AEP OHIO EX. NO._____

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application Seeking Approval of Ohio Power Company's Proposal to Enter into an Affiliate Power Purchase Agreement for Inclusion in the Power Purchase Agreement Rider	))))))	Case No. 14-1693-EL-RDR
In the Matter of the Application of Ohio Power Company for Approval of Certain Accounting Authority	))))	Case No. 14-1694-EL-AAM

DIRECT TESTIMONY OF KARL R. BLETZACKER IN SUPPORT OF AEP OHIO'S APPLICATION

Filed on October 3, 2014

INDEX TO DIRECT TESTIMONY OF
KARL R. BLETZACKER

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO
DIRECT TESTIMONY OF
KARL R. BLETZACKER
ON BEHALF OF
AEP OHIO

PERSONAL DATA

Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.

A. My name is Karl R. Bletzacker. My position is Director, Fundamental Analysis, American Electric Power Service Corporation ("AEPSC"). AEPSC supplies engineering, financial, accounting, planning and advisory services to the electric operating companies of American Electric Power Company, Inc. ("AEP"), including AEP Ohio. My business address is 1 Riverside Plaza, Columbus, Ohio 43215.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I received a BSMEng degree from The Ohio State University in 1980 and have over thirty-five years of energy-industry experience which includes petroleum engineering and the management of the purchasing, interstate transmission and distribution of natural gas and power to both regulated and wholesale customers. I have implemented risk management strategies using New York Mercantile Exchange ("NYMEX") and over-the-counter natural gas futures, swaps, and options since the NYMEX natural gas contract was created in June of 1990. I have purchased short- and long-term natural gas supply from major and independent producers and marketing companies and I have monetized arbitrage opportunities using NYMEX futures contract, local and contract storage, pipeline imbalances and local distribution company banks. As Vice-President and Chief

Operating Officer of National Gas & Oil Company (a publicly-traded Ohio natural gas utility) and Licking Rural Electric Cooperative (an Ohio electric cooperative), I was responsible for the natural gas pricing and risk management policies that ensured reliable delivery and managed customers' exposure to volatile commodity prices. As the North American Manager of Energy Procurement for Honda of America Mfg., Inc., I implemented hedging strategies utilizing NYMEX natural gas futures contracts and operated a natural gas supply pool for the benefit of Honda and its suppliers in North America. I also utilized my hedging expertise while serving as Vice-Chairman of the Industrial Energy Users-Ohio which is an organization of large Ohio energy consumers that spend collectively over $3 billion per year on electricity and natural gas for their plants and facilities and whose members employ over 300,000. I joined AEP in 2005 to focus on the creation of long-term North American power market forecasts primarily to support the resource planning of its operating companies.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN A REGULATORY PROCEEDING?

A. Yes. I have presented testimony on behalf of AEP operating companies and others in the states of Arkansas, Ohio, Texas, West Virginia and the commonwealths of Kentucky and Virginia.

PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony will explain: 1) that a Long Term North American Energy Market Forecast ("Fundamentals Forecast") has been created and it was provided to AEPSC's Resource Planning Group for use in further analyses, 2) that natural gas prices are the primary

driver of on-peak power prices, and the consequences of weather-related natural gas price volatility and low capacity prices will be the norm going forward, and, 3) that wholesale power prices rise more rapidly than they fall due to weather and load deviations from weather-normalized values.

FUNDAMENTALS FORECAST

Q. WHAT IS THE FUNDAMENTALS FORECAST?

A. The Fundamentals Forecast is a long-term, weather-normalized power market forecast. There are many uses for a Fundamentals Forecast, but the Fundamentals Analysis Group at AEPSC primarily develops this forecast for use by all of AEP's regulated operating companies in long-term resource planning. This forecast covers the electricity market within the Eastern Interconnection, the Electric Reliability Council of Texas ("ERCOT") and the Western Electricity Coordinating Council. It includes: 1) monthly and annual locational power prices (in both nominal and real dollars), 2) prices for various qualities of Central Appalachian ("CAPP"), Northern Appalachian ("NAPP"), Illinois Basin ("ILB"), Powder River Basin ("PRB") and Colorado coals, 3) monthly and annual locational natural gas prices, including the benchmark Henry Hub prices, 4) uranium fuel prices, 5) SO_2, NO_x (summer and annual) and CO_2 values, 6) locational heat rates, 7) capacity values, 8) renewable energy subsidies and 9) inflation factors.

Q. WHAT TOOLS DID YOU USE TO DEVELOP THE FORECASTS PROVIDED TO AEPSC?

The primary tool the Fundamentals Group uses for developing its long-term, energy-related commodity pricing forecasts is the AuroraXMP electric market model. The AuroraXMP model iteratively generates locational, but not company-specific, long-term

capacity expansion plans, annual energy dispatch, fuel burns and emission totals from inputs including fuel, load, emissions and capital costs, among others. AEPSC is also the client of many well-accepted energy consultancies including Cambridge Energy Research Associates, PIRA and WoodMackenzie. Their collective insight on fuels, energy and emissions (supply/demand and resultant price) is a key component of AEPSC's long-term North American forecasts.

Q. HAS A FUNDAMENTALS FORECAST BEEN PREPARED?

A. Yes.

Q. WHEN WAS IT PREPARED AND RELEASED FOR OPERATING COMPANY USE?

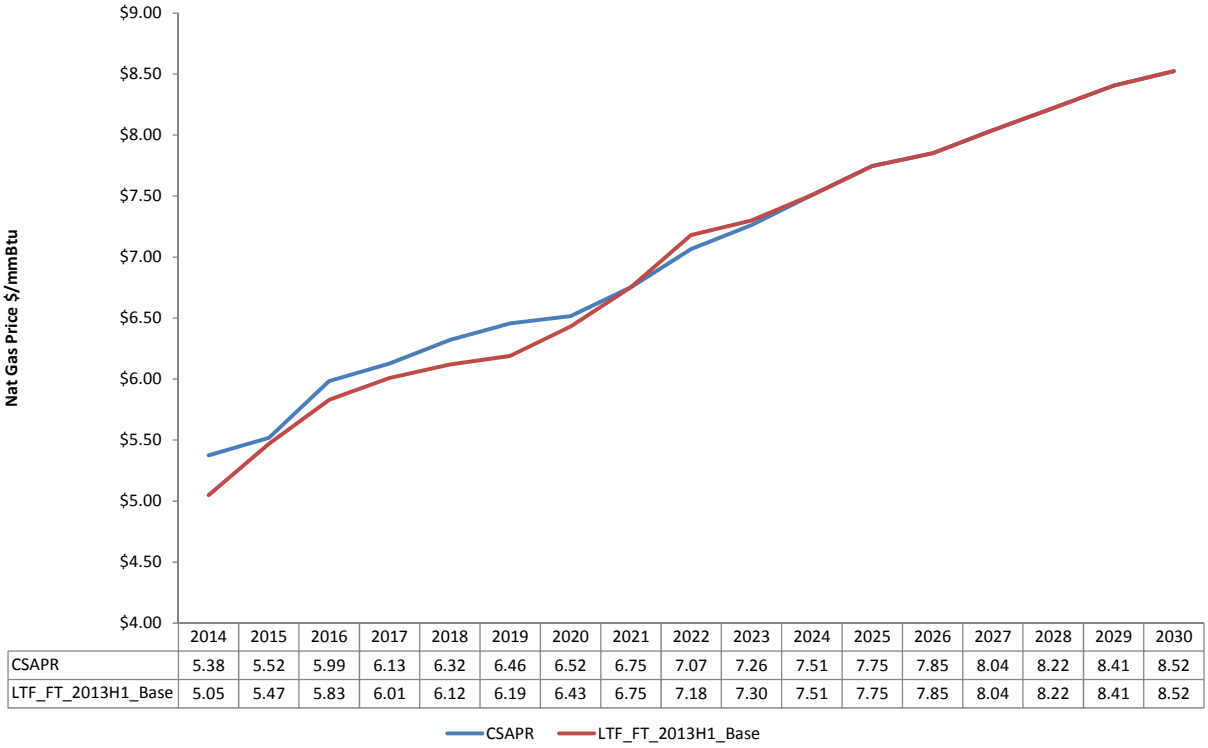
A. The fourth quarter of 2013.

Q. WHAT HAS BEEN REVISED IN YOUR MOST RECENT FUNDAMENTALS FORECAST?

A. Illustrated below in Figure 1 is the comparison of the natural gas price projection at the benchmark Henry Hub for the most recent Fundamentals Forecast ("LTF_FT_2013_Base") and the prior forecast ("CSAPR"). In the most recent Fundamentals Forecast, fewer coal-fired generating unit retirements necessary for Mercury and Air Toxics Standards ("MATS") compliance result in less gas demand and, therefore, in the near term lower gas prices have resulted compared to the prior forecast. Although the timing and magnitude of a projected carbon dioxide ("CO_2") tax remains unchanged, coal-fired generation retirements increased beginning 2022 resulting in a correlative gas price increase proportional to increased gas demand over the long term.

Consequently, natural gas prices remain nearly identical beyond 2024 to the prices that the prior forecast produced.

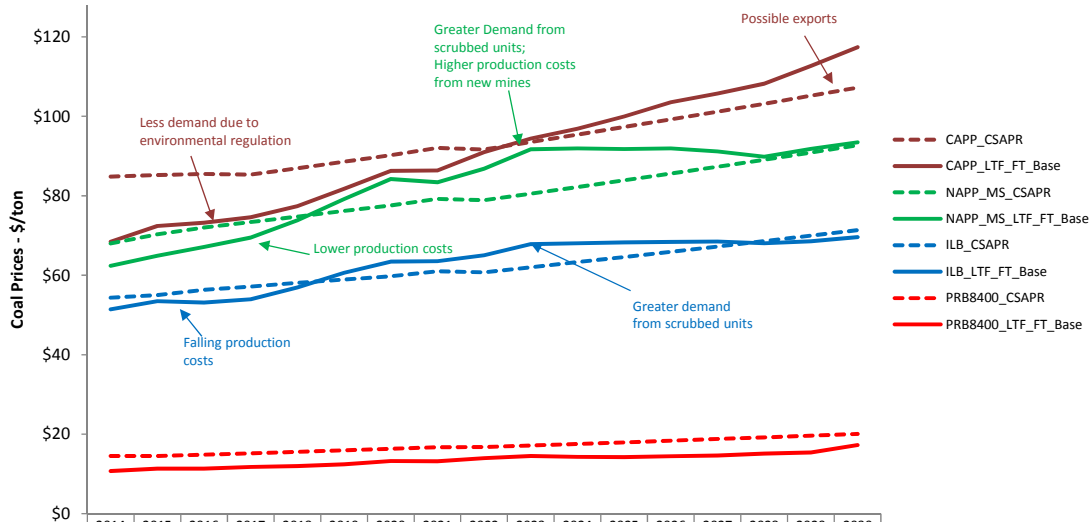
Figure 1



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
CSAPR	5.38	5.52	5.99	6.13	6.32	6.46	6.52	6.75	7.07	7.26	7.51	7.75	7.85	8.04	8.22	8.41	8.52
LTF_FT_2013H1_Base	5.05	5.47	5.83	6.01	6.12	6.19	6.43	6.75	7.18	7.30	7.51	7.75	7.85	8.04	8.22	8.41	8.52

Illustrated below in Figure 2 is the comparison of the regional basin price projections for CAPP, NAPP, ILB and PRB coals. All regional coal basin price projections in the most recent Fundamentals Forecast are relatively lower in the near-term. CAPP coals realize the most significant drop in price in the near-term owing to lesser demand due to MATS compliance. The higher sulfur ILB coal price projections also drop in price near-term as mining efficiencies drive lower production costs. The long-term likelihood of coal exports into the global market serves to buoy domestic coal prices beginning in the latter part of next decade.

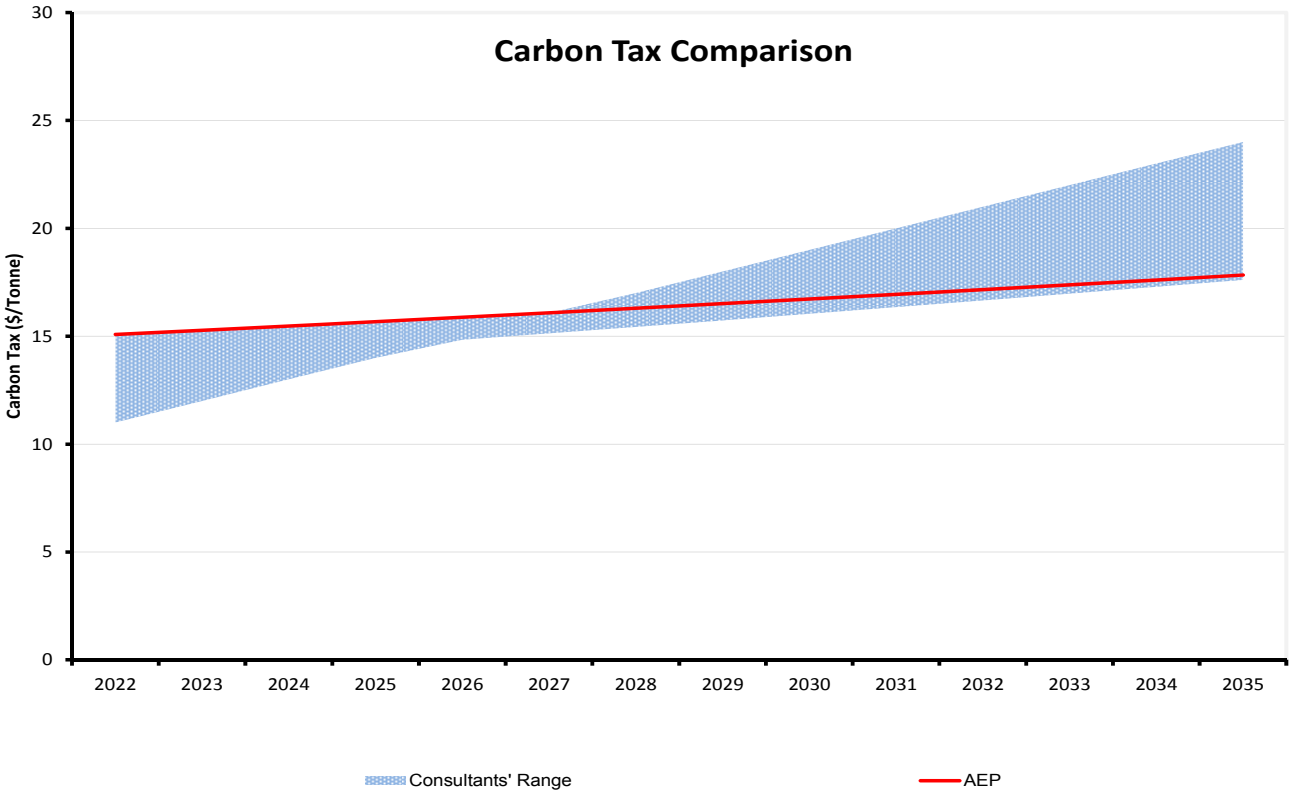
Figure 2



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
CAPP_CSAPR	84.83	85.21	85.52	85.31	86.94	88.58	90.22	92.07	91.66	93.52	95.41	97.31	99.24	101.19	103.18	105.19	107.24
CAPP_LTF_FT_Base	68.42	72.39	73.25	74.60	77.38	81.77	86.29	86.35	90.99	94.43	96.90	99.97	103.53	105.71	108.22	112.66	117.43
NAPP_MS_CSAPR	68.00	70.33	72.00	73.37	74.77	76.18	77.59	79.22	78.90	80.55	82.21	83.89	85.60	87.33	89.08	90.87	92.68
NAPP_MS_LTF_FT_Base	62.40	64.90	67.10	69.49	73.82	79.15	84.25	83.42	86.80	91.73	91.96	91.75	91.91	91.16	89.82	91.81	93.44
ILB_CSAPR	54.33	54.98	56.34	57.16	58.07	58.91	59.74	61.00	60.76	62.02	63.30	64.60	65.91	67.24	68.59	69.97	71.36
ILB_LTF_FT_Base	51.45	53.45	53.15	53.95	56.91	60.65	63.42	63.56	65.01	67.85	68.04	68.27	68.37	68.47	68.07	68.57	69.57
PRB8400_CSAPR	14.49	14.49	14.84	15.19	15.56	15.93	16.31	16.70	16.75	17.15	17.55	17.95	18.36	18.78	19.21	19.64	20.09
PRB8400_LTF_FT_Base	10.70	11.35	11.35	11.75	11.96	12.45	13.23	13.19	13.96	14.49	14.29	14.24	14.45	14.62	15.10	15.42	17.28

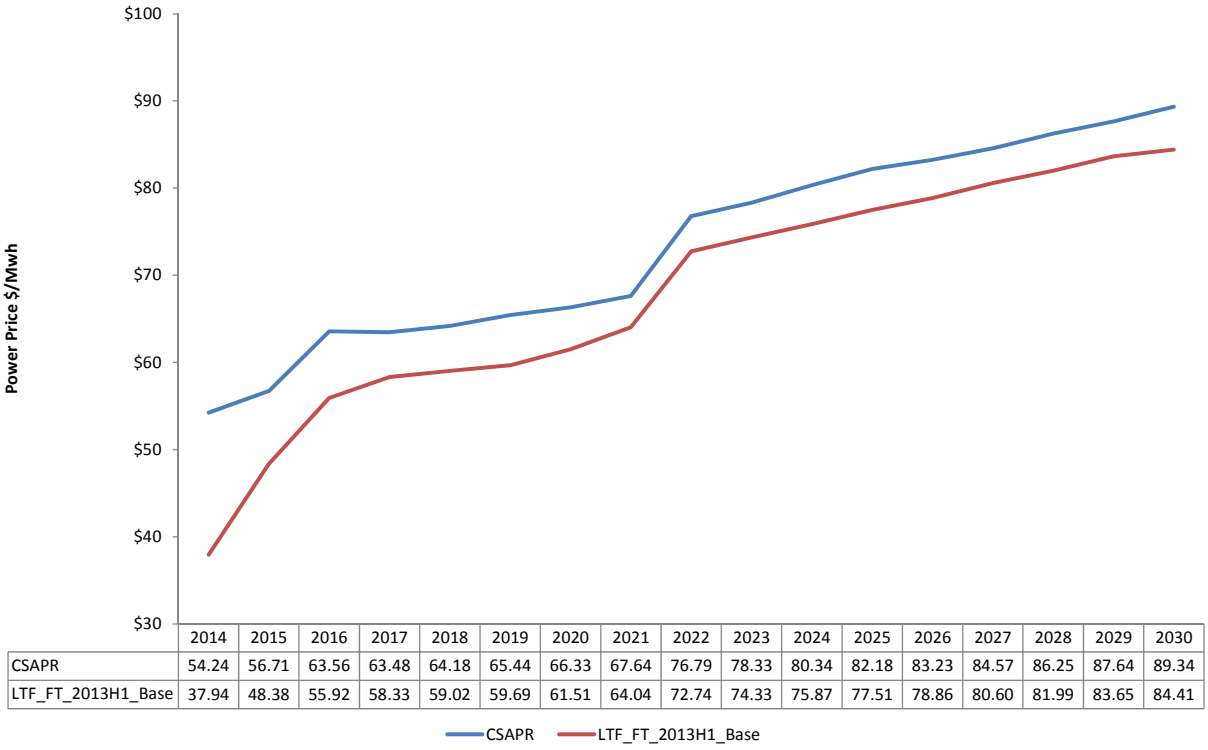
Illustrated below in Figure 3 is a comparison of the Companies' projection of a potential CO_2 tax to a range of values provided by energy consultancies engaged by the Companies including WoodMackenzie, Cambridge Energy Research Associates, and others. The Companies' projection remains at approximately $15/metric tonne beginning in 2022 and rises in value at the rate of inflation.

Figure 3



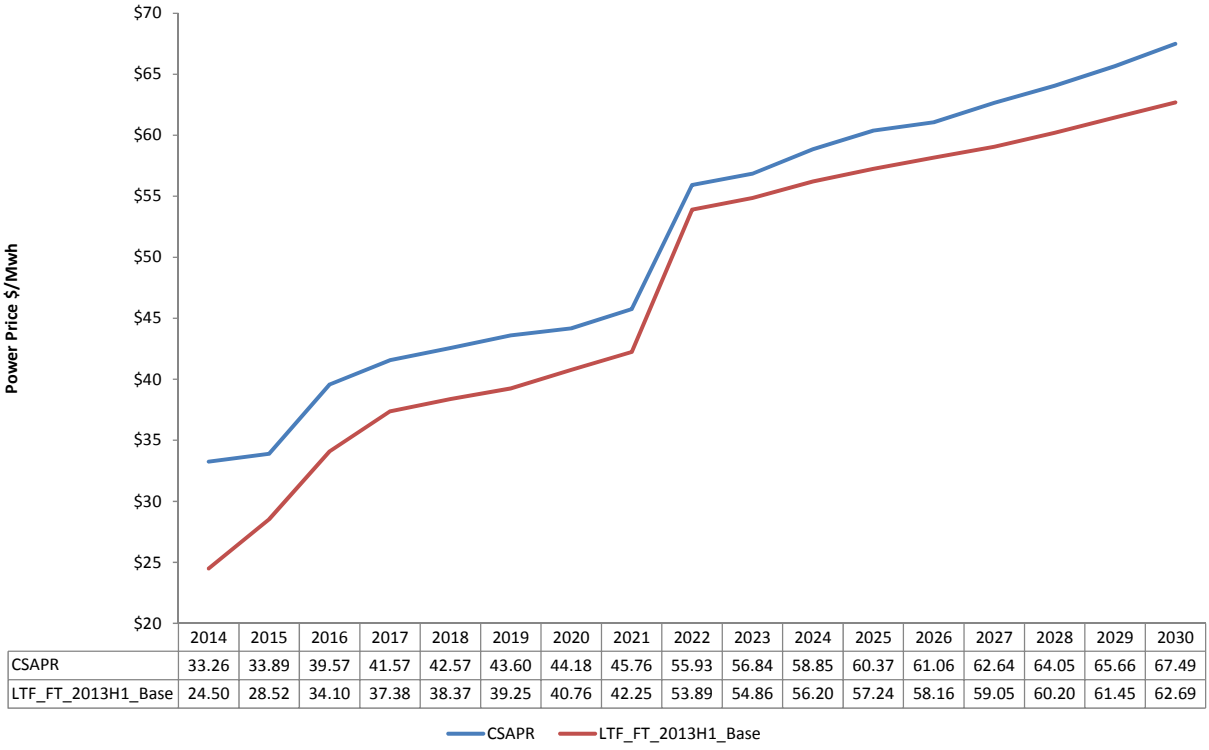
Illustrated below in Figures 4 and 5 are comparisons of the resulting PJM/AEP Hub on- and off-peak power price projections. On-peak power price projections, (Figure 4) are relatively lower throughout the entire period. Lower natural gas prices near-term combined with a relatively weaker PJM load/demand outlook are the primary drivers. Although the revised PJM load/demand forecast has a similar growth rate to the prior one, there is a multi-year delay which has the effect of shifting load/demand back in time by a few years. Off-peak power price projections, (Figure 5) largely set by coal-fired generating units, are also relatively lower due to the combination of lower coal prices and the weaker PJM load/demand outlook.

Figure 4



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
CSAPR	54.24	56.71	63.56	63.48	64.18	65.44	66.33	67.64	76.79	78.33	80.34	82.18	83.23	84.57	86.25	87.64	89.34
LTF_FT_2013H1_Base	37.94	48.38	55.92	58.33	59.02	59.69	61.51	64.04	72.74	74.33	75.87	77.51	78.86	80.60	81.99	83.65	84.41

Figure 5



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
CSAPR	33.26	33.89	39.57	41.57	42.57	43.60	44.18	45.76	55.93	56.84	58.85	60.37	61.06	62.64	64.05	65.66	67.49
LTF_FT_2013H1_Base	24.50	28.52	34.10	37.38	38.37	39.25	40.76	42.25	53.89	54.86	56.20	57.24	58.16	59.05	60.20	61.45	62.69

Q. WHY ARE NATURAL GAS PRICES IMPORTANT IN A FUNDAMENTALS ANALYSIS?

A. Most importantly, natural gas prices will set Ohio's on-peak power prices for the foreseeable future. Natural gas prices are a key component in determining the supply stack, or merit order, for the dispatch of generating units. Generating units with the lowest variable operating cost are the first to dispatch and plants with incrementally higher variable operating cost are called upon sequentially as electricity demand increases. A $1 per mmBtu swing in gas prices would result in a $7 to $8 per MWh swing in combined cycle natural gas generation cost.

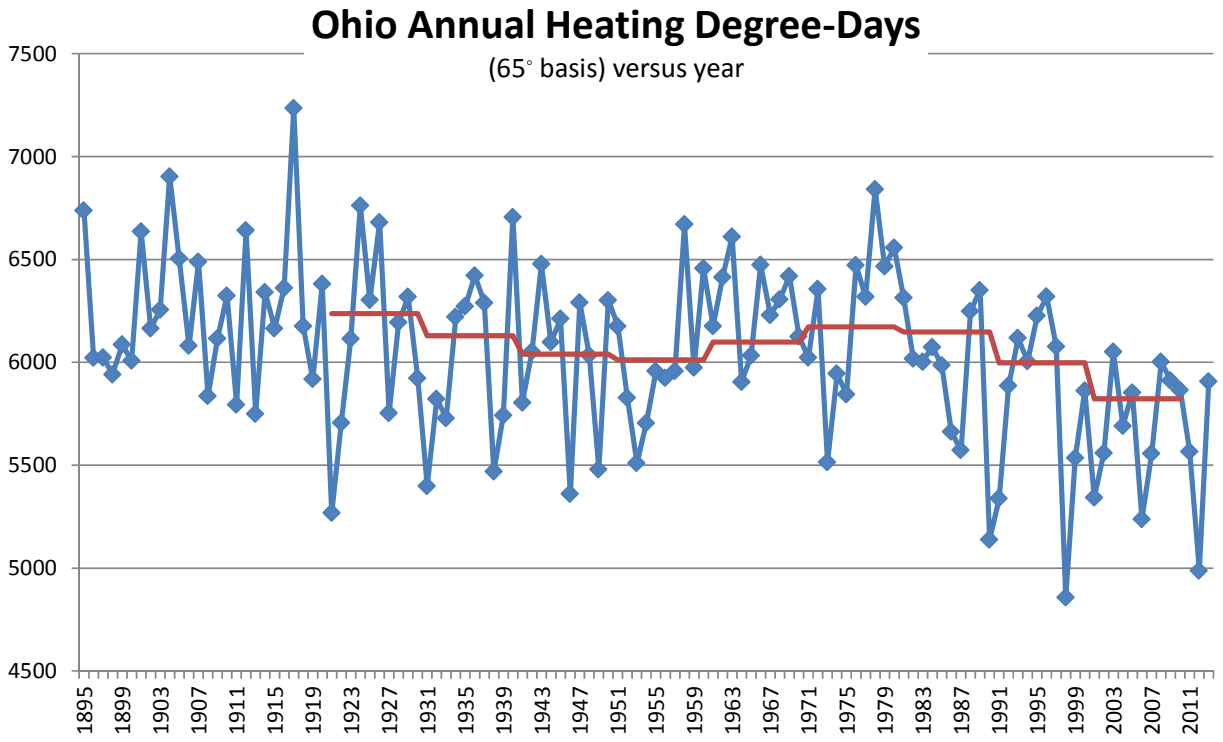
Q. DID THE RECENT WINTER WEATHER (2013-2014) HAVE AN IMPACT ON THE COMPANIES' VIEW OF ENERGY PRICES?

A. Yes. The energy prices resulting from this recent winter's colder-than-normal weather served as confirmation of the Companies' previous testimony presented to many regulatory authorities. Specifically, nearer-term natural gas prices will remain volatile as they are primarily affected by weather's deviation from normal (known as "heating degree-day departure") which then results in deficit or surplus levels of natural gas storage inventory. It is likely, in the event of a colder-than-normal heating season, that natural gas spot prices could exceed $8/mmBtu. In fact, they exceeded $30/mmBtu in many locations this winter. The Fundamentals Forecast provides a weather-normalized view that is not materially affected by weather volatility because it is prepared under the assumption of average weather. However, market-based energy purchasers can expect to be subjected to the volatile consequences of abnormal weather's effect on energy prices.

Q. WHAT DO YOU MEAN BY THE "VOLATILE CONSEQUENCES OF ABNORMAL WEATHER'S EFFECT ON ENERGY PRICES"?

A. Illustrated below in Figure 6 is a chart of Ohio's annual heating degree-days from 1895 through 2013. Additionally, the rolling "30-year average", or "normal", is represented by the red line. It is reasonable to conclude that Ohio's volatile winter weather is rarely near "normal". In fact, yearly averages quite often significantly depart from normal.

Figure 6

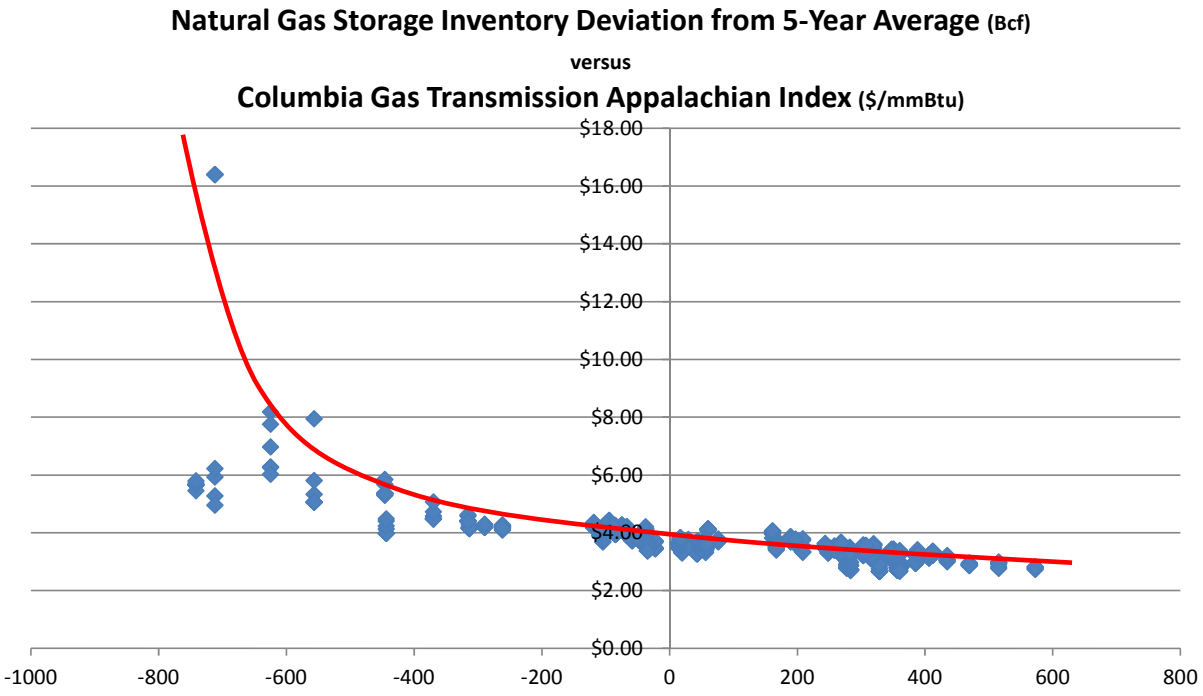


Additionally, it is well-established that there is a linear relationship between heating degree-days and natural gas usage. Mathematically, it is expressed as:

*Consumption (mmBtu) = coefficient "m" (mmbtu/HDD) * HDDs + "b" (mmBtu),*

Where; “m” represents the natural gas intensity of residential, commercial or industrial natural gas load and “b” represents the non-weather-related (baseload) portion. Simply stated; the colder the weather, the greater the natural gas consumption. And, the more prolonged the cold weather, the lower the natural gas storage inventory levels. Illustrated below in Figure 7 is a chart of natural gas storage inventory deviation from the 5-year average, in Bcf, versus the Columbia Gas Transmission Appalachian Index price, in $/mmBtu, for the period from July, 2012 through February, 2014.

Figure 7



It is well-established that, as storage inventories deviate from average or “normal”, Ohio’s natural gas prices vary significantly – particularly in colder-than-normal years as competition for flowing natural gas supply intensifies. Additionally, the recent Polar Vortex showed that when gas-fired electric generators did not secure firm transportation rights and underutilized pipeline space was not available for use during a winter peak,

their delivered gas cost was extremely volatile. Consequently, Ohioans can expect to contend with the "volatile consequences of abnormal weather's effect on energy prices".

Q. WHAT IS NECESSARY FOR NATURAL GAS TO BE DELIVERED ON A FIRM BASIS TO AN ELECTRIC GENERATING UNIT?

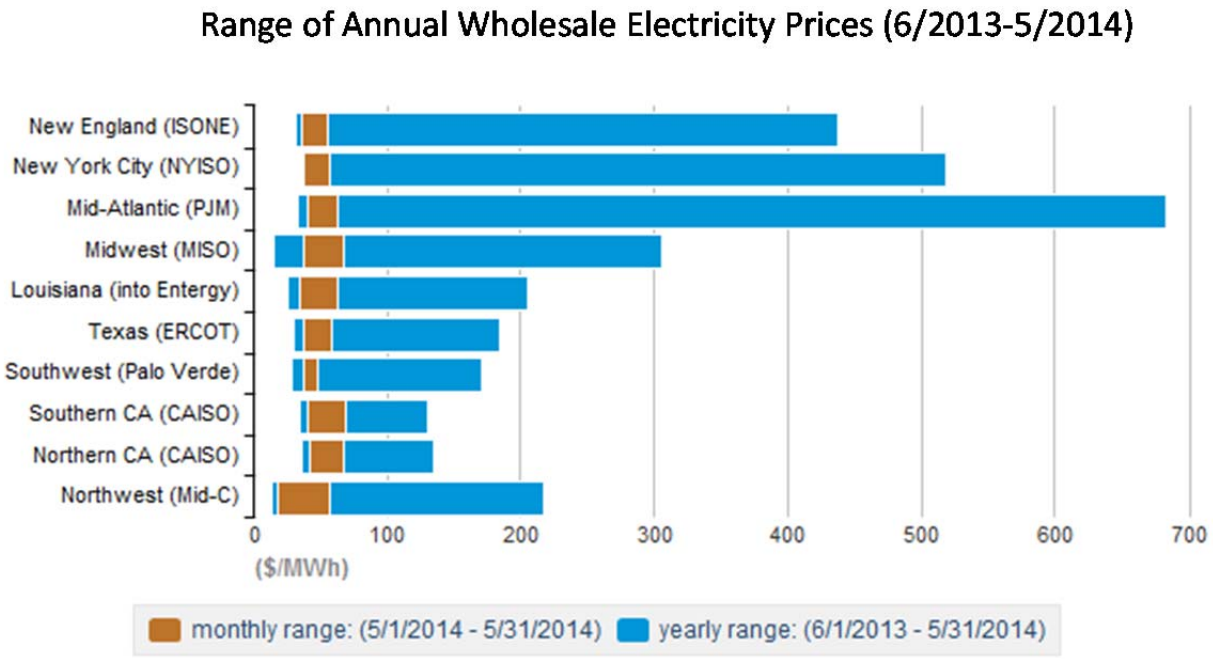
A. Every transporter ("Shipper") of natural gas on the interstate pipeline system must pay for reserved capacity through demand ("Reservation") charges as provided by the pipeline's FERC-approved tariff. These Reservation charges allow the pipeline to recover the fixed charges necessary to provide firm transportation rights to the Shipper. In addition, the Shipper will be charged exclusively for any new construction necessary to provide service to the electric generating units' specific location. Typically, a 15-year Firm Transportation contract is required to allow for cost recovery. Unfortunately, these long-term contractual obligations for firm transportation services are not economically justified by gas-fired electric generators while the current PJM RPM capacity market provides no parallel assurance of capacity revenue.

Q. HOW DO WHOLESALE POWER PRICES REACT TO WEATHER AND LOAD THAT IS ABOVE OR BELOW A WEATHER-NORMALIZED FORECAST?

A. The wholesale power price reaction is asymmetrical. Wholesale power prices rise more rapidly than they fall due to weather and load deviations from weather-normalized values. In Figure 8, the Energy Information Administration has shown PJM to have the widest range of on-peak daily wholesale electricity prices out of ten RTO's and trading hubs throughout the U.S. Load associated with weather and related fuel prices (primarily natural gas) are the key drivers to PJM's wide range of wholesale electricity prices.

May's price range (a "shoulder month") was in a narrow band near the bottom of the yearly price ranges indicating upside price volatility in non-shoulder months.

Figure 8



eia Source: U.S Energy Information Administration based on SNL Energy

As a supplement to the weather-normalized Fundamentals Forecast, the PJM merit-order stack was examined to quantify the asymmetry of PJM power prices as load deviates from average. This was done under the conservative assumption that all inputs (including fuel prices) remain unchanged except load. Figures 9 and 10 illustrate the effects of a 5% deviation in load to on- and off-peak wholesale power prices within PJM. From 2015 through 2030, a sustained 5% load increase results in an 18.5% around-the-clock ("ATC") wholesale power price increase, whereas a sustained 5% load decrease results in a 7.9% ATC wholesale power price decrease. It is clear that the shape of the merit-order stack alone, with all other inputs unchanged, results in an asymmetric reaction to weather and load deviations from weather-normalized values.

Figure 9

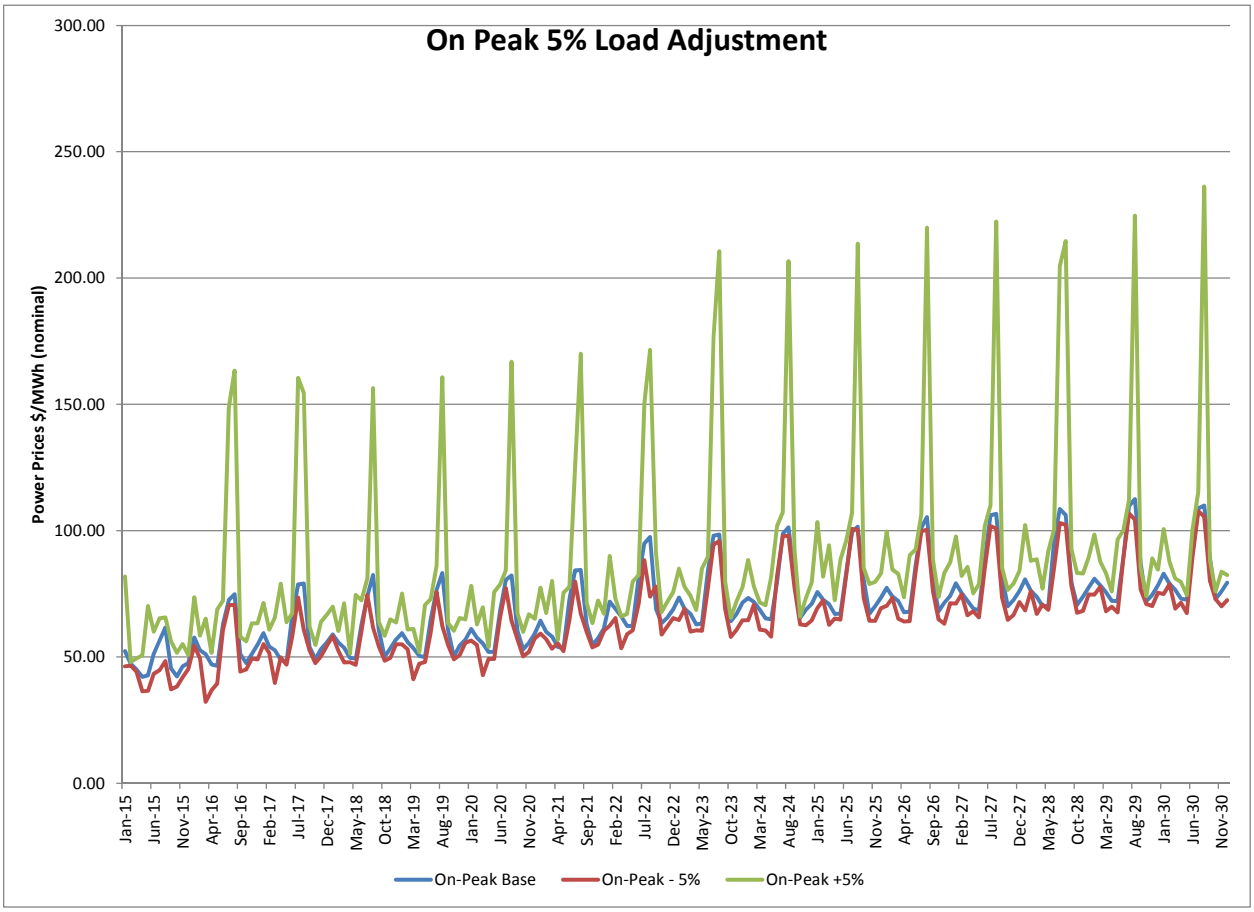
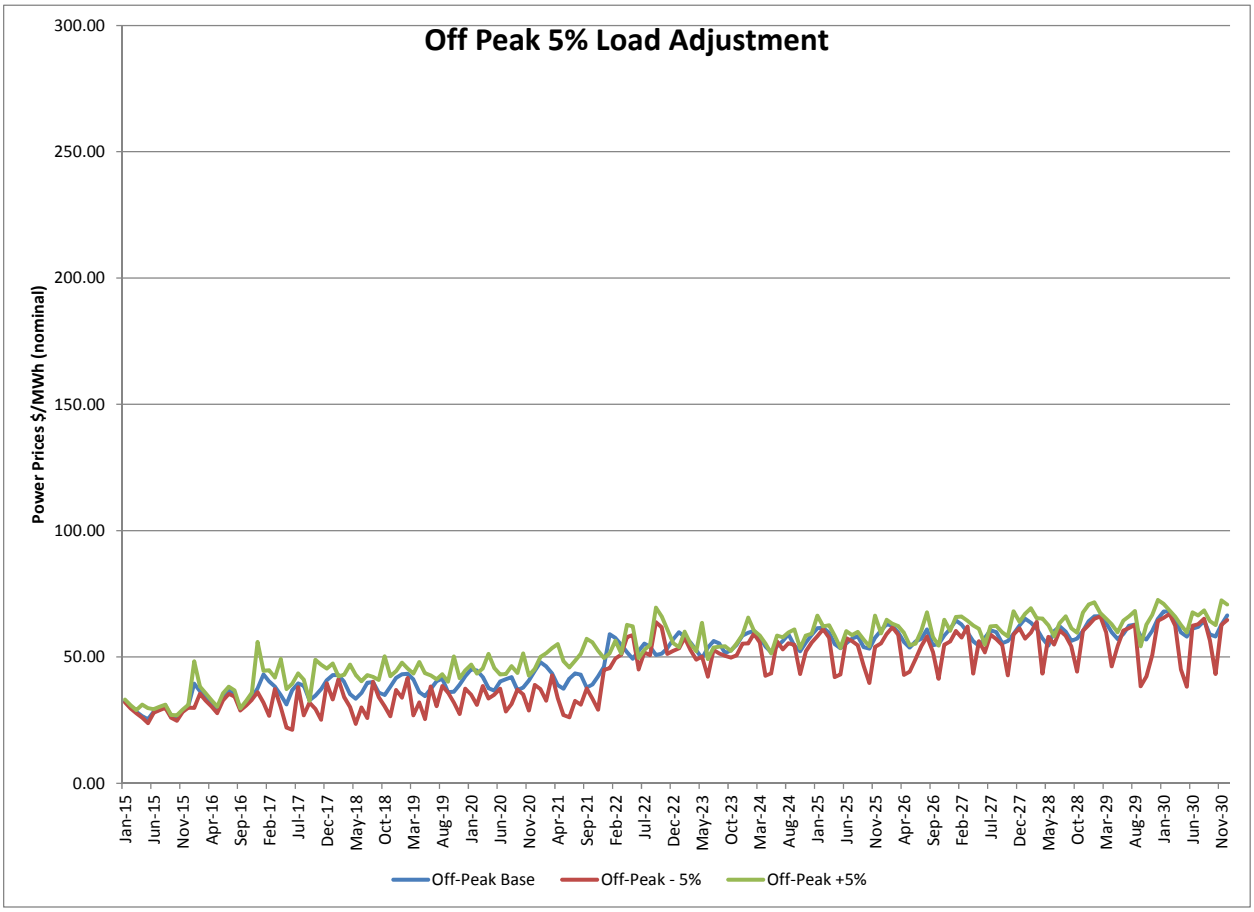

On Peak 5% Load Adjustment
Power Prices $/MWh (nominal)
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Jan-15
Jun-15
Nov-15
Apr-16
Sep-16
Feb-17
Jul-17
Dec-17
May-18
Oct-18
Mar-19
Aug-19
Jan-20
Jun-20
Nov-20
Apr-21
Sep-21
Feb-22
Jul-22
Dec-22
May-23
Oct-23
Mar-24
Aug-24
Jan-25
Jun-25
Nov-25
Apr-26
Sep-26
Feb-27
Jul-27
Dec-27
May-28
Oct-28
Mar-29
Aug-29
Jan-30
Jun-30
Nov-30
On-Peak Base
On-Peak - 5%
On-Peak +5%

Figure 10



Q. WOULD LOW GENERATING RESOURCE CAPACITY VALUES CONTRIBUTE TO FUTURE ENERGY PRICE VOLATILITY?

A. Yes. Capacity revenues are necessary to ensure that reliable and adequate generating resources are available to meet the demand for electricity at all times. The combination of capacity and energy revenues, in total, are necessary to justify the resources' existence. Capacity and energy revenues are inextricably linked such that low capacity prices result in elevated energy values especially in periods of peak demand where generating resources are forced to exist on scant energy revenue – or retire. Should low capacity payments continue, available generating resources dwindle and energy values are set at the volatile side of the merit-order stack.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Summary: Testimony -Direct Testimony of Karl R. Bletzacker electronically filed by Mr. Steven T Nourse on behalf of Ohio Power Company