

BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

- - -

In the Matter of the :  
Application of Ohio Edison:  
Company, The Cleveland :  
Electric Illuminating  
Company, and The Toledo :  
Edison Company for : Case No. 14-1297-EL-SSO  
Authority to Provide for :  
a Standard Service Offer :  
Pursuant to R.C. 4928.143 :  
in the Form of an Electric:  
Security Plan. :

- - -

PROCEEDINGS

before Mr. Gregory Price, Ms. Mandy Chiles, and  
Ms. Megan Addison, Attorney Examiners, at the Public  
Utilities Commission of Ohio, 180 East Broad Street,  
Room 11-A, Columbus, Ohio, called at 9:08 a.m. on  
Wednesday, September 9, 2015.

- - -

VOLUME VII

- - -

ARMSTRONG & OKEY, INC.  
222 East Town Street, Second Floor  
Columbus, Ohio 43215-5201  
(614) 224-9481 - (800) 223-9481  
Fax - (614) 224-5724

- - -

## 1 APPEARANCES:

2 FirstEnergy Corp.  
3 By Mr. James W. Burk  
4 and Ms. Carrie M. Dunn  
5 76 South Main Street  
6 Akron, Ohio 44308

7 Calfee, Halter & Griswold LLP  
8 By Mr. James Lang  
9 and Mr. N. Trevor Alexander  
10 The Calfee Building  
11 1405 East Sixth Street  
12 Cleveland, Ohio 44114

13 Jones Day  
14 By Mr. David A. Kutik  
15 901 Lakeside Avenue  
16 Cleveland, Ohio 44114

17 On behalf of the Applicants.

18 Bruce E. Weston, Ohio Consumers' Counsel  
19 By Mr. Larry Sauer  
20 Ms. Maureen R. Grady  
21 Mr. William J. Michael  
22 Mr. Kevin F. Moore  
23 Ms. Ajay K. Kumar  
24 Assistant Consumers' Counsel  
25 10 West Broad Street, Suite 1800  
Columbus, Ohio 43215-3485

On behalf of the Residential Consumers of  
Ohio Edison Company, The Cleveland  
Electric Illuminating Company, and The  
Toledo Edison Company.

Ohio Partners for Affordable Energy  
By Ms. Colleen L. Mooney  
231 West Lima Street  
Findlay, Ohio 45840

On behalf of the Ohio Partners for  
Affordable Energy.

## 1 APPEARANCES: (Continued)

2 Bricker & Eckler, LLP  
3 By Mr. Dane Stinson  
4 and Mr. Dylan Borchers  
5 100 South Third Street  
6 Columbus, Ohio 43215-4291

7 Bricker & Eckler, LLP  
8 By Mr. Glenn S. Krassen  
9 1001 Lakeside Avenue East, Suite 1350  
10 Cleveland, Ohio 44114

11 On behalf of the Northeast Ohio Public  
12 Energy Council, Ohio Schools Council, and  
13 Power for the Schools.

14 Earthjustice  
15 By Mr. Shannon Fisk  
16 Northeast Office  
17 1617 John F. Kennedy Boulevard, Suite 1675  
18 Philadelphia, Pennsylvania 19103

19 Earthjustice  
20 By Mr. Michael Soules  
21 1625 Massachusetts Avenue NW, Suite 702  
22 Washington, D.C. 20036

23 Sierra Club Environmental Law Program  
24 Mr. Tony Mendoza  
25 85 Second Street, 2nd Floor  
San Francisco, California 94105

Richard Sahli Law Office, LLC  
By Mr. Richard C. Sahli  
981 Pinewood Lane  
Columbus, Ohio 43230-3662

On behalf of the Sierra Club.

McNees, Wallace & Nurick LLC  
By Mr. Frank P. Darr  
and Mr. Samuel C. Randazzo  
21 East State Street, 17th Floor  
Columbus, Ohio 43215

On behalf of the Industrial Energy Users  
of Ohio.

## 1 APPEARANCES: (Continued)

2 IGS Energy  
3 By Mr. Joseph Olikier  
4 6100 Emerald Parkway  
5 Dublin, Ohio 43016

6 On behalf of IGS Energy.

7 Taft, Stettinius & Hollister LLP  
8 By Mr. Mark S. Yurick  
9 and Mr. Devin D. Parram  
10 65 East State Street, Suite 1000  
11 Columbus, Ohio 43215

12 On behalf of The Kroger Company.

13 Vorys, Sater, Seymour & Pease, LLP  
14 By Mr. M. Howard Petricoff  
15 Ms. Gretchen Petrucci  
16 Mr. Stephen M. Howard  
17 and Mr. Michael J. Settineri  
18 52 East Gay Street  
19 Columbus, Ohio 43215

20 On behalf of Retail Energy Supply  
21 Association, PJM Power Providers Group,  
22 Electric Power Supply Association,  
23 Constellation NewEnergy, and Exelon  
24 Generation, LLC.

25 Mike DeWine, Ohio Attorney General  
By Mr. William L. Wright,  
Section Chief  
Mr. Thomas G. Lindgren  
Mr. Thomas W. McNamee  
Mr. Steven L. Beeler  
Assistant Attorneys General  
Public Utilities Section  
180 East Broad Street, 6th Floor  
Columbus, Ohio 43215

On behalf of the Staff of the PUCO.

## 1 APPEARANCES: (Continued)

2 Kravitz, Brown & Dortch, LLC  
3 By Mr. Michael D. Dortch  
4 and Mr. Richard R. Parsons  
5 65 East State Street, Suite 200  
6 Columbus, Ohio 43215

7 On behalf of Dynegy, Inc.

8 Carpenter Lipps & Leland LLP  
9 By Ms. Kimberly W. Bojko  
10 Ms. Rebecca L. Hussey  
11 280 North High Street, Suite 1300  
12 Columbus, Ohio 43215

13 On behalf of the Ohio Manufacturers'  
14 Association Energy Group.

15 Carpenter Lipps & Leland LLP  
16 By Mr. Joel E. Sechler  
17 280 North High Street, Suite 1300  
18 Columbus, Ohio 43215

19 On behalf of EnerNOC, Inc.

20 Boehm, Kurtz & Lowry  
21 By Mr. Michael L. Kurtz  
22 Mr. Kurt J. Boehm  
23 Ms. Jody Kyler Cohn  
24 36 East Seventh Street, Suite 1510  
25 Cincinnati, Ohio 45202

On behalf of the Ohio Energy Group.

Environmental Law & Policy Center  
By Ms. Madeline Fleisher  
21 West Broad Street, Suite 500  
Columbus, Ohio 43215

On behalf of the Environmental Law &  
Policy Center.

1 APPEARANCES: (Continued)

2 Stone Mattheis Xenopoulos & Brew, PC  
3 By Mr. Michael Lavanga  
4 Mr. Garrett A. Stone  
5 Mr. Owen J. Kopon  
6 1025 Thomas Jefferson Street, N.W.  
7 Eighth Floor West Tower  
8 Washington, D.C. 20007-5201

9 On behalf of the Nucor Steel Marion, Inc.

10 Barth E. Royer, LLC  
11 By Mr. Barth E. Royer  
12 2740 East Main Street  
13 Bexley, Ohio 43209

14 and

15 Taft, Stettinius & Hollister LLP  
16 By Mr. Adrian D. Thompson  
17 200 Public Square, Suite 3500  
18 Cleveland, Ohio 44114-2300

19 On behalf of the Cleveland Municipal  
20 School District.

21 Spilman, Thomas & Battle, PLLC  
22 By Mr. Derrick Price Williamson  
23 Ms. Carrie Harris  
24 Ms. Lisa Hawrot  
25 1100 Bent Creek Boulevard, Suite 101  
Mechanicsburg, Pennsylvania 17050

On behalf of Wal-Mart Stores East, LP,  
and Sam's East, Inc.

Mr. Richard L. Sites  
155 East Broad Street  
Columbus, Ohio 43215

Bricker & Eckler, LLP  
By Mr. Thomas J. O'Brien  
100 South Third Street  
Columbus, Ohio 43215-4291

On behalf of the Ohio Hospital  
Association.

## 1 APPEARANCES: (Continued)

2 Ohio Environmental Council  
3 By Mr. Trent A. Dougherty  
4 and Mr. John Finnigan  
5 1145 Chesapeake Avenue, Suite I  
6 Columbus, Ohio 43212

7 On behalf of the Ohio Environmental  
8 Council and the Environmental Defense  
9 Fund.

10 Mr. Thomas R. Hays  
11 8355 Island Lane  
12 Maineville, Ohio 45039

13 On behalf of the Northwest Ohio  
14 Aggregation Coalition and the Individual  
15 Communities.

16 Ice Miller, LLP  
17 By Mr. Christopher Miller,  
18 250 West Street, Suite 700  
19 Columbus, Ohio 43215-7509

20 On behalf of the Association of  
21 Independent Colleges and Universities of  
22 Ohio.

23 American Electric Power  
24 By Mr. Steven T. Nourse  
25 Mr. Matthew J. Satterwhite  
One Riverside Plaza  
Columbus, Ohio 43215

On behalf of the Ohio Power Company.

Mr. Craig I. Smith  
15700 Van Aken Boulevard #26  
Shaker Heights, Ohio 44120

On behalf of Material Sciences  
Corporation.

Meissner and Associates Law Firm  
By Mr. Joseph Patrick Meissner  
5400 Detroit Avenue  
Cleveland, Ohio 44102

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

APPEARANCES: (Continued)

Kegler, Brown, Hill & Ritter  
By Mr. Christopher J. Allwein  
and Ms. Margeaux Kimbrough  
Capitol Square, Suite 1800  
65 East State Street  
Columbus, Ohio 43215-4294

On behalf of the EverPower Wind Holdings,  
Incorporated.

- - -



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

INDEX

- - -

WITNESSES	PAGE
Judah Rose	
Cross-Examination by Mr. Fisk	1320
Cross-Examination by Mr. Olikier	1362
Cross-Examination by Ms. Fleisher	1415
Cross-Examination by Mr. Sauer	1419
Redirect Examination by Mr. Alexander	1429
Recross-Examination by Mr. Fisk	1466
Recross-Examination by Mr. Olikier	1470
Recross-Examination by Mr. McNamee	1483
Redirect Examination by Mr. Alexander	1485
Recross-Examination by Mr. Olikier	1498
Recross-Examination by Ms. Fleisher	1512
Recross-Examination by Ms. Bojko	1524

- - -

COMPANIES EXHIBITS	IDENTIFIED	ADMITTED
19 - IC Forecast: Integrated Energy Outlook-Executive Data Tables (Confidential)	1361	1361
20 - Rose Workpapers (Confidential)	1411	1411
SIERRA CLUB EXHIBITS		
16 - Request For Production of Documents Sierra Club Set 1 (Confidential)	1320	--
17 - Responses to Request IEU Set 1 (Confidential)	1336	--
18 - IEU Set 1 INT 9 Attachment 1 (Confidential)	1336	--
19 - IEU Set 1 INT 9 Attachment 2 (Confidential)	1336	--
20 - ICForecast: Integrated Energy Outlook 2013 (Confidential)	1351	1361

		1316	
1	SIERRA CLUB EXHIBITS		IDENTIFIED ADMITTED
2	21 - Emission Allowance Prices 12-20-10 (Confidential)	1352	1361
3			
4	22 - ICF International's 2011 Quarterly Forecast (Confidential)	1354	1361
5			
6	23 - ICF's Quarterly Forecast June of 2011 (Confidential)	1355	1361
7			
8	24 - Regional Emission Allowance Prices 5-22-12 (Confidential)	1361	1361
9			
10	25 - Emission Allowance Prices 1-3-13 (Confidential)	1361	1361
11	IGS EXHIBITS		IDENTIFIED ADMITTED
12	3 - Unredacted Testimony, Workpapers and Discovery Responses from Case 11-3549 (Confidential)	1374	--
13			
14	4 - 2016/2017 RPM Capacity Performance Transition Incremental Auction Results (Confidential)	1379	--
15			
16	5 - 2018/2019 RPM Base Residual Auction Results (Confidential)	1380	--
17			
18	6 - Comparison of J. Rose Forecast to Capacity Auction Prices (Confidential)	1395	--
19			
20	OCC EXHIBITS		IDENTIFIED ADMITTED
21	4 - Request for Production of Documents (Confidential)	1420	--
22			
23	- - -		
24			
25			

1 Wednesday Morning Session,  
2 September 9, 2015.

3 - - -

4 EXAMINER PRICE: Good morning. The  
5 Public Utilities Commission has set for hearing at  
6 this time and place Case No. 14-1297-EL-SSO In the  
7 Matter of the Application of Ohio Edison Company, the  
8 Cleveland Electric Illuminating Company, and the  
9 Toledo Edison Company For Authority to Provide a  
10 Standard Service Offer Pursuant to Revised Code  
11 4928.143 in the Form of an Electric Security Plan.

12 My name is Gregory Price. With me are  
13 Mandy Chiles and Megan Addison. We are the Attorney  
14 Examiners assigned to today's hearing.

15 Let's begin again, as has been our  
16 practice, with brief appearances, starting with the  
17 companies.

18 On behalf of the companies, your Honor,  
19 James W. Burk, Carrie M. Dunn; also on behalf of the  
20 companies James Lang, Trevor Alexander, from the  
21 Calfee law firm; and David Kutick form the Jones, Day  
22 law firm.

23 MR. SAUER: Thank you, your Honor, on  
24 behalf of the residential customers of the  
25 FirstEnergy companies, the office of Ohio Consumers'

1 Counsel, Larry Sauer, Maureen Grady, William Michael,  
2 Kevin Moore, and Ajay Kumar.

3 MR. KURTZ: Good morning, your Honor, on  
4 behalf of OEG, Mike Kurtz.

5 MR. McNAMEE: On behalf of the staff of  
6 of Ohio Public Utilities Commission, Thomas Lindgren,  
7 Steven Beeler, and I am Thomas McNamee.

8 MR. STINSON: On the behalf of the  
9 Northeast Ohio Public Energy Council, Power for  
10 Schools, and the Ohio Schools Council, Brickler &  
11 Eckler, LLP, Dane Stinson and Dylan Borchers.

12 MS. KINGERY: On behalf of nonparty Duke  
13 Energy Ohio, Amy Spiller and Jeanne Kingery.

14 MR. OLIKER: Good morning, your Honors,  
15 on behalf of IGS Energy, Joe Oliker.

16 MR. FISK: Good morning, your Honors. On  
17 behalf of the Sierra Club, Shannon Fisk and Michael  
18 Soules.

19 MS. FLEISHER: Good morning, your Honors.  
20 On behalf of the Environmental Law & Policy, Madeline  
21 Fleisher.

22 MS. BOJKO: Good morning, your Honors.  
23 On the behalf of Ohio Manufacturers' Association  
24 Energy Group, Kimberly W. Bojko and Rebecca L.  
25 Hussey.

1 MR. PETRICOFF: Good morning, your  
2 Honors. On behalf of the Retail Energy Supply  
3 Association, PJM Power Providers Group, the Electric  
4 Power Supply Association, Constellation NewEnergy,  
5 and Exelon Generation, Howard Petricoff, Michael  
6 Settineri, and Steve Howard from the firm of Vorys,  
7 Sater.

8 I would also like to indicate we will  
9 have no questions in the confidential section of this  
10 witness.

11 MR. HAYS: Good morning, your Honor. I  
12 am Tom Hays with NOAC.

13 MR. O'BRIEN: Good morning, your Honors.  
14 On behalf of the Ohio Hospital Association, Richard  
15 L. Sites and Thomas J. O'Brien.

16 MR. RANDAZZO: Good morning, your Honors.  
17 I am Sam Randazzo. I am here on behalf of the  
18 Industrial Energy Users. My co-counsel is Frank  
19 Darr.

20 EXAMINER PRICE: Let's go off the record.  
21 (Off the record.)

22 EXAMINER PRICE: Back on record. At this  
23 time, we will continue with our testimony --  
24 cross-examination of FirstEnergy with Mr. Rose. We  
25 will go the Confidential Transcript. So at this

1 point, anybody who has not signed the Confidential  
2 agreement with FirstEnergy and is not a member of the  
3 Staff should exit the room.

4 It appears to be secure.

5 (CONFIDENTIAL PORTION.)  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

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

(END OF CONFIDENTIAL PORTION.)

EXAMINER PRICE: Let's go off the record.

(Recess taken.)

(PUBLIC PORTION.)

EXAMINER PRICE: Let's go back on the record.

Mr. Alexander, redirect?

- - -

REDIRECT EXAMINATION

By Mr. Alexander:

Q. Mr. Rose, in the public portion of your transcript, you had some questions from Sierra Club regarding the age of your forecast and why your forecast was not updated. Do you recall those questions?

A. Yes.

Q. Why didn't you update your forecast?

A. As we discussed, our current forecast for natural gas in terms of the long-term average price have not changed since 2014, on average, for this year. Our current view of that is similar for the long term within a handful of percent, and we have discussed the fact we haven't had a major revision because much of the data is supportive of that, and

1 the things that are challenging issues are related to  
2 the volatility, so that's natural gas.

3 And we also looked at the electrical  
4 energy forecasts and asked the question is the  
5 original finding that we had, that the price for  
6 power would be high and not that sensitive to the gas  
7 price or high as to the ratio of power to gas because  
8 of the retirement of units in Ohio and the congestion  
9 and continuing reliance on coal? Is that still the  
10 case?

11 Yes, we see that the prices -- even  
12 though the gas price is down significantly, for  
13 example, 35 percent for the Henry Hub, the electrical  
14 energy price is down 10 to 15 percent in a mild  
15 summer. It's hard to figure out how much is weather,  
16 but it supports our view that the electrical energy  
17 price is relatively stable compared to the movement  
18 of the gas price.

19 Again, you're paid for electrical energy,  
20 not for the gas. The gas will become more important  
21 in the long term, but right now it is coal setting  
22 the price in Ohio, and that will be the case, and  
23 there's congestion, and there's a shortage of  
24 equipment relative to what could be occurring with  
25 respect to the gas price. Over the long term that



1 will change.

2           So our treatment of electrical energy, we  
3 continue to think it's a good treatment. If you look  
4 at the CO2, we now have information that the final  
5 regulations and the proposed regulations in our  
6 current forecast is very similar to the forecast we  
7 have here on a probability-weighted basis. As I  
8 indicated, we think that there is a probability that  
9 changes by year with respect to whether the  
10 regulations will be sustained, but we think our  
11 current forecast is fairly similar.

12           Then the last thing that we're looking at  
13 is the capacity price, and it's true that there are  
14 some differences in our capacity forecast relative to  
15 exact numbers of each individual auction, but the  
16 claim made earlier in 2014 that there's going to be a  
17 massive increase in the capacity price has been  
18 sustained. It's not exactly the number, but we think  
19 we still haven't had the full import of the capacity  
20 performance plan.

21           The first transition incremental auction  
22 was a 60 percent implementation. The one that is  
23 coming out today is 70 percent. The BRA that we had  
24 a few weeks ago is 80 percent, and we will be getting  
25 to 100 percent within two years. So we believe

1 overall our forecast is reasonable on capacity  
2 prices. There are numbers that are -- we're never  
3 going to get it exactly right, but we have, I think,  
4 the proper treatment for capacity markets.

5 When I look at all those four factors, I  
6 don't think there would be a major impact due to the  
7 update, and that's why we're not updating.

8 Q. And, Mr. Rose, Sierra Club also provided  
9 you some testimony you did in another proceeding and  
10 asked whether you had done a sensitivity analysis in  
11 that case. Do you recall those questions?

12 A. Yes.

13 Q. Since you did a sensitivity analysis in  
14 that case, can you explain why you did not do a  
15 sensitivity analysis in your FirstEnergy testimony?

16 A. That particular analysis that was  
17 referred to was in a marketplace that doesn't have  
18 nodal pricing, didn't require multiple models, didn't  
19 have the complexity that you have in the current  
20 marketplace, so that was a significant factor; that  
21 is, the greater the complexity, the more the models  
22 that we have, the more that we're focused in on the  
23 expected value.

24 None of the sensitivity cases impacted  
25 the expected probability-weighted value, which as I

1 said in my testimony is a core decision-making  
2 variable. So due to the complexity and the large  
3 volume of reporting that we had to do, it caused us  
4 not to do sensitivity cases, contributed to that  
5 decision.

6 As I indicated, the most well-known study  
7 that ICF has out currently which has a comparable  
8 level of complexity is the clean power plan analysis  
9 we did for EPA, known as a regulatory impact  
10 analysis, does not have an economic sensitivity case  
11 in part because it has so much reporting that's  
12 involved that it becomes too complex to -- and is not  
13 as -- is consistent with the overall scope of the  
14 assignment.

15 So the complexity does affect things,  
16 and, you know, no one is coming to us and saying,  
17 Don't go forward with the EPA regulations because you  
18 don't have sensitivity cases. They recognize the  
19 complexity that's involved, and so that's why we  
20 don't have economic sensitivity cases.

21 Q. And would your answer be the same with  
22 regard to why the ICF forecast includes high and low  
23 cases but your testimony does not?

24 A. Yes. Those analyses are not using  
25 GE-MAPS. They're not using multiple models. They're

1 just using one model. You can see the reporting was  
2 a few numbers on a few pages, not the, you know, many  
3 millions of data points we had to produce in this  
4 case and in the regulatory analysis we did for EPA.

5 Q. Turning to a different topic, you were  
6 asked about the relationship between Henry Hub prices  
7 and electrical energy prices. Do you recall that  
8 conversation?

9 A. Yes.

10 Q. Do you believe that relying on Henry Hub  
11 prices is an accurate way to forecast future energy  
12 prices?

13 A. No. You have to take into account not  
14 only what -- the extent to which coal is setting the  
15 price, but also the extent to which congestion and losses  
16 are affecting the price, and, therefore, just using  
17 the gas price can be very misleading. And the  
18 year-to-date numbers show that the decrease in Henry  
19 Hub price relative to expectations is not mirrored in  
20 the electrical energy price, and, furthermore, it is  
21 not only -- cannot just use the Henry Hub price, you  
22 have to use the delivered price.

23 As I described, last year's delivered  
24 price or Chicago is pretty much the number we are  
25 forecasting on average over the long term, so that

1 number has already been achieved in the natural gas  
2 area in the last full --

3 EXAMINER PRICE: Mr. Rose, turn your mic  
4 back on.

5 A. The delivered prices are important, and  
6 it's not just gas prices, and you can't just develop  
7 your electrical energy forecast based on that. In  
8 our forecast the long-term average is very similar to  
9 the delivered price we observed in 2014 in Chicago  
10 over the long term.

11 Q. And switching to a new topic, you  
12 received several questions regarding the difference  
13 between the PJM 2014 demand forecast and the PJM 2015  
14 demand forecast. Do you recall those questions?

15 A. Yes.

16 Q. Does a decrease in demand necessarily  
17 correlate to a decrease in electrical energy prices?

18 A. No. In the long term the more demand  
19 growth you have, the more you need to build more  
20 power plants. The more you need to build more power  
21 plants, the more you have the latest technology,  
22 which tends to be more efficient than the previous or  
23 existing technology.

24 We have power plants that are 10, 20, 30,  
25 40, 50 years old. The new power plants have greater

1 thermal efficiency, for example. So if you don't  
2 have demand growth and you don't need new power  
3 plants, you end up with a fleet that doesn't have the  
4 thermal efficiency on the margin that you would if  
5 you had more demand growth. It's sort of paradoxal  
6 long-term effect, and that's why you have to run it  
7 through the model to know which effect is dominating,  
8 particularly in the long-term average.

9 Q. And do you believe -- switching to a new  
10 topic -- that natural gas forwards are a good way to  
11 forecast long-term energy prices?

12 A. No. We discussed the problem with the  
13 long-term forwards, the ratio of long-term  
14 transactions. And the near-term transactions of the  
15 first two years, the long term is 617,000 to 1. What  
16 you observed in the long term is just quotes, not  
17 actual transactions, so it is not reflecting the  
18 actual views of market participants because they're  
19 not participating.

20 And then when you actually go to make the  
21 transaction, you actually move the price because  
22 there is no one else transacting. You are the  
23 market. If you start buying, you raise the price.  
24 If you start selling, you lower the price. It  
25 doesn't make any sense in the long term to use the

1 futures' price. The futures' price is reflecting  
2 with 81 percent correlation the spot price.

3 That is okay for the first two years  
4 because of the high volumes. It makes some sense in  
5 years two, three, four maybe. Certainly makes no  
6 sense in the long term.

7 Q. And Mr. Oliker asked you questions about  
8 the capacity performance plan. Do you recall those  
9 questions?

10 A. Yes.

11 Q. And one of is questions was will the  
12 capacity performance plan impact peak energy prices.  
13 Do you recall that?

14 A. Yes.

15 Q. Are the impacts of the capacity  
16 performance plan on energy prices already  
17 incorporated in your forecast?

18 A. Yes. We have been assuming it's going to  
19 be an efficient market, a rational market for  
20 capacity, a reliable system, and, therefore, we will  
21 have the power plant additions that allow for us to  
22 have a rational market, and that's already reflected  
23 in the energy prices.

24 I did discuss the possibility that you  
25 would have a repeat of what we had, which was an

1 irrational set of prices leading to a polar vortex or  
2 worse. PJM itself said if they had a repeat of the  
3 polar vortex, they would shed during winter because  
4 people wouldn't be able to heat their homes.

5 So it is possible that -- what I was  
6 referring to is you have this irrational situation.  
7 You have an initial spike in the prices and then a  
8 system collapse, load shedding. To the extent that  
9 we maintain the rationality of the CP plan, it is  
10 already incorporated into our electrical energy  
11 prices, and they would not be going down.

12 Q. So does the capacity performance plan  
13 have a direct impact on energy prices or just an  
14 impact on whether generators remain in operation?

15 A. It has an indirect effect by affecting  
16 load plants that remain in operation and whether you  
17 have an efficient, reliable situation. If you don't,  
18 that's another problem. Our forecast assumes it  
19 does, and our energy price reflects that.

20 Q. Turning to a new topic, again, Mr. Oliker  
21 asked you about whether the 18-'19 auction results  
22 could impact the 2020 capacity price. Do you recall  
23 those questions?

24 A. Yes.

25 Q. Can you explain why the 2018 prices would



1 have a possible impact on the 2020 capacity price?

2 A. It's more that the '18-'19 auction could  
3 have an effect on the '109 price. The 2020 price was  
4 coming from the model, so if you're interpolating  
5 between this number and this number -- the record is  
6 not going to show it -- but you actually raise this  
7 number. You actually raise the intermediate numbers.  
8 So because of the higher price that's already been  
9 registered in the BRA, you would have a higher price  
10 in 2019, but the 2020 price would remain the same  
11 because it's coming out of the model.

12 Q. And Ms. Fleisher asked you about whether  
13 your model included demand response in its  
14 projections. Do you recall that?

15 A. Yes.

16 Q. She went through the numbers with you,  
17 and you mentioned that demand response was limited as  
18 a conservative assumption. Do you recall that?

19 A. Yes.

20 Q. Can you explain what you meant by  
21 "conservative assumption"?

22 A. We are assuming that there is  
23 11,000 megawatts of demand response, which at PJM  
24 means interruptible load. What we are observing, in  
25 fact -- and that number is growing slightly over

1 time. What we are observing is in the capacity  
2 performance product that just cleared the BRA, there  
3 is almost no interruptible load. And almost all of  
4 the interruptible load, like 90 percent-ish, is in  
5 the base product that is not subject to the  
6 penalty/bonus structure of capacity performance.

7 There is tremendous evidence that once  
8 you go to 100 percent of the capacity product, you  
9 are going to have a significant decrease from the  
10 11,000 or so megawatts of demand response, which is  
11 primarily interruptible load.

12 On top of that, as we discussed, there is  
13 the Supreme Court decision out any day now which  
14 would mean that as a demand product -- it could mean  
15 that you would not be able to receive payments  
16 directly. There are proposals to adjust for that by  
17 state-by-state adjustment, and that's an additional  
18 factor that could lower the demand response.

19 But even if that doesn't occur, there's  
20 not that Supreme Court decision that you can't be  
21 paid by FERC, it's still the case that the  
22 performance proposal itself is going to result in  
23 lower demand response than we have in our numbers;  
24 therefore, higher capacity prices and everything else  
25 being equal, or at least the same level of capacity

1 prices on this conservative assumption with respect  
2 to interruptible load.

3 Q. Again, Ms. Fleisher asked you about --  
4 questions about whether SO2 or NOx were included in  
5 your forecast. Can you explain why you didn't  
6 address those specific environmental attributes in  
7 your workpapers?

8 A. As a result of the MATS regulations and  
9 other regulations put into place, most power plants  
10 are already controlled to a high degree for SO2 and  
11 NOx, and so for sulfur dioxide and nitrogen oxides.  
12 71 percent of the fleet at PJM has both selective  
13 catalytic reduction, which is the most controlling  
14 form of NOx control, and the SO2 scrubbers.

15 I mean, there's additional power plants  
16 that have one or the other, so most of the plants are  
17 already significantly controlled for SO2 and NOx, and  
18 so that's not a significant issue. The significant  
19 issue is really CO2, and in a few cases some of the  
20 coal combustion residual costs, which are typically  
21 much less than the cost of installing a scrubber or  
22 an SCR.

23 MR. ALEXANDER: Nothing further. Thank  
24 you.

25 EXAMINER PRICE: Thank you.

1 Mr. Fisk, recross?

2 MR. FISK: May I have three minutes?

3 EXAMINER PRICE: Go off the record.

4 (Discussion off record.)

5 EXAMINER PRICE: Let's go back on the  
6 record.

7 Mr. Fisk.

8 MR. FISK: I have nothing further.

9 EXAMINER PRICE: Mr. Olikier.

10 MR. OLIKER: Just a little bit, your  
11 Honor.

12 - - -

13 RE-CROSS-EXAMINATION

14 By Mr. Olikier:

15 Q. You talked about the capacity performance  
16 proposal with Mr. Alexander. Would you agree the  
17 peak pricing we have observed during the polar vortex  
18 was largely a result of plant outages?

19 A. It was a combination of high demand and  
20 plant outages, the plant outages, some of which were  
21 mechanical and some of which were due to lack of  
22 fuel.

23 Q. And you would agree the capacity  
24 performance proposal addresses both the lack of fuel  
25 issues as well as the mechanical issues?

1           A.    It is, yes, significant improvement as  
2   evidenced by the fact that the transitional auction  
3   just a few minutes ago was 150, as opposed to  
4   134 that you asked me to assume; therefore, your  
5   table needs to be adjusted.  And part of it is a  
6   series of increases in prices, which we expected.

7                    But it's not only the mechanical, because  
8   I want to make sure it's clear.  It's not only the  
9   mechanical and not only the fuel.  It was the  
10  interruptible load that was only responsible for 60  
11  hours during the summer that was counting towards the  
12  resources that were supposed to be available.  They  
13  weren't available, and they were crowding out the  
14  actual megawatts that are required to be available  
15  during the winter.

16                   They would get the same price, but they  
17  didn't have the same responsibilities.  So it's a  
18  combination of those things that the CP is  
19  addressing, and which will eventually be fully in  
20  place.

21                   MR. OLIKER:  Move to strike everything  
22  after the 151 comment, which dealt whether it  
23  addressed the outage issues, not the compensation for  
24  demand response.

25                   MR. ALEXANDER:  Your Honor, could I have

1 the question reread, please?

2 EXAMINER PRICE: Yes, let's have the  
3 question back.

4 (Question read.)

5 EXAMINER PRICE: We are going to deny the  
6 motion to strike. But we are going to on our own  
7 motion strike the parenthetical reference to \$134 and  
8 the chart.

9 Q. (By Mr. Oliker) Just to be clear,  
10 Mr. Rose, you believe the capacity performance  
11 product would require resources to deliver when  
12 called during inclement weather?

13 A. It provides an incentive and not a  
14 requirement. The original capacity performance plan  
15 had a requirement that would warrant you do certain  
16 things. The actual final tariff provides an  
17 incentive. There's penalties and bonuses if you  
18 don't perform.

19 Q. Okay. And if outage levels decrease, all  
20 also being equal, would you agree that energy prices  
21 will come down?

22 A. Yes, that's the general relationship. If  
23 you have more supply, you have lower prices,  
24 everything else being equal.

25 Q. And the peak pricing you talk about in

1 your testimony regarding the polar vortex, I think  
2 you talked about the City Gate, would you agree that  
3 the peak prices that we saw in the natural gas market  
4 occurred only in the constrained areas?

5 A. Yes, to a certain degree. When the  
6 prices exploded, they exploded, for example, to a  
7 tremendous degree in the constrained areas in, like,  
8 say, from DC up to New York. But then that caused  
9 power demand to increase throughout PJM, and it had  
10 an effect, a spillover effect on gas prices in a lot  
11 of locations, so it had multiple effects. It wasn't  
12 just in the gas delivery constrained areas, it  
13 affected other areas as well.

14 Q. And if the natural gas-fired power plants  
15 has firm transportation, they have the ability to  
16 avoid those constraints; is that correct?

17 A. Therefore, the ability to have gas  
18 delivered and not to be interrupted, unless there's  
19 extraordinary or very unusual effects.

20 Q. And those very unusual events are only if  
21 a pipeline explodes, pretty much, correct, or if  
22 there is planned maintenance?

23 A. I think that's an oversimplification.  
24 There's the issue about major pipeline failure with  
25 the explosion being one dimension of that. There's

1 also just the issue of when they designate they're  
2 going to say, yes, I will give you firm gas supply,  
3 it's because they believe it's very, very likely they  
4 will be able to get you firm gas supply. But if  
5 demand is very high, then they could still interrupt  
6 you.

7 It gets into the legal situation,  
8 vis-a-vis the tariff and the power of the various  
9 different authorities. I think, in general, when you  
10 get firm supply, you're going to get delivered as  
11 opposed to if you have interruptible supply where  
12 there is a much, much larger chance of interruption.

13 Q. Am I correct that yesterday you testified  
14 that if an operational-flow order is issued, you  
15 don't have the capacity to determine whether or not a  
16 natural gas facility would still get gas?

17 A. Yes. It got into the details of the  
18 tariff and other arrangements that varied depending  
19 on circumstances and state, so it would have to be a  
20 more specific question, and it is something of a  
21 complicated area.

22 Q. You mentioned the EPSA decision that has  
23 been challenged at the US Supreme Court. Would you  
24 also agree there's the potential that the capacity  
25 performance product will also be challenged to the US



1 Supreme Court?

2 A. If you're asking me whether there's a  
3 possibility, I don't think that it's likely. I think  
4 that the issues that were enjoined in the EPSA  
5 decision are, as a nonlawyer, very relevant issues to  
6 the power of the states vis-a-vis the federal  
7 governmental and the Attleboro decision. It  
8 undermines the demarcation between states and the  
9 federal government in a fundamental way, and it  
10 affects the issue of does the constitutional  
11 interstate commerce override the Attleboro doctrine.

12 That's a big issue. I don't believe that  
13 similar issues are enjoined in the CP, the capacity  
14 performance. I think it's a lot less likely.  
15 Furthermore, it's rational as opposed to the opinion,  
16 which I think in EPSA's argument is, in addition it's  
17 irrational. I think they have a legitimate argument  
18 there, whereas just the opposite in the case of the  
19 CP because it's rational.

20 Q. It's your nonlegal opinion?

21 A. I'm not a lawyer, but I am familiar with  
22 the Attleboro doctrine and the commerce clause of the  
23 US Constitution.

24 Q. Have you read the applications for  
25 rehearing that were filed regarding the capacity

1 performance at FERC?

2 A. I don't remember seeing any.

3 Q. And do you know how the doctrine of  
4 retroactive ratemaking is applied at FERC?

5 A. Yes. I have some experience.

6 Q. Would you agree that retroactive  
7 ratemaking is not always a bar to modifying prices  
8 that have already been established?

9 MR. ALEXANDER: Objection, I think we  
10 have gotten well afield of both the scope of the  
11 redirect and of this nonlawyer witness' legal  
12 opinion.

13 MR. OLIKER: Your Honor, he brought up  
14 capacity performance and the EPSA decision.

15 EXAMINER PRICE: Overruled.

16 A. In the event you haven't established a  
17 tolling procedure, it's very unusual, an extremely  
18 high bar to go into retroactive ratemaking. It's not  
19 absolute bar, but in my nonlegal experience, it's a  
20 very high bar. It's like asking me to do the high  
21 jump at 7 feet.

22 Q. You would agree they're resettling  
23 certain capacity prices in the New England ISO right  
24 now?

25 MR. ALEXANDER: Objection, beyond the

1 scope of redirect.

2 MR. OLIKER: It's just a layer of the  
3 last question.

4 EXAMINER PRICE: One layer too far.  
5 Sustained.

6 Q. (By Mr. Oliker) Mr. Rose, this past  
7 winter of 2015, the conditions were nearly identical  
8 to the polar vortex, correct?

9 A. There was a high similarity in the  
10 weather, I would agree on that. It wasn't exactly  
11 the same weather, et cetera, but it was pretty  
12 similar.

13 Q. And you would agree that even without the  
14 capacity performance product, we weren't even close  
15 to load shedding?

16 A. Yes. There was not load shedding. I  
17 don't believe we were that close, but it's like a  
18 coin toss. Now, we have two coin tosses, and one  
19 ended up bad and the other one ended up okay, so it  
20 is a random variable, and I wouldn't take much  
21 comfort from one coin toss.

22 Q. Would you agree that the reason why there  
23 was no load shedding was because PJM addressed many  
24 of the issues that occurred during the polar vortex?

25 A. There are some elements of that that

1 occurred. Some of it is related to what PJM did.  
2 Others is luck, and I don't think PJM controls the  
3 fact that there was in one year a \$120 a million Btu  
4 gas prices, and in the other period of time there  
5 wasn't.

6 Q. Would you agree that during this past  
7 winter, natural gas interruptions contributed to a  
8 smaller portion of the outages than coal-fired  
9 interruptions, if you know?

10 A. What I remember is -- if you have a  
11 document, I'd be glad to take a look at it. What I  
12 remember, there were less gas interruptions, but it  
13 was still in the many thousands of megawatts.

14 Q. You would agree that the many thousands  
15 of megawatts for coal was higher?

16 A. Do you have a document you want me to  
17 look at?

18 MR. OLIKER: Could I refresh his  
19 recollection, your Honor?

20 EXAMINER PRICE: You may.

21 MR. OLIKER: I'm handing the witness IGS  
22 Exhibit 1.

23 Q. (By Mr. Oliker) Mr. Rose, does that  
24 document refresh your recollection that the  
25 coal-fired outages were \$10,000 megawatts relative to

1 a 7,000 megawatt total for natural gas interruption?

2 A. What about the 3,000 megawatts of  
3 additional gas outages that add up to a larger number  
4 of gas outages than coal outages in 2015?

5 MR. OLIKER: I move to strike his answer  
6 and ask him to answer my question which is natural  
7 gas interruptions.

8 EXAMINER PRICE: First answer his  
9 question.

10 A. So on February 20, as I'm looking at the  
11 document, 2015, gas interruptions were  
12 7,400 megawatts approximately, and coal, which is not  
13 broken up into interruption or outages but would be  
14 expected to be outages is 10,200. There's additional  
15 categories which I just mentioned earlier.

16 Q. Would you agree that over in that  
17 document that PJM would say it was due to luck?

18 MR. ALEXANDER: Objection. We haven't  
19 established any foundation of this document with this  
20 witness.

21 THE WITNESS: The random nature --

22 MR. ALEXANDER: Hold on.

23 EXAMINER PRICE: Have you seen this  
24 document before?

25 THE WITNESS: Yes.

1 EXAMINER PRICE: Good enough.

2 MR. ALEXANDER: Go ahead and give your  
3 answer.

4 A. Forced outage rates are variable, known  
5 as random variables. So for example, when you sell  
6 your megawatts, a hundred megawatt power plant,  
7 you're actually typically selling 95 megawatts.  
8 That's what's called your unforced capacity. And  
9 it's understood that sometimes you'll be at 100 and  
10 sometimes you'll be at the lower number.

11 I don't think the word luck is  
12 descriptive of that, but it's really more that it's a  
13 random outages. It's a variable, it's unknown. So,  
14 yes, the random nature which you could describe  
15 somewhere between colloquial and whimsically as luck  
16 is an important factor and is a core for  
17 understanding reliability in power systems.

18 Q. And would you agree that PJM's reasons  
19 for the improvement in plant performance are actually  
20 described on page 1 where it indicates prewinter  
21 testing, pipeline coordination and pre-emergency  
22 awareness are the reasons that PJM denotes why plant  
23 performance increased?

24 MR. ALEXANDER: Objection, your Honor.  
25 This document is already admitted into evidence. To

1 the extent I can cite the document for what PJM said,  
2 I can certainly do that. It does not need Mr. Rose  
3 to say what it does or doesn't say.

4 EXAMINER PRICE: Can I have the question  
5 back, please?

6 (Question read.)

7 EXAMINER PRICE: Sustained.

8 Q. (By Mr. Oliker) Mr. Rose, do you have any  
9 reason to disagree with PJM and for the reasons why  
10 PJM provides for improved plant performance?

11 A. Well, I do think I give deference to PJM  
12 and want to give some credit to that, but PJM says in  
13 part improvement reflected actions taken by PJM and  
14 its members. The other part I think is the random  
15 variable and it continues while the 2015 improvements  
16 were effective, PJM does not believe the short run  
17 measures are adequate for long term generation  
18 performance improvements sustained on a dependable  
19 basis.

20 Furthermore, when you look at the gas  
21 versus the coal outages, take a look at the  
22 denominator, not just the numerator. There is, as I  
23 indicated, more total outages for gas plants over  
24 less gas plants. They should have had much less. In  
25 fact, they had more. And so I would be careful in

1 interpreting just the numerator and not taking into  
2 account the denominator. There's much more coal  
3 capacity.

4 MR. FISK: Your Honor, I move to strike  
5 all the discussion about denominators and numerators.  
6 It wasn't responsive to the question.

7 MR. ALEXANDER: The question was did  
8 he --

9 EXAMINER PRICE: Absolutely not. You  
10 said, Do you agree with PJM? That is as broad as  
11 broad can be. Overruled -- or denied.

12 MR. OLIKER: One minute.

13 MR. ALEXANDER: Objection.

14 EXAMINER PRICE: Grounds?

15 MR. ALEXANDER: I'm not sure what part of  
16 the redirect he is referring to. I don't think it's  
17 referring to any part of the redirect.

18 EXAMINER PRICE: Mr. Oliker?

19 MR. OLIKER: He brought up past  
20 performance, and I'm following up on his last answer  
21 which he opened the door to.

22 EXAMINER PRICE: Fair enough. Let's have  
23 the question reread again.

24 (Question read.)

25 EXAMINER PRICE: When you say the reason,



1 are you saying the only reason or a significant  
2 reason?

3 MR. OLIKER: I would accept a significant  
4 reason as a clarification, your Honor.

5 EXAMINER PRICE: Thank you.

6 A. I think this answer is no. And that's  
7 related to the term "force majeure." What there was  
8 arrangements, number one, on the -- It was cold. And  
9 for the entities that didn't have fuel, it was an  
10 OMO, out of management control exception, plus the  
11 penalties were low. The capacity prices were low.  
12 And so I don't think it was a force majeure. It was  
13 also a lot of -- The OMO covered a lot of the gas  
14 plants that just said, "Look, we were interrupted,"  
15 et cetera, et cetera. To my knowledge, it wasn't a  
16 force majeure. I don't think that's the proper  
17 characterization of what happened.

18 Q. Thank you for that clarification. And  
19 would you agree that the opportunity to declare an  
20 OMO is no longer available under the capacity  
21 performance product, the plant would incur a penalty?

22 A. Yes. And that's a critical step towards  
23 moving the market to a rational basis and consistent  
24 with what our forecast anticipates.

25 MR. OLIKER: Okay. Thank you, your

1 Honor.

2 Thank you, Mr. Rose.

3 EXAMINER PRICE: Thank you.

4 Ms. Fleisher.

5 - - -

6 RECROSS-EXAMINATION

7 By Ms. Fleisher:

8 Q. Very quickly. Mr. Rose, you had referred  
9 to the events of demand response that cleared -- I  
10 now can't remember which of the most recent auctions  
11 you were referring to, but for the sake of  
12 discussion, let's talk about the 2018-2019 BRA that  
13 recently occurred.

14 Do you know how much demand response bid  
15 into that auction as a capacity performance resource?

16 A. No. I was referring to the BRA '18-'19.  
17 There was approximately 11,000 that cleared in the  
18 base product and about 1,000 that cleared in the  
19 capacity performance product. I believe the amount  
20 that bid and cleared for capacity performance was  
21 fairly similar, and it was extremely low compared to  
22 the stuff that was focused in on the base product  
23 which is going away soon.

24 Q. Okay. So when you made that statement,  
25 you did not know how much demand response bid in as

1 capacity performance resource; is that correct?

2 A. Sitting here, I don't recall the number  
3 precisely, but it was, I believe, in the report I did  
4 review on the BRA, which I have in front of me right  
5 here, and I can then verify it. I have here the  
6 numbers if you want me to read them into the record.

7 Q. Certainly.

8 A. Okay. So the DR that was offered into  
9 the base product was about 4,500 megawatts. It was  
10 3,500 for the capacity performance. It was over  
11 6,000 that was in the base. And the capacity  
12 performance product that cleared was 1,484.

13 Q. Yeah. I think -- yeah, those may be --  
14 I'm not sure which document you're reading from. I'm  
15 not sure if those are the correct numbers. Do we  
16 have this? I'm sorry, I lost track of the exhibits  
17 at this point.

18 Okay. So I think it's IGS 5. Okay.  
19 It's Table 3C.

20 A. Yes, ma'am.

21 Q. Is that what you're referring to?

22 A. Yes, ma'am.

23 Q. Okay. It's, of course, tiny print,  
24 but -- so as I'm reading it and just confirm if I'm  
25 correct, for demand response for capacity performance

1 product type, the column under the offer megawatts  
2 demand response is 35 to 8.5 for capacity performance  
3 in base, 936 for capacity performance only, and I  
4 think that covers what I'm looking for.

5 MR. ALEXANDER: Could I have that  
6 question reread, please?

7 EXAMINER PRICE: Yes, you can.

8 (Question read.)

9 MR. ALEXANDER: Could I ask for a page  
10 reference?

11 MS. FLEISHER: I believe it's Table 3C on  
12 page 13 of the 2018-2019 PJM ERA results.

13 EXAMINER PRICE: Can you confirm those  
14 numbers that Ms. Fleisher read to you?

15 A. I can. I'm not sure that I can confirm  
16 that's what she's looking for.

17 Q. (By Ms. Fleisher) That's fine. To bring  
18 it all together in maybe a clearer way, would you  
19 agree that on this table it says for DR subtotal  
20 under the column offered megawatts capacity  
21 performance product type, the total is  
22 4,464.6 megawatts?

23 A. The total, yes, that's correct.

24 Q. And would you agree that's roughly about  
25 3,000 megawatts of capacity performance type demand

1 response that did not clear?

2 A. Yes, because you can see in the same  
3 table 9,600 cleared as base and only 1,484 cleared as  
4 capacity performance. The large majority, 96 out of  
5 11,000, cleared as base and only a distinct minority  
6 cleared as capacity, which was the point I was  
7 originally making.

8 MS. FLEISHER: Your Honor, I don't feel  
9 the need to move to strike that, but if you could  
10 just direct him to just answer the question, I think  
11 it would make it clearer.

12 EXAMINER PRICE: You have 20 minutes to  
13 go, Mr. Rose, let's try to just answer the question  
14 as briefly as possible.

15 THE WITNESS: Yes, your Honor.

16 Q. (By Ms. Fleisher) Mr. Rose, do you know  
17 whether that roughly 3,000 megawatts did not clear  
18 because it was bid in above the clearing price?

19 A. I think the answer is primarily yes, but  
20 what it is is that almost all the DR that did bid for  
21 the capacity performance, 3,500 out of 4,500 bid for  
22 both capacity performance and base.

23 And so very little just was for capacity  
24 performance. I think some of it is cleared in the  
25 base product -- most of it cleared in the base

1 product and was more competitive there than in the  
2 capacity performance product.

3 Q. And can you say whether in future  
4 auctions more demand response might clear as a  
5 capacity performance product if it's bid in at a  
6 lower price?

7 A. I mean, if it is bid at a lower price,  
8 everything else being equal, it's more likely to  
9 clear, but it's not promising because there's only --  
10 only 1,480 at 11,000 cleared the capacity performance  
11 product, which is what I expected, which is what you  
12 hit the DR with the penalties. It's going to be  
13 problematic for it to clear.

14 Q. Can you say whether in future auctions a  
15 higher proportion of demand response bid in as  
16 capacity performance product might clear?

17 A. Yes, because in two years, that's the  
18 only thing you'll be able to bid in for, only  
19 100 percent purchasing of capacity performance. So  
20 we had 60, 70, 80, 80, and 100. So it has to be  
21 100 percent that's bid in for the capacity  
22 performance.

23 Q. Just so that's clear, it could be bid in  
24 as capacity performance and not clear, however,  
25 that's correct?

1           A.    Yes, ma'am.

2           Q.    Okay.  So to go back to the question  
3 before that, can you say whether the proportion of  
4 demand response bid in as capacity performance  
5 product in future auctions might be higher -- that  
6 clears might be higher?

7           A.    I don't have an opinion on that.  I have  
8 an opinion it will be less interruptible load willing  
9 to expose itself to the penalties, but I can't  
10 answer your -- I don't have an answer to that  
11 specific one.

12          Q.    And are you familiar that under the  
13 capacity performance rules now in effect at PJM that  
14 demand response can bid in as part of an aggregate  
15 resource with other resources such as renewables,  
16 energy efficiency and so forth?

17          A.    I have some recollection on that, but  
18 it's faint.

19          Q.    And do you have any opinion as to whether  
20 demand response might participate as that type of  
21 product in future PJM capacity auctions?

22          A.    No, I don't have an opinion on that right  
23 now.

24          Q.    And then you also were just testifying  
25 that sulfur dioxide and NOx emissions from power

1 plants are now I believe you said highly controlled  
2 currently in the United States; is that correct?

3 A. 71 percent of the PJM coal-fired power  
4 plants have both SCR most stringent or the most  
5 effective NOx control reduction technology available  
6 and flue gas sulfurization otherwise known as  
7 scrubbers which is also the most effective  
8 SO2 control. The remaining portion of the  
9 population, I believe, is primarily scrubbed as at  
10 least one of the performance control. That's why I  
11 am referring to highly controlled nature of the  
12 remaining fleet.

13 Q. And I believe you testified you are  
14 familiar that EPA does regulatory impact analyses as  
15 part of its rule-making?

16 A. What I was testifying to was is I'm  
17 familiar what the RIA ICF did for EPA on the CCP  
18 which is related to CO2.

19 Q. Do you know whether EPA prepared a  
20 regulatory impact analysis to accompany its currently  
21 proposed ozone NaX?

22 A. No, I don't. But what I understand is  
23 NaX is just -- I'm not even sure it's a proposed  
24 rule. There's an ambient air quality standard  
25 measured in parts per million, I believe, but there's



1 no proposed regulation on how it MAPS from those  
2 levels to actual tonnage limits on emissions. It's  
3 not even been proposed. So I don't think there's an  
4 RIA that would report on the actual regulations on  
5 National Ambient Air Quantity Standards with respect  
6 to the tonnage limits that are being imposed on power  
7 plants.

8 Q. So I take it the answer is no to my  
9 question?

10 A. To my knowledge, there's no RIA on the  
11 regulations that are the ones that are operative  
12 which are the tonnage limits that would be assigned  
13 to power plants.

14 Q. Okay. And I was asking about the current  
15 ozone NaX proposal for a national standard.

16 A. I don't know on that one.

17 Q. Okay. And so do you know whether EPA has  
18 forecasted compliance costs with that proposed ozone  
19 NAX if it becomes final within the range proposed?

20 A. I don't know, and I also -- as I said,  
21 there's no tonnage numbers they've actually proposed,  
22 so I'm not sure -- it's possible to have an estimate  
23 but not associated with actual proposed tonnage  
24 limits.

25 Q. Okay. And have you, yourself, conducted

1 any analysis of compliance costs that might result  
2 from the need to comply with the currently proposed  
3 ozone NaX if it becomes final?

4 A. Neither I nor my staff that reports to  
5 me, to my knowledge, has done that analysis because  
6 there isn't even proposed tonnage limits for  
7 individual power plants, and that's what we are  
8 waiting for.

9 Q. Have you done any analysis of the tonnage  
10 limits on individual plants that might result if the  
11 proposed ozone NaX becomes final?

12 A. No, I don't think that's -- No, we  
13 haven't done a detailed analysis. We just, as I  
14 indicated, considered the fact that 71 percent of the  
15 plants are highly controlled so the impacts are going  
16 to be mitigated by the high degree of control for  
17 SO2 and NOx.

18 Q. So what's your basis of saying that the  
19 current level of control for SO2 and NOx -- strike  
20 that. What is your basis for judging whether the  
21 current level of SO2 and NOx controls is sufficient  
22 to comply with the currently proposed ozone NAX?

23 A. Because, as I indicated, the 71 percent  
24 of the fleet is double controlled, controlled for  
25 SO2 and controlled for NOx. The equipment for

1 control typically can achieve 99 percent removal of  
2 SO2 and high degree of 90 percent plus removal for  
3 NOx. And that is the basis for my conclusion that  
4 these plants are already in control and the effects  
5 will be limited.

6 Q. Okay. But you've done no analysis of the  
7 level they might need to control down to under the  
8 proposed ozone NAX; is that correct?

9 A. We haven't done detailed analysis, but we  
10 have given consideration of the issue, and we  
11 consider it a secondary issue to something like CO2.

12 Q. And you haven't considered or -- Have you  
13 analyzed what the compliance costs might be of  
14 controlling down to any levels required under the  
15 proposed ozone NAX?

16 MR. ALEXANDER: Objection.

17 EXAMINER PRICE: Grounds?

18 MR. ALEXANDER: Asked and answered.

19 EXAMINER PRICE: I don't think he's  
20 answered this one yet. Overruled.

21 A. So typically the major costs for  
22 controlling SO2 and NOx is the actual installation  
23 of retrofit equipment, the flue gas desulfurization  
24 known as scrubbers and the selective catalytic  
25 reduction. If you need to increase that, then you

1 need to increase the stoichiometry which is the ratio  
2 of molecules of the reagent typically and the  
3 molecules that has to be controlled. And the cost of  
4 increasing the stoichiometry tends to be quite low  
5 compared to the cost of having to install the capital  
6 equipment.

7 Q. And have you made any attempt to quantify  
8 that aspect of compliance costs?

9 A. Yes, as I indicated, stoichiometric  
10 adjustments are much less expensive than the  
11 installation of those type of controls.

12 Q. Okay. And can you know what those costs  
13 will be if you don't know the level down to which the  
14 plants need to control their emissions?

15 A. Well, if you need to go from '98 to, you  
16 know, 99 percent, I have a sense of what the  
17 stoichiometric adjustment is. I mean, typically an  
18 FGE scrubber system, to get from, say, 95 to 98 needs  
19 a stoichiometry ratio of 1.1 and you may be  
20 increasing that to 1.2, 1.3, subject to check.

21 Q. Does that have anything in terms of  
22 dollar terms that you can discuss?

23 A. Yes, it's a relatively inexpensive cost  
24 compared to the cost of having to build the scrubber.

25 Q. And is that cost accounted for in your

1 model for this case?

2 A. I'm not sure. We have dollar per ton  
3 numbers for SO2 and NOx. I don't know whether they  
4 incorporate to some degree long term changes in  
5 regulations.

6 Q. But you'll agree that the proposed --  
7 currently proposed ozone NaX was not on your list of  
8 environmental assumptions in your workpapers; is that  
9 correct?

10 A. Yes, that's my recollection.

11 Q. And one last thing which is really just  
12 to make sure the record is clear, are you aware that  
13 the oral argument for this Supreme Court case  
14 regarding demand response is scheduled for October 14  
15 of this year?

16 MR. ALEXANDER: Objection.

17 EXAMINER PRICE: Grounds?

18 MR. ALEXANDER: Beyond the scope of the  
19 redirect.

20 MS. FLEISHER: He mentioned the case.

21 EXAMINER PRICE: You talked about the  
22 case. Overruled. He actually said the decision is  
23 due any day.

24 MR. ALEXANDER: I didn't hear a reference  
25 to a case. I heard the Supreme Court case of demand

1 response --

2 EXAMINER PRICE: I believe she was  
3 referring to the EPSA case which we have been talking  
4 about; is that correct?

5 MS. FLEISHER: Yes.

6 Q. (By Ms. Fleisher) I guess I can just ask  
7 the ultimate question which is will we -- let's go  
8 back to my original question.

9 A. I was not aware of the date. I was aware  
10 of the fact that both the government and EPSA filed  
11 briefs in that regard and expected a decision soon.

12 MS. FLEISHER: Okay. I just wanted to  
13 make sure that was clear to everyone in the room.

14 That's all I have. Thank you.

15 EXAMINER PRICE: Thank you.

16 Ms. Bojko.

17 MS. BOJKO: Yes, your Honor.

18 - - -

19 RECROSS-EXAMINATION

20 By Ms. Bojko:

21 Q. Go back to the PJM shedding load comment  
22 that you made in response to your counsel's question.  
23 PJM's target reserve margin is 15.7 percent; is that  
24 correct?

25 A. Yes, I believe so.

1 Q. And during 2014 when the polar vortex  
2 occurred, the reserve margin was 19.7 percent; is  
3 that correct?

4 A. I can't say for sure. I believe it was  
5 something on the -- going into it that was the level.  
6 What actually occurred in terms of the actual reserve  
7 margin was different, and I'm pretty sure the number  
8 sounds right, but I don't have all the numbers in  
9 front of me. What I do remember is specifically the  
10 quote that PJM made on August 20, 2014 because it was  
11 a very significant event.

12 Q. Well, isn't it true that although the  
13 reserves were low, PJM did not call any mandatory  
14 interruptions during that period?

15 A. It's true that they didn't loadshed, but  
16 it was close enough such that they indicated if it  
17 was a repeated event taking into account the  
18 additional coal plant retirements, they wouldn't have  
19 to shed load.

20 Q. Well, isn't it true that PJM has also  
21 said that before mandatory interruptions would have  
22 occurred, PJM could have implemented a temporary  
23 voltage reduction?

24 A. I believe there was a temporary voltage  
25 reduction that was implemented at some point during

1 the 2014. I want to make sure we're not talking  
2 across each other. What they said is on a  
3 going-forward basis if there was a repeat of the  
4 polar vortex, accounting for the coal power plant  
5 retirements, they would shed load.

6 Q. And just so we're clear, in 2014 you  
7 believe that PJM did, in fact, call a temporary load  
8 reduction -- voltage reduction, excuse me?

9 A. Yes. My recollection, there was a  
10 voltage reduction.

11 MS. BOJKO: Your Honor, I'm looking for  
12 an exhibit.

13 Q. (By Ms. Bojko) Have you read the 2014  
14 analysis of operational events and market impacts  
15 that PJM produced after the polar vortex?

16 A. I believe so. If you have a copy, I  
17 could verify it.

18 MS. BOJKO: Can we go off the record?

19 (Discussion off record.)

20 EXAMINER PRICE: Go back on the record.

21 MS. BOJKO: Thank you, your Honor.

22 Q. (By Ms. Bojko) Sir, do you have in front  
23 of you what was previously marked as Sierra Club  
24 Exhibit 8, which is the May 8, 2014 PJM report  
25 regarding operational events and market impacts



1 during the January 2014 cold weather event?

2 A. Yes, ma'am.

3 Q. If you could turn to page 5 of the  
4 document. Isn't it true that PJM's stated that  
5 although reserves were low, several steps remained  
6 available to operators before electricity  
7 interruptions might have been necessary, and then it  
8 states, for example, in the event of a loss of a very  
9 large generator or spike in electricity, demand on  
10 January 7, PJM could have implemented a temporary  
11 voltage reduction?

12 MR. ALEXANDER: Objection.

13 EXAMINER PRICE: Grounds?

14 MR. ALEXANDER: No foundation for this  
15 witness with the document and considering we are  
16 trying to redirect and recross, I'm concerned about  
17 my ability to point the witness to later provisions  
18 of this document which would address this issue more  
19 specifically.

20 MS. BOJKO: You raised the issue on  
21 recross.

22 MR. ALEXANDER: No, my issue is not the  
23 scope of the redirect. My issue is I believe the  
24 quote here is referring to January 7. If you turn  
25 the page --

1 MS. BOJKO: And that's what I asked him  
2 about, was January 7.

3 MR. ALEXANDER: Right. I'm concerned  
4 since we're on redirect at this point and the court  
5 would not be inclined to grant re-redirect, that the  
6 witness would have a chance to readdress what was  
7 also written on page 14 of this same document.

8 MS. BOJKO: Now he's just coaching the  
9 witness, your Honor.

10 EXAMINER PRICE: Yes, he is, but no,  
11 there will be no re-redirect. In any event, the  
12 document speaks for itself and you can address the  
13 issue on brief since the document has already been  
14 admitted as an exhibit in this record.

15 MR. ALEXANDER: Thank you, your Honor.

16 EXAMINER PRICE: Now you can go ahead and  
17 answer the question.

18 A. I just didn't see where you were quoting  
19 from. I understand it's on page 5.

20 Q. The very first two sentences is what I  
21 read.

22 A. Yeah, I see that that's what it says.  
23 You know, it's very clear on page 15 that there's a  
24 voltage reduction that was implemented in the winter  
25 of 2014, and I was correct. As to whether it was on

1 that particular day or the scope, I believe the  
2 voltage reduction that I was referring to which did  
3 occur in 2014 which is described in figure 6 was  
4 focused in the D.C. area, not fully across the PJM.

5 MS. BOJKO: Your Honor, I move to strike  
6 everything after "yes".

7 EXAMINER PRICE: Granted.

8 MR. ALEXANDER: Can I be heard on the  
9 objection?

10 EXAMINER PRICE: Pardon me?

11 MR. ALEXANDER: Can I be heard on the  
12 objection?

13 EXAMINER PRICE: No. The document is in.

14 MR. ALEXANDER: That's the point. She's  
15 crossing him on the document, but we're not allowed  
16 to, you know, help him on the document.

17 EXAMINER PRICE: No, he's familiar with  
18 the document. He's read the document. It's related  
19 to his testimony. But to the extent that you wish to  
20 inform the Commission that he may have mistaken which  
21 January event the voltage reduction was called, the  
22 point of value of this question which is miniscule in  
23 this case, then you can do it in your brief.

24 MS. BOJKO: I object to that.

25 Q. (By Ms. Bojko) Isn't it also true, sir,

1 that PJM could have called upon its formal reserve  
2 sharing agreements that it has in place with its  
3 neighbors prior to any kind of interruptions or  
4 shedding load, as you called it?

5 A. PJM does make that claim with respect to  
6 2014, not for later years.

7 Q. So, sir, isn't it true that there are  
8 many steps and different types of reductions or  
9 interruptions that can occur before PJM gets to the  
10 point where it would have to shed load to customers  
11 and cut the heat off in their homes?

12 A. There are a number of steps that can be  
13 taken before life-threatening actions are taken.

14 Q. And isn't it also true, sir, that the  
15 most recent RPM BRA cleared unforced capacity in the  
16 RTO representing a 20.2 percent reserve margin?

17 A. That number is approximately correct. I  
18 see a slightly different number, but it's  
19 approximately correct.

20 MS. BOJKO: I have no further questions,  
21 your Honor, thank you.

22 EXAMINER PRICE: Thank you.

23 Mr. Settineri? Mr. Hays?

24 MR. SETTINERI: No questions, your Honor.

25 EXAMINER PRICE: Mr. O'Brien?

1 MR. O'BRIEN: No questions, your Honor.

2 EXAMINER PRICE: Mr. Sauer?

3 MR. SAUER: No questions.

4 EXAMINER PRICE: Mr. McNamee?

5 MR. McNAMEE: No thank you.

6 EXAMINER PRICE: I waited all this time  
7 and you have no questions.

8 I have one question. And if my question  
9 causes your counsel to believe that we have to do  
10 this on the confidential version, ask me, and we will  
11 go to confidential version.

12 With respect to your testimony regarding  
13 the projection that you prepared for a different  
14 utility in a different case, there was a change in  
15 your process where you said that something you were  
16 directed to do by the utility was not what we  
17 normally do. Do you remember saying that?

18 THE WITNESS: Yes, that was part of what  
19 I said.

20 EXAMINER PRICE: Yes. Okay. My question  
21 is, in that case you made a change because your  
22 client asked you to from what you normally do.

23 In this case with respect to FirstEnergy,  
24 did you make any changes from what you normally do at  
25 the direction of your client, FirstEnergy?

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

THE WITNESS: No.

EXAMINER PRICE: Thank you. You're  
excused.

THE WITNESS: Okay.

MR. ALEXANDER: Your Honor, at this time,  
I would renew my motion to admit -- if the Court  
wants to take it up now or we can do it tomorrow  
morning.

EXAMINER PRICE: No, we're going to take  
up the admission of the exhibits tomorrow to give  
everybody, particularly me, a chance to get my notes  
together on all these exhibits.

We will see everybody at 9:00 o'clock.  
We are adjourned.

MR. ALEXANDER: Thank you, your Honor.

EXAMINER PRICE: Thank you.

(The hearing was adjourned at 5:33 p.m.)

- - -

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

CERTIFICATE

I do hereby certify that the foregoing is a true and correct transcript of the proceedings taken by me in this matter on Wednesday, September 9, 2015, and carefully compared with my original stenographic notes.

---

Rosemary F. Anderson, RPR

- - -

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**9/23/2015 3:51:54 PM**

**in**

**Case No(s). 14-1297-EL-SSO**

Summary: Transcript In the Matter of the application of Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company hearing held on 09/09/15 - Volume VII electronically filed by Mr. Ken Spencer on behalf of Armstrong & Okey, Inc. and Anderson, Rosemary Foster Mrs.