule that I don't think we're outside
15 of the topic of what the cross-examination was on.
16 So I don't see a basis for shutting this down based
17 on length, because I think we're within the topics
18 that you covered on cross. So I don't see an
19 evidentiary basis based on length of redirect, so I
20 will continue.

21 However, this is a good time to give
22 everyone and our court reporter a brief break. So
23 why don't we take a ten-minute break, come back, and
24 we'll continue with the redirect. If we're going to
25 be back tomorrow no matter what, there's probably no

1 reason to continue going. So it looks like we'll be
2 here tomorrow, so we'll probably come back and try
3 to wrap up around 5:00 or so. We can continue and
4 get as far as we can. Why don't we take about a
5 ten-minute recess.

6 (A brief recess was taken.)

7 COMMISSIONER LEVAR: We're back on
8 the record. Dr. Zenger, you're still under oath.
9 And we'll continue with redirect by Mr. Jetter.

10 MR. JETTER: Thank you. I am
11 finished with redirect, so we can move on to
12 recross.

13 COMMISSIONER LEVAR: Ms. McDowell,
14 do you have any recross?

15 RECROSS EXAMINATION

16 BY MS. MCDOWELL:

17 Q I wanted to ask a clarifying question
18 about the 2017 IRP update. Do you still have that?

19 A Yes.

20 Q Were you present when Mr. Link testified
21 that the load forecast used in the IRP update is the
22 same that was used in the supplemental direct
23 economic analysis presented by the Company?

24 A Yes, I heard that. That was the first
25 time I'd heard it.

1 Q So basically, whatever load forecast is
2 represented in the update is also already
3 incorporated in the Company's economic analysis?

4 A Yes.

5 Q And that's also true with the forward
6 price curve? I don't know how familiar -- since
7 you're testifying on it, I don't know how familiar
8 you are on it, but I'll represent to you that the
9 forward price curve used in the update is the
10 December 2017 forward price curve. Will you accept
11 that?

12 A Subject to check. And could I ask, also,
13 are the PTCs being modeled as nominal in the update,
14 or levelized?

15 Q I can represent to you that they are
16 modeled on a nominal basis in the IRP. Mr. Link
17 also testified to that earlier today. But back to
18 my question, is it your understanding that
19 Mr. Link's supplemental testimony providing the new
20 economic analysis is also used in the December 2017
21 forward price curve?

22 A Yes.

23 Q Which is the same forward price curve?

24 A Yes.

25 MS. MCDOWELL: Thank you. That's all

1 I have.

2 COMMISSIONER LEVAR: Thank you.

3 Commissioner White, do you have any questions for
4 Dr. Zenger?

5 COMMISSIONER WHITE: No questions.
6 Thank you.

7 COMMISSIONER LEVAR:
8 Commissioner Clark?

9 COMMISSIONER CLARK: No questions.

10 COMMISSIONER LEVAR: I don't have any
11 either. Thank you for your testimony today.
12 Ms. Schmid.

13 MS. SCHMID: As its next witness, the
14 Division would like to call Mr. Peaco.

15 DANIEL PEACO,
16 having been first duly sworn to tell the truth, was
17 examined and testified as follows:

18 DIRECT EXAMINATION

19 BY MS. SCHMID:

20 Q Good morning. Could you please state your
21 full name, business address, and employer for the
22 record?

23 A Yes. My name is Daniel Peaco. I'm
24 principle consultant for Daymark Energy Advisers,
25 consultant to the Division, and my business address

1 is 48 Free Street, Portland, Maine 04101.

2 Q In connection with your employment by the
3 Division and your participation in this docket, have
4 you prepared and caused to be filed what's been
5 marked as DPU Exhibit No. 2.0-DIR in confidential
6 and redacted form, along with Exhibit No. 2.1 and
7 along with Exhibit No. 2.2-DIR in confidential and
8 redacted form. And those were filed on September
9 20th of 2017?

10 A Yes.

11 Q Did you also prepare and cause to be filed
12 what's been marked as DPU Exhibit No. 2.0-SR in
13 confidential and redacted form, along with other
14 Exhibits 2.1 and 2.2-DIR, both in confidential and
15 redacted form? That was filed on November 15th,
16 2017?

17 A Yes.

18 Q And finally, did you prepare and cause to
19 be filed what's been marked as DPU Exhibit No.
20 2.0-RESP, your prefiled response testimony in
21 confidential and redacted form, filed on April 2nd,
22 2018?

23 A Yes.

24 Q Do you have any changes or corrections to
25 those prefiled exhibits?

1 A I do not.

2 **Q If I were to ask you the same questions**
 3 **today as are presented in your prefiled testimony,**
 4 **would your answers be the same?**

5 A They would.

6 MS. SCHMID: With that, the Division
 7 moves for the admission of Mr. Peaco's direct,
 8 surrebuttal, and response as previously identified.

9 COMMISSIONER LEVAR: If anyone
 10 objects to that motion, please indicate to me. I'm
 11 not seeing any objections, so the motion is granted.

12 (DPU Exhibit Nos. 2.0-DIR Confidential, 2.0-DIR
 13 Redacted, 2.1-DIR, 2.2-DIR Confidential, 2.2-DIR
 14 Redacted admitted.)

15 BY MS. SCHMID:

16 **Q Do you have a summary to present today?**

17 A I do.

18 **Q Please proceed?**

19 A Commissioners, good afternoon. The
 20 Company has proposed a collection of 12 wind
 21 repowering projects for approval by this Commission
 22 that the Company claims represents a unique economic
 23 opportunity to provide benefits to customers,
 24 deriving from the limited time nature of the federal
 25 production tax credit, or PTC policy.

1 On behalf of the Division, I've offered
2 three pieces of testimony in this proceeding, which
3 we have just described. The Company has offered the
4 projects as a unique opportunity for the Company to
5 repower these projects and receive renewed
6 qualification for PTC benefits, resulting in lower
7 costs to customers. The repowering projects are
8 different than a typical resource decision. In this
9 case, the Company has failed to show that there is a
10 resource need for these projects. They do not serve
11 to address any identified need from a reliability or
12 public policy requirement. The sole justification
13 of these projects provided by the Company is to
14 lower costs to customers.

15 The Company's initial application offered
16 the 12 projects as a single project, with an
17 economic analysis of these projects as one. In
18 response to concerns expressed by me and others, the
19 Company acknowledged that other than the common
20 timing objective for the purposes of the PTC
21 qualification, the 12 repowering projects are
22 independent investment decisions. My testimony
23 examines the Company's economic case for each of
24 the 12 projects. The Company has asserted that
25 these projects offer a high likelihood of

1 significant benefits to ratepayers. In the context
2 of this case and in the context of that
3 representation of the benefits to customers, a 50/50
4 proposition is not acceptable.

5 I've examined the potential for adverse
6 outcomes to seek an assurance of a much higher
7 probability of significant benefits to customers;
8 I've examined the project economics to determine
9 whether the results are sufficiently robust to be
10 beneficial to ratepayers across the full range of
11 possible market and policy outcomes, and they are
12 not. I observed that the Company's current estimate
13 of economic benefits of the entire package of the
14 repowering projects has declined from the analysis
15 it presented in its rebuttal testimony last fall.
16 The Company's current analysis estimates that the
17 net ratepayer benefits across all jurisdictions of
18 the combined projects for the nine price policy
19 scenarios ranging from \$127 million to \$446 million.
20 These values are lower than the \$360 million to
21 \$635 million range offered in the Company's rebuttal
22 testimony. My testimony shows that the benefit cost
23 margins in those results are not sufficient to
24 assure a high likelihood of significant benefits to
25 ratepayers, even if you assume the Company's

1 estimates are reasonable.

2 In the low gas, zero CO2 scenario, the
3 Company's analysis shows the \$1.1 billion investment
4 offers ratepayers across all jurisdictions a
5 \$127 million in net benefits. This value is much
6 less than the return on investment that the Company
7 is seeking, with ratepayers receiving lower
8 estimated benefits while continuing to bear many
9 important risks.

10 The economics vary considerably between
11 the 12 sites and by subsets of wind turbine
12 generation within each site. My testimony provides
13 benefit cost ratios for each of the 12 projects,
14 showing the range of value between the projects in
15 the Company's analysis and in alternative market
16 price sensitivity I've prepared. Note that the
17 ratios I've used to determine this variation among
18 the sites do not represent my view of the economics,
19 but the Company's. In addition, I provide an
20 analysis that illustrates that there are different
21 values for those wind turbine generators that the
22 Company has identified as needing repairs and those
23 that have already been repaired. I have identified
24 a number of problems with the Company's economic
25 modeling methodology and analysis that cause me to

1 conclude that the savings analysis is not a sound or
2 reasonable basis for supporting the Company's
3 recommendation.

4 The Company's primary analysis employs its
5 IRP models to evaluate the economics of the first 17
6 years of the project life, and an extrapolation
7 method to develop values for the remaining 13 years
8 of the project life. In each of my three filed
9 testimonies, I describe anomalous results that I
10 have observed that leave me concerned that the
11 modeling methodology is not providing reliable
12 results. In response to these concerns, the Company
13 has offered an alternative extrapolation
14 methodology, but I have found that that method has
15 flaws as well.

16 The Company's primary and alternative
17 methodologies are each challenged to provide
18 reasonable economic analysis of the unique
19 characteristics of the incremental production
20 offered by the repowered projects. Neither method
21 provides a sufficiently sound and transparent
22 evaluation of the projects to give confidence in the
23 results. As a result, I cannot conclude that either
24 method is a proper basis to make judgments as to
25 whether any or all of the projects have a high

1 likelihood of customer benefits.

2 There remains significant risk that the
3 actual economic value to ratepayers will be
4 significantly different than the results in the
5 Company's analysis. The Company's proposal requires
6 that ratepayers bear a number of significant
7 economic risks and uncertainties. I believe it is
8 particularly important for the Company to explore
9 the magnitude of any potential downside risks that
10 the customers are being asked to assume if these
11 projects are to proceed. These risks include
12 project cost uncertainty, project energy production
13 estimate uncertainty, and assumptions regarding
14 project life. While the Company asserts that it has
15 demonstrated the net benefits to customers over a
16 wide range of scenarios, the analysis the Company
17 presented does not include any analysis for these
18 factors for those price policy scenarios that
19 produced the least attractive benefit outcomes for
20 customers.

21 I recommend that the Company's application
22 for the 12 repowering projects be denied. However,
23 there is potential for a downsized repowering
24 program to be considered by the Company. I
25 recommend that the Company consider a revised

1 program proposal that eliminates at least six of the
2 least attractive sites. In addition, I recommend
3 that the repowering be limited to those turbines
4 that have problematic gear box equipment that is
5 slated for replacement. As shown in my testimony,
6 based on the Company's analysis, removing at least
7 six of the 12 sites and eliminating the repowering
8 of towers that have already had new gear box
9 equipment replaced, would deliver a higher
10 probability of benefits and substantially reduce
11 costs to ratepayers. The Seven Mile Hill I and II,
12 Glenrock I and III, Dunlap Ranch, and Marengo I
13 appear to demonstrate better economics and may merit
14 further consideration. Goodnoe Hills, Marengo II,
15 Rolling Hills, McFadden Ridge, High Plains, and
16 Leaning Juniper are the most economically challenged
17 sites and should be removed from further
18 consideration.

19 The Company could consider revising its
20 repowering program to focus on the best six sites,
21 and within those sites, the turbines that have the
22 problematic gear box equipment. Even if the
23 repowering program is reduced in size to target the
24 best investment opportunities, the ratepayer risk
25 issues would not be eliminated, only mitigated. If

1 any of these projects are to be approved, the
2 Company should be held accountable for meeting the
3 PTC requirements and effectively managing the other
4 risks that I have identified.

5 I recommend that the Commission not
6 approve any alternative configuration based on the
7 record before it. The Company could decide to
8 proceed with a modified proposal in another
9 pre-approval application.

10 **Q Have you prepared a hearing exhibit to**
11 **help explain your summary and live testimony today?**

12 A Yes. I have prepared a number of comments
13 and surrebuttal to the Company's latest filed
14 rebuttal testimony, and I would explain that exhibit
15 in that context.

16 **Q Thank you. Please proceed.**

17 A Okay. There are a number of points in the
18 Company's most recent filed testimony that I would
19 like to respond to.

20 First, I would state that Mr. Hoogeveen
21 has indicated at lines 31 and 32, that the Company
22 has addressed or mitigated the major risks
23 identified by the parties. And as I've just
24 explained in my summary, there are a number of risks
25 that we have identified as major that the Company

1 has not addressed. The Company even today, this
2 morning, he acknowledged in testimony that the
3 Company is not assuming risks that I've identified,
4 including change in federal law, change in the IRS
5 letter rulings on the implementation of the PTC
6 program, they're taking none of the production
7 risk -- downside production risks associated with
8 the projects -- and they're not assuming any of the
9 market risks, among some others. But those are the
10 major ones that I wanted to clarify, that there are
11 major risks that we have identified that the Company
12 has not addressed or mitigated.

13 The second point goes to the
14 representation of the relationship between the value
15 of the PTC benefit and the cost of the project.
16 Mr. Hoogeveen in testimony, and I think again today,
17 indicated that the investment at 1.1 billion would
18 pass 1.26 billion in PTC benefits, a number in
19 excess of the cost that he's quoted. That number --
20 I will go to the exhibit that been circulated to
21 explain what those numbers are and why I disagree
22 with his representation of those.

23 MS. SCHMID: And if we may break for
24 just a moment, I have not provided the exhibit to
25 the Commissioners, however, it has been previously

1 provided to Counsel. So if I may distribute this
2 now.

3 COMMISSIONER LEVAR: Is that a
4 confidential exhibit?

5 MS. SCHMID: Thank you. Yes, it is a
6 confidential exhibit.

7 COMMISSIONER LEVAR: So I'll ask to
8 get a copy to the court reporter, but keep it out of
9 the public transcripts if it's admitted.

10 THE WITNESS: My intention is to
11 not -- I'll refer to numbers on this page that are
12 confidential, but I don't intend to discuss them.
13 But I first will point you to two numbers on this
14 page that are not confidential, the numbers that are
15 in Mr. Hoogeveen's testimony --

16 MS. SCHMID: And if I could stop for
17 just one second, could we have this identified as
18 DPU Hearing Exhibit 1?

19 (DPU Confidential Hearing Exhibit No. 1 marked.)

20 BY MS. SCHMID:

21 Q Please proceed.

22 A Okay. So there's Mr. Hoogeveen's
23 testimony that indicates that the proposed
24 investment is in the amount of \$1.101 billion. That
25 number shows in the highlighted box at the very top

1 of the page. And I've included the source for that
2 information. All of these numbers are sourced from
3 a work paper attached to Mr. Link's testimony. The
4 second number from Mr. Hoogeveen's testimony, which
5 is in the public domain, is a number that's
6 corresponding to -- under the production tax credit
7 collection of numbers, the sum of nominal, there's a
8 number, a billion two-sixty-two. That's the second
9 number in his testimony and he talked today and he
10 characterized that as demonstrating that the PTC
11 benefits exceed the cost of the project.

12 What I want to do first is to explain to
13 you what those numbers are. The capital cost number
14 and the production tax credit are what I would call
15 nominal numbers. They're basically the sum of
16 nominal values. The capital costs that occur in
17 2018 and 2019 summed together bring you to the 1.01.
18 That's only the investment cost, it's not all of the
19 costs that go into the revenue requirements that are
20 in the analysis. It's the initial investment in a
21 nominal basis expressed in the years that they're
22 incurred. The production tax credit number, a
23 billion two-sixty-two, is also a nominal number.
24 It's the sum of the nominal values for the
25 production tax credit benefit from the year 2019

1 through 2030 in the analysis. It is not a present
2 value number, it's expressed and inflated into the
3 year dollars where the benefits occur. And so it's
4 therefore not on the same year-dollar basis or the
5 same present-value basis as the cost.

6 What I also show here on this sheet, the
7 row immediately below the billion two-sixty-two
8 number, is the present value version of that number
9 for the production tax credits. What I show in the
10 middle section, the section that is Project Cost,
11 (NPV), which is net present value of project costs,
12 and this would include the capital recovery O&M and
13 wind tax, all of the costs built into the revenue
14 requirements for a total. And the total is shown
15 there. And as you can see from comparing that total
16 to the net present value of the production tax
17 credits, the production tax credits clearly are
18 still a major component of offsetting cost, but they
19 do not exceed the cost of the project. And I think
20 it's important to put in apples to apples, the
21 magnitude of the production tax credit benefit
22 relative to the cost on a consistent basis.

23 The next point that I would like to
24 discuss is that -- and this was partly addressed in
25 oral this morning -- Mr. Hoogeveen has asserted in

1 his testimony at lines 154 to 156 that my analysis
2 shows all facilities showing net benefits in the
3 medium/medium case in the low gas, no carbon
4 scenarios. And that representation is not a
5 correct representation of my testimony. He is
6 pointing to -- I did not include any analysis in my
7 testimony that showed numbers through 2036 as he
8 stated. He subsequently this morning corrected
9 that his intent was to refer to 2050 numbers, but
10 the values that he was directing to were values
11 where I was restating the Company's numbers and not
12 my own. I would also note that in the discussion
13 about the analysis -- the 20-year and the 30-year
14 analysis that both Mr. Hoogeveen and Mr. Link talked
15 about today -- while they stressed many of the
16 benefits in the 20-year analysis and the 30-year
17 analysis, I had argued in my filed testimony and
18 continue to believe that there are real problems,
19 particularly with the 20-year analysis, and that the
20 focus should be on the 30-year results. And they
21 now have both agreed with that concept. And we're
22 now in agreement with that, but I think it's
23 important to stress that that should be the proper
24 focus of looking at the economics, and that those
25 20-year value numbers have significant problems and

1 they're not effective metrics to use for
2 determining -- making decisions on the projects.

3 My next point -- there was a
4 misrepresentation by Mr. Hoogeveen in his filed
5 testimony regarding my Table 4 on line 39 of my
6 testimony. He indicates that my analysis shows 43
7 of 48 scenarios showing net benefits. He
8 misrepresents that table in a couple of ways.
9 First, the table was not offered to show scenarios
10 or my net benefits, it was to show how the economic
11 value of the projects, the 12 projects, varies
12 amongst the projects. He also misses the point
13 that, instead of 48 scenarios, there's only two
14 scenarios represented in the sets of numbers in that
15 table. And from that -- I used that table, in part,
16 to form my recommendation that the Company should do
17 an analysis of a downsized program, and the Company
18 so far has refused to do that.

19 My next point goes to testimony
20 offered by Mr. Hemstreet. He has indicated in his
21 filed testimony that the Company has agreed to fully
22 assume all PTC risks associated with factors within
23 its control, and that my testimony does not explain
24 what risks remain. He misses the point that I have
25 an extensive section in my testimony where I talk

1 about a number of risks that remain, including those
2 risks that implicate the ultimate value of the PTC
3 benefit to customers. That's presented in section 4
4 of my testimony.

5 He also further indicated that, in
6 oral testimony today, that he did not believe a
7 10 percent reduction in production would be
8 significant on the value of PTC. And I would like
9 to refer you back to my -- the exhibit that we
10 talked about with the numbers, and I would like to
11 return your attention to the net present value of
12 production tax credit. And if I can indulge to ask
13 you to do a little math and look at what 10 percent
14 of that number is, I consider that a significant
15 value. And that would be the loss if production
16 was -- in the first ten years of the project -- were
17 10 percent less than is in the Company's analysis.

18 I also want, at this point, make the
19 point that I was concerned to hear that
20 Mr. Hemstreet has not even considered what the
21 uncertainty around his estimate is. He's
22 represented it as a long-term average. I think in
23 the interest of understanding the downside risk,
24 they have some data, they could have done a better
25 representation of what the variance is and what

1 would happen -- what adverse outcome over the first
2 ten years of the projects might look like, so that
3 we can understand exactly how much exposure,
4 downside exposure, there is in realizing those PTC
5 benefits.

6 I have just a few more. I'm sorry to
7 move on here. I wanted to speak briefly to the five
8 reasons why Mr. Hemstreet says the Company would not
9 consider repowering only some of the turbines on
10 each of the sites, and that was discussed in cross
11 earlier today. And I guess my point here is that he
12 offered a number of points, five points in his
13 testimony as to why it was not reasonable to
14 consider. But then yet today, he says those issues
15 are not unresolvable. Yet despite the fact that we
16 called in our prior testimony for him to address
17 that, he argued that it shouldn't be done and now he
18 says there's ways we can resolve that, and we have
19 not heard evidence on that to date.

20 My next point is, Mr. Hemstreet
21 obviously disagrees with my recommendation to
22 eliminate at least six sites and to limit the
23 proposal to only certain turbines. And I guess I
24 would say at this point, the fact that they didn't
25 respond with an alternative to show the Commission

1 in their filed testimony is a concern to me. I'm at
2 least pleased to hear today that the Company witness
3 acknowledged that this is a project-by-project
4 evaluation and we should look on a project basis.
5 But they have yet to respond and to provide an
6 alternative configuration that I would contend would
7 provide higher benefits at lower costs than what
8 we're considering today.

9 Responding to a point in Mr. Link's
10 testimony, he indicates -- I have offered a number
11 of critiques of his economic modeling. And to be
12 clear, the modeling that he's offered on the 30-year
13 analysis we're talking about, there really is two
14 components to the modeling. There's the detailed
15 system modeling that he describes that is conducted
16 for 17 years of the projects. And then there's this
17 extrapolation of those results to get the balance of
18 the economics. I and others in this case have
19 offered a number of critiques of both components of
20 that analysis. And I think together, there are some
21 real problematic issues that we've identified that
22 the Company has yet to really acknowledge or respond
23 to. The primary response that Mr. Link offers is
24 that I'm discarding his robust system modeling, and
25 I take issue with that. I've done planning in this

1 kind of environment for a long time. I do a lot of
2 system modeling. I also do a lot of work testing
3 those model results because they have a lot of data,
4 they're complicated models, and you have to be
5 comfortable that what you're getting out is
6 reasonable results. What I've offered in my
7 testimony are the kinds of things that I typically
8 do to test our own models to see whether they're
9 producing reasonable results. I have not conducted
10 an independent analysis of system modeling, but I
11 have done enough testing to be able to demonstrate
12 that the results from his models, both the 17-year
13 models and the extrapolation methods, are not
14 producing reasonable results.

15 And I would hope and presume that his
16 organization is also doing the same kind of
17 diagnostic test of their results to test
18 reasonableness. That's what I've offered in my
19 testimony, and he claims that I'm dismissing his
20 model rather than pointing out the fact that our
21 diagnostic checks are pointing out the fact that he
22 has real problems. And so I take issue with his,
23 sort of, bold assertion that we should believe in
24 the model, regardless of whether the results look
25 reasonable or not.

1 Just a couple more points. Mr. Link
2 addresses my alternative method for reviewing
3 project-by-project benefits and the use of his price
4 script from Palo Verde. Again, I did two tests on
5 that. I tested his Palo Verde price script by
6 comparing it to his own natural gas price forecast
7 and what I considered to a reasonable system average
8 heat rate. Again, that's a simple method to check
9 to see whether the result is reasonable. And what I
10 found is, his Palo Verde price scripts are much more
11 expensive than what any combination of natural
12 gas-fired plants on their own system would produce.
13 So what I did in my analysis is, I tested the
14 economics of the project using his gas price and a
15 reasonable system average heat rate, which is about
16 30 percent below his Palo Verde price. So he
17 rejects my result on that because he disagrees with
18 the fact that my reasonable check shows that the
19 numbers he's asking us to look at are quite higher
20 than the value of energy based upon natural gas in
21 their system.

22 The last point I'd like to make -- it
23 goes to a point that was in my prior testimony. We
24 started our analysis at the beginning of the case
25 based upon a representation that the Company made

1 that there is a high likelihood of customer benefits
2 and that there will be significant benefits to
3 customers, and this was a unique economic
4 opportunity, and we should look at it that way.
5 This case has evolved -- and particularly Mr. Link
6 and Ms. Steward's testimonies -- they now would like
7 us to review this from -- this is like any other
8 choice between two resource alternatives, and a
9 dollar benefit to the good is reason to go forward
10 with these projects. That's a substantial shift in
11 the Company's own articulation of how they believe
12 we should view the benefits of these projects. And
13 I think that's a major issue in how the Commission
14 will look at what value proposition these projects
15 actually offer customers.

16 And with that, I conclude my
17 surrebuttal.

18 MS. SCHMID: Thank you. The Division
19 would like to move for the admission of what's been
20 marked as DPU Exhibit 1, which is a confidential
21 exhibit.

22 (DPU Confidential Hearing Exhibit No. 1 admitted.)

23 COMMISSIONER LEVAR: If any party
24 objects to that motion, please indicate to me.

25 MS. MCDOWELL: No objection.

1 BY MS. SCHMID:

2 Q Just one question. You were engaged to
3 evaluate the risks and benefits, not to make the
4 policy decision on public interest; is that correct?

5 A That's correct.

6 Q And so your testimony has focused on
7 evaluating those risks and benefits and found the
8 projects lacking?

9 A Yes.

10 MS. SCHMID: Mr. Peaco is now
11 available for questioning.

12 COMMISSIONER LEVAR: And your motion
13 to enter into the record DPU Hearing Exhibit 1 is
14 granted.

15 MS. SCHMID: Thank you.

16 COMMISSIONER LEVAR: Mr. Moore or
17 Mr. Snarr, do you have any questions for Mr. Peaco?

18 MR. SNARR: No questions.

19 COMMISSIONER LEVAR: Mr. Russell, do
20 you have any questions?

21 MR. RUSSELL: No questions, Chair.

22 COMMISSIONER LEVAR:

23 Ms. Tormoen Hickey?

24 CROSS-EXAMINATION

25 BY MS. HICKEY:

1 **Q Mr. Peaco, thank you. Lisa Hickey**
 2 **representing the Interwest Energy Alliance. I**
 3 **really just had one question. You indicate that six**
 4 **of the projects should be approved, it sounds like?**

5 A No. I've indicated that six projects
 6 should be eliminated, six others should be
 7 considered -- subject to further review because they
 8 have more potential to be beneficial.

9 **Q And the further review would require**
 10 **another application?**

11 A That's currently what -- because the
 12 Company did not respond to providing a more focused
 13 analysis of those projects, we don't have the
 14 information in front of us to make that decision.

15 MS. HICKEY: Thank you.

16 COMMISSIONER LEVAR: Ms. McDowell or
 17 Mr. Lowney?

18 CROSS-EXAMINATION

19 BY MS. MCDOWELL:

20 **Q Yes, I definitely have some questions for**
 21 **Mr. Peaco and just as a time --**

22 COMMISSIONER LEVAR: Does it make
 23 sense to start and stop and finish in the morning,
 24 or would it be better just to start in the morning?

25 MS. MCDOWELL: Because this is

1 financial analysis cross-examination, I hate to
2 start it and stop and then have to resume in the
3 morning. If we could just restart in the morning, I
4 think it would make a more cogent presentation of my
5 cross-examination and these responses.

6 COMMISSIONER LEVAR: Any objection
7 from anybody to that?

8 MS. SCHMID: No objection.

9 MR. RUSSELL: Chair, I don't really
10 have an objection. I am a little concerned about
11 whether we're going to make it all the way through
12 tomorrow. That concern really is related to the
13 fact that we're going to have some very severe
14 scheduling difficulties if we don't make it through
15 tomorrow. It's not really an objection to
16 Ms. McDowell's -- I'm sympathetic to the point that
17 she's making, I do want to raise the concern about
18 whether we're going to make it through tomorrow.

19 COMMISSIONER LEVAR: And you know,
20 we've been through six witnesses today and we have
21 Mr. Peaco, plus five others tomorrow so you're
22 right, we could be pushing things tomorrow. I'm not
23 sure the next 20 minutes of starting and stopping is
24 going to make much difference on that, but that's an
25 issue that we, as we get to the afternoon, we can

1 start thinking about tomorrow.

2 MS. MCDOWELL: And can I respond by
3 saying that we're also highly incented to complete
4 this case by tomorrow, so we'll certainly tailor our
5 cross-examination to work toward that end, and we
6 think it's certainly doable.

7 COMMISSIONER LEVAR: Okay. Anything
8 else that needs to be addressed before we recess
9 until tomorrow morning? We will be recessed and
10 we'll reconvene at 9:00 a.m. tomorrow morning.

11 (The hearing was recessed at 4:55 p.m.)
12
13
14
15
16
17
18
19
20
21
22
23
24
25

1 REPORTER'S CERTIFICATE

2 STATE OF UTAH)

3 COUNTY OF SUMMIT)

4

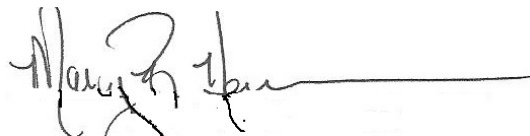
5 I, Mary R. Honigman, a Registered Professional
6 Reporter, hereby certify:

7 THAT the foregoing proceedings were taken before
8 me at the time and place set forth in the caption hereof;
9 that the witness was placed under oath to tell the truth,
10 the whole truth, and nothing but the truth; that the
11 proceedings were taken down by me in shorthand and
12 thereafter my notes were transcribed through computer-aided
13 transcription; and the foregoing transcript constitutes a
14 full, true, and accurate record of such testimony adduced
15 and oral proceedings had, and of the whole thereof.

16 I have subscribed my name on this 14th day of May,
17 2018.

18

19



20

Mary R. Honigman
Registered Professional Reporter #972887

21

22

23

24

25

\$	\$127 242:19 243:5	(2) 20:20 200:17	1-SD 83:3 94:2	1.5 145:19
\$1 12:11 168:4 186:17 229:24	\$180 63:18 74:4	(3) 200:18	1.0 192:5,6 193:23 214:2, 9	10 40:14,21 57:18 65:7 87:20 100:23 110:20 112:16 132:12,19 183:24 193:4 196:7 222:7 254:7,13,17
\$1,137,000 192:25	\$189 17:8	(4) 200:18	1.0-RESP 192:11 193:23	
\$1,137,000, 000 193:1	\$200 74:10, 14,16,22	(5) 200:18		
\$1,337,000 192:24	\$204 17:8	(6) 200:19	1.0-SR 192:9 193:23	10,300 233:21,23
\$1.02 63:25	\$210 65:18	0	1.01 211:24 250:17	10,424 232:20
\$1.1 15:4 37:15 140:17 243:3	\$273 17:5 63:21 74:5	0 40:14	1.1 55:6,17 64:22 140:8 248:17	10-year 87:23,24 146:20
\$1.101 195:4 249:24	\$3.75 80:3	04101 239:1		10-year-old 13:14
\$1.14 15:2	\$360 242:20	1	1.1-RESP 192:11 193:24	100 14:24 104:14 145:24 146:7, 15 147:17 151:4
\$1.2 154:18	\$4 82:16	1 20:18 22:4, 6,16,22 23:23 30:11,12,18 46:10,11 140:13 145:25 164:13 204:21 226:9 249:18,19 259:20,22 260:13	1.2-RESP 192:12 193:24	105 164:14
\$1.26 12:13 64:20	\$4.25 82:7		1.21 211:19 212:11 213:1 214:3,10	109 164:15
\$1.4 63:22	\$446 242:19	1,000 11:25	1.26 248:18	
\$1.48 15:3 63:22	\$5 82:1,4,16	1,575 233:1	1.28 213:21 214:4,10	11 16:2 19:4 107:9 127:25 216:15
	\$635 242:21			
	(
	(1) 200:13			

115 64:21	244:7	16 118:8 193:4 220:5 232:13	175 35:7	2.0-DIR 239:5 240:12
12 11:24 16:2 19:4 20:18 57:18 61:22 63:7,12 64:23 100:25 107:9 108:12 127:25 195:17,20 205:13,14,18 240:20 241:16,21,24 243:11,13 245:22 246:7 253:11	130 101:6 204:11	16.6 198:20 199:5	18 199:14	2.0-RESP 239:20
	131 178:22	160 101:4 184:21 191:25	182 197:23 198:2	2.0-SR 239:12
	132 159:7	162 45:10	188 164:1,4,5	2.1 239:6,14
	134 159:7	164 45:10 209:13	19 33:1 164:2	2.1-DIR 240:13
	14 93:7 117:5	165 210:12	191 164:2	2.2-DIR 239:7,14 240:13
	143 192:23	168 35:18	193 217:12	
12,259 232:21	15 118:8 169:1,6 221:21	17 107:14 218:9 244:5 256:16	195 217:12	2.4 12:12
12-minute 183:24	150 35:7	17-035-16 199:12	19th 60:11	20 16:9,12 33:1 40:14 47:10 63:8 106:2 146:23 173:7,8 211:8 222:1,3 262:23
12.6 111:17	151 36:16	17-035-39 7:4	1:00 126:16	
125 132:23 158:17,21	153 36:16	17-035-69 164:22	1st 60:13 140:6 143:2 146:6 193:6 232:6	
127 178:22	154 29:2,8 43:22 44:24 45:13,21 46:7 252:1	17-year 257:12	<hr/> 2 <hr/>	20-year 88:15 90:9,12 93:2 206:5 211:11 252:13,16,19, 25
128 37:4 158:18,21	156 29:2,8 43:23 44:24 45:13 252:1	174 222:9	2 22:4,12,16, 22 35:19 111:8 185:7 208:5,6 221:19	2004 102:3
12th 16:4 128:4	15th 185:5 192:9 239:15		2-SD 93:3,7	2006 103:10
13 14:20 65:7 88:24 108:1 207:3 229:5				2010 103:11

2011 221:20	233:10 236:18	79:25	89:5,13 90:8, 11 92:23	163:3 209:19 210:1
2012 79:14	237:10,20 239:9,16	2024 84:10 232:18 233:16,20	93:20 99:9 106:12 213:5, 6 252:9	23rd 60:14 158:18 159:14,16 197:16
2013 77:12,17 78:15 79:5, 13,24 80:22 81:24 82:12 187:7	2018 33:1 34:25 51:9 60:13,14 69:20 81:25 82:19 117:4 158:18 163:3 164:13 185:7 193:6 232:7 239:22 250:17	2027 32:25	207 216:18 223:10	24 31:23 209:25 233:9
2014 187:6 222:24		2029 65:3	207-209 216:15	241 202:1
2015 111:16 187:7 219:23 222:18 232:11,14,17, 19 233:16,25	2019 16:3 21:18,21 103:4 104:18 134:16 142:21 180:1, 6,21,22 181:12 250:17,25	2030 65:17 251:1	209 197:23 198:2	243 202:2
2016 15:21,22 102:3 104:9, 12		2036 17:7,11, 12,13,16,18, 20 29:11 38:3 45:22 63:9, 15,18 69:18 70:22,24 74:6 88:14,15 89:4,18 93:10,23 94:7,13 99:9 252:7	20th 185:2 192:7 239:9	25 209:19
2017 19:13 21:15,17 31:23 32:12, 13,20 38:25 50:22 51:7,13 60:10 82:18 101:3 145:14, 25 146:6 147:5,19 160:8,12 163:13 164:2 169:24 173:21 185:2 192:9 215:20 223:21 224:1, 12 232:5	2020 15:25 16:1,5 104:18 105:6 118:15 134:12 146:14 179:21,24 180:2 199:15	2037 14:13,14 65:9 217:24 218:6 222:4	21 33:1 147:10	250 33:2
	2021 65:1 179:24	2038 116:1	212 211:15 212:8,25	26 14:7 96:14 107:13
	2022 32:25	2050 14:15 17:6,10,12 38:4,8 40:19 45:19,21,23 46:4,8 63:11, 15,19 65:9 74:6 88:11	214 222:24 223:1	27 205:4,5,11
	2023 77:19		216 222:24	281 213:9,17
			22 119:4 213:4	2:30 183:25
			225 163:2,6	2nd 121:12 192:12 239:21
			227 163:2	<hr/> 3 <hr/>
			23 31:22 46:1	3 31:18,22

32:3,9 44:4 140:13 208:5 209:9 226:10	30th 60:10	4	48 239:1 253:7,13	54-17-403 160:22
3,500 14:14 89:23 218:7	31 25:1,9 247:21	4 44:1,12 45:11 161:17 193:6,7 208:10,24 253:5 254:3	4:55 263:11	54-17-404 20:5
3.0 185:1,19, 24	31st 21:18,21 146:14		5	54-4-23 160:21
3.0-RESP 185:7,19,25	32 25:2,9 100:23 113:20 114:24 115:21 116:1 207:21 247:21	4.2 32:17 233:11	5 15:18,20 146:4,8 219:20 226:10 232:12	54-7-13(4)(C) 160:25
3.0-SR 185:4, 19,24	32-C 177:19	40 151:19 163:15 180:3	5-SD 211:9	54-7-13.5 161:15
3.1-SR 185:4, 19,24	337 159:2	400 33:2	50 80:2 203:2	561 198:13
30 39:4 40:11 77:25 78:20 79:17 88:1 99:7 160:12 163:12 173:5, 8 196:15 218:10 222:3 258:16	34 224:7	402 27:14	50/50 242:3	565 24:12
30-year 63:10 87:24,25 99:6 196:9 206:5 252:13,16,20 256:12	35 78:16 147:10	421 111:8	500 231:2	57 208:25 209:4
300 184:21 191:25	350 100:22	43 163:15 253:6	500-megawatt 32:24	575 24:25 198:13
303 159:2	389 46:3	434 109:23 110:6	503 101:4	578 24:25
	39 107:14 253:5	435 113:8,22	52 208:12	58 208:25
	396 109:23 110:5,6	439 113:24	53 208:13	5:00 236:3
	399 44:12	442 114:9	54 208:13	6
		444 114:9	54-17-402 160:22 200:8	6 15:23 210:14
		467 113:8,23		

223:18 226:10	146:17,18 147:3	ability 26:1 53:12 85:17 86:7 124:14 134:11 234:19	165:20,22	15:19 207:4,5 225:18
60 203:2	80s 227:16		accept 22:4, 11 24:22 31:20 77:16, 23 81:23 82:11 106:7 112:24 211:13,16,20 212:5,7,23 213:1,8,21 218:8 222:2,4 232:23 233:6 237:10	account 27:6 37:24 66:12, 16 69:23 72:16,20 73:20 91:17 94:13 95:15 97:10 107:1 137:4 150:25 161:2,18
60-day 183:12	81 160:11,15	able 28:15 90:2 116:2 122:10 124:23 128:25 129:24 130:2 132:1 141:18, 19 142:2 143:4 191:4 257:11		
67 199:14	84111 184:21 192:1	above 36:16 55:6 166:4,5 186:22		
<hr/> 7 <hr/>	842 137:19	absence 52:21 53:19 181:11 182:25 191:5	acceptable 7:13 242:4	accountable 247:2
7 43:21 178:14	86 117:21		acceptance 177:6	accounted 70:23 163:19
74 193:7,8	87-meter 129:1	absent 179:9	accommodate 139:21 143:13	accounting 38:22 77:2 88:21 95:19 97:2 156:12 189:1,10,14
75 77:25 78:21	89 160:11,15	absolute 108:14	accompanyin g 100:14	accounts 97:9 189:20
750 14:12 89:22 217:22 218:6 222:1, 11	<hr/> 9 <hr/>	absolutely 97:9	accomplish 119:15,18 122:4,7	accuracy 75:18,22
76 193:7,8	91-meter 128:25 129:7	absorb 23:16 152:12,19 165:8	accomplished 120:4	accurate 24:8 47:11,20,24 48:6,9 49:21 57:3 73:8,22 78:5,18 82:13 83:21 84:1,23 87:9,13,14 232:17
<hr/> 8 <hr/>	93 124:25	absorbing	accordance 161:2,19	
8 210:14	97 83:2		according	
80 117:20,21	999 195:1			
80/20 16:7	9:00 263:10			
	<hr/> A <hr/>			
	a.m. 263:10			

233:15,19 234:1,16	122:6	111:2 112:1,5 122:10 124:1 157:4 177:16 192:25 215:19 217:17 222:23 224:22 259:15	175:13 178:5 181:7 198:7 201:18	addresses 18:7,9 62:8 205:1 214:23 258:2
accurately 72:16 88:5 103:19 106:24	acquisition 58:16 62:15 197:9 199:8 200:14 202:15 227:3 230:4		Additionally 106:9 194:15 199:18	addressing 52:22 137:21
achieve 53:13 102:12	across 68:23 91:15 151:16 199:9 242:10, 17 243:4	Adam 8:3	additions 187:14	adds 12:25 140:17 177:23
achieved 28:1		add 130:17 181:7 186:16 230:24	address 7:7, 18 18:10 62:11 72:3 103:20 107:17 109:24 114:13 133:17 139:5 156:8 158:8 174:21 181:12 182:9 184:15,20 186:18 191:22,25 194:22 197:19,20 238:21,25 241:11 255:16	Adequacy 221:19
achieving 105:5 125:9 134:17	act 58:11 147:6,7,9,12, 18 152:1	added 96:15 140:8		adequate 186:8
acknowledge 35:1 50:21 51:11 215:13 256:22	action 174:22 224:12	adding 13:16		adequately 197:7
acknowledged 88:7 198:19 215:10,19,21 241:19 248:2 256:3	activities 103:3 119:14, 15 166:18	addition 13:7 64:4 73:23 120:12 146:8 151:21 153:14 187:2 189:4 195:13 243:19 246:2		adjudicated 54:8
acknowledges 198:1	activity 68:4	additional 59:6 62:2 86:8,15 99:15 106:11,22 107:2 108:2 130:18 133:22 137:23 138:5 163:21,24 165:12	addressed 25:13 58:23 65:23 122:15 124:3 138:14 153:21 164:22 170:3 247:22 248:1, 12 251:24 263:8	adjudication 180:15
acknowledgment 57:16 215:11,17	actual 14:11 27:8,21 39:9 72:5 106:20 112:3 117:25 157:14 170:4 187:13 190:13 245:3			adjusted 145:19
acquire 120:25 121:4	actually 18:1 35:7 76:4 96:20 100:25			adjustment 73:7 139:22 140:1 179:8 190:20
				admission 22:16 32:2

144:19 185:18 193:14 226:20 240:7 259:19	Advisers 238:24	231:14	224:25 225:1	11:2 18:22,25 21:9,22 72:7, 8,23,24 73:2, 15 105:7 115:2 130:16 139:4 177:13, 24 252:22
admit 101:13 150:5	advocacy 180:24	afternoon 7:15,18 137:15 144:1 145:5 150:14 184:5 191:20 194:5 201:22, 23 240:19 262:25	aggregates 196:14	
admitted 22:22 32:9 185:25 240:14 249:9 259:22	affect 47:25 62:25 97:6 143:1		aggregation 196:15	
	affected 63:3 66:21	AG'S 8:10,14, 16	aggressive 27:4,5	agreements 54:25 98:22 114:8 130:9 136:22 137:2 139:5
adopt 167:13 188:19	affects 24:20	again 15:4 17:5 27:10 28:12,21 38:21 39:23 41:9 50:17 52:12 56:6,10 57:10 58:13 73:19 76:24 78:2,24 79:12,17 82:8 89:14 91:6 94:6 95:6,20 97:4 125:19, 21 158:20 160:14 162:18 165:22 171:10 176:11 181:11 214:6 222:21 248:16 258:4, 8	ago 79:14 82:9 96:19 232:7	ahead 16:3 76:7 102:14 126:15 134:16 145:3 171:12
adopted 10:7 73:23 149:14, 20 160:13 163:13 164:3 188:22	affirmative 50:1 205:12 207:23 224:9 226:7		agree 26:9 30:21 31:1 32:21 36:6 46:18,21 48:20 49:4, 11,12,14 50:24 59:1 85:1 87:18 89:7,9 111:11,14,22 160:2 165:7 210:10 212:3 217:5 225:21 226:1,6	albeit 13:3
advanced 103:9	afraid 142:13			align 20:10 151:14 162:22 179:25 180:10 181:5 187:3
advancement s 104:4	after 14:13 17:18 19:2 21:21 47:24 62:7 89:17,18 94:15 108:3 124:24 152:24 159:13 163:18 168:23 170:11 179:20 180:20			aligning 151:22
advances 230:2			agreed 7:12 15:10 21:15 23:8,9,20 78:14 252:21 253:21	all 10:21 12:1 13:23 14:18 17:9,10 18:4, 15 26:10 29:12 31:3 38:22 41:5,7, 11,13,15
adverse 242:5 255:1		against 25:1 35:12 195:10	agreement	
advise 77:4				

46:24 53:3,25 59:3 60:15 61:9 63:6,12, 13 65:12 66:4 76:10 81:5,12 88:1 89:5,6 90:2,3 91:8, 15 92:2,5,19 93:15 98:6 105:20 106:6 108:18 114:2 115:10 116:12,22 119:4 120:14 127:11 129:5 130:19 133:19 134:15 136:5, 9,14,15 138:11,22 139:2,3,11 140:7 142:16 143:3 146:13 151:17 153:5 166:9 169:16 170:6,8,22,24 172:4 173:11 178:8 179:15 180:10,25 181:20 182:11 189:6, 24 192:12 199:17,23 218:3 219:11 223:6 226:8 228:14,18,22 229:4 231:15 235:9 237:25 242:17 243:4 244:25 250:2, 18 251:13 252:2 253:22	262:11 all-or-nothing 55:23 alleged 132:23 Alliance 9:2 261:2 allocation 21:11,13,14 121:16 158:25 159:1 180:9 allow 103:19 104:3 109:6 124:19 139:18,24 151:13 179:25 231:1 allowed 103:12 allows 103:14 130:17 132:6 180:12 almost 36:14 along 20:11 48:13 192:11 239:6,7,13 already 24:18	61:8 133:17 188:23,24 189:1 237:2 243:23 246:8 also 8:8,16 9:3,14 11:25 15:13 18:5 27:19 34:9,10 36:4 43:6,20 49:12 50:25 62:23 63:8 64:1 65:4 66:15 67:9 70:8 77:23 85:8,12 87:14 88:21 89:11, 23 91:25 94:10 103:18, 23 104:3 105:8 106:14, 21 107:16,22, 25 108:5 113:8 115:1, 24 116:15 117:10 120:12,14 123:14 126:8 129:13 130:8 132:10 133:4 134:15 135:21 136:20 139:24 145:12 146:16 151:25 154:15 159:7 162:21 165:12 167:19 168:11	172:13 176:7 179:1 180:3,7 181:5 192:15, 18 195:11 199:17 204:11,12 206:4 207:24 211:18 215:24 229:12,18 232:23 233:7 237:2,5,12, 17,20 239:11 250:23 251:6 252:12 253:12 254:5, 18 257:2,16 263:3 alter 164:19 alternate 231:18 alternative 64:7 72:22 104:7 108:11, 19,25 182:3, 16 195:9 206:19 231:3, 22 243:15 244:13,16 247:6 255:25 256:6 258:2 alternatively 122:6 alternatives 153:10,18	231:19,21 259:8 although 64:10 134:13 153:8 166:6 180:18 196:18 always 123:5 153:6 165:24 229:7 amazing 67:10 76:13 77:4 101:25 among 11:2 21:9 139:1 194:17 221:4 243:17 248:9 amongst 253:12 amortization 48:12 153:21 172:12,17,25 amortizing 173:3 amount 26:5 43:2 74:22 80:7 114:20 124:8,10 125:7 132:1 142:10
---	---	--	--	--

151:10 159:21 160:4, 7 228:16 249:24 amounts 189:21 ample 103:5 analogous 207:18 analogy 13:3, 4 135:24 analyses 18:1 64:1,13 94:13 analysis 16:14 17:16, 20 19:20 26:5,6,21 28:11 29:11, 15 34:16,19 35:13,17 36:4,9,17,20 37:25 39:3 40:16,19,23 41:10,16 45:11,15,19 56:19 57:19 62:18,20,23 63:2,6,11 64:5,7,15,23 65:10,14,19 66:3,5,11 67:15 68:13 83:15 86:13	89:2 90:8 91:1,8 93:23 94:11 95:17 101:2 105:3, 24 108:10,17 110:14,21,24 113:3,4,24 114:23 115:20 130:7 133:6,11,15, 18 141:6 147:21 153:16 170:15,18 173:5,20 196:14 205:15 206:9, 11 207:7 211:10 213:6 231:3,10,11, 19 236:23 237:3,20 241:17 242:14,16 243:3,15,20, 25 244:1,4,18 245:5,16,17 246:6 250:20 251:1 252:1, 6,13,14,16, 17,19 253:6, 17 254:17 256:13,20 257:10 258:13,24 261:13 262:1 analytical 69:18 91:12 analyze 31:12	89:15 96:12 97:4 analyzed 63:15 66:7,25 76:16 206:10 analyzing 71:11 213:25 annual 32:13, 17,19 110:22 213:11,14 233:12 annualized 152:22 annually 14:13,14 anomalous 244:9 another 14:24 98:15 143:14 173:8 214:14 247:8 261:10 answers 10:17 59:2 60:20 101:10 144:16 150:2 158:10 185:14 240:4 anticipate 44:14 124:11	136:25 179:23 180:5 181:12 183:4 anticipated 70:3 106:12 112:10 135:24 142:22,23 165:15,23 169:17 anticipates 139:11 anybody 235:1 262:7 anymore 221:23 anyone 9:6 11:7 32:4 61:3 101:16 150:6 192:19 193:20 240:9 anything 33:9 53:7 84:1 122:5 137:6 183:19 190:10 213:19 263:7 apologize 39:7 55:11 87:2 96:4 97:19 230:14	apparently 110:19 appear 246:13 appearances 7:6,22 8:23 9:5 appears 22:14 31:25 32:15,21,22 33:1 207:17 Appendix 221:18 apples 251:20 appliances 13:13,20 applicable 84:7 138:3 application 21:8 138:22 178:19 194:10 200:22 205:3 227:10 228:13 241:15 245:21 247:9 261:10 applied 73:21
--	--	--	--	--

131:12,14 136:13 203:16 apply 72:23 98:14 132:4,8 135:24 138:1 153:25 212:22 applying 97:17 203:5, 12 appreciate 11:21 102:17 123:24 143:10 145:6 183:17 190:3, 24 191:11 approach 9:9 64:11 69:18, 22 70:13 71:16 73:9 74:11,21 87:25 89:7,9 161:10 184:7 209:12 210:15 212:10,12,14 232:2 approaches 71:7 appropriate 38:5 40:8,20 46:19,21 56:3	83:10 88:2,6 89:15,25 95:18 96:11 110:12 118:18 135:10 156:12 166:19 203:19 appropriately 53:9 72:20 153:12 approval 7:5 11:23 14:4 19:10,24 21:11 27:10 35:12 42:23, 24 51:25 52:2,22 54:20 62:10 68:7 128:7 139:25 151:6 160:18 170:11 194:24 196:1 230:16 240:21 approvals 107:8 approve 20:17 37:8 62:5 68:8 109:5 138:22, 23 139:3 155:2 247:6 approved	19:12 21:25 43:3 54:8 55:3 154:1 158:24 178:19 186:10 189:9 196:8 197:4 207:20 230:8 247:1 261:4 approves 102:25 186:12 approving 19:19 200:22 approximate 32:24 approximatel y 11:25 12:11 14:12 37:15 74:10 77:25 84:10 107:13 186:17 195:3 218:6 approximatio n 33:2,3,4 April 35:19 60:14 110:4 117:4 149:22 158:18 159:14,16 163:3 169:6 185:7 192:12, 23 197:16	239:21 area 61:10 argue 67:25 153:25 argued 207:10 252:17 255:17 arguing 68:2 argument 40:4 168:12 187:10 arose 231:6 around 38:9 39:1 40:4,5 76:10 80:3 81:10 83:24 90:21 91:22 113:22 127:19 167:8 217:21 218:9 233:21 236:3 254:21 arrangements 102:21 104:15 articulation 259:11	aspects 102:18 assert 29:10 asserted 241:24 251:25 assertion 257:23 asserts 245:14 assess 101:5 106:20 136:7 141:18 assessed 63:18,19 127:13 assessing 67:8 131:21 132:25 assessment 53:21 assessments 84:18 asset 70:23 72:8,17 74:24 88:11,24 90:5 108:1 146:19
--	---	---	--	--

156:18 168:1 189:3	assume 23:9 24:17 25:2,20 27:20 34:4 98:12 132:21 171:20,24 174:23 178:3 207:12 214:8 242:25 245:10 253:22	assumptions 26:3 62:22 63:16,20 83:14 92:2,3 195:15 209:3 245:13	204:9	157:21 187:22 189:1 201:2 214:18 231:22 233:18 234:5 260:11
assets 17:13 57:22 62:4 65:7 70:18 73:14,15 86:3 89:19 108:21 153:19,21 166:23 167:3	assumed 73:16 102:4 121:19 132:13 171:23 174:15,19 175:7 196:11	assurance 52:24 53:18, 20 242:6	attorneys 61:9	average 82:19 110:12 208:16,20 209:5,12,21 210:10,13,20 212:1,8,9,13, 15,24,25 213:7,8,15, 16,19 218:10 254:22 258:7, 15
assign 121:15	assure 242:24	asymmetrical 152:2,9,20 164:10 165:3, 7,8	attributable 152:5	
assigns 65:14	assumes 23:10 43:7 115:20 179:19	asymmetry 111:12	attributed 86:12	
assisted 224:3	assuming 53:1 102:25 175:12 208:21 209:5 214:12 219:13 248:3, 8	attached 250:3	authority 126:9 160:18	averaging 211:14 213:11,13
associated 47:16 48:16 49:2,10 77:1 91:10 121:2 122:25 123:14,15 135:18 147:2 186:15,23 190:15 197:25 219:11 248:7 253:22	assumption 66:13 85:18 93:14 94:4,5 110:16 120:17 175:6 178:18 221:13	attempt 210:16	authors 220:1	avoid 97:1 107:16 151:20 187:9, 16
Association 8:18 64:9 68:15		attempts 89:3	automatic 140:1	avoided 17:1
assuaged 222:21		attend 191:4	availability 18:18 28:6 107:3 115:5 136:22 137:3 198:18,23	avoided-cost 67:7
		attention 31:13 220:10 223:17 254:11	available 13:10 20:23 69:2 84:24 86:16 102:1 106:18 108:11 109:11 122:18 147:24 155:6	aware 31:9 55:15 71:9 72:10 115:1 137:19,20 138:21 159:13
		attorney 8:7		

204:16,17 207:19,24	background 103:8	229:18,20	50:19 51:24 55:13,25 56:5,24 57:6 63:7 70:1,2 75:3 87:5 88:8 95:8,10 98:4,13 99:8 108:15 131:16 182:8 233:3 235:16, 19 237:16 244:2,24 250:21 251:4, 5,22 256:4	153:6 168:1 171:25 195:5, 6 215:3 227:10 247:7 263:8
away 80:24 90:9 113:13 115:21	backside 46:1	based 16:24 26:3,5,6 34:2 54:24 67:5 81:13 94:22 120:22 126:6 128:15 142:22 156:9 158:25 169:16 170:18 174:2, 7 187:12 203:13 210:25 211:24 224:14 235:16,19 246:6 247:6 258:20,25	began 145:24 146:1,5	
B	baked 136:9			
back 22:6 27:10 42:9, 12,21 43:1 44:22 54:19, 21 55:10,16 59:8,11 65:16 71:23 83:22 90:3 94:1 96:25 99:1 117:5 127:11 129:4 139:12, 18 150:21 156:14,15,20 157:10,25 160:11 165:24 168:11,20 171:25 175:15 179:15 182:7 183:11,14,24 184:2 205:14 221:20 235:23,25 236:2,7 237:17 254:9	balance 79:20 179:16 186:24 189:16,17 219:7 222:14 232:15 256:17		begin 74:21 89:23 103:1 151:9	
	balanced 154:24		battery 230:2	beginning 145:21 198:17 207:5 210:1 223:9 224:11 258:24
	balancing 67:24 150:25 161:1,18 228:20,21	baseline 84:13 110:16 136:13,23 137:1	bear 43:10 165:5,20 170:10 219:11 243:8 245:6	begins 44:12
	ballpark 142:9	basically 120:4,21 121:1,4 122:9 178:23 179:19 208:13 209:14,25 212:8 218:4 220:8 221:24 224:10 229:2 237:1 250:15	bearing 71:19	behalf 8:2,21 184:20,23 241:1
	base 29:16 53:2 63:16,19 79:16 83:13 140:14 150:23 151:19 152:23 176:7, 8 181:6,18 186:17 187:3 190:13 208:17,18 210:19	basis 16:17, 18 41:13	bears 164:9	behind 28:8 58:8
back-to-back 151:21 162:23 181:3			become 103:12,21 117:6	being 17:12 79:25 80:3 81:6,7 107:24 108:4 118:11 122:10 124:16,24 131:3,14 139:16 145:23 150:18

165:10 168:22,24 170:6 199:21 204:7 226:17 229:21 234:9 237:13 245:10	believes 153:8 186:6 belonged 225:13 below 251:7 258:16 benchmarked 195:9 beneficial 20:15 38:17 41:1,5,14,15 56:7 68:18 151:6 196:19 242:10 261:8 benefit 13:8 26:8 28:5 37:21 38:6 40:25 41:1,7 42:23 43:13 45:15 46:22 48:16 52:13 53:4 58:25 72:21 85:25 86:2 97:2,7 108:22 125:15 152:2 154:16,17 167:25 168:14,22,24 169:11,12,22 178:23 197:2 208:15 211:15,19 212:9 213:1, 25 214:2,10	242:22 243:13 245:19 248:15 250:25 251:21 254:3 259:9 benefit-to-cost 211:22, 23 212:11 213:20 214:3 benefits 12:6 14:5 15:1,8, 10 16:6 17:4, 7,10,11,18,22 18:3 20:7,10, 11 26:11,14 29:12 34:12 35:14 36:12, 18,24 37:9,18 39:18 46:19 52:16 53:8,9, 11,16 55:21 58:18,19 62:20 63:1,3, 17,20,21 64:20 65:15, 16,21 66:1,4, 18,20,22 67:2,12 68:20 69:20,23 71:11 74:3, 12,19,20 76:14 77:5 87:20,22 88:22 89:6 91:10,15,20, 24 92:4,20 93:15 94:5,25	95:5,16,19,21 96:23 102:9 105:21 107:10 108:14 109:7 112:12,15 141:1,8,15,18 145:10 150:16,19,22, 23 151:1,8, 10,12,24 152:7,9,22 153:1,9,13 154:14,21,22 155:3 156:23 157:3,4,18 162:12,19,20 163:19 164:6, 8 165:10 167:11 168:21 169:7, 8,25 170:5,19 171:3,4 178:25 182:1, 6,7,11 186:23 188:21 189:15,17 194:15,16 196:14,16,20 199:1,3,25 212:24 213:5, 6 225:24 240:23 241:6 242:1,3,7,13, 17,24 243:5,8 245:1,15 246:10 248:18 250:11 251:3 252:2,16 253:7,10 255:5 256:7	258:3 259:1, 2,12 260:3,7 besides 204:3 best 15:6 86:9 93:21 127:16 134:11 140:3 153:9 187:18 224:19 225:9 246:20,24 better 26:24 58:21 59:2 86:6 98:24 122:14,17 186:18 190:22 231:16,17,24 246:13 254:24 261:24 between 15:2 17:7 23:13 26:21 27:6 38:1 51:9 53:8 57:5 63:22 82:18 103:10 133:25 154:14 177:11 217:24 230:19 231:8 233:17 243:10,14 248:14 259:8
---	--	--	--	---

beyond 44:19 45:5 47:15 84:11 86:8 88:12 152:12 162:9,17 235:2,5,11	58:20 74:15 85:24 122:3 129:17 135:9 142:3 177:23 217:9	48:12 75:21 76:15 119:13 154:25 162:9, 17 179:25 185:4 192:6 214:12 239:14 252:14,21 256:19 257:12	235:22 236:6 briefly 192:20 208:3 255:7 bring 31:13 103:3 109:3 120:12 124:1 151:17 152:13 157:25 165:24 171:25 182:15 183:10,14 196:1 250:17	build 98:15 234:8 builds 229:13 built 94:11 139:24 170:11 175:14 182:20 195:14 251:13 bulk 117:24 bullet 45:13 bunch 226:15 burden 179:1 199:21 business 23:18 52:15, 23 81:24 82:9 142:1 184:15, 20 191:22 238:21,25 busy 102:13
bids 72:5,14 73:18	black 14:8 76:3 106:6,9, 14 168:23 169:12,14	bottom 111:8 209:19		
big 189:25	blade 129:7, 25 130:5	bound 80:19 111:18		
bigger 13:25	blades 13:1, 21 103:12 128:15,17,22 130:2,3 196:4	box 246:4,8, 22 249:25	bringing 98:18 104:17 117:23 121:10,16	
bill 72:8	blow 27:23	break 59:8 126:15 183:24 235:22,23 248:23	brings 218:5	
billion 12:11, 13 15:2,3,4 37:15 55:1 63:22,25 64:20,22 140:8,17 154:18 168:4 186:17 192:25 195:4, 19 211:24 228:13 229:24 231:11 243:3 248:17,18 249:24 250:8, 23 251:7	blowing 28:9 43:8	break-even 17:14 93:1	broad 68:23 80:23,25	
billion-dollar 52:6 203:21 229:13	blows 43:14	Bridger 204:15 208:15 212:18 230:16,20	broadest 76:16	
bit 25:18 30:12 47:19	bold 257:23	break-even 17:14 93:1	brought 96:19 118:14, 16,21 121:12 172:12 192:18	
	bonus 147:10			
	book 161:8			
	books 168:5			
	both 28:1	brief 47:3	budget 102:24	
				calculated 45:15 157:14 211:23

calculating 46:19 211:21	164:7,19,20 165:1,2,6,19 166:4,6	163:18	97:23 99:2,6 100:10 115:19	case-type 179:20
calculation 39:4 75:22	capabilities 137:17,18,22	capping 160:3,7	128:14,16,23 132:17 140:14 141:6, 15 143:5	cases 15:11 45:16 66:4 89:6 91:16 151:21 162:23 181:2, 4 187:10,17 207:6,12
calculations 72:20 214:7	capacity 10:6 11:25 58:2,9 60:4 65:8,15 89:24 94:12, 15 100:9 108:3 130:18 144:7 149:14 199:16 216:6, 23,24 218:10 228:24 231:2 234:14	capture 38:5	144:8 146:12 149:15 151:15,20,22 154:24 162:22 168:2 178:21 179:14,19,24 180:7,11,15, 20 181:8,10, 12 182:15 186:15,18 187:3,6,11, 15,17 188:25 189:3,20,23 192:18 194:7, 25 195:16 203:17 204:16,17,20 205:4,15,17, 25 206:4,7, 15,17 207:14, 17,25 208:5,8 209:10,24 210:9 212:10, 14,18,21,23 214:25 216:2 217:6 219:10, 11 225:4,7 230:19 231:13 241:9, 23 242:2 252:3 256:18 258:24 259:5 263:4	
calendar 146:12		captures 66:6		catalytic 230:24
call 9:9,16 38:15 59:13 99:4 113:5 135:15 149:1 184:6 191:14 238:14 250:14		capturing 49:18 58:11 88:20		catch 110:1
	capital 14:16 27:11 64:22 70:15,17,20 71:1 74:23,25 75:2 87:1,4 88:6,10,19,22 89:4 90:6 99:11 107:16 133:17 140:15 151:2 154:17 179:1, 4,12 187:2 195:3 207:16 209:2 229:17 250:13,16 251:12	carbon 94:22 208:18 252:3		caught 39:1
called 192:5 255:16		carved 23:5		cause 85:10 125:21 184:24 192:4, 15 230:15 234:3 239:11, 18 243:25
can't 29:1,18 133:2 141:25 170:1 210:24 212:16 234:24		case 8:15 11:21 12:2 13:11 16:23 18:3,10 19:18 37:23 38:18 41:12 42:25 45:20 46:20 51:1,4 60:16 61:6 63:16,19 64:15 65:19 66:11 67:4,15 76:7,13 77:25 78:22 79:6, 16,19,23 80:16 83:15 85:19 90:22, 24 92:25		caused 135:23 239:4
cannot 159:24 244:23				caution 83:8
cap 42:25 43:4 151:25 152:4,19 159:21 162:24,25	capitalize 198:22			cents 77:25 78:21 80:2 145:19
	capped			cents-ish 79:17
				CEO 75:25

certain 18:19 34:11 41:12 85:13 97:7 107:17 114:6 117:7 120:23 126:4,10 128:15 129:14 137:16,18 138:6,7 139:25 226:12 228:19 255:23	190:4 260:21 262:9 Chairman 8:25 11:17 39:6 61:19 86:23 126:24 148:14 challenge 81:17 challenged 244:17 246:16 challenges 113:25 challenging 91:4 chance 24:15 31:11 113:10 140:9 235:8 change 15:11 20:2 23:5,7 24:20,22,24 28:19 34:24 39:2 42:18,20 51:8 54:22,24 55:10,13,14 57:2 70:4,5,8 71:16,21 74:8 80:17 85:16, 23 123:21 127:7,8,10,12 128:20,24	129:3 132:5 139:7 143:12 152:8,18 164:17,25 166:2 171:25 182:21 183:3, 9 193:10 199:11 234:3 248:4 changed 20:2 22:9 27:16,17 42:7,14,16 69:17 74:20 128:17 139:14 199:6 changes 10:14 20:4 39:23 42:19 60:22 66:12, 21 80:17 127:17 129:23 145:15 147:8 152:12,14,20 165:9,25 185:9 186:20, 24,25 193:9, 10 239:24 changing 66:17 69:25 71:18 127:19 234:6 characteristic 43:15 characteristic s 244:19	characterizati on 29:10 56:18 74:17 152:10 characterized 250:10 characterizin g 71:5 charge 163:20,24 charging 122:5,7 chart 45:19 111:7,11 211:14 232:14,18,19 233:10 check 21:19 22:12 30:23 31:20 36:2 51:14 77:16, 21,24 78:2,4, 14,24 79:12 80:4,8 81:10, 23 82:11,20 112:25 139:18 211:14,16,17, 18,20 212:6, 24 213:2,3,8, 22 218:8,9 222:6 232:24 233:6 237:12	258:8,18 checking 77:21 checks 257:21 chief 10:4 11:19 144:5 choice 259:8 choose 139:1 231:21,23 Choosing 67:11 chose 64:12 chosen 16:5 41:18 Chuck 200:5 Cindy 10:10 circulated 248:20 circumstance 27:16,17 77:2 177:25 183:10
certainly 9:11 26:23,25 28:15 38:13 43:13 47:13 52:8 53:11 57:17 98:24 134:24 167:2 226:15 263:4, 6 certainty 49:17 83:23 105:6,20 107:22 118:2 CERTIFICATE 264:1 cetera 58:4 94:23 166:19 177:6 178:6 CFO 12:21 Chair 7:25				

circumstances 20:3 23:3 42:8,15,16,19 72:23 91:18 175:8,10 176:12	92:23 131:14, 22 136:20 138:6 173:11 248:10	close 30:8 61:12 80:19 194:6	32:17,19 233:12,20,24	comfortable 257:5
cite 25:7 34:11 204:23	clarifying 236:17	close-in-time 187:13	collection 24:21 194:19 240:20 250:7	coming 71:14 124:25 168:11 181:19 235:10
cited 205:8, 11 215:5	Clark 7:25 11:18 51:18, 20,21 54:14 61:20 98:9,10 99:12 137:12, 13,14 140:19 148:19,20 178:11,12 181:20 188:13,14 190:4,6 238:8,9	closed 227:11	color 56:12	comment 29:1 163:9 212:16,18,19
cites 30:24 159:2		closing 155:1	column 46:22 140:15	commented 233:17
City 184:21 192:1		closure 221:3	columns 45:14	comments 71:24 74:20 85:6 89:8 90:4 91:16 93:21 94:10 95:7 215:5 219:23 220:2, 3 221:5,14 223:19,20,21, 24,25 224:3 225:8,11 226:12 247:12
claim 154:4, 13,15 177:25	Clark's 58:6	CO2 16:24 26:20 62:23 92:2,3,25 93:13 94:3 243:2	combination 258:11	
claiming 156:24	class 186:25	coal 97:1 207:15 218:15 230:25	combine 209:15 210:2	
claims 196:13 197:22 240:22 257:19	clean 193:17 208:1	coal-fired 221:4	combined 231:4 242:18	
clarification 123:24 129:12 183:17	clear 53:15 76:19 78:10 81:11 102:23 158:7 159:20 160:1 205:8 256:12	code 122:11 129:21 145:9, 17 147:13 160:21 161:8	come 27:10, 15 42:9,12,21 43:1 55:6,10, 15 59:8 76:20 99:1 121:3 133:2 168:20 183:24 189:15 210:8 216:6 235:23 236:2	commercial 10:5 11:19 12:19 60:3 72:5,17 73:15 102:21 103:4, 8 104:15 105:5
clarify 45:1 46:7 52:19 80:13 90:22	clearly 15:5, 24 16:4 165:14 214:4 251:17	cogent 262:4	comes 75:25 89:8 181:9 228:17	commission
		coincide 70:2		
		coincident		

7:3 11:16 12:1 16:22 18:5 19:10, 11,12 20:4,17 23:14 37:7,22 40:18 42:9,21 52:9,22 55:16 57:16 62:6,13 67:4 76:18 101:21 102:25 109:5 126:3,10 145:1 150:11 152:15,18 153:25 155:1 158:24 159:9, 22 165:25 167:13 172:1, 22 182:24 183:11 186:11,12 188:19 189:2, 9 194:9 195:6 199:13 200:9, 11,20,23 202:3,13 203:15,23 204:12,19 205:9 207:20 215:9,19 221:14,21 225:2,16 227:7 228:2 240:21 247:5 255:25 259:13	commissione d 195:24 Commissione r 7:2,14,20 8:4,11,18,22 9:4,11 10:23 11:7,18 20:25 22:17,20 23:22 29:24 30:14,19 31:15 32:4,7 33:7,10,14 39:13,20 41:21,25 44:8,13,20,25 46:25 50:4 51:17,18,20, 21 54:14,16, 17,18 58:6 59:3,5,11 61:3,20 69:3, 7 75:6 80:12 81:13 86:19 90:15 92:7, 10,14 94:17, 18,20 98:6,8, 10 99:12,14 101:15 109:12,16 112:21 116:23 122:20 126:14,19 130:21 134:20,24 135:4,7,11 137:7,11,12, 13,14 140:19, 21,22,23 142:15,17 143:9 144:21	147:25 148:4, 8,12,15,16, 17,18,19,20, 22 150:6 155:8,12 158:3 161:11 166:11 172:6 173:12 174:1, 4,9 176:16, 17,19 178:8, 10,11,12 181:20,22 182:18 183:16,23 184:2 185:21 187:23 188:2, 6,8,12,13,14, 15,16,17 189:5,7 190:2,4,6,23 191:6,7 193:19 201:3, 6,10,14 206:21 214:22 226:19 232:8 235:4,13 236:7,13 238:2,3,5,7,8, 9,10 240:9 249:3,7 259:23 260:12,16,19, 22 261:16,22 262:6,19 263:7	248:25 commissions 21:10 commit 165:19 commitment 43:5 55:6,10 163:11 165:21 commitments 52:8 committed 20:6 109:3 152:11 163:7 229:16 committing 163:4 common 241:19 commonly 147:6 companies 28:24 105:15 226:2 company 15:7,10,13 16:16,21	17:4,7 19:4,9, 25 20:4,6,9 23:1,8,9,15 24:17,21 25:2,13,20,23 27:9,15,19,20 28:22,23 31:23 37:19 39:18 42:8, 12,24 43:1,7 45:16 50:21 51:11,25 52:5,14,17 53:23 54:11 55:4 56:14 61:25 66:1, 10,19,25 67:20 68:2,13 69:17,22 70:5 75:13 77:9,13 90:22 91:1,9 98:14 101:12 102:3,21 103:22 104:3, 9,23 105:23 113:3 115:14 118:11 119:2, 24 120:13 121:2,8,15, 19,21,25 122:9 125:3 126:3,7 128:13 131:4 134:10 145:9 146:3,11 147:3,8,16 150:4,19 151:13,17,25 152:3,7,11 153:8,10,14, 19 154:11,14, 16,23,25
Commission's 14:4 31:13 142:22 143:5 225:19		Commissioners 7:25 8:25 10:19 101:24 145:5 194:5 240:19		

156:2,23 157:16 160:4, 18 163:4,7,9, 20 164:9,18 165:2,5,19,21 167:12,22 170:9,12,21 171:12,20,22 172:2,20 174:15,22 175:3,15,22, 23 177:4 178:19,20,25 179:12 182:23 186:13,14,16 189:3 195:16, 22,25 196:7 197:6,24 198:1,15,19, 20,24,25 199:6,18 201:16 204:23 205:19,25 206:10 207:6, 10 209:23 210:7,9 218:13 219:6, 13,16 221:8, 15,18 222:12 225:16,23 226:4 228:19, 24 229:13,19 230:1,6 232:24 233:19,23 234:14 236:23 240:20,22 241:3,4,9,13, 19,24 243:6,	22 244:12 245:8,14,16, 24,25 246:19 247:2,7,21,25 248:1,3,11 253:16,17,21 255:8 256:2, 22 258:25 261:12 company's 11:21,23 12:7 14:7 16:25 18:7 19:13 20:19 23:4 27:22 34:1 48:9 51:24 53:5 61:22 62:5 64:4,10 65:10 66:5 69:20 79:6 80:18 82:6 95:2 96:6 98:14 102:6, 11 105:3,11, 21 106:5 107:4 108:17, 20 109:5 110:13 117:6 119:7 120:17 122:14 130:6 140:4 147:21 150:15 152:8 153:3 159:1 162:9,10,17 172:15,17,23 173:20,23 177:13 179:4 180:23 183:22 186:19 197:16	198:21 199:4 203:10,24 205:15 221:25 222:18 233:10,25 237:3 241:15, 23 242:12,16, 21,25 243:3, 15,19,24 244:2,4,16 245:5,21 246:6 247:13, 18 252:11 254:17 259:11 comparable 118:19 compare 81:9 82:10 157:18 170:2 compared 15:4 32:12 47:10 81:7,8 86:2 196:20 202:6 205:19 211:24 231:10 comparing 251:15 258:6 comparison 80:10 206:16 231:3 comparisons	81:11 compensatio n 125:15 competitive 72:6,14 complete 19:5,8 41:13 43:4 87:18 89:12 123:21 226:16 231:18 263:3 completed 105:18 118:10 123:25 141:11 157:4 180:6 completely 113:18 completing 142:20 completion 143:1 180:21 complexity 151:21 complicated 257:4 component	190:17,18 251:18 components 105:25 106:1 107:17 113:7 187:1 256:14, 19 comprehensi ve 64:15 65:19 compromise 118:6 Concentrate 40:24 concept 252:21 concern 81:17 219:16 220:7,22 222:21 228:9 232:11 234:4, 11 256:1 262:12,17 concerned 198:4 229:9 244:10 254:19 262:10 concerning 159:15 209:2
--	---	---	--	--

concerns 89:11 109:25 110:6 118:5 186:19 187:19 198:8 221:3 222:17 223:15 241:18 244:12	103:17 conditional 128:10 conditions 19:17 20:2 25:3,21 55:11 66:17 67:2 68:24 76:10 106:20 126:4, 10 153:24 154:1,9 178:21 187:4 conduct 105:24 conducted 256:15 257:9 confidence 75:21 244:22 confident 75:18,20 76:21 80:24 83:18,20 confidential 24:10,11 30:6 44:2,11,14 46:13 61:8 83:8,12 112:19,24 113:12,14,15 114:15 118:24 142:8, 10,13 192:6	239:5,7,13, 14,21 240:12, 13 249:4,6, 12,14,19 259:20,22 configuration 247:6 256:6 confirm 18:1 64:10 139:12 145:14 confirms 66:3 confused 83:24 140:10 173:10 199:18 confusion 55:12 Congress 147:5 conjunction 150:24 connection 123:11 184:22 192:2 239:2 consequence 122:14 132:11	consequence s 157:22 conservatism 94:11 95:20 conservative 17:17 65:14 74:21 107:1 136:25 conservativel y 38:24 consider 17:17,21 37:19 39:18 53:24 61:11 67:9 79:7 110:11 122:23 152:8 200:24 202:13 225:3 245:25 246:19 254:14 255:9, 14 considerable 26:5 considerably 243:10 consideration 152:14 181:15 200:12 204:5 227:8 246:14,	18 consideration s 19:23 62:9 97:25 considered 225:4 229:2 245:24 254:20 258:7 261:7 considering 62:7 65:14 73:5 199:20 214:16 224:23,25 229:5 256:8 considers 62:23 consist 93:20 consistency 56:16 70:14 73:21 consistent 72:25 76:12 87:14 105:2 128:2,19 130:4 159:19 221:10 222:16,20 251:22 consists
--	--	--	--	---

31:22	contains 30:6 44:1 45:19 64:6 146:21 197:15	198:22 243:8	157:7,8 171:6,11	24:7 30:4
constitute 161:3,20		continuity 146:10	contractual 120:13,15 127:18 158:13	copied 24:7, 12
construct 111:1 231:4	contend 256:6	contract 18:19 27:25 28:7,8,25 104:24 105:4, 11 114:25 117:15 118:9, 13 120:3,16 121:20 124:13 125:5 127:12,20 139:10,15,20, 23 140:2 142:4,6,8 156:25 157:1, 3,15,21,23 158:2,9 174:23 175:2, 5,6,12,13	contractually 124:15	copies 24:8 30:2 192:18 193:17
constructed 84:20 103:10	contention 162:7,14		contradicted 67:22	copy 9:14 22:5,7 23:23 201:19 204:8 209:10 232:3 249:8
construction 18:24 103:2 105:15 117:16 118:5 123:10,19 142:5 145:25 146:1,5,10 198:6	context 80:12 159:18 175:24 216:9 224:19 225:10,22 242:1,2 247:15		contrary 19:23 67:21 198:14	core 80:22
consultant 106:6 184:18 191:24 238:24,25	continue 57:20 73:25 81:16 91:10, 23 126:15,19 143:16 153:19 180:1, 19 235:20,24 236:1,3,9 252:18	contractor 119:23 120:1, 2 175:14	contrasting 25:1,6	corporate 164:18
Consumer 8:12,15,17 64:8 68:14		contractors 119:17 156:3	contributing 89:24	correct 10:13 21:18,20,22, 23 23:14 26:15 27:11, 18 28:19 29:14 31:25 34:3,7,8,16, 17,23 35:21, 22 36:1 37:16,17 43:4,12 45:11,12,17 46:2,9 47:14, 23 48:3,7 50:10,15,17, 23 51:8 70:7, 11,19 71:3,4, 18 73:9 84:11 87:7,12 92:21
consumers 227:5	continued 40:12 48:12 91:14 104:8 108:11 109:1	contracts 18:17 28:4, 21,23 107:5 114:1 116:7 119:11,17 123:7 124:3,4 127:4,5,6 134:1,5,6,13 143:3,6	control 23:4, 19 25:25 103:13 116:15 138:15,16 152:12 162:9, 17 165:23 175:8,11,12 176:12,13 253:23	
contained 185:13	continues 220:22		controls 86:6	
containing 62:22	continuing 49:24 196:5		convenience	

93:9,10,17 94:7 100:17 111:6 117:8,9 123:18 127:24 134:7, 8 135:19,20 138:20 141:4 149:23 157:24 159:11 160:10,22 163:10,21,23, 25 166:7 167:14 169:18 171:8 172:20,21 174:18 185:8 203:8,13 204:1 206:11 209:2 213:13 214:11 216:23 217:25 218:14,18 219:1,8,9,12, 17 220:17,20 222:25 223:3 224:4 227:24 228:5,16 252:5 260:4,5	corrections 10:14 60:22 100:20,21 101:9 144:12 185:9 239:24 correctly 71:10 97:14 101:1 113:24 159:4 164:11 correspondin g 250:6 cost 12:10 13:23 15:21 23:19 25:14 37:15 41:3,17 42:13 43:2 45:15 48:5 54:20,24 55:3,14 57:12,23 62:2,11,16 63:25 64:6,17 66:12 67:23, 24 69:20 72:25 88:22 93:25 96:8,22 97:2,7 98:2, 12 99:4,5 102:11,12 104:7 105:13 107:23 108:11 117:6, 11,24 119:7 120:5,6,24 121:2,5,16 123:4 125:24 129:3 138:25 140:5,7,15	141:23,24 146:2,24 150:19 151:22 152:22 153:4, 18 154:9,17 162:22 163:19 164:6, 7 166:18 178:24 179:10,11 180:11 181:8 182:7 186:19, 25 190:12 196:24 197:10 200:15 202:17 203:8 211:19,24 213:1,25 214:1,2,9,10 217:6 218:13, 18,22,25 222:11 227:4, 23 229:17 231:4 242:22 243:13 245:12 248:15,19 250:11,13,18 251:5,10,18, 19,22 cost-effective 108:21 214:5, 11 costs 12:8 13:7 14:2,17 15:4 16:15 17:2 18:2,16	19:1,22 20:10,12,20 21:11,13 26:19,20 27:8 42:22 48:12 61:25 63:13 64:2,14,22 67:13 68:4, 11,18,22,23 74:25 75:2 84:18 87:1,4, 15,16 88:6, 10,19 89:4 90:2,3 93:15, 23 97:1 99:8 105:7,10 108:15 117:19,22 118:3,20 119:6 120:9, 11,23 121:10, 14 122:8 123:10,19,23 137:23 138:23 150:16,21,23 151:1,2,7,11, 20 152:4,19 153:5,9,12 154:16,20,23 155:3 159:21 160:3,4,8 162:12,16,19, 21 163:18,21, 24 164:19 165:5,9,12, 18,20,22 166:4,5 167:11 168:23 178:24 179:4, 12 180:18	181:25 182:6, 11,15 183:10 186:20,23 187:13,14 188:20 189:4, 15,17 190:14, 18 195:3,8,9 198:5,6 205:22 207:15 209:3 229:18 230:3 241:7,14 246:11 250:16,19 251:11,13 256:7 counsel 27:2 38:9,18 56:20 90:4,21 133:24 174:8 249:1 counted 168:23 county 128:11 couple 33:25 102:13 151:7 176:4,20 181:23 182:4 197:19 208:4 253:8 258:1 course 23:12, 18 28:10 44:10 121:19 127:17
--	--	--	--	--

128:16,23 177:5 182:21 202:21 234:7	14 13:10,24 34:20,22 35:3,4 36:11 47:16,20 48:11,16 62:1 69:19 70:1,3 104:6 118:6, 12,20 119:1 145:11 151:3 195:25 198:18,23 199:2 251:9, 17	5 263:5	217:7 219:10 231:7 233:19, 24 242:12,16	68:11,18,19 105:9 126:5 141:14 152:1, 2 157:23 245:1 259:1
court 9:13 235:22 249:8		cross-examine 235:9	currently 17:1 21:15 43:10 71:2 139:21 168:5 177:11 179:23 181:6 196:6 219:6 261:11	customer's 26:8 28:5 64:14 152:21 164:11 165:4
cover 15:23 98:1 175:3 179:4		cross-exhibit 22:4 24:5 31:14,18,22 32:2,9 44:4,5 46:12,13 204:21 208:5, 6 219:20 223:18 232:12		customers 12:5,9,17 14:3 15:6,9 16:6,15 18:2 19:16,22 20:7,11,14 23:13 41:4 43:10 47:25 56:7 57:12 62:17 65:5,22 68:5 91:15 95:5 102:1,9, 13 104:3 108:14,23 109:2,8 119:2 120:6,17 121:5 122:1 125:22 151:9 152:25 154:12,15,17, 20,22,25 156:14,20 160:5 163:9, 23 165:11,13 169:9,12 170:20 171:4 175:15 176:9, 10 178:23 179:10,13 194:18
covered 15:24 18:25 81:22 175:1, 18 235:7,18	critical 15:8		curtail 218:21	
covering 90:5	criticized 152:7	cross-exhibits 22:16,22 226:9,18,21	curtailments 136:3,15	
CPCN 217:2	critiques 256:11,19		curve 16:25 67:5 79:14 84:9 90:23 91:2,9,23,24 92:1 124:5,8, 13,21 125:1, 10 131:24 132:5,8 136:4 218:20 237:6, 9,10,21,23	
Crane 10:10		curious 58:19 125:11 127:6 225:8		
create 211:19	cross 44:18, 19 235:5,18 255:10			
creates 116:14	cross-examination 20:24 21:4 33:18 44:21, 24 45:4 69:2, 10 75:9 86:21 109:11,19 117:2 126:22, 25 147:24 155:7,14 166:13 172:8 201:21 235:2, 15 260:24 261:18 262:1,	current 13:6 16:6 17:19 43:12 47:9,15 77:18,20 78:6,17 79:6, 16,18,20 82:10 83:13 84:13 85:5 86:16 91:18 96:14 129:21 141:2 142:20 159:1,10 173:6 177:13 181:18 187:12 195:1		
creating 108:2			curves 90:21 97:10	
credit 104:15 240:25 250:6, 14,22,25 251:21 254:12			customer 26:11 35:14 36:12,18,24 61:25 62:20 63:3,13 64:2, 6 66:4,20 67:1,13	
credits 12:6,				

196:18 197:11 199:3 200:16 219:11 221:12 227:22 240:23 241:7, 14 242:3,7 245:10,15,20 254:3 259:3, 15	101:4 106:18, 19 111:2,4 131:4,12,16, 20 135:16,24 136:2,5,10 187:7 198:20 254:24 257:3	178:6 dealing 119:17 dealt 176:25 debate 178:2 December 15:22 19:13 21:18,21 118:15 145:14 146:14 147:4 215:20 237:10,20 decide 45:3 172:22 247:7 decision 7:5 11:24 17:23 20:18 51:25 52:5,15,23 58:13 68:7,9 71:15,19,21 109:6 143:3 167:9 170:17, 21 197:7 200:9 202:10 204:12,14,23 207:21 228:3 230:23 231:8 241:8 260:4 261:14 decisions 95:9 241:22	253:2 declined 242:14 decrease 32:13,19,24, 25 43:17 132:12 decreased 18:14 104:21 decreases 162:16 decreasing 48:1 117:7 234:10 deemed 227:15 defer 56:25 126:8 152:4 180:18 182:10 206:6 deferral 152:6,17 153:11 181:25 182:3 189:18,21 deferred 164:20 165:11,12 188:25	189:10 190:7, 8,10,13,14, 16,17 deferring 164:22 182:12 defined 146:24 definitely 200:25 227:11 231:13 261:20 definition 87:20 202:25 203:4,5 216:9 220:13 delay 156:1 delayed 18:10 delays 18:24 117:16 118:5 134:14 deleted 159:25 delightful 135:3 deliver 12:8,
customers' 53:14 158:24	date 47:24 142:12 145:22 255:19	Dated 192:23		
cut 230:2	dates 71:23 143:1			
cycle 231:4	Dave 184:7			
D	David 184:9, 16			
damage 125:4	day 123:17			
damages 18:21,23 125:7,12,14, 19 134:14 156:6,10,12 157:6,18 158:9	Daymark 238:24			
Daniel 238:15,23	days 232:6			
data 14:10 28:11,14	deadline 18:21 118:16 120:25 134:17			
	deal 39:13 172:18,22			

16 19:16 41:2 65:21 76:14 77:5 95:21 98:2 102:8 105:20 246:9	demonstrating 68:21 250:10	240:24	detailed 133:6 256:14	development 12:20 100:7 102:5,6,20
delivered 105:2 107:4 109:7	denied 245:22	describe 15:15 54:3 192:20 244:9	details 28:3	develops 75:14
delivering 15:8 20:6 102:10	deny 76:19 186:11	described 70:4 101:14 105:21 174:24 231:14 241:3	deter 18:23	deviation 125:10
delivery 62:15 197:9 200:14 202:16 227:3	dependent 95:1 123:16	describes 256:15	determination 170:15 202:14 204:15	device 179:3
demands 203:21	depending 28:7 74:5 78:21 107:15 168:12 189:2 200:1	describing 178:22	determine 62:6,14 217:3 242:8 243:17	diagnose 103:19
demonstrate 66:17 133:11 146:1,4 214:2,11 221:15 246:13 257:11	depends 63:23 218:19	description 50:18	determined 52:1 56:11 74:4 104:9 200:19 216:4	diagnostic 257:17,21
demonstrated 197:7 245:15	depreciable 14:15 17:19	design 103:11 108:5 195:12	determines 228:3	diameter 128:25
demonstrates 15:5 68:16 91:19 108:10, 18	depreciation 147:11 153:22 155:4 172:19 173:4 180:3,4 190:15	designed 107:24 187:11	determining 18:5 97:22 153:17 200:10,22 227:8 253:2	dictates 73:17
	depth 221:16 232:25	desire 187:16	develop 62:19 106:15 244:7	difference 58:10 74:9 205:19 262:24
	derive 213:21	despite 111:3 134:9 255:15	developed 106:16,25 198:21	differences 23:17 133:25 177:10
	deriving	detail 25:18 58:23 177:18 198:8 200:4		different 16:18 26:10 38:2,3 57:25 62:21 63:5

64:11 66:2 71:7 73:15 87:16 94:21 129:11 131:19 166:6 195:17,18,20 207:15 209:15 210:2 213:10 230:11 231:5, 10 241:8 243:20 245:4	208:19 direct 9:20 10:9,10 11:4 37:2 51:1 59:18 60:9,12 61:1 76:25 83:2 91:7 93:3 98:21 99:25 100:13, 15,23 128:14 138:14 140:25 142:19 143:24 144:10,20 149:5,17,20 160:12 161:15 163:13,16 164:1,14 177:9 178:15 184:12 185:1, 19,24 191:18 192:6 193:5, 9,23 197:23 201:25 204:11 211:4 216:10,14 220:10 222:22 225:16 235:8 236:22 238:18 240:7	direction 85:23 directly 58:14 98:24 199:5 director 12:20 100:7 102:4 disagree 37:7 70:16 71:4 82:14 178:1 248:21 disagreement 209:22 disagreement s 178:6 disagrees 255:21 258:17 disappear 199:25 disapproval 54:12 discarding 256:24 disclosing 142:7 discounted	65:16 discourage 225:23 226:4 230:6 discovered 56:14 discovery 111:20 discrepancies 23:17 discuss 145:7,8 198:7 249:12 251:24 discussed 53:22 54:1 61:8 127:3 133:7 168:22 208:19 223:15 255:10 discusses 21:8 discussing 44:14 discussion 44:15 54:22 55:20 74:17 76:11 86:24	118:24 130:8 176:22 205:14 234:20 252:12 discussions 116:16 177:18 disincentive 154:10 dismantle 195:22 196:1 dismissing 257:19 disparity 197:4 displace 67:24 217:17 218:12,15,16, 17,24 219:3 222:9 228:18 dispute 33:3 177:21 178:1 182:25 210:6 disruption 230:14 distinction 57:4 58:4,7
differentiation 73:13 88:17 differently 64:13 206:23 difficult 52:10,11 difficulties 262:14 digested 38:11 diligence 102:19 105:19 diligently 107:6 diminish 153:3 dioxide	directed 35:9 122:17 158:1 directing 252:10			

distinctions 230:19	Division's 29:11 45:10 90:21 174:8 181:24 194:9, 21 200:21 208:7 212:10, 12,14 219:23 221:11 223:21 232:11	169:11,14,20 195:19 231:24 259:9	175:18 245:9 248:7 254:23 255:4	112:16,25 116:19
distribute 249:1		dollar-for-dollar 157:9	downsized 245:23 253:17	drop-off 181:6,17
distributed 194:17 204:19		dollars 48:22 63:18 169:15 228:13 231:12 251:3	downtime 136:9	dropping 80:1
dive 86:9	doable 263:6		DPU 17:25 18:3 22:4,6, 12,16,22 29:15 31:18, 22 32:2,9 38:16 44:3 45:15 153:11 182:10 184:25 185:3, 4,6,18,24 192:5,8,10, 11,12 193:23 198:1,4,6 199:5 207:24 239:5,12,19 240:12 249:18,19 259:20,22 260:13	dry 221:2
Division 7:9 8:5,8,9 21:1 32:1 33:8 64:7 68:14 148:7 174:15 184:3,6,18, 20,23,24 185:17 186:6, 13 188:18,20 191:1,13,24 192:3 193:13 194:8 203:11, 23 209:12 210:24 214:14,17 217:15 219:15 220:7, 22 221:6 222:17 224:22,24 225:12,15 228:4,8,12 229:9,22,25 230:5,7 238:14,25 239:3 240:6 241:1 259:18	docket 7:3 43:3 63:5 66:24 70:9 71:24 73:6 91:13 125:18 142:23 151:19 159:20 164:22 166:6 172:19,23 177:14 180:3 184:19,24 192:3 199:10, 12,14 230:16 239:3	domain 250:5		DSM 214:1,6 217:6 219:3
		done 10:24 26:22 37:25 38:23 40:11 49:15,16 56:23 57:13 70:13 79:5 110:18,21 129:15 131:22 132:24 143:6 156:16 176:5 189:14 210:7 231:15 254:24 255:17 256:25 257:11		duck 218:20
		down 17:20 73:25 82:22 85:2,5 96:25 127:21 136:7 182:15 235:16		due 27:16,17 42:19 102:19 105:19 221:2
	document 79:1			duly 9:18 59:16 99:23 143:22 149:3 184:10 191:16 238:16
	documents 226:17		drive 181:7	Dunlap 16:4 142:21 246:12
	dollar 41:8,14 49:23 77:19 78:15 79:15 85:14 86:12 168:22,23	downside	drivers 58:7	durability 66:18 91:19
			driving 180:23	during 49:3 141:5 177:5
			drop 95:4	dynamic

96:24	earned 112:2	153:16	effective	189:11
<hr/> E <hr/>	earning 112:4 196:4	154:11	179:24 253:1	elaboration 182:2
each 10:25 35:23 47:17 48:11,18 56:2,6 62:21 64:1,12 93:12 94:2,6 95:8 111:20 113:18 114:16 119:19 125:6 195:23 208:21 209:5 241:23 243:12,13 244:8,17 255:10	easier 38:20 103:25 108:7 East 184:21 191:25 easy 88:9,16 eat 122:10 EBA 150:25 151:3,11 156:15,17 161:1 162:20 163:20 179:8, 11 182:13 economic 18:12 34:1, 16,19 62:18 63:6,11 64:4, 12,15,23 65:10,19 66:5 67:14 68:13 83:15 86:13 89:6 91:15 101:1 105:3 108:9 110:13 112:6 115:20 125:20 128:14 130:6 133:6,12,13, 16,19,20 147:21	166:24 167:3 170:15,18 173:5 199:3,7 206:11 224:14,18 225:9,24 236:23 237:3, 20 240:22 241:17,23 242:13 243:24 244:18 245:3, 7 253:10 256:11 259:3 economical 130:3 economically 246:16 economics 25:4,15,22 26:2 42:20 55:21 56:1 85:16 93:1 111:22 141:2 167:23 242:8 243:10,18 244:5 246:13 252:24 256:18 258:14 effect 74:10 96:5 135:22 152:21,24 159:8 180:17	effectively 217:7 247:3 effectiveness 214:3,9 efficiencies 139:15 efficiency 97:6 219:3 efficient 103:16 108:21 effort 57:10 181:2 efforts 198:1 eight 18:20, 24 104:22 either 143:17 148:14,23 173:9 175:12 176:5,10 179:13 182:6 202:23 238:11 244:23 elaborate	electric 104:16 115:9 119:6 220:24 electricity 145:20 element 98:16 114:24 123:11 174:6 elements 52:13 98:4 180:22 eligibility 18:22 118:7 eligible 106:4 145:24 146:6 eliminate 127:16 228:14 255:22 eliminated 246:25 261:6 eliminates 246:1 eliminating
earn 196:5,25				

181:17 246:7	147:18	132:2,12,18, 20,22,25 150:24 151:4 154:6,7 161:1,18 176:10 178:24 179:10 190:17,18 200:16,19 217:23 218:4, 5,12 219:2 222:1 227:5 228:17 238:24 245:12 258:20 261:2	enhancing 104:2 enough 15:22 53:11 80:23, 25 81:1 234:13 257:11 ensure 15:13 67:1 95:9 103:4 105:1, 25 126:5 134:11 152:25 enter 30:3 232:3 260:13 entered 31:16 116:16 entire 13:23 17:12 41:10 43:5 91:12 95:1 99:10 112:2,4,6 136:2,13 211:11 242:13 entirely 13:12 154:2 entitled 192:10 entity-wide	186:24 environment 257:1 environmenta l 221:2 EPA 190:19 equal 145:18 170:6,8 211:19 212:11 equally 208:21 209:6 210:18 equates 132:2 equipment 16:9 18:16 20:21 28:18, 20 65:3 86:6, 14,16 103:17 104:12,19 106:8 107:19 111:4 118:1 129:11 131:19,20,21, 25 132:1,6 133:18 135:16,18,23 137:21 141:16 143:8 147:4 155:4 171:7 195:2
emphasize 64:11	encourage 26:22 28:2 37:22			
employ 104:22	end 15:25 17:20 84:4 89:20 104:12 105:6 118:15 134:12 140:14 162:23 170:16 179:20 180:6 233:16 234:16 263:5			
employed 10:3 60:1 100:6 144:4 149:11 187:7				
employer 184:15 191:21 238:21		engaged 147:3 260:2		
employment 184:22 192:2 239:2	ends 168:1			
	energy 8:19 9:2 13:22 14:1,6,12 19:22 20:13 43:8,11 48:6 58:2,9 62:2, 17 64:9 65:8 67:23,24 68:15 89:21 94:14 96:3, 13,15 101:5 102:4,6,11,12 104:1 105:14 106:25 107:12 108:2, 7 110:13 112:3 119:4 124:2,8,10,23 125:9,17 126:1 131:5	engaging 103:2 engineer 102:2 engineering 14:8 19:7 103:7 106:5 119:25 195:12 enhanced 103:23 108:5 enhances 14:21		
employs 244:4				
en 11:2				
enable 151:16				
enabled 104:13				
enacted 145:14				
enactment				

196:1,6,10 229:21 246:4, 9,22 equipped 98:24 equivalent 40:22 50:19 56:24 208:20 209:5 Ernst 16:8 105:23 errata 159:14, 18,23 192:16, 19 193:16 errors 100:22 132:24 209:2 especially 187:13 199:20 essence 52:7 essentially 73:9 87:18 89:20 93:1 97:12 114:20 117:15 118:16 119:5, 22 121:24 124:6 125:8 129:20 131:22 132:2,	21 136:1,4,8, 24 138:2 139:24 141:13,15 142:4,6 165:1 173:3,6 177:22 178:4 establish 43:1 57:10 67:7 187:12 established 216:3 estimate 12:10 14:9 110:12 111:17 136:12,24 140:7,8,18 195:2 242:12 245:13 254:21 estimated 14:7 27:22 107:12 243:8 estimates 18:19 101:5 106:15,17,21, 25 110:8,18 111:15 117:6, 11 132:9 133:1 136:10 242:16 243:1 estimating	110:23 evaluate 52:14 53:5 205:21 206:1 244:5 260:3 evaluated 65:25 99:7 224:19 225:9 evaluating 72:13 228:4 229:23 260:7 evaluation 34:1 105:24 114:23 244:22 256:4 Evans 208:7, 12 209:11 210:6 even 13:13, 16,21 38:24 41:7 55:13 80:17 92:3 95:4 97:6 118:22 123:16 125:25 133:12 146:21 169:25 172:2 175:5 182:11 194:14,15 195:7 196:17, 19,23 224:23	225:24 227:21 230:22 242:25 246:22 248:1 254:20 event 20:2 42:17 125:12 156:1 162:9 174:24 177:24 182:22 183:3, 13 221:1 eventual 146:2 eventuality 175:25 every 36:13, 19,25 37:9 38:18 91:13 124:12 189:16 190:14 everyone 109:3 235:22 everything 26:20 27:6 38:1 142:20 189:25 evidence 255:19	evidentiary 235:19 evolved 177:5 259:5 exact 29:19 55:7 82:23 115:5 exactly 27:1 47:12 57:21 121:22 159:24 168:16 230:9 255:3 examination 9:20 42:3 47:4 50:6 59:18 90:18 92:17 99:25 126:16 130:25 135:12 143:24 149:5 173:16 174:12 184:12 191:18 226:24 230:12 236:15 238:18 examined 9:19 59:17 99:24 143:23 149:4 184:11 191:17
--	---	---	---	--

238:17 242:5, 8	excess 63:24 164:19 165:5, 9,19,20 248:19	6,7,12,19 240:12 247:10,14 248:20,24 249:4,6,18,19 254:9 259:20, 21,22 260:13	97:18 102:10	229:18
examines 241:23	exclusively 52:23		expanded 13:22	expensive 258:11
example 14:17 16:10 42:17 95:11 113:13 219:19	excuse 12:18 26:4 42:23 174:3 198:24 212:12 222:23 223:4, 20	exhibits 9:12 60:5,9,11,12, 15,23 61:2 100:14 140:10 208:4 239:14,25	expanding 13:5	experience 28:25 76:25 131:5
exceed 106:2 234:14 250:11 251:19	excused 191:2	exist 40:9 52:17 123:4,5 134:6 139:21 178:22	expect 28:24 40:17 81:3 105:16 107:2 124:9 131:5	experiencing 13:6 107:18 218:20
exceeded 110:20	executed 143:4	existed 147:19 231:7	expectation 52:7	expert 147:3 171:10
exceeds 164:6,8	exercise 212:4	existing 13:2, 12 28:17 47:21 48:13, 24 49:24 61:22 68:10 86:2 96:25 103:14,15 108:3 115:3 136:11 138:3 168:6 186:8 196:1 221:3	expectations 85:5	experts 84:17
excellent 18:13	exhausted 180:14		expected 64:14 76:14 106:21,24 168:15	expire 65:17
except 15:11 17:10 18:4 22:3 23:2 41:11 94:2 142:21 221:1	exhibit 9:10 22:6,12 23:23 30:1 31:16 43:25 44:2 140:13 184:25 185:3, 4,6,18,24 192:5,6,8,10, 11,12,19 193:23 209:9 220:6 224:7 232:4 239:5,		expects 19:5	explain 26:23 40:6 72:2 86:1 116:8 128:20 247:11,14 248:21 250:12 253:23
excerpt 204:19 223:25		exists 183:9 198:3	expenditures 107:17	explained 46:23 108:9 167:24 209:11 247:24
excerpts 226:14		expand 13:16	expense 187:1	explaining 210:12
			expenses 21:10 27:11	

explains 150:14 208:16	extending 62:3 65:6	16:2 17:4,6,9, 10 18:4,20, 23,24 19:5,21 20:19 29:12 43:9,11,13,15 61:23 63:7, 11,12 64:3,23 65:6 67:25 96:18 103:3, 10 104:5,8, 11,22,23 105:12,25 106:7,9,13,18 107:9,21 108:1,3,12,19 109:1 110:16 113:18,21 114:3,12 121:3,6 127:25 128:12 129:2, 6,14 130:10 138:4 146:13, 16 151:18 154:19 168:6 197:8 198:14 221:4 252:2	facility-by- facility 16:18	98:5 187:1 200:19 204:4 227:13,14,20, 23 245:18 253:22
explanation 81:14 88:16 177:20 209:20 210:20	extends 14:19		facility- specific 25:15	
explicitly 67:18 199:19	extensive 12:2 18:7 25:24 62:20 84:12 106:17 234:23 253:25		facing 220:24	facts 67:22 97:16 206:14 230:22
explore 25:17 26:23 217:9 245:8	extent 123:10 156:11,20,23 164:5,7 165:3 175:8,11		fact 15:22 16:2 26:9 28:9 54:5 58:11 71:5 72:16 84:4 91:17 95:24 96:21 97:10 111:3 134:9 154:20 162:3 169:2 193:8 195:19 196:16 197:11 199:12 204:25 219:15 231:15 233:23 234:13 255:15,24 257:20,21 258:18 262:13	failed 113:7 176:6 241:9
exposure 67:14 255:3,4	extra 221:13 231:12			fails 18:21 175:20
expound 129:17	extraordinary 15:11 23:3 102:9 162:10			failure 107:19 118:10,11 120:18,24 175:4
expressed 219:16 222:17 223:15 228:9 241:18 250:21 251:2	extrapolation 244:6,13 256:17 257:13	facility 16:10, 13 19:6 67:8 107:15 112:2 115:11,16 122:5 128:5,6 129:19 130:17 145:18,22,23 146:3,9,18 195:23		failures 103:20
expressing 220:7	F			fair 23:4,5 29:10 48:17, 21 53:11 57:17 69:24 76:17 78:5 80:7 92:22 95:7 114:8 146:22 165:11 178:4 223:11 229:10,12
extend 107:25 171:2	faced 72:24		factor 65:24 66:8 84:21 227:17,18,19	
extended 21:17	facilities 7:6 11:24 14:11, 20,24 15:3,21	facility's 146:24	factors 15:14 62:8,10 65:23 85:10 97:22	fairly 118:25 172:10

fall 88:14 242:15	133:5	69:14 75:8,12 81:20 82:4 86:23 98:11 116:25 130:23 172:10 206:8 255:6	244:8 247:13, 18 252:17 253:4,21 256:1	185:5 199:22 239:18
falls 115:21	feasible 162:2			finances 162:10
familiar 31:8 69:16 74:15 77:8,12,14 155:19 157:7 202:17 214:7 220:2 237:6,7	features 138:16 141:8, 24 175:14	fewer 139:17	files 178:21	financial 144:5 200:18 227:13 262:1
familiarity 214:16	February 34:25 51:9 60:13 69:20 110:2 140:6 149:21 152:16 164:13 166:1 173:23 193:6	fifth 14:23 115:17	filing 12:12 22:9 31:8,9, 11 34:25 55:5 69:21 91:3,7 140:6,12 152:16 153:23 156:24 159:18 165:16 166:1 169:6 170:2, 16 173:1,23 180:14 189:4, 22 192:21 195:6 203:24 235:8	find 44:9 45:25
family 13:8		figure 32:17 82:23 83:3 233:11		finding 115:25
fantastic 26:22 28:4	federal 13:10, 24 24:18 145:9,10,13, 15 147:9,13 164:18 240:24 248:4	file 100:9 144:7 172:20 177:7 182:23 189:3		findings 138:23
far 39:8,21 133:1 141:17 181:4 236:4 253:18		filed 19:4 23:21 31:6,24 51:4,6 57:2 60:9,11,12, 14,16 66:11, 15 73:25 77:9,13 81:24 100:13 101:3 128:13 149:15,18,20, 21,22 159:13, 14 169:24 173:21 183:8 184:25 185:1, 5,7 192:4,9, 12,15 193:16 221:14 239:4, 8,11,15,19,21	filings 70:6,9 74:1	fine 74:17 191:9
farms 195:21	feel 39:22,23 45:5 102:7 174:11 209:14 210:1		fill 229:6	fingertips 85:21
favor 152:21 164:11 165:4	feels 191:7		final 18:17 19:6 91:6 106:2 163:2 223:17	finish 15:17, 24,25 210:11 261:23
favorable 65:4 102:20 207:7	FERC 137:16, 19 138:10		finalizing 105:14	finished 16:1 236:11
fears 221:20	ferret 57:20		finally 13:9 16:7 19:7	firm 14:8 147:4
feasibility	few 30:1 47:3			firmly 20:14

first 9:9,18 14:5 19:1 45:13,14 59:16 62:13 65:1 66:1 67:22 72:3,9 73:20 84:8 98:12 99:23 100:22 103:7, 10 105:23 111:24 114:19 115:7 134:25 143:22 149:3 151:7 152:11 154:3 156:8 181:5,8 184:10 191:16 193:3 197:20 205:4 207:15 211:8 215:3 220:8 222:7 236:24 238:16 244:5 247:20 249:13 250:12 253:9 254:16 255:1 fits 54:6 58:14 fitted 103:15 five 14:5 82:9 114:14,17 146:2 255:7, 12 262:21 fixed 18:16	19:2 104:25 105:13 117:11,12,18 118:1 123:7, 23 127:4,5,7 flaws 244:15 fleet 12:7 14:7 86:3 105:10 107:18 171:2 flip 30:11 flow 87:10,13 88:5 121:5 156:14,15 157:23 162:20 177:1 182:13 190:19 flowing 120:6 163:18 fluctuation 47:8 85:2 focus 35:16 69:15 86:24 123:3 228:1 246:20 252:20,24 focused 260:6 261:12 focusing	219:5 follow 127:2 140:24 190:5 230:17 following 81:17 117:10 152:3,16 173:18 219:14 220:6 follows 9:19 59:17 99:24 143:23 149:4 184:11 191:17 238:17 follows-ups 181:23 footnote 30:24 193:4, 11 footnotes 192:16 193:2 force 15:12 23:6 53:2 127:17 175:10 177:25 182:22 183:3, 12 forced 231:20	forecast 16:16,23,24 26:17,18 27:2 28:16 58:2 66:14 77:10, 17,20 78:6,7, 11,15,17,19, 22 79:6,9 84:5,13 85:3, 14 88:12,15 131:4,16 173:19,22 207:16 233:19 236:21 237:1 258:6 forecast's 75:23 195:8 forecasted 27:24 32:13, 17,19 49:18 132:12 170:5 233:12,20,24 forecasting 89:18 forecasts 26:3,4,6,13 27:1 48:10 82:6 84:2 85:1 169:17 170:1 210:19 form 192:7 239:6,8,13, 15,21 253:16	formed 161:2, 19 fortunate 102:7 forum 72:2 forward 16:25 17:24 19:9,25 45:3 48:24,25 49:19 52:1, 11,20 56:16 57:1 58:24 66:24 67:5,10 73:24 76:5 84:3,9,16 90:21,23 91:2,9 102:13 170:17,20,22, 24 178:19 183:2 198:24, 25 237:5,9, 10,21,23 259:9 FOT 220:12, 14 found 76:21 244:14 258:10 260:7 foundation 13:18 16:11 80:6,10 129:23 130:4 foundations
--	---	---	---	---

103:2,15 106:7,10 129:16,18,21	front 24:3 33:23 43:25 72:18 84:4 111:21 161:7 204:8 220:13 228:7,9,15, 18,22,23 229:8 232:25 234:4,11,15 261:14	18:25 fully 109:3 164:9 253:21	154:12 182:14 196:12 210:18	258:12
four 18:22 136:9		functioning 196:6,10	G	gather 128:16
four-year 111:20 146:12		functions 166:16	G-a-r-y 10:1	GE 18:19,21, 25 28:1 98:23 104:22 105:4, 8 114:25 115:11,12 117:13,14 118:13 119:13 120:1, 3,13,16 121:20 123:22 127:4 128:24 130:2 133:25 134:6 138:17 139:10,12 142:6 174:23 175:2,5,13
Fourth 14:21 66:19 107:6 115:13	front-end 72:19	fundamental 84:18 85:9 195:14	gap 233:17	Gary 9:16,17 10:1,12
frame 17:12 63:9 65:9 81:7 82:17 84:10 88:16 89:15,25 91:13	fruition 98:18	furnace 13:15,20	gas 16:23 26:19 58:3 77:10,17,24 78:8,17,19 79:6,23,24 80:3,16,17, 19,25 81:1,25 82:6,15 83:14 84:19 85:10, 14,18,19 91:23 92:1, 20,25 93:13 94:3,22 97:1 169:23 170:1, 4 173:19,22 206:18 207:12 208:18 210:17,19 231:5 243:2 252:3 258:6, 14,20	gear 246:4,8, 22
frames 38:3	fuel 97:1	furnishings 13:14		general 104:16 115:9 119:6 131:8 151:14 179:19 186:14,18 187:3,6,9,11, 15,16 188:25 189:20
framework 73:14 226:1	full 15:7 18:20 37:24 38:4,6,7,22 40:19,23 65:2 70:22 88:10 90:5 110:15 112:4 122:9 125:25 128:1, 5 134:16 150:22 152:22 166:24 184:14 191:21 204:8 205:18 220:11 226:11 231:19 238:21 242:10	further 41:20 63:2 85:12 86:18 90:14 94:16 122:3 126:12 134:19 135:6 153:20 183:18,19 196:12 207:10 209:9, 11 217:10 246:14,17 254:5 261:7,9		General's 8:7
framing 94:10		future 20:13 47:22 68:23 74:1 81:2	gas-fired	generalized 189:23
free 13:25 39:23 45:6 118:17 119:5 121:22 138:16 142:7 174:11 239:1	full-service			
frequency 187:17				

generally 62:10 81:9 86:5,10 137:20 223:1, 7,9	George 208:7	123:17 131:23 164:8 187:5,14	150:14 184:5 191:20 194:5 201:22,23 210:15 226:3, 4 235:21 238:20 240:19 259:9	great 12:4 58:23 118:2 171:1,17 198:8
generate 12:13 64:19 87:21 132:1,9 145:18 231:1	germane 38:13	gives 40:15		greater 48:22 53:18 93:15 107:22 154:22 168:4, 10 214:2,10 220:25
generated 154:8,18	get-go 114:22	Glenrock 113:17 114:11 246:12	Goodnoe 129:19,24 246:14	
generating 61:25 96:25 195:2 234:14	getting 40:17 49:20 120:10 124:11 127:15 170:11 194:6 257:5	Glenrock/ rolling 115:14	gotten 39:24	greatest 108:14
generation 48:1 86:3 106:15,17,21, 24 107:2 108:21 110:17 130:16 131:20,21,23 132:4,9 136:13,23 137:1 151:5, 10 179:9 182:12 221:4 243:12	gigawatt 14:13,14 89:22 218:6,7 222:1,12,13	goal 108:20 199:4	governs 128:12	grid 104:2
	gigawatts 217:22	goes 88:12 89:22 97:12 175:17,19 178:19 217:2 248:13 253:19 258:23	grandfathered 138:2	gross 63:21
	give 9:10 24:9 37:5,12 39:11 56:12 82:23 83:9 112:19 113:9 142:9 161:8 204:9 219:19 227:9 235:21 244:22	gone 166:23 221:22 225:5 234:25	granted 11:9 22:21 32:8 61:5 101:18 144:23 150:8 185:23 193:22 196:25 226:22 240:11 260:14	group 104:11 109:3
generations 194:18	given 9:15 19:14 34:10 40:3 49:16 57:17 74:20 79:8 83:22 84:6 107:19 111:16 115:9	good 7:2,24 8:6,20,24 9:22,23 11:17 21:6,7 51:22 59:20,21 61:19 69:12, 13 75:11 98:11 109:21, 22 137:15 144:1 145:5	granular 53:21	guarantee 15:10 23:1 28:6,10 118:14 121:1, 8 122:14 124:7,14,15 125:1 134:1 175:16,22,23, 25 176:2
generators 13:2 195:20 243:21			graph 32:18, 23 82:21 83:12 220:9	guaranteed 120:14 121:9
			grateful 194:6	guarantees 18:18 28:2,21 115:5 119:10

124:5 126:7 134:6,10 136:23 137:3	hand 44:7 232:2,3	hard 12:16 15:13 54:13	210:12 247:10 249:18,19 259:22 260:13 263:11	117:4 122:13 126:17 127:2 131:2 132:10 133:4 137:9, 15 155:17 157:11,21,25 158:10 171:8, 10 174:21 193:6 197:22 253:20 254:20 255:8, 20
guess 54:25 55:19 56:13 95:2 116:8 117:17 136:20 139:13 168:16 210:7 235:10 255:11,23	handed 30:11 31:21 204:18	harm 125:20 196:23	heat 96:9 97:10,12 258:8,15	
guessing 79:15	handful 41:11	harmed 176:11	hedging 219:14	Hemstreet's 54:23 101:13 126:20
guidance 147:14	handle 87:15 99:18	harmless 120:18	held 120:18 247:2	Henry 77:10 83:14
Guidelines 225:19	handled 21:12,13 56:22	hate 234:22, 25 262:1	help 14:8 56:10 80:14 102:10 135:17 151:20 182:13 220:14 247:11	here 7:3 8:1,9 10:17 23:24 28:4 37:7 39:7 57:7 58:10,17 60:20 69:25 73:7 74:13 79:22 85:24 87:23 89:16 110:6 114:13 145:6 155:16 166:17,20 167:24 168:20 170:19 178:22 182:5 189:24 194:6 203:6,8,19 205:8,11 206:1,11 213:7 217:20
gut 13:11	happen 28:16 139:25 141:9 177:15 200:2 255:1	having 9:18 59:16 81:17 99:23 125:9 141:1 143:22 149:3 152:4 184:10 187:3 191:16 238:16		
guys 199:23	happened 38:22 51:9 125:13 136:11 189:20 231:14	head 75:13	helpful 13:4 38:12 57:19	
<hr/> H <hr/>	happens 112:8	hear 254:19 256:2	helps 81:5 182:8,15	
H-e-m 100:5	happy 37:12 157:25 206:25	heard 97:14 171:8 215:13 236:24,25 255:19	Hemstreet 12:21 28:3 59:1 86:9 98:23 99:21, 22 100:2,4,6, 19 101:8,20 109:10,14	
H-o-o-g-e-v-e- e-n 10:2	harbor 15:19 104:12 146:4, 8,12	hearing 12:3 30:8 54:8 61:12 102:16 191:3 202:21		
H.r.1 147:6				
half 180:17				

223:8 225:8 226:12 231:15 236:2 251:6 255:7, 11	244:25 246:15 259:1	74:18 89:1 94:9	holds 49:22 63:14	hopefully 180:8
here's 141:23,24	high-efficiency 13:15	highlighted 249:25	hole 189:25	horizon 92:24 94:15 99:6
Hickey 8:24 9:1 41:22,24 69:4,6 109:13,15 148:1,3 155:9,11 188:3,5 201:11,13 260:23,25 261:1,15	high-end 27:4	highly 263:3	holistic 189:22	host 119:16
Hills 113:18 114:12 115:14 129:19,24 246:14,15	high-probability 203:12,25	Hill 246:11	home 13:5,6, 9,10,12,23,25	hour 47:17 48:18,23 143:14 145:19 228:21
high-risk 54:10	high/high 38:1	hire 119:25	Hoogeveen 9:16,17,22 10:1,3,12 11:12 20:23 21:2 33:17,21 39:17 42:5 45:9 47:6 51:19,22 59:7 67:3 73:23 85:6 87:17 89:14 166:17, 20 168:20 247:20 248:16 251:25 252:14 253:4	hourly 96:16 220:18
hides 196:16	higher 19:22 27:3,9 48:19 49:5,13,15,22 67:17,19,24 77:19 78:16 79:15 85:11 93:24 94:24 96:14 107:19 111:12 117:21 136:22 203:16 242:6 246:9 256:7 258:19	hired 14:8	historical 18:9 131:4, 12,15,19	hours 14:13, 14 89:22 96:24 218:6,7 222:1,12,13
Higgins 36:3	high 26:19,20 27:5 49:17 82:6 85:15,19 202:5 203:21 208:17,18 210:19 221:1 241:25 242:24	historic 136:23 137:1	hours' 48:11	house 13:16, 19 16:12
Higgins' 35:19 36:10, 22	higher-capacity 13:2	history 84:15 106:18 110:15 131:23 132:7 136:2,11,14	Hoogeveen's 25:7 45:2 95:7 249:15, 22 250:4	however 39:2 112:8 145:23 147:12 152:3, 10 224:11 235:21 245:22 248:25
Higgins's 36:21	highlight	hit 89:20 98:24 142:12	hope 141:21 196:11 257:15	Hub 77:10 83:14
		hold 124:14	hoped 141:5	

hundred 104:5 153:1	62:9 114:22 184:25 185:3 193:15 199:19 240:8 241:11 243:22,23 247:4,23,25 248:3,11 249:17 256:21	impact 26:1 31:12 69:19 71:15 127:20 147:8 162:10 165:9 186:21 227:13	104:10 120:21	69:22 103:17
hundreds 169:14 195:20			implementing 72:11 119:7	improvement 34:24 39:3 56:19 72:15 73:4
hydrogenerati on 62:25 66:8		impacted 133:18 187:2	implicate 114:7 254:2	Improvement s 103:11
hypothetical 76:9,11 77:3 112:14 121:11 213:24 214:9 230:21	identify 44:21 140:5	impacting 116:17	implicitly 67:18	improving 62:2 103:1
	idling 196:10	impacts 62:11 64:19 65:4,20 68:19 98:3 147:20 166:8 200:17, 18 204:4 227:12	imply 41:2	impute 176:5
hypothetically 124:22 230:23	II 130:10,17 246:11,14		important 67:9 102:16 108:16 243:9 245:8 251:20 252:23	imputed 121:18
<hr/> I <hr/>	III 113:17 114:12 246:12	imperfect 13:3	importantly 62:13 154:20	imputing 122:8
ID 193:7	illiquid 176:21	impermissible 161:3	impose 126:10 163:8	inability 118:11
Idaho 19:12 21:24 22:6,7, 8	illustrates 243:20	impetus 198:17	imposed 204:1	inaccurately 38:24
idea 120:22	imagine 133:2 138:9	implement 104:16 107:7	imposing 19:17 154:9	inappropriate 40:13 56:12, 15,17
identical 66:6,14	immediate 20:8	implementati on 20:16 248:5	improve 71:19 86:7 230:3	incented 263:3
identified 11:6 25:14 31:21 38:21	immediately 143:4 251:7	implemented	improved	incentive 153:4

include 42:18 103:23 151:2, 3 176:8 194:25 224:12 245:11,17 251:12 252:6	195:13 inconsistent 71:1,5 74:25 114:1 incorporate 17:21 incorporated 91:8 106:22 147:20 237:3 incorporating 106:19 incorrect 40:15 152:11 154:6,15 increase 12:8 20:8 43:17 65:8 67:13 94:14 106:15 107:12 112:3, 5 136:8 increased 13:7 14:12 96:7 104:19 107:3 increases 14:6 96:20 105:20 106:21 107:14 132:22	136:12 162:16 increasing 48:1 72:25 234:7 increment 112:6 incremental 27:21 65:15 67:23 89:21 96:13 125:6 151:4,5,10 154:6,7 179:9 182:12 190:18 218:5 244:19 incur 23:19 incurred 122:8 156:10 250:22 incurring 146:1 independent 105:24 241:22 257:10 indicate 11:8 22:18 32:5 33:25 35:11 36:17 37:6	44:9 54:4 61:4 101:16 117:5 144:22 150:7 193:21 216:17 225:21 240:10 259:24 261:3 indicated 37:10,14 87:4 122:13 127:5, 23,25 129:13 157:20 181:24 215:24 225:2 247:21 248:17 253:20 254:5 261:5 indicates 54:7 154:21 223:10 249:23 253:6 256:10 indicating 225:11 indication 9:6 54:10 191:9 indications 7:8 indicator 84:16	individual 75:13 92:19 93:13 individually 195:24 indulge 254:12 inefficient 13:15 inequality 167:17 168:12 inequities 200:6 inequity 154:24 inertia 138:15 140:25 inertial 103:24 108:6 137:17 138:3 inertial- providing 137:18 inevitably 54:4 infer 54:11
---	---	--	---	--

132:3 175:17	inputs 41:16 62:23 66:16 77:8	227:15	252:9	Internal 145:17 147:14
inferences 85:20	inserted 57:14	instantaneous 233:3	intention 42:13 128:21 249:10	interpret 64:12
inflated 251:2	insight 216:10	instead 45:22 129:1 152:13 203:10 222:13 225:4, 5 253:13	interconnecti on 54:25 130:9,16	interpretation 98:5
inflation 72:25 145:19	install 11:24 138:8	instructive 56:5	interest 14:3 15:6 18:6 19:23 20:16 31:11 55:22 56:1 61:12 62:7 68:17 97:23 180:23 187:5,18,19 194:11 197:5, 12 200:8,10, 12,23 202:14 226:14 228:4 230:8,9 254:23 260:4	interrupt 25:6 39:7 83:5 234:22 235:1
influence 84:8,20	installation 18:16 105:15 106:23 117:24 119:23 120:2 121:15 124:11 134:13	insufficient 37:19 39:19	interested 138:24	interstate 159:1
information 20:1 24:11 30:6 75:23 83:9 86:10 91:18 98:13 138:25 140:3 235:9 250:2 261:14	installations 138:1	integrate 104:1 108:7	intergeneratio nal 167:17 168:11 182:9 200:5	intervenors 38:15 40:12
informed 85:9	installed 134:16 138:11 196:8	integrated 31:7 232:5	interim 150:20 155:2	Interwest 9:1, 3 261:2
initial 70:9 135:15 164:7 173:1 241:15 250:20	installing 138:4	intend 30:3 73:25 128:17, 22 232:3 249:12	into 14:12 30:3 37:24 57:14 61:10 83:8 84:21 86:9 94:11 101:13 104:1 107:1 108:7 115:1 116:16 120:12 127:15 133:3 135:21 136:9 137:4 139:9 143:14 144:20 147:21 150:5 151:14,15,19,	
initially 163:15,17 165:17	instance 78:20 87:17 88:11,24 90:1,6 95:19 97:25 119:1 157:1 216:25	intended 73:4 125:20	intermittent 96:3	
initiate 124:19		intends 146:11 147:16 172:20		
input 76:24		intent 86:11		

22 162:22 175:14 176:7 179:15 180:1, 2,7,11 181:8, 9,14 182:20 189:22,25 200:4,12 204:5 216:10 226:17 227:7 230:22 250:19 251:2, 13 260:13	249:24 250:18,20 investments 52:15,18 96:12 156:21 181:18 186:22 involved 206:17,18 212:17 involvement 230:15 involves 68:9 69:25 involving 195:16 204:15 IRP 17:12 31:23 32:12, 13,20 34:2,4 35:1,2 38:3, 25 50:22 51:13 57:1,6, 13,15,19 58:3 62:19 66:7,15 70:6,21 71:20 72:4,10 73:11,14,24 74:1 77:9,12, 17,20,22 78:6,7,15,17 80:17,22 82:12 87:16,	17 88:13 89:17 90:10, 12 169:24 170:2 173:21 199:10,13 215:6,10 216:4,16 217:2 219:23 221:19 223:3, 11,13,14,21 224:1,12,20, 23,25 225:3, 6,10,13,16,19 229:3,7 231:15 232:11,14,19 233:7,10,16, 25 236:18,21 237:16 244:5 IRPS 51:12 63:9 IRS 15:19 24:20 122:11 146:17 248:4 issue 73:13 81:15 87:23 89:12 113:16 114:19 115:8, 11,13,15,18, 19 116:11,14 122:23 137:22 138:9 167:20 172:11 197:21 203:6 256:25 257:22 259:13	262:25 issued 130:15 142:25 208:2 215:17 221:15 issues 9:5 69:15 91:22 103:6,21 113:14 114:13 115:23,24 116:3,4,7 122:16 133:11 158:8 182:9 186:20 246:25 255:14 256:21 iteration 194:14 <hr/> J <hr/> J-o-e-l-l-e 149:10 January 121:12 145:25 146:6 Jetter 8:9 29:25 30:5 47:1,2,5 50:2 75:7,8,10	78:12 80:15 81:19 83:17 86:17,20 87:4 92:11,12 109:17 148:5 166:12 183:25 206:13 230:13 232:1, 9 236:9,10 Jetter's 230:10 Jim 230:16,20 job 102:9 Joelle 12:23 143:19 149:1, 2,9 Joni 191:14, 15,23 judgment 132:16 170:19 judgments 244:24 jump 35:6 June 60:10 103:1 143:2 149:19 160:12
---	---	---	--	---

163:12 165:16	KCH-7-RE 35:20	Kobliah 148:2	large 130:15 139:15 174:21 195:18	latest 194:14 195:2 247:13
Juniper 17:11,13,23 18:4 92:24 93:14,23 94:5 95:11 128:6 129:19,24 246:16	keep 13:18 133:22 231:9 249:8	Kobliha 12:22 143:20,21 144:1,25 147:23	largely 19:3 26:3 64:9 117:11,12	law 14:4 15:11 22:9 23:6,7 24:24 71:6,10,14,18 97:17 127:19 145:15 152:13 172:1 182:21 183:3, 8 248:4
jurisdictional 180:9	key 12:15	Kobliha's 144:19	larger 13:8,21 103:16 106:23 141:12	
	kilowatt 47:17 48:11, 18,23 145:19	<hr/> L <hr/>		laws 15:20
jurisdictions 199:10 242:17 243:4	kind 43:15 58:19 72:2 80:18 81:21 125:15 139:10,22 141:12 177:10 182:2 257:1,16	L-i-n-k 59:25	Larsen 149:18,19	laying 174:17
justification 19:17 87:8 88:3,25 241:12	kinds 138:17 257:7	laborious 187:9	Larsen's 173:2	lays 97:22 182:23
Justin 8:9		lack 125:25 216:18	last 10:1 12:16 50:9 59:24 66:17 88:23 92:16 100:4 105:18 119:3 123:18 187:6,15 202:2 208:23 215:17 220:11 242:15 258:22	LC 199:14
<hr/> K <hr/>	knew 133:17	lacking 260:8		LDS 18:23
K-o-b-l-i-h-a 144:3	knowing 131:25 207:17	Lake 184:21 192:1		lead 75:13
Katherine 8:2	knowledge 76:25 203:15 204:14	land 115:13, 15,22,23 116:18,19		leading 12:3
KCH-13-RE 35:21	known 117:19 147:20 195:8	landowners 116:16	late 57:14 121:4 147:19	Leaning 17:11,13,23 18:4 92:24 93:14,23 94:5 95:11 128:6 129:18,24 246:16
KCH-14-RE 35:21		language 97:21 183:1 207:4 209:17	later 82:5 115:25 146:14 199:6	lease 115:23

leases 116:18	less 12:12 16:9,12 27:22 43:14 74:13, 16,19 84:1 85:12 94:25 112:11,13,15 117:25 124:16 135:23 138:7 166:24 169:22 196:7 210:17 233:25 243:6 254:17	20 41:21,25 44:8,13,20,25 46:25 50:4 51:17 54:16 59:5,11 61:3, 19 69:3,7 75:6 80:12 81:13 86:19 90:15 92:7, 10,14 94:17 98:8 99:14 101:15 109:12,16 112:21 116:23 122:20 126:14,19 130:21 134:20,24 135:4,7,11 137:7,11 140:21 142:17 143:9 144:21 147:25 148:4, 8,12,15,18,22 150:6 155:8, 12 158:3 161:11 166:11 172:6 173:12 174:1, 4,9 176:16 178:10 181:22 183:16,23 184:2 185:21 187:23 188:2, 6,8,12,15 189:7 190:2, 4,23 191:6 193:19 201:3, 6,10,14	206:21 214:22 226:19 232:8 235:4,13 236:7,13 238:2,7,10 240:9 249:3,7 259:23 260:12,16,19, 22 261:16,22 262:6,19 263:7 level 37:18,21 39:17 40:1,3 96:14 196:21 221:17 228:19 levelization 39:4 40:21 89:12 levelize 40:6, 7,11,13 88:21 levelized 34:21 35:3,25 36:4,11,23 38:10 40:5 46:15,23 50:11,16,22, 25 51:12 56:9,23 70:1, 12,22 74:11 75:3 86:25 87:5 88:6,8 99:5 237:14 levelizes 39:4	levelizing 50:18 74:23 87:15,25 levels 97:11 111:24 liability 156:18 189:18,19 lieu 182:10 226:17 life 14:15,19 15:3 17:3,5, 13,20 38:4,7 40:19 62:3 63:10 64:2 65:5,6 70:18, 22 74:24 76:3,5,14 87:24,25 88:10,24 90:5 166:24 168:1 194:16 196:9 244:6,8 245:14 lights 231:9 like 10:20 13:5 15:11 22:15 31:10, 12 32:1 45:5 47:2 58:7,22 63:4 68:9 80:13 95:3 100:5 127:19
least 15:20 39:21 58:24 88:3 108:10 138:17 139:21 218:22 227:4 245:19 246:1, 2,6 255:22 256:2	let 15:15 44:7 45:3,25 47:19 56:8 81:16,21 116:5 163:5 168:18 185:22 191:6 206:8 207:19 213:24 216:11 223:1			
least-cost 108:19,25 210:25 225:18				
least-risk 108:25 225:18				
leave 67:11 113:2 168:19 191:3 244:10				
legacy 20:21 153:17	letter 24:20 248:5			
legal 178:5	letting 30:15			
legislation 24:18	Levar 7:2,14, 20,25 8:4,11, 18,22 9:4,11 10:23 11:7,17 20:25 22:17, 20 23:22 29:24 30:14, 19 31:15 32:4,7 33:7, 10,14 39:13,			
length 74:5 235:17,19				
lens 41:9				

131:14 134:25 140:24 143:14 144:18 157:9 160:25 164:1 171:11 174:4 179:8 183:1, 6,13 184:6 185:18 191:1, 13,23 193:14 197:19,20 198:10 202:24 203:1, 2 204:4 205:2 206:22 207:17 209:1 210:6 214:17 216:25 222:8 226:9 227:9, 15 228:21,25 229:13 232:1 235:1,6,11 236:1 238:14 247:19 251:23 254:8, 10 255:2 258:22 259:6, 7,19 261:4	24 98:2 113:6 187:5 200:13 202:15,22,23 203:3,4 208:22 209:6 210:17,18 227:2 limit 160:3 255:22 limited 127:11 240:24 246:3 line 24:12 29:18 35:18 37:4 44:12 45:21 46:3,7 83:2 100:22, 23 101:3 110:5 111:8 113:24 117:5, 10 159:24 160:14 163:6, 14 164:4 169:1,6 192:23 193:8 198:2 202:1 204:11 207:15 208:11,13 209:4,25 210:1 214:14, 20 216:18 222:25 223:10 253:5 lines 25:1,9 29:2,7 35:7	36:16 43:22 44:24 45:9 109:23 113:8, 22 118:7 158:17,20,21 159:2,7 160:11 163:2 164:1,14 178:22 193:7 197:23 198:12 202:1 208:25 209:18,19 210:14 216:14 217:12 222:24 247:21 252:1 lining 143:3 Link 12:19 26:21 34:15, 18 38:21 56:25 58:21 59:13,15,20, 24 60:1 61:6, 15 69:1,5,12 83:4 90:20 94:19 99:15 108:9 170:3 198:11 208:19 236:20 237:16 252:14 256:23 258:1 259:5 Link's 61:1 198:14 211:1,	10 237:19 250:3 256:9 liquidated 18:23 125:4, 7,12,14,19 134:14 156:6, 10,11 157:6, 17 liquidity 221:16 Lisa 9:1 261:1 list 9:10,12,13 25:25 114:14 listed 25:23 220:1 literally 14:10 litigated 204:14 litigation 28:24 little 15:17,23 25:17 29:21 30:12 47:19 83:24 85:24 122:3 129:17 177:18,23 190:22 217:9 254:13 262:10	live 247:11 lives 89:20 106:11 108:1 171:3 173:6 196:15 197:2 load 32:14, 18,20 62:24 66:8,12,13,14 207:16 217:7 219:7 221:10 222:14 232:14 233:12,18,20, 24 234:5,6,7, 9,15,20 236:21 237:1 loaded 72:19 loading 106:11 loads 103:14 129:22 located 62:17 195:18 200:16 227:5 location 231:5 lock 158:24 locked 127:21
--	---	--	---	---

229:14	83:1,6 89:13	208:17,18	218:25	main 14:5
logical 88:17	97:16 99:3	219:3 243:2	227:23	Maine 239:1
long 39:2	170:14	252:3	Lowney 8:3	maintain 115:3
84:17 181:25	208:24 209:1	low/low 37:25	99:17,20	
196:16	225:23 226:4	41:11	100:1 101:12,	
219:13	230:6 232:13,	low/no 29:13	19 109:10	maintained 74:11 127:14
234:25 257:1	18 233:13		122:12	161:2,19
long-term	252:24		130:21,23	
62:11 64:18	looks 143:14	lower 16:15	131:1 134:18	maintains 75:14,17
65:4,20 68:19	209:1 210:6	27:3 61:25	143:17,18,25	
76:15 77:5	236:1	63:13 64:2,6,	144:18,24	maintenance 13:7 103:20
84:22 95:15	loss 118:25	14,25 65:11	147:23	107:5 114:8
98:3 108:22	220:25	68:18,22 76:4	148:24,25	115:2 136:3,
110:11 171:3	254:15	78:1,21 79:18	149:6 150:4,9	22 198:5
200:17 204:3	losses 106:22	85:11 97:11	155:6 157:19	
227:12,13	lost 125:8	111:13,17,18	173:14,17	
254:22		112:9,10	183:19 188:9	
longer 13:1	lot 55:20 96:4	133:12,13	201:15	
90:12 95:17	167:10 177:3	137:3 153:18	261:17	
103:12	235:6 257:1,	154:9,19	M	majeure 15:12 23:6
106:11 119:3	2,3	169:23 170:4	made 17:23	127:17
165:3	lots 218:16	210:17	22:10 52:4	175:10 178:1
Longson 9:3	low 19:14	218:13,18	55:6 71:16	182:22 183:3,
looked 16:16	26:19,20	241:6,14	72:15 73:6	13
99:8 138:8	27:4,5 67:23	242:20 243:7	85:20 91:4,5,	major 20:2
202:21	77:24 78:19	256:7	6,13 98:22	25:13 42:17
looking	79:16,23,24	lowered 147:9	165:15	55:12 107:8,
32:11,23	80:2,16,17,19	lowest 14:2	192:21 198:2	17 119:22,25
41:5,9,10	81:1 85:19	41:3,17	258:25	189:3 234:9
52:12 55:22,	91:22,24	57:12,23	magnitude	247:22,25
25 57:3,7	92:1,20,25	62:16 64:16	142:11	248:10,11
70:13 74:6	93:13 132:21	78:8 98:2	165:15,24	251:18
	207:12	102:12 104:7	195:5 203:20	259:13
		197:10	204:6 227:17	majority 26:9
		200:15	245:9 251:21	
		202:16 203:7		

118:2	management 119:24 120:9 121:10,16 153:5	margin 229:5	114:25 139:4, 10	math 84:11 254:13
make 7:21 9:13 10:25 26:1 58:13 71:21 76:19 83:9 95:6 96:22 102:15 103:25 108:7 128:23 138:23 141:14 142:19,21 147:12 162:7, 14 209:3 218:3 230:7 231:12 244:24 254:18 258:22 260:3 261:14,22 262:4,11,14, 18,24	manager 102:3	margins 83:20 242:23	match 150:25 153:9 162:19 187:4	matter 51:23 176:2 199:17 235:25
	managing 247:3	marked 185:6 192:8 193:24 204:20 220:5 239:5,12,19 249:19 259:20	matched 182:1	matters 7:7, 21
	manner 58:12 108:22	market 25:3, 21 62:22,24 66:9 67:2,14 68:24 73:18 82:22 84:3,6 146:22 176:21 217:18 218:12 219:5, 6,12,17 220:7,16,20, 21,24 221:9, 16,17,25 222:13,19 242:11 243:15 248:9	matches 124:21 151:7 153:12 233:16	maximize 16:5
	manufactured 138:11		matching 155:3 162:11 167:11,12,20 182:5	may 12:24 13:3 25:21 76:20 96:24 97:6 118:22 119:16 129:16 141:11,19 146:18 161:8, 10 184:7 187:17 191:5 201:18 203:18 229:9 232:6 234:15, 16 246:13 248:23 249:1
	manufacturer 116:14		material 61:8 132:17	
maker 170:21	manufacturer s 124:6 138:12		materialize 26:14 199:25	
makes 52:9 74:9 88:18 90:7 97:3 109:2	manufacturin g 143:8	markets 82:10 221:2	materialized 194:16	maybe 7:14 33:1 38:10 56:11 58:20 80:14 81:20 94:9,24 140:11 177:9 204:8 222:9 231:23
making 18:18 52:14,18 73:3 95:9 126:7 181:1 200:9 221:13 253:2 262:17	many 95:5 113:25 162:19 180:22 187:1 196:22 199:9, 16 227:20 243:8 252:15	masse 11:2	materializes 196:12	
	Marengo 130:10,17 246:12,14	massive 195:4	materially 104:19,20	
manage 153:4 176:1		master 104:24 105:4	materials 103:11	Mcdowell

7:24 8:2 9:7, 8,15,21 10:19 11:3,10,11 20:22 22:19 25:5,10 32:6 41:25 42:2,4 44:6,10,16, 20,23 45:8 46:24 54:20 59:12,13,19 60:25 61:14 69:1 78:9 80:5 81:4 83:4 90:17,19 92:5 99:16,17 143:17 183:19,21 188:8,10 201:15,16,20 206:25 207:2 214:19 215:1 226:8,13 234:22 235:6 236:13,16 237:25 259:25 261:16,19,25 263:2	meaning 19:1,8 76:3 124:8 means 25:17 41:15 110:19 146:13 188:23 202:23 meant 27:1 measure 16:21 67:1 174:22 measures 62:20 156:2, 4,22 mechanism 20:9 127:9 150:20,21 152:25 155:2 167:23 186:7, 18 194:19 mechanisms 178:6 medium 16:23,24 67:4 79:19,20 94:3 medium/ medium 16:22 18:3 29:13 37:23	40:24 169:19 252:3 meet 15:14 18:21 126:4 129:21 137:22,23 138:5 146:11, 16 174:19 187:18 221:10 234:5, 20 meeting 120:25 138:12 215:20,22 228:25 247:2 meets 14:3 37:8 megawatts 11:25 33:2 195:1 222:9 231:2 232:20 233:1,21,23 members 12:15 memorized 77:14 memory 91:5 mention 85:24 141:1	162:3 mentioned 21:24 47:7 53:17 56:10 71:24 73:23 85:6 87:1 95:16 97:15 98:1 107:11 181:1 200:7 merit 246:13 merriamwebs ter.com 202:22 met 110:20 142:5,12 method 46:18 70:25 146:4 159:1 181:25 244:7,14,20, 24 258:2,8 methodologie s 244:17 methodology 34:24 57:2,5 72:15 74:9 84:14 212:23 243:25 244:11,14 methods 147:15 186:8	257:13 metrics 253:1 middle 78:22 79:6 80:19 251:10 might 7:17 13:11,14,16 38:24 42:8, 12,18 74:12, 13 76:11 80:14 84:20 99:2 111:18 118:6,20 121:3 122:6 126:6 143:15 174:24 189:11,12 197:1 218:21 227:14,22 255:2 Mile 246:11 million 17:5,8 63:18,21 65:18 74:4,5, 10,14,16,22 101:4,6 211:15 212:25 213:9, 17 242:19,20, 21 243:5 millions 14:10 28:11 106:19
Mcdowell's 50:9 262:16 Mcfadden 246:15 mean 58:1 117:12,13 162:1 168:8 171:15,16 181:1 234:6				

169:15	206:14	72:11 73:13	108:5	25 201:4
mimic 85:5	misrepresent	77:17 78:8		260:16
mimics 96:17	s 206:20	79:5 80:23	modest 197:1	more 13:22,
	253:8	82:4 93:16		24 15:17,23
mind 30:15	misses	94:6 97:5	modifications	16:3 18:19
57:4,25 139:4	253:12,24	205:21 206:1,	106:8 147:13	23:23 25:18
		5,6 208:17		27:10 33:6
mindful 61:9	Mitch 9:3	257:3,20,24	modified	43:14 48:15
		modeled	54:24 147:10	49:9,10,16
mine 207:16	mitigate	70:15,18	209:3 247:8	50:10 53:20
209:2	103:13 198:2	96:8,16 98:21		56:12 57:3
minimize	mitigated	106:22 207:6	moment	58:20 73:8,22
68:3 147:2	25:13 123:6,9	237:13,16	29:23 33:6	76:25 77:15
minute 24:9	197:24	modeling	42:2 82:24	78:15 80:10
37:5 123:3	246:25	18:7,8 26:24	94:9 131:25	83:18,21 84:3
	247:22	48:9 51:8	134:23 135:8	86:14 87:9,
minutes	248:12	64:12 71:20,	136:8 220:14	12,14 88:2,4
262:23		22 72:15 73:3	248:24	96:19 103:16,
mischaracteri	mitigates	78:19 96:11	money	19 106:24
zed 197:18	105:4	110:25	133:22	108:5 117:7
misconception	mitigation	209:15 210:3	164:21	119:4 130:3
ns 154:3	22:25 105:1	243:25	231:12	131:10 133:5,
	118:4 120:16	244:11		16,20,23
misconstrued	156:2,3,22	256:11,12,14,	monitoring	136:19 137:1
197:19	mixed 156:19	15,24 257:2,	103:18	146:2,23
		10	month 189:16	147:6 151:23
misrepresent	mixing	models 16:19	190:14	158:1 177:18,
ation 253:4	234:20	18:12 34:2,4	months 57:18	23 181:23
misrepresenti	model 13:16	35:2 38:2		182:8 187:9
ng 124:10	26:10 34:6	57:24 62:19	Moore 8:16	189:17,18
	57:13,21	70:21 72:4,10	116:24 148:9	202:23 203:3,
		75:12,15,17,	155:13,15	4 206:8
		19 77:8 87:17	158:14	210:17
		88:13 89:17	161:10,14	214:15 217:6
		97:10 244:5	166:9 187:24,	222:7 223:1,6
		257:4,8,12,13		231:23 255:6
		modern 86:14		258:1,10
				261:8,12
				262:4
				morning 7:2,

24 8:1,6,20, 24 9:22,23 11:17 21:6,7 51:22 54:9 59:20,21 61:19 69:12, 13 75:11 85:7 87:18 98:12 109:21,22 126:21 128:2 238:20 248:2 251:25 252:8 261:23,24 262:3 263:9, 10	193:20,22 226:21 240:10,11 259:24 260:12 motions 10:25 Mountain 7:4, 16 8:2 10:5 11:20 22:9 31:6 81:24 99:20 143:19 149:13 187:16 194:10,20,24 195:6 196:12, 17,24 232:4, 12 Mountain's 30:22 move 19:9 22:15 31:15 32:2 61:10 66:24 144:18 150:4 185:18 193:14 198:24,25 207:1 214:21 236:11 255:7 259:19 moved 104:11 moves 19:25	101:12 183:2 240:7 moving 32:25 67:10 84:16 MSP 21:15 much 9:8 15:6 27:24 52:5 108:13 112:14 117:25 140:20 168:14 181:21 187:2 191:10 197:24 218:19 221:22,23 222:10 230:4 231:25 242:6 243:5 255:3 258:10 262:24 multi-state 159:10 180:9 multiple 16:19 151:16 181:2 199:9 must 62:6,14 146:9,13,16 <hr/> N <hr/> N-i-k-k-i	144:3 nacelles 13:1, 20 196:2 name 9:24 10:1 59:22,24 100:3,4 144:2 149:8,9 184:14,16 191:21 238:21,23 narrow 172:11 natural 16:23 26:19 43:16 81:25 83:14 91:23 93:13 94:3 206:18 207:12 208:18 231:5 258:6,11,20 nature 121:7 240:24 near 18:17 47:22 77:5 near-term 20:7 62:11 68:18 76:15 98:3 171:3 nearly 26:9 36:13,18,24	38:18 64:21 necessarily 97:17 218:22 necessary 103:3 106:3 107:7 137:23 151:12 178:16 231:8 need 7:7,16 23:23 24:19 28:23 30:8 37:5,11 58:2, 3,9,12 61:11, 13 67:20 68:8 81:11 83:6 97:18,24 100:24 139:1 143:7,12,15 154:5 170:3 171:25 179:18 183:10,14 191:7 199:15, 19 200:24 215:3,25 216:3,7,9,16, 17,18,21,23 217:10,21,22 219:17 229:4 230:22 231:3 234:15 241:10,11 need-based 199:8 225:17 needed 27:15
--	---	---	---	--

68:1 73:20 129:19 162:8, 15 194:12 198:11,14,16 217:3,6,17 229:10 needing 115:25 243:22 needs 20:13 28:22 57:24 141:9 158:8 191:3 228:19 263:8 negotiated 102:21 104:15,24 105:11 107:4 114:1,24 123:8 negotiating 98:22 negotiations 27:25 28:9 105:14 123:21 neither 231:7, 21 244:20 net 17:4,7,9, 11 18:3 20:11 29:12 63:17, 20 66:18	67:13 68:3,20 91:10,14 93:24 96:22 97:2,7 154:19,21 178:24 196:23 197:1 211:15 242:17 243:5 245:15 251:11,16 252:2 253:7, 10 254:11 neutral 210:16 never 152:11 195:5 new 12:25 13:1,12,15, 17,20,22 14:18 16:13 20:1 28:12, 18,20 48:13, 15 63:4 65:3 66:23 71:6, 14,25 86:6 96:7 103:13, 18 106:8 107:25 111:4 115:6,25 128:25 129:6, 25 130:2,9,15 131:13,18,21 132:4,8 135:25 136:4 137:17,24 138:1,5,10, 12,18 146:19,	20,25 150:19 151:18 173:4 176:24 180:2, 3,8 181:18 187:16 194:19 196:2, 4 199:15 216:23,24 217:4,22 218:4 222:1 224:13 230:1, 2 235:9 237:19 246:8 newer 13:25 next 47:10 59:9 69:8 83:19 99:18, 21 126:21 128:7 143:19 153:22 179:23 187:24 191:14 207:1 222:1 224:18 225:14 234:8 238:13 251:23 253:3, 19 255:20 262:23 Nikki 12:22 143:20,21 144:3 nine 16:19 62:21 63:13 95:12,13,22 207:6 208:17,	21 209:6,15 210:2 212:15 242:18 no-action 202:6 231:22 no-build 234:10 nobody 39:1 132:23 nominal 34:20 35:4,24 36:21 38:10, 19 40:4,10 46:22 50:11, 15,19 56:9,24 65:11 70:2 86:25 87:8,19 88:4 89:3,4 90:2,3,6,7 99:3,8,9,10 237:13,16 250:7,15,16, 21,23,24 nominalizing 40:22 nominated 124:20 none 160:24 162:3 248:6 nonissue	89:13 normal 23:12, 18 54:3 121:15 218:23 235:12 Nos 22:22 185:24 193:23 240:12 notably 66:21 147:8 note 7:21 22:7 66:13 81:16 86:11 214:17 243:16 252:12 noted 57:17 67:3 87:17 93:19 nothing 67:20 83:11 84:3 94:16 135:6 notice 177:6 November 51:7 104:9 185:5 192:9 239:15 nowhere
---	---	---	--	---

162:6,14	79:12,18,24 139:6 212:6,7 213:2 218:8 229:6 248:21 249:11,13,14 250:2,7,13,15 252:7,9,11,25 253:14 254:10 258:19	8,10,15	occasions 10:24	offered 119:5 241:1,3,15 242:21 244:13,20 253:9,20 255:12 256:10,12,19 257:6,18
NPV 211:24 251:11		objections 11:9 61:5 101:17 144:23 150:8 193:21 240:11	occur 76:11 169:17 250:16 251:3	
NPVS 227:21			occurred 42:19	offers 108:23 243:4 256:23
nuances 26:24		objective 225:18 241:20	occurrence 162:8	
number 29:18 33:17 41:1,6 55:2,7,9 63:1 74:15 82:8 93:6 100:25 101:1,6 112:18,23 113:14 120:23 139:16 142:9 185:4 192:6, 16,24 208:14 211:16,20 234:4 243:24 245:6 247:12, 17,24 248:18, 19 249:25 250:4,5,8,9, 13,22,23 251:2,8 254:1,14 255:12 256:10,19	O	objectives 225:17	occurring 23:2 72:21	office 8:8,10, 12,14,16,17 33:13 64:8 68:14 133:24 148:11 159:14,20 188:1 220:13 228:7,9,15, 18,22,23 229:8 232:25 234:4,11,15
	O&m 19:1 251:12	objects 11:8 22:18 32:5 61:4 144:22 150:7 185:22 193:20 240:10 259:24	occurs 38:6 94:14	
	oath 126:21 236:8		OCS 17:25 38:16	
	object 39:23 44:18 80:5 81:9 206:13 226:16,20	obligation 7:11 232:20	October 51:4 60:11 101:3 128:24 129:4 149:20 164:2	Office's 159:19 160:2
	objecting 235:10	observed 84:6 242:12 244:10	off 13:23 58:5 83:19 84:15 116:19 125:6 132:18 133:1 174:17 196:18	officer 10:5 11:19 144:6 210:13 241:25
	objection 22:19,21 32:6 39:14 44:17 45:6 78:9 80:13 81:5 101:16 122:12,21 157:19 158:4 206:22 214:23 235:5 259:25 262:6,	obtain 145:10 151:12	offer 10:20 11:3 60:25 113:2,3 226:9 259:15	official 16:25 67:5
numbers 27:5 30:8,22 34:11,14 38:17 40:2,4 41:11 44:15 78:2,5,25		obviously 139:15 175:9 227:17 255:21		offline 136:3
				offset 118:19 120:24 141:8

152:6 164:20 182:13 offsetting 251:18 often 175:9 old 13:19 73:9 131:20, 24 135:23 138:2 196:5,8 once 19:9 96:15 114:22 131:5 one 10:22 16:4 23:23 26:22 29:22 33:5 41:17 42:2 57:8,9 68:9 72:17 73:17,18 77:15 83:21 89:11 92:3, 15,16 93:22 94:1 95:11, 13,14,21,22 97:13 98:15 112:19 113:13 116:11 119:20,22 120:1 124:22 128:4 131:10 133:23 134:22 136:18 138:15	142:18 151:14,19,22 156:7,8 161:6 162:22 166:3 167:12 168:18 169:21 173:7, 14 174:6 180:11 187:9 189:9 192:16, 22 193:3,10 195:5,18 197:20 203:1 210:14,15 211:9 220:1 222:6 231:8, 21,23,24 241:17 249:17 260:2 261:3 onerous 19:17 154:9 ones 48:14 53:22 83:19 131:9 248:10 ongoing 14:16 105:9 107:22 141:3 153:15 198:5 online 16:2 96:19 104:17 118:14,16,21 121:11,12,17 134:12 only 7:9	19:19,21 36:4 37:8 41:12 68:22 70:23 88:19 98:15 99:9 113:4 145:24 152:18 154:15 159:21 165:11 166:23 169:20 180:16 193:10 204:14 206:17 207:12 218:17,25 222:8 227:6, 19 229:17 246:25 250:18 253:13 255:9, 23 open 153:10 opening 71:24 85:24 89:8 91:16 197:14 openness 181:24 operate 58:13 108:20 163:22 179:3 operated	137:2 operating 28:13 62:3 96:18 98:17 106:20 136:6 196:9 operation 14:11 65:2 103:4 104:8 105:5 108:12 109:1 operational 111:2,4 216:17,18 operationally 218:12 operations 18:9 105:7,9 107:11,23 opinion 26:25 40:25 47:7 171:4 194:9 opportunities 88:23 89:16 154:11 224:18 225:9 226:3,5 230:1 246:24 opportunity 11:22 12:5,17	53:12 91:21 101:25 102:15,18 108:24 127:7, 10,16 139:14 145:6 152:4 171:2,17 179:15 182:24 196:25 198:22 199:7 224:14 240:23 241:4 259:4 oppose 17:25 opposed 174:16 177:12 optimize 68:2 72:4 optimized 57:6 optimizer 34:5 205:21 optimizing 68:10 option 41:17 189:9 202:6 234:10 options 231:6
---	--	---	---	---

oral 251:25 254:6	146:19	outlook 94:22	157:12 169:20 173:3, 5,6 177:5 186:17 194:16 196:14,16 197:2 210:6 222:3 223:15 234:11 245:15 255:1	overstated 132:22
order 16:1 20:5 22:7,8 26:7 27:6 38:5 55:2 62:4 68:8 76:19 126:5 127:8 137:19 142:23,25 143:5,12 146:14 162:18,21 195:24 204:20 205:3, 5,6 207:4 215:11,14,17, 22 218:23 221:15	others 108:18 114:7 116:12, 20 139:8 241:18 248:9 256:18 261:6 262:21	output 47:17, 25 48:11,18, 22 96:20 110:15 112:2, 4,8 132:4 135:17		overwhelming ly 67:15
	otherwise 89:20 108:4 125:16 154:8 182:13	outset 102:23		owed 164:21
	outage 136:11,15	outside 23:3, 19 73:12 78:6 79:7,20 80:20 141:12 165:22 175:11 235:14	overall 97:7 127:20 169:13 171:1 187:18	own 18:1 35:13 56:7 62:22 115:22 252:12 257:8 258:6,12 259:11
	outages 62:25 66:9 135:22 136:2, 16	outweigh 194:14	overly 74:21	owned 72:8, 17 73:14
orders 127:10,12 137:16			overrepresent ed 124:18	owns 115:14
	outcome 75:19 92:25 154:24 159:10 167:8 255:1	over 12:14,16 15:3 32:16 39:4 40:8,11 43:2 47:9 50:18 56:22, 23 63:8 64:2, 20 65:8,13,18 66:17 70:18 74:24 76:14 77:19 78:1 82:1,4,17 84:17 85:11, 13 87:16,20, 22 88:10 96:20 99:18 105:18 128:16,23 152:4,19	overrun 198:6	P
Oregon 105:12 128:11 129:9 130:1 195:21 199:12,16 215:6,9,12			overruns 25:14 42:13, 22 123:4 125:25	P-10 110:19
	outcomes 111:12 242:6, 11 245:19		oversee 102:5	p.m. 263:11
organization 257:16	outer 80:18		oversight 119:25 120:10	P10 110:23
original 12:12 91:3 150:17 153:15	outlet 47:8		overstate 118:23	P50 110:23
originally	outline 145:13			P90 110:23
				Pacifcorp 60:3 100:8 141:7 144:6 199:15

Pacificorp's 219:23 223:20,21,25	part 44:18,21 56:13 88:3 114:25 141:12 142:1 153:22 189:8, 21 202:13 206:12,15 253:15	153:24 154:3, 13 165:25 177:19 178:1 182:24 199:9, 17 220:23 226:19 247:23	past 39:24 49:2 52:10 70:13 84:15 102:14	233:12,20,24 234:5
package 95:1 242:13			path 73:24 74:1 82:22	pejorative 229:15
packet 22:11 29:21 30:10	partial 19:11	parties' 36:17	Patricia 8:7	pendency 141:5
pages 30:1 226:12	partially 58:5	partly 96:10 251:24	pay 23:16 28:25 48:12 125:7 176:9 190:14	pending 19:12 22:1,13 177:12 182:21
paid 13:24	participated 184:19	partner 8:3		
pair 230:24	participation 184:23 192:3 239:3	party 22:17 64:12 144:21 177:7 185:21 191:7 259:23	paying 151:11 229:16	percent 12:12 14:7,24 15:18,20,23 16:9,12 64:21 78:16 96:14 104:6,14 106:2 107:13, 14 110:20 111:17 112:16 117:21 119:4 124:25 125:6 132:12,19,23 145:24 146:2, 4,7,8,15,23 147:10,17 151:4 153:1 203:2 218:10 229:5 254:7, 13,17 258:16
Palo 258:4,5, 10,16	particular 38:2 93:25 95:18 124:24 174:25 180:16 199:4 230:4	pass 20:11 30:3 31:10 150:21 175:15 182:7 248:18	payment 125:13	
paper 24:10 30:7 83:7 226:15 250:3	particularly 111:23 139:3 187:5 245:8 252:19 259:5	pass-through 151:23	Peaco 110:7 113:25 198:7 200:3 238:14, 15,23 260:10, 17 261:1,21 262:21	
Par 34:6 75:12 206:4		passage 147:7	Peaco's 24:2, 6,13,25 30:17,23 44:1,7,11 46:11 133:7, 10 240:7	
paragraph 177:19 207:5 220:9,11		passed 29:20 125:22 147:5		perform 124:1
parameters 76:10	parties 7:12 9:12 10:25 11:2 12:2 19:18 25:14 30:4 35:11 64:11 67:18 89:2 152:7,15	passing 29:25 30:6	peak 32:18,20 228:25	performance
Pardon 44:4 214:13				

18:9 25:16 28:2,6 43:7, 11 55:15 66:12 117:6 123:16 124:4 126:11 129:4 135:15 136:7, 12,21 198:4	128:10 permits 19:4 128:5,9 permitting 19:3,5 25:15 107:7 128:1	picking 57:6 piece 83:7 161:5 189:23 190:21 pieces 189:25 241:2	73:16 90:9,12 111:1 143:2 225:6,17 229:5 256:25 plans 56:25 168:8 plant 58:4 97:1 150:17 153:15,17 166:23 172:12 206:19 230:25 231:5 234:9	plus 97:8 146:25 262:21 point 17:16 45:23 82:5,23 83:25 84:6 140:9 141:19, 21 142:24,25 143:12,16 170:17 172:2 173:8 181:16 197:17 199:24 214:23 235:3 248:13 249:13 251:23 253:3, 12,19,24 254:18,19 255:11,20,24 256:9 258:22, 23 262:16
performed 89:2 108:17 209:16 210:3	person 171:14	pipelines 84:19	97:1 150:17 153:15,17 166:23 172:12 206:19 230:25 231:5 234:9	170:17 172:2 173:8 181:16 197:17 199:24 214:23 235:3 248:13 249:13 251:23 253:3, 12,19,24 254:18,19 255:11,20,24 256:9 258:22, 23 262:16
perhaps 28:6 136:18	personal 170:18 171:4	place 133:3 171:19 172:17	230:25 231:5 234:9	248:13 249:13 251:23 253:3, 12,19,24 254:18,19 255:11,20,24 256:9 258:22, 23 262:16
period 40:6,8, 20 46:4 64:21 65:13 70:24 77:18 78:1 84:5,12 88:12,15 99:10 111:20, 25 145:21 146:21 153:21 167:25 172:11,16,24 181:3,16 211:11	personnel 119:24 perspective 52:13 53:6,14 73:16 94:10 95:3 99:4,5 107:11	placed 145:22 146:13,19 Plains 246:15	plants 96:9 97:7 217:1 218:15 258:12	254:18,19 255:11,20,24 256:9 258:22, 23 262:16
periods 87:16 107:20 196:16	pertaining 110:9 Peterson 200:5 205:1 206:7 212:17	plan 16:2 31:7 56:15 81:24 82:9 113:4 208:2 224:12 232:5	play 174:24 playing 58:5 playoff 53:7	pointed 70:8 74:2
permission 191:5	Peterson's 167:16	planned 134:15	pleased 8:1 11:20 61:21 256:2	pointing 80:16 83:25 252:6 257:20, 21
permit 107:8	phased 145:23 Phillip 8:21	planner 141:25 planning 34:6 35:2 50:23 51:13 71:2	plethora 28:14 plugged 189:24	points 14:10 28:11 31:10 38:14 101:4,7 106:19 194:22 197:20 247:17 255:12 258:1

policies 84:20	160:2 165:1 166:2 172:15, 18,24 173:7 177:9 199:7, 11 200:21 215:25 216:1 221:11 223:2, 10,13	94:24,25 95:13 116:17 177:10 220:25	powering 160:19	103:19
policy 11:21 18:8 62:21 63:13,23 66:2,16 93:14 94:4 95:12,22 122:16 240:25 241:12 242:11,18 245:18 260:4	positive 31:4 38:17 227:22	Powell 214:17	PPA 72:7	prefiled 53:23 60:19,23 149:15 150:1 155:20 185:10,13,15 239:20,25 240:3
portfolio 41:3 57:23 98:17 108:8	possibilities 231:18	power 7:4 8:3 10:5 11:20 14:22 22:10 31:6 67:13 68:4 72:7,22, 24 73:14 81:24 85:11 86:7 96:22 97:2,7 103:24 108:6 124:5, 8,13,21 125:10 131:24 132:5, 8 136:4 138:16 149:13 154:20 178:24 194:20 195:6 196:13,24 206:19 208:2 221:1 230:25 231:5 232:12	practices 219:14	preliminary 7:7,21 9:5
portion 19:19 24:11 35:8, 10,16,18 36:10 163:16 197:14 202:9	possibility 125:24,25		pre-approval 54:2 58:15 76:1,19 160:8 170:9 171:24 172:3 195:7 227:9 228:14 247:9	premise 154:6
portions 24:6 159:15 193:17	possible 169:25 221:3 227:22 242:11		pre-approved 160:3	premised 154:3
Portland 239:1	possibly 133:2		pre-approves 159:22	prepare 113:4 144:25 184:24 192:4 239:11,18
posed 174:14	potential 54:24 58:25 68:23 71:11 96:5 141:20 142:12 176:23 198:8 225:24 242:5 245:9,23 261:8	Power's 7:16 99:20 143:19 187:16 194:10,24 196:17 232:5	pre-mark 31:18	prepared 10:6 11:12 60:4 61:15 63:6 81:14 101:20 150:10 214:15 239:4 243:16 247:10,12
posing 175:19			precise 87:21	
position 56:6 67:21 159:19	potentially 52:17 54:21 56:12,15	powerful 154:10	precisely 26:6 49:7 57:12,24 85:7	
			predetermine 159:9	preparing 153:23 202:21
			predicate 212:3	prerequisite
			predict	

216:1	147:5 149:12	63:13,23	114:20	202:24 203:5, 6 206:6
present 10:25 11:15 15:1 63:17,20,21, 24 65:16 72:19 87:21 186:3 194:2 205:20 236:20 240:16 251:1, 8,11,16 254:11	pressure 180:5 181:7,9	66:2,16 67:5 78:8 79:14, 23,25 80:18, 19,20,25 81:1 82:6 84:9 85:14,18 90:21,23 91:2,9,23,24 92:3 93:14 94:3,4 95:12, 22 104:25 117:15,18 123:7 127:4, 5,7,20,22 139:13 140:2 142:14 173:19,22 210:19 220:25 237:6, 9,10,21,23 242:18 243:16 245:18 258:3, 5,6,10,14,16	primarily 62:8 234:17	231:13 235:25 236:2
present-value 251:5	pressures 151:14,22 162:22 180:11 181:17		primary 88:25 182:5,16 244:4,16 256:23	problem 175:20
presentation 98:14 140:4 183:22 262:4	presumably 34:15 79:13 121:17		principally 16:22 67:4	problematic 113:5 246:4, 22 256:21
presented 31:3 36:4 63:8 195:16 227:10 236:23 240:3 242:15 245:17 254:3	presume 257:15		principle 182:5 238:24	problems 243:24 252:18,25 257:22
presenting 10:21	pretty 80:9 84:12 127:21 176:21 210:15 221:22		principles 53:3	proceed 20:5 39:19 61:18 96:1 101:23 109:6 150:13 170:12 186:5 194:4 240:18 245:11 247:8, 16 249:21
presents 113:25 230:4	previous 45:24 93:19	prices 62:22, 24 77:17 78:17 81:25 82:15,18,22 83:14 84:4, 16,21 85:10, 11 94:22 118:1 169:23 170:4 207:12 208:18,19 210:17 221:1	prior 51:9,12 70:6 74:19 84:2 93:20 255:16 258:23	
president 10:4 11:19 12:17,18,21, 22 60:2 144:5	previously 11:5 40:11 193:15 203:16 209:12 219:15 240:8 248:25		private 24:20	proceeding 10:7 60:5,8 61:7 73:6,8, 22 177:5 179:20 180:6 205:9 217:3 218:2 241:2
	price 16:19, 25 18:8 62:21,23	pricing 67:7 77:10 98:20 105:13	prizes 66:9	proceedings 7:1 23:13
			probability 202:5 242:7 246:10	process 21:14 35:2
			probably 45:2 59:2 79:13 85:20 156:15 171:14 176:9	

50:23 51:13 54:3 57:13,15 72:14 73:6,19 90:9 102:17 105:16 159:10 170:9 177:21,24 178:2 183:4, 12,14 215:6 216:4 217:2 223:16 225:6 230:21	35:3,4 36:11 43:9 47:16,20 48:10,16 62:1,15 69:19 70:1 96:15 101:5 104:6, 14 106:17,25 107:13,14 110:22 111:15,23 112:3,5,10 116:19 118:6, 12,20 119:1 124:16,20 125:1 126:1 131:5 132:13, 20,22,25 145:11 146:20 151:3 195:25 197:9 198:18,23 199:2 200:14 202:15 203:7 227:3 240:25 244:19 245:12 248:6, 7 250:6,14, 22,25 251:9, 16,17,21 254:7,12,15	245:24 246:1, 20,23 248:6 253:17	118:10 119:19,24 120:9,22 121:10,16 123:6,12,15 126:11 128:15 135:17 138:23 140:1, 7 141:3,17 145:12 146:5 150:16,22 152:23 156:24 164:8 169:8,22 170:13 174:25 175:20 180:22 183:2 195:19 197:25 198:11,16,17, 21 199:5 203:21 204:6 205:22 206:9 211:8,11 227:2,9,18 229:17 230:8 241:16 242:8 244:6,8 245:12,14 248:15 250:11 251:10,11,19 254:16 256:4 258:14	project-by-project 17:9 55:13,21,25 56:4 63:7,25 95:8,10 256:3 258:3
processes 77:1 182:20		progress 98:22		project-specific 20:3 42:18
produce 13:21 27:24 84:19 89:22 119:4 135:23 199:3 258:12		project 15:4 16:17 18:13, 14 19:8,15, 19,25 25:4,22 26:2,12 35:13 37:8,11,14 38:6,7 39:19 40:20 41:13 43:5 56:6 58:8 63:24 64:1 65:15 66:22 67:11 68:16 69:23 76:2,5,8,13, 15,22 77:4,6 85:16 90:1 91:11,19,23 92:24 93:13, 14,25 94:3 95:8,11,23,25 101:25 102:2, 8,10,17,19, 20,24,25 103:6,8 104:2,17,20 105:19 107:8 109:4,6 111:23 112:7, 9,10 115:14 116:11,12,15 117:18,22,25		projected 26:14 27:9 34:12 65:11 79:25 80:2, 18,21,25 124:2 125:17 126:1 183:10 187:13 194:15 196:11 232:20 233:18 234:1, 15
produced 124:24 145:20 207:7 245:19				projecting 91:20
produces 211:15				projection 79:16 84:24
producing 62:1 257:9,14	productions 132:18			projections 82:12 84:3,22 169:17 195:14 196:17 233:25
production 12:5,7,13 14:2,6 18:18, 19 19:22 27:21,22 34:20,21	professional 132:16		project's 195:3 196:15 197:2	projects 21:8
	profile 19:14 96:16			
	program			

34:12,19 37:20 41:12 52:2 53:5 56:2 57:6 63:5 65:2 66:23 67:8 72:1 89:5,17 91:14 92:4,20 93:22 94:24 96:13 97:4 98:15,18 104:13 107:25 108:13,16 116:3,5 117:19,20 118:3,14 119:20 123:1, 22,23 124:1 129:10 130:6 131:6 134:12 136:14 138:2 139:1,7,11 143:8 147:16 151:2,5,15 153:5 160:20 169:3,13 170:10,11 171:7,13,18 175:1 178:20 179:25 181:10,13 186:9,13 188:22 194:11,12,13, 17,25 195:9, 17 196:19 197:3,5,12 199:1 200:24 228:17 240:21 241:4, 5,7,10,13,16,	17,21,24,25 242:14,18 243:13,14 244:20,22,25 245:11,22 247:1 248:8 253:2,11,12 255:2 256:16 259:10,12,14 260:8 261:4, 5,13 promise 125:17 promises 19:16 proper 80:11 244:24 252:23 properly 158:1 property 146:21,23,25 147:1 proposal 48:23 49:6,23 61:22 152:9 153:9,11 165:14 178:5 188:18,21 195:7 205:15 245:5 246:1 247:8 255:23	proposals 72:7 225:25 propose 153:24 170:23 175:2 180:19 182:11 188:20,23 proposed 19:18 63:5 66:23 73:1 114:21 139:2 150:15,17 151:25 152:3, 13 154:1 162:11,18,21 163:17 181:25 186:9, 13 187:8,14 188:19 198:13,16 209:13 214:1 240:20 249:23 proposes 103:23 150:20 164:19 194:20 proposing 72:1 159:21 160:18 165:17 186:16 195:22	proposition 55:24 95:1 121:25 242:4 259:14 protected 126:6 protections 119:10 protocol 21:16,17 160:9 180:9 prove 25:3,21 128:25 196:19 proven 197:7 198:15 proves 27:21 provide 18:17 38:21 76:24 86:8 89:3,6 103:7 108:5, 13 115:4 118:9 125:14 126:4 138:5 145:3,11 151:23 154:10 155:2 156:4,22 161:24 164:5 176:1 194:12 240:23 243:19	244:17 256:5, 7 provided 34:15 38:14 45:16 68:13 105:7 111:19 124:7 125:3 128:14 141:17 142:2 146:22 153:11 157:16 158:5 174:7 241:13 248:24 249:1 provider 141:7 provides 35:14 36:12, 18,24 66:3 67:23 70:14 86:14 88:22, 23 104:25 105:13 107:22 108:24 121:20 145:17 154:7 158:23 161:1, 18 169:8 243:12 244:21 providing 14:17 121:2 152:2 237:19 244:11 261:12
--	--	--	--	---

provision 42:13 120:13 124:12 134:2 142:4 160:25 161:25 183:9 202:12,18	22 111:24 112:1,4,8,11, 12,15 120:14 121:9,17 134:17 145:18,24 146:7,20 152:25 153:1 157:4,18 167:25 168:13,14 180:19 240:25 241:6, 20 247:3 248:5,15,18 250:10 253:22 254:2, 8 255:4	122:6,9 145:11,16,22 146:15,17 147:15,17 154:18 157:2 167:25 171:23 174:16 175:4, 7,21 176:6 178:3,25 179:13 181:6, 18 190:8,16 198:18 222:8 237:13	15:22 154:8 purchases 217:18 218:13 219:6, 7,12,17 220:16,20,21 221:17,25 222:14 purported 196:14 purpose 73:4 180:14 purposes 146:20 214:8 241:20 pursuant 107:4 pursue 37:19 73:18 122:3 139:9 154:11 pursued 107:6 pursuing 77:6 122:23 123:11 199:4, 7 push 181:4 pushing 90:8	181:9 262:22 put 7:10 58:24 75:23 176:7,9 179:15 180:7 251:20 puts 195:2 putting 28:18, 20 111:4 PVRRD 207:7,11 <hr/> Q <hr/> qualification 15:8,15 25:16 103:5 120:14 121:9 134:17 174:20 176:11 178:3 241:6,21 qualified 23:2 174:25 qualify 15:19 16:1 24:23 104:14 114:3 120:18 121:13 146:15,17,18 147:17 175:4, 7,21 176:6
provisions 105:1 118:8 125:4 127:12, 18 142:8 145:9,13 158:13 182:19		public 7:3 8:5,8 14:3 18:6 19:23 20:16 55:22 56:1 61:12 62:7 64:7 68:14,17 97:23 184:4, 18 187:5,19 191:25 194:11 197:5, 12 200:7,10, 12,23 202:13 215:20 227:6 228:3 230:8,9 241:12 249:9 250:5 260:4		
proxy 229:3				
prudence 43:2 53:3 55:8 153:6 170:15	PTC'S 74:9			
prudency 76:20	PTCS 14:24 23:2 24:21 35:24,25 36:5,22,23 38:23 40:5,6, 7,21 46:15 50:11,15,22, 25 51:12 56:22 62:1 65:17 70:14 71:2,8,12,17, 20 72:8,18 73:10 74:12 87:9,10,23 88:4,5,14 89:4 90:7 99:3,11 103:5 106:4 114:4 120:19,23,25 121:4,13			
prudent 20:15 76:22		pull 208:6		
prudently 20:1 153:4		purchase 15:20 72:7, 22,24 73:14		
PTC 12:6 15:7,10,14 16:6 18:21 25:16 46:19, 22,23 49:3,18 58:10 64:20 67:12 69:23 86:25 87:19,		purchased		

183:13 195:24 qualifying 67:7 104:5 171:23 174:16 qualities 16:4 quality 14:22 86:7 103:24 108:6 quantified 141:2 quantifies 63:2 Quantifying 15:1 question 27:1 31:2 36:14 37:3,4,6 39:9, 14,16,22 40:25 41:5 47:18 49:1,21 50:8,9,12 52:19 54:2,19 55:1,19 56:14 58:6,21 71:10 72:3 78:10, 18,25 79:11 80:11,23 85:3 86:5 87:2,3 90:4 92:15 93:19 97:13	98:25 122:17 131:11,17 132:11,14 133:23 136:17 139:6 140:24 142:18 157:10,17,20, 22,25 158:1, 4,6,7 159:3 160:17,20 162:13 173:14 174:2, 11,14 175:19 176:4 178:15 201:24 202:11 206:14,20,23 207:1 217:10 220:6 236:17 237:18 260:2 261:3 questioning 214:20 260:11 questions 10:16 21:1 22:2 24:1 33:11,12,17, 21 38:9,13 41:20,23 42:6 45:3 47:3 50:3 51:18 54:15 59:4,6 60:18 69:4,8, 14 75:5,8,12 80:7,8 81:10, 20 86:18,24 90:14,20 92:6	94:18 98:11 99:13,15 101:10 109:13 110:9 116:22 117:1 126:13 127:3 130:24 131:3, 7,8 133:5,8 134:2,19 137:12 140:20 142:16 144:15 148:1, 6,10,13,17, 20,23 150:1 155:9,22,24 172:5,10 173:18 176:15,17 178:9 181:21 183:18 185:13 187:22,25 188:3,7,10,14 189:6 191:8 201:2,4,5,8, 11,17 206:7 214:14,18 215:3 227:1 230:11,18 232:10 238:3, 5,9 240:2 260:17,18,20, 21 261:20 quick 88:9,16 quickly 58:13 104:11 205:2, 16 210:11	quite 49:20 73:10 79:19 181:3 258:19 quo 219:10 quote 29:18 163:16 quoted 199:5 204:10 248:19 quotes 84:6 <hr/> R <hr/> raise 262:17 raised 110:7 153:11 182:10 Ramas 158:23 159:2, 8 Ramas' 159:15,23 ran 85:18 136:4 Ranch 246:12 range 26:16,	19,25 63:22, 23 67:2 68:23 74:3,4 76:16 78:7,20 79:7, 8 80:1,9,20, 23,24 81:2 82:6,16 85:8, 15 94:21 110:21 117:21 220:20 231:2 242:10,21 243:14 245:16 ranging 41:16 107:14 242:19 rate 20:8 53:2 73:1 97:10,12 135:22 147:9 151:14,20,21, 22 152:18 156:4 162:22, 23 164:18 167:23 176:7, 8 178:21 179:14,19,23 180:7,11,14, 15,20 181:2, 3,8,9,12 182:14 186:8, 15,17,18 187:2,3,6,9, 11,15,16,17 188:25 189:3, 20,23 190:13 204:3 225:4,7 229:18,20 258:8,15
---	--	---	--	--

rate-based 224:19 225:10	229:14,16 242:1,10,25 243:4,7 245:3,6 246:11	ratios 81:8 213:25 214:3, 10 243:13,17	reality 102:15 109:4	reasonable 14:2 16:15 57:23 62:16 64:17 79:8 81:1 98:2 131:16 159:3 187:12 197:10 200:15 202:17,24 203:7 227:4, 23 230:17 231:23 243:1 244:2,18 255:13 257:6, 9,14,25 258:7,9,15,18
ratemaking 53:1 122:13, 16 150:15 151:8 153:12 157:13 158:12 160:19 161:4, 20,21 166:18 167:9 176:3 179:3,15 186:15	rates 17:1 67:6 75:1 87:10,14 88:5,20 96:9 107:19 120:12 121:18,23 150:23 151:19 152:23 153:7, 16,20 155:4 156:21 157:23 164:9 167:3 173:4 176:10 179:24 180:4, 5 181:7 186:21 187:3, 12	RBA 176:25 177:2 reach 17:19 reached 177:11 reaction 230:24 reactive 138:16 read 24:15 25:12,24 37:4,5,12,13 97:21 113:23 164:11 167:16 193:5 199:23 200:11 202:9 208:24 220:9 225:11,14 reading 210:5 ready 19:9 214:20 real 68:3 252:18 256:21 257:22	realize 56:21 104:4 realized 157:5 realizing 255:4 really 15:18 17:14,21 35:19 37:21, 24 38:4 40:5 55:12 57:10 71:23 84:5 96:23 115:17, 24 117:22 119:19 120:1 123:6 126:8 127:15,16,21 132:5 133:1 136:10 143:2 175:18 180:17,21 206:3 211:7 217:21 228:4 229:23 234:23 256:13,22 261:3 262:9, 12,15 reason 15:9 31:2 58:16,17 90:2 203:19 236:1 259:9	reasonablene ss 257:18 reasonably 78:8 197:6 reasons 26:16 41:6 46:23 89:25 113:3 151:7 166:25 167:3, 7,12 221:5 255:8 reassess 143:15 rebuttal 10:9, 11 11:4,5 25:9 29:6 33:22 34:11 35:9 43:21
ratepayer 156:23 166:3, 5 242:17 246:24				
ratepayer's 199:24				
ratepayers 23:11,16 48:4 122:4 125:15 156:4 157:2 163:20 164:21 165:2, 4,18 167:24 168:13 171:19,21 174:17 175:3, 25 176:2 187:18 196:23 197:1 198:3 199:21 220:24 225:24	rather 25:24 28:4 34:21 35:3,24 37:4 197:17 257:20 ratio 211:19, 23 212:11 213:1,20 214:2 rationale 88:18			

51:3 60:10,13 61:1,2 91:6 100:14,16 101:3 109:24 110:3 113:9 128:24 144:9, 19 149:19,22 158:18 163:3, 6 164:2 169:5 172:14 197:16 198:12 242:15,21 247:14	receiving 151:9 243:7 recent 34:15, 19 77:15 83:16,19 85:9 89:2 137:16 247:18 recently 66:15 77:9 222:17 recess 59:10 126:17,18 184:1 236:5,6 263:8 recessed 263:9,11 recession 227:16 recognition 86:13 recognize 57:14 76:2 211:10 223:24 recognizes 15:7 recognizing 94:12	recollection 205:17 recommend 35:12 40:18 67:3 76:18 170:12 186:10 208:12 224:22,24 245:21,25 246:2 247:5 recommendat ion 199:13 244:3 253:16 255:21 recommende d 215:12 recommending 159:9 recommends 153:19,20 186:14 208:14 225:15 recompense 118:9 126:5 reconvene 263:10 record 9:25 30:3 59:12,23	60:7 64:6 78:10,13 81:11 83:1 100:3 101:13 131:15 138:25 144:2, 20 149:8 150:5 184:3, 15 191:22 226:17 236:8 238:22 247:7 260:13 recover 150:21 160:4 168:14 182:14 189:4 recovered 75:1,2 87:5 88:7 153:20 154:23 165:13 recovery 20:20 23:21 52:9 53:18 54:5,10 69:19 150:17,25 152:5 153:15, 16 154:16 155:3 162:20 166:7,19 167:23 179:11 186:9, 19 251:12 recross 47:1, 4 50:5,6 92:7, 13,17 134:21	135:1,10,12 137:8 174:1, 5,7,12 236:12,14,15 recross- examination 47:3 recurring 162:16 redacted 192:7 193:17 208:14 239:6, 8,15,21 240:13,14 redated 239:13 redirect 42:1, 3 47:6 90:16, 18 130:22,25 135:14 173:13,16 226:22,24 230:12,18 234:23,24 235:12,19,24 236:9,11 redispatch 96:21 97:1 redispatching 97:3 reduce 12:7
REC 176:21, 23 177:1 recall 34:2 35:14 50:11 79:17 97:24 130:10 131:2, 6,8,17 132:14 133:8 134:2 191:7 204:24, 25 215:7 221:5 receive 128:7 129:6 153:1 154:21 157:2 178:23,25 192:19 241:5 received 119:2 128:1 154:22 156:2, 11 receives 19:9				

18:2 68:11 221:9,25 246:10	referenced 29:16 35:2 74:13 118:7 161:7,24	141:16 164:9	regression 84:14	258:17
reduced 112:15 246:23	references 83:25	reflecting 106:20	regulated 147:11	relate 33:21 117:22
reduces 14:16 105:8 108:22	referencing 36:19 163:16	reflection 87:10 98:21	regulation 12:23 149:12	related 35:17 54:1 91:18 105:4,9 107:22 118:5 120:10 123:20 127:4 129:22 147:14 152:17 182:19 208:4 210:22 262:12
reducing 221:11	referred 147:6	reflects 88:5 118:25	regulators 225:22	
reduction 230:25 254:7	referring 30:16 34:5 38:19 42:16 45:10,14 113:7 160:20 162:25 168:17 179:5 216:22	reform 18:11 25:15 66:16 145:14 152:3, 5,16 165:10, 12,14	regulatory 19:10 76:23 77:1 122:16 126:9 139:25 156:18 182:19 183:4 225:25	relates 50:8 114:19 147:11 172:11
reemphasize 198:10		refresh 205:17	reimbursed 121:20	
refer 24:1 30:7 34:4 46:11 93:2 113:16 121:23 125:22 173:2 205:4,13 216:16 249:11 252:9 254:9	refers 46:3,15 171:16 220:16	refused 253:18	reinvesting 13:5	relating 44:22 54:1
	refinement 104:18	regard 76:24 114:11 116:4 193:2	reiterate 81:23	relationship 71:15 248:14
reference 35:18 36:20 45:25 96:22 142:19,21 159:16 163:14 202:1 207:22	reflect 106:24 125:20 136:10 141:22	regarding 42:7 55:14 64:18 108:13 110:18 115:13 137:15 230:18 245:13 253:5	reject 194:10 202:4 203:24	relative 72:21 108:15 138:17 251:22
	reflected 18:11 101:1 129:3 130:6	regardless 160:1 257:24	rejected 194:21 197:13	relatively 112:5 133:20 196:20
			rejects	relevance

214:25	84:6,17	83:11	166:22 228:24	118:17 119:3 120:10 121:3, 22 122:5 129:5 131:6 139:17 146:16,18 154:19 168:7 195:23 217:16 244:20
relevant 39:22 45:4 81:15 131:20 145:8,13 200:20 227:15	relying 195:14 219:16	remove 152:9 179:9 196:7	replaced 135:18 155:4 167:2 246:9	
reliabilities 198:5	remain 152:21,24 195:11 196:3 253:24 254:1	removed 246:17	replacement 48:5 246:5	
reliability 12:8 58:18 62:3 85:25 86:2,15 104:2 141:9 200:18 216:5 230:3 241:11	remainder 115:6	removing 246:6	reporter 9:13 235:22 249:8	repowering 12:4,10,24 13:4,17 14:1, 5,6,16 15:5,9 16:14 18:1,2, 6 19:2,15,20 20:7,10,14 35:12,13 36:12,18,24 37:8 62:6,14 63:1,12,17 64:1,5,14,16, 19,22,25 65:1,4,5,12, 18,21 66:1,3, 18,22 67:9, 16,19,22 68:9,16,17, 20,22 89:19 91:11 92:19 102:19,24 103:8 104:2, 10,13,17,20, 25 105:2,19 106:16 107:7, 10,12,16,21, 25 108:10,18, 23 109:2,6 113:4 114:6, 23 116:12,13 119:16 120:4
reliable 103:16 194:12 244:11	remaining 20:20 168:8 175:1 197:14 244:7	renewable 12:20 100:7 102:4,6	REPORTER'S 264:1	
reliance 220:8,12,21, 23 221:9,25 222:18 228:9, 15	remains 53:2 152:20 195:15 245:2	renewed 241:5	repower 7:5 11:24 20:18 47:21 61:22 67:11 103:23 114:2,21 115:12 116:1 133:14,16,19, 21 142:7 168:3 178:20 195:22 197:8 228:17 241:5	
relief 156:4	remarks 85:6	reopen 139:19		
relies 62:18 145:10 146:3	remedies 28:22	repaired 243:23		
rely 16:22 48:10 67:4	remedy 125:2	repairs 243:22	repowered 17:3 47:11 48:8 63:10 64:3 68:1 96:15 100:24 104:5 105:5 106:3,12 108:1,4 113:19,21 114:3 115:4, 21 117:14	
	remember 39:25 42:5,9 87:2 108:16 120:12 159:23,24 234:24	repeat 36:14 39:14 47:18 93:5 161:13		
	reminder	rephrase 47:19 116:6 168:18		
		replace 13:12,14		

123:1 124:25 132:13 139:11 140:14 145:12 146:5 147:16 150:16 151:1, 15,17 152:23 153:2,4,17,25 154:4,7,10 158:25 163:4, 8 169:3,8 179:25 180:16 181:10 186:9, 12,16 188:22 195:1,17 197:25 198:11,13,16, 21 199:1 202:4,14 203:6,20 206:2,11 210:24 211:8 216:1,19 217:23 218:5 221:24 223:2, 11 224:10,12, 23,24,25 225:3,12,22 240:21 241:7, 21 242:14 245:22,23 246:3,7,20,23 255:9	213:16 215:16 219:22 237:8, 15 243:18 representatio n 23:4 71:20 81:2 87:13 114:9 242:3 248:14,22 252:4,5 254:25 258:25 representativ e 84:24 213:18 represented 124:6 232:24 237:2 253:14 254:22 representing 8:9,14,17 9:3 261:2 represents 240:22 requalifies 14:23 request 7:4, 10 11:23 20:19 51:24 62:5 97:23 109:4 141:13 160:4 183:8	186:11 189:8 191:2 196:13 198:20 203:11 requested 21:11 155:1 158:23 194:24 requesting 54:21 153:15 228:13 requests 195:25 require 22:8 42:8 43:1 68:8 71:7 97:18 125:13 126:3 261:9 required 45:20 68:5 107:9 119:14, 15 129:15 156:10 199:2 227:7 requirement 64:25 65:11 70:20 76:4 90:7 99:11 138:10 146:9, 11 186:22 205:20 213:11,14 241:12	requirements 67:16 70:15, 17 71:1 74:24 137:24 138:1, 3,13,18 146:10 247:3 250:19 251:14 requires 202:12 214:1, 9 245:5 requiring 137:16 221:15 reserve 229:5 232:21 reset 65:5 resolution 180:8 210:8 resolve 116:2 255:18 resolved 115:9,18 116:4,6,10 resolves 147:19 resource 7:5 11:23 12:18, 19 14:4 19:24	20:9,18 31:7 41:3 42:24 51:25 58:15 60:2 62:5 68:7,8,10 97:24 109:5 150:20 183:8 199:8 200:9 202:10 203:17 204:13 205:10 207:21 210:25 216:21,23,25 217:4,5 218:25 221:19 225:17 228:14 229:3, 13,14 230:23 232:5,14,19 241:8,10 259:8 resources 61:24 67:21, 24 68:3 96:6 102:7,11 110:8,25 111:1 151:19 173:4 196:4,6 199:15,20 216:6,19 217:16,17 218:16,17,24 224:13 229:4 233:18 234:1 respect 42:14 43:8,22 46:10
--	--	---	--	---

53:2 77:7 91:22 120:3 121:5 123:25 125:24 128:21 175:1 230:20 234:19 respectfully 20:17 109:4 respective 194:22 respond 20:1 86:5 110:6 122:21 206:22 247:19 255:25 256:5, 22 261:12 263:2 responded 133:10 159:4 responding 172:16 197:16 256:9 response 30:18 35:20 37:6 44:11 87:1 90:4 93:18 123:19 174:7,10,14 183:6 185:6 192:4,10,22 199:22	239:20 240:8 241:18 244:12 256:23 responses 110:9 158:9 262:5 responsible 75:16 165:18 166:4,5 responsive 39:9 rest 191:3 restart 262:3 restate 45:6 73:19 78:11, 13 81:4 206:25 restating 252:11 result 14:1 19:21 48:17 57:11 62:14 63:14 86:4 106:16,23 107:2 127:8 132:13 158:12 164:21 167:5 197:8 200:13	202:15 203:7 217:24 220:24 227:2 244:23 258:9, 17 resulted 79:24 147:7 resulting 104:7 117:7 153:2 241:6 results 18:11 29:11 63:8 64:10,13 65:7,13 80:24 89:13 93:20 207:11 208:17,21 209:6,15 210:2 211:14 213:7 242:9, 23 244:9,12, 23 245:4 252:20 256:17 257:3, 6,9,12,14,17, 24 resume 40:4 262:2 retail 62:16 200:15 227:4 retained 16:8, 9 66:22 105:23,25	106:1 147:4 retire 89:21 116:19 retired 108:4 167:4 172:12 196:5 retiring 116:17 retroactive 161:4,20 retrofit 104:24 105:4 114:25 119:8 139:10 retrofits 129:20 130:4 return 20:4 53:13 112:6 179:2 196:4, 25 197:3 229:18 243:6 254:11 revenue 64:24 65:11 67:16 70:15, 17,20 74:24 76:4 90:6 99:11 145:17 147:14 186:7, 21,25 205:20	213:11,14 250:19 251:13 revenues 176:23 177:1 reversed 165:1 review 17:9 73:3 76:20 84:12 85:9 127:11 152:14 153:6 165:25 183:12 205:16 210:11 259:7 261:7,9 reviewed 36:7 reviewing 203:10 258:2 reviews 18:5 revised 180:8 245:25 revising 246:19 revolved 19:3 rewards
--	---	---	--	--

197:4	152:12	21 198:5,6,7	Rolling	19 167:13
RFP 73:12,17	164:10 165:5, 20 170:10	199:21 200:1, 4 219:11	113:17	168:13
RFPS 72:11	171:23,24	243:9 245:7, 9,11 247:4,	114:12	176:24
Rick 12:19	174:16,17,19, 23 175:3,18, 23,24 177:3, 6,10,14,16, 20,23 178:3	22,24 248:3, 7,9,11	246:15	178:15 179:5, 7,19 180:12, 13,17,18,19, 23,24 181:11
26:21 59:13, 15,24	197:25 198:3	253:22,24	room 13:17, 22 155:16	182:7,16
rid 228:21	200:18	254:1,2	rotor 128:25 129:1	186:7,11
Ridge 246:15	221:11	260:3,7	rotors 12:25 106:23	187:8,11
rights 115:13, 15	222:18 228:5	risky 49:9	128:15,17,22	188:19
rise 123:10	229:24 230:4	RMP 204:20 223:18	196:2,3	189:14
risk 16:21	231:25 245:2	road 100:5	rough 33:2,3, 4	194:20
18:5,8,10	246:24 248:7 254:23	Robert 8:16	roughly 32:22 74:22 89:22 93:24 96:19	RTM'S 152:9
19:3,14 23:9, 10 24:18,22	risk-weighted 208:15	robust 68:19 242:9 256:24	round 89:3	rule 16:7 39:21 81:14 206:24 235:14
25:2,21 27:21	209:11,21	Rocky 7:4,15 8:2 10:5	row 251:7	ruled 221:21
34:6 43:7,10, 18 47:7 48:4	210:10,13,20	11:19 22:9	RTM 20:9 150:21,24	rules 147:11
49:2,5,12,22	212:9,15	30:22 31:6	151:1,6,8,13, 16,23 152:1, 21,24 153:3, 8,14 155:2	ruling 24:20
52:14 53:17	riskier 52:5 54:5	81:24 99:20	162:4,7,11, 15,18,21,24	rulings 248:5
65:25 66:6	risks 18:14 22:25 23:2	143:18	163:8,15,17, 18 164:10,19, 20,25 165:2,	run 47:22 142:1
67:1,8,10,19	25:13 27:8	149:13		running 70:21 72:10 88:13 97:11 133:22
85:2 94:24	53:8,10,21, 22,25 62:12	187:15		runs 26:10
98:3 104:21	65:25 66:7	194:10,19,24		
105:1,4,9	77:1 118:4	195:6 196:12, 17,24 232:4, 12		
108:22 117:7	122:25 123:4, 5,7,14 126:2	role 72:10 77:3 102:4,5, 7		
120:17	147:2 170:10			
121:19 122:2, 4 123:11,25 132:17	171:19,21,22 172:1 175:13 194:13 195:14 197:4,			

75:14,17 93:16 94:6 Russell 8:20, 21 33:15,16, 19 39:6,16 41:19,22 50:5,7 51:16 56:8 86:20,22 90:13 92:14, 15,18 94:16 126:22,23 127:1 130:19 137:8,10 148:12,13 168:22 172:7, 9 188:6,7 201:7,8 260:19,21 262:9 Russell's 126:16 <hr/> S <hr/> S-t-e-w-a-r-d 149:10 s-t-r-e-e-t 100:5 safe 15:18 104:12 146:4, 8,12 said 22:13,25 24:18 27:9,	12,14,19 37:23 39:8 55:1 56:20 97:19 100:23 122:2 128:2 129:6 165:24 167:11 175:22,23 179:22 189:9 204:7 sake 74:16 sales 234:18 Salt 184:21 192:1 Sam 191:23 same 10:17 35:8 40:10 43:19 47:9,12 57:8,9 60:20 62:19 67:6 68:2 73:7 74:22 78:1,7 82:5 87:21,22 101:9,10 107:24 115:5 116:7,13 134:5,10 144:15,16 149:25 150:2 156:23 157:3 159:7 165:3 173:22 177:23 178:2, 5 185:12,14 193:7 199:11	205:25 210:5 213:5,6 218:4 234:11 236:22 237:23 240:2, 4 251:4,5 257:16 satisfies 64:16 satisfy 138:18 146:9 savings 12:9 15:2 19:15 202:5 244:1 say 24:10 28:15 32:24 38:24 41:10 45:21,24 46:8 47:10,14 48:9,17,21 56:18,19 58:3,8 69:24 71:13 72:22 75:25 76:12, 18 77:19 78:5,20 79:1, 12,18 80:2 81:21 82:15, 18 83:12,23 84:2,15 85:12 88:11 89:11 90:11 95:22, 23 96:25 99:7 112:24 113:23 114:6 115:8 116:9	117:17,20 118:25 119:4 120:8 121:11 123:19 124:25 125:5 164:4 169:7 178:4 181:15 206:23 210:16,23,24 216:16 217:15 220:12,21 224:11,18 225:9 232:17 233:19 255:24 saying 25:6 42:12 79:20 83:6 97:8 116:10 171:8 178:14 229:23,25 263:3 says 31:1 45:23 76:1 146:18 202:23 205:19 207:5 208:20 209:4, 14,25 210:1, 14 225:15 255:8,14,18 scenario 18:7 36:13,19,25 37:10 63:23 77:3,24 79:23 80:3 91:24 92:20 93:16,	22 140:14 169:21 206:18 211:7, 10 213:7 231:6 243:2 scenarios 16:19,20 26:10 29:13 62:21 63:14 66:2 67:1 76:16 85:8 92:2 94:22 95:12,22 169:20 196:24 210:25 212:15 242:19 245:16,18 252:4 253:7, 9,13,14 schedule 102:24 134:1, 5 scheduled 134:14 schedules 142:5 scheduling 262:14 Schmid 7:8,9, 19 8:6,7 21:1, 3,5 22:15,23
---	---	--	--	---

23:22,25 25:8,11 29:22 30:5,9,14,17, 20 31:17,19 32:1,10 33:5, 8 35:9 42:6, 11 43:6,20 44:3,17 45:7 46:11 47:1 75:7 109:16, 18,20 112:22 116:21 131:3, 11 134:21,22 135:2,9,13 137:5,8 143:11 148:5, 6 166:11,14 172:4 183:25 184:5,13 185:17 186:1 187:21 190:25 191:1, 10,13,19 193:13,25 201:1,18 202:9 214:13 226:22,23,25 230:10 238:12,13,19 240:6,15 248:23 249:5, 16,20 259:18 260:1,10,15 262:8	5,11 SCR 204:15 206:18 207:8, 11,20,25 212:10,14 230:16,20 scratch 27:20 script 258:4,5 scripts 258:10 SCRS 206:16 208:15 scrubbers 217:1 second 14:16 39:11 56:13 66:5 68:6 101:2 106:5 112:20 151:13 152:17 154:13 168:19 198:10 205:18,19 207:5 248:13 249:17 250:4, 8 section 20:5 160:21,25	161:3,20 177:22 251:10 253:25 254:3 secure 104:12 seek 23:15 28:22 120:11 242:6 seeking 25:17 42:25 47:21 52:2 166:7,18 243:7 seem 58:22 202:24 205:11 225:25 235:1 seems 158:11 203:1 222:8 235:6,11 seen 96:17 124:13 195:5 215:11,14,18, 22 234:24 segments 170:23,24 select 72:4 139:2 selected	139:7 230:24 selling 120:21 234:17 Senior 10:4 11:18 sense 88:18 90:7 97:3 109:2 261:23 sensitive 111:23 sensitivities 16:20 63:2 66:20 85:8 231:16 sensitivity 243:16 sensor 103:13,17 sentence 205:18 208:23 220:10,11 224:15,18 225:15 sentiment 199:9 separate	23:20 66:24 71:24 172:19 182:17 September 153:23 185:2 192:8 239:8 series 227:1 serve 11:20 57:23 68:5 219:7,17 222:14 241:10 service 7:3 64:8,22 105:7 106:11 107:5 114:7 115:2 136:21 137:2 145:22 146:13,19 147:14 150:18 151:16 180:1 186:25 194:13 217:7 227:7 231:1 services 8:12,15,17 62:16 68:15 86:15 197:10 200:15 202:16 203:8 227:4 set 53:5 57:22
---	---	---	---	---

60:19 67:6 167:22,23	53:13	67:25 68:2 72:20 83:18, 20 96:1	133:15 252:7	119:7
sets 117:15 253:14	sharing 154:14 177:11	100:25 101:6 138:6 140:11 143:16 153:25	showing 64:5 69:18,25 193:17 243:14 252:2 253:7	signal 83:9
setting 17:1 73:2 224:20 225:10,11	sheet 251:6	172:17,18 180:6 186:14, 23 192:24	shown 81:25 169:24 246:5 251:14	signed 147:5
settlement 23:20	shell 13:18 16:11	193:4 194:10, 20 197:12		significant 12:8 13:10 65:8 68:21 83:20 94:14 105:1,19 108:2 112:25 145:12 183:3 195:10 196:25 197:3 198:3 199:20 202:5 242:1, 7,24 245:2,6 252:25 254:8, 14 259:2
settlements 22:3 167:6,8	shift 166:2 215:2 259:10	200:23 204:5 215:25 216:3 219:14 223:2, 11,14 225:3, 5,23 226:2	shows 15:1 16:14 17:4,7 18:3 19:20 29:12 32:13, 19 35:13 36:12,17,23 38:16 63:12 64:16,24 65:10,19 67:15 83:2 89:5,10 92:4 93:12,15,23, 24 94:5,8 95:12,13 111:11,14 232:19 233:11 242:22 243:3 249:25 252:2 253:6 258:18	
seven 84:9 246:11	shifted 155:23	230:1 231:11 246:17 247:2 252:20,23 253:16 256:4 257:23 259:4, 12 261:4,6		
several 61:6 62:7 65:25 66:2,19 147:7 151:14 153:24 162:22	short 197:1	shouldn't 255:17		significantly 49:5 73:10 105:3,8 107:18 245:4
severe 262:13	short-term 64:18,19 65:20 200:17 204:3 217:18 220:18 227:12 234:18	show 17:9,11 26:11 29:12 32:15,21 55:8 57:24 64:1,13 91:10,14,24 92:20 95:19 121:23 133:18 169:13 241:9 251:6,9 253:9,10 255:25		similar 47:13 49:1 94:2 105:13 107:19 119:9, 10 127:9 161:24 162:13 177:16 189:13 206:9, 12 231:4
shape 18:15 96:16	shortly 105:17 122:19		shut 17:20	
share 38:10 158:25	should 17:23 23:19 37:7 38:7 40:3,18 41:17 45:21, 24 46:7 49:7 54:7 55:14,24 56:22,23 57:7		shutting 235:16	
shared 199:9		showed	side 53:4,17	similarly 199:18
shareholders'				

simple 12:25 13:3 208:16, 20 209:5 258:8	115:15 116:13 127:13,14 243:11,18 246:2,7,17, 20,21 255:10, 22	Snarr 8:13 33:11,12 69:8,9,11 75:4 87:3 92:8,9 116:24,25 117:3 122:20, 22,24 126:12 127:3 134:25 135:5,6 148:8,10 155:13 174:3, 6,13 176:14 187:24 201:4, 5 260:17,18	79:14 95:2 97:15 125:12 129:16 175:11,17,19 189:1 217:1 231:1	234:20 257:23
simply 13:17 19:16 68:4 86:13 116:10 133:15 141:14 152:24	sitting 125:16		sometime 179:20	sorts 96:23
simulations 205:21 209:16 210:3	situation 72:12 166:4 183:6		somewhat 123:16 221:22	SOS 212:1
	six 79:14 207:6 246:1, 7,20 255:22 261:3,5,6 262:20	sold 145:20	somewhere 78:20 79:25 179:22	sound 100:17 244:1,21
since 66:11 96:18 102:3 103:9 112:23 115:11 116:2 162:19 165:10 187:15 194:7 221:18 237:6	six-year 84:7	sole 241:12		sounds 191:9 261:4
	size 204:6 246:23	solely 48:5		source 29:15 30:24 96:3 250:1
single 241:16	slated 246:5	solicitation 72:6,14 73:12	soon 19:6	sourced 30:22 250:2
single-issue 161:4,21	slight 93:24	solid 28:15	sorry 23:23 25:5 29:5,7 30:17 37:11 83:5 93:5 110:1 123:18 143:20 157:9 160:14 163:12 170:23 174:9 192:5 223:4 255:6	South 184:21 192:1
sir 8:24 69:6 148:3	slightly 93:24	someone 177:7		speak 79:3 81:21 170:1 179:16 255:7
site 115:25 116:11 117:23 243:12	small 112:6 196:20 228:16	something 23:8 38:25 40:14 55:14 56:11 57:25 58:19,23,24	sort 81:22 96:12 132:11 135:16,24 155:22 167:20 180:22 190:20	speaking 52:21 71:25
sites 28:12,13	smaller 169:25 170:5			speaks 83:13
				specialist 76:23
				specific 72:5

85:18 86:12 89:16,25 121:6 131:9, 10 140:10 157:7	spend 133:17,22 231:11	55:23 107:24 138:5 225:19	159:4 184:14 191:20 200:17 227:6 231:7 238:20 247:20	57:11 58:1, 14,15 62:10 68:7 97:16 98:5 161:1,6 183:15 200:8 202:10,12,18 204:1,2,8,13, 15 205:8,10 227:11
specifically 43:22 55:5 96:9 138:9 202:1,11 211:3 232:13	sponsored 60:8	standing 165:21	stated 79:11 89:14 101:4 159:8 163:4,7 164:17 174:15 198:20 199:14 252:8	statutes 160:21,24 161:23 162:3
specification 130:5	spot 29:19	standpoint 84:22	statement 42:7,14 43:21 79:17 85:25 89:8 92:22 98:4 198:15 208:11 225:20 226:1, 6 229:10,12	statutory 65:23,24 147:9
specifications 104:19 131:24 132:6	spread 88:10	stands 56:6 163:9	stay 181:2 189:19 231:1	steadily 18:14
specifics 86:10	stack 223:18	start 7:23 15:16,18 33:20 61:10 75:11 180:1 219:2 261:23, 24 262:2 263:1	statements 45:1 197:15, 18	steady 234:9
specified 37:9	staff 12:1 199:13,16 215:6,12	started 194:7 258:24	states 21:9, 10 156:17 195:18 198:11 200:8 208:13	steer 113:13
speculative 194:15	stakeholder 216:4 225:6	starting 32:24 37:3 146:20 262:23	status 130:13 219:10	step 102:16
specified 37:9	stakeholders 223:13,14	starts 35:18 142:25	statute 19:24 27:14,15 53:19 54:6	steps 134:11 221:9
speed 132:2, 3 136:6	stand 28:8 46:5 59:14 149:1 184:8	state 7:11 9:24 21:10 25:12 59:22 60:7 62:18 100:2 114:13 117:10 128:11 144:2 149:7 156:16		Steven 8:13
spell 9:24 59:22 100:3 144:2 149:8	standard 14:3 53:1 64:17 124:4,12 127:18 129:20 203:11,12,16, 22,25 204:1 228:1			Steward 12:23 121:24
spelled 177:17,22	standards			

122:15,18,23 125:22 126:9 143:19 149:1, 2,7,9 150:10 155:6,10,16 157:19,24 158:5,11 166:10 173:15,20 176:18	stipulated 183:1 stipulation 10:24 19:11, 13 21:24,25 22:6,13 177:8,16,17 182:20,22 stochastic 66:6 stop 89:17 249:16 261:23 262:2 stopped 195:7 stopping 262:23 straight 65:3 strategy 12:19 60:3 stream 87:19, 21 99:5 street 100:5 239:1 strengthen 129:20 stress 68:21	252:23 stressed 252:15 strong 173:7 strongly 16:21 structure 72:17,22 73:17 structured 189:12,13 structures 72:5 73:15 studied 36:13,19,25 37:10 63:14 studies 19:7 195:12 study 46:4 63:8 69:18 99:6 141:3, 11,12,22 153:22 172:20 180:4 221:20 sub-hourly 220:19	subject 21:19 22:11 31:20 36:1 51:14 77:16,21,23 78:2,4,14,24 79:12 80:3,7 81:10,23 82:11 99:3 112:25 123:21 153:6 195:10 211:13,16,17, 18,20 212:6, 24 213:2,3,8, 22 218:8,9 232:23 233:6 237:12 261:7 subjected 129:22 submission 51:10 submitted 72:6 177:8 226:17 subsection 161:17 subsequent 104:13,18 subsequently 252:8 subset 104:10 116:3	subsets 243:11 substantial 17:18 18:8 19:15 26:11 28:11 65:21 67:12 85:2 109:7 169:7, 8,12 234:3 259:10 substantially 19:8 85:15 103:9 116:18 246:10 substantiate 14:9 successfully 197:24 such 13:11 76:9 77:2 96:19 110:22 123:4,5 152:12,13 153:10,18 156:3,22 165:2 188:25 217:17 sufficient 95:23 242:23 sufficiently 242:9 244:21
Steward's 150:5 259:6 stewardship 176:3 still 39:22 81:6 89:9 95:24 115:19 119:6 120:8 123:10,20 126:20 139:13 152:19 165:8 168:24 171:18,22 172:1 176:24 177:12 178:15 182:21 195:12 196:24 198:3 199:18 226:2 236:8,18 251:18 stipulate 10:21				

suggest 71:11	144:25 147:22 150:11 155:5 166:15 167:10 172:13 186:2 187:20 194:1 200:3 210:23 215:5,24 223:12 240:16 247:11,24	173:23 178:14 193:5, 9 197:23 198:12 211:4 236:22 237:19	surcharge 152:1 163:8, 22 surprise 82:3	189:22 190:1 synergy 98:17
suggested 67:19 126:6				system 34:5 62:2 63:3 66:21 67:25 68:3,24 86:7 89:24 96:4, 16,21 97:3 103:25 104:1 130:18 205:21 218:20 219:7 230:3 256:15, 24 257:2,10 258:7,12,15, 21
suggesting 121:1		suppliers 102:22 114:2 143:7	surrebuttal 51:6 100:15 144:9,19 169:2,4 185:2,3 192:8 197:15 217:11 222:23,24 240:8 247:13 259:17	
suggests 113:25 187:8		supply 102:11 117:23 119:21 124:13 125:5 129:11		
suitable 106:7	summed 250:17			
suite 200:1	summer 103:1 228:25		surrounding 194:13	
sum 250:7, 15,24	supplement 172:13	support 11:22 14:21 86:8 89:14 103:24 108:6 138:6 187:10	suspicion 124:17	systems 103:18 230:25
summarize 52:16 53:4 61:21 164:23	supplemental 10:10,11 11:4,5 22:8 25:8 29:5 33:22 34:10 35:8 43:21 60:11,13 61:1,2 83:2 91:7 93:3 100:15,16 109:24 110:3 113:9 140:12 142:19 144:10 149:20,22 158:9,18 163:3,6 164:14 169:5	supported 196:13 207:25	sustain 158:4 221:17	systemwide 186:20
summarized 64:24			sworn 9:18 59:16 99:23 143:22 149:3 184:10 191:16 238:16	<hr/> T <hr/>
summary 11:12,15 20:21 22:24 27:13 34:9 42:7 61:15 68:25 74:2 89:8 91:16 97:14 101:20, 23 109:9 127:23 129:14		supporting 61:21 91:16 95:24 244:2	sympathetic 262:16	T-h-o-m-s-o-n 184:17
		suppose 13:6,8,9 54:12 98:16	synchronized 186:21,23	table 30:11, 12,18 44:1,12 45:1,11 46:10,11,15 67:12 93:3,5, 7,9,12 94:1,2,
		supposed 125:8		

8 111:8 211:9 213:5,10 253:5,8,9,15	taking 28:17 70:3 71:16 74:11 135:16 200:12 228:5 229:23 248:6	task 119:18	191:24 195:11	84:18 95:17 97:24 202:22 229:16
tables 35:19, 20,24 36:20, 22 211:6,7	talk 28:7 38:20 55:16 56:25 57:19 122:25 169:2, 6 177:3 200:5 205:3 216:21 224:10 253:25	tax 12:6,13 13:10,24 15:19 18:10, 11 22:9 25:15 34:20,21 35:3,4 36:11 47:16,20 48:10,16 62:1 66:16 69:19 70:1,3 71:6, 10,11,14,18 104:6,14 118:6,12,20 119:1 145:9, 14,15 147:6, 7,9,12,13,18 151:3 152:3, 5,6,13,16,18 164:18,22 165:10,12,14 166:8 195:25 198:18,23 199:2 240:25 250:6,14,22, 25 251:9,13, 16,17,21 254:12	technically 129:2	terminates 88:13
tailor 263:4			technological 104:4	terminology 220:15
take 7:17 26:18 37:24 59:8 71:8 94:9 107:1 118:11 122:11 126:15 135:21 137:3 172:17 177:13 181:14 183:24 220:2 221:8 227:7 235:23 236:4 256:25 257:22	talked 22:25 69:24 118:4 126:2 135:14 166:15,17 167:10 168:21 250:9 252:14 254:10		technologies 103:13	terms 58:7 80:9 81:6 83:13 115:18, 24 116:14 124:5 126:9 127:21 132:24 134:1 139:16,20 141:2 157:6, 7,20 158:2 210:11 217:20
taken 18:15 27:4 59:10 68:12 72:9,18 95:20 126:18 134:10 150:18 162:15 174:22 184:1 204:5 229:21 236:6	talking 52:6 55:9 78:11 96:9 156:5 164:6 205:10 216:15 217:20 218:1 256:13	taxpayer 145:25	technology 13:19 103:9 129:25 131:13 230:2	test 26:7 66:20 124:19 146:17,18 147:3 178:13 187:7 257:8, 17
	talks 97:25	team 12:15 18:13 75:14, 16 77:4	tells 82:21 131:23	tested 66:1 195:23 258:5, 13
	tangible 229:4	technical 102:18 184:18	ten 12:14 14:24 19:1 40:8 50:18 56:22,23 72:18 96:19 111:24 119:3 145:21 254:16 255:2	testified 9:19 59:17 99:24 134:4 143:23 149:4 155:17 166:21
takes 221:9	target 246:23		ten-minute 59:8 235:23 236:5	
			ten-year 40:8 64:20	
			term 23:1 73:1 74:5	

171:16	12,14,15,19,	10,14,15	258:4	89:20 96:14
184:11	23 61:2,16,21	190:3,24		108:15
191:17	62:8 64:24	192:5,10,17,	than 12:12	116:19
236:20	65:24 76:12	22 193:5,9,18	13:24 15:23	124:21
237:17	82:20 83:2	197:15,17,18,	16:3,9,12	139:14
238:17	87:19 89:3	23 198:9,12	26:24 27:9,22	166:24
	93:4 96:5,22	199:23,24	34:21 35:4,25	186:22
testify 11:22	98:1 99:16	200:21	37:4 48:23	194:22
101:25	100:10,13,14,	201:25 202:2,	49:23 53:22	199:13 203:4
102:18	15,16,20,22,	7 203:13	58:1 64:25	235:7,8 256:1
122:18	23 101:3,13,	204:11,24	65:12 67:19	257:17
214:18	21 105:22	205:1 208:7,	74:16 77:19	258:12,21
	108:13	10 210:23	78:15,16,21	
testifying	109:24 110:2	211:1,4	79:15,18	themselves
237:7	113:8,9,22	215:4,24	84:1,3 90:12	42:20 79:3
	114:9,14	216:10,14	93:15 96:14	81:21
	116:9 117:5	217:10,12	107:19 112:9,	
testimonies	126:20	222:22,23	10 116:20	then-existing
193:15	128:14,19,24	223:5 235:7	117:25	187:4
194:23 244:9	129:13 130:9	237:19	124:16	
259:6	131:15 133:7	238:11	135:23	
	138:14	239:20 240:3	136:23 137:1	theory 26:7
testimony	140:25	241:2,22	146:14,23	
10:7,9,10,11,	143:10 144:7,	242:15,22	153:18	thereafter
17 11:1,4,5,	8,9,10,13,20	243:12 246:5	154:22	218:7
13 22:24	145:1,4,7,8	247:11,14,18	166:24 168:4	
24:2,6,9,13	148:23	248:2,16	170:4 196:7	thereby 152:2
25:1,7 29:3,4,	149:15,17,18,	249:15,23	197:17	
5,6,17 30:2,	19,21,22	250:3,4,9	202:23 203:4	therefore
15,18,23	150:2,5,11,14	252:1,5,7,17	231:24	27:3 85:10
33:22,23	155:19,20	253:5,6,19,	233:25 241:8,	146:6 147:18
34:1,11 35:7,	158:15,19	21,23,25	19 242:20	186:10 251:4
8,9,10,17,20	159:5,8,14,	254:4,6	243:6 245:4	
36:5,7,10,21	15,16 160:12	255:13,16	254:17 256:7	
37:3 38:14,16	162:7,14	256:1,10	257:20	thermal 62:25
44:7,11 45:2,	163:3,13,17	257:7,19	258:11,20	66:9
9,21,25 50:14	164:2,14,23	258:23 260:6		
51:1,3,6	167:16 169:1		their 12:2	thing 113:15
53:23 54:23	172:14,15	testing 68:21	17:19 18:1	227:6
55:20 59:7	173:2 177:4	257:2,11	35:13 38:16	
60:5,8,9,10,	179:23		62:22 64:13	things 25:25
	183:18 185:6,	tests 124:23		

54:11 85:13 96:23 127:19 135:17,22 138:17 180:25 190:15 204:4 219:4 257:7 262:22	27:13,14 52:4 99:2 176:22	114:16,22 120:6,16 121:5 136:5 146:11 151:11 152:6 154:18,19 155:4,23 156:15 157:15,23 158:17 161:6 162:20 163:18,19 164:14 165:13 166:6, 23 174:22 177:1 179:11 181:3 182:13 190:19 197:17 199:11 205:2 208:25 209:19 210:14 216:4 217:2 218:6 222:4 225:6,7 226:10 227:16 234:17 251:1 252:7 262:11, 14,18,20	99:21,22 100:4	118:10,21 120:4 151:23
thinking 38:11 222:7 263:1	thoughts 58:22 189:11		time 10:20,22 16:3 17:12 37:11 38:3 39:2 57:17 59:6 63:9 65:9 68:3 72:3,9 73:20 78:1 81:7 82:17 84:7, 10,25 85:11, 13 87:16 88:15 89:15, 23,25 91:13 92:23 94:15 96:20 99:10 103:5 110:21 131:25 136:8, 15 149:18 157:4 163:25 172:16,24 180:10 187:15 196:16 213:5 215:14 227:15 235:21 236:25 240:24 257:1 261:21	times 33:25 66:11 217:4
thinks 228:12	three 15:14 35:19 36:20 62:8 66:11 92:1,2 93:15 113:14 160:21 195:18 241:2 244:8			timing 72:21 73:5 89:18 142:22,23 175:20 189:2 241:20
third 14:19 65:24 66:10 106:14 113:16 114:14 115:8 166:23	threshold 37:9			Timothy 193:6
third-party 84:17 145:21 147:3	through 17:3, 5,6,10,11 20:8 21:14, 15,18 29:11 30:12 32:25 41:9,15 44:24 45:10,19,21, 22 46:4,8 50:17 54:3 57:13,15 63:1,9,10,11, 15,18,19 65:3 70:21,22,23 72:6,14 73:18 77:18 79:25 84:4,7,8,10, 12 87:10,13 88:5,11 89:4, 13 92:23 93:10,19 94:7 104:7 106:12 109:23 113:8	throughout 38:7 76:3,4 85:15 90:23 91:12 159:19		title 24:10 191:21
thirds 123:22				titled 232:14
Thompson 7:10 143:13		tie 85:18		TJH-1SD 140:13
Thomson 184:7,9,16 185:20 186:2 187:21 188:4 190:7,24 191:2,8		tied 154:5	time- constrained 58:12	today 7:11 11:13 12:15 34:10 47:15 60:19 74:2 80:3,22 82:15 99:16 100:20 101:10,21,25 143:11 144:13 145:1, 6 150:2,11 185:12,14 186:3 191:4 194:2,6 237:17 238:11 240:3, 16 247:11
thought		Tim 12:21	timely	

248:1,16 250:9 252:15 254:6 255:11, 14 256:2,8 262:20	230:11,18 235:15 topics 214:16 235:17	tracking 20:9 150:20 152:25 180:20 186:7 188:20	130:18 136:16 141:7, 13,22,25 151:18 180:2 224:13	110:11 113:16 119:13 126:2 160:7,24 161:23 162:6, 13 164:25 165:17 167:24 168:12 170:7 171:18 173:20,25 215:9 227:25 228:8,12,23 229:1,22 230:6 237:5
today's 12:3 102:16	Tormoen 9:1 41:22 69:4 109:13 148:1 155:9 188:3 201:11 260:23	traditional 154:4 166:16, 22 167:1	transparent 244:21	
together 68:12 90:7 189:16 250:17 256:20	tossed 157:12	traditionally 73:11 216:22	treasurer 12:22 144:6	
told 98:19		transaction 220:13	treat 121:13	
tomorrow 7:11 191:4 235:25 236:2 262:12,15,18, 21,22 263:1, 4,9,10	total 16:10, 13,17 54:20 55:3,22 56:5 63:17,20 94:25 146:2, 24 154:21 232:19 234:1 251:14,15	transactions 228:8,10,15, 18,20,22,24 229:9 232:25 234:5,12,16, 17	treated 177:21	truth 9:18 59:16 99:23 143:22 149:3 184:10 191:16 238:16
took 136:1 141:14	totaling 63:25	transcript 209:10,13	treatment 87:15 150:15 151:9 156:13 157:9,13 160:19 167:9 179:7	try 44:16 95:6 182:7 189:4 206:22 231:12 236:2
tool 72:11 96:12	totally 207:14	transcripts 249:9	tremendous 53:15	trying 40:1 49:25 79:22 81:8 142:11 180:10 181:4 210:7 229:15 230:5
tools 96:11	toward 158:1 225:16 263:5	transfer 72:8	triggered 73:3	
top 13:22 205:18 224:7 233:11 249:25	towers 13:2, 18 103:15 196:2,3 246:8	translates 14:12	true 23:10 24:8 26:2 32:11,18 63:14 69:17 70:12 71:6,13 74:8,23	turbine 12:25 18:15,17 107:3 114:2 115:11 117:22
topic 182:17	track 15:25	transmission 54:25 63:4 66:23 71:25 103:25		

118:15 119:3, 8,21 120:10 121:11,12,14, 17,22 124:12, 20,24 125:5 131:23 136:6 142:10,14 143:7 195:20 198:4 243:11, 21	176:6,7,8 246:3,21 255:9,23	232:6 249:13 253:13 256:13 258:4 259:8	38:16	117:16 147:19 245:12,13 254:21
turbine-by-turbine 133:6	turn 24:12 29:2,20 32:16 94:1 99:18 109:18 111:7 158:15,17 160:11 163:12 201:25 207:3 208:11 211:6 213:4 216:11 217:11 220:5 222:22 223:17 230:11 233:9	two-sixty-two 250:8,23 251:7	UAE'S 36:20	unconditional ly 171:12,16
turbines 14:18 17:19 27:24 47:9, 11,15,21 48:2,8,13,15, 24 49:2,24 86:1 100:24 103:14,18,22 104:17,23 105:6,8,16 106:3,4 108:4 113:6,20 114:2,7,20,24 115:3,6,10, 12,21 116:1, 12,13,17,20 117:13,23 120:15 123:20 124:12,18 131:13,18 133:12,16,20 134:15 135:25 136:3 137:17 138:4, 7,11,18 139:5,16	turning 162:24	two-year 14:17 107:20 220:19	Uh-huh 205:12 207:23 224:9 226:7	under 14:4 18:2 20:5 24:23 25:25 27:14 28:23 36:13,18,24 37:9 42:12 48:23 49:5,23 52:20 53:19 62:21 66:2 67:2 72:16 76:9,15 77:2 93:23 95:12, 14,22 122:11 126:20 137:1 160:17 171:23 172:1 175:12 178:15,18,22 183:7,8,13,14 196:17,23 203:11,24 204:13,14 205:9 220:9 236:8 250:6
	turnkey 104:24 117:14	tying 90:3	ultimate 123:15 167:8 170:21 254:2	ultimately 73:17 170:16
	turns 76:2	type 57:5 72:12 96:17 97:4 123:6 131:19	umbrella 139:5	unable 141:10
	two 16:16,18 45:14 47:15 70:9 100:21 101:9 106:8 115:7 123:22 126:1 136:19 143:14 154:3 155:22 156:19 158:7 192:16 193:9, 10 205:20 231:6,8,17,21	typical 21:14 58:1,9 166:17 183:5 241:8	unanticipated 103:6	understand 18:4 36:3 42:23 56:10 58:20 71:9 79:10 94:23 96:2 99:6 129:25 139:20
		typically 10:25 58:1 175:16 257:7	uncertain 49:16 85:4 199:25	
		typo 192:23	uncertainties 62:24 195:11, 13 197:21 245:7	
		typographical 100:21	uncertainty 104:21 110:19,22	
		U		
		UAE 8:21 17:25 35:17		

141:11 142:11 167:19 172:14,18 176:20,21 190:22 212:5, 22 215:21 234:25 255:3	154:14 unevenly 194:17 unexpected 162:17 unfavorable 25:3,21 95:14 207:11 unforeseen 162:8 Unfortunately 141:10 unique 89:16 199:16 240:22 241:4 244:18 259:3	154:2 186:7 unneeded 197:5 unprecedented 154:2 167:2 227:19 unresolvable 255:15 unresolved 116:9 until 150:22 152:22 163:5 164:8 178:20 179:20 189:20 199:6 263:9 unused 229:21 unusual 225:25 up-to-date 211:7 update 31:7, 23 32:12,20 57:1 66:13,15 73:24 77:9 91:2,4,5,6,14 129:4 169:24 170:2 171:2	173:21 232:5 236:18,21 237:2,9,13 updated 13:13 66:10, 15 90:23 207:7 213:13 233:10 updates 91:9 updating 91:17 upfront 72:9 upgrade 12:6, 25 13:19 upgraded 13:13,25 upgrades 13:11 upgrading 13:23 61:24 68:10 urges 16:21 167:13 use 13:3 23:1 35:3 36:21 40:12 50:11, 15 71:2 78:19	86:25 88:6 110:13 112:23 115:25 128:10,17,22 132:3,4,6 186:14 188:23 220:15 229:15 253:1 258:3 used 14:9 16:20 17:1 28:12 50:22, 25 51:12 62:19 63:9 67:6 70:6,25 72:4,12 77:25 78:7 79:23 82:8 90:10,22 93:16 101:5 110:15 131:4, 12 146:21,22, 25 156:17 164:20 173:19,22 205:25 206:4 212:15 236:21,22 237:9,20 243:17 253:15 useful 14:19 65:5 166:24 Users 8:19 64:9 68:15 uses 34:20
understandin g 34:18 35:5, 23 40:7 43:10 51:14,23 62:4 68:6 97:15 98:20 137:25 171:9 175:24 178:13 198:19 199:14 204:2 237:18 254:23				
understating 73:10				
understood 38:12 78:24 216:22	unit 62:25 66:9 96:25 98:13			
undertaken 196:11	unit-by-unit 140:5,7			
undertaking 195:4	unknowns 196:22 198:2 200:1			
uneconomic 133:13	Unless 11:1			
uneven	unnecessary			

35:24 99:10 213:24 219:6	19 191:25	38:23	112:11 147:15 242:20 243:21 244:7 250:16,24 252:10	Veatch 14:8 106:6,9,14
using 12:5 16:18 29:16 34:14 36:4, 11,23 38:18 40:10,20 44:25 63:16, 19 70:12 79:8 80:21,22 86:25 87:8,19 88:4,13 90:6 106:17 131:19 135:14,16 142:24 202:4 206:1 208:20 209:4 212:9 222:12 258:14	utility 7:23 23:13 62:15, 17 86:3 154:4 158:5 166:16, 18,22 183:5, 20 184:17 187:8 197:2, 10 200:14,16, 19 202:16 203:8 227:3, 5,14	value 15:2 16:8,10,13 40:15 48:10, 18 49:5,10,23 63:17,20,21, 24 65:16 72:19 73:10 81:15 86:12 87:21 94:12, 15,25 104:6, 20 106:1,2 110:12,13,19, 20 111:16,18 121:18,21 122:9 133:13 145:12 146:22,24,25 147:4 157:14 205:20 208:16 243:5, 14 245:3 248:14 251:2, 8,11,16 252:25 253:11 254:2, 8,11,15 258:20 259:14	vanilla 58:9	Verde 258:4, 5,10,16
usually 229:6	Utility's 143:16 181:24		variability 49:14,22 111:14 195:10	verified 106:6,10
Utah 8:7,18 17:1 20:13 64:9 67:6 68:15 156:4 158:24 160:21 170:8 177:17 183:1, 5,7 184:21 192:1 197:11 200:8 220:23	utilize 129:25 130:2 188:25		variables 63:4 84:21	verify 16:8 124:19,23
	utilized 96:6		variance 254:25	version 251:8
	<hr/> V <hr/>		variation 47:8,25 48:22,23 243:17	versions 226:16
	vague 80:9 81:6		varies 253:11	versus 38:10 40:5 56:9 57:6 58:8
	valid 89:10 131:16 139:13 187:10	values 31:3 34:20,21 35:24,25 36:4,11,21,23 38:19 40:10, 14 49:18 50:15,16,22, 25 51:12 86:25 87:9 88:4 110:23	various 16:20 21:9 42:19 45:16 66:25 97:22 156:13 194:18	Vestas 18:22 28:1 98:23 104:16 105:12 107:21 117:20 119:10,14,20, 21 120:1 123:20 129:10 133:25 134:5, 15 175:6
Utah's 225:16	valuable 95:25		vary 243:10	vice 10:4 11:19 12:17, 18,21,22 60:2 144:5 149:12
utilities 8:5,8 64:8 68:14 147:12 184:4,	valuation		varying 92:2 vast 26:9	

view 50:10 78:22 95:10, 22 118:18 138:24 182:2 230:23 231:9 243:18 259:12	183:7 voluntary 7:4 62:5,9 68:7 202:10 203:17 204:13 205:10 207:20	206:21,23 207:22 210:22 219:2 220:9 225:14 226:3 228:1, 21 250:12 254:18 262:17	wasting 226:15 way 12:11 38:11,20 46:21 56:21 57:3 66:6 70:14 74:25 88:1,20 89:5 93:21 98:15 116:1,18 120:20 156:19 167:22 173:7, 9 187:9 209:14,22,23 210:1,7,14,15 259:4 262:11	whether 18:6 26:7 36:22 42:11 43:6 45:4 47:12 50:10 52:1 56:17 61:11 63:15 87:3 120:15 123:25 127:6 131:11,18,19 138:24 139:18 158:5 160:1 189:17 200:13,22 202:14 203:6 217:21,22 225:21 227:2, 8 228:2,4 231:11 242:9 244:25 257:8, 24 258:9 262:11,18
viewpoint 73:11		wanted 127:2 173:11 201:24 202:11 204:12 205:16 208:3 211:3 215:4 216:8 217:9 219:19 224:6, 17 225:20 236:17 248:10 255:7	116:1,18 120:20 156:19 167:22 173:7, 9 187:9 209:14,22,23 210:1,7,14,15 259:4 262:11	
violate 160:8	volunteer 51:24			
violated 157:1	W			
violation 156:25	wait 122:22 163:5			
Virtually 18:15	waiting 128:9		ways 16:16 65:25 156:13 176:5 182:4 253:8 255:18	
visited 127:13	wake 106:22	wanting 190:21		while 16:20 17:25 35:11 66:25 86:25 89:6 104:1,4 198:1 222:7 243:8 245:14 252:15
volatility 66:8 67:14 96:17 220:25	walls 16:11	wants 196:7 230:7	week 73:25 128:7 173:21 215:17	
voltage 14:21 86:8 103:24 108:6	want 7:17 12:1 17:16 57:22 76:5 81:4 82:22 83:4,7 86:9, 24 102:23 112:23 114:16 118:23 122:21 123:3, 18 139:12 178:13 202:20	warrants 204:7	went 181:3 199:10 203:1	
Volume 221:19		warranty 14:17 107:20 124:7	Western 221:19	white 7:25 11:18 24:10 54:17,18 59:3 61:20 94:18, 20 98:6 140:22,23 142:15 148:16,17 176:17,19 178:8 182:18
voluntarily		Washington 105:12 129:9 138:8 195:21	whatever 55:7 58:3 79:12,18 216:5 237:1	

188:16,17 189:5 238:3,5	23 77:5 83:12 84:2,16 87:10 89:1,11 90:11 92:22 96:13 100:12 103:4, 7,18,23,25 104:3 106:16, 23 107:3,16, 25 108:5 110:20 112:12 113:12,20 115:3,4 117:14 118:14,16 119:3,5,20, 21,22,23,24 120:8 121:4 122:18 124:1 125:2,7 126:19 129:5, 21,23 130:2 134:12,14 136:25 138:4, 12 141:17 142:2,6 151:13,16,20 152:1 153:3,6 154:21 157:23 162:19,20 163:22 164:13,20 168:14 174:19 175:7 179:25 180:5, 7,8 184:3 191:4 194:21 195:23 196:3, 18 197:3,8 198:7 200:4, 5,13 202:14	203:6 211:15, 19 213:1 218:7 230:15 235:20 237:10 245:3 248:20 249:13 259:2, 14 263:9 William 214:17 willing 24:17, 21 25:2,20 27:20 28:8 95:6 158:12 171:20 wind 7:5 11:24 12:7,25 14:7,20,23 15:16,17,18, 24 18:9 19:4 20:14,18 21:8 25:16 27:23 28:9 37:8 43:8,9,11,12, 13,15 47:8,9, 11,15,25 48:8,13,15,22 49:22 61:22, 24,25 63:4,7, 12 64:3,23 65:6 66:23 67:16,25 68:16 71:25 96:2,4,7,24 100:24 103:9, 14 104:1 105:10,14,25 107:18,25	108:12,20 110:8,25 111:14 123:17 129:5 132:2,3 136:5 137:17 138:14,15 140:25 145:10,18,23 146:3,9,16 151:18 160:19 168:6 170:22 171:2 180:2 195:1, 17,20,21 197:8 198:4, 13 216:18 217:16 218:19,21,24 224:10,12,13 228:17 240:20 243:11,21 251:13 window 38:4 70:21 84:8 87:23 90:12 winds 132:7,8 170:24 wise 187:4 within 54:7 58:14 87:16 88:14,15 175:8 176:3, 12 180:18 225:25	234:14 235:17 243:12 246:21 253:22 without 20:8 52:2,23 65:1, 12 67:16 77:21 80:10 89:4,19 125:16 142:7 151:8,11 162:20 178:5 179:2,5,7 184:17 198:24 205:22 206:9, 10,16,17,18 207:16 231:17 withstand 106:10 withstood 68:20 witness 7:10 9:9 10:21 11:21 20:23 30:2 33:9 39:7,11 59:9 69:2 78:14 99:18,21 122:15 143:19 157:16,24 158:6 161:12 175:21 184:6,
----------------------------	--	---	---	--

8 191:11,14 198:7 208:8 214:15,24 232:2 238:13 249:10 256:2	115:10 182:3 194:7 works 168:13 world 96:7 worry 221:22 234:8 worse 196:18 worst 92:24, 25 worst-case 169:21 worth 77:6 228:5 229:23 worthwhile 95:25 wrap 236:3 written 193:7 215:22 wrong 26:13 27:2 93:10 127:24 175:17,19 223:4 Wyoming	18:20,24 19:11 22:1,12 104:22 107:20 129:8 138:7 141:10 177:6,8,12 182:19,22 195:21 <hr/> Y <hr/> year 12:16 16:3 63:8 65:2,17 66:17 78:21 82:5 89:22 93:20 105:18 111:20 116:1 134:16 143:7 149:21,23 164:8 173:24 180:17 187:7 192:13 233:2, 16 250:25 251:3 year-dollar 251:4 years 12:14 14:20,25 17:18 19:2 28:14 39:1,5 40:9,11,14,21 47:10,15 49:3 50:19 56:21, 22,23 65:7,13 72:18 77:18 79:14,25	82:4,9 84:9 87:20 88:1,24 96:19 99:7 102:13 108:2 111:24 119:3 136:9,12 145:21 151:16 173:5, 7,8 194:7 196:7,15 222:2,3,7 244:6,7 250:21 254:16 255:2 256:16 yellow 30:7 83:7 yesterday 31:6,24 192:15,21 193:16 232:6 yet 98:19 215:14 255:14,15 256:5,22 Young 16:8 105:23 <hr/> Z <hr/> Z-e-n-g-e-r 191:24 Zenger 110:7	191:14,15,23 193:15 194:1 200:7 201:1, 12,17,22 205:6 226:11 236:8 238:4 zero 92:25 93:13 94:5 120:5,6 122:2,4 243:2 zero-benefits 17:15 zero-cost 17:14 151:4 217:23 zero-fuel 62:2 102:11 163:19 178:24 179:10 222:11 zero-fuel-cost 217:23 218:11,23 zero-risk 121:25
---	--	---	---	---