## STATE OF NEW HAMPSHIRE <br> SITE EVALUATION COMMITTEE

October 26, 2017-9:00 a.m. DAY 52
49 Donovan Street Morning Session ONLY
Concord, New Hampshire
\{Electronically filed with SEC on 11-13-17\}

IN RE: SEC DOCKET NO. 2015-06 Joint Application of Northern Pass Transmission, LLC, and Public Service Company of New Hampshire d/b/a Eversource Energy for a Certificate of Site and Facility.
(Hearing on the merits)
PRESENT FOR SUBCOMMITTEE/SITE EVALUATION COMMITTEE:
Chrmn. Martin P. Honigberg Public Utilities Comm. (Presiding as Presiding Officer)

Cmsr. Kathryn M. Bailey Public Utilities Comm.
Dir. Craig Wright, Designee Dept. of Environ. Serv.
Christopher Way, Designee Dept. of Business \&
Economic Affairs
William Oldenburg, Designee Dept. of Transportation
Patricia Weathersby Public Member

ALSO PRESENT FOR THE SEC:
Michael J. Iacopino, Esq., Counsel for SEC
(Brennan, Caron, Lenehan \& Iacopino)
Pamela G. Monroe, SEC Administrator
(No Appearances Taken)
COURT REPORTER: Steven E. Patnaude, LCR No. 052


\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

WITNESS WEISS: Is this on? I'm not
sure. Is it? I don't think so.
ADMIN. MONROE: It's right on top, Jürgen.

WITNESS WEISS: There we go. Yes, there we go.

BY THE WITNESS:
A (Weiss) All right. I'm Jürgen Weiss, also a Principal with the Brattle Group, and also located in Boston, Massachusetts.

BY MR. PAPPAS:
Q Thank you. Dr. Newell and Dr. Weiss, do you have in front of you Counsel for the Public's Exhibit 142, dated February 10, $2017 ?$

A (Newell) Yes.
Q Okay. And is that your joint prefiled
testimony in this proceeding?
A (Newell) Yes.
Q Do you have any corrections to that testimony?
A (Newell) No.
Q Do both of you swear by, adopt, and affirm that prefiled testimony?

A (Newell) Yes.
A (Weiss) Yes.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

[WITNESS PANEL: Newell|Weiss]

```
affirm that testimony?
A (Weiss) Yes.
A (Newell) Yes.
Q Now, do you also have in front of you Counsel
    for the Exhibit -- Counsel for the Public's
        Exhibit 145, dated April 17, 2017?
    A (Newell) Yes.
    Q And is that your Supplemental Report in this
        matter?
    A (Weiss) Yes.
    A (Newell) Yes.
        Do you have any corrections to that report?
        (Newell) No.
        Do both of you swear by, adopt, and affirm that
        Supplemental Report?
        (Newell) Yes.
        (Weiss) Yes.
        Okay.
        (Weiss) May I say something, just to eliminate
        this here, by the way. So, it looks like the
        copy of 144 we have actually is the testimony,
        and attached to it is the redacted version of
        our report.
    Q Okay.
```

    \{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
    [WITNESS PANEL: Newell|Weiss]

A (Weiss) So that would, I think, give you the redacted and the confidential version of the report.

Q Gentlemen, I want to start this morning by asking you some questions about the capacity market. In Ms. Frayer's supplemental testimony and LEI's April 17, 2017 report, they provide LEI's estimate of HQP's ability to qualify for the capacity market. So, I want to start by asking you some questions about that.

On the screen in front of you, does it show the cover page of LEI's April 17, 2017 report, which is Applicants Exhibit 102 ?

A (Weiss) Yes.
Q Okay. In front of you on the screen is Page 62 of that report, and it shows Figure 18. Do you see that?

A (Weiss) Yes.
Q And Figure 18 is LEI's estimates of HQP's capacity supply and demand outlook?

A (Weiss) For the year 2021, yes.
Q Okay. Now, in order for Northern Pass to qualify for the ISO-New England capacity
market, $H Q P$ must have excess capacity of power,
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
is that right?
A (Newell) Yes. There are other ways to qualify, too, partnering with third parties. But, as a package, yes.

Q Okay. Now, in its analysis. LEI estimated the economic benefits to New England and New Hampshire if Northern Pass -- the Northern Pass Project participates in the capacity market, is that right?

A (Weiss) Yes.
Q Yes. And Ms. Frayer testified that approximately 90 percent of the market economic benefits from the Northern Pass Project come from capacity market benefits. Do you recall that?

A (Newell) Yes.
Okay. Now, let me start, first, "HQP" is
"Hydro-Quebec Production", is that right?
A (Weiss) That's correct.
Q And they're the ones -- they're the company that actually produces the power, correct?

A (Weiss) Produces or perhaps procures otherwise, yes.

Q Procures, okay. And "HQD" is "Hydro-Quebec
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
Distribution", is that right?

A (Weiss) That's also correct.
Q And, as their name notes, they distribute the power, correct?

A (Weiss) In Quebec.
Q Yes. Now, what was the most recent Forward Capacity Auction?

A (Newell) FCA 11.
Q And that was this year?
A (Newell) Beginning of the year, yes.
Q And if someone were successful in that, when do they produce -- when do they need to have power, if called upon?

A (Newell) Starting in June of 2020 through, sorry, I think through May of '21.

Q Okay. And when is the first Forward Capacity Auction that the Northern Pass Project could bid into? Could it bid into the next one?

A (Newell) I don't know for sure. In order to bid into the next one, it would have to have qualified earlier this year for the coming auction, which will be in February. I don't think they're on the list of resources that have done a show of interest and qualified.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

Q Okay. So, if -- that would then make FCA 13 the first year that they could potentially qualify?

A (Newell) Given that stipulation.
Yes. Okay. And if they qualified for FCA 13, when would they need to be able to provide capacity, if called upon?

A (Newell) Starting in June of 2022 .
Q Okay.
A (Newell) For a year.
Okay. And if we look at Figure 18 that's on the screen, this is an estimate for capacity in 2021, correct?

A (Weiss) Yes.
Q Okay. What's on the screen now is Counsel for the Public's Exhibit 266, which is Figure 18 from LEI's Report, but we put the footnotes on one page so that we don't have to keep flipping back and forth on the prior screen. So, let me ask you some questions about this figure in LEI's estimate of $H Q P ' s$ capacity.

Now, first, it indicates that "HQP winter resources", do you see that, in the very top box?
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

1

A (Weiss) Not really.
Q Try that again.
A (Weiss) Oh, yes. Now, I see it. Yes.
Q All right. We'll leave it here. Okay. And I take it the winter is HQ's peak period?

A (Weiss) Of the Hydro-Quebec system, yes.
Q Okay. So, we see that LEI has estimated that HQP winter resources during its peak are
" 41,427 megawatts", do you see that?
A (Weiss) Yes.
Q And then Items 1 through 5 make up that 41,427 megawatts, correct?

A (Weiss) Yes.
All right. Now, the fourth item, "Ontario
Electricity Trade Agreement 500 megawatts", do you see that?

A (Weiss) Yes.
Q And, on the right-hand side, those are the source documents that LEI cites to support the various figures, correct? That's where they got the information from?

A (Weiss) So, I'm hesitating, because, in most of the cases, the sources that are cited here actually don't have the titles that are cited
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
there.
Q Okay. But would you agree with me that was the intent of this "Source" column?

A (Weiss) I assume that was the intent. But I don't know the intent.

Good point. So, what's on the screen now is Counsel for the Public's Exhibit 271, which is the document cited by LEI in its Figure 18 for that 500 megawatts of Ontario Electricity Trade Agreement. Are you familiar with this document? You've seen this?

A (Weiss) Yes.
Q Okay. If you look at the top, it says "Firm Transactions", do you see that?

A (Weiss) I do.
Q And the first sentence indicates that "As part of the Electricity Trade Agreement between

Ontario and Quebec, announced in October 2016, Ontario will supply 500 megawatts of capacity to Quebec each winter from December to March until 2023." Do you see that?

A (Weiss) Yes.
So, the 500 megawatts of capacity listed in
LEI's Figure 18 is contracted through March of
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

2023, correct?
A (Weiss) Yes. It appears so.
Q Okay. Looking back at Counsel for the Public's Exhibit 266, the next item under "resources" is number (5), "Other capacity purchases". Do you see that?

A (Weiss) I see that, yes.
Q And the source for that indicates "HQP capacity demonstrations, historical". Do you see that? (Weiss) I do.

Is there any year cited, in terms of which year historical was looked at?

A (Weiss) I don't see one.
Q Is there any document cited?
A (Weiss) Potentially, I would say. Not clearly an individual or a set of easily identified specific documents.

Q So, is there a document that you can look at this and go to to find this?

A (Weiss) No.
Q Okay. So, then, let's look down now to "HQP Domestic Commitments 39,648 megawatts". Now, the first five items, the source document is "HQD Supply Plan, 2017 to 2026". Do you see
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
that?
A (Weiss) Yes.
Q And $H Q D$ acquires power from $H Q P$, is that --
A (Weiss) Yes. $H Q D$ acquires power, among other entities, from HQP.
okay.
(Weiss) And capacity, I should say, actually.
All right. So, I want to start with -- now, what's on the screen now is Counsel for the Public's 597. And, Dr. Weiss, did you obtain this document?

A (Weiss) Can you clarify what you mean by that?
Q Well, did you get this document?
A (Weiss) It wasn't handed to me. Let's put it that way. I had to find it.

You found it?
A (Weiss) Yes.
Q Okay. And, first, let me ask you, are you
bilingual? Do you speak both English and
French?
A (Weiss) Yes.
Q And do you read both English and French?
A (Weiss) Yes.
Q Okay. And could you tell us what this document
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
is?
A (Weiss) Sure. So, this is an annex to an annual filing by $H Q$ Distribution to the regulator, called "la Régie", where it -- it's a reconciliation of various capacity balances that $H Q D$ submits as part of its annual filing. And I say a "reconciliation", I think we'll get into it, it compares different entities, sort of an assessment of capacity balances.

Q Okay.
A (Weiss) I should also say, so this says "confidential", I should also say the confidentiality was removed on January, according to some decision by the regulator. So, even though it says "confidential", it's not a confidential document for the purpose of this proceeding.

Q Okay. On the screen now is Bates Stamp CFP14304, which is the second page of this document. Could you briefly tell the Committee what's contained on the second page? (Weiss) Sure. So, as I just mentioned, it has -- it has four columns. And each of the columns basically represents a supply and
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
demand balance for capacity made by different entities.

The first column is the supply and demand balance from $H Q D^{\prime}$ s perspective. The second is something similar from NERC's perspective. And the third from the NPCC's perspective. And the fourth is from the perspective of $H Q$ Production.

And then there are two blocks
horizontally. The first one is the capacity supply, and the second block is the demand for capacity. So, supply minus demand for capacity gets you the final row, which is the available reserves.

Q Okay. What's on the screen now is CFP Bates Stamp 14305 , which is an English translation of the cover page of this document. Do you see that?

A Yes.
Q And, Dr. Weiss, did you make -- do this translation?

A (Weiss) Yes, I did.
Okay. What's on the screen now is CFP14306, which is a portion of the table, which is Page
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

2 of this document that you described a moment ago. First, is this an English translation of a portion of the table?

A (Weiss) Yes.
Q And did you make this English translation?
A (Weiss) Yes.
Q Okay. Now, it indicates "Commitments by HQ Production". Do you see that?

A (Weiss) Yes.
Okay. And the first is "Commitments under the patrimonial contract thirty 34,342 megawatts". Do you see that?

A (Weiss) Yes.
Q What's that?
A (Weiss) That is what, in English, would be called a "heritage contract". So, that's the historic and ongoing commitment by Hydro-Quebec Production to provide capacity to Hydro-Quebec Distribution. And it's the same as line item (6) on LEI's Figure 18.

Q That's what $I$ was going to -- so, on the screen now is Counsel for the Public's Exhibit 266, which is LEI's Figure 18. And, as you just indicated, number (6), under "HQP Domestic
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

Commitments", is that same Heritage Contract, "34,342 megawatts", correct?

A (Weiss) Correct.
Q So, looking back again at Counsel for the Public's Exhibit 597, and the page that has your English translation of a portion of the table, do you see where it says "Plant usage 56 megawatts"?

A (Weiss) Yes, I do.
Q And does that same 56 megawatts plant usage appear on LEI's table, Figure 18?

A (Weiss) It does.
Q Okay. Then, we have "Commitments to third parties 1,275 megawatts". Do you see that?

A (Weiss) I do see that.
Q Are those commitments to parties other than HQD, Hydro-Quebec Distribution, because you already see above that the commitments to HQD?

A (Weiss) Right. That's implied, I think, by that --

```
                                    [Court reporter interruption.]
```


## BY THE WITNESS:

A (Weiss) That's implied by that language,
"commitments to third parties".
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

BY MR. PAPPAS:
Q So, on the screen now we have, on the left-hand side, Counsel for the Public Exhibit 266, and, on the right-hand side, the English translation from the table on Counsel for the Public Exhibit 597. Do you see that?

A (Weiss) Yes.
Q Now, if you look under LEI's Table 18, on the left, under "Domestic Commitments", do you see any commitments to anybody besides -- or, any non-domestic commitments, shall we say?

A (Weiss) No.
Q Okay. So, we look on the right-hand side, where it says "Commitments to third parties 1,275 megawatts", HQP's commitments for that amount of power to third parties does not appear in the LEI Figure 18 chart, is that right?

A (Weiss) That specific figure does not appear. There are some commitments on LEI's table to third parties. They just happen to be domestic third parties. In particular, the row 11 would be a non-HQD domestic commitment.

So, presumably, that amount, if it were
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
applicable to -- in 2016-2017, it would be included in the 1,275 megawatts listed on the CFP 597 exhibit.

Q You anticipated my next question. So, LEI's conclusion from its Figure 18 is that HQP would have 1,527 megawatts of excess capacity in which to use in the Northern Pass Project to bid into the ISO-New England capacity market, correct?

A (Weiss) That is the conclusion, $I$ think, of LEI, based on this figure.

Q Okay. And, if we included within HQP's commitments the 1,275 megawatts commitments to third parties, and even backed out the 94 megawatts under number (11), "LCHM", would that leave $H Q P$ with less than a thousand megawatts of what's described here as "excess capacity"?
A (Weiss) So, based on the pure math, that's right. But $I$ think $I$ want to also point out that the Exhibit 597 is a prediction by $H Q P$, or it's based on a prediction by HQP of its available capacity in the Winter of 2016-2017. LEI's exhibit is for a -- also a snapshot for
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
the year 2021. So, it has other information about things that are expected to happen between 2016 and 2017 and 2021 .

Q Yes. You do a good job of getting ahead of me. Now, if $H Q P$ had commitments to third parties as they did in 2016-2017, as we see in Exhibit 597, those commitments would have to be subtracted from $H Q P$ 's winter resources, in order to be available to the Northern Pass Project and allow Northern Pass to bid into the capacity market, correct?

A (Weiss) If there were commitments in existence in 2021, or thereafter, then that is correct. Okay. If we were looking at the year 2016-2017, would HQP have less than a thousand megawatts of capacity available to bid into the ISO-New England Forward Capacity Auction?

A (Weiss) You're asking a hypothetical now, basically?

Yes.
(Weiss) If the, whatever, 1,275, minus the 94, were actually commitments, firm commitments to third parties that existed in 2021, and if you subtracted those from the figures in Figure 18,
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
then, yes, you would end up with less than a thousand megawatts.

Q Okay. Dr. Weiss, what's on the screen now is Counsel for the Public's Exhibit 267. Do you see that?

A (Weiss) Yes, I do.
Q Could you tell the Committee what this document is?

A (Weiss) So, this is another annex, this is "Annex C", of the same annual submission that the previous Annex E came from, except this one I believe is for the year 2014 . And it is basically the supply -- the capacity supply/demand balance from the perspective of the producer, which is Hydro-Quebec Production. And it's a document that demonstrates essentially that $H Q P$ has enough capacity to meet established capacity reserve requirements from the perspective of $H Q D$.

Q Okay. Well, this is the Page 2 of Exhibit 267 . And I think you were mistaken on the year. Can you see the year this applies to?

A (Weiss) Yes. So, you want to flip back again?
I mean, this is a small -- really small detail.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

1

Q Uh-huh.
A (Weiss) But I based -- I mean, obviously, there is not much on here, in terms of dates.

Q Right.
A (Weiss) But there is a date that says it's based on a decision "D-2015-013". So, I'm not sure whether the cover pages got flipped.

So, we'll go to the second one. So, could you just tell us what is indicated on this page?

A (Weiss) Yes. So, this is the breakdown. So, this is a -- it's literally translated as a -this is a "demonstration of the reliability of the capacity of $H Q$ Production for the Winter 2016-2017".

Q Okay. And on the screen now is Counsel for the Public's Exhibit 268. Is this an English
translation of that chart we just saw a minute ago?

A (Weiss) Yes.
Q And did you do this translation?
A (Weiss) Yes.
Q Okay. And you indicated this is a
demonstration of reliable capacity of $H Q P$ for
the Winter of 2016-2017?
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

1

A (Weiss) Yes.
Q And, again, we see the "Heritage Contract", the " 34,342 megawatts". Do you see that?

A (Weiss) Yes.
And we see "Plant Usage" of "56 megawatts"?
(Weiss) Yes.
Q And then we see "Other Commitments" of "2,415".
Do you see that?
A (Weiss) Yes.
Q Okay. And we saw earlier those other
commitments were broken down into two
commitments, one to third parties and other
commitments to $H Q D$. Do you recall that?
A (Weiss) That's correct.
Q Okay. So, you go all the way down and you see
"Available Reserves" of "3,974". Do you see
that?
A (Weiss) Yes.
Q And then it has "Reserves required to meet 0.1 days a year reliability criteria". Do you see that?

A (Weiss) Yes.
What's that?
(Weiss) That's essentially the reserve, the
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
reserve margin, if you want, that's required to meet the reliability criteria for Hydro-Quebec.

Q Okay. So, in the year 2016-2017, how much capacity did $H Q P$ have that would be available to bid into the ISO-New England Forward Capacity Auction?

A (Weiss) So, based on this exhibit, it would be 3,974 minus 3,285.

Q Okay.
A (Weiss) The 3,285, by the way, is also included as line (13) on LEI's Figure 18. So, -Right. And Figure -- LEI's Figure 18, they also account for the need to back out, if you will, the 3,285 of reserve margin from HQP's capacity, correct?

A (Weiss) That's correct.
Yes. Okay. So, on the screen now in front of you is Counsel for the Public's Exhibit 277, which is Hydro-Quebec's Strategic Plan 2016-2020. Do you see that? (Weiss) Yes.

And on the screen now is Bates Stamp 9759 from that document. And the top says "We have sufficient energy to power Quebec." Do you see
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
that?

A (Weiss) Yes.
Q On the screen now is Counsel for the Public's Exhibit [Page?] 9760. Do you see that?

A (Weiss) Yes.
Q And on the top it says "However, we need more capacity during peak periods." Do you see that?

A (Weiss) Yes.
Q And peak periods for $H Q$ is during the winter?
A (Weiss) That is correct.
Okay. So, let me now ask you some questions
about LEI's MOPR analysis that appeared in
their April 17, 2017 Rebuttal Report. Now, --
MR. IACOPINO: Do you want to give us
the full name, instead of just the acronym, so
the transcript knows what you're talking about?
BY MR. PAPPAS:
Q Dr. Weiss, would $I$ be correct in saying that "MOPR" is the "Minimum Offer Price Rule"?

Either?
A (Weiss) I think that's right.
A (Newell) Yes. That's correct.
Q Thank you. And would $I$ be also correct in
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
saying that, when somebody bids into the Forward Capacity Auction, ISO-New England's Forward Capacity Auction, there's something known as the "IMM", correct?

A (Newell) Correct.
And tell us what the "IMM" stands for?
(Newell) The "IMM" is the "Internal Market Monitor".

Q Okay. Go ahead. Does the IMM then do a MOPR analysis for each bid into the Forward capacity Auction? Well, let me ask it this way. Would they, in this instance, if the Northern Pass Project were to be bid in for the first time to the Forward Capacity Auction, would the IMM do a MOPR analysis?

A (Newell) Yes, they would.
MR. NEEDLEMAN: Mr. Chair, I'm going to object to this. This now sounds like we're covering material that was already included or should have been included.

CHAIRMAN HONIGBERG: Mr. Pappas, all
this background sounds like things that are in
their testimony and in parts of London
Economics' testimony. There's a lot of setup
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
here, $I$ think.
MR. PAPPAS: Well, $I$ just finished the setup, as suggested, so that I could get past the acronyms.

CHAIRMAN HONIGBERG: Yes. But you've gone through a process. All of these processes, all of these documents, with fifty questions to ask two. So, I guess what I'm going to encourage you to do, not telling you how to do your job, but $I$ think there's a lot of backup and a lot of background here you don't need to do to get your witnesses to offer the opinions and the responses $I$ think you want them to offer.

MR. PAPPAS: I'll try to shorten the setup thing.

BY MR. PAPPAS:
Q I'm going to ask you some questions about LEI's MOPR analysis, and my one setup question is, am I correct that LEI's analysis assumed that the IMM would not include, in $H Q P ' s$ bid, the cost of any new generation?

A (Newell) Correct.
Q All right. So, then let me ask you about that
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
issue, the cost of new generation. Dr. Weiss, on the screen in front of you is Counsel for the Public Exhibit 275. Do you see that?

A (Weiss) Yes.
Q Could you briefly tell us what this document is?

A (Weiss) So, that's, basically, the -- I think the English translation would be something like the Transmission Service Agreement for point-to-point transmission. And then, again, it's an appendix, Annex 1, to a larger submission to the regulator.

Q Are you familiar with this document?
A (Weiss) Yes.
Q With respect to the Northern Pass Project and its potential bid into the ISO-New England FCA auction, can you tell us what -- the significance of this document?

A (Weiss) So, it describes, basically, the contractual relationship between $H Q P$, Production, and the Transmission branch of Hydro-Quebec. And, so, it's relevant in a number of ways. So, it mentions Northern Pass in particular. So, the origin of this is
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

Hydro-Quebec Production made a request to the Transmission branch of Hydro-Quebec for firm-to-firm -- firm point-to-point transmission. And then Hydro-Quebec Transmission went to the French -- to the Quebec regulator to ask for regulatory approval to make changes to its transmission system to accommodate this request by Hydro-Quebec Production.

And, so, this agreement then spells out the obligations by both parties under this agreement. And I think a couple of things are noteworthy. One, it is specifically to deliver power to the interconnection point with Northern Pass. And then also it spells out -it spells out obligations by Hydro-Quebec Production, in case the network upgrades -- the Project is abandoned somewhere before the Project goes on lin. And, in that case, it places the responsibility for paying any fees on Hydro-Quebec Production. Which is somewhat at odds or is very much at odds with claiming that the network upgrades that are being made in Quebec are independent of the Northern Pass
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

Project. So, it is extremely unlikely that these network upgrades would go forward absent Northern Pass, since it includes a fair amount of investment, including a new transformer station/substation right at the Canadian border where Northern Pass crosses into Canada.

And it also has sort of made clear that it's connected by the fact that there is a standard, basically, a clause in there that describes what happens if Hydro-Quebec Production decides that it doesn't want to go forward anymore.

MR. NEEDLEMAN: Mr. Chair?
CHAIRMAN HONIGBERG: Uh-huh.

MR. NEEDLEMAN: I'm going to object to this testimony. This is all material that could have and should have been included. And, in fact, $I$ think at the time that Mr. Pappas was questioning Ms. Frayer, he was asking questions about this. So, they well knew that this was an issue from their perspective. CHAIRMAN HONIGBERG: Mr. Pappas. MR. PAPPAS: The first time that LEI's analysis of this was in their April 2017
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

Report. So, that's the first time LEI came forward with this analysis. So, these witnesses did not have the opportunity to rebut it, because they filed their Supplemental Report the same day.

The fact that I cross-examined Ms. Frayer on this issue doesn't preclude me from asking these witnesses about the same subject matter.

CHAIRMAN HONIGBERG: Mr. Needleman.
MR. NEEDLEMAN: Brattle did their own MOPR analysis before the April 17th LEI Supplement. And this is part and parcel of that analysis and it could have and should have been included.

CHAIRMAN HONIGBERG: Overruled. You can continue.

MR. PAPPAS: Thank you.
BY MR. PAPPAS:
Q On the screen now in front of you is Bates Stamp Page 9649, from Exhibit -- Counsel for the Public's Exhibit 275. And, in the middle, do you see the "607" figure?

A (Weiss) Yes, I do.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

Q Could you just tell us what that is?
A (Weiss) That's the estimated costs of the network upgrades that's payable by the client under the Transmission Service Agreement, which is Hydro-Quebec Production.

What's on the screen in front of you now is Counsel for the Public's Exhibit 273, which is a document produced by the Northern Pass. What's on the screen now is Bates stamp Number 9637 from Exhibit 273. And do you see the yellow highlighting?
(Weiss) Yes, I do.

And could you tell me what that relates to? (Weiss) Well, it references -- I don't know for sure, but it referenced the same network upgrades, and approximately the same cost of 600 million Canadian dollars.

Q What's in front of you now is Page 9636 from this exhibit. And I'm not going to read the highlighted portion, the Committee can do it. But, if you look at it, does it reference the new 79-kilometer transmission line in Canada to connect to the Northern Pass Project in New Hampshire?
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

A (Weiss) It does.
Q Okay. Now, the $\$ 600$ million Canadian, approximately how much is that in U.S. dollars?

A (Weiss) Depends on the exchange rate.
Q Sure.
A (Weiss) But it's currently probably somewhere around 500 million.

Q Okay.
A (Weiss) Plus or minus.
Q So, in its MOPR analysis, does LEI include this approximately $\$ 500$ million cost to build the Canadian transmission line that connects to the Northern Pass Project in northern New Hampshire?

A (Newell) No.
Do you believe that the IMM would include these costs in analyzing the bid to the Forward

Capacity Auction for Northern Pass?
A (Newell) Absolutely.
Why?
(Newell) The Market Monitor wants to make sure that the price bid into the auction is competitive, that is reflecting all the costs it took to bring that project forward.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

Q Okay.
A (Newell) And I'll just add a related point.
Who pays for different portions of that project, it's really beside the point. In fact, the very purpose of the MOPR, again, is to make sure that the projects are bidding in competitively. That is, if a project is being subsidized in some way or some part of it is being paid for by somebody else, the Market Monitor understands those are real costs.

Other projects, that are purely competitive, don't get those, you know, subsidies. And, to prevent the market from being distorted by those kinds of things, the Market Monitor has to make sure that all the costs are included no matter who pays.

Okay. Now, the FCA Number 11 auction price was $\$ 5.30$. Do you recall that?
(Newell) Yes.
Okay. Now, I don't want you to say anything in terms of any numbers that would be confidential information. But, generally, if the IMM included the cost of the Canadian transmission line of approximately $\$ 500$ million, and added
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
the impact of that to what LEI estimated in terms of their MOPR analysis, would the combination of those two numbers be above the \$5. 30 ?

A (Newell) Yes.

Okay. And, so, if, for instance, LEI -- if the Northern Pass Project were bidding into the Forward Capacity Auction Number 11, and the cost of this transmission line in Canada were included by the IMM, what would that result in terms of the bid? Would it be successful? Would it clear?

MR. NEEDLEMAN: Objection, Mr. Chair.
This is all in their report.

CHAIRMAN HONIGBERG: Mr. Pappas.
MR. PAPPAS: Well, this is, again,
analyzing LEI's MOPR analysis that showed up
for the first time in this form in their

Supplemental Report. And this is the point of going through what $I$ just did is whether or not their analysis is accurate, and these folks have an opportunity to rebut that. CHAIRMAN HONIGBERG: I'm going to overrule the objection. I'm also going to
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
note, for both of your benefits, $I$ know that the Subcommittee has questions about this topic and would be asking, even if Mr. Pappas didn't, on topics like this.

So, if Mr. Pappas can cover it and clarify things, it may shorten some of the questioning by the Committee.

BY MR. PAPPAS:
Q Do you remember my question?
A (Newell) Could you repeat it please.
MR. PAPPAS: Steve, could you read it back?

$$
\begin{aligned}
& \text { (Whereupon the court reporter } \\
& \text { read back the last question } \\
& \text { asked by Mr. Pappas.) }
\end{aligned}
$$

## BY THE WITNESS:

A (Newell) I believe I already answered that, and the answer is "no", if we're talking about FCA 11. I also just want to clarify, we did our own MOPR analysis, many different ways. And I just want to be clear that we're talking about something very specific here. If we were to correct this one what $I$ believe is an error in LEI's analysis, and added it to the allowed
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
offer price that they calculated, what would that be, and would that be too high to clear in the auctions? And that is the question that is new here that $I$ just answered. But only with regard to FCA 11 so far.

BY MR. PAPPAS:
Q Dr. Weiss, what's in front of you now is Counsel for the Public Exhibit 599. Do you see that?

A (Weiss) Yes, I do.
Q Could you tell us what this document is.
A (Weiss) So, yes. So, broadly speaking, this is still part of the same submission that Hydro-Quebec Distribution makes to the Canadian -- or, Quebec regulator. All the previous exhibits, the Annex $C$ and $E$ documents, are part of the same general procedure. This is basically responses by Hydro-Quebec Distribution to a first set of information requests by the regulator from earlier 2017 , I think from March 2017.

So, this -- so, a bunch of the documents that we looked at before were submitted in December 2016. And then, just like the case
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
here and in other regulatory proceedings, that subsequent to the submission by $H Q D$, the regulator can ask questions. And this is the responses of the first set of questions. What's on the screen now is the second page of Counsel for the Public Exhibit 599. I don't want you to go through the whole table. Could you just tell us briefly what the last set of figures on this table indicate? And I'm looking at the ones that start "A/O 2015-01". Do you see those?

A (Weiss) I do.
Q Could you just briefly tell us what those are?
A (Weiss) So, this -- So, just for context, so, as part of this Q\&A, if you want, $H Q D$ is asked by the regulator to sort of describe what the cost of purchasing energy and capacity from various providers is. And a lot of the numbers are redacted. But, on this -- this is the second of two pages. At the bottom you see this block "A/O 2015-01", called -- so, a long-term contract for 500 megawatts with HQP. That is the same contract that's listed as row (9) in LEI's exhibit, Figure 18. And, so, it
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
gives there the capacity, 500 megawatts, across the years 2017 through 2026. And after that it gives the price, the cost of the capacity to HQD in dollars per kilowatt-year. As you can see, that starts in 2018 with 112.52 Canadian dollars per kilowatt-year, and goes up to 129.47 Canadian dollars per kilowatt-year. And then the next line is the total cost of capacity in million Canadian dollars. And then, underneath, you have the equivalent in energy, the terawatt-hours under the contract, which are very small, it's a capacity contract, the price per megawatt-hour, and the total cost of energy.

Q Okay.
A (Weiss) So, the second row in this block gives you an indication of how much Hydro-Quebec Distribution pays for this capacity contract to Hydro-Quebec Production. We have been talking mostly about capacity prices and dollars per kilowatt-month. It's not a hard translation. You divide those prices by 12 to have the Canadian dollars per kilowatt-month, and then you have to sort of adjust for the exchange
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
rate. So, in the final year, 2026, you know, it's -- and the last few years, actually, it's roughly 10 Canadian dollars per kilowatt-month.

Q What's on the screen now is Bates Stamp Page 14314 from Exhibit 599. Is this the English translation of the cover page of this document?

A (Weiss) Yes.
Q And did you do this English translation?
A (Weiss) Yes.
Q What's on the screen now is Bates Stamp CFP14315 from Exhibit 599, Counsel for the Public. Is this the English translation of that portion of the table that $I$ had you describe?

A (Weiss) Yes.
Q And did you do this translation?
A (Weiss) The words, not the numbers, yes.
Q The numbers come from the chart?
A (Weiss) Right. I assume they're the same ones, but, yes.

Q Now, how long was this contract for?
A (Weiss) I believe it's for 20 years.
Q And you indicated earlier that the contract was
for how much per kilowatt-month approximately?
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

A (Weiss) So, it's approximately 10 Canadian dollars per kilowatt-month, 120 per kilowatt-year.

Q So, that is well above the FCA Number 11 price of $\$ 5.30$, is that right?

A (Weiss) Yes. I don't have the current exchange rate in mind, but it's definitely higher than what you would have to be. So, that's correct. That would be correct, yes. Okay. And this was a -- was this an RFP issued in Canada?

A (Weiss) There was a -- it was a competitive procurement as $I$ understand it, yes.

Q Okay. So, that was the winning bid, if you will?

A (Weiss) It is the bid that $H Q D$ chose in the end.

Q So, tell us, in your opinion, the significance of that, in terms of $H Q P$ potentially bidding into the Forward Capacity Market in ISO-New England?

A (Weiss) So, I think it is an indicator -- an indicator of the opportunity cost of capacity in Quebec. And I don't know to what extent the
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

IMM would consider that number. But it is a potential indicator of the value of capacity. And, so, when $H Q P$ decides to sell capacity into some other market, it forgoes the opportunity to sell it elsewhere. And this is an indicator of how much it recently got for capacity elsewhere, namely in Quebec.

A (Newell) Yes. And, actually, I'd like to add, this isn't just a question of the MOPR. I mean, it also raises questions whether, if this is an indicator that $H Q P$ could get this kind of price for capacity elsewhere, it raises the question "would they even want to sell into New England until prices get above that level?" Gentlemen, what's on the screen in front of you now is Counsel for the Public's Exhibit 600 . Do you see that?

A (Weiss) Yes.
Q And this is an Edited Transcript of a Eversource Energy Earnings Call that took place on July 28, 2017. Do you see that?

A (Weiss) Yes.
Q Now, what's on the screen now is the second page of Counsel for the Public Exhibit 600 .
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

And. If you look at the top, do you see the three gentlemen who participate on behalf of Eversource?

A (Newell) Yup.
Q And includes Eversource's Executive Vice President of Enterprise Energy Strategy, Mr. Olivier?

A (Newell) Yes.
Q And includes Eversource's CFO, Executive Vice President, and Treasurer Mr., I believe it's pronounced "Lembo"?

A (Newell) Yes.
Q Thank you. What's on the screen now is Bates Stamp Page 14324 of the transcript of this earnings call, Counsel for the Public's Exhibit 600. And do you see the highlighted, where it begins with Paul Peterson [Patterson?]?

A (Newell) Yes.
Q And Mr. Peterson was asking Eversource "So just to sort of follow-up on Northern Pass. Is it safe to say that you guys are going to be participating in the upcoming capacity auction? Is Northern Pass going to be participating in it?" And Mr. Olivier responded: "Paul, this
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
is Lee. The capacity auctions, the participation in that will be determined by HQ. And they're in the process of evaluating that option right now. And $I$ can't tell you what their conclusion is." Did I read that correctly?

A (Newell) Yes.
Q Let me segue to a question about greenhouse gas emissions that also appears in LEI's April 2017 Report. Now, in that report, LEI, in its capacity market analysis, assumed that no new generation of hydropower would be necessary for the Northern Pass Project to bid into the ISO-New England Forward Capacity Market Auction, is that correct?

A (Newell) That's correct.
So, if -- and LEI also claims, in their
April 2017 Rebuttal Report, that Northern Pass will result in carbon emissions reductions, correct?

A (Newell) Yes.
Q And, in fact, the Rebuttal Report quantifies some of those benefits from carbon emissions reductions, in terms of increased jobs and
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
increased GDP, is that right? Do you recall that?

A (Weiss) So, I'm not sure about the GDP relationship to greenhouse gas emissions. But maybe I misunderstood your question.

Q Okay. Hold on. What's on the screen now is Bates Stamp APP54053 from Applicants Exhibit 102, which is LEI's April 2017 Rebuttal Report, okay? And, if you look, this has economic impacts on employment associated with carbon emissions reductions. Do you see that?

A (Weiss) I do.
Q And it also has economic impacts on GDP associated with carbon emissions reductions. Do you see that?

A (Weiss) I do.
Okay. So, let me ask you this question. Will there be any carbon reductions if $H Q$ does not need to build any new dams or capacity to supply Northern Pass, and instead use capacity that it already has?

A (Weiss) So, I'll say two things. One, I should point out that we did not do any macroeconomic analysis. That's other witnesses. So, we did
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
not all consider the relationship between greenhouse gas emissions reductions in either jobs or GDP impacts, and how that was modeled, so that --

Understood. That wasn't my question.
(Weiss) Kind of was, but --
Okay. Maybe it was.
(Weiss) I think. So, this exhibit talks only about that. But the second half of the question is "would some of those things be possible without building new plants?" So, are GHG emissions reductions possible without building new plants? Is that the question you want --

Q Yes. Well, let me ask it this way. Can you have both no new plants capacity and reductions in carbon emissions or can you have one or the other?

A (Weiss) So, I think it's possible, although I'm not sure whether it's likely, to get
incremental hydro generation out of existing plants. So, there are two ways I could see this happening. One is, if the Hydro-Quebec system currently spills a lot of water, because
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
there isn't enough demand for it, then you could just use that and sell it someplace. That's one approach.

And the second approach, you know, I'm not an engineer, but that $I$ have read about, is if, for some reason, you could increase the reservoir levels, then you get not only potentially more energy flow, perhaps not even more energy flow, since the amount of water coming into the system may not change. But you may get more capacity out of an existing dam.

Now, I suspect -- I suspect, although I haven't studied this, that doing so would require some amount of capital investments. But $I$ don't know how much that is. But that is, at least in theory, another way that one might increase the amount of capacity provided from an existing system.

A (Newell) Energy.
A (Weiss) No, no, and capacity, right?
A (Newell) Oh, yes.
Okay.
(Weiss) Yes. Right. With respect to greenhouse gas emissions, it's -- right, good
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
point. With respect to greenhouse gas emissions, it's whether you increase the amount of energy that's being produced as a result of increasing the reservoir level.

So, it's theoretically possible. I did some research on whether there's any indication that either $H$ i is currently spilling a lot of energy, or whether there are any plans to somehow increase the capacity of existing reservoirs in ways that it would increase the amount of energy that somehow is produced. And I have not found any evidence to that effect.

Q Okay. Thank you.
A (Weiss) So, in essence, if those two things are not possible, then selling energy to New England over Northern Pass, from HQ's existing hydro resources, basically means that those resources -- that energy is not sold someplace else. And, therefore, it is entirely unclear whether it would reduce greenhouse gas emissions at all. It might reduce greenhouse gas emissions. But that would depend on comparing the carbon intensity in the markets where Hydro-Quebec is currently delivering
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
energy to the carbon intensity in the markets where it would then deliver energy.

Q Thank you.
A (Newell) Yes. To have the carbon reduction, you have to have incremental clean energy that's somewhere displacing fossil generation. And, if you're just shifting it from one place to another, it's a question of what was the fossil generation being offset there, maybe in Ontario, versus the fossil generation being offset in the alternative in New England. Okay. So, let me shift gears to another topic. In LEI's Rebuttal Report dated April 2017, they were critical by stating "The Brattle Group also acknowledged that Northern Pass could produce other benefits, some of which they have estimated in other engagements, but examination of those other benefits was outside the scope of their current mandate with the CFP." Do you recall that criticism?

A (Newell) Something to that effect, yes. Okay. On the screen now is Applicants Exhibit 102, Page 43, which is LEI's Figure 7 entitled "Potential Benefits of Transmission
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

Investments". Are you familiar with this chart?

A (Newell) Yes.
Q Okay. Now, first let me ask you, what was the source of this chart? Is it a Brattle Report, if you look at --

A (Newell) Yes. The left-hand part of the chart is from a Brattle Report.

Q Okay. So, in other words, the items listed, the potential benefits, come from a Brattle Report?

A (Newell) Right.
Q In another case, not this case?
A (Newell) Yes. Not a "case", but a report.
Q A report, okay. So, let me start by saying, looking at this chart, and it has a list of transmission benefits, and they're numbered 1 through 8. Did LEI consider all of the potential benefits listed in this chart or table?

A (Newell) I don't know what LEI considered. Could you rephrase the question?

Sure. Did you see in LEI's reports an analysis of all of the potential benefits that are
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
listed in this table?
A (Newell) No.
Q Okay. Did you consider all of the potential benefits that LEI analyzed in its reports?

A (Newell) Yes.
Q Okay. Do all of the potential benefits listed in this table apply to the Northern Pass Project?

A (Newell) No, not in any meaningful way. Okay.
(Newell) Also, several of them are outside of our scope of electricity market benefits and emissions.

Q Okay. So, let me just ask you about a couple of them. If you look at the first one,
"Production Cost Savings", do you see that?
A (Newell) Yup.
Q Okay. Could you briefly tell us what that is?
A (Newell) This is a metric that's used in evaluating the economics of many transmission projects. It is -- it's sort of an alternative to what we've been talking about here, which is the effect on customer payments. What the "production costs" refer to is literally that.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

It's from a supplier perspective, how much it costs to produce all the energy to meet customer demand.

Q Are these production cost savings directly relevant to New Hampshire customers?

A (Newell) Not directly.
Q Okay.
A (Newell) It's not what they pay.
Q In its report, LEI says that, in the New York study that Brattle did, where this list comes from, Brattle multiplied production cost savings by 1.6 . Do you remember that?

A (Newell) Yes.
Q Do you believe that that same multiplication of production costs by 1.6 applies in this case?

A (Newell) Definitely not.
Why not?
(Newell) Well, what the -- so, first of all, just as a reminder, that was on production costs, which is not the metric we're using here. But, if we were to look at production costs, that 1.6 multiplier would not apply. Let me just tell you what that 1.6 multiplier was reflecting. We were evaluating
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
transmission projects within the New York ISO system. In particular, projects that were expanding the transmission capacity across the Central East interface, which is the most congested interface in New York. And, so, these are lines that would de-bottleneck that interface and allow more power to flow.

And one thing we noticed when we were doing our electricity market modeling, including transmission modeling, is that -- and the model we were using to evaluate the Project, to evaluate production costs, we noticed that the base case of the model, even without the transmission line, didn't have as much congestion as the real world. The observation was, if you look at the price difference between western New York and eastern New York, in the model, it was quite a bit lower than the price difference observed in the real world.

Whether you look at recent prices, or what we were looking at to get to the 1.6 was futures settlement prices, for, you know, for power that people in the market were buying in
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
eastern New York versus in western New York. And we saw that our model is understating the price differential, it's understating congestion, and therefore it will understate the value of relieving that congestion. And that's why we multiplied -- I mean, you know, you're not bringing -- you know, if the model is saying "you're bringing $\$ 25$ power to a $\$ 30$ power place", that's pretty good. But, if the real world says "actually, the price differential, you know, you're really able to get $\$ 20$ power, but bring it to a place with $\$ 30$ power." So, that was the idea.

Q Okay.
A (Newell) And I'd be happy to say why that doesn't apply here.

Okay. Thank you. Now, the next item is --
(Newell) Well, I mean, I would like to say why that doesn't apply here.

Q Oh. I'm sorry. Please do.
A (Newell) Because there's not a direct analogue, just because this is a DC line. It's not within a system to de-bottleneck a congested set of lines. But there is sort of an
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
analogue, which is, again, we're bringing power from a lower priced market to a higher priced market. And, if you're going to look at production cost savings, that is, you know, what is the low -- you know, you're buying low, selling high. You know, if you're able to substitute low-cost power for high-cost power, that gives you production cost savings.

And the question is, is it possible that, again, we didn't evaluate production cost savings, but is it possible that LEI's estimates of production cost savings were too low? And the answer is "no". So, their production cost savings had to do with looking at, on the HQ side, valuing the energy at zero dollars, and selling it in New England at, well, it depends, it varies over time, but call it $\$ 50$.

So, for every megawatt-hour transferred, they found a lot of savings. Now, is that too low? Is it too low by a factor of 1.6? In other words, is the spread larger than the zero to 50 spread they said? If anything, the opposite. And the reason is that zero
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
understates the economic value of the power from HQ. I mean, you can look at their MOPR calculation, they have opportunity costs on that power. Or, if it's new energy, I mean, you have to pay for a new dam. I mean, the economic cost of that is not zero. So, that should be higher.

And then, in New England, the 50, is the 50 much too low? All the indicators are "no". If you look at their -- if you look at their energy prices, they're not too low, you know, from their model. What did I compare to? So, for one thing is the Energy Information Administration has -- well, actually, let me start with what's comparable to what we did in New York. If you look at futures markets, you know, what traders are paying for in the market, it's a lot lower than that. So, if we were to use a similar multiplier that kind of scales the modeled numbers to what you're seeing in the market, the multiplier would be less than one. So, the number would come down. Similarly, if you look at what really drives electric prices in New England is gas
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
prices. The gas price forecast that LEI used was very comparable to the forecast by the U.S. EIA, Energy Information Administration. But thereto, it's quite a bit ahead -- quite a bit higher than futures prices for gas. So, this tells me there's no good argument that that 50 was too high. So, if anything, if I were going to sort of benchmark their modeled numbers to, you know, to real-world numbers, their spread from zero to 50, and so their savings would come down. The zero would come up, the 50 would, if anything, could come down. The spread is lower. So, if anything, their production cost savings would be lower.

Q Thank you. The next item on this table is Item 1(c), "Mitigation of Extreme Events and System Contingencies". Do you see that?

A (Newell) Yes.
Q Now, according to the chart, it says that "the Brattle Group did not identify this issue."

Did you identify this issue?
(Newell) We did.
Okay. Did you quantify this issue?
(Newell) No.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

Q Did LEI quantify this issue?
A (Newell) Not really. They had an illustrative example.

Okay. Then, after that, we have Item -(Newell) Hold on, before you move on. Sure.
(Newell) We're actually just conferring here. [Witnesses conferring.]

## BY THE WITNESS:

A (Newell) Yes. I think it's worth adding a little bit of a point. I mean, so, this value of extreme conditions is real. Again, we acknowledged it in our report. When the system gets really tight, because of very extreme weather or other stresses, if you have more supply options, that's helpful, and that's what this category expresses.

Now, LEI did estimate, under a couple of historical-based scenarios, what it would be worth if you had these additional energy resources. But that doesn't tell you anything about going forward what is the value. You know, how much are you willing to pay for insurance against events looking in the past.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

They call this an insurance value. But every actuary looks at not just -- looks at two big things.

One is, "what's the payoff?" You know, are there scenarios in the future that look like the past? The weather might be, but is the market the same as in the past? So, that's one.

The other is, "what's the probability of something happening?" That's the value. For the value -- expected value of insurance, you need to look at both of those. And LEI didn't do that. So, they didn't really inform how much you'd be willing to pay for this insurance. It was just illustrations.

But $I$ can give you an indicator. If you took what LEI quantified as the value in those outcomes, it was about -- because they looked at if the polar vortex happened again under the same conditions, that would be -- that would save customers New England wide about \$50 million. And remember, New Hampshire is only about 10 percent of New England, so that would save you $\$ 5$ million for New Hampshire. So, if,
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
for example, you had an event like that, if that's even prologue to what it would look like in the future, but, if you had an event like that every single year, it would add about \$5 million to the expected value of Northern Pass to New Hampshire. So, that would increase the benefits that LEI quantified, or compared to our Scenario 1, which we'd be happy to get to later, by about 10 percent.

Now, we also found something that LEI did not quantify, we mentioned in our report and we mentioned at the technical session. That there's, you know, again other aspects of this that you could think about, you know, not just reducing electric prices, buff reducing gas prices, which in turn is a driver of electric prices. And, so, it could bring down electric prices. So, that's something we identified and described. But, again, we didn't quantify, and neither did LEI.

BY MR. PAPPAS:
Q Okay. Thank you. The next item on this table is Item $1(d)$, "Mitigation of Weather and Load Uncertainty". Do you see that?
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

A (Newell) Yes.
Q And did the Brattle Group identify this issue?
A (Newell) No.
Q Okay. Did LEI model the potential benefit of this issue?

A (Newell) I don't think so. I suspect they got confused between the similar title, between that and the other category of extreme events.

Q Okay. The last issue I want to ask you about on this chart is 2(b), "Reduced Loss of Load Probability". Do you see that?

A (Newell) Yes.
Q Did LEI quantify the potential benefits of this item?

A (Newell) Not to my knowledge.
Okay.
(Newell) Not to mention, if they had, it would be de minimus.

Q Okay. Did Brattle identify any categories of potential benefits that LEI did not identify?

A (Newell) Yes. The one I just mentioned, about the effect on gas markets, if you had conditions like a polar vortex again, and you had more supply that's not gas, that could help
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
bring down, and $I$ think LEI mentioned that in its report, that it could bring down gas prices for the gas customers. But, actually, the bigger deal for customers is how it translates through to electric prices. And that's something that we mentioned in our report that, you know, could be another benefit.

MR. PAPPAS: Okay. I think it's a good time for a break. CHAIRMAN HONIGBERG: All right. We'll take a ten-minute break.
(Recess taken at 10:38 a.m. and the hearing resumed at 10:55 a.m.)

CHAIRMAN HONIGBERG: Mr. Pappas, you may continue.

MR. PAPPAS: Thank you, Mr. Chairman.
BY MR. PAPPAS:
Q Gentlemen, I want to ask you some questions about economic models and your scenarios that were addressed in LEI's Supplemental Report. In its Rebuttal Report, LEI had some criticisms of your economic models and your four possible scenarios.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

So, let me start with economic models. Do you think this matter involves a battle between your economic model and LEI's economic model?

A (Newell) Not really.
Q Why not?
WITNESS NEWELL: By the way, there's a lot of feedback. I was wondering if -- is there anybody who -- it's very distracting.

CHAIRMAN HONIGBERG: Yes. Let's go off the record for a minute.
(Off the record.)
BY MR. PAPPAS:
Q All right. So, Dr. Newell, let me ask you again. Why don't you think this matter involves a battle between your economic model and LEI's economic model?

A (Newell) If you look at -- so, we looked at a number of scenarios, and one of them corresponds to similar assumptions at a high level to LEI's analysis. That's our Scenario 1. And our estimate of the benefits of Northern Pass under that scenario are in the same ballpark.

I can tell you why I think there's an
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
error in theirs, you know, that makes theirs a little bit too high. They have a number of criticisms of ours about that they claim reduce the capacity market benefits, and they actually don't. But that's all small stuff. If you look at, and $I$ hope it's okay to go back to our report to just show, in the -- one of the exhibits where we have the estimate from LEI compared to our estimates. Is that fair game? What exhibit are you looking at?
(Newell) CFP 144. Let's see. Well, IV -- oh. Sorry, that exhibit is redacted. So, let me just say at a high level, given the same high-level assumptions, they're in a similar ballpark. We could argue for days about the different structures of the model, you know, the details in the model. But, ultimately, I mean, we're talking -- we're not talking about a huge difference there.

What is a big difference is outside of the model. It's how we deal with some of these really threshold uncertainties that we face, as we sit here today and try to think about "what is this Project worth to New Hampshire
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
customers?" And that's what our other scenarios address.

Q Well, LEI stated in its Rebuttal Report that your Scenarios 2, 3, and 4 were "not credible". Do you recall that?

A (Newell) I don't remember the exact wording, but something to that effect.

Q To that effect. And how would you respond to that criticism?

A (Newell) I think those scenarios are addressing the essential questions about the value of this Project to New Hampshire. So, one key question is, "does this Project bring more clean energy into New England? And does it bring incremental energy and capacity into New England that wouldn't otherwise be there?" Or is it just a question of "it's this line versus one through Vermont?" And the energy market is the same either way. These are projects -- or Maine. I mean, these are projects that are competing with each other, for example, right now in the Mass. -- the Mass. RFP. So, that's the first question. Does having this Project, versus not having this
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

Project, really change the world? Does it really change the market? And that's the question we explore in Scenario 4. And the Mass. RFP has really brought focus to that. So that one, $I$ don't think we can ignore that possibility. I think everybody here should be asking that.

## Another scenario -- another really

threshold question that we addressed is, "okay, even if this is bringing incremental power into New England, how does it -- does it choose to participate in the capacity market? Does it qualify for the capacity market? And, if it does, does the Market Monitor let it clear in the capacity market?" Those are all questions that we've been talking about. What -- I mean, we're just here guessing. What are even the resources behind it? What does $H Q$ even want to do? We don't have a -- I don't think we have any promise here that answers all those questions. So, we had to explore all those. Because, if you don't pass that threshold question, there might still be energy market benefits to this Project, there would be. But
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
the capacity benefits to New Hampshire, which accounted for 90 percent of the market benefit for New Hampshire, you wouldn't have those.

By the way, that doesn't say this isn't a worthy project for, you know, in -- you know, for bringing in clean energy perhaps, if it is bringing in incremental clean energy, in fact. I mean, it's just this Project isn't even necessarily about capacity, if you look at that exhibit you showed before the break from the investor conference. So, those are scenarios we had to include.

Now, once you say "assume we pass those thresholds, and Northern Pass is bringing incremental resources in, it is participating and qualifying and clearing the capacity market, then, yes, it would lower prices that would affect New Hampshire customers. And we address that with two different scenarios. One is Scenario 1, which is like LEI's. And, lo and behold, we come up with an answer that is comparable to LEI's. In fact, they're really similar if you correct what $I$ view is an error in their analysis. But they're -- either way,
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
and without that, they're really in the same ballpark.

And then we have one more scenario, which is what we call "Scenario 2". Which is just like that one, but where there are some plants that decide to retire because of Northern Pass. And let me tell you why that's an important scenario. So, if you look at LEI's analysis, Northern Pass, if you look at those capacity prices they're projecting with Northern Pass, compared to without Northern Pass, again, assuming you pass these threshold issues. They are showing a very large reduction in prices. In fact, for four years, they have taken 30 percent of the money out of the market, \$1.3 billion out of the capacity market, that's about $\$ 4.3$ billion dollars.

MR. NEEDLEMAN: Mr. Chair.
CHAIRMAN HONIGBERG: Mr. Needleman.
MR. NEEDLEMAN: I'm mindful of what
you said earlier. That being said, it sounds to me like this is very generic testimony that is expanding on all of the material that was in their initial report.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

CHAIRMAN HONIGBERG: It is also quite the narrative, untethered to a question at this point, I think. If you could perhaps direct more of this examination, we can focus on the important issues you want to highlight. Because it is, it's hard to keep up.

MR. PAPPAS: Okay.
BY MR. PAPPAS:
Q A moment ago you indicated that there are significant uncertainties. Do you recall that?

A (Newell) Yes.
Q Okay. And, first, let me ask you, did LEI's approach address those uncertainties?

A (Newell) No, not the big ones.
Q And did LEI's approach employ the most optimistic scenario?

A (Newell) Regarding the big questions.
Q Okay. Now, with respect to your Scenario Number 2, why do you think that that is -- that hits upon uncertainties that LEI failed to do?

A (Newell) There are a lot of plants in New England that are really old and on the -- sort of on the edge of possibly retiring. And Scenario 1 in LEI's analysis assumes that, even
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
with the price coming down 20 to 30 percent for several years with Northern Pass in the capacity market, that nobody in New England changes their retirement decision. And I find that quite unlikely, that you can take that much money out of the market and have nobody change their retirement decision.

And Scenario 2 explores what if the amount that retired was -- what if you did have some retirement because of Northern Pass equal to half the size of Northern Pass, as sort of a midpoint. And it shows you that you'd get about half the benefits. It's a "what if".

Q In addressing LEI's criticism of your Scenarios 2, 3, and 4, as essentially not credible, briefly tell us why you think those scenarios inform the Committee?

A (Newell) Well, they just show the implications if those threshold questions go one way or the other. Is it incremental? That's Scenario 4, if it's not, and very little benefit then. Does it clear the capacity market? If it doesn't, that's Scenario 3 very little benefit. And, then, Scenario 1 versus Scenario 2, does
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
it induce anybody to retire, which really could happen, and it informs "how much does that change the benefit?"

Q Okay. Now, LEI stated in its Rebuttal Report that Brattle started with essentially LEI's results, and only looked to focus on scenarios that would reduce market benefits. Is that what you did?

A (Newell) No. That's not how we approached it. We did an independent analysis of it, of course, within the scope that we were asked to do. And what we found is that, with all the big questions, that LEI had made the most optimistic possible assumptions. Which is, it's all incremental, all of it clears, zero competing supply retires. Those are, of course, the most optimistic assumptions. You can't go better than that with any of those, it's only down from there.

A (Weiss) I'm going to --
Q Please do.
A (Weiss) Yes. I was going to add something. So, I think LEI, in its Rebuttal Report, basically suggested that we didn't analyze or
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
quantify a number of benefits. And, you know, we talked about the exhibit a little while ago and the various bubbles in it.

I should say also that, so, it was not in our scope, and that we didn't feel it should be in our scope, to search for entire categories of benefits that the Applicants did not consider material or, you know, material enough to analyze themselves. Since, in the end, the Applicants are trying to demonstrate to you, the SEC, that this is ultimately a project the benefits of which to New Hampshire exceed its costs.

So, in particular, in the area on the exhibit that discussed all transmission benefits, you know, it was not in our scope to attempt to independently find potential benefits when the Applicants did not consider those important enough.

MR. PAPPAS: Thank you, gentlemen. I have no further questions.

CHAIRMAN HONIGBERG: All right. I have the Municipal Groups up on my list. Who's going to be doing questioning?
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

MS. PACIK: I believe NEPGA is actually going to jump ahead of us. Sorry I didn't notify you beforehand.

CHAIRMAN HONIGBERG: That would also mean they would be jumping ahead of Mr. Reimers and Ms. Birchard. Is everyone okay with that?

MR. REIMERS: Yes.
CHAIRMAN HONIGBERG: Sounds like that's a "yes".

MS. PACIK: Thank you.
CHAIRMAN HONIGBERG: Mr. Anderson.
MR. ANDERSON: Thank you.
(Short pause.)
MR. ANDERSON: May I proceed? Okay.
Thank you, Mr. Chair. Okay. Good morning, Mr.
Newell, Mr. Weiss. How are you?
WITNESS WEISS: Good morning.
WITNESS NEWELL: Good morning.
MR. ANDERSON: Is it not on?
WITNESS WEISS: It's on.
MR. ANDERSON: There we go. Okay.
Great. Good morning.

## CROSS-EXAMINATION

BY MR. ANDERSON:
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

Q I want to also start and, actually, in total, talk about the capacity market, the Forward Capacity Market generally. And I'd like to start with a discussion about peak demand and peak demand growth. In particular, with respect to some updates that ISO-New England has made to their peak demand forecast since you put together your April report, and also since Ms. Frayer and LEI also prepared their report.

So, as a baseline, for purposes of your report -- actually, let me go back for a second and just talk about peak load, if $I$ may, just to set it up. So, if you could, just for the benefit of the Committee, could you explain what the peak load forecast is and how ISO-New England uses the peak load forecast in determining the installed capacity requirement?

A (Newell) Yes. So, a very standard practice in the industry, every system operator has to project what is the peak load, that is typically the load on the hottest day of the year. And the reason they do that is they want to make sure they have enough supply to be able
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
to always be able to meet load, with a very, very, very low probability of not being able to. And, so, what they do is they do a forecast. It's, you know, usually a little higher than last year, whatever, it's -- they do a forecast of what's the peak load. And then they, to make sure they have enough, supply, they have done some studies they do, they say you need that, plus, say, 15 percent of total supply. And then what -- and then that becomes -- that's the basis for the net installed capacity requirement, which is the basis for the demand that then gets procured in the capacity market.

Q Okay. And that 15 percent you referred to, they call that the "reserve margin", is that correct? Is that the term?

A (Newell) Right.
A (Weiss) Yes.
Q And, essentially, you multiply the peak load forecast, times the reserve margin, and that gives you this value, installed capacity requirement value, is that correct, more or less?
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

A (Newell) More or less, yes. One plus the reserve margin, times the peak load, is roughly -- I mean, there's some details, but it's roughly that.

It's roughly that. Okay. And they have this installed capacity requirement, and there's a netting off of that, is that correct, to come up with a net installed capacity requirement? Can you just explain briefly what that netting is?

A (Newell) Well, yes, very roughly, it's taking off some credit for the existing HQ lines. I mean, there are a few details that $I$ don't know if they're particularly material.

Okay. But, in the end, you come up with a net ICR value, and that's a value that's used in
developing the parameters for each Forward
Capacity Auction. Is that correct?
A (Newell) Correct.
Q One of the variables, okay.
A (Newell) For --
[Court reporter interruption.]

## BY THE WITNESS:

A (Newell) For defining the demand, yes.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

BY MR. ANDERSON:
Q Now, in terms of the positioning of the demand curve in each auction, how might, say, a decrease in, and $I$ will call the net installed capacity requirement "NICR" for short, how might a decrease in NICR from one year to the next affect how the demand curve is positioned from one auction to the next? In other words, if you had a decrease in NICR, what is that going to do to the position of the demand curve?

A (Newell) It's going to lower it. Yes.
Q "Lower it", meaning that all else --
A (Newell) I'm sorry. It shifts it to the left.
Q Shifts it to the left.
A (Newell) Yes.
And holding all else equal, what effect does that have on the pricing of capacity, holding all else equal? In other words, --

A (Newell) Sure.
Q -- if you were to buy, you know, 34,000
megawatts in one auction, you move the demand curve to the left. You buy another 34,000 megawatts of capacity, --
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

A (Newell) Yes.
Q -- what effect would that have on pricing?
A (Newell) Under most conditions, it would decrease.

It would decrease pricing. Okay. For purposes of your report, and the report I'm referring to is marked as "Exhibit CFP 143", this is your earlier report -- rather, your February 2017

Report. To be clear, I believe it was a
December Report that you revised dated
February 2017, and again marked "Exhibit CFP 143".

For purposes of that report, where did you derive the peak load forecast values that you used in your analysis?

A (Newell) From ISO-New England's forecast, the CELT, from -- I think it was the 2016 version. MR. ANDERSON: Okay. If I may?

BY MR. ANDERSON:
Q And, for the record, I'm showing the witness a document that's premarked or pre-identified as "Exhibit NEPGA-4". And do you see the title on that document? Is that clear to you?

A (Newell) Yes.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

Q And, if you wouldn't mind, could you please read the title on that document.

A (Newell) It's "ISO-New England's CELT Report".
Q And for what year?
(Newell) "2016 to 2025 Forecast".
And does that look like the CELT Report that you used for purposes of your February 2017 Report?

A (Newell) I think so. But I think we used -this looks like a PowerPoint version. I think we used a spreadsheet version.

Okay. Let me turn the page. And, Dr. Newell, can you make out the values on that document that I presented?
(Newell) Yes.
Okay. And does that look like the spreadsheet and the values that you relied on for purposes of your report?

A (Newell) I think so. I'd have to check.
Q Okay. If $I$ could point to -MR. ANDERSON: If I could have a
moment? I just need to get another copy of it. CHAIRMAN HONIGBERG: Uh-huh.
(Short pause.)
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

1

BY MR. ANDERSON:
Q So, Dr. Newell, if $I$ may again refer you back to this spreadsheet that you have before you. And does this appear -- again, does it appear to be that part of the CELT Report in which ISO-New England reports its peak load forecast for each year, summer peak load forecast?

A (Newell) Yes.
Q And if $I$ could draw your attention to the year " 2020 ".

A (Newell) Uh-huh.
Q And if $I$ could bring you down three lines, 1 -the line begins with "1.2 Reference - With reduction for $B T M$ PV".

A (Newell) Yes. I see that.
Q And the value there, would you agree, is
"29601"?
A (Newell) Yes.
Q And do you recall, is that a value that you used in your analysis in your report?

A (Newell) Yes. I'm just referring to Page 17 in that report. And we wrote " 29600 ", off by one megawatt. I think we must have rounded. But I believe this is what we used.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

Q Sounds like a rounding, yes. We won't hold you to that. But that appears to be case, okay. And if you go to the right from that value, you go to "2021", "2022", and so forth, each of those values is also the ISO-New England's projected peak load in each of those years, is that correct?

A (Newell) Right.
Q Okay. I'm going to place another document in front of you, if $I$ could. And you see a
document in front of you now, Dr. Newell?
A (Newell) I do, yes.
Q And could you please read the title on that document.

A (Newell) It's "ISO-New England's CELT Report", with a "2017 to 2026 Forecast".

Okay. So that -- you would agree that that appears to be the updated, this year's CELT forecast, is that correct?

A (Newell) Correct.
Q Okay. And if $I$ may just step back for a moment for the record. This document you have in front of you, Dr. Newell, is premarked as "Exhibit NEPGA-5".
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

So, now looking at this page $I$ have it open to, if you could look -- if you could look down on the line that $I$ have highlighted in that table, does that appear to be the same type of data you were just talking about, in other words, the peak load forecast with a reduction in behind-the-meter $P V$, but in this case for 2017?

A (Newell) Yes.
Q Yes. And if $I$ could please ask you to read down to the line corresponding to "2020". And if you could read that value for me?

A (Newell) "29191".
Q Okay. And, subject to check, would you agree that it sounds like there's a difference between the 2016 and the 2017 value of approximately 410 megawatts?

A (Newell) Yes. And I just checked [indicating].
Q In your hand, yes. So, a 410 megawatt
difference. Now, if we were to go out, and I'm not going to ask you to do them all, I'm sure you could in your head very quickly. But, if we were to go out year for year beyond that, "2021", "2022", would you expect to see that
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
same delta between the 2016 projections and the 2017 projections in each year? In other words, would you expect to see something in the order of a 400 megawatt difference between the 2016 and the 2017 projections?

A (Newell) I'd have to check back at the other ones. I mean, I used whatever numbers they have for each year. I'd have to check back, and I mean we can look at that, say, "2025", comparing this "30507", I'd have to look back at the prior document to -Sure. Yes. Yes.
(Newell) -- to respond.
MR. ANDERSON: Could we, with the Chair's permission, if $I$ could, just to toggle the two, just to check a couple values?

CHAIRMAN HONIGBERG: Uh-huh. Sure. MR. ANDERSON: Great. Thank you. CHAIRMAN HONIGBERG: Off the record. [Brief off-the-record discussion ensued.]

BY MR. ANDERSON:
Q So, for the record, I'm putting back before you what was premarked as "NEPGA Exhibit 4" or
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
"NEPGA-4". We had looked at the year for 2020 . Let's say, let's go out to "2023". And if you could please read the value under the peak load with reduction for behind-the-meter $P V$ in "2023"?

A (Newell) "30415".

$$
\text { MR. ANDERSON: And if } I \text {-- Pam, if }
$$

you could switch them back.
BY MR. ANDERSON:
Q And, now, if we were to look at the same year in the 2017 ISO-New England projection, the same year, the peak load forecast there?

A (Newell) "29960".
Q And if we could quickly --
A (Newell) Yes.
Q -- do the math.
A (Newell) And, so, you know, it's a similar difference --
[Court reporter interruption.] WITNESS NEWELL: Sorry.

## BY THE WITNESS:

A A similar difference to the other year, as you suggested, at about 440 .

BY MR. ANDERSON:
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

Q Okay. So, indeed, actually in this one, it appears to be a little bit bigger than the delta we see in 2020?

A (Newell) Yes. Jürgen is a little better at math. He says it's "455".

I did it, too. So, given that we have these two data points there a certain spread apart, is it fair to say that we might expect that for all of these years there is a delta of somewhere on the order of 400 megawatts for all of these years?

A (Newell) Sure. I mean, the ones we checked, yes.

Q Okay.
A (Newell) And I wouldn't be surprised if the others were very different, too.

Okay.
(Newell) Now that we checked two.
Okay. And do you -- do you happen to know, LEI, in their analysis and their development of a peak load forecast and growth in NICR, did they rely on the same methodology?
(Newell) You know, I'd have to check. I think so.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

1

Q Okay. All right. I'm referring you back to the document you have in front of you. This line --

A (Newell) Actually, sorry. I just have to correct that. I am not sure. I actually do have some doubts, because $I$ know, in LEI's method, they neglected to include forecasts of energy efficiency. And, so, there must have been something different about their methodology. Okay. And just to be clear on your methodology in projecting NICR going out through the years of your analysis, you started with the peak load forecast for 2020 , which corresponds to FCA 11. And then you used each peak load forecast that ISO-New England developed and applied to that the same reserve margin percentage that ISO-New England actually used in FCA 11, is that correct?

A (Newell) That's what we did, yes.
Q Okay. So, is it fair to say that, if you were to update your analysis and your projections and the NICR based on more recent ISO-New England load forecasts, that NICR in each year
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
of your base case, and I imagine in your scenario case, as well, the NICR value would be lower, if you were to update it based on these new values, correct?

A (Newell) Correct.
Q Okay. And given that it's a straight 15 percent times -- or, essentially 15 percent times the peak load forecast, you might imagine that NICR may go down in the order of 400 megawatts in each of those?

A (Newell) A little more than that.
Q More than that?
A (Newell) Yes. You know, 450, something like that.

Q Okay. But, by some measure, 400,400 plus, your NICR values will be lower --

A (Newell) Yes.
Q -- if you were to update your analysis? Okay.
A (Newell) Correct.
Q If $I$ could just again draw your attention to the document you have in front of you, which is marked as "Exhibit NEPGA-4". This "With reduction for BTM PV", could you just briefly explain what "BTM PV" is and what that -- and
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
why is there a reduction for that here to arrive at a peak load forecast?

A (Newell) It refers -- "BTM PV" refers to "behind-the-meter photovoltaic". So, that's where people have rooftop solar. And, since they're generating power, it reduces how much energy they're taking off the grid.

Okay. And do you know if ISO-New England's -how ISO-New England determines how much behind-the-meter solar there is, their methodology for doing that? Are you aware of any change that they have made in their methodology for projecting the amount of behind-the-meter solar on the system?

A (Newell) I believe they have made a change. I don't know all the details, how they -- how they project that.

Q Okay. And do you have any understanding that this change from their peak load forecast in 2016 to 2017 was driven, at least in part, if not in great part, by an increase in their projections of behind-the-meter solar?

A (Newell) Yes. I think so. But it is easily verified. If you toggle again, this has the
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
projection of behind-the-meter. So, for example, in 2020, it has "848" in this most recent report. We could look what it says in the other, but $I$ would just be looking at the chart.

Q Okay. So, what you see here, and again the line you're referring to is right above it, "1.1.1 Behind-the-Meter PV", that, according to you, shows growth over time in the amount of the behind-the-meter PV behind the system, so to speak, at least projected by ISO-New England?

A (Newell) Right.
Q Okay. And that, in turn, probably, or I'm asking you, do you think that was one of the drivers of the reduction in peak load forecast that we saw in 2016 to 2017?

A (Newell) Well, $I$ would just want to -- I always like to refer to these tables. And hereto, I'd want to toggle back to the other table to see what changed.

So, the one we just looked at had 800 and something for 2020. This one has -- the older version has "676". So, yes. Clearly, the
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

ISO-New England forecast of photovoltaic generation on-peak behind-the-meter did increase. And that is -- appears to be half the reason that their net load that you've highlighted has decreased.

Q All right. Thanks. Okay. I have another document that I've placed in front of the witness, premarked as "Exhibit NEPGA-6". Could you just briefly read the title on that document.

A (Newell) ISO-New England's "Proposed" -- the title is "Proposed Installed Capacity Requirement (ICR) Values for the 2021 to 2022 Forward Capacity Auction (FCA \#12)".

Q And just for the record, I've turned to a page that's in front of the witness now that has some values highlighted on there. Can you see the first two columns with values in it? And can you explain what those values are?

A (Newell) Yes. They -- I haven't looked at this particular table before, but they appear to be, first of all, the same type of numbers we were looking at in the other table. And, in fact, the -- in the second column, that looks like
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
the same number we were looking at in the other table.

Q Yes. I'm sorry. Maybe I could jump in here. So, maybe the question $I$ should ask is, do these numbers right here at the top, where it says "Peak Load Net of Behind-the-Meter PV", -[Court reporter interruption.]

BY MR. ANDERSON:
Q The values in the first line, the line header is "Peak Load Net of Behind-the-Meter PV
(50/50)". And you see a value there for FCA 12 and one for FCA 11. Do those appear to be the peak load values taken from the CELT Report, the CELT Reports that we were just talking about and looking at?

A (Newell) Well, you know what, I'd have to -- I mean, yes, the " 29,601 ". But I'd have to go back and check. I mean, that's how I use these tables. I have to keep going back and checking.

Q Okay.
A (Newell) And, so, I just don't remember the other number -- I mean, if you're asking me to verify it, $I$ don't remember the number, the
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss] "29,436".

Q Okay. Well, if we could just assume for now that ISO correctly took that value and placed it in this table, --

A (Newell) Sure.
-- if we could, and subject to check, --
(Newell) Uh-huh.
-- but $I$ believe that to be the case. And, if you down four lines, and you see the line that says "Net ICR" and "ICR minus HQICCs", the "minus HQICCs" refers to the Phase II, the interconnection credits you referred to earlier, that is the netting of $I C R$, is that correct?

A (Newell) Correct. Yes.
Q And then you're left with the net ICR value. That's the value that goes into the Forward Capacity Auction, one of the parameters that we discussed earlies as well, is that correct?

A (Newell) Correct.
Q And then can you see where, if you look at "FCA 11", a value of "34,075", then, in "FCA 12", a value of "33,725"? Would you agree that that represents a decrease in NICR from
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

FCA 11 to FCA 12?
A (Newell) Yes.
Q Now, in your report, and again you were relying on 2016 CELT Report, we now have the 2017 CELT Report. But, in your report and in your analysis, you applied an increase to NICR in each year, is that correct?

A (Newell) Yes. That's correct.
Q Okay.
A (Newell) By the way, I'm sorry. Can you remind me what -- I was so busy reading the title of this presentation, $I$ forgot to see the date of this presentation.

Q I believe it's dated -- well, I'll let you read it.

A (Newell) Okay. August of 2017. Okay. And -okay. Now, I'll let you -- I think now I understand better what I'm looking at.

Q And would you conclude that the difference between what we're seeing here, a reduction in NICR from FCA 11 to 12, versus the methodology you used in your report, the differences between the two are really based on ISO's change in their peak load forecast. Would you
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
come to that conclusion?

A (Newell) Yes.
Q Because otherwise --
A (Newell) right.
-- it's the same analysis, right?
(Newell) Right. Right. And, to be clear, the reason that you're showing the number on the left is, as you were pointing out, is smaller than -- you know, the FCA 12 value is smaller than the $F C A 11$ value. It corresponds to that new forecast that you showed before.

Q Correct.
A (Newell) One that we did not have at the time we did our analysis.

Q Understood. Yes. And, again, would you expect then that, in each case, if you were to update your NICR values based on the new peak load forecasts, they would all be lower, according to the lower peak load forecasts we've seen in the more recent CELT Report?

A (Newell) Yes. Correct.
Q Okay.
A (Newell) Yes.
Before $I$ move onto Northern New England, let me
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
just ask. So, based on that alone, if you were to update your report, you were to reduce the NICR values for each of the years, how might that change any of the conclusions that you've made under your four scenarios? I imagine Scenario 4, there would be no change, since there was no net benefit; Scenario 3, there was a small change; and then Scenario 1 and 2. But from a -- and I'm not asking from a qualitative standpoint, but quantitatively or directionally, you know, how might that affect your conclusions with respect to the potential benefits of Northern Pass in the capacity market?

A (Newell) Can you clarify the question? You said -- say it again what you said, "not qualitatively, but" what --

Q Well, I'm not asking you to come up with an absolute number, in other words.

A (Newell) Oh, yes.
Q I'm not asking you to say, you know, "oh, you could knock 2 million off", or whatever the case may be. But I'm asking if, you know, given that NICR -- actually, maybe I should
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
step back.
You know, when -- and $I$ think maybe we covered this earlier, but, when NICR drops, I think you testified earlier that, generally, pricing in the market drops because of the shift in the demand curve from the right to the left.

A (Newell) Yes, generally.
Q Is that correct? Okay. So, --
(Witnesses conferring.)
WITNESS NEWELL: Okay.
BY MR. ANDERSON:
Q So, I think, given that, given that you've testified that, you know, NICR going down tends to drop prices in the capacity market all else held equal, how might this decrease in NICR in each year of your study period affect the conclusions? And, again, I'm not asking you to come, you know, come up with a number in your head. But, you know, if you could opine on whether it would tend to decrease the benefits, have no effect, what effect might that have if you were to update your analysis?

A (Newell) Well, it's actually hard to say for
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
sure without running the model. So, it's easier to say -- what $I$ can tell you is that, all else equal, that lowers the price. But, now, remember, we're -- when we talk about the benefits, we're talking about what's the price in the case without Northern Pass versus the case with Northern Pass. And, in both cases, we would use this same lower NICR.

How does that delta change? I don't know. I don't think it would be fundamentally different. I think the estimated benefits, again, I'm not re-running the model, but I have an indicator that lower load, it's a little bit like one of the sensitivities we ran with fewer retirements, and that lowered the benefits a little bit. I think this would, too. But, again, $I$ don't think this would -- I think it would be a little bit lower, that's a guess. But $I$ feel it's pretty likely that the answer would be not hugely different.

Q Okay. That's directional. Thank you. That's helpful. I'm not being facetious.

How might that bear -- and you just said that, you know, with the change in NICR, that
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
what bring market prices down kind of across the board, so to speak, in each auction. How might that bear on the likelihood of retirements compelled by any kind of capacity price decrease caused by the entry of Northern Pass? I know there's been some discussion here today. I know in your testimony, your direct testimony, you really questioned LEI's conclusion that the introduction of Northern Pass and price suppression would not compel further retirements. If you were in a world where NICR is lower, capacity prices are lower, how might that affect the likelihood of retirements?

A (Newell) I think you've asked two conflicting questions. Can you rephrase?

Yes. Given that, with a lower NICR value, the market prices are generally lower. The demand curve is shifted to the left, so prices are generally lower. Might that make retirements more likely, given that existing resources, sort of on average, may be expected to receive lower capacity revenues?

A (Newell) Yes. And what I'm referring to is the
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

|  | Base Case. I'm not talking about what |
| :---: | :---: |
|  | incremental effect Northern Pass might have. |
| Q | Okay. So, in your -- you're saying, in your |
|  | Base Case, if it were updated based on new NICR |
|  | values, your Base Case might show more |
|  | retirements than it does now? |
| A | (Newell) Yes. As a reminder, the way we dealt |
|  | with retirements was with scenarios. And -- |
|  | sorry, that's different. We're not explicitly |
|  | forecasting retirements. So, I can't say we |
|  | run the model and we see that, you know, |
|  | exactly X more retires. But, just abstracting, |
|  | taking a step back, sure. If prices are lower, |
|  | you might see more retirements in the market. |
| Q | Okay. And the conclusion that LEI came to that |
|  | you were critical of, that there were no |
|  | retirements compelled by the entry of Northern |
|  | Pass, is that conclusion -- is that conclusion, |
|  | in your mind, more questionable when the |
|  | underlying market prices are lower than you |
|  | have in your analysis? |
| A | (Newell) I don't know. |
| Q | Okay. |
| A | (Newell) Is it more questionable? It's still |

\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
questionable. I mean, I don't think it is more so or less so. Because, again, what we're asking is "what effect does Northern Pass have?" So, there may be, with lower load, there may be more retirements in both the Base Case and the Change Case. That's separate from the question is "does Northern Pass push somebody over the edge that was not already going to retire?" So, $I$ just don't know whether that changes anything.

Q Okay.
A (Newell) I don't know whether the change in load forecast changes that, that question.

Q Okay. If $I$ could bring your attention to the same document that you have before you marked "NEPGA-6". And if $I$ could ask you to look in that far right column headed "Northern New England". And if you look at, again, look at that first line "Peak Load Net of BTM PV". And do you see that there is a -- ISO-New England is predicting a reduction in peak load in Northern New England from FCA 11 to FCA 12? A (Newell) I do.

Okay. And that reduction in peak load --
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
actually, let me step back. Northern New England is a capacity zone in New England, is that correct?

A (Newell) Correct.
Q And the Northern Pass Project would sink, so to speak, in the Northern New England Zone, is that correct?

A (Newell) Yes.
Q And, if it were to bid into the Forward
Capacity Market, it would bid in as a Northern New England resource, is that correct?

A (Newell) Correct.
Q Okay. So, this reduction in peak load within that zone, the Northern New England Capacity Zone, what -- I mean, what is your impression? What effect might that have on perhaps likelihood of retirements in Northern New England, or in the ability of the Project -the Northern Pass Project to qualify as a capacity resource in the Northern New England? In other words, does a reduction in peak load in that capacity zone bear at all on the ability of the Project to qualify as a capacity resource?
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

A (Newell) I don't think so.
Q And why is that?
A (Newell) Because the question of qualifying doesn't have anything to do with how much the market wants it. It has to do with whether there's firm capacity behind it.

Q Okay. And would that have any effect on pricing in Northern New England?

A (Newell) Would what? The change in forecast? Q Yes. Yes.

A (Newell) Under some circumstances, it could lower prices in Northern New England relative to the rest of New England, but not likely.

Q Not likely because?
A (Newell) Because Northern New England -- so, Northern New England, if there's too much capacity in Northern New England relative to the demand there and the transmission capability out of Northern New England, the price can go down in Northern New England with respect to the rest of New England. It can, you know, can get bottled in there, the capacity, and get a lower price. That's not happening under current market conditions. You
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
would need a lot more capacity in Northern New England for that to start to happen, or a much bigger reduction in load in Northern New England for that to start to happen. Okay. All right. Thanks. I do want to turn my attention to another matter. And this has to do with the response -- the Mass. RFP responses that the Mass. DPU received.

MR. ANDERSON: And I think maybe, in part, I would ask the Chair on how to proceed here. I understand that the redacted versions of the shippers on the Northern Pass line, their RFP submissions in Massachusetts were produced in a data request are not at present part of the record. I would like the witnesses to read just a couple lines from a redacted version of one of the RFP bids to set up some questions about the likelihood of Northern Pass clearing in the Forward Capacity Market, really just the basics of the Project as presented in the RFP.

CHAIRMAN HONIGBERG: All right.
Well, $I$ mean, without knowing what it is you're going to show him, I think you should show him
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
what you're going to show him, and start to ask a question and we'll see what happens.

MR. ANDERSON: Okay.
MR. IACOPINO: I just have one question for Mr. Anderson. What's redacted there is not something that was redacted during our discovery. That's redacted from the DPU website?

MR. ANDERSON: That's correct.
MR. IACOPINO: Okay. so, that can be found on the DPU's -- Massachusetts DPU's website. So, it wasn't redacted as part of our process?

MR. ANDERSON: Correct. Yes. And that's, in fact, where $I$ got the document from, so --

MR. IACOPINO: Okay.
BY MR. ANDERSON:
Q Okay. So, I've put in front of the witnesses a document premarked as "Exhibit NEPGA-7". If you would please, if you could just read from the title of that document.

A (Weiss) Sure. I'll do that. It says "Section 83D Request for Proposal Application Form,
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

Applicant Information $S$ Bx Firmed Project".
Q Okay. And does that, as far as you can tell, does that appear to be a response to the Massachusetts Section 83D RFP process seeking clean energy projects?

A (Weiss) It seems to indicate that it is, at least by the title.

Okay. And if you could please just turn to -and I'm just turning to a page in the introduction. And, if you'd like, you could read more generally from that page. But, in particular, I'd be interested in you reading the language that's circled in there with respect to a wind project. And maybe just let me know when you've completed reading that.

A (Weiss) All right. I read it.
Okay. So, does it appear to you from reading that that this proposed -- the energy proposed in this RFP is a combination of both hydro and wind?

A (Weiss) It does look that way.
Okay. And, with respect to the wind, does it appear from that that the proposal is to develop 300 megawatts nameplate of new wind
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
resources?
A (Weiss) That's what it says.
Q Okay.
A (Weiss) So, I assume it does.
Okay. So, you know, my questions really center around that, and the competitiveness of the Project in offering into the Forward Capacity Market. Do you recall, in your direct testimony, you had some discussion about, if the Project required the building of new dams, that that would affect the cost of the Project, rather than the energy coming from existing dams?

A (Weiss) Yes.
Q And could you just briefly explain, you know, why is that? Why would new build of dams, how would that affect the overall cost of the Project?

A (Weiss) Well, --
Q It may be obvious, but if you try --
A (Weiss) You don't incur any -- if you can
deliver energy or capacity from a project that
has already been built, its costs are sunk,
then, you know, that is no longer an
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
incremental cost you incur.
If you have to expend new resources -- new costs to build new generation or transmission, that increases the cost of the total project. Okay. So, and that would hold true with respect to say having to, you know, build 300 megawatts of new wind as well, that would hold just as true with that as the conclusions you drew in your direct, is that correct?
(Weiss) Sure.
Okay. And, then, how does that then bear on the competitiveness of the Project in offering into the Forward Capacity Auction? Would that, in turn, cause them presumably to have a higher offer cost in the Forward Capacity Auction?

A (Newell) Well, higher than what? Higher than the scenario where there's no new generation --

Q Yes.
A (Newell) -- backing this up?
Q Yes.
A (Newell) Which we don't know to be the case. Then, yes, probably. Because you would have to include the capital from the hydro -- I'm sorry, from the wind.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

Q Uh-huh.
A (Newell) But there would be other things changing, too, with this different assumption. What else would be changing with that?
(Newell) You would be more likely to be getting some Class I RECs, which add to the revenues that the Market Monitor, you know, views as offsetting the costs.

Q Uh-huh.
A (Newell) And the other thing is -- and that would be in the beneficial direction. Something in the direction that would make it a little harder is that, you know, the total capacity here, you can't just add the 300 megawatts of wind. It doesn't get that much capacity credit, because the wind doesn't always blow when you need it. It gets derated, too, something like 30 percent to that. And, so, when you start thinking about, well, ultimately, the Market Monitor has to come up with what is the cost per kilowatt of capacity. And, if we're talking about, oh, you have to spend all this money, that's in the numerator, cost, per kilowatt of capacity, if you've got
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
less capacity now, because some of it is intermittent wind, the denominator is smaller, you know, the cost per unit is, you know, that would drive it up.

So, if $I$ could just put a fine point on that. When you have 790 megawatts of hydro, you have 300 megawatts nameplate of wind, for capacity purposes, for how it qualifies for capacity in the market, you would, you know, lack of a better term, discount that 300 megawatts of wind, correct?
(Newell) So, hold on. Jürgen just made a really good observation, which is, reading one line down below your circle, is it says that the wind would be "firmed by other hydro generation". And, if that's true, maybe it would have the full capacity. So, that's the best I can say.

Q Okay.
A (Weiss) Yes, I was just going to add. Just from that one half page introduction, to me, it's not clear how much capacity this combined project would be able to offer into the market. It says "700 megawatts" -- "790 megawatts of
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
incremental hydro, plus 300 megawatts of wind, firmed up by incremental hydro". But it's, for example, to me, just reading it, it's unclear whether that "firming hydro capacity" is part of the 790 megawatts that are being proposed or some additional hydro, firm hydro capacity.

Q Okay. Well, if we were to just take it as, for purposes of the discussion, 790 megawatts of hydro, and an additional 300 megawatts of wind, if we just take the wind piece, you were saying earlier about it would not get 300 megawatts of capacity credit. It wouldn't qualify 300 megawatts of wind, if we were just looking at that piece, correct? Because they have to discount it to take -- to take into consideration that the wind doesn't always blow, it's not a firm resource like others, is that correct?

A (Weiss) Yes. You know, I mean, again, so, the -- it could be 300 megawatts, if it were firmed by incremental hydro.

Q Uh-huh.
A (Weiss) But, of course, if that hydro that's firming up is part of the 790 megawatts, then
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
the 790 megawatts couldn't fully qualify in the capacity market.

Q Right.
A (Weiss) So, I think we would need to take more information than is presented here to really understand what the capacity is, --

Q Right.
A (Weiss) -- and the cost.
Q But, in either scenario, presumably it would be less than the sum of 300 and 790. If the 790, part of that is used to firm the wind, then presumably you'd have to discount some of that. If not, you would obviously discount off the 300 nameplate on wind.

A (Weiss) No, I don't -- so, that's two or three possibilities. The third possibility, just from this half page, is that the 790 megawatts of incremental hydro, and there is 300 megawatts of new wind firmed up by incremental hydro that's not part of the 790 megawatts. I just -- we would have to read the full proposal and maybe ask a bunch of questions to really understand how that's put together.

Q Right. Right. Okay. Well, for purposes of
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
this discussion then, let's just focus on -actually, get back to what Dr. Newell was saying, that there are various factors. One of which may be that, if there is a decrease in qualified capacity relative to, say, a straight hydro project that qualified, say, 1,090 megawatts, that's a denominator, right, in figuring out what their offer price is or their offer floor is. A decrease in qualified capacity would have the effect, all else equal, of increasing the offer floor or the economic offer price for that resource. Is that correct?

A (Newell) Yes, all else equal. And under that assumption you just made, that it is not firmed by additional incremental hydro.

Right. Right. And, again, getting back to the new build on the wind, looking strictly at capital costs, costs incurred in order to develop the project, as a general matter, having a new build, having 300 megawatts of new build wind versus a project that is strictly delivering energy from existing dams, would tend to increase the capital costs,
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]
notwithstanding any kind of offsets for renewable energy credits. Is that correct?

A (Newell) Correct. Yes.
A (Weiss) So, I think, and just to clarify that, that's another hypothetical. So, it does say here "incremental hydroelectric generation", sort of, you know, in some sense, like here, I don't know whether that's from existing dams or new dams. Could be either. And, if it's from new dams, then $I$ don't know whether a project that has, say, 1,090 megawatts of hydro, some or all of which from new dams, versus a project that has 790 megawatts of hydro, some or all of which from new dams, plus 300 megawatts of new wind, would be or more or less expensive.

MR. ANDERSON: Okay. Fair enough.
That's all I have. That's all my questions. CHAIRMAN HONIGBERG: Off the record. [Brief off-the-record discussion ensued.]

CHAIRMAN HONIGBERG: Whenever you're ready, Mr. Cunningham.

MR. CUNNINGHAM: Thank you,
Mr. Chair. A few questions. Not so many.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

I recall talking to both of you by phone on some of the technical aspects of your testimony. I'm not going to go technical today.

For the record, my name is Art Cunningham. I'm an attorney. And I represent Kevin Spencer and Mark Lagasse, who are building a lodge and campground in Stark, New Hampshire. It's just about finished. They have got, in terms of dollars and sweat equities, over a million dollars in this project. So, they have quite a bit at stake in this docket.

BY MR. CUNNINGHAM:
Q The thing I'm particularly interested in today is they are also PSNH ratepayers. So, what I want to ask you about is, without getting into the technical aspects of, you know, that LEI forward capacity calculations, as I recall, that LEI calculation was the savings, the economic benefit was somewhere about 90 percent, was it not, based on the forward capacity calculations, LEI forward capacity calculations? That's correct, is it not?
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

A (Newell) Correct, of the electricity market benefits they calculated.

Q Right. Right. And you, I think, in your testimony this morning, said there are a multitude of threshold uncertainties. And, before $I$ get to that, what $I$ want to read, because $I$ think it summarizes your testimony in a nontechnical way on -- it's CFP006007, your testimony, you're updated testimony, "A. NPT Qualification and Clearing". And I just -- I'm going to read it, and I'll try to read it slowly, and see if that summarizes your overall view with respect to the forward capacity calculations that LEI made.

And it goes on, "As explained in our original report, a threshold question for whether NPT has any capacity market impacts is whether NPT can qualify for and clear ISO-New England's capacity auctions. Qualification is based on demonstrating the ability and commitment to reliably provide energy whenever ISO-New England might need it. In particular, this means that NPT has to demonstrate that it has firm access to sufficient capacity
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
resources in summer and in winter, either based on dedicated resources or overall system capacity in Hydro-Quebec, and/or supported by agreements with third parties."

That sentence pretty well summarizes your testimony, does it not?

A (Newell) No. That is one aspect of our testimony. That is, that summarizes considerations around Scenario 3, and that's all.

Q And how would you explain that in layman's terms to a client like mine?

A (Newell) Oh. Well, in order to have these capacity market benefits, you have to be adding capacity to the market, that clears in the market and bumps out other resources and lowers the price. Well, or lowers the price even without bumping out other resources. And there are rules for what it takes to be able to sell into that market. And it's not clear that NPT would pass, considering all those rules. So, that's what it boils down to, does it not? That it's not clear on the evidence that they would qualify into the forward capacity market,
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
as represented by LEI?
A (Newell) I agree with that statement. It's not clear that they would qualify and clear.

Q Another thing that occurred to me as -- and this is, again, explain this from the layman's point of view, and from, like me, a country lawyer's point of view. I looked at the TSA, you're familiar with the TSA, I think you referred to it this morning?

A (Weiss) We referred -- we referred to a different TSA, the one between Hydro-Quebec Production and Hydro-Quebec Transmission.

Q Okay. I think what you were talking about this morning is the so-called "TSA" between

Hydro-Quebec Production and Hydro-Quebec Distribution?

A (Weiss) Transmission.
Q Transmission. And I think you told us that would entail costs of somewhere around $\$ 500$ million to do an interconnection upgrade in Quebec itself?

A (Weiss) That's correct.
Q And there's nothing in that agreement, as you explained this morning, that binds -- legally
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
binds Hydro-Quebec to enter the Forward Capacity Market, is there?

A (Weiss) No. There's definitely nothing in that agreement that does that. In the -- no, it's just that there is nothing in that document, as I read it, that sort of refers to the New England capacity market.

Q That's right. And, so, there's nothing in that agreement that you described in detail this morning that obligates Hydro-Quebec to even bid into the Forward Capacity Markets. I'm repeating myself. But $I$ want to make it perfectly clear that they have no legal obligation under that agreement to enter the forward capacity markets in ISO-New England?

A (Weiss) So, I believe that's true. But I also wouldn't expect that document to be one that creates that sort of obligation.

Q Yes. And $I$ certainly agree with that. You're also familiar, are you not, with the so-called "TSA" between Hydro-Quebec and Northern Pass Transmission?

A (Weiss) Yes.
Q And have you read that document in detail?
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

1

A (Weiss) Define "in detail", it may be hard, but I did read it entirely, now probably about 8 months ago.

Q And is there anything -- let me ask you another layman's question/country lawyer question. Is there anything in the TSA that obligates Hydro-Quebec to bid into the Forward Capacity Market?

A (Weiss) I don't recall, either way.
Q If I told you I read that document page to page, paragraph to paragraph, sentence to sentence, $I$ could find nothing in that agreement that obligates Hydro-Quebec to bid into the Forward Capacity Market?

A (Newell) I think, in either case, I don't think we're going to opine on what a legal document says and what obligations it places on. That's not our role or expertise.

Q Okay. And another thing, again, from my country lawyer point of view, Hydro-Quebec is not a party to this docket at all, is it? (Weiss) I think that's our understanding, but yes. They're a party, they're an interested party in some ways. But they're not part of
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
this docket, I agree.
Q But, if this panel had questions about their capacity or their ability to bid into the Forward Capacity Market, they have no representative here or any testimony here that we can examine the integrity and credibility on their representations, is there?

MR. NEEDLEMAN: Objection. First of all, I'm not sure how these witnesses could answer these questions. Second of all, the record is the record.

CHAIRMAN HONIGBERG: Yes. Mr.
Cunningham, what you got here?
MR. CUNNINGHAM: What $I$ have here, Mr. Chair, is that $I$ think it's a fatal flaw in this application that Hydro-Quebec is not a party to this docket.

CHAIRMAN HONIGBERG: Okay. That's a great argument. What does it have to do with these witnesses, the testimony by these witnesses?

MR. CUNNINGHAM: It has to do with
the question of what -- about the factual aspects of the capacity, and Hydro-Quebec's
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

## [WITNESS PANEL: Newell|Weiss]

ability to bid into the Forward Capacity
Market. Whether they have equipment
breakdowns; whether they have a lack of capacity; whether they have the necessary excess capacity.

CHAIRMAN HONIGBERG: Okay. I don't
now even remember what the question specifically was that you asked them. But I think it was "they're not here, and we can't test their position", right?

MR. CUNNINGHAM: That's correct, Mr. Chair.
CHAIRMAN HONIGBERG: I'm going to sustain the objection.

BY MR. CUNNINGHAM:
Q The other aspect -- the other aspect of the LEI testimony was that there was going to be market benefits based on the wholesale price by reason of the Northern Pass entry or Hydro-Quebec entry into the New England market, correct?

A (Newell) That, if $I$ understood your question correctly, that, yes, they -- that they have talked a lot about the market benefits of, and so did we, of Northern Pass.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

Q Yes. And I think, if I recall the LEI testimony, that was somewhat -- the forward capacity was 90 percent of the benefit, and the other benefit was the market benefit is 10 percent, correct? Is that a fair statement?

A (Newell) That "capacity was 90 percent", and I missed what you said was accounting for the 10 percent?

Q The 10 percent was just the fact that the Project entered the market and had some impact on wholesale market prices?

A (Newell) No.
Q Explain please.
A (Newell) No. It was around 90 percent was from lowering capacity market prices, and around 10 percent was from lowering energy market prices. Q And that's -- that's what $I$ was asking. So, the 10 percent relates to energy market prices?

A (Newell) Correct.
Q And you took a position on that $I$ think as well, did you not?

A (Newell) Well, we actually said that we thought that what LEI did was perfectly reasonable in the energy market analysis. Of course, you
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
know, setting aside our Scenario 4 idea, where it was "is this really any different from having a competing project?" But we basically adopted their energy market impacts.

Q Yes. And did you, in that connection, and this takes me back to my question about my clients being PSNH ratepayers, did you, in your analysis, do an examination of the impacts on PSNH ratepayers?
(Newell) Implicitly, yes. I mean, we were looking at what happens to the, you know, the bills of electric customers in New Hampshire, which includes PSNH in a big way.

And the specific question $I$ have, if you look on your screen, if you look on your screen, if you see, this is a reference to the $T S A$ on Page 56. Let's back up a bit. There's provisions in the $T S A$ that the $A C$ portion of the line can be transferred from Northern Pass Transmission to PSNH. Do you recall or did you study that particular clause in the TSA?

A (Weiss) So, I don't recall that provision. Do you have it in front of you?
(Weiss) If you point us to it, then --
\{SEC 2015-06\}[Day 52/Morning Session ONLY] \{10-26-17\}

Q Yes. It's on Page 56. It's Section 8.6 in the Transmission Service Agreement.

A (Weiss) So, I'm done reading it.
Q Have you read it? Have you looked at Section 8.6?

A (Weiss) I've looked at Section 8.6, (a), (b), (c), and a partial (d) at this point.

Q And, if $I$ understand that language, it contemplates that Northern Pass, as an entity, will transfer the $A C$ portion of the line back to PSNH. Am I correct on that?
(Weiss) It seems to create the option for that.
Q And could you explain, as experts in this field, why Northern Pass Transmission would want to transfer the AC portion of the line back to PSNH?

A (Newell) You know, I think it's really hard to say. I mean, you know, what is the -- I mean, are you saying in general? I mean, I'm not sure we're going to have a, you know, an expert opinion to bring to bear on at least the questions you've asked so far. Well, let me ask it this way. If that happens, and it's obviously authorized under the TSA, if
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
that happens, what, if any, impact will that have on PSNH ratepayers?

A (Weiss) We haven't analyzed that.
Q And, if you go down through Section 8.6, it contemplates, does it not, and there's language in there, does it not, that PSNH can recover costs of the construction of the AC portion of the line, does it not?

A (Weiss) So, it does seem to say that. But that, by itself, doesn't, $I$ mean, tell me, tell us what, if any, impact that will have on PSNH ratepayers.

A (Newell) Also, you know, we haven't analyzed this. We don't fully know the applicability of this document. I mean, it's just $I$ don't think we're going to be able to, you know, inform anybody very much on what to make of this.

Q Well, I guess my layman's question/country lawyer question again, if all of a sudden that PSNH owns the AC portion of the line, and it can recover its costs, it will be recovering those costs from PSNH ratepayers, will it not?

A (Weiss) So, I'm going to answer without answering specifically. Because, as Sam
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
pointed out, we have not analyzed this. But I'm just going to answer you why $I$ don't think you will. So, it is entirely possible that this transaction might, you know, shift the burden of recovering the cost of a portion of the line to PSNH. But, for example, it could also mean that some portion of the revenues of the power flowing over that line gets credited, credited against that cost.

So, from what you're showing here, we don't know, and we haven't analyzed what impact that might have on the revenue requirement of PSNH, for example.

Q So, it's a great unknown, is it not?
A (Weiss) I don't know whether it's a "great unknown".

But it's a significant unknown, is it not?
(Newell) We just don't know what to make of this document and its applicability or its implications.

Q Did LEI analyzed the language in the TSA that allows NPT to transfer the AC portion of the line back to PSNH?

A (Weiss) I mean, LEI would know whether they
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
did. I don't know whether LEI analyzed that question.

Q And do we know, just suppose that this happens, that NPT transfers the AC portion of the line back to PSNH, and it has ratepayer implications on PSNH ratepayers, including my clients. Do we know what those costs would be?

A (Weiss) So, I didn't -- sorry, we were conferring. Can you repeat that question?

Okay. Assume that scenario happens, that NPT transfers the $A C$ portion of the line back to PSNH, and it has implications for PSNH ratepayers. Do we know what those costs are or what those costs would be?

A (Weiss) So, as we stated, we haven't looked at it. So, we don't know.

So, you don't know, and I assume LEI does not know what the cost of construction of the $A C$ portion of the line is?

A (Weiss) So, again, I don't know what LEI does and doesn't know in that respect. We're the wrong parties to ask that.

Okay. And you don't know?
(Weiss) No.
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

Line to Lessor." In other words, that's a conveyance of the line, underline line, or right-of-way, from NPT back to PSNH. "Lessee may, in the exercise of Lessee's sole discretion, transfer to Lessor the AC Line, and Lessor may, in the exercise of Lessor's sole discretion, accept such transfer".

And going on to Page 8: "This section illustrates the close related-party relationship between lessor and lessee in the proposed lease. The AC line represents approximately 72.4 percent", and this is what $I$ want to emphasize, "the AC line represents approximately 72.4 percent of the total value reported in the Appraisal Report. A transfer of the AC line eliminates almost three-quarters of rent required under the lease."

You're not familiar with this document, are you?

MR. NEEDLEMAN: Objection. Relevance
and beyond the scope of their testimony.
CHAIRMAN HONIGBERG: It certainly
does appear to be that. But $I$ think the only
question was "are you familiar with this
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

## [WITNESS PANEL: Newell|Weiss]

document?"
BY MR. CUNNINGHAM:
Q Are you familiar with this docket [document?]?
A (Weiss) No.
A (Newell) No.
Q And do you know, and I think I already know the answer based on your previous answers, is the 72.4 percent of the value of the AC portion of the line attributable to the AC portion of the line?

MR. NEEDLEMAN: Same objection.
CHAIRMAN HONIGBERG: Mr. Cunningham.
MR. CUNNINGHAM: Well, it's just
again the great uncertainty, Mr. Chair, here
that we do not know what ratepayer implications
that this intercompany transfer will have on
PSNH ratepayers.
CHAIRMAN HONIGBERG: I don't think
these witnesses can help you with that. The objection is sustained.

MR. CUNNINGHAM: Thank you,
Mr. Chair.
CHAIRMAN HONIGBERG: All right.
We're going to take our lunch break. We'll
\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}
[WITNESS PANEL: Newell|Weiss]

1


\{SEC 2015-06\}[Day 52/Morning Session ONLY]\{10-26-17\}

|  | 131/21 132/11 | 74/24 75/9 |
| :---: | :---: | :---: |
| ADMIN. | 132/17 132/22 | WITNESS |
| MONROE: [1] 5/2 | MR. ANDERSON | NEWELL: [5] |
| BY MR. | [14] 75/11 75/13 | 4/13 65/5 75/17 |
| ANDERSON: [10] | 75/18 75/20 80/17 | 86/19 98/10 |
| 75/23 78/24 80/18 | 81/20 85/13 85/17 | WITNESS |
| 81/24 85/21 86/8 | 86/6 105/8 106/2 | WEISS: [5] 4/12 |
| 86/23 93/7 98/11 | 106/8 106/13 | 4/24 5/4 75/16 |
| 3/7 | 115/15 | 75/19 |
| MR. | MR. | \$ |
| CUNNINGHAM: |  | \$1.3 [1] 70/15 |
| [4] 116/13 123/14 |  | \$20 [1] 56/12 |
| 130/17 132/1 | 122/21 123/10 | \$25[1] 56/8 |
| BY MR. PAPPAS: | 130/15 | \$30 [2] 56/8 56/12 |
| [12] 4/17 5/10 |  | \$4.3[1] 70/17 |
| 19/24 27/17 29/16 |  | \$5 [2] 61/24 62/4 |
| 33/18 38/7 39/5 |  | \$5.30 [3] 36/18 37 |
| 62/20 64/17 65/11 | $\begin{aligned} & \mathbf{1 0 6 / 9} \\ & \text { MR. } \end{aligned}$ | 43/5 |
| 71/7 | NEEDLE | \$50 [2] 57/18 61/21 |
| HONIGBERG: | [10] 28/16 32/12 | \$500 [3] 35/11 |
| [33] 4/1 4/9 28/20 | 32/14 33/10 37/12 | 36/24 119/19 |
| 29/4 32/13 32/21 | 70/17 70/19 122/7 | \$600 [1] 35/2 |
| 33/9 33/15 37/14 | 131/19 132/10 |  |
| 64/14 | MR. PAPPAS: | '21 [1] 10/15 |
| 65/8 70/18 70/24 | [11] 4/10 29/1 | 0 |
| 74/21 75/3 75/7 |  | 0.1 [1] 25/19 |
| 75/10 81/22 85/16 | 37/15 38/10 64/7 | 01 [2] 40/10 40/21 |
| 85/18 105/21 | MR. REIMERS: | 013 [1] 24/6 |
| 122/11 122/17 | [1] 75/6 | 05-01-16 [1] 3/5 |
| 123/5 123/12 | MS. PACIK: [2] | 05-01-17 [1] 3/8 |


| 0 | 96/10 102/22 | 17th [1] 33/12 |
| :---: | :---: | :---: |
| 06 [1] 1/7 | 11-13-17 [1] 1/6 | 18 [16] 8/16 8/19 |
| 08-17-17 [1] 3/10 | 112.52 [1] 41/5 | 11/11 11/16 13/8 |
| 1 | 113 [2] 3/15 130/17 | 13/24 18/20 18/23 |
| 1,090 [2] 114/6 | $116[1] ~ 3 / 8$ 12 |  |
| 115/11 | 92/14 93/11 94/23 | 26/12 40/24 |
| 1,275 [5] 19/14 | 95/1 95/21 96/9 | 1:30 [1] 133/1 |
| /15 21/2 21/13 | 102/22 | 2 |
| 22/21 | 120 [1] 43/2 |  |
| 1,527 [1] 21/6 | 129.47 [1] 41/7 | 2,415 [1] 25/7 |
| 1.1.1 [1] 91/8 | 12:28 [1] 133/2 | 20 [2] 42/22 72/1 |
| 1.11 [1] 130/24 | 13 [3] 11/1 11/5 | 2014 [1] 23/12 |
| 1.2 [1] 82/13 | 26/11 | 2015-01 [2] 40/10 |
| 1.6 [6] 54/12 54/15 | 130 [1] 3/15 | 40/21 |
| 54/22 54/23 55/22 | 142 [1] 5/14 | 2015-06 [1] 1/7 |
| 57/21 | 143 [3] 6/2 80/7 | 2016 [11] 13/18 |
| 10 [11] 5/14 6/2 | 80/12 | 22/3 39/24 80/17 |
| 42/3 43/1 61/23 | 14305 [1] 17/16 | 81/5 84/16 85/1 |
| 62/9 124/4 124/7 | 14314 [1] 42/5 | 85/4 90/20 91/17 |
| 4/9 124/15 | 14324 [1] 45/14 | 95/4 |
| 24/18 | 144 [3] 6/16 7/21 | 2016-2017 [7] 21/1 |
| 102 [3] 8/13 47/8 | 66/11 | 21/23 22/6 22/15 |
| 51/23 | 145 [1] 7/6 | 24/14 24/24 26/3 |
| 106 [1] 3/13 | 15 [4] 77/9 77/15 | 2016-2020 [1] |
| 10:38 [1] 64/12 | 89/6 89/7 | 26/20 ${ }^{\text {2016-2025 [1] } 3 / 4}$ |
| 10:55 [1] 64/14 | 15-464 [2] 3/16 | 2016-2025 [1] 3/4 |
| 11 [16] 10/8 20/22 | 130/12 | 2017 [39] 1/3 5/14 |
| 21/15 36/17 37/8 | 16 [1] 3/5 | 6/3 6/16 7/6 8/7 |
| 38/19 39/5 43/4 | 17 [9] 1/6 3/8 3/10 |  |
| 88/15 88/19 93/12 | 6/16 7/6 8/7 8/12 | 22/15 24/14 24/24 |
| 94/22 95/1 95/21 | 27/14 82/21 | 26/3 27/14 32/24 |


| 2 | 268 [1] 24/16 | 34,000 [2] 79/21 |
| :---: | :---: | :---: |
| 2017... [21] 39/20 | 271 [1] 13/7 | 79/23 |
| 39/21 41/2 44/21 | 273 [2] 34/7 34/10 | 34,075 [1] 94/22 |
| 46/9 46/18 47/8 | 275 [2] 30/3 33/22 | 34,342 [3] 18/11 |
| 51/13 80/8 80/11 | 277 [1] 26/18 | 19/2 25/3 |
| 81/7 83/16 84/8 | 28 [1] 44/21 | 39,648 [1] 14/22 |
| 84/16 85/2 85/5 | 29 [1] 3/17 | 4 |
| 86/11 90/20 91/17 | 29,436 [1] 94/1 | 400 [5] 85/4 87/10 |
| 95/4 95/16 | 29,601 [1] 93/17 | 89/9 89/15 89/15 |
| 2017-2026 [1] 3/7 | 29191 [1] 84/13 | 41,427 [2] 12/9 |
| 2018 [1] 41/5 | 29600 [1] 82/22 | 12/11 |
| 2020 [9] 10/14 | 29601 [1] 82/17 <br> 29960 [1] 86/13 | 410 [2] 84/17 84/19 |
| 26/20 82/10 84/11 | 29960 [1] 86/13 | 43 [1] 51/23 |
| 86/1 87/3 88/14 | 3 | 440 [1] 86/23 |
| 91/2 91/23 | 3,285 [3] 26/8 26/10 | 450 [1] 89/13 |
| 2021 [9] 8/21 11/13 | 26/14 | 455 [1] 87/5 |
| 22/1 22/3 22/13 | 3,974 [2] 25/16 26/8 | 464 [2] 3/16 130/12 |
| 22/23 83/4 84/24 | 30 [3] 70/14 72/1 | 49 [1] 1/4 |
| 92/13 | 110/18 | 5 |
| 2021-2022 [1] 3/11 | 300 [15] 107/24 |  |
| 2022 [5] 3/11 11/8 | 109/6 110/14 111/7 | 50 [7] 57/23 58/8 58/9 59/7 59/10 |
| 83/4 84/24 92/13 | 111/10 112/1 112/9 | 58/9 59/7 59/10 |
| 2023 [4] 13/21 14/1 | 112/11 112/12 | 59/12 93/11 |
| 86/2 86/5 | 112/20 113/10 | 50/50 [1] 93/11 |
| 2025 [3] 3/4 81/5 | 113/14 113/18 | 500 [7] 12/15 13/9 |
| 85/9 | 114/21 115/14 | 13/19 13/23 35/7 |
| 2026 [5] 3/7 14/24 | 30415 [1] 86/6 | 40/22 41/1 |
| 41/2 42/1 83/16 | 30507 [1] 85/10 | 52 [5] 1/3 4/3 133/3 |
| 26 [1] 1/3 | 310-A:173 [1] | 133/7 134/18 |
| 266 [4] 11/16 14/4 | 134/19 | 56 [5] 19/7 19/10 |
| 18/22 20/3 | 327 [1] 3/9 | 25/5 125/17 126/1 |
| 267 [2] 23/4 23/20 | 33,725 [1] 94/23 | 597 [6] 15/10 19/5 |


| 5 | 83D [3] 3/13 106/24 | 127/16 |
| :---: | :---: | :---: |
| $\begin{aligned} & 597 \ldots[4] 20 / 621 / 3 \\ & 21 / 2122 / 7 \\ & 599[4] 39 / 840 / 6 \\ & 42 / 542 / 11 \end{aligned}$ | 107/4 | about [64] 8/5 8/1 |
|  | 848 [1] 91/2 | 11/20 22/2 27/13 |
|  | 9 | 7/17 29/18 29/2 |
|  | 90 [6] 9/12 69/2 | 32/20 33/8 38/2 |
| 6 | 116/21 124/3 124/6 |  |
| 600 [4] 34/17 44/16 | 124/14 | 53/14 53/22 60/2 |
| 44/24 45/16 | $92 \text { [1] 3/9 }$ | 61/18 61/21 61/2 |
| 607 [1] 33/23 | 94 [1] 22/21 <br> 94 megawatts [1] | 62/4 62/9 62/14 |
| 62 [1] 8/15 | $\underset{21 / 15}{94} \text { megawatts [1] }$ | 63/9 63/21 64/20 |
| 676 [1] 91/24 |  | 66/3 66/15 66/18 |
| 7 | 9636 [1] 34/18 | /236711 |
| 700 [1] 111/24 | 9637 [1] 34/10 | 69/9 70/17 |
| 72.4 [3] 131/12 | 9649 [1] 33/21 | 76/2 |
| 131/14 132/8 | 9760 [1] 27/4 | 76/13 84/5 86/23 |
| [1] $2 / 7$ | 9:00 [1] 1/3 | 3/15 |
| 79-kilometer [1] | A | 110/1 |
|  | a.m [3] | 0/22 112/11 |
| 790 [11] 111/6 <br> 111/24 112/5 112/8 | 64/14 | 1 |
| 112/24 113/1 | A/O [2] 40/10 40/21 | 116/21 119/1 |
| /10 113/10 | $\begin{aligned} & \text { A:173 [1] 134/19 } \\ & \text { abandoned [1] } \\ & \mathbf{3 1 / 1 8} \end{aligned}$ | 121/2 122/2 122 |
| $\text { 113/17 } 113$ |  | 123/23 12 |
|  |  | above [5] 19/18 |
| 8 |  | 3/4 |
|  | $2 / 3$ | absent [1] 32/2 |
| [/6 127/4 | 134/8 | absolute [1] 97/19 |
| 80 [1] 3/4 | able [9] 11/6 56/1 | Absolutely [1] |
| 800 [1] 91/22 | 76/24 | 35/19 |
| 83 [1] 3/6 | 77/2 111/23 118/19 | abstracting [ |


| A | 134 | adopt [4] 5/21 6/12 |
| :---: | :---: | :---: |
| abstracting... [1] | actually [24] 7/21 $9 / 2112 / 2415 / 7$ | 6/24 7/14 |
| 101/12 | $\begin{aligned} & 9 / 21 ~ 12 / 24 ~ 15 / 7 \\ & 22 / 2242 / 244 / 8 \end{aligned}$ | adopted [1] 125/4 <br> Affairs [1] 1/16 |
| AC [17] 125/18 | 56/10 58/14 60/7 | affect [7] 69/18 |
| 126/10 126/15 | 64/3 66/4 75/2 76/1 | 79/7 97/11 98/17 |
| 128/22 129/4 | 76/12 87/1 88/4 | 100/13 108/11 |
| 129/11 129/18 | 88/5 88/18 97/24 | 108/17 |
| 130/3 130/24 131/5 | 98/24 103/1 114/2 | affirm [4] 5/21 |
| 131/11 131/13 | 124/22 | 7/17/14 |
| 131/16 132/8 132/9 | actuary [1] 61/2 | after [3] 41/2 60/4 |
| accept [1] 131/7 | $\begin{array}{ccccc} \text { add [7] } & 36 / 244 / 8 \\ 62 / 4 & 73 / 22 & 110 / 6 \end{array}$ | $\begin{array}{\|l\|} \hline \text { 133/1 } \\ \text { Afternoon [1] } \end{array}$ |
| access [1] 117/24 | 62/4 73/22 110/6 <br> 110/14 111/20 | $\begin{aligned} & \text { Afternoon [1] } \\ & \text { 133/7 } \end{aligned}$ |
| $\begin{aligned} & \text { accommodate [1] } \\ & \mathbf{3 1 / 8} \end{aligned}$ | added [2] 36/24 | again [37] 12/2 |
| according [4] 16/14 | 38/24 | 19/4 23/23 25/2 |
| 59/19 91/8 96/18 | adding [2] 60/10 | 30/10 36/5 37/16 |
| account [1] 26/13 | 118/14 | 57/1 57/10 60/12 |
| accounted [1] 69/2 | additional [4] | 61/19 62/13 62/19 |
| accounting [1] | 60/20 112/6 112/9 | 63/23 65/14 70/11 |
| 124/7 | 114/16 | 80/11 82/2 82/4 |
| accurate [2] 37/21 | address [3] 67/2 | 89/20 90/24 91/6 |
| 134/5 | 69/19 71/13 | 95/3 96/15 97/16 |
| acknowledged [2] | addressed [2] 64/21 | 98/18 99/12 99/17 |
| 51/15 60/13 | 68/9 | 102/2 102/18 |
| acquires [2] 15/3 | addressing [2] | 112/19 114/17 |
| 15/4 | 67/10 72/14 | 119/5 121/19 |
| acronym [1] 27/16 | adjust [1] 41/24 | 127/19 129/20 |
| acronyms [1] 29/4 | Administration [2] 58/14 59/3 | 132/14 |
| $\begin{aligned} & \text { across [3] 41/1 55/3 } \\ & 100 / 1 \end{aligned}$ | Administrator [1] $1 / 21$ | $\begin{aligned} & \text { against [2] 60/24 } \\ & \text { 128/9 } \\ & \text { ago [5] 18/2 } 24 / 18 \end{aligned}$ |


| A | 92/22 96/18 98/15 | alternative [2] |
| :---: | :---: | :---: |
| ago... [3] 71/9 74/2 | 99/3 103/22 105/5 | 51/11 |
| 121/3 | 105/22 107/16 | although [2] 48/19 |
| agree [8] 13/2 | 110/23 114/10 | 49/12 |
| 82/16 83/17 84/14 | 114/14 115/12 | always [4] 77/1 |
| 94/23 119/2 120/19 | 115/13 115/17 | 91/18 110/17 |
| 122/1 | 115/17 118/10 | 112/16 |
| agreement [13] | 118/21 121/21 | am [6] 29/19 88/5 |
| 12/15 13/10 13/17 | 122/9 122/10 | 126/11 134/10 |
| 30/9 31/10 31/12 | 127/19 132/23 | 134/12 134/14 |
| 34/4 119/23 120/4 | allow [2] 22/10 | among [1] 15/4 |
| 120/9 120/14 | 55/7 | amount [11] 20/16 |
| 121/13 126/2 | allowed [1] 38/24 | 20/24 32/3 49/9 |
| agreements [1] | allows [1] 128/22 | 49/14 49/17 50/2 |
| 118/4 | almost [1] 131/16 | 50/11 72/8 90/13 |
| ahead [5] 22/4 28/9 | alone [1] 97/1 | 91/9 |
| 59/4 75/2 75/5 | already [7] 19/18 | analogue [2] 56/21 |
| all [66] 5/8 12/4 | 28/19 38/17 47/21 | 57/1 |
| 12/14 15/8 25/15 | 102/8 108/23 132/6 | analysis [37] 9/5 |
| 28/21 29/6 29/7 | also [37] 1/19 4/24 | 27/13 28/10 28/15 |
| 29/24 32/16 35/23 | 5/8 5/9 6/1 7/4 10/2 | 29/19 29/20 32/24 |
| 36/15 37/14 39/15 | 16/11 16/12 21/20 | 33/2 33/12 33/14 |
| 48/1 50/21 52/18 | 21/24 26/10 26/13 | 35/10 37/2 37/17 |
| 52/24 53/3 53/6 | 27/24 31/15 32/7 | 37/21 38/20 38/24 |
| 54/2 54/18 58/9 | 37/24 38/19 44/10 | 46/11 47/24 52/23 |
| 64/10 65/13 66/5 | 46/9 46/17 47/13 | 65/20 69/24 70/8 |
| 68/15 68/20 68/21 | 51/15 53/11 62/10 | 71/24 73/10 80/15 |
| 70/23 73/12 73/15 | 71/1 74/4 75/4 76/1 | 82/20 87/20 88/13 |
| 73/15 74/15 74/22 | 76/8 76/9 83/5 | 88/22 89/18 95/6 |
| 79/13 79/17 79/19 | 116/16 120/16 | 96/5 96/14 98/23 |
| 84/21 87/9 87/10 | 120/20 127/13 | 101/21 124/24 |
| 88/1 90/16 92/6 | 128/7 | 125/8 |


| A | answering [1] | Appearances [1] |
| :---: | :---: | :---: |
| analyze [2] 73/24 | 127/24 | 1/23 |
| 74/9 | answers [2] 68/20 | appeared [1] 27/13 |
| analyzed [7] 53/4 | 132/7 | appears [6] 14/2 |
| 127/3 127/13 128/1 | anticipated [1] 21/4 | 46/9 83/2 83/18 |
| 128/11 128/21 | any [36] 5/19 6/9 | 87/2 92/3 |
| 129/1 | 6/20 7/12 14/11 | appendix [1] 30/11 |
| analyzing [2] 35/17 | 14/14 20/10 20/10 | applicability [2] |
| 37/17 | 29/22 31/20 36/21 | 127/14 128/19 |
| and/or [1] 118/3 | 47/18 47/19 47/23 | applicable [1] 21/1 |
| Anderson [3] 2/7 | 50/6 50/8 50/12 | Applicant [1] 107/1 |
| 75/11 106/5 | 53/9 63/19 68/20 | Applicants [6] 8/13 |
| annex [6] 16/2 23/9 | 73/18 90/12 90/18 | 47/7 51/22 74/7 |
| 23/10 23/11 30/11 | 97/4 100/4 104/7 | 74/10 74/18 |
| 39/16 | 108/21 115/1 | application [4] 1/8 |
| announced [1] | 117/17 122/5 125/2 | 3/13 106/24 122/16 |
| 13/18 | 127/1 127/11 130/1 | applied [2] 88/17 |
| annual [3] 16/3 | 134/11 134/13 | 95/6 |
| 16/6 23/10 | anybody [4] 20/10 | applies [2] 23/22 |
| another [17] 23/9 | 65/8 73/1 127/17 | 54/15 |
| 49/16 51/8 51/12 | anymore [1] 32/12 | apply [4] 53/7 |
| 52/13 64/7 68/8 | anything [10] 36/20 | 54/22 56/16 56/19 |
| 68/8 79/23 81/22 | 57/23 59/7 59/12 | Appraisal [3] |
| 83/9 92/6 105/6 | 59/13 60/21 102/10 | 130/10 130/20 |
| 115/5 119/4 121/4 | 104/4 121/4 121/6 | 131/15 |
| 121/19 | apart [1] 87/7 | appraiser [1] |
| answer [8] 38/18 | APP54053 [1] 47/7 | 130/14 |
| 57/13 69/21 99/19 | appear [12] 19/11 | approach [4] 49/3 |
| 122/10 127/23 | 20/17 20/19 82/4 | 49/4 71/13 71/15 |
| 128/2 132/7 | 82/4 84/4 92/21 | approached [1] |
| $\begin{aligned} & \text { answered [2] 38/17 } \\ & 39 / 4 \end{aligned}$ | $\begin{aligned} & \text { 93/12 107/3 107/17 } \\ & \text { 107/23 131/23 } \end{aligned}$ | $\begin{aligned} & 73 / 9 \\ & \text { approval [1] 31/6 } \end{aligned}$ |

## A

approximately [10] 9/12 34/16 35/3
35/11 36/24 42/24 43/1 84/17 131/12 131/14
April [12] 6/16 7/6 8/7 8/12 27/14 32/24 33/12 46/9 46/18 47/8 51/13 76/8
April 17 [2] 6/16 7/6
April 2017 [4] 46/9 46/18 47/8 51/13 are [79] 9/2 12/8 12/18 12/23 12/24 13/10 15/18 17/9 19/16 20/20 22/2 28/22 30/13 31/12 31/23 31/24 36/6 36/10 36/11 36/15 39/17 40/13 40/19 41/12 45/21 48/11 48/22 50/8 50/14
52/1 52/24 53/11
54/4 55/6 58/9
58/17 60/23 61/5
65/22 66/10 67/10 67/19 67/20 67/20 68/15 68/17 69/11 70/5 70/13 71/9

71/21 71/22 73/16 74/10 75/16 78/13 90/11 92/19 95/23 100/12 100/18 100/19 101/13 101/20 105/14 108/23 112/5 114/3 116/7 116/16 117/4 118/19 120/20
126/19 129/13
130/3 131/19
131/24 132/3
area [1] 74/14
argue [1] 66/15 argument [2] 59/6 122/19
around [6] 35/7 108/6 118/9 119/19 124/14 124/15 arrive [1] 90/2
Art [1] 116/5
as [68] $1 / 133 / 16$
9/3 10/3 13/16 16/6 16/22 18/19 18/23
21/17 22/5 22/6
24/11 26/11 28/4
29/3 40/15 40/23
41/4 43/13 50/3
54/19 55/14 55/15
61/7 61/17 66/22
72/11 72/15 76/11 80/7 80/21 83/23

85/24 86/22 89/2 89/22 92/8 94/19 96/8 101/7 103/10 103/19 103/23
105/20 106/12
106/20 107/2 107/2
109/7 109/8 109/8
110/7 112/7 114/20
116/19 117/15
119/1 119/4 119/23
120/5 124/20 126/9
126/13 127/24
129/15 130/17
133/6
aside [1] 125/1
ask [29] 11/20
15/18 27/12 28/11
29/8 29/18 29/24
31/6 40/3 47/17
48/15 52/4 53/14
63/9 64/19 65/13
71/12 84/10 84/21
93/4 97/1 102/16
105/10 106/1
113/22 116/17
121/4 126/23
129/22
asked [6] 38/15 40/15 73/11 100/15 123/8 126/22 asking [17] 8/5
8/10 22/18 32/19
asking... [13] 33/8
38/3 45/19 68/7
91/15 93/23 97/9
97/18 97/21 97/23
98/18 102/3 124/17 aspect [3] 118/7 123/16 123/16 aspects [4] 62/13
116/2 116/18 122/24
assessment [1] 16/9 associated [2] 47/10 47/14
assume [7] 13/4 42/19 69/13 94/2 108/4 129/10 129/17
assumed [2] 29/20 46/11
assumes [1] 71/24 assuming [1] 70/12 assumption [2]
110/3 114/15
assumptions [4] 65/19 66/14 73/14 73/17
attached [1] 7/22
Attachment [2]
3/15 3/16
attempt [1] 74/17
attention [4] 82/9

89/20 102/14 105/6 attorney [3] 116/6 134/10 134/13 attributable [1] 132/9
auction [26] 3/12
10/7 10/17 10/22
22/17 26/6 28/2
28/3 28/11 28/14 30/17 35/18 35/22
36/17 37/8 45/22
46/15 78/18 79/3
79/8 79/22 92/14
94/18 100/2 109/13 109/15
auctions [3] 39/3 46/1 117/19
August [1] 95/16 authorized [1] 126/24
available [6] 17/13
21/23 22/9 22/16 25/16 26/4
average [1] 100/22
aware [1] 90/11
B
back [34] 11/19
14/3 19/4 23/23
26/13 38/12 38/14 66/6 76/12 82/2
83/21 85/6 85/8 85/10 85/23 86/8

88/1 91/20 93/18 93/19 98/1 101/13
103/1 114/2 114/17 125/6 125/17
126/10 126/16
128/23 129/5
129/11 131/3 133/1 backed [1] 21/14
background [2]
28/22 29/11
backing [1] 109/19
backup [1] 29/11
backup and [1] 29/11
Bailey [1] 1/14
balance [3] 17/1
17/4 23/14
balances [2] 16/5 16/9
ballpark [3] 65/23 66/15 70/2
base [6] 55/13 89/1
101/1 101/4 101/5 102/5
based [18] 21/11
21/19 21/22 24/2
24/6 26/7 60/19
88/23 89/3 95/23
96/17 97/1 101/4
116/22 117/20
118/1 123/18 132/7
baseline [1] 76/11

| B | 87/15 88/11 89/2 | 127/24 |
| :---: | :---: | :---: |
| basically [10] 16/24 | 89/16 91/4 92/3 | becomes [1] 77/11 |
| 22/19 23/13 30/7 | 92/21 93/12 94/8 | been [10] 28/20 |
| 30/19 32/9 39/18 | 96/6 96/18 97/6 | 32/17 33/15 41/19 |
| 50/17 73/24 125/3 | 97/23 99/10 99/18 | 53/22 68/16 88/9 |
| basics [1] 105/20 | 99/20 100/22 102/4 | 100/6 108/23 130/1 |
| basis [2] 77/11 | 102/5 106/10 107/3 | before [12] 31/18 |
| 77/13 | 107/12 108/20 | 33/12 39/23 60/5 |
| Bates [9] 16/18 | 109/21 110/2 110/4 | 69/10 82/3 85/23 |
| 17/15 26/22 33/20 | 110/5 110/5 110/11 | 92/21 96/11 96/24 |
| 34/9 42/4 42/10 | 111/15 111/23 | 102/15 117/6 |
| 45/13 47/7 | 112/20 113/9 114/4 | beforehand [1] |
| battle [2] 65/2 | 115/9 115/15 | 75/3 |
| 65/15 | 118/14 118/19 | Beginning [1] |
| be [103] 10/22 11/6 | 120/17 121/1 | 10/10 |
| 18/15 20/21 20/23 | 123/17 125/19 | begins [2] 45/17 |
| 21/1 22/7 22/9 26/4 | 127/16 127/21 | 82/13 |
| 26/7 27/19 27/24 | 129/7 129/14 130/4 | behalf [1] 45/2 |
| 28/13 30/8 36/21 | 131/23 | behind [15] 68/18 |
| 37/3 37/11 38/3 | bear [5] 99/23 | 84/7 86/4 90/4 |
| 38/21 39/2 39/2 | 100/3 103/22 | 90/10 90/14 90/22 |
| 43/8 43/9 45/21 | 109/11 126/21 | 91/1 91/8 91/10 |
| 45/23 46/2 46/12 | because [25] 12/22 | 91/10 92/2 93/6 |
| 47/18 48/10 56/15 | 19/17 33/4 48/24 | 93/10 104/6 |
| 58/7 58/21 59/14 | 56/21 56/22 60/14 | behind-the-meter |
| 60/19 61/6 61/14 | 61/18 68/22 70/6 | [12] 84/7 86/4 90/4 |
| 61/20 62/8 63/18 | 71/6 72/10 88/6 | 90/10 90/14 90/22 |
| 64/7 67/16 68/6 | 96/3 98/5 102/2 | 91/1 91/8 91/10 |
| 68/23 68/24 74/5 | 104/3 104/14 | 92/2 93/6 93/10 |
| 74/24 75/5 76/24 | 104/15 109/22 | behold [1] 69/21 |
| 77/1 80/9 82/5 83/2 | 110/16 111/1 | being [12] 31/23 |
| 83/18 84/4 87/2 | 112/14 117/7 | 36/7 36/9 36/13 |


| B | 99/ |  |
| :---: | :---: | :---: |
| being... [8] 50/3 | 117/2 118/14 | 125/13 |
| 51/9 51/10 70/21 | 18 | bigger [3] 64/4 87/2 |
| 77/2 99/22 112/5 | e [1] 36/4 | 105/3 |
| 125/7 | besides [1] 20/10 | bilingual [1] |
| believe [14] 23/12 | best [2] 111/18 | billion [2] 70/16 |
| 35/16 38/17 38/23 | 134/7 | 70/17 |
| 42/22 45/10 54/14 | better [4] 73/18 | bills [1] 125/12 |
| 75/1 80/9 82/24 | 87/4 95/18 111/10 | binds [2] 119/24 |
| 90/15 94/8 95/14 | between [19] 13/17 | 120/1 |
| 120/16 | 22/3 30/20 48/1 | Birchard [1] 75/6 |
| below [1] | 55/17 63/7 63/7 | bit [11] 55/18 59/4 |
| benchmark [1] | 65/2 65/15 84/16 | 59/4 60/11 66/2 |
| /8 | 85/1 85/4 95/20 | 87/2 99/13 99/1 |
| neficia | 95/23 119/11 | 99/18 116/12 |
| /11 | 119/14 120/21 | 125/17 |
| benefit [12] 63/4 | 130/22 131/10 | block [3] 17/11 |
| 64/7 69/2 72/21 | beyond [2] 84/23 | 9/21 41/16 |
| 72/23 73/3 76/15 | 131/21 | blocks [1] 17/9 |
| 97/7 116/21 124/3 | bid [24] 10/18 | blow [2] 110/17 |
| 124/4 124/4 | 10/18 10/20 21/8 | 112/17 |
| benefits [38] 9/6 | 22/10 22/16 26/ | board [1] 100/2 |
| 9/13 9/14 38/1 | 28/10 28/13 29/21 | boils [1] 118/22 |
| 46/23 51/16 51/18 | 30/16 35/17 35/22 | border [1] 32/5 |
| 51/24 52/10 52/17 | 37/11 43/14 43/16 | Boston [2] 4/23 |
| 52/19 52/24 53/4 | 46/13 103/9 103/10 | 5/10 |
| 53/6 53/12 62/7 | 120/10 121/7 | both [13] 5/21 6/2 |
| 63/13 63/20 65/21 | 121/13 122/3 123/1 | 7/14 15/19 15/22 |
| 69/1 | bidding [3] 36/6 | 31/11 38/1 48/16 |
| 73/7 74/1 | 37/7 43/19 | 61/12 99/7 102/5 |
| 74/12 74/16 | bids [2] 28/1 105/17 | 107/19 116/1 |
| 74/18 97/13 98/21 | big [6] 61/2 66/20 | bottled [1] 104/22 |

 56/23
bottom [1] 40/20
box [1] 11/24
branch [2] 30/21
31/2
Brattle [13] 4/23
5/9 33/11 51/14
52/5 52/8 52/10
54/10 54/11 59/20
63/2 63/19 73/5
break [4] 64/9
64/11 69/10 132/24 breakdown [1] 24/10
breakdowns [1]

## 123/3

Brennan [1] 1/20
Brief [2] 85/20
115/19
briefly [10] 16/20 30/5 40/8 40/13
53/18 72/16 78/9 89/23 92/9 108/15
bring [11] 35/24
56/12 62/17 64/1
64/2 67/13 67/14
82/12 100/1 102/14 126/21
bringing [7] 56/7
56/8 57/1 68/10

69/6 69/7 69/14 broadly [1] 39/12 broken [1] 25/11 brought [1] 68/4 BTM [5] 82/14 89/23 89/24 90/3 102/19
bubbles [1] 74/3
buff [1] 62/15
build [8] 35/11
47/19 108/16 109/3
109/6 114/18
114/21 114/22
building [4] 48/11 48/13 108/10 116/8 built [1] 108/23
bumping [1]
118/18
bumps [1] 118/16 bunch [2] 39/22
113/22
burden [1] 128/5
Business [1] 1/15
busy [1] 95/11
buy [2] 79/21 79/23
buying [2] 55/24 57/5
Bx [1] 107/1
C
calculated [2] 39/1 117/2
calculation [2] 58/3

## 116/20

calculations [4] 116/19 116/23
116/24 117/14
call [7] 44/20 45/15
57/17 61/1 70/4
77/16 79/4
called [8] 10/13
11/7 16/4 18/16
40/21 119/14
120/20 130/22
came [3] 23/11 33/1 101/15
campground [1] 116/8
can [41] 14/18 15/12 23/21 30/17 33/17 34/20 38/5 40/3 41/4 48/15
48/17 58/2 61/16 65/24 68/5 71/4
72/5 78/9 81/13
85/9 92/17 92/19
94/21 95/10 97/15
99/2 100/16 104/20
104/21 104/22
106/10 107/2
108/21 111/18
117/18 122/6
125/18 127/6
127/21 129/9
132/19

| C | cases [2] 12/23 99/7 | 28/17 |
| :---: | :---: | :---: |
| can't [5] 46/4 73/18 | categories [2] 63/19 | 13 37/13 70/18 |
| 101/10 110/14 | 74/6 | 75/15 105/10 |
| 123/9 | category [2] 60/17 | 115/24 122/15 |
| Canada [4] 32/6 | 63/8 | 123/12 132/14 |
| 34/22 37/9 43/11 | cause [1] 109/14 | 132/22 |
| Canadian [12] 32/5 | caused [1] 100/5 | Chair's [1] 85/15 |
| 34/17 35/2 35/12 | CELT [13] 3/4 3/6 | Chairman [2] 4/11 |
| /23 39/15 41/5 | 80/17 81/3 81/6 | 64/17 |
| 41/7 41/9 41/23 | 82/5 83/15 83/18 | change [17] 49/10 |
| /3 43/1 | 93/13 93/14 95/4 | 68/1 68/2 72/7 73/3 |
| capability [1] | 95/4 96/20 | 9/12 90/15 90/6 |
| 104/19 | center [1] 108/5 | 9724 97/4 |
| capacity [164] | Central [1] 55/4 | 9789/9 99/24 |
| capital [4] 49/14 | certain [1] 87/7 | 102/6 102/12 |
| 109/23 114/19 | certainly [2] 120 | changed [1] 91/21 |
| 114/24 | 131/22 | changes [4] 31/7 |
| carbon [9] 46/19 | Certificate [1] 1/10 | 72/4 102/10 102/13 |
| 46/23 47/10 47/14 | certify [2] 134/4 | changing [2] 110/3 |
| 47/18 48/17 50/23 | 134/10 | 110/4 |
| 51/1 51/4 | CFO [1] 45/9 | chart [11] 20/17 |
| Caron [1] 1/20 | CFP [6] 17/15 21/3 | 24/17 42/18 52/2 |
| case [25] 31/17 | 51/19 66/11 80/7 | 52/5 52/7 52/16 |
| 31/19 39/24 52/13 | 80/11 | 52/19 59/19 63/10 |
| 13 52/14 54/15 | CFP006007 [1] | 91/5 |
| 3 83/2 84/8 | 117/8 | check [8] 81/19 |
| 89/1 89/2 94/8 | CFP14304 [1] | 84/14 85/6 85/8 |
| 96/16 97/23 99/6 | 16/19 | 85/16 87/23 93/1 |
| 99/7 101/1 101/4 | CFP14306 [ | 94/6 |
| 101/5 102/6 102/6 | 17/23 | checked [3] 84/18 |
| 109/21 121/ | CFP14315 | 87/12 87/18 |
| 134/14 | 42/11 | checking [1] 93/20 |


| C | clearing [3] 69/16 | 130/11 |
| :---: | :---: | :---: |
| choose [1] 68/11 | 105/19 117/10 | commitment [3] |
| chose [1] 43/16 | clearly [2] 14/15 | 18/17 20/23 117/21 |
| Christopher [1] | 91/24 | commitments [25] |
| 1/15 | clears [2] 73/15 | 14/22 18/7 18/10 |
| Chrmn [1] 1/13 | 118/15 | 19/1 19/13 19/16 |
| circle [1] 111/14 | client [2] 34/3 | 19/18 19/24 20/9 |
| circled [1] 107/13 | 18/12 | 20/10 20/11 20/14 |
| circumstances [1] | clients [2] 125/6 | 20/15 20/20 21/13 |
| 104/11 | 129/6 | 21/13 22/5 22/7 |
| cited [5] 12/23 | close [1] 131/9 | 22/12 22/22 22/22 |
| 12/24 13/8 14/11 | Cmsr [1] 1/14 | 25/7 25/11 25/12 |
| 14/14 | column [4] 13/3 | 25/13 |
| cites [1] 12/19 | 17/3 92/24 102/17 | COMMITTEE [9] |
| claim [1] 66/3 | columns [3] 16/23 | 1/2 1/12 4/20 16/20 |
| claiming [1] 31/22 | 16/24 92/18 combination [2] | $\begin{aligned} & \text { 23/7 34/20 38/7 } \\ & \text { 72/17 76/15 } \end{aligned}$ |
| claims [1] 46/17 <br> clarify [5] 15/12 | combination [2] 37/3 107/19 | 72/17 76/15 <br> company [2] $1 / 9$ |
| $38 / 638 / 1997 / 15$ | combined [1] | 9/20 |
| 115/4 | 111/22 | comparable [3] |
| Class [1] 110/6 | come [16] 9/13 | 58/15 59/2 69/22 |
| clause [2] 32/9 | 42/18 52/10 58/22 | compare [1] 58/12 |
| 125/21 | 59/11 59/11 59/12 | compared [3] 62/7 |
| clean [5] 51/5 67/13 | 69/21 78/7 78/15 | 66/9 70/11 |
| 69/6 69/7 107/5 | 96/1 97/18 98/19 | compares [1] 16/8 |
| clear [17] 32/7 | 98/19 110/20 133/1 | comparing [2] |
| 37/12 38/21 39/2 | comes [1] 54/10 | 50/23 85/10 |
| 68/14 72/22 80/9 | coming [4] 10/21 | compel [1] 100/1 |
| 80/23 88/11 96/6 | 49/10 72/1 108/12 | compelled [2] |
| 111/22 117/18 | Comm [2] 1/13 | 100/4 101/17 |
| 118/20 118/23 | 1/14 | competing [3] |
| 119/3 119/3 120/13 | Commission [1] | 67/21 73/16 125/3 |


| C | 100/15 | continues [1] 133/5 |
| :---: | :---: | :---: |
| co | confused [1] 63/7 | contract [11] 18/11 |
| $35 / 2336 / 1143 / 12$ | congested [2] 55/5 | 18/16 19/1 25/2 |
| competitively [1] | 56/23 | 40/22 40/23 41/1 |
| 36/7 | congestion [3] | 41/12 41/18 42/21 |
| competitiveness [2] | 55/15 56/4 56/5 | 42/23 |
| 108/6 109/12 | connect [1] 34/23 | contracted [1] |
| completed [2] | connected [1] 32/8 | 13/24 |
| 107/15 130/5 | $\begin{aligned} & \text { connection [1] } \\ & 125 / 5 \end{aligned}$ | $\begin{aligned} & \text { contractual [1] } \\ & \mathbf{3 0 / 2 0} \end{aligned}$ |
| conclude [1] 95/19 | 125/5 | 30/20 <br> conveyance [2] |
| concludes [1] 133/3 | connects [1] 35/12 consider [6] 44/1 | conveyance [2] $130 / 24131 / 2$ |
| $\begin{aligned} & \text { conclusion }[8] 21 / 5 \\ & 21 / 1046 / 596 / 1 \end{aligned}$ | 48/1 52/18 53/3 | copy [2] 7/21 81/22 |
| 100/9 101/15 | 74/8 74/18 | correct [75] 9/19 |
| 101/18 101/18 | consideration [1] | 9/21 10/2 10/4 |
| conclusions [4] | 112/16 | 11/13 12/12 12/20 |
| 97/4 97/12 98/18 | considerations [1] | 14/1 19/2 19/3 21/9 |
| 109/8 | 118/9 | 22/11 22/13 25/14 |
| Concord [1] 1/4 | considered [1] | 26/15 26/16 27/11 |
| conditions [6] | 52/21 | 27/19 27/23 27/24 |
| $60 / 1261 / 2063 / 23$ | considering [1] | 28/4 28/5 29/20 |
| 80/3 104/24 134/8 | 118/21 | 29/23 38/23 43/8 |
| conference [1] | construction [2] | 43/9 46/15 46/16 |
| 69/11 | 127/7 129/18 | 46/20 69/23 77/17 |
| erri | contained [1] 16/21 | 77/23 78/7 78/18 |
| 60/8 98/10 129/9 | contemplates [2] | 78/19 83/7 83/19 |
| confidential [6] 6/6 | 126/9 127/5 | 83/20 88/5 88/19 |
| 8/2 16/12 16/15 | context [1] 40/14 | 89/4 89/5 89/19 |
| 16/16 36/21 | Contingencies [1] | 94/14 94/15 94/19 |
| confidentiality [1] | 59/17 | 94/20 95/7 95/8 |
| 16/13 | continue [2] 33/17 | 96/12 96/21 98/9 |
| conflicting [1] | 64/16 | 103/3 103/4 103/7 |



definitely... [2]
54/16 120/3
deliver [3] 31/13
51/2 108/22
delivering [2] 50/24 114/23
delta [4] 85/1 87/3 87/9 99/9
demand [20] 8/20
17/1 17/3 17/11
17/12 23/14 49/1
54/3 76/4 76/5 76/7
77/13 78/24 79/2
79/7 79/10 79/22
98/6 100/18 104/18 demonstrate [2]
74/10 117/23
demonstrates [1] 23/16
demonstrating [1] 117/20
demonstration [2] 24/12 24/23
demonstrations [1] 14/9
denominator [2]
111/2 114/7
depend [1] 50/22 depends [2] 35/4
57/17
Dept [3] 1/15 1/15

1/16
derated [1] 110/17 derive [1] 80/14 describe [2] 40/16 42/14
described [4] 18/1 21/17 62/19 120/9 describes [2] 30/19 32/10
Designee [3] 1/15 1/15 1/16
detail [4] 23/24 120/9 120/24 121/1 details [4] 66/17 78/3 78/13 90/16 determined [1] 46/2
determines [1] 90/9 determining [1] 76/18
develop [2] 107/24 114/20
developed [1] 88/16 developing [1] 78/17
development [1]
87/20
did [60] 15/10
15/13 17/20 17/22
18/5 22/6 24/20
26/4 33/3 33/11
37/20 38/19 42/8

42/16 46/5 47/23 47/24 50/5 52/18 52/23 53/3 54/10 58/12 58/15 59/20 59/21 59/22 59/23 60/1 60/18 62/10 62/20 63/2 63/4
63/13 63/19 63/20
71/12 71/15 72/9
73/8 73/10 74/7
74/18 80/13 87/6
87/21 88/20 92/2
96/13 96/14 121/2
123/24 124/21
124/23 125/5 125/7
125/20 128/21
129/1
didn't [10] 38/3
55/14 57/10 61/12
61/13 62/19 73/24
74/5 75/3 129/8
difference [10]
55/17 55/19 66/19
66/20 84/15 84/20
85/4 86/18 86/22
95/19
differences [1]
95/22
different [14] 16/8
17/1 36/3 38/20
66/16 69/19 87/16
88/9 99/11 99/20
different... [4]
101/9 110/3 119/11 125/2
differential [2] 56/3 56/11
Dir [1] 1/15
direct [7] 2/6 4/17
56/21 71/3 100/7
108/8 109/9
direction [2]
110/11 110/12
directional [1] 99/21
directionally [1] 97/11
directly [2] 54/4 54/6
discount [4] 111/10
112/15 113/12
113/13
discovery [1] 106/7 discretion [2] 131/5 131/7
discussed [2] 74/15 94/19
discussion [7] 76/4 85/20 100/6 108/9 112/8 114/1 115/19 displacing [1] 51/6 distorted [1] 36/13 distracting [1] 65/8
distribute [1] 10/3
Distribution [8] 10/1 16/3 18/19 19/17 39/14 39/19 41/18 119/16 divide [1] 41/22
DNA [2] 3/15
130/17
do [140]
docket [10] 1/7 3/16 116/13 121/21
122/1 122/17 130/2
130/12 130/15 132/3
document [50] 3/13 13/8 13/11 14/14 14/18 14/23 15/11 15/13 15/24 16/16 16/20 17/17 18/1
23/7 23/16 26/23
30/5 30/13 30/18
34/8 39/11 42/6
80/21 80/23 81/2
81/13 83/9 83/11
83/14 83/22 85/11
88/2 89/21 92/7
92/10 102/15
106/15 106/20
106/22 120/5
120/17 120/24
121/10 121/16
127/15 128/19

130/17 131/18 132/1 132/3
documents [5] 12/19 14/17 29/7 39/16 39/22 does [53] 8/11 19/10 19/12 20/16 20/19 28/9 34/21
35/1 35/10 47/18
67/13 67/14 67/23
68/1 68/11 68/11
68/12 68/14 68/14
68/18 72/22 72/24
73/2 79/17 81/6
81/16 82/4 82/4
84/4 99/9 101/6
102/3 102/7 103/21
107/2 107/3 107/17
107/21 107/22
108/4 109/11 115/5
118/6 118/22 120/4
122/19 127/5 127/6
127/8 127/9 129/17
129/20 131/23
doesn't [13] 32/11
33/7 56/16 56/19
60/21 69/4 72/23
104/4 110/15
110/16 112/16
127/10 129/21
doing [4] 49/13
55/9 74/24 90/11

| D | 130/6 130/7 132/18 | drive [1] 111/4 |
| :---: | :---: | :---: |
| 34/17 | done [3] 10/24 77/8 | driven [1] 90/20 |
| 35/3 41/4 41/6 41/7 | 126/3 | driver [1] 62/16 |
| 41/9 41/20 41/23 | Donovan [1] 1/4 | drivers [1] 91/16 |
| 42/3 43/2 57/16 | doubts [1] 88/6 | drives [1] 58/24 |
| 70/17 116/10 | down [22] 14/21 | drop [1] 98/15 |
| 116/11 | 25/11 25/15 58/22 | drops [2] 98/3 98/5 |
| domestic [6] 14/22 | 59/11 59/12 62/17 | duly [1] 4/8 |
| 18/24 20/9 20/11 | 64/1 64/2 72/1 | during [4] 12/8 |
| 20/21 20/23 | 73/19 82/12 84/3 | 27/7 27/10 106/6 |
| don't [59] 5/2 10/19 | 84/11 89/9 94/9 | E |
| 10/22 11/18 12/24 |  | each [19] 13/20 |
| 13/5 14/13 29/12 |  | 16/23 28/10 67/21 |
| 34/14 36/12 36/20 |  | 78/17 79/3 82/7 |
| 40/6 43/6 43/24 | 106/7 | 83/4 83/6 85/2 85/8 |
| 49/15 52/21 63/6 | DPU's [2] 106/11 | 88/15 88/24 89/10 |
| 65/14 66/5 67/6 | $106 / 11$ | 95/7 96/16 97/3 |
| 68/5 68/19 68/19 | $\operatorname{Dr}[2] \quad 5 / 1230 / 1$ | 98/17 100/2 |
| 68/22 78/13 90/16 | Dr [2] 5/12 30/1 <br> Dr. [12] 5/12 15/10 | earlier [10] 10/21 |
| 93/22 93/24 99/9 | Dr. [12] 5/12 15/10 | 25/10 39/20 42/23 |
| 99/10 99/17 101/22 | 17/20 23/3 27/19 | 70/21 80/8 94/13 |
| 102/1 102/9 102/12 | 39/7 65/13 81/12 | 98/3 98/4 112/11 |
| 104/1 108/21 |  | earlies [1] 94/19 |
| 109/21 113/15 |  | earnings [2] 44/20 |
| 115/8 115/10 121/9 | Dr. Newell [7] 5/12 | 45/15 |
| 121/15 123/6 | 65/13 81/12 82/2 <br> 83/11 83/23 114/2 | easier [1] 99/2 |
| 125/22 127/14 | Dr. Weiss [5] 15/10 | easily [2] 14/16 |
| 127/15 128/2 | Dr. Weiss [5] 15/10 | 90/23 |
| 128/11 128/15 | 17/20 23/3 27/1 | East [1] 55/4 |
| 128/18 129/1 |  | eastern [2] 55/17 |
| $\begin{aligned} & \text { 129/16 } 129 / 17 \\ & \text { 129/20 } \end{aligned}$ | $\begin{aligned} & \text { draw [2] 82/9 89/20 } \\ & \text { drew [1] 109/9 } \end{aligned}$ | 56/1 economic [16] 1/1 |


| $\mathbf{E}$ | Electronically [1] | 45/6 49/8 49/9 |
| :---: | :---: | :---: |
| economic... [15] 9/6 | 1/6 | 49/19 50/3 50/8 |
| $9 / 1247 / 947 / 13$ | eliminate [1] 7/19 | 50/11 50/15 50/18 |
| 58/1 58/6 64/20 | eliminates [1] | 51/1 51/2 51/5 54/2 |
| 64/23 65/1 65/3 | 131/16 | 57/15 58/4 58/11 |
| 65/3 65/15 65/16 | else [10] 36/9 50/19 | 58/13 59/3 60/20 |
| 114/11 116/21 | 79/13 79/17 79/19 | 67/13 67/15 67/18 |
| economics [1] | 98/15 99/3 110/4 | 68/23 69/6 69/7 |
| 53/20 | 114/10 114/14 | 88/8 90/7 107/5 |
| Economics' [1] | elsewhere [3] 44/5 | 107/18 108/12 |
| 28/24 | 44/7 44/12 | 108/22 114/23 |
| edge [2] 71/23 | emissions [14] 46/9 | 115/2 117/21 |
| 102/8 | 46/19 46/23 47/4 | 124/16 124/18 |
| Edited [1] 44/19 | 47/11 47/14 48/2 | 124/24 125/4 |
| effect [15] 50/12 | 48/12 48/17 49/24 | engagements [1] |
| 51/21 53/23 63/22 | 50/2 50/21 50/22 | 51/17 |
| 67/7 67/8 79/17 | 5 | engineer [1] 49/5 |
| 80/2 98/22 98/22 | emphasize [1] | engineered [1] |
| 101/2 102/3 103/16 | 131/13 | 130/4 |
| 104/7 114/10 | employ [1] 71/15 | England [60] 3/4 |
| efficiency [1] 88/8 | employed [2] | 3/6 3/9 8/23 9/6 |
| EIA [1] 59/3 | 134/11 134/14 | 21/8 22/17 26/5 |
| either [10] 27/21 | employee [1] | 30/16 43/21 44/14 |
| 48/2 50/7 67/19 | 134/13 | 46/14 50/16 51/11 |
| 69/24 113/9 115/9 | employment [1] | 57/16 58/8 58/24 |
| 118/1 121/9 121/15 | 47/10 | 61/21 61/23 67/14 |
| electric [6] 58/24 | encourage [1] 29/9 | 67/16 68/11 71/22 |
| 62/15 62/16 62/17 | end [4] 23/1 43/17 | 72/3 76/6 76/17 |
| 64/5 125/12 | 74/9 78/15 | 82/6 86/11 88/16 |
| electricity [6] 12/15 | energy [46] 1/10 | 88/18 88/24 90/9 |
| 13/9 13/17 53/12 | 3/5 3/7 26/24 40/17 | 91/12 92/1 96/24 |
| 55/9 117/1 | 41/11 41/14 44/20 | 102/18 102/20 |


| E | entire [1] 74/6 | 65/21 66/8 |
| :---: | :---: | :---: |
| England... [23] | entirely [3] 50/19 | estimated [6] 9/5 |
| 102/22 103/2 103/2 | 121/2 128/3 | 12/7 34/2 37/1 |
| 103/6 103/11 | entities [3] 15/5 | 51/17 99/11 |
| 103/14 103/18 | 16/8 17/2 | estimates [3] 8/19 |
| 103/20 104/8 | entitled [2] 51/23 | 57/12 66/9 |
| 104/12 104/13 | 130/9 | evaluate [3] 55/11 |
| 104/15 104/16 | entity [1] 126/9 | 55/12 57/10 |
| 104/17 104/19 | entry [4] 100/5 | evaluating [3] 46/3 |
| 104/20 104/21 | 101/17 123/19 | 53/20 54/24 |
| 105/2 105/4 117/22 | 123/20 | EVALUATION [2] |
| 120/7 120/15 | Environ [1] 1/15 | 1/2 1/12 |
| 123/20 | equal [7] 72/10 | even [15] 16/15 |
| England's [8] 28/2 | 79/17 79/19 98/16 | 21/14 38/3 44/13 |
| 80/16 81/3 83/5 | 99/3 114/10 114/14 | 49/8 55/13 62/2 |
| 83/15 90/8 92/11 | equipment [1] | 68/10 68/17 68/18 |
| 117/19 | 123/2 | 69/8 71/24 118/17 |
| English [13] 15/19 | equities [1] 116/11 | 120/10 123/7 |
| 15/22 17/16 18/2 | equivalent [1] | event [2] 62/1 62/3 |
| 18/5 18/15 19/6 | 41/10 | events [3] 59/16 |
| 20/4 24/16 30/8 | error [3] 38/23 66/1 | 60/24 63/8 |
| 42/5 42/8 42/12 | 69/23 | Eversource [4] 1/9 |
| enough [7] 23/17 | Esq [1] 1/20 | 44/20 45/3 45/19 |
| 49/1 74/8 74/19 | essence [1] 50/14 | Eversource's [2] |
| 76/24 77/7 115/16 | essential [1] 67/11 | $45 / 545 / 9$ |
| ensued [2] 85/21 | essentially [6] | every [4] 57/19 |
| 115/20 | 23/17 25/24 72/15 | 61/1 62/4 76/20 |
| entail [1] 119/19 | 73/5 77/20 89/7 | everybody [1] 68/6 |
| enter [2] 120/1 | established [1] | everyone [2] 4/3 |
| 120/14 | 23/18 | 75/6 |
| entered [1] 124/10 | estimate [6] 8/8 | evidence [2] 50/12 |
| Enterprise [1] 45/6 | 11/12 11/21 60/18 | 118/23 |


| $\mathbf{E}$ | 42/5 42/11 44/16 | 108/15 118/11 |
| :---: | :---: | :---: |
| exact [1] 67/6 | 44/24 45/15 47/7 | 119/5 124/13 |
| exactly [1] 101/12 | 48/8 51/22 66/10 | 12 |
| examination [8] 2/6 | 66/12 69/10 74/2 |  |
| 2/7 2/8 4/17 51/17 | 74/15 80/7 80/11 | 117/15 119/24 |
| 71/4 75/23 125/8 | 80/22 83/24 85/24 | explicitly [1] 101/9 |
| examine [1] 122/6 | 89/22 92/8 106/20 <br> exhibits [2] 39/16 | $\begin{aligned} & \text { explore [2] 68/3 } \\ & 68 / 21 \end{aligned}$ |
| examined [1] 33/6 | exhibits [2] 39/16 66/8 | explores [1] 72/8 |
| example [7] 60/3 $62 / 167 / 2191 / 2$ | existed [1] 22/23 | expresses [1] 60/17 |
| 62/1 67/21 91/2 | existed [1] $22 / 23$ existence [1] 22/12 | extent [1] 43/24 |
| 112/3 128/6 128/13 | existing [10] 48/21 | extreme [4] 59/16 |
| exceed [1] 74/12 <br> except [1] 23/11 | 49/11 49/18 50/9 | 60/12 60/14 63/8 |
| excess [4] 8/24 21/6 | 50/16 78/12 100/21 | extremely [1] 32/1 |
| 21/17 123/5 | 108/12 114/23 | F |
| exchange [3] 35/4 |  | face [1] 66/22 |
| 41/24 43/6 | expanding [2] 55/3 | facetious [1] 99/22 |
| Executive [2] 45/5 |  | Facility [1] 1/10 |
| 45/9 exercise [2] 131/4 | 85/3 87/8 96/15 | fact [11] 32/8 32/18 |
| exercise [2] 131/4 131/6 | 120/17 | 33/6 36/5 46/22 |
| 131/6 | expected [4] 22/2 | 69/7 69/22 70/14 |
| exhibit [54] 3/3 | 61/11 62/5 100/22 | 92/23 106/15 124/9 |
| 5/14 6/2 6/16 7/5 | expend [1] 109/2 | factor [1] 57/21 |
| 7/6 8/13 11/16 13/7 | expensive [1] | factors [1] 114/3 |
| 14/4 18/22 19/5 | $\begin{gathered} \text { expensi } \\ 115 / 15 \end{gathered}$ | factual [1] 122/23 |
| 20/3 20/6 21/3 | expert [1] 126/20 | failed [1] 71/20 |
| 21/21 21/24 22/6 | expertise [1] | fair [6] 32/3 66/9 |
| 23/4 23/20 24/16 | $121 / 18$ | 87/8 88/21 115/16 |
| 26/7 26/18 27/4 | experts [1] 12 | 124/5 |
| 30/3 33/21 33/22 | explain [9] 76/15 | familiar [8] 13/10 |
| 34/7 34/10 34/19 | 78/9 89/24 92/19 | 30/13 52/1 119/8 |
| 39/8 40/6 40/24 |  | 120/20 131/18 |


| F | 18/20 18/23 19/11 | 11/2 11/22 13/16 |
| :---: | :---: | :---: |
| familiar... [2] | 20/17 20/19 21/5 | 14/23 15/18 17/3 |
| 131/24 132/3 | 21/11 22/24 26/11 | 17/10 18/2 18/10 |
| far [4] 39/5 102/17 | 26/12 26/12 33/23 | 28/13 32/23 33/1 |
| 107/2 126/22 | 40/24 51/23 | 37/18 39/19 40/4 |
| fatal [1] 122/15 | figures [3] 12/20 | 52/4 53/15 54/18 |
| FCA [23] 3/12 10/8 | 22/24 40/9 | 67/23 71/12 92/18 |
| 11/1 11/5 30/16 | figuring [1] 114/8 | 92/22 93/9 102/19 |
| 36/17 38/18 39/5 | filed [2] 1/6 33/4 | 122/8 |
| 43/4 88/15 88/19 | filing [2] 16/3 16/6 | five [1] 14/23 |
| 92/14 93/11 93/12 | final [2] 17/13 42/1 | flaw [1] 122/15 |
| 94/22 94/23 95/1 | financially [1] | flip [1] 23/23 |
| 95/1 95/21 96/9 | 134/14 | flipped [1] 24/7 |
| 96/10 102/22 | find [5] 14/19 15/15 | flipping [1] 11/18 |
| 102/22 | 72/4 74/17 121/12 | floor [2] 114/9 |
| February [6] 5/14 | fine [1] 111/5 | 114/11 |
| 6/2 10/22 80/8 | finished [2] 29/2 | flow [3] 49/8 49/9 |
| 80/11 81/7 | 116/9 | 55/7 |
| February 10 [1] 6/2 | firm [10] 13/13 | flowing [1] 128/8 |
| February 2017 [2] | 22/22 31/3 31/3 | focus [4] 68/4 71/4 |
| 80/8 80/11 | 31/3 104/6 112/6 | 73/6 114/1 |
| feedback [1] 65/7 | 112/17 113/11 | folks [1] 37/21 |
| feel [2] 74/5 99/19 | 117/24 | follow [1] 45/20 |
| fees [1] 31/20 | firm-to-firm [1] | follow-up [1] 45/20 |
| few [4] 42/2 78/13 | 31/3 | footnotes [1] 11/17 |
| 115/24 130/8 | firmed [6] 107/1 | forecast [31] 3/4 |
| fewer [1] 99/14 | 111/15 112/2 | 3/7 59/1 59/2 76/7 |
| field [1] 126/14 | 112/21 113/19 | 76/16 76/17 77/4 |
| fifty [1] 29/7 | 114/15 | 77/6 77/21 80/14 |
| figure [21] 8/16 | firming [2] 112/4 | 80/16 81/5 82/6 |
| 8/19 11/11 11/16 | 112/24 | 82/7 83/16 83/19 |
| 11/20 13/8 13/24 | first [27] 9/17 10/16 | 84/6 86/12 87/21 |


| $\mathbf{F}$ |
| :--- |
| forecast... [11] |

88/14 88/16 89/8
90/2 90/19 91/16
92/1 95/24 96/11
102/13 104/9
forecasting [1] 101/10
forecasts [4] 88/7 88/24 96/18 96/19 foregoing [1] 134/4 forgoes [1] 44/4 forgot [1] 95/12 form [3] 3/14 37/18 106/24
forth [3] 11/19 83/4 134/7
forward [40] 3/11
10/6 10/16 22/17
26/5 28/2 28/3
28/10 28/14 32/2
32/12 33/2 35/17
35/24 37/8 43/20
46/14 60/22 76/2
78/17 92/14 94/17
103/9 105/19 108/7
109/13 109/15
116/19 116/22
116/23 117/13
118/24 120/1
120/11 120/15
121/7 121/14 122/4

123/1 124/2
fossil [3] 51/6 51/9 51/10
found [6] 15/16
50/12 57/20 62/10
73/12 106/11
four [5] 16/23
64/23 70/14 94/9
97/5
fourth [2] 12/14 17/7
Frayer [4] 9/11
32/19 33/7 76/9
Frayer's [1] 8/6
French [3] 15/20
15/22 31/5
front [24] 5/13 6/1
6/15 7/4 8/11 8/15
26/17 30/2 33/20
34/6 34/18 39/7
44/15 83/10 83/11
83/23 88/2 89/21
92/7 92/16 106/19
125/23 130/9
130/19
full [3] 27/16
111/17 113/21
fully [3] 113/1
127/14 130/4
fundamentally [1] 99/10
further [4] 74/21

100/11 134/10 134/12
future [2] 61/5 62/3
futures [3] 55/23
58/16 59/5
G
game [1] 66/9
gas [15] 46/8 47/4
48/2 49/24 50/1
50/20 50/22 58/24
59/1 59/5 62/15
63/22 63/24 64/2 64/3
GDP [4] 47/1 47/3 47/13 48/3
gears [1] 51/12 general [3] 39/17 114/20 126/19
generally [7] 36/22 76/3 98/4 98/8 100/18 100/20 107/11
generating [1] 90/6 generation [12]
29/22 30/1 46/12
48/21 51/6 51/9
51/10 92/2 109/3
109/17 111/16

## 115/6

generic [1] 70/22 gentlemen [6] 4/12 8/4 44/15 45/2

| $\mathbf{G}$ | 89/9 93/17 104/20 | 85/18 90/21 122/19 |
| :---: | :---: | :---: |
| gentlemen... [2] | 116/3 127/4 130/19 | 128/14 128/15 |
| 64/19 74/20 | goes [4] 31/19 41/6 | 132/1 |
| get [21] 15/13 16/7 | 94/17 117/15 | greenhouse [7] |
| 29/3 29/12 36/12 | going [41] 18/21 | 46/8 47/4 48/2 |
| 44/11 44/14 48/20 | 28/17 29/9 29/18 | 49/24 50/1 50/20 |
| 49/7 49/11 55/22 | 32/15 34/19 37/20 | 50/21 |
| 56/12 62/8 72/12 | 37/23 37/24 45/21 | grid [1] 90/7 |
| 81/22 104/22 | 45/23 57/3 59/8 | Group [5] 4/23 5/9 |
| 104/23 110/15 | 60/22 73/20 73/22 | 51/14 59/20 63/2 |
| 112/11 114/2 117/6 | 74/24 75/2 79/10 | Groups [1] 74/23 |
| gets [5] 17/13 60/14 | 79/12 83/9 84/21 | growth [3] 76/5 |
| 77/13 110/17 128/8 | 88/12 93/19 98/14 | 87/21 91/9 |
| getting [4] 22/4 | 102/9 105/24 106/1 | guess [3] 29/8 99/18 |
| 110/5 114/17 | 111/20 116/3 | 127/18 |
| 116/17 | 117/11 121/16 | guessing [1] 68/17 |
| GHG [1] 48/12 | 123/13 123/17 | guys [1] 45/21 |
| give [3] 8/1 27/15 | 126/20 127/16 | H |
| 61/16 | 127/23 128/2 | had [21] 15/15 22/5 |
| given [9] 11/4 66/13 | 130/23 131/8 | 42/13 57/14 60/2 |
| 87/6 89/6 97/24 | 132/24 <br> gone [1] 29/6 | 60/20 62/1 62/3 |
| 98/13 98/13 100/17 | gone [1] 29/6 <br> $\operatorname{good}[15]$ 4/2 4/12 | 63/17 63/22 63/24 |
| 100/21 | 4/13 4/14 13/6 22/4 | 64/22 68/21 69/12 |
| gives [5] 41/1 41/3 | 49/24 56/9 59/6 | 73/13 79/9 86/1 |
| 41/16 57/8 77/22 | 64/9 75/15 75/17 | 91/22 108/9 122/2 |
| go [26] 5/5 5/6 | 75/18 75/22 111/13 | 124/10 |
| 14/19 24/8 25/15 | $\operatorname{got}[8] \quad 12 / 21 \quad 24 / 7$ | half [6] 48/9 72/11 |
| 28/9 32/2 32/11 |  | 72/13 92/3 111/21 |
| 40/7 65/9 66/6 | 110/24 116/10 | 113/17 |
| 72/19 73/18 75/21 | $\begin{array}{\|c} 110 / 24 \\ 122 / 13 \end{array}$ | HAMPSHIRE [18] |
| 76/12 83/3 83/4 | great [7] 75/22 | 1/1 1/4 1/9 9/7 |
| 84/20 84/23 86/2 | great [7] 75/22 | 34/24 35/14 54/5 |


| H | 91/23 91/24 92/5 | 68/17 68/20 90/1 |
| :---: | :---: | :---: |
| HAMPSHIRE... | 92/16 104/5 105/6 | 91/6 93/3 93/5 |
| $[11] 61 / 2261 / 24$ | 108/23 110/20 | 95/20 100/6 105/11 |
| 62/6 66/24 67/12 | 115/11 115/13 | 110/14 113/5 115/6 |
| 69/1 69/3 69/18 | 117/17 117/23 | 115/7 122/5 122/5 |
| 74/12 116/9 125/12 | 117/24 122/22 | 122/13 122/14 |
| hand [6] 12/18 20/2 | 129/5 129/12 130/1 | 123/9 128/10 |
| 20/4 20/13 52/7 | have [143] | 132/14 |
| 84/19 | haven't [6] 49/13 | hereby [1] 134/4 |
| handed [1] 15/14 | 92/20 127/3 127/13 | hereinbefore [1] |
| happen [6] 20/21 | 128/11 129/15 | 134/7 |
| 22/2 73/2 87/19 | having [6] 67/24 | hereto [1] 91/19 |
| 105/2 105/4 | 67/24 109/6 114/21 | heritage [3] 18/16 |
| happened [1] 61/19 | 114/21 125/3 | 19/1 25/2 |
| happening [3] | he [2] 32/19 87/5 | hesitating [1] 12/22 |
| 48/23 61/10 104/24 | head [2] 84/22 | high [8] 39/2 57/6 |
| happens [7] 32/10 | 98/20 | 57/7 59/7 65/19 |
| 106/2 125/11 | headed [1] 102/17 | 66/2 66/13 66/14 |
| 126/23 127/1 129/3 | header [1] 93/9 | high-cost [1] 57/7 |
| 129/10 | hearing [3] 1/11 | high-level [1] 66/14 |
| happy [2] 56/15 | 64/13 133/4 | higher [8] 43/7 57/2 |
| 62/8 | held [2] 3/9 98/16 | 58/7 59/5 77/5 |
| hard [5] 41/21 71/6 | help [2] 63/24 | 109/14 109/16 |
| 98/24 121/1 126/17 | 132/19 | 109/16 |
| harder [1] 110/13 | helpful [2] 60/16 | highlight [1] 71/5 |
| has [37] 12/7 16/23 | 99/22 | highlighted [5] |
| 16/23 19/5 22/1 | here [37] 7/20 12/4 | 34/20 45/16 84/3 |
| 23/17 25/19 32/7 | 12/23 21/17 24/3 | 92/5 92/17 |
| 36/14 38/2 47/9 | 29/1 29/11 38/22 | highlighting [1] |
| 47/13 47/21 52/16 | 39/4 40/1 53/22 | 34/11 |
| 58/14 68/4 76/7 | 54/21 56/16 56/19 | him [3] 105/24 |
| 76/20 90/24 91/2 | 60/7 66/23 68/6 | 105/24 106/1 |

## H

hired [1] 130/14 historic [1] 18/17 historical [3] 14/9 14/12 60/19
historical-based [1] 60/19
hits [1] 71/20
hold [6] 47/6 60/5 83/1 109/5 109/7 111/12
holding [2] 79/17 79/18
Honigberg [1] 1/13 hope [1] 66/6 horizontally [1] 17/10
hottest [1] 76/22 hour [2] 41/13 57/19
hours [1] 41/11 how [45] 26/3
29/10 35/3 41/17 42/21 42/24 44/6 48/3 49/15 54/1 60/23 61/13 64/4 66/21 67/8 68/11 73/2 73/9 75/16 76/16 79/3 79/5
79/7 90/6 90/9 90/9 90/16 90/16 93/18 97/3 97/11 98/16

99/9 99/23 100/2 100/13 104/4
105/10 108/16 109/11 111/8
111/22 113/23
118/11 122/9
However [1] 27/6
HQ [12] 16/3 17/7
18/7 24/13 27/10
46/2 47/18 50/7
57/15 58/2 68/18
78/12
HQ's [2] 12/5 50/16
HQD [14] 9/24
14/24 15/3 15/4
16/6 19/17 19/18
20/23 23/19 25/13
40/2 40/15 41/4 43/16
HQD's [1] 17/4
HQICCs [2] 94/10 94/11
HQP [23] 8/24 9/17
11/22 12/8 14/8 14/21 15/3 15/5
18/24 21/5 21/16
21/21 21/22 22/5
22/15 23/17 24/23
26/4 30/20 40/22 43/19 44/344/11
HQP's [8] 8/8 8/19
11/21 20/15 21/12

22/8 26/14 29/21 huge [1] 66/19
hugely [1] 99/20 huh [9] 24/1 32/14 81/23 82/11 85/17 94/7 110/1 110/9 112/22
hydro [58] 9/18 9/24 12/6 18/17
18/18 19/17 23/15
26/2 26/19 30/22
31/1 31/2 31/4 31/8
31/16 31/21 32/10
34/5 39/14 39/18
41/17 41/19 48/21
48/23 50/17 50/24
107/19 109/23
111/6 111/15 112/1
112/2 112/4 112/6
112/6 112/9 112/21
112/23 113/18
113/20 114/6
114/16 115/11
115/13 118/3
119/11 119/12
119/15 119/15
120/1 120/10
120/21 121/7
121/13 121/20
122/16 122/24
123/19
Hydro-Quebec [36]

| H | 47/22 95/14 95/17 | identify [5] 59/20 |
| :---: | :---: | :---: |
| Hydro-Quebec... | 106/23 117/11 | 59/21 63/2 63/ |
| [36] 9/18 9/24 12/6 | I'm [56] 4/22 4/24 | 63/20 |
| 18/17 18/18 19/17 | 5/1 5/8 12/22 | ignore |
| 23/15 26/2 30/22 | 28/17 29/8 29/18 | II [1] 94/11 |
| 31/1 31/2 31/4 31/8 | 32/15 34/19 37/23 | illustrates [1] 131/9 |
| 31/16 31/21 32/10 | 37/24 40/9 47/3 | illustrations [1] |
| 34/5 39/14 39/18 | 48/19 49/4 56/20 | 61/15 |
| 41/17 41/19 48/23 | 70/20 73/20 79/14 | illustrative [1] 60/2 |
| 50/24 118/3 119/11 | 80/6 80/20 82/21 | imagine [3] 89/1 |
| 119/12 119/15 | 83/9 84/20 84/21 | 89/8 97/5 |
| 119/15 120/1 | 85/23 88/1 91/14 | IMM [10] 28/4 28/6 |
| 120/10 120/21 | 93/3 95/10 95/18 | 28/7 28/9 28/14 |
| 121/7 121/13 | 97/9 97/18 97/21 | 29/21 35/16 36/22 |
| 121/20 122/16 | 97/23 98/18 99/12 | 37/10 44/1 |
| 123/19 | 99/22 100/24 101/1 | impact [5] 37/1 |
| Hydro-Quebec's [2] | 107/9 109/23 116/3 | 124/10 127/1 |
| 26/19 122/24 | 116/6 116/15 | 127/11 128/11 |
| hydroelectric [1] | 117/10 120/11 | impacts [6] 47/10 |
| 115/6 | 122/9 123/13 126/3 | 47/13 48/3 117/17 |
| hydropower [1] | 126/19 127/23 | 125/4 125/8 |
| 46/12 | 128/2 130/23 | implications [5] |
| hypothetical [2] | I've [4] 92/7 92/15 | 72/18 128/20 129/5 |
| 22/18 115/5 | 106/19 126/6 | 129/12 132/15 |
|  | Iacopino [2] 1/20 | Implicitly [1] |
|  | 1/20 | 125/10 |
| I'd [12] 44/8 56/15 | ICR [7] 3/11 78/16 | implied [2] 19/19 |
| 76/3 81/19 85/6 | 92/13 94/10 94/10 | 19/23 |
| 85/8 85/10 87/23 | 94/13 94/16 | important [3] 70/7 |
| 91/19 93/16 93/17 | idea [2] 56/13 125/1 | 71/5 74/19 |
| 107/12 | identified [3] 14/16 | impression [1] |
| I'll [7] 29/15 36/2 | 62/18 80/21 | 103/15 |


| I | indeed [1] 87/1 | 76/18 77/12 77/22 |
| :---: | :---: | :---: |
| include [6] 29/21 | independent [2] | 78/6 78/8 79/4 |
| 35/10 35/16 69/12 | 31/24 73/10 | 92/12 |
| 88/7 109/23 | independently [1] | instance [2] 28/12 |
| included [10] 21/2 | 74/17 | 37/6 |
| 21/12 26/10 28/19 | indicate [2] 40/9 | instead [2] 27/16 |
| 28/20 32/17 33/15 | 107/6 | 47/20 |
| 36/15 36/23 37/10 | indicated [5] 18/2 | insurance [4] 60/24 |
| includes [4] 32/3 | 24/9 24/22 42/23 | 61/1 61/11 61/15 |
| 45/5 45/9 125/13 | 71/9 | integrity [1] 122/6 |
| including [3] 32/4 | indicates [4] 11/22 | intensity [2] 50/23 |
| 55/10 129/6 | 13/16 14/8 18/7 | 51/1 |
| increase [10] 49/6 | indicating [1] 84/ | intent [3] 13/3 13/4 |
| 49/17 50/2 50/9 | indication [2] 41/17 | 13/5 |
| 50/10 62/6 90/21 | 50/6 | intercompany [1] |
| 92/3 95/6 114/24 | indicator [7] 43/22 | 132/16 |
| increased [2] 46/24 | 43/23 44/2 44/5 | interconnection [3] |
| 47/1 | 44/11 61/16 99/13 | 31/14 94/12 119/20 |
| increases [1] 109/4 | indicators [1] 58/9 | interest [1] 10/24 |
| increasing [2] 50/4 | individual [1] | interested [4] |
| 114/11 | 14/16 | 107/12 116/15 |
| incremental [17] | induce [1] 73/1 | 121/23 134/15 |
| 48/21 51/5 67/15 | industry [1] 76/20 | interface [3] 55/4 |
| 68/10 69/7 69/15 | inform [3] 61/13 | 55/5 55/7 |
| 72/20 73/15 101/2 | 72/17 127/16 | intermittent [1] |
| 109/1 112/1 112/2 | information [9] | 111/2 |
| 112/21 113/18 | 12/21 22/1 36/22 | Internal [1] 28/7 |
| 113/19 114/16 | 39/19 58/13 59/3 | interruption [4] |
| 115/6 | 107/1 113/5 130/2 | 19/21 78/22 86/19 |
| incur [2] 108/21 | informs [1] 73/2 | 93/7 |
| 109/1 | initial [1] 70/24 | introduce [1] 4/19 |
| incurred [1] 114/19 | installed [8] 3/10 | introduction [3] |


| I | 83/15 86/11 88/16 | 79/12 81/3 83/15 |
| :---: | :---: | :---: |
| introduction... [3] | 88/18 88/23 90/8 | 86/17 87/5 89/6 |
| 100/9 107/10 | 90/9 91/11 92/1 | 95/14 96/5 98/24 |
| 111/21 | 92/11 102/20 | 99/1 99/13 99/19 |
| investment [1] 32/4 | 117/18 117/22 | 101/24 111/22 |
| investments [2] | 120/15 | 112/2 112/3 112/17 |
| 49/14 52/1 | issue [10] 30/1 | 115/9 116/9 117/8 |
| investor [1] 69/11 | 32/21 33/7 59/20 | 118/20 118/23 |
| involves [2] 65/2 | 59/21 59/23 60/1 | 119/2 120/4 122/15 |
| 65/15 | 63/2 63/5 63/9 | 126/1 126/1 126/17 |
| is [375] | issued [1] 43/10 | 126/24 127/15 |
| isn't [4] 44/9 49/1 | issues [2] 70/12 | 128/14 128/15 |
| 69/4 69/8 | 71/5 | 128/17 130/4 |
| ISO [33] 3/4 3/6 | it [270] | 132/13 |
| 8/23 21/8 22/17 | it's [88] 5/3 16/4 | item [10] 12/14 |
| 26/5 28/2 30/16 | 16/15 18/19 21/22 | 14/4 18/19 56/17 |
| 43/20 46/14 55/1 | 23/16 24/5 24/11 | 59/15 59/15 60/4 |
| 76/6 76/16 80/16 | 30/11 30/22 32/8 | 62/22 62/23 63/14 |
| 81/3 82/6 83/5 | 35/6 36/4 41/12 | items [3] 12/11 |
| 83/15 86/11 88/16 | 41/21 42/2 42/2 | 14/23 52/9 |
| 88/18 88/23 90/8 | 42/22 43/1 43/7 | its [23] 9/5 12/8 |
| 90/9 91/11 92/1 | 45/10 48/19 48/20 | 13/8 16/6 21/5 |
| 92/11 94/3 102/20 | 49/24 50/2 50/5 | 21/22 30/16 31/7 |
| 117/18 117/22 | 51/8 53/21 54/1 | 35/10 46/10 53/4 |
| 120/15 | 54/8 56/3 56/22 | 54/9 64/2 64/22 |
| ISO's [1] 95/23 | 58/4 58/18 59/4 | 67/3 73/4 73/23 |
| ISO-New [31] 3/4 | 60/10 64/8 65/8 | 74/12 82/6 108/23 |
| 3/6 3/9 8/23 21/8 | 66/6 66/21 67/17 | 127/21 128/19 |
| 22/17 26/5 28/2 | 69/8 71/6 72/13 | 128/19 |
| 30/16 43/20 46/14 | 72/21 73/15 73/19 | itself [2] 119/21 |
| 76/6 76/16 80/16 | 75/20 77/4 77/5 | 127/10 |
| 81/3 82/6 83/5 | 78/4 78/5 78/11 | IV [1] 66/11 |


| J | 92/9 92/15 93/14 | 110/24 |
| :---: | :---: | :---: |
| January [1] 16/13 | 93/22 94/2 97/1 | kilowatt-month [5] |
| job [2] 22/4 29/10 | 99/23 101/12 102/9 | 41/21 41/23 42/3 |
| jobs [2] 46/24 48/3 | 105/16 105/20 | 42/24 43/2 |
| John [1] 3/15 | 106/4 106/21 107/8 | kilowatt-year [4] |
| joint [3] 1/8 5/16 | 107/9 107/14 | 41/4 41/6 41/7 43/3 |
| 6/18 | 108/15 109/8 | kind [6] 44/11 48/6 |
| JS [1] 3/16 | 110/14 111/5 | 58/19 100/1 100/4 |
| JS-B [1] 3/16 | 111/12 111/20 | 115/1 |
| July [1] 44/21 | 111/20 112/3 112/7 | kinds [1] 36/14 |
| jump [2] 75/2 93/3 | 112/10 112/13 | knew [1] 32/20 |
| jumping [1] 75/5 | 113/16 113/21 | knock [1] 97/22 |
| June [2] 10/14 11/8 | 114/1 114/15 115/4 | know [103] 10/19 |
| just [99] 7/19 16/22 | 116/9 117/10 120/5 | 13/5 34/14 36/12 |
| 18/23 20/21 24/9 | 124/9 127/15 128/2 | 38/1 42/1 43/24 |
| 24/17 27/16 29/2 | 128/18 129/3 130/8 | 49/4 49/15 52/21 |
| 34/1 36/2 37/20 | 130/23 132/13 | 55/23 56/6 56/7 |
| 38/19 38/21 39/4 | just I [1] 127/15 | 56/11 57/4 57/5 |
| 39/24 40/8 40/13 | JÜRGEN [8] 2/4 | 57/6 58/11 58/17 |
| 40/14 44/9 45/19 | 4/8 4/16 4/24 5/4 | 59/9 60/23 61/4 |
| 49/2 51/7 53/14 | 5/8 87/4 111/12 | 62/13 62/14 64/7 |
| 54/19 54/23 56/22 | K | 66/1 66/16 69/5 |
| 60/7 61/2 61/15 | Kathryn [1] 1/14 | 69/5 74/1 74/8 |
| 62/14 63/21 66/7 | keep [3] 11/18 71/6 |  |
| 66/13 67/17 68/17 | 93/19 | 87/23 88/6 89/13 |
| 69/8 70/4 72/18 | Kevin [1] 116/7 | 87/23 88/6 89/13 90/8 90/16 93/16 |
| 76/13 76/13 76/14 | key [1] 67/12 | 96/9 97/11 97/21 |
| 78/9 81/22 82/21 | kilometer [1] 34/22 | 97/23 98/2 98/14 |
| 83/21 84/5 84/18 | kilowatt [11] 41/4 | 99/9 98/20 |
| 85/15 85/16 88/4 | 41/6 41/7 41/21 | 99/24 100/6 100/7 |
| 88/11 89/20 89/23 | 41/23 42/3 42/24 | 101/11 101/22 |
| 91/4 91/18 91/22 | 43/2 43/3 110/21 |  |


| K | Lagasse [1] 116/7 | left-hand [2] 20/2 |
| :---: | :---: | :---: |
| know... [46] 102/9 | language [5] 19/23 | 52/7 |
| 102/12 104/22 | 107/13 126/8 127/5 | legal [2] 120/13 |
| 107/15 108/5 | 128/21 | 121/16 |
| 108/15 108/24 | large [1] 70/13 | legally [1] 119/24 |
| 109/6 109/21 110/7 | larger [2] 30/11 | LEI [52] 9/5 12/7 |
| 110/13 111/3 111/3 | 57/22 | 12/19 13/8 20/17 |
| 111/9 112/19 115/7 | last [5] 38/14 40/8 | 21/11 33/1 33/12 |
| 115/8 115/10 | 42/2 63/9 77/5 | 35/10 37/1 37/6 |
| 116/18 125/1 | later [1] 62/9 | 46/10 46/17 52/18 |
| 125/11 126/17 | lawyer [3] 121/5 | 52/21 53/4 54/9 |
| 126/18 126/20 | 121/20 127/19 | 59/1 60/1 60/18 |
| 127/13 127/14 | lawyer's [1] 119/7 | 61/12 61/17 62/7 |
| 127/16 128/4 | layman's [4] | 62/10 62/20 63/4 |
| 128/11 128/15 | 118/11 119/5 121/5 | 63/13 63/20 64/1 |
| 128/18 128/24 | 127/18 | 64/22 66/8 67/3 |
| 129/1 129/3 129/7 | LCHM [1] 21/15 | 71/20 73/4 73/13 |
| 129/13 129/16 | LCR [3] 1/24 | 73/23 76/9 87/20 |
| 129/17 129/18 | 134/17 134/18 | 101/15 116/18 |
| 129/20 129/21 | lease [5] 130/12 | 116/20 116/23 |
| 129/23 130/7 132/6 | 130/14 130/21 | 117/14 119/1 |
| 132/6 132/15 | 131/11 131/17 | 123/16 124/1 |
| knowing [1] 105/23 | leasing [1] 130/22 | 124/23 128/21 |
| knowledge [2] | least [5] 49/16 | 128/24 129/1 |
| 63/15 130/1 | 90/20 91/11 107/7 | 129/17 129/20 |
| known [1] 28/4 | 126/21 | LEI's [43] 8/7 8/8 |
| knows [1] 27/17 | leave [2] 12/4 21/16 | 8/12 8/19 11/17 |
| L | Lee [1] 46/1 | 11/21 13/24 18/20 |
|  |  |  |
| la [1] 16/4 | 52/7 79/14 79/15 | 20/20 21/4 21/24 |
| lack [2] 111/9 | 79/23 94/16 96/8 | 26/11 26/12 27/13 |
| 123/3 | 98/7 100/19 | 29/18 29/20 32/24 |


| L | 103/1 107/14 121/4 | 26/11 34/22 35/12 |
| :---: | :---: | :---: |
| LEI's... [23] 37/17 | 126/23 | 36/24 37/9 41/8 |
| 38/24 40/24 46/9 | let's [8] 14/21 15/14 | 55/14 56/22 67/17 |
| 47/8 51/13 51/23 | 65/9 66/11 86/2 | 82/13 84/3 84/11 |
| 52/23 57/11 64/21 | 86/2 114/1 125/17 | 88/3 91/7 93/9 93/9 |
| 65/3 65/16 65/20 | level [5] 44/14 50/4 | 94/9 102/19 105/12 |
| 69/20 69/22 70/8 | 65/20 66/13 66/14 | 111/14 125/18 |
| 71/12 71/15 71/24 | levels [1] 49/7 | 126/10 126/15 |
| 72/14 73/5 88/6 | Licensed [2] 134/3 | 127/8 127/20 128/6 |
| 100/8 | 134/18 | 128/8 128/23 129/4 |
| Lembo [1] 45/11 | like [35] 4/6 7/20 | 129/11 129/19 |
| Lenehan [1] 1/20 | 28/18 28/22 30/8 | 130/3 131/1 131/2 |
| less [10] 21/16 | 38/4 39/24 44/8 | 131/2 131/5 131/11 |
| 22/15 23/1 58/22 | 56/18 61/6 62/1 | 131/13 131/16 |
| 77/24 78/1 102/2 | 62/2 62/3 63/23 | 132/9 132/10 |
| 111/1 113/10 | 69/20 70/5 70/22 | lines [6] 55/6 56/24 |
| 115/15 | 75/8 76/3 81/6 | 78/12 82/12 94/9 |
| lessee [2] 131/3 | 81/10 81/16 83/1 | 105/16 |
| 131/10 | 84/15 89/13 91/19 | list [4] 10/23 52/16 |
| Lessee's [1] 131/4 | 92/24 99/14 105/15 | 54/10 74/23 |
| lessor [4] 131/1 | 107/10 110/18 | listed [7] 13/23 21/2 |
| 131/5 131/6 131/10 | 112/17 115/7 | 40/23 52/9 52/19 |
| Lessor's [1] 131/6 | 118/12 119/6 | 53/1 53/6 |
| let [30] 9/17 11/19 | likelihood [4] 100/3 | literally [2] 24/11 |
| 15/18 27/12 28/11 | 100/13 103/17 | 53/24 |
| 29/24 46/8 47/17 | 105/18 | little [13] 60/11 |
| 48/15 51/12 52/4 | likely [6] 48/20 | 66/2 72/21 72/23 |
| 52/15 53/14 54/23 | 99/19 100/21 | 74/2 77/4 87/2 87/4 |
| 58/14 65/1 65/13 | 104/13 104/14 | 89/11 99/13 99/16 |
| 66/12 68/14 70/7 | 110/5 | 99/18 110/13 |
| 71/12 76/12 81/12 | lin [1] 31/19 | LLC [1] 1/8 |
| 95/14 95/17 96/24 | line [42] 18/19 | lo [1] 69/20 |

load [42] 62/23 63/10 76/13 76/16
76/17 76/21 76/22
77/1 77/6 77/20
78/2 80/14 82/6
82/7 83/6 84/6 86/3
86/12 87/21 88/14
88/15 88/24 89/8
90/2 90/19 91/16
92/4 93/6 93/10
93/13 95/24 96/17
96/19 99/13 102/4
102/13 102/19
102/21 102/24
103/13 103/21 105/3
Loads [2] 3/5 3/7 located [1] 5/10 lodge [1] 116/8 London [1] 28/23 long [2] 40/22 42/21
long-term [1] 40/22 longer [1] 108/24 look [43] 11/11 13/13 14/18 14/21 20/8 20/13 34/21 45/1 47/9 52/6 53/15 54/21 55/16 55/21 57/3 58/2 58/10 58/10 58/16

58/23 61/5 61/12
62/2 65/17 66/6 69/9 70/8 70/9 81/6 81/16 84/2 84/2 85/9 85/10 86/10
91/3 94/21 102/16
102/18 102/18
107/21 125/14
125/15
looked [12] 14/12
39/23 61/18 65/17
73/6 86/1 91/22
92/20 119/7 126/4
126/6 129/15
looking [18] 14/3
19/4 22/14 40/10
52/16 55/22 57/14
60/24 66/10 84/1
91/4 92/23 93/1
93/15 95/18 112/13 114/18 125/11
looks [5] 7/20 61/2 61/2 81/10 92/24
Loss [1] 63/10
lot [12] 28/24 29/10 29/11 40/18 48/24 50/7 57/20 58/18 65/7 71/21 105/1 123/23
low [9] 57/5 57/5 57/7 57/13 57/21 57/21 58/9 58/11

## $77 / 2$

low-cost [1] 57/7 lower [26] 55/19 57/2 58/18 59/13 59/14 69/17 79/12 79/13 89/3 89/16 96/18 96/19 99/8 99/13 99/18 100/12 100/12 100/17 100/18 100/20 100/23 101/13 101/20 102/4 104/12 104/23
lowered [1] 99/15 lowering [2] 124/15 124/16
lowers [3] 99/3
118/16 118/17
lunch [2] 132/24
133/2

## M

macroeconomic [1] 47/23
made [12] 17/1 31/1 31/23 32/7 73/13 76/7 90/12 90/15 97/5 111/12 114/15 117/14 Maine [1] 67/20 make [16] 11/1 12/11 17/20 18/5 31/7 35/21 36/6
make... [9] 36/15
76/24 77/7 81/13
100/20 110/12
120/12 127/17
128/18
makes [2] 39/14 66/1
mandate [1] 51/19
many [3] 38/20
53/20 115/24
March [3] 13/20
13/24 39/21
margin [6] 26/1 26/14 77/16 77/21
78/2 88/17
Mark [1] 116/7
marked [4] 80/7 80/11 89/22 102/15 market [85] 8/6 8/9 8/24 9/8 9/12 9/14 21/8 22/11 28/7 35/21 36/9 36/13 36/14 43/20 44/4 46/11 46/14 53/12 55/9 55/24 57/2 57/3 58/18 58/21 61/7 66/4 67/18 68/2 68/12 68/13 68/14 68/15 68/23 69/2 69/17 70/15 70/16 72/3 72/6

72/22 73/7 76/2
76/3 77/14 97/14 98/5 98/15 100/1 100/18 101/14 101/20 103/10 104/5 104/24
105/19 108/8 110/7 110/20 111/9
111/23 113/2 117/1
117/17 118/14
118/15 118/16
118/20 118/24
120/2 120/7 121/8
121/14 122/4 123/2
123/17 123/20
123/23 124/4
124/10 124/11
124/15 124/16
124/18 124/24
125/4
markets [6] 50/23
51/1 58/16 63/22 120/11 120/15
Martin [1] 1/13
Mass [5] 67/22
67/22 68/4 105/7 105/8
Massachusetts [5] 4/23 5/10 105/13 106/11 107/4
material [6] 28/19 32/16 70/23 74/8

74/8 78/14
math [3] 21/19 86/16 87/5
matter [7] 7/9 33/9
36/16 65/2 65/14 105/6 114/20
may [21] 7/19
10/15 38/6 49/10 49/11 64/16 75/14 76/13 80/18 82/2 83/21 89/9 97/23 100/22 102/4 102/5 108/20 114/4 121/1 131/4 131/6
maybe [11] 47/5
48/7 51/9 93/3 93/4
97/24 98/2 105/9
107/14 111/16
113/22
me [43] 9/17 11/19
13/2 15/14 15/18
22/4 27/12 28/11
29/24 33/7 34/13
46/8 47/17 48/15
51/12 52/4 52/15
53/14 54/23 58/14
59/6 65/1 65/13
66/12 70/7 70/22
71/12 76/12 81/12
84/12 93/23 95/11
96/24 103/1 107/15
111/21 112/3 119/4

| M | 41/13 57/19 | 90/14 90/22 91/1 |
| :---: | :---: | :---: |
| me... [5] 119/6 | megawatts [54] | 91/8 91/10 92/2 |
| 121/4 125/6 126/23 | 12/9 12/12 12/15 | 93 |
| 127/10 | 13/9 13/19 13/23 | method [1] 88/7 |
| mean [35] 15/12 | 14/22 18/11 19/2 | methodology [6] |
| 23/24 24/2 44/10 | 19/8 19/10 19/14 | 87/22 88/10 88/11 |
| 56/6 56/18 58/2 | 20/15 21/2 21/6 | 90/11 90/13 95/21 |
| 58/4 58/5 60/11 | 21/13 21/15 21/1 | metric [2] 53/19 |
| 66/18 67/20 68/16 | 22/16 23/2 25/3 | 54/20 |
| 69/8 75/5 78/3 | 25/5 40/22 41/1 | Michael [1] 1/20 |
| 78/13 85/7 85/9 | 79/22 79/24 84/17 | middle [1] 33/22 |
| 87/12 93/17 93/18 | 87/10 89/10 107/24 | midpoint [1] 72/12 |
| 93/23 102/1 103/15 | 109/7 110/15 111/6 | might [23] 49/17 |
| 105/23 112/19 | 111/7 111/10 | 50/21 61/6 68/23 |
| 125/10 126/18 | 111/24 111/24 | 79/3 79/6 87/8 89/8 |
| 126/18 126/19 | 112/1 112/5 112/8 | 97/3 97/11 98/16 |
| 127/10 127/15 | 112/9 112/11 | 98/22 99/23 100/3 |
| 128/7 128/24 | 112/13 112/20 | 100/13 100/20 |
| meaning [1] 79/13 | 112/24 113/1 | 101/2 101/5 101/14 |
| meaningful [1] | 113/17 113/19 | 103/16 117/22 |
| 53/9 | 113/20 114/7 | 128/4 128/12 |
| means [2] 50/17 | 114/21 115/11 | million [12] 34/17 |
| 117/23 | 115/13 115/14 | 35/2 35/7 35/11 |
| measure [1] 89/15 | Member [1] 1/17 | 36/24 41/9 61/22 |
| meet [5] 23/18 | mention [1] 63/17 | 61/24 62/5 97/22 |
| 25/19 26/2 54/2 | mentioned [6] | 116/11 119/20 |
| 77/1 | 16/22 62/11 62/12 | mind [3] 43/7 81/1 |
| Meeting [1] 3/9 | 63/21 64/1 64/6 | 101/19 |
| megawatt [5] 41/13 | mentions [1] 30/23 | mindful [1] 70/20 |
| 57/19 82/23 84/19 | merits [1] 1/11 | mine [1] 118/12 |
| 85/4 | meter [12] 84/7 | Minimum [1] 27/20 |
| megawatt-hour [2] | 86/4 90/4 90/10 | minimus [1] 63/18 |

minus [6] 17/12
22/21 26/8 35/9 94/10 94/11 minute [3] 24/17 64/11 65/10 missed [1] 124/7 mistaken [1] 23/21 misunderstood [1] $47 / 5$
Mitigation [2]
59/16 62/23
model [17] 55/11
55/13 55/18 56/2
56/7 58/12 63/4
65/3 65/3 65/15
65/16 66/16 66/17 66/21 99/1 99/12 101/11
modeled [3] 48/3 58/20 59/8
modeling [2] 55/9 55/10
models [3] 64/20 64/23 65/1 moment [4] 18/1 71/9 81/22 83/21 money [3] 70/15 72/6 110/23
Monitor [7] 28/8 35/21 36/10 36/14 68/14 110/7 110/20

Monroe [1] 1/21 month [5] 41/21
41/23 42/3 42/24 43/2
months [1] 121/3 MOPR [13] 27/13
27/20 28/9 28/15 29/19 33/12 35/10 36/5 37/2 37/17 38/20 44/9 58/2 more [30] 27/6 49/8 49/9 49/11 55/7 60/15 63/24 67/13
70/3 71/4 77/23
78/1 88/23 89/11
89/12 96/20 100/21
101/5 101/12
101/14 101/19
101/24 102/1 102/5
105/1 107/11 110/5
113/4 115/15 130/8
morning [16] $1 / 4$
4/2 4/12 4/13 4/14
8/4 75/15 75/17
75/18 75/22 117/4 119/9 119/14
119/24 120/10
133/4
most [8] 10/6 12/22
55/4 71/15 73/13 73/17 80/3 91/2
mostly [1] 41/20
move [3] 60/5 79/22 96/24
Mr [25] 2/6 2/7 2/8
4/5 4/10 4/11 28/17
32/13 32/22 33/10
37/15 38/3 38/5
38/15 45/10 64/15
64/17 70/18 75/5
75/11 75/15 106/5
115/22 122/12
132/12
Mr. [14] 28/21
32/18 37/13 45/7
45/19 45/24 70/19
75/15 75/16 115/24
122/15 123/12
132/14 132/22
Mr. Chair [7]
37/13 75/15 115/24
122/15 123/12
132/14 132/22
Mr. Needleman [1]
70/19
Mr. Olivier [2]
45/7 45/24
Mr. Pappas [2]
28/21 32/18
Mr. Peterson [1]
45/19
Mr. Weiss [1]
75/16
Ms [5] 9/11 32/19


| $\mathbf{N}$ | 120/6 120/15 | 129/24 132/4 132/5 |
| :---: | :---: | :---: |
| new... [80] 61/23 | 123/20 125/12 | 134/ |
| 61/24 62/6 66/24 | NEWELL [225] | nobody [2] 72/3 |
| 67/12 67/14 67/15 | next [10] 10/18 | 72/6 |
| 68/11 69/1 69/3 | 10/20 14/4 21/4 | non [2] 20/11 20/23 |
| 69/18 71/21 72/3 | 41/8 56/17 59/15 | non-domestic [1] |
| 74/12 76/6 76/16 | 62/22 79/7 79/8 | 20/11 |
| 80/16 81/3 82/6 | NICR [24] 79/5 | non-HQD [1] 20/23 |
| 83/5 83/15 86/11 | 79/6 79/9 87/21 | nontechnical [ |
| 88/16 88/18 88/23 | 88/12 88/23 88/24 | 117/8 |
| 89/4 90/8 90/9 | 89/2 89/9 89/16 | northern [77] 1/8 |
| 91/11 92/1 92/11 | 94/24 95/6 95/21 | 8/22 9/7 9/7 9/13 |
| 96/11 96/17 96/24 | 96/17 97/3 97/24 | 10/17 21/7 22/9 |
| 101/4 102/17 | 98/3 98/14 98/16 | 22/10 28/12 30/15 |
| 102/20 102/22 | 99/8 99/24 100/12 | 30/23 31/15 31/24 |
| 103/1 103/2 103/6 | 100/17 101/4 | 32/3 32/6 34/8 |
| 103/11 103/14 | no [50] 1/7 1/23 | 34/23 35/13 35/13 |
| 103/17 103/20 | 1/24 2/3 3/3 3/3 3/9 | 35/18 37/7 45/20 |
| 104/8 104/12 | 3/16 5/20 6/11 6/22 | 45/23 46/13 46/18 |
| 104/13 104/15 | 6/23 7/13 14/20 | 47/20 50/16 51/15 |
| 104/16 104/17 | 20/12 35/15 36/15 | 53/7 62/5 65/22 |
| 104/19 104/20 | 38/18 46/11 48/16 | 69/14 70/6 70/9 |
| 104/21 105/1 105/3 | 49/20 49/20 53/2 | 70/10 70/11 72/2 |
| 107/24 108/10 | 53/9 57/13 58/9 | 72/10 72/11 96/24 |
| 108/16 109/2 109/2 | 59/6 59/24 63/3 | 97/13 99/6 99/7 |
| 109/3 109/7 109/17 | 71/14 73/9 74/21 | 100/5 100/9 101/2 |
| 113/19 114/18 | 97/6 97/7 98/22 | 101/17 102/3 102/7 |
| 114/21 114/21 | 101/16 108/24 | 102/17 102/22 |
| 115/9 115/10 | 109/17 113/15 | 103/1 103/5 103/6 |
| 115/12 115/14 | 118/7 120/3 120/4 | 103/10 103/14 |
| 115/14 116/8 | 120/13 122/4 | 103/17 103/19 |
| 117/18 117/22 | 124/12 124/14 | 103/20 104/8 |


| $\mathbf{N}$ | 84/21 88/5 90/21 | 120/3 120/5 120/8 |
| :---: | :---: | :---: |
| northern... [16] | 96/13 97/9 97/16 | 121/1 |
| 104/12 104/15 | 97/18 97/21 98/18 | noticed [2] 55/8 |
| 104/16 104/17 | 99/12 99/20 99/22 | 55/13 |
| 104/19 104/20 | 100/10 101/1 101/9 | notify [1] 75/3 |
| 105/1 105/3 105/12 | 102/8 104/13 | notwithstanding [1] |
| 105/18 120/21 | 104/14 104/23 | 115/1 |
| 123/19 123/24 | 105/14 106/6 | now [81] 6/6 7/4 |
| 125/19 126/9 | 111/22 112/11 | 8/22 9/5 9/17 10/6 |
| 126/14 | 112/17 113/13 | 11/15 11/22 12/3 |
| not[121] 5/1 12/1 | 113/20 114/15 | 12/14 13/6 14/21 |
| 14/15 16/16 20/16 | 115/24 116/3 | 14/22 15/8 15/9 |
| 20/19 24/3 24/6 | 116/22 116/24 | 16/18 17/15 17/23 |
| 29/9 29/21 33/3 | 118/6 118/20 | 18/7 18/22 20/2 |
| 34/19 37/20 41/21 | 118/22 118/23 | 20/8 22/5 22/18 |
| 42/17 47/3 47/18 | 119/2 120/20 | 23/3 24/15 26/17 |
| 47/23 48/1 48/20 | 121/18 121/21 | 26/22 27/3 27/12 |
| 49/4 49/7 49/8 | 121/24 122/9 | 27/14 28/18 33/20 |
| 49/10 50/12 50/15 | 122/16 123/9 | 34/6 34/9 34/18 |
| 50/18 52/13 52/14 | 124/21 126/19 | 35/2 36/17 36/20 |
| 53/9 54/6 54/8 | 127/5 127/6 127/8 | 39/7 40/5 42/4 |
| 54/16 54/17 54/20 | 127/22 128/1 | 42/10 42/21 44/16 |
| 54/22 56/7 56/21 | 128/14 128/17 | 44/23 44/23 45/13 |
| 56/22 58/6 58/11 | 129/17 131/18 | 46/4 46/10 47/6 |
| 59/20 60/2 61/2 | 132/15 134/13 | 49/12 51/22 52/4 |
| 62/11 62/14 63/15 | note [1] 38/1 | 56/17 57/20 59/19 |
| 63/17 63/20 63/24 | noted [2] 3/16 | 60/18 62/10 67/22 |
| 65/4 65/5 66/18 | 133/6 | 69/13 71/18 73/4 |
| 67/4 67/24 71/14 | notes [2] 10/3 134/6 | 79/2 83/11 84/ |
| 72/15 72/21 73/9 | noteworthy [1] | 84/20 86/10 87/18 |
| 74/4 74/7 74/16 | 31/13 | 92/16 94/2 95/3 |
| 74/18 75/19 77/2 | nothing [5] 119/23 | 95/4 95/17 95/17 |


| $\mathbf{N}$ | objection [7] 37/13 | 114/8 114/9 114/11 |
| :---: | :---: | :---: |
| now... [6] 99/4 | 37/24 122/8 123/14 | 114/12 |
| 101/6 111/1 121/2 | 131/20 132/11 | offered [2] 130/2 |
| 123/7 130/9 | 132/20 | 130/10 |
| NPCC's [1] 17/6 | obligates [3] 120/10 | offering [2] 108/7 |
| NPT [10] 117/9 | 121/6 121/13 | 109/12 |
| 117/17 117/18 | obligation [2] | Officer [1] 1/13 |
| 117/23 118/20 | 120/14 120/18 | offset [2] 51/9 |
| 128/22 129/4 | obligations [3] | 51/11 |
| 129/10 130/22 | 31/11 31/16 121/17 | offsets [1] 115/1 |
| 131/3 | observation [2] | offsetting [1] 110/8 |
| number [20] 14/5 | 55/16 111/13 | oh [8] 12/3 49/21 |
| 18/24 21/15 30/23 | observed [1] 55/19 | 56/20 66/11 97/20 |
| 34/9 36/17 37/8 | obtain [1] 15/10 | 97/21 110/22 |
| 43/4 44/1 58/22 | obvious [1] 108/20 | 118/13 |
| 65/18 66/2 71/19 | obviously [3] 24/2 | okay [163] |
| 74/1 93/1 93/23 | 113/13 126/24 | old [1] 71/22 |
| 93/24 96/7 97/19 | occurred [1] 119/4 | Oldenburg [1] 1/16 |
| 98/19 | October [2] 1/3 | older [1] 91/23 |
| numbered [1] | 13/18 | Olivier [2] 45/7 |
| 52/17 | odds [2] 31/22 | 45/24 |
| numbers [11] 36/21 | 31/22 | on-peak [1] 92/2 |
| 37/3 40/18 42/17 | off [12] 65/10 65/11 | once [1] 69/13 |
| 42/18 58/20 59/9 | 78/7 78/12 82/22 | one [55] 10/18 |
| 59/9 85/7 92/22 | 85/19 85/20 90/7 | 10/20 11/18 14/13 |
| 93/5 | 97/22 113/13 | 17/10 23/11 24/8 |
| numerator [1] | 115/18 115/19 | 25/12 29/19 31/13 |
| $110 / 23$ | off-the-record [2] | 38/23 47/22 48/17 |
| 0 | 85/20 115/19 | 48/23 49/3 49/16 |
|  | 位 | 51/7 53/15 55/8 |
| object [2] 28/18 | 29/12 29/14 39/1 | 58/13 58/22 61/4 |
| 32/15 | 109/15 111/23 | 61/8 63/21 65/18 |


| 0 | 33/3 37/22 43/23 | others [2] 87/16 |
| :---: | :---: | :---: |
| one... [30] 66/7 | 44/4 58/3 | 112/17 |
| 67/12 67/18 68/5 | opposite [1] 57/24 | otherwise [3] 9/22 |
| 69/19 70/3 70/5 | optimistic [3] 71/16 | 67/16 96/3 |
| 72/19 78/1 78/20 | 73/14 73/17 | our [26] 7/23 38/19 |
| 79/6 79/8 79/22 | option [2] 46/4 | 53/12 55/9 56/2 |
| 82/22 87/1 91/15 | 126/12 | 60/13 62/8 62/11 |
| 91/22 91/23 93/12 | options [1] 60/16 | 64/6 65/20 65/21 |
| 94/18 96/13 99/14 | order [8] 8/22 | 66/6 66/9 67/1 74/5 |
| 105/17 106/4 | 10/19 22/9 85/3 | 74/6 74/16 96/14 |
| 111/13 111/21 | 87/10 89/9 114/19 | 106/7 106/12 |
| 114/3 118/7 119/11 | 118/13 | 117/15 118/7 |
| 120/17 | origin [1] 30/24 | 121/18 121/22 |
| ones [6] 9/20 40/10 | original [1] 117/16 | 125/1 132/24 |
| 42/19 71/14 85/7 | other [48] 9/2 14/5 | ours [1] 66/3 |
| 87/12 | 15/4 19/16 22/1 | out [23] 21/14 |
| ongoing [1] 18/17 | 25/7 25/10 25/12 | 21/20 26/13 31/10 |
| only [9] 1/4 39/4 | 36/11 40/1 44/4 | 31/15 31/16 47/23 |
| 48/8 49/7 61/22 | 47/24 48/18 51/16 | 48/21 49/11 70/15 |
| 73/6 73/19 131/23 | 51/17 51/18 52/9 | 70/16 72/6 81/13 |
| 133/7 | 57/22 60/15 61/9 | 84/20 84/23 86/2 |
| Ontario [5] 12/14 | 62/13 63/8 67/1 | 88/12 96/8 104/19 |
| 13/9 13/18 13/19 | 67/21 72/20 79/8 | 114/8 118/16 |
| 51/10 | 79/19 84/6 85/2 | 118/18 128/1 |
| open [1] 84/2 | 85/6 86/22 91/4 | outcomes [1] 61/18 |
| operator [1] 76/20 | 91/20 92/23 93/1 | outlook [1] 8/20 |
| opine [2] 98/20 | 93/23 97/19 103/21 | outside [3] 51/18 |
| 121/16 | 110/2 110/10 | 53/11 66/20 |
| opinion [2] 43/18 | 111/15 118/16 | over [6] 50/16 |
| 126/21 | 118/18 123/16 | 57/17 91/9 102/8 |
| opinions [1] 29/13 | 123/16 124/4 130/13 131/1 | 116/11 128/8 |


| O | Pamela [1] 1/21 |  |
| :---: | :---: | :---: |
| overall... [2] 117/12 | panel [2] 2/4 122/2 | particularly [2] |
| 118/2 | Pappas [10] 2/6 | 78/14 116/15 |
| overrule [1] 37/24 | 4/10 28/21 32/18 | parties [16] 9/3 |
| Overruled [1] | 32/22 37/15 38/3 | 19/14 19/16 19/24 |
| 33/16 | 38/5 38/15 64/15 | 20/14 20/16 20/21 |
| own [2] 33/11 | paragraph [2] | 0/22 21/14 |
| 38/20 | 121/11 121/11 | /23 25/12 |
| owns [1] 127/20 | parameters [2] | 118/4 129/22 |
| P | 8/17 94/18 | 134/ |
| p.m [1] 133/3 | part [19] 13/16 |  |
| package [1] 9/4 | 16/6 33/13 36/8 | party [5] 121/21 |
| page [37] 2/3 3/3 | 39/13 39/17 40/15 | 121/23 121/24 |
| 8/12 8/15 11/18 | 52/7 82/5 90/20 | 122/17 13 |
| 16/19 16/21 17/17 | 90/21 105/10 | pass [62] 1/8 8/22 |
| 17/24 19/5 23/20 | 105/15 106/12 | 9/7 9/7 9/13 10/17 |
| 24/9 27/4 33/21 | 112/4 112/24 | 1/7 22/9 22/10 |
| 34/18 40/5 42/4 | 113/11 113/20 | 28/12 30/15 30/23 |
| 42/6 44/24 45/14 | 121/24 | 31/15 31/24 32/3 |
| 51/23 81/12 82/21 | partial [1] 126/7 | 32/6 34/8 34/23 |
| 84/1 92/15 107/9 | participate [2] 45/2 | 35/13 35/18 37/7 |
| 107/11 111/21 | 68/12 | 45/20 45/23 46/13 |
| 113/17 121/10 | participates [1] 9/8 | 46/18 47/20 50/16 |
| 121/11 125/16 | participating [3] | 51/15 53/7 62/5 |
| 126/1 130/20 | 45/22 45/23 69/15 | 65/22 68/22 69/13 |
| 130/21 130/24 | participation [1] | 9/14 70/6 70/9 |
| 13 | 46/2 | 0/10 70/11 70/12 |
| pages [3] 3/17 24/7 | particular [9] | 72/2 72/10 72/11 |
| 40/20 | 20/22 30/24 55/2 | 7/13 99/6 99/7 |
| paid [1] 36/9 | 74/14 76/5 92/21 | 100/6 100/10 101/2 |
| Pam [1] 86/7 | 107/12 117/22 | 101/18 102/3 102/7 |


| $\mathbf{P}$ | 77/6 77/20 78/2 | perhaps [5] 9/22 |
| :---: | :---: | :---: |
| 11] 103/5 | 80/14 82/6 82/7 | 49/8 69/6 71/3 |
| 103/19 105/12 | 83/6 84/6 86/3 | 103/16 |
| 105/18 118/21 | 86/12 87/21 88/13 | period |
| 120/21 123/19 | 88/15 89/8 90/2 | 98/17 |
| 123/24 125/19 | 90/19 91/16 92/2 | periods [2] 27 |
| 126/9 126/14 | 93/6 93/10 93/13 | 27/10 |
| past [4] 29/4 60/24 | 95/24 96/17 96/19 | permission [1] |
| 61/6 61/7 | 102/19 102/21 | 85/15 |
| Patnaude [4] 1/24 | 102/24 103/13 | perspective [8] |
| 4/5 134/3 134/17 | 103/21 | 17/4 17/5 17/6 17/ |
| Patricia [1] 1/17 | people [2] 55/24 | 32 |
| patrim |  |  |
| 18/11 |  | $\begin{aligned} & \text { Peterson [2] } \\ & \mathbf{4 5 / 1 9} \end{aligned}$ |
| Patterson [1] 45/17 |  |  |
| Paul [2] 45/17 | $\begin{aligned} & 41 / 2342 / 342 / 24 \\ & 43 / 243 / 2 \\ & 110 / 21 \end{aligned}$ | Phase [1] 94/11 phone [1] 116/2 |
| 45/24 <br> pause [2] | $110 / 24111 / 3$ | photovoltaic [2] |
| $\begin{aligned} & \text { pause [2 } \\ & 81 / 24 \end{aligned}$ | percent [23] 9/12 | 90/4 92/1 |
| pay [4] 54/8 58/5 | 61/23 62/9 69/2 | piece [2] 112/10 |
| 60/23 61/14 | 70/15 72/1 77/9 | 112/14 |
| payable [1] 34/3 | 77/15 89/7 89/7 | place [6] 44/20 |
| paying [2] 31/20 | 18 116/22 | 56/9 56/12 83/ |
| 58/17 | 124/3 124/5 12 | 134/6 |
| payments [1] 53/23 | 124/8 124/9 124/ | placed [2] 92/7 |
| payoff [1] 61/4 | 124/16 124/18 | places [2] 31/20 |
| pays [3] 36/3 36/16 | 131/12 131/14 | 121/17 |
| 41/18 | 132/8 | Plan [2] 14/24 |
| peak [40] 12/5 12/8 | percentage [1] | 26/19 |
| 27/7 27/10 76/4 | 88/18 | plans [1] 50/8 |
| 76/5 | perfectly [2] 120 | plant [3] 19/7 |
| 76/16 76/17 76/21 | 124/23 | 25/5 |


| $\mathbf{P}$ | 128/7 128/22 129/4 | PowerPoint [1] |
| :---: | :---: | :---: |
| plants [6] 48/11 | 129/11 | 81/10 |
| 48/13 48/16 48/22 | 130/3 132/8 132/9 | practice [1] 76/19 |
| 70/5 71/21 | portions [1] 36/3 | pre [1] 80/21 |
| please [11] 4/19 | position [3] 79/10 | pre-identified [1] |
| 38/10 56/20 73/21 | 123/10 124/20 | 80/21 |
| 81/1 83/13 84/10 | positioned [1] 79/7 | preclude [1] 33/7 |
| 86/3 106/21 107/8 | positioning [1] 79/2 | predicting [1] |
| 124/13 | possibilities [1] | 102/21 |
| plus [6] 35/9 77/9 | 113/16 | prediction [2] |
| 78/1 89/15 112/1 | possibility [2] 68/6 | 21/21 21/22 |
| 115/14 | 113/16 | prefiled [2] 5/16 |
| point [21] 13/6 | possible [10] 48/11 | 5/22 |
| 21/20 30/10 30/10 | 48/12 48/19 50/5 | premarked [5] |
| 31/3 31/3 31/14 | 50/15 57/9 57/11 | 80/21 83/23 85/24 |
| 36/2 36/4 37/19 | 64/23 73/14 128/3 | 92/8 106/20 |
| 47/23 50/1 60/11 | possibly [1] 71/23 | prepared [1] 76/9 |
| 71/3 81/20 111/5 | potential [13] 30/1 | prepositioned [1] |
| 119/6 119/7 121/20 | 44/2 51/24 52/10 | 4/4 |
| 125/24 126/7 | 52/19 52/24 53/3 | present [4] 1/12 |
| point-to-point [2] | 53/6 63/4 63/13 | 1/19 105/14 134/8 |
| 30/10 31/3 | 63/20 74/17 97/12 | presentation [2] |
| pointed [1] 128/1 | potentially [4] 11/2 | 95/12 95/13 |
| pointing [1] 96/8 | 14/15 43/19 49/8 | presented [3] 81/14 |
| points [1] 87/7 | power [23] 8/24 | 105/20 113/5 |
| polar [2] 61/19 | 9/21 10/4 10/13 | President [2] 45/6 |
| 63/23 | 15/3 15/4 20/16 | 45/10 |
| portion [19] 17/24 | 26/24 31/14 55/7 | Presiding [2] 1/13 |
| 18/3 19/6 34/20 | 55/24 56/8 56/9 | 1/13 |
| 42/13 125/18 | 56/12 56/13 57/1 | presumably [4] |
| 126/10 126/15 | 57/7 57/7 58/1 58/4 | 20/24 109/14 113/9 |
| 127/7 127/20 128/5 | 68/10 90/6 128/8 | 113/12 |


| $\mathbf{P}$ | 80/2 80/5 98/5 | 9/22 |
| :---: | :---: | :---: |
| pretty [3] 56/9 | 104/8 | production [30] |
| 99/19 118/5 | Principal [2] 4/22 | 9/18 17/8 18/8 |
| prevent [1] 36/13 | 5/9 | 18/18 23/15 24/ |
| previous [3] 23/11 | prior [2] 11/19 | 30/ |
| 39/16 132/7 | 85/11 | 31/17 31/21 32/1 |
| price [25] 27/20 | probability [3] 61/9 | 34/5 41/19 53/16 |
| 35/22 36/17 39/1 | 63/11 77/2 | 53/24 54/4 54/11 |
| 41/3 41/13 43/4 | probably [4] 35/6 | 54/15 54/19 54/ |
| 44/12 55/16 55/19 | 91/14 109/22 121/2 | 55/12 57/4 57/8 |
| 56/3 56/10 59/1 | procedure [1] | 57/10 57/12 57/14 |
| 72/1 99/3 99/5 | 39/17 | 59/14 119/12 |
| 100/5 100/10 | proceed [2] 75/14 | 119/15 |
| 104/20 104/23 | 105/10 | project [53] 9/8 |
| 114/8 114/12 | proceeding [3] 5/17 | 9/13 10/17 21/7 |
| 118/17 118/17 | 6/7 16/17 | 22/10 28/13 30/15 |
| 123/18 | proceedings [2] | 31/18 31/19 32/1 |
| priced [2] 57/2 57/2 | 40/1 134/6 | 34/23 35/13 35/24 |
| prices [30] 41/20 | process [4] 29/6 | 36/4 36/7 37/7 |
| 41/22 44/14 55/21 | 46/3 106/13 107/4 | 46/13 53/8 55/12 |
| 55/23 58/11 58/24 | processes [1] 29/7 | 66/24 67/12 67/13 |
| 59/1 59/5 62/15 | procured [1] 77/13 | 67/24 68/1 68/24 |
| 62/16 62/17 62/18 | procurement [1] | 69/5 69/8 74/11 |
| 64/2 64/5 69/17 | 43/13 | 76/21 90/17 103/5 |
| 70/10 70/13 98/15 | procures [2] 9/22 | 103/18 103/19 |
| 100/1 100/12 | 9/24 | 103/23 105/20 |
| 100/18 100/19 | produce [3] 10/12 | 107/1 107/14 108/7 |
| 101/13 101/20 | 51/16 54/2 | 108/10 108/11 |
| 104/12 124/11 | produced [4] 34/8 | 108/18 108/22 |
| 124/15 124/16 | 50/3 50/11 105/14 | 109/4 109/12 |
| 124/18 | producer [1] 23/15 | 111/23 114/6 |
| pricing [5] 79/18 | produces [2] 9/21 | 114/20 114/22 |


| $\mathbf{P}$ | providers [1] 40/18 | pure [1] 21/19 |
| :---: | :---: | :---: |
| project... [5] | provision [1] | purely [1] 36/1 |
| 115/10 115/12 | 125/22 | pose [2] 16/16 |
| 116/12 124/1 | provisions |  |
| 125/3 | 125/17 | purposes [8] |
| projected [2] 83/6 | PSNH [22] 116/16 | 80/5 80/13 81/7 |
| 1/11 | 125/7 125/9 125/13 | 1/17 111/8 11 |
| projecting [3] | 125/20 126/11 | 3/2 |
| 0/10 88/12 90/ | 126/16 127/2 127/6 | push [1] 102/ |
| projection [2] | 127/11 127/20 | put [6] 11/17 15/1 |
| 86/11 91/1 | 127/22 128/6 | 76/8 106/19 111/5 |
| projections [5] 8 | 128/13 128/23 | 113 |
| 85/2 85/5 88/22 | 129/5 129/6 129/12 | putting [1] 85 |
| /22 | 129/12 130/22 | PV [11] 82/14 84/7 |
| projects [8] 36/6 | 131/3 132/17 | 86/4 89/23 89/24 |
| 36/11 53/21 55/1 | PSPC [1] 3/9 | /3 91/8 91/1 |
| 55/2 67/19 67/20 | Public [12] 1/9 1/13 | 93/6 93/10 102/10 |
| 107/5 | 1/14 1/17 20/3 20/5 | Q |
| prologue [1] 62/2 | 42/12 44/24 130/1 | Qu |
| promise [1] 68/20 | 42/12 44/24 130/11 | 117/10 117/19 |
| pronounced [1] | Public's [19] 4/5 | qualified [6] 10/21 |
| 45/11 | 5/13 6/2 6/16 7/5 |  |
| proposal [4] 3/13 | 11/16 13/7 14/3 | 4/6 114 |
| 106/24 107/23 | 15/10 18/22 19/5 |  |
| 21 | 23/4 24/16 26/18 | ify [12] |
| proposed [7] 3/10 | 27/3 33/22 34/7 | $23 \text { 9/2 11/3 } 68$ |
| 92/11 92/12 107/18 | 44 | 103/19 103/23 |
| $18112 / 5$ | PUC [2] 3/16 | 112/12 113/1 |
| 131/11 |  | 7/18 118/24 |
| provide [4] 8/7 |  | 119/3 |
| provided [1] 49/17 | 40/17 | qualifying [2] $69 / 16104 / 3$ |


| Q | 122/24 | 72/19 73/13 74/21 |
| :---: | :---: | :---: |
| qualitative [1] 97/9 | question [43] 21/4 | 100/16 105/18 |
| qualitatively [1] | 29/19 38/9 38/14 | 108/5 113/22 |
| 97/17 | 39/3 44/9 44/13 | 5/17 |
| quantified [2] | 46/8 47/5 47/17 | 122/2 122/10 |
| 61/17 62/7 | 48/5 48/10 48/13 | 126/22 130/8 |
| quantifies [1] 46/22 | 51/8 52/22 57/9 | quickly [2] 84/ |
| quantify [6] 59/23 | 67/12 67/17 67/23 | 86/14 |
| 60/1 62/11 62/19 | 68/3 68/9 68/23 | quite [6] 55/18 59/4 |
| 63/13 74/1 | $\begin{aligned} & \text { 71/2 93/4 97/15 } \\ & 102 / 7 \text { 102/13 104/3 } \end{aligned}$ | 59/4 71/1 72/5 116/12 |
| $\begin{aligned} & \text { quantitatively [1] } \\ & 97 / 10 \end{aligned}$ | 106/2 106/5 117/16 | R |
| quarters [1] 131/16 | 121/5 121/5 122/23 |  |
| Quebec [46] 9/18 | 123/7 123/21 125/6 |  |
| 9/24 10/5 12/6 | 125/14 127/18 | ran [1] |
| 13/18 13/20 18/17 | 127/19 129/2 129/9 | rate [3] 35/4 42/1 |
| 18/18 19/17 23/15 |  | 43/7 |
| 26/2 26/24 30/22 | question/country <br> [2] 121/5 127/18 | ratepayer [2] 129/5 |
| 31/1 31/2 31/4 31/6 | [2] 121/5 127/18 | 132/15 |
| 31/8 31/16 31/21 | questionable [3] <br> 101/19 101/24 | ratepayers [9] |
| 31/24 32/10 34/5 | $\begin{aligned} & 101 / 19101 / 24 \\ & 109 / 1 \end{aligned}$ | 116/16 125/7 125/9 |
| 39/14 39/15 39/18 | questioned [1] | 127/2 127/12 |
| 41/17 41/19 43/24 | $100 / 8$ | 127/22 129/6 |
| 44/7 48/23 50/24 | questioning [3] | 129/13 132/17 |
| 118/3 119/11 | $32 / 1938 / 774 / 24$ | rather [2] 80/8 |
| 119/12 119/15 | questions [29] 8/5 | 108/12 |
| 119/15 119/21 | $\text { 8/10 11/20 } 27 / 12$ | re [2] 1/7 99/12 |
| 120/1 120/10 | 29/8 29/18 32/20 | re-running [1] |
| 120/21 121/7 |  | 99/12 |
| 121/13 121/20 |  | read [27] 15/22 |
| 122/16 123/19 | 44/10 64/19 67/11 | 34/19 38/11 38/14 |
| Quebec's [2] 26/19 | 68/15 68/21 71/17 | 46/5 49/5 81/2 |


| $\mathbf{R}$ | reason [6] 49/6 | 116/5 122/11 |
| :---: | :---: | :---: |
| read... [20] 83/13 | 57/24 76/23 92/4 $\mathbf{9 6} / 7$ 123/18 | 122/11 |
| 84/10 84/12 86/3 | 96/7 123/18 <br> reasonable [1] | $\begin{aligned} & \text { recover [2] 127/6 } \\ & 127 / 21 \end{aligned}$ |
| 92/9 95/14 105/16 | $124 / 23$ | recovering [2] |
| 107/16 113/21 | rebut [2] 33/3 | 127/21 128/5 |
| 117/6 117/11 | 37/22 | RECs [1] 110/6 |
| 117/11 120/6 | Rebuttal [9] 27/14 | redacted [10] 7/22 |
| 120/24 121/2 | 46/18 46/22 47/8 | 8/2 40/19 66/12 |
| 121/10 126/4 | 51/13 64/22 67/3 | 105/11 105/16 |
| 130/23 | 73/4 73/23 | 106/5 106/6 106/7 |
| reading [7] 95/11 | recall [15] 9/14 | 106/12 |
| 107/12 107/15 | 25/13 36/18 47/1 | reduce [5] 50/20 |
| 107/17 111/13 | 51/20 67/5 71/10 | 50/21 66/3 73/7 |
| 112/3 126/3 | 82/19 108/8 116/1 | 97/2 |
| ready [2] 4/3 | 116/19 121/9 124/1 | Reduced [1] 63/10 |
| 115/22 | 125/20 125/22 | reduces [1] 90/6 |
| real [6] 36/10 55/15 | receive [1] 100/22 | reducing [2] 62/15 |
| 55/20 56/10 59/9 | received [1] 105/8 | 62/15 |
| 60/12 | recent [5] 10/6 | reduction [14] 51/4 |
| real-world [1] 59/9 | 55/21 88/23 91/3 | 70/13 82/14 84/7 |
| really [27] 12/1 | 96/20 | 86/4 89/23 90/1 |
| 23/24 36/4 56/11 | recently [1] 44/6 | 91/16 95/20 102/21 |
| 58/23 60/2 60/14 | recess [2] 64/12 | 102/24 103/13 |
| 61/13 65/4 66/22 | 133/2 | 103/21 105/3 |
| 68/1 68/2 68/4 68/8 | reconciliation [2] | reductions [8] |
| 69/22 70/1 71/22 | 16/5 16/7 | 46/19 46/24 47/11 |
| 73/1 95/23 100/8 | record [14] 65/10 | 47/14 47/18 48/2 |
| 105/19 108/5 | 65/11 80/20 83/22 | 48/12 48/16 |
| 111/13 113/5 | 85/19 85/20 85/23 | refer [4] 53/24 82/2 |
| 113/22 125/2 | 92/15 105/15 | 91/19 130/13 |
| 126/17 | 115/18 115/19 | reference [3] 34/21 |

$\mathbf{R}$
reference... [2]
82/13 125/16
referenced [1]
34/15
references [1]
34/14
referred [5] 77/15
94/12 119/9 119/10
119/10
referring [5] 80/6
82/21 88/1 91/7 100/24
refers [5] 90/3 90/3 94/11 120/6 130/21 reflecting [2] 35/23 54/24
regard [1] 39/5
Regarding [1]
71/17
regulator [8] 16/4 16/14 30/12 31/6 39/15 39/20 40/3 40/16
regulatory [2] 31/6 40/1
Reimers [1] 75/5 related [3] 36/2 131/9 134/11 related-party [1] 131/9
relates [2] 34/13

124/18
relationship [4]
30/20 47/4 48/1

## 131/10

relative [4] 104/12
104/17 114/5
134/13
Relevance [1]
131/20
relevant [2] 30/22 54/5
reliability [3] 24/12 25/20 26/2
reliable [1] 24/23
reliably [1] 117/21
relied [1] 81/17
relieving [1] 56/5
rely [1] 87/22
relying [1] 95/3
remember [8] 38/9
54/12 61/22 67/6
93/22 93/24 99/4 123/7
remind [1] 95/10
reminder [2] 54/19 101/7
removed [1] 16/13 renewable [1]
115/2
rent [1] 131/17
repeat [2] 38/10
129/9
repeating [1] 120/12
rephrase [2] 52/22 100/16
report [75] 3/4 3/4
3/6 3/7 6/6 6/10
6/12 7/8 7/12 7/15
7/23 8/3 8/7 8/13
8/16 11/17 27/14
33/1 33/5 37/14
37/19 46/10 46/10
46/18 46/22 47/8
51/13 52/5 52/8
52/11 52/14 52/15
54/9 60/13 62/11
64/2 64/6 64/21
64/22 66/7 67/3
70/24 73/4 73/23
76/8 76/10 76/12
80/6 80/6 80/8 80/9
80/10 80/13 81/3
81/6 81/8 81/18
82/5 82/20 82/22
83/15 91/3 93/13
95/3 95/4 95/5 95/5
95/22 96/20 97/2
117/16 130/9
130/10 130/21
131/15
reported [1] 131/15
reporter [9] 1/24
4/9 19/21 38/13
$\mathbf{R}$
reporter... [5]
78/22 86/19 93/7
134/4 134/18 reports [4] 52/23
53/4 82/6 93/14 represent [1] 116/6 representations [1] 122/7
representative [1] 122/5
represented [1] 119/1
represents [4]
16/24 94/24 131/11 131/13
request [5] 3/13
31/1 31/8 105/14 106/24
requests [1] 39/20 require [1] 49/14 required [4] 25/19 26/1 108/10 131/17 requirement [9] 3/11 76/18 77/12 77/23 78/6 78/8 79/5 92/13 128/12 requirements [1]

## 23/18

research [1] 50/6 reserve [8] 23/18 25/24 26/1 26/14

77/16 77/21 78/2 88/17
reserves [3] 17/14 25/16 25/19
reservoir [2] 49/7 50/4
reservoirs [1] 50/10 resumed [1] 64/13 resource [5] 103/11 retire [3] 70/6 73/1 103/20 103/24
112/17 114/12
resources [17]
10/23 11/23 12/8
14/4 22/8 50/17
50/18 60/21 68/18
69/15 100/21 108/1
109/2 118/1 118/2
118/16 118/18
respect [12] 30/15
49/23 50/1 71/18
76/6 97/12 104/21
107/14 107/22
109/6 117/13
129/21
respond [2] 67/8 85/13
responded [1]
45/24
response [2] 105/7 107/3
responses [4] 29/13 39/18 40/4 105/8
responsibility [1]

31/20
rest [2] 104/13
104/21
result [3] 37/10 46/19 50/3
results [1] 73/6 102/9
retired [1] 72/9
retirement [3] 72/4
72/7 72/10
retirements [12]
99/15 100/4 100/11
100/14 100/20
101/6 101/8 101/10
101/14 101/17
102/5 103/17
retires [2] 73/16 101/12
retiring [1] 71/23
revenue [1] 128/12
revenues [3] 100/23
110/6 128/7
Review [2] 130/10 130/20
revised [1] 80/10
RFP [9] 43/10
67/22 68/4 105/7
105/13 105/17
105/21 107/4
107/19


| S | 24/15 26/17 26/22 | 27/7 30/3 33/23 |
| :---: | :---: | :---: |
| says... [7] 93/6 | 27/3 30/2 33/2 | 34/10 39/8 40 |
| 4/10 106/23 108/2 | 34/6 34/9 40/5 42/4 | 40/20 41/5 44/17 |
| 1/14 111/24 | 42/10 44/15 44/23 | 44/21 45/1 45/16 |
| 121/17 | 45/13 47/6 51/22 | 47/11 47/15 48/22 |
| scales [1] 58/20 | 125/15 125/15 | 52/23 53/16 59/17 |
| scenario [26] 62/8 | search [1] 74/6 | 2/24 63/11 6 |
| 65/20 65/22 68/3 | SEC [6] 1/6 1/7 | 80/22 82/15 83/1 |
| 68/8 69/20 70/3 | 1/19 1/20 1/21 | 84/24 85/3 87/3 |
| 70/4 70/8 71/16 | 74/11 | 91/6 91/20 92/ |
| 71/18 71/24 72/8 | second [14] 16/19 | 93/11 94/9 94/2 |
| 72/20 72/23 72/24 | 16/21 17/4 17/11 | /12 101/11 |
| 72/24 89/2 97/6 | 40/5 40/20 | 101/14 102/20 |
| 97/7 97/8 109/17 | 6 44/23 48 | 106/2 117/12 |
| 113/9 118/9 125/1 | 49/4 76/12 92/24 | 125/16 |
| 129/10 | $122 / 10$ | $\begin{aligned} & \text { seeing [2] } 58 / 21 \\ & 95 / 20 \end{aligned}$ |
| scenarios [15] $\mathbf{6 0 / 1 9} 61 / 564 / 20$ |  | seeking [1] 107/4 |
| 60/19 61/5 64/20 | 106/23 107/4 126/1 | seeking [1] 107/4 <br> seem [1] 127/9 |
| 64/24 65/18 67/2 | $\begin{array}{\|l\|l\|} \hline 126 / 4126 / 612 \\ 130 / 24131 / 8 \\ \hline \end{array}$ | $\begin{aligned} & \text { seem [1] } 127 / 9 \\ & \text { seems [2] } \end{aligned}$ |
| 67/4 67/10 69/11 | see [76] 8/17 11/23 | 126/12 |
| 73/6 97/5 101/8 | 12/3 12/7 12/9 | seen [2] 13/11 |
| Schmick [2] 3/15 | 12/16 13/14 13/2 |  |
| 0/20 | 14/6 14/7 14/9 | segue [1] 46/8 |
| scope [7] 51/18 | 14/13 14/24 17/17 | sell [5] 44/3 44/5 |
| 53/12 73/11 74/5 | 18/8 18/12 19/7 | 44/13 49/2 118/19 |
| 761/16 131/21 | 19/14 19/15 19/18 | selling [3] 50/15 |
| screen [31] 8/11 | 20/6 20/9 22/6 23/5 | 57/6 57/16 |
| /15 11/12 11/15 | 23/22 25/2 2 | sense [1] 115/7 |
| 13/6 15/9 | 25/5 25/7 25/8 | sensitivities [1] |
| 7/15 17 | 25/15 25/16 25/20 | 99/14 |
| 18/21 20/2 23/3 | 26/20 26/24 27/4 | sentence [4] 13/16 |


| $\mathbf{S}$ | 38/6 | 74/9 76/7 76/9 90/5 |
| :---: | :---: | :---: |
| sentence... [3] | Shorthand [1] | 97/6 |
| 118/5 121/11 | 134/3 | single [1] 62/4 |
| 121/12 | shortly [1] 133/1 | sink [1] 103/5 |
| separate [2] 102/6 | should [15] 15/7 | sit [1] 66/23 |
| 133/5 | 16/11 16/12 28/20 | SITE [3] 1/2 1/10 |
| Serv [1] 1/15 | 32/17 33/14 47/22 | 1/12 |
| Service [4] 1/9 30/9 | 58/7 68/6 74/4 74/5 | size [1] 72/11 |
| 34/4 126/2 | 93/4 97/24 105/24 | skill [1] 134/8 |
| session [4] 1/4 | 130/19 | slowly [1] 117/12 |
| 62/12 133/4 133/7 | show [8] 8/12 10/24 | small [5] 23/24 |
| set [8] 14/16 39/19 | 66/7 72/18 101/5 | 23/24 41/12 66/5 |
| 40/4 40/8 56/24 | 105/24 105/24 | 97/8 |
| 76/14 105/17 134/7 | 106/1 <br> showed [3] 37/17 | $\begin{aligned} & \text { smaller [3] 96/8 } \\ & \mathbf{9 6 / 9 ~ 1 1 1 / 2} \end{aligned}$ |
| $\begin{aligned} & \text { setting [1] } 125 / 1 \\ & \text { settlement [1] } \end{aligned}$ | $\begin{aligned} & \text { showed [3] 37/17 } \\ & 69 / 1096 / 11 \end{aligned}$ | snapshot [1] 21/24 |
| 55/23 | showing [4] 70/13 | so [216] |
| setup [4] 28/24 29/3 | 80/20 96/7 128/10 | so-called [3] 119/1 |
| 29/16 29/19 | shows [3] 8/16 | 120/20 130/22 |
| several [2] 53/11 | 72/12 91/9 | solar [4] 90/5 90/10 |
| 72/2 | side [5] 12/18 20/3 | 90/14 90/22 |
| shall [1] 20/11 | 20/4 20/13 57/15 | sold [1] 50/18 |
| shift [3] 51/12 98/6 | significance [2] | sole [2] 131/4 131/6 |
| 128/4 | 30/18 43/18 | some [44] 8/5 8/10 |
| shifted [1] 100/19 | significant [2] | 11/20 16/14 20/20 |
| shifting [1] 51/7 | 71/10 128/17 | 27/12 29/18 36/8 |
| shifts [2] 79/14 | similar [8] 17/5 | 36/8 38/6 44/4 |
| 79/15 | 58/19 63/7 65/19 | 46/23 48/10 49/6 |
| shippers [1] 105/12 | 66/14 69/23 86/17 | 49/14 50/6 51/16 |
| short [3] 75/13 79/5 | 86/22 | 64/19 64/22 66/21 |
| 81/24 | Similarly [1] 58/23 <br> since [7] 32/3 49/9 | $\begin{aligned} & \text { 70/5 72/9 76/6 77/8 } \\ & \text { 78/3 78/12 88/6 } \end{aligned}$ |


| S | 79/14 86/20 | 81/11 81/16 82/3 |
| :---: | :---: | :---: |
| some... [17] 89/15 | 93/3 95/10 101 | Staff [2] 130/1 |
| 92/17 100/6 104/11 | 4129 | 130/14 |
| 105/17 108/9 110/6 | sort [14] 16/8 | stake [1] 116/12 |
| 111/1 112/6 113/12 | 40/16 41/24 45/20 | Stamp [9] 16/18 |
| 15/7 115/11 | 53/21 56/24 59/8 | 17/16 26/22 33/21 |
| /13 116/2 | 71/22 72/11 100/22 | 34/9 42/4 42/10 |
| /24 124/10 | 115/7 120/6 120/18 | 45/14 47/7 |
| 128/7 | sounds [6] 28/1 | standard [2] 32/9 |
| somebody [3] 28/1 | 28/22 70/21 75/8 | 76/19 |
| 36/9 102/8 | 83/ | standpoint [1] |
| somehow [2] 50/9 | source [5] 12/19 | 97/ |
| 50/11 | 13/3 14/8 14/23 | stands [1] 28/6 |
| meone [1] 10/11 | 52/5 | Stark [1] 116/8 |
| someplace [2] 49/2 | sources [1] 12/23 | start [15] 4/3 8/4 |
| 50/18 | speak [4] 15/19 | 8/9 9/17 15/8 40/1 |
| something [19] | 91/11 100/2 103/ | 52/15 58/15 65/1 |
| 7/19 17/5 28/3 30/8 | speaking [1] 39/12 | 76/1 76/4 105/2 |
| 51/21 | specific [4] 14/17 | 105/4 106/1 |
| 62/18 64/ | 20/19 38/22 125/1 | started [2] 73/5 |
| 73/22 85/3 | specifically [3] | 88/1 |
| 88/9 89/13 91/23 | 31/13 123/8 127/24 | Starting [2] 10/1 |
| 110/12 | spells [3] 31/10 | 11/8 |
| 110/18 | 31/15 31/16 | starts [1] 41/5 |
| somewhat [2] 31/2 | Spencer [1] 116/7 | STATE [1] 1/1 |
| 124/2 |  | stated [3] 67/3 73/4 |
| somewhere [6] | spilling [1] $50 /$ |  |
| 31/18 35/6 51/6 | spilis [1] 48/24 spread [5] 57/22 | statement [2] 124/5 |
| $\begin{aligned} & \text { 87/10 116/21 } \\ & 119 / 19 \\ & \text { sorry [12] } 10 / 15 \end{aligned}$ | $\begin{aligned} & 57 / 2359 / 1059 / 13 \\ & 87 / 7 \\ & \text { spreadsheet [3] } \end{aligned}$ | $\begin{array}{ll} \text { stating [2] } & 4 / 20 \\ 51 / 14 \\ \text { station [1] } & 32 / 5 \end{array}$ |

S
station/substation
[1] 32/5
stenographic [1]

## 134/5

step [4] 83/21 98/1 101/13 103/1
Steve [1] 38/11
Steven [3] 1/24

## 134/3 134/17

still [3] 39/13 68/23

## 101/24

stipulation [1] 11/4 straight [2] 89/6

## 114/5

Strategic [1] 26/19
Strategy [1] 45/6
Street [1] 1/4
stresses [1] 60/15
strictly [2] 114/18
114/22
structures [1] 66/16
studied [1] 49/13
studies [1] 77/8
study [3] 54/10
98/17 125/20
stuff [1] 66/5
SUBCOMMITTEE
[2] 1/12 38/2
SUBCOMMITTEE
/SITE [1] 1/12

| subject $[3]$ | $33 / 8$ |
| :--- | :--- |
| $33 / 13$ |  | 84/14 94/6

submission [4]
23/10 30/12 39/13 40/2
submissions [1]
105/13
submits [1] 16/6 submitted [1] 39/23 subsequent [1] 40/2 subsidies [1] 36/12 subsidized [1] 36/8 substation [1] 32/5 substitute [1] 57/7 subtracted [2] 22/8 22/24
successful [2] 10/11 37/11
such [1] 131/7
sudden [1] 127/19 sufficient [2] 26/24 117/24
suggested [3] 29/3
73/24 86/23
sum [1] 113/10
summarizes [4]
117/7 117/12 118/5 118/8
summer [2] 82/7 118/1
sunk [1] 108/23
Supplement [1]
supplemental [7]
6/18 7/8 7/15 8/6
33/4 37/19 64/21
supplier [1] 54/1
supply [16] 8/20
13/19 14/24 16/24
17/3 17/11 17/12
23/13 23/14 47/20
60/16 63/24 73/16
76/24 77/8 77/10
supply/demand [1] 23/14
support [1] 12/19
supported [1]
118/3
suppose [1] 129/3
suppression [1]
100/10
sure [29] 5/2 10/19
16/2 16/22 24/7
34/15 35/5 35/21
36/6 36/15 47/3
48/20 52/23 60/6
76/24 77/7 79/20
84/21 85/12 85/17
87/12 88/5 94/5
99/1 101/13 106/23
109/10 122/9
126/20
surprised [1] 87/15 suspect [3] 49/12

| $\mathbf{S}$ | 113/4 132/24 | $\operatorname{ten}[1] \quad 64 / 11$ |
| :---: | :---: | :---: |
| suspect... [2] 49/12 | taken [6] 1/23 | ten-minute [1] |
| 63/6 | 64/12 70/14 93/13 | 64/11 |
| sustain [1] 123/14 | 133/2 134/6 | tend [2] 98/21 |
| sustained [1] | takes [2] 118/19 | 114/24 |
| 132/20 | 125/6 | tends [1] 98/14 |
| swear [5] 4/6 5/21 | taking [3] 78/11 | terawatt [1] 41/11 |
| 6/12 6/24 7/14 | 90/7 101/13 | terawatt-hours [1] |
| sweat [1] 116/10 | talk [3] 76/2 76/13 | 41/11 |
| switch [1] 86/8 | 99/4 | term [3] 40/22 |
| sworn [3] 4/8 4/15 | talked [2] 74/2 | 77/17 111/10 |
| 4/16 | 123/23 | terms [10] 14/11 |
| system [13] 12/6 | talking [15] 27/17 | 24/3 36/21 37/2 |
| 31/7 48/24 49/10 | 38/18 38/21 41/19 | 37/11 43/19 46/24 |
| 49/18 55/2 56/23 | 53/22 66/18 66/18 | 79/2 116/10 118/12 |
| 59/16 60/13 76/20 | 68/16 84/5 93/14 | test [1] 123/10 |
| 90/14 91/10 118/2 | 99/5 101/1 110/22 | testified [3] 9/11 |
| T | 116/1 119/13 | 98/4 98/14 |
|  | taks [1] 48/8 | testimony [28] 3/15 |
| table [21] 17/24 | technical [4] 62/12 | 5/17 5/19 5/22 6/18 |
| 18/3 19/7 19/11 | 116/2 116/3 116/18 | 6/21 7/1 7/21 8/6 |
| 20/5 20/8 20/20 | tell [24] 15/24 | 28/23 28/24 32/16 |
| 40/7 40/9 42/13 | 16/20 23/7 24/9 | 70/22 100/7 100/8 |
| 52/20 53/1 53/7 | 28/6 30/5 30/17 | 108/9 116/3 117/4 |
| 59/15 62/22 84/4 | 34/1 34/13 39/11 | 117/7 117/9 117/9 |
| 91/20 92/21 92/23 | 40/8 40/13 43/18 | 118/6 118/8 122/5 |
| 93/2 94/4 | 46/4 53/18 54/23 | 122/20 123/17 |
| tables [2] 91/19 | 60/21 65/24 70/7 | 124/2 131/21 |
| 93/19 | 72/16 99/2 107/2 | than [24] 19/16 |
| take [9] 12/5 64/11 | 127/10 127/10 | 21/16 22/15 23/1 |
| 72/5 112/7 112/10 | telling [1] 29/9 | 43/7 55/19 57/22 |
| 112/15 112/15 | tells [1] 59/6 | 58/18 58/22 59/5 |


| $\mathbf{T}$ | 65/20 66/5 67/1 | 72/4 72/7 76/7 76/9 |
| :---: | :---: | :---: |
| than... [14] 73/18 | 67/23 68/2 70/7 | 87/20 87/20 88/9 |
| 77/5 87/2 89/11 | 70/16 72/20 72/23 | 90/10 90/12 90/1 |
| 89/12 96/9 96/10 | 73/9 75/9 77/11 | 90/21 92/4 95/24 |
| 101/6 101/20 | 78/16 78/16 80/21 | 105/13 114/8 114/8 |
| 108/12 109/16 | 88/20 90/4 92/16 | 122/2 122/3 122/7 |
| 109/16 113/5 | 93/18 94/17 95/8 | 123/10 125/4 |
| 113/10 | 99/18 99/21 99/21 | 131/21 |
| Thank [19] 4/11 | 101/9 102/6 104/23 | theirs [2] 66/1 66/1 |
| 5/12 27/24 33/18 | 106/7 106/9 106/15 | them [8] 29/14 |
| 45/13 50/13 51/3 | 107/13 108/2 | 53/11 53/15 65/18 |
| 56/17 59/15 62/22 | 110/23 111/16 | 84/21 86/8 109/14 |
| 64/17 74/20 75/10 | 111/17 112/23 | 123/8 |
| 75/12 75/15 85/18 | 113/15 113/20 | themselves [1] 74/9 |
| 99/21 115/23 | 113/23 114/7 115/5 | then [48] 11/1 |
| 132/21 | 115/8 115/17 | 12/11 14/21 17/9 |
| Thanks [2] 92/6 | 115/17 116/24 | 19/13 22/13 23/1 |
| 105/5 | 118/9 118/22 | 25/7 25/19 28/9 |
| that [663] | 119/22 120/8 | 29/24 30/10 31/4 |
| that's [94] 9/19 | 120/16 121/17 | 31/10 31/15 39/24 |
| 10/2 11/11 12/20 | 121/22 122/18 | 41/8 41/10 41/23 |
| 18/16 18/21 19/19 | 123/11 124/17 | 49/1 49/7 50/15 |
| 19/23 21/19 25/14 | 124/17 131/1 | 51/2 58/8 60/4 |
| 25/24 26/1 26/16 | their [47] 10/3 | 69/17 70/3 72/21 |
| 27/22 27/23 30/7 | 27/14 28/23 32/21 | 72/24 77/7 77/10 |
| 33/1 34/2 34/3 | 32/24 33/4 33/11 | 77/10 77/13 88/15 |
| 40/23 43/8 46/16 | 37/2 37/14 37/18 | 94/16 94/21 94/22 |
| 47/24 49/3 50/3 | 37/21 46/5 46/17 | 96/16 97/8 108/24 |
| 51/6 53/19 56/6 | 51/19 57/13 58/2 | 109/11 109/11 |
| 56/9 60/16 60/16 | 58/10 58/10 58/12 | 109/22 112/24 |
| 61/7 61/10 62/2 | 59/8 59/10 59/10 | 113/11 114/1 |
| 62/18 63/24 64/5 | 59/13 69/24 70/24 | 115/10 125/24 |

theoretically [1] 50/5
theory [1] 49/16 there [68] 5/5 5/6 9/2 13/1 14/11 14/14 14/18 17/9 20/20 22/12 24/2 24/5 32/8 32/9 41/1 43/12 47/18 48/22 49/1 50/8 51/9
56/24 61/5 65/8 66/19 67/16 68/23 68/24 70/5 71/9
71/21 73/19 75/21
78/13 82/16 86/12 87/7 87/9 88/8 90/1 90/10 92/17 93/11 97/6 97/7 97/7 101/16 102/4 102/5 102/20 104/18 104/22 106/6 107/13 110/2 113/18 114/3 114/4 117/4 118/18 120/2 120/5 121/4 121/6 122/7 123/17 127/6 130/1
there's [21] 28/3 28/24 29/10 50/6 56/21 59/6 62/13 65/6 65/24 78/3

78/6 84/15 100/6 104/6 104/16 109/17 119/23
120/3 120/8 125/17 127/5
thereafter [1] 22/13 therefore [2] 50/19 56/4
thereto [1] 59/4 these [28] 29/6 29/7 32/2 33/2 33/8
35/16 37/21 54/4 55/6 60/20 66/21 67/19 67/20 70/12 87/6 87/9 87/11 89/3 91/19 93/5 93/18 118/13 122/9 122/10 122/20 122/20 132/19 134/6
they [74] 8/7 10/3 10/12 10/12 11/2
11/5 11/6 12/20
20/21 22/6 26/12 28/12 28/16 32/20 33/4 39/1 44/13 51/13 51/16 54/8 57/20 57/23 58/3 60/2 61/1 61/13 61/18 63/6 63/17 66/2 66/3 66/4 70/12 70/14 72/18

75/5 76/23 76/23
76/24 77/377/3
77/5 77/7 77/7 77/8
77/8 77/9 77/16
78/5 85/7 87/22
88/7 90/12 90/15
90/16 90/17 92/20
92/21 96/18 112/14
116/9 116/12
116/16 117/2
118/23 119/3
120/13 122/4 123/2
123/3 123/4 123/22
123/22 128/24
they're [20] 4/4
9/20 9/20 10/23
42/19 46/3 52/17
58/11 66/14 69/22
69/24 70/1 70/10
78/14 90/6 90/7
121/23 121/23
121/24 123/9
thing [7] 29/16 55/8
58/13 110/10
116/15 119/4
121/19
things [10] 22/2
28/22 31/12 36/14
38/6 47/22 48/10
50/14 61/3 110/2
think [80] 5/2 8/1
10/15 10/23 16/7

| T | 20/16 20/21 20/22 | thresholds [1] |
| :---: | :---: | :---: |
| think... [75] 19/19 | 2 | 69/14 |
| 21/10 21/20 23/21 | 25/12 113/16 118/4 | through [13] 10/14 |
| 27/22 29/1 29/10 | thirty [1] 18/11 | 10/15 12/11 13/24 |
| 29/13 30/7 31/12 | this [227] | 29/6 37/20 40/7 |
| 32/18 39/21 43/22 | those [43] 12/18 | 41/2 52/18 64/5 |
| 48/8 48/19 60/10 | 19/16 22/7 22/24 | 67/18 88/12 127/4 |
| 62/14 63/6 64/1 | 25/10 36/10 36/12 | tight [1] 60/14 |
| 64/8 65/2 65/14 | 36/14 37/3 40/11 | time [10] 28/13 |
| 65/24 66/23 67/10 | 40/13 41/22 46/23 | 32/18 32/23 33/1 |
| 68/5 68/6 68/19 | 48/10 50/14 50/17 | 37/18 57/17 64/9 |
| 71/3 71/19 72/16 | 51/18 61/12 61/17 | 91/9 96/13 134/9 |
| 73/23 80/17 81/9 | 67/10 68/15 68/20 | times [4] 77/21 78/2 |
| 81/9 81/10 81/19 | 68/21 69/3 69/11 | 89/7 89/8 |
| 82/23 87/23 90/23 | 69/13 70/9 71/13 | title [9] 63/7 80/22 |
| 91/15 95/17 98/2 | 72/16 72/19 73/16 | 81/2 83/13 92/9 |
| 98/4 98/13 99/10 | 73/18 74/19 83/5 | 92/12 95/11 106/22 |
| 99/11 99/16 99/17 | 83/6 89/10 92/19 | 107/7 |
| 99/17 100/15 102/1 | 93/12 118/21 | titled [2] 3/10 3/13 |
| 104/1 105/9 105/24 | 127/22 129/7 | titles [1] 12/24 |
| 113/4 115/4 117/3 | 129/13 129/14 | today [4] 66/23 |
| 117/7 119/8 119/13 | though [1] 16/15 | 100/7 116/4 116/15 |
| 119/18 121/15 | thought [1] 124/22 | together [2] 76/8 |
| 121/15 121/22 | thousand [3] 21/16 | 113/23 |
| 122/15 123/9 124/1 | 22/15 23/2 | toggle [3] 85/15 |
| 124/20 126/17 | three [4] 45/2 82/12 | 90/24 91/20 |
| 127/15 128/2 | 113/15 131/16 | told [2] 119/18 |
| 131/23 132/6 | three-quarters [1] | 121/10 |
| 132/18 | 131/16 | too [15] 9/3 39/2 |
| thinking [1] 110/19 | threshold [7] 66/22 | 57/12 57/20 57/21 |
| third [14] 9/3 17/6 | 68/9 68/22 70/12 | 58/9 58/11 59/7 |
| 19/13 19/24 20/14 | 72/19 117/5 117/16 | 66/2 87/6 87/16 |


| T | 129/11 | try [5] 12/2 29/15 |
| :---: | :---: | :---: |
| too... [4] 99/16 | transformer [1] | 66/23 108/2 |
| 104/16 110/3 | 32/4 | 117/11 |
| 110/18 | translated [1] 24/11 | trying [1] 74/10 <br> TSA [11] 119/7 |
| took [5] 35/24 | translates [1] 64/4 | 119/8 119/11 |
| 44/20 61/17 94/3 124/20 | translation [14] | 119/14 120/21 |
| top [7] 5/3 11/23 | 17/16 17/21 18/2 | 121/6 125/16 |
| 13/13 26/23 27/6 | 18/5 19/6 20/4 | 125/18 125/21 |
| 45/1 93/5 | 24/17 24/20 30/8 | 126/24 128/21 |
| topic [2] 38/2 51/12 | 41/21 42/6 42/8 | turn [6] 62/16 |
| topics [1] 38/4 | 42/12 42/16 | 81/12 91/14 105/5 |
| total [7] 41/8 41/13 | transmission [32] | 107/8 109/14 |
| 76/1 77/10 109/4 | 1/8 3/5 3/8 30/9 | turned [1] 92/15 |
| 110/13 131/14 | 30/10 30/21 31/2 | turning [1] 107/9 |
| Trade [3] 12/15 | 31/4 31/5 31/7 34/4 | two [17] 17/9 25/11 |
| 13/9 13/17 | 34/22 35/12 36/23 | 29/8 37/3 40/20 |
| traders [1] 58/17 | 37/9 51/24 52/17 | 47/22 48/22 50/14 |
| transaction [1] | 53/20 55/1 55/3 | 61/2 69/19 85/16 |
| 128/4 | 55/10 55/14 74/15 | 87/7 87/18 92/18 |
| Transactions [1] | 104/18 109/3 | 95/23 100/15 |
| 13/14 | 119/12 119/17 | 113/15 |
| transcript [5] 27/17 | 119/18 120/22 | type [2] 84/5 92/22 |
| 44/19 45/14 133/6 | 125/19 126/2 | typically [1] 76/22 |
| 134/5 | 126/14 | U |
| transfer [7] 126/10 | Transportation [1] | U.S [2] 35/3 59/2 |
| 126/15 128/22 | 1/16 | Uh [9] 24/1 32/14 |
| 131/5 131/7 131/15 | Treasurer [1] | 81/23 82/11 85/17 |
| 132/16 |  | 94/7 110/1 110/9 |
| transferred [2] | true [5] 109/5 109/8 | 112/22 |
| $\begin{aligned} & 57 / 19125 / 19 \\ & \text { transfers [2] 129/4 } \end{aligned}$ | 134/5 | $\begin{array}{\|cc\|} \hline \text { Uh-huh [9] } & 24 / 1 \\ 32 / 14 & 81 / 23 \\ 82 / 11 \end{array}$ |


| $\mathbf{U}$ | understands [1] | 101/4 117/9 |
| :---: | :---: | :---: |
| Uh-huh... [5] 85/17 | 36/1 | updates [1] 76/6 |
| 94/7 110/1 110/9 | understate [1] 56/4 | upgrade [1] 119/20 |
| 112/22 | understates [1] | upgrades [5] 31/17 |
| ultimately [3] | 58/1 | 31/23 32/2 34/3 |
| 66/17 74/11 110/20 | understating [2] | 34/16 |
| uncertainties [5] | 56/2 56/3 | upload [1] 130/16 |
| 66/22 71/10 71/13 | understood [3] | upon [3] 10/13 11/7 |
| 71/20 117/5 | 48/5 96/15 123/2 | 71/20 |
| uncertainty [2] | unit [1] 111/3 | us [17] 15/24 24/9 |
| 62/24 132/14 | unknown [3] | 27/15 28/6 30/5 |
| unclear [2] 50/19 | 128/14 128/16 | 30/17 34/1 39/11 |
| 112/3 | 128/17 | 40/8 40/13 43/18 |
| under [23] 14/4 | unlikely [2] 32/1 | 53/18 72/16 75/2 |
| 18/10 18/24 20/8 | 72/5 | 119/18 125/24 |
| 20/9 21/15 31/11 | untethered [1] 71/2 | 127/11 |
| 34/4 41/11 60/18 | until [2] 13/21 | usage [3] 19/7 |
| 61/19 65/22 80/3 | 44/14 | 19/10 25/5 |
| 86/3 97/5 104/11 | up [22] 12/11 23/ | use [6] 21/7 47/20 |
| 104/24 114/14 | 37/17 41/6 45/20 | 49/2 58/19 93/18 |
| 120/14 126/24 | 59/12 69/21 71/6 | 99/8 |
| 131/17 133/5 134/8 | 74/23 76/14 78/8 | used [14] 53/19 |
| underline [1] 131/2 | 78/15 97/18 98/19 | 59/1 78/16 80/15 |
| underlying [1] | 105/17 109/19 | 81/7 81/9 81/11 |
| 101/20 | 110/20 111/4 112/2 | 82/20 82/24 85/7 |
| underneath [1] | 112/24 113/19 | 88/15 88/18 95/22 |
| 41/10 | 125/17 | 113/11 |
| understand [6] | upcoming [1] 45/22 | uses [1] 76/17 |
| 43/13 95/18 105/11 | update [6] 88/22 | using [2] 54/20 |
| 113/6 113/23 126/8 | 89/3 89/18 96/16 | 55/11 |
| understanding [2] | 97/2 98/23 | usually [1] 77/4 |
| 90/18 121/22 | updated [3] 83/18 | Utilities [3] 1/13 |


| $\mathbf{U}$ | Vermont [1] 67/18 | 76/1 76/23 91/18 |
| :---: | :---: | :---: |
| Utilities... [2] 1/14 | version [7] 7/22 8/2 | 91/20 105/5 116/17 |
| 130/11 | 80/17 81/10 81/11 | 117/6 120/12 |
| V | 91/24 105/17 | 126/15 130/12 |
|  |  |  |
| value [34] 44/2 56/ | versus [9] 51/10 | wants [2] 35/21 |
| 58/1 60/11 60/22 | 56/1 67/17 67/24 | 104/5 |
| 61/1 61/10 61/11 | 72/24 95/21 99/6 | was [78] 10/6 10/9 |
| 61/11 61/17 62/5 | 114/22 115/12 | 13/2 13/4 14/12 |
| 67/11 77/22 77/23 | very [20] 11/23 | 16/13 18/21 28/19 |
| 78/16 78/16 82/16 | 31/22 36/5 38/22 | 32/19 32/19 32/21 |
| 82/19 83/3 84/12 | 41/12 59/2 60/14 | 32/24 36/17 42/21 |
| 84/16 86/3 89/2 | 65/8 70/13 70/22 | 42/23 43/10 43/10 |
| 93/11 94/3 94/16 | 72/21 72/23 76/19 | 43/12 43/12 43/14 |
| 94/17 94/22 94/23 | 77/1 77/2 77/2 | 45/19 48/3 48/6 |
| 96/9 96/10 100/17 | 78/11 84/22 87/16 | 48/7 51/8 51/18 |
| 131/14 132/8 | 127/17 | 52/4 54/19 54/24 |
| values [17] 3/11 | Vice [2] 45/5 45/9 | 55/16 55/18 55/22 |
| 80/14 81/13 81/17 | view [5] 69/23 | 56/13 59/2 59/7 |
| 83/5 85/16 89/4 | 117/13 119/6 119/7 | 61/15 61/18 65/7 |
| 89/16 92/13 92/17 | 121/20 | 70/23 72/9 73/22 |
| 92/18 92/19 93/9 | views [1] 110/7 | 74/4 74/16 80/9 |
| 93/13 96/17 97/3 | vortex [2] 61/19 | 80/17 85/24 90/20 |
| 101/5 | 63/23 | 91/15 95/11 97/7 |
| valuing [1] 57/15 | W | 97/7 101/8 102/8 |
| variables [1] 78/20 |  | 106/6 111/20 114/2 |
| varies [1] 57/17 | 15/8 21/20 23/23 | 116/20 116/21 |
| various [5] 12/20 | 15/8 21/20 23/23 | 116/22 123/8 123/9 |
| 16/5 40/18 74/3 | 26/1 27/1 | 123/17 123/17 |
| 114/3 | 32/11 36/20 38/19 | 124/2 124/3 124/4 |
| verified [1] 90/24 | 38/21 40/7 40/15 | 124/6 124/7 124/9 |
| verify [1] 93/24 | 64/19 68/18 71/5 | 124/14 124/14 |


| W | 95/20 99/4 99/5 | were [58] 4/8 10/11 |
| :---: | :---: | :---: |
| was... [7] 124/16 | 101/9 102/2 110/22 | 2 |
| 124/17 124/23 | 121/16 126/20 | 22/22 23/21 25/11 |
| 125/2 130/10 | 127/16 129/21 | 28/13 37/7 37/9 |
| 130/13 131/24 | 132/24 | 38/22 39/23 51/14 |
| was around [1] | we've [3] 53/22 | 54/21 54/24 55/2 |
| 124/14 | 68/16 96/19 | 55/8 55/11 55/22 |
| wasn't [3] 15/14 | weather [3] 60/15 | 55/24 57/12 58/19 |
| 48/5 106/12 | 61/6 62/23 | 59/8 64/21 67/4 |
| water [2] 48/24 | Weathersby [1] | 73/11 79/21 84/5 |
| 49/9 | 1/17 | 84/20 84/23 86/10 |
| way [24] 1/15 7/20 | website [2] 106/8 | 87/16 88/21 89/3 |
| 15/15 25/15 26/10 | 106/12 | 89/18 92/22 93/1 |
| 28/11 36/8 48/15 | WEISS [191] | 93/14 95/3 96/8 |
| 49/16 53/9 65/6 | well [40] 15/13 | 96/16 97/1 97/2 |
| 67/19 69/4 69/24 | 23/20 28/11 29/2 | 98/23 100/11 101/4 |
| 72/19 95/10 101/7 | 32/20 34/14 37/16 | 101/16 101/16 |
| 107/21 117/8 121/9 | 43/4 48/15 54/18 | 103/9 105/13 112/7 |
| 125/13 126/23 | 56/18 57/17 58/14 | 112/10 112/13 |
| 130/23 131/3 | 66/11 67/3 72/18 | 112/20 119/13 |
| ways [6] 9/2 30/23 | 78/11 89/2 91/18 | 125/10 129/8 |
| 38/20 48/22 50/10 | 93/16 94/2 94/19 | western [2] 55/17 |
| 121/24 | 95/14 97/18 98/24 | 56/1 |
| we [144] | 105/23 108/19 | what [140] |
| we'd [1] 62/8 | 109/7 109/16 | what's [27] 11/15 |
| we'll [6] 12/4 16/7 | 110/19 112/7 | 13/6 15/9 16/21 |
| 24/8 64/11 106/2 | 113/24 118/5 | 17/15 17/23 18/14 |
| 132/24 | 118/13 118/17 | 21/17 23/3 25/23 |
| we're [21] $4 / 3$ | 124/21 124/22 | 34/6 34/9 34/18 |
| 28/18 38/18 38/21 | 126/23 127/18 | 39/7 40/5 42/4 |
| 54/20 57/1 60/7 66/18 66/18 68/17 | $\begin{array}{\|c\|} \hline 132 / 13 \\ \text { went [1] } 31 / 5 \end{array}$ | $\begin{aligned} & \text { 42/10 44/15 44/23 } \\ & \mathbf{4 5 / 1 3} 47 / 6 \text { 58/15 } \end{aligned}$ |


| W | 115/10 117/17 | 72/16 90/1 104/2 |
| :---: | :---: | :---: |
| what's... [5] 61/4 | 117/18 123/2 123/3 | 108/16 108/16 |
| 61/9 77/6 99/5 | 123/4 128/15 | 126/14 128/2 |
| 106/5 | 128/24 129/1 | wide [1] 61/21 |
| whatever [4] 22/21 | which [46] 8/13 | will [19] 10/22 |
| 77/5 85/7 97/22 | 10/22 11/16 13/7 | 13/19 26/14 43/15 |
| when [18] 10/11 | 14/11 16/19 17/13 | 46/2 46/19 47/17 |
| 10/12 10/16 11/6 | 17/16 17/24 17/24 | 56/4 79/4 89/16 |
| 28/1 44/3 55/8 | 18/23 21/7 23/15 | 126/10 127/1 |
| 60/13 74/18 98/2 | 26/19 31/21 34/4 | 127/11 127/21 |
| 98/3 99/4 101/19 | 34/7 41/12 47/8 | 127/22 128/3 130/4 |
| 107/15 110/17 | 51/16 51/23 53/22 | 130/16 132/16 |
| 110/19 111/6 130/4 | 54/20 55/4 57/1 | William [1] 1/16 |
| whenever [2] | 62/8 62/16 69/1 | willing [2] 60/23 |
| 115/21 117/21 | 69/20 70/3 70/4 | 61/14 |
| where [20] 4/20 | 73/1 73/14 74/12 | wind [23] 107/14 |
| 12/20 16/4 19/7 | 77/12 82/5 88/14 | 107/20 107/22 |
| 20/14 32/6 45/16 | 89/21 109/21 110/6 | 107/24 109/7 |
| 50/24 51/2 54/10 | 111/13 114/4 | 109/24 110/15 |
| 66/8 70/5 80/13 | 115/12 115/14 | 110/16 111/2 111/7 |
| 90/5 93/5 94/21 | 125/13 130/12 | 111/11 111/15 |
| 100/12 106/15 | while [1] 74/2 | 112/1 112/9 112/10 |
| 109/17 125/1 | who [5] 36/3 36/16 | 112/13 112/16 |
| where it [1] 16/4 | 45/2 65/8 116/7 | 113/11 113/14 |
| Whereupon [2] 4/7 | Who's [1] 74/23 | 113/19 114/18 |
| 38/13 | whole [1] 40/7 | 114/22 115/15 |
| whether [24] 24/7 | wholesale [2] | winning [1] 43/14 |
| 37/20 44/10 48/20 | 123/18 124/11 | winter [10] 11/22 |
| 50/2 50/6 50/8 | why [17] 35/20 | 12/5 12/8 13/20 |
| 50/20 55/21 98/21 | 54/17 56/6 56/15 | 21/23 22/8 24/13 |
| 102/10 102/12 | 56/18 65/5 65/14 | 24/24 27/10 118/1 |
| 104/5 112/4 115/8 | 65/24 70/7 71/19 | within [5] 21/12 |


| W | 60/20 66/24 | \| 56/1 56/1 58/16 |
| :---: | :---: | :---: |
| within... [4] 55/1 | worthy [1] 69/5 | [523] |
| 56/23 73/11 103/13 | would [136] | you'd [4] 61/14 |
| without [11] 48/11 | wouldn't [6] 67/16 | 72/12 107/10 |
| 48/12 55/14 70/1 | 69/3 81/1 87/15 | 113/12 |
| 70/11 99/1 99/6 | 112/12 120/17 | you're [23] 22/18 |
| 105/23 116/17 | Wright [1] 1/15 | 27/17 51/7 56/7 |
| 118/18 127/23 | wrong [1] 129/22 | 56/8 56/11 57/3 |
| witness [10] 2/4 5/7 | wrote [1] 82/22 | 57/5 57/6 58/20 |
| 19/22 38/16 60/9 | Y | 1/7 93/23 9 |
| 78/23 80/20 86/21 | year [38] 8/21 10/9 | 6/7 101 |
| 92/8 92/16 | 10/10 10/21 11/2 | 106/1 115/21 117/9 |
| witnesses [15] 4/4 | 11/10 14/11 14/11 | 119/8 120/19 |
| 4/5 4/6 29/12 33/3 | 122/1 22/14 23/12 | 128/10 131/18 |
| 33/8 47/24 60/8 | 23/21 23/22 25/20 | you've [9] 13/11 |
| 98/10 105/15 | 26/3 41/4 41/6 41/7 | 29/5 92/4 97/4 |
| 106/19 122/9 | 42/1 43/3 62/4 | 98/13 100/15 |
| 122/20 122/21 | 76/23 77/5 79/6 | 107/15 110/24 |
| 132/19 | 76/23 77/5 79/6 81/4 82/7 82/9 | 126/22 |
| won't [1] 83/1 | 81/4 82/7 82/9 $84 / 23$ 84/23 85/2 | your [76] 4/20 5/16 |
| wondering [1] 65/7 | 85/8 86/1 86/10 | 6/6 6/18 7/8 19/6 |
| wording [1] 67/6 | 86/12 86/22 88/24 | 29/10 29/12 38/1 |
| words [11] 42/17 | 95/7 98/17 | 43/18 47/5 64/20 |
| 52/9 57/22 79/8 | year's [1] 83/18 |  |
| 79/19 84/6 85/2 | years [10] 41/2 42/2 |  |
| 97/19 103/21 | 42/22 70/14 72/2 | 72/14 76/8 76/11 80/6 80/7 80/8 |
| 130/13 131/1 | 83/6 87/9 87/11 | 80/15 81/7 81/18 |
| work [1] 4/21 | 88/12 97/3 | 82/9 82/20 82/20 |
| world [6] 55/15 | yellow [1] 34/11 | 84/19 84/22 88/11 |
| 55/20 56/10 59/9 | yes [188] | 88/13 88/22 88/22 |
| $\begin{aligned} & 68 / 1100 / 11 \\ & \text { worth [3] 60/10 } \end{aligned}$ | York [8] 54/9 55/1 55/5 55/17 55/18 | $88 / 13 ~ 88 / 22 ~ 89 / 22 ~ 89 / 16 ~$ |



