**BEFORE**
**THE PUBLIC UTILITIES COMMISSION OF OHIO**

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

**REBUTTAL TESTIMONY OF**

**KARL R. BLETZACKER**

**IN SUPPORT OF AEP OHIO'S**
**AMENDED APPLICATION**

Filed on October 27, 2015

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

## INTRODUCTION

**Q. HAVE YOU TESTIFIED PREVIOUSLY IN THIS MATTER?**

A. Yes. I provided direct testimony in this matter on May 15, 2015

**Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

A. The purpose of my rebuttal testimony is to respond to the direct and supplemental testimonies of witnesses; Chernick (on behalf of Sierra Club), Wilson (on behalf of the Ohio Consumer's Counsel) and Leanza (on behalf of IGS Energy). Specifically, I reject their use of natural gas and/or electrical energy futures contract prices as an appropriate proxy for the highly detailed fundamentals-based computer modeling provided by the AuroraXMP Energy Market Model ("AuroraXMP") and others. Additionally, I address Mr. Leanza's comparison of the Polar Vortex winter of 2013-14 to the recent winter of 2014-15 and his misplaced understanding that colder-than-normal temperatures alone drive natural gas market price reactions.

**Q. WHAT IS THE APPROPRIATE METHOD OR MANNER TO FORECAST LONG-TERM ENERGY PRICES?**

A. The appropriate method or manner to forecast long-term energy market prices is to capture the best-available information regarding all aspects of the long-term energy markets and to employ comprehensive and reliable electricity market forecasting models such as AuroraXMP. Also necessary is the rigorous reflection of suitable price relationships between supply and demand – commonly referred to as price elasticities. Finally, the relationships between all components should be recognized and fitly-joined through iterative use of forecasting models to insure proper correlation. As one example of proper correlation, recognition of the Clean Power Plan Final Rule would result in increased natural gas-fired electric generation dispatch, which then requires a correlative increase in natural gas prices.

**Q. IN YOUR PROFESSIONAL OPINION AND EXPERIENCE, DO OTHER WELL-RESPECTED ENERGY INDUSTRY CONSULTANCIES RELY UPON THE FUTURES MARKET FOR LONG-TERM ENERGY MARKET FORECASTS?**

A. No. It has been my direct experience that well-respected energy industry consultancies (including IHS CERA, WoodMackenzie, PIRA and others) do not rely upon or make practical and effective use of the energy futures market for long-term energy market forecasts. This also applies to the US Department of Energy which relies on the National Energy Modeling System ("NEMS"). NEMS is an economic model which incorporates assumptions for economic variables including world energy market interactions, resource availability, technology choices and demographics.

**Q. IS MESSRS. CHERNICK, WILSON AND LEANZA'S RELIANCE UPON FUTURES CONTRACT PRICING AS A POTENTIAL BENCHMARK FOR THEIR ANALYSES REASONABLE?**

A. No. New York Mercantile Exchange ("NYMEX") and Intercontinental Exchange ("ICE") energy futures contract pricing are not intended to be a reliable forecast of future, weather-normalized, long-term energy market fundamentals. Futures market participants are either speculating (placing bets) or escaping the volatility of energy prices through risk management activities (hedging). NYMEX and ICE futures represent the price point(s) at which a buyer and a seller can realize price certainty, but those commercial expectations do not represent the economic principles of demand, supply and the resulting price. Energy consuming entities that have costs and revenues that move independently may need to protect margin through hedging activities and the NYMEX and ICE futures markets satisfy that need. On the other side of the trade, for example, a gas producer that is concerned about covering future exploration and production costs will also utilize futures market contracts. Both sides of the transaction are satisfied with their hedged position, but neither participant is then concerned with the actual future price of energy.

**Q. ARE THERE ADDITIONAL REASONS THAT MESSRS. CHERNICK, WILSON AND LEANZA'S RELIANCE UPON FUTURES MARKET PRICES IS CRITICALLY FLAWED FOR ANALYSES IN THIS MATTER?**

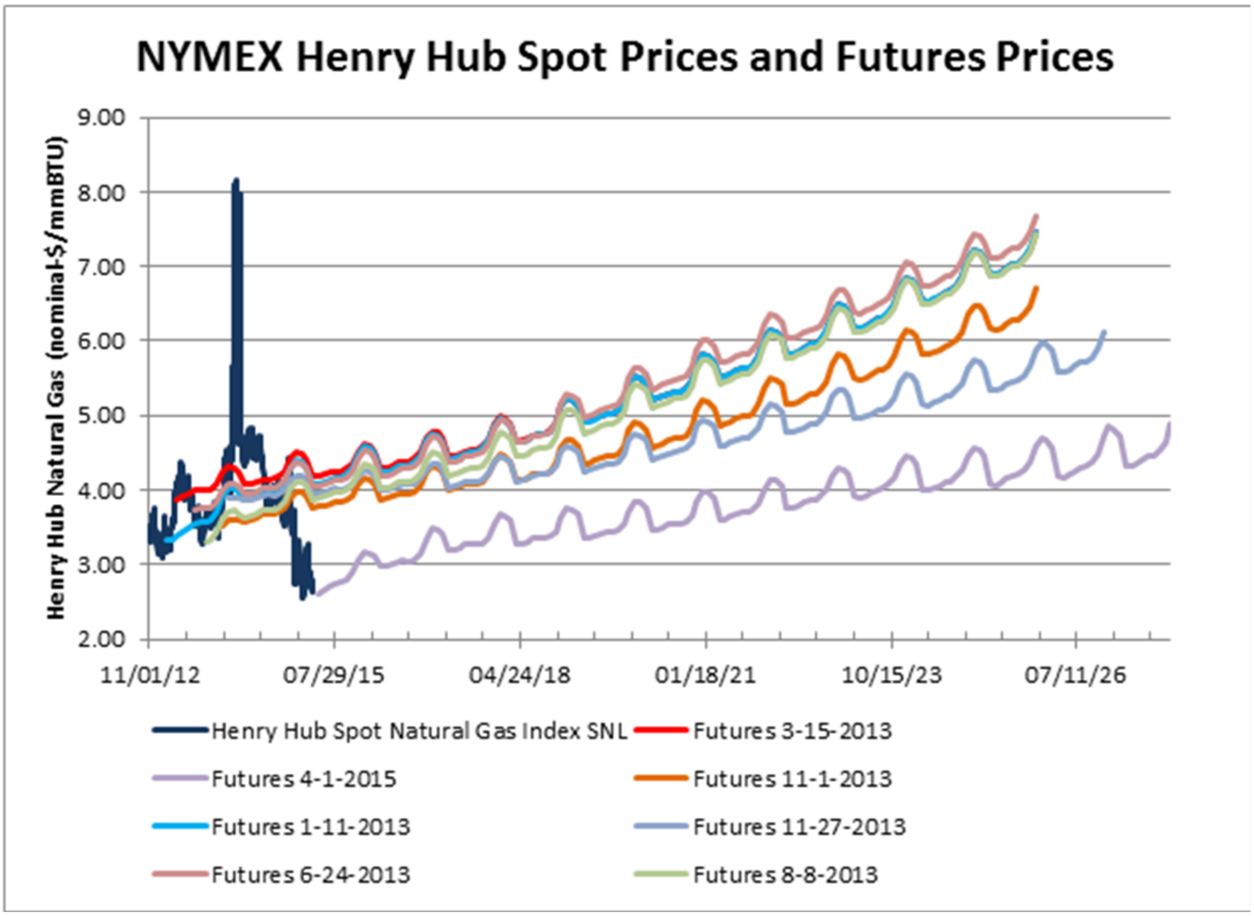
A. Yes, four primary reasons, which I discuss below: 1) capturing price spreads between time periods and between different commodities (not predicting future prices) is also a goal of energy futures market participants, 2) the lack of energy futures market liquidity beyond the near term, 3) energy futures market volatility is synchronized to volatility of current spot market prices rather than factors relevant to the long-term, and, 4) the glaring exclusion of the reasonably known Clean Power Plan Final Rule.

- **Capturing price spreads between time periods and between different commodities (not predicting future prices) is also a goal of energy futures market participants** – Hedging, or "locking in" price spreads between time periods is necessary to assure a natural gas storage operator can capture the seasonal or month-to-month values of physical natural gas injected and withdrawn. Similarly, price spreads between: i) natural gas, propane and other natural gas liquids ("fractionation spread"), ii) natural gas and electricity ("spark spread"), and, iii) coal and electricity ("dark spread") also illustrate this widely accepted use of the energy futures contract prices to justify the capital and operating cost of certain physical assets. Consequently, energy futures market participants which hedge the price spreads between time periods and different commodities have no fundamental interest in the current or future spot market price of the commodity – they are only interested in the spread in price.

- **The lack of energy futures market liquidity beyond the near term** – Open Interest (or the total number of open futures contracts of a given commodity) is extremely low, or zero, for NYMEX and ICE natural gas futures beyond 2019 and PJM AEP Dayton Hub power futures contracts beyond 2018. Price propositions shown for this period of little or no open interest do not reflect actual NYMEX or ICE transactions; and should any attempt be made to purchase natural gas or power futures in this period, it would greatly increase demand and run-up prices. Consequently, the lack of futures market liquidity beyond the near term doesn't even provide clarity to the traditional energy futures market participants, let alone outside observers attempting to forecast energy market spot prices.
- **Energy futures market volatility is synchronized to volatility of current spot market prices rather than factors relevant to the long-term** – Long-term natural gas futures values are tethered to current spot market prices, even though there may be no structural change in the long-term supply and demand fundamentals. This is primarily due to the ability to purchase and store spot market natural gas and to sell at cost-based seasonal spreads. As illustrated in Figure 1, long-term futures values follow current (nearby) spot

market prices, but given that price propositions shown for the period of illiquidity do not reflect actual transactions there is considerable variation and uncertainty in futures market prices – even within a short timeframe. Consequently, a judicious long-term energy market forecast should not be driven by such nearby events as the Polar Vortex or periods of illiquidity in the futures contract market.

**Figure 1**



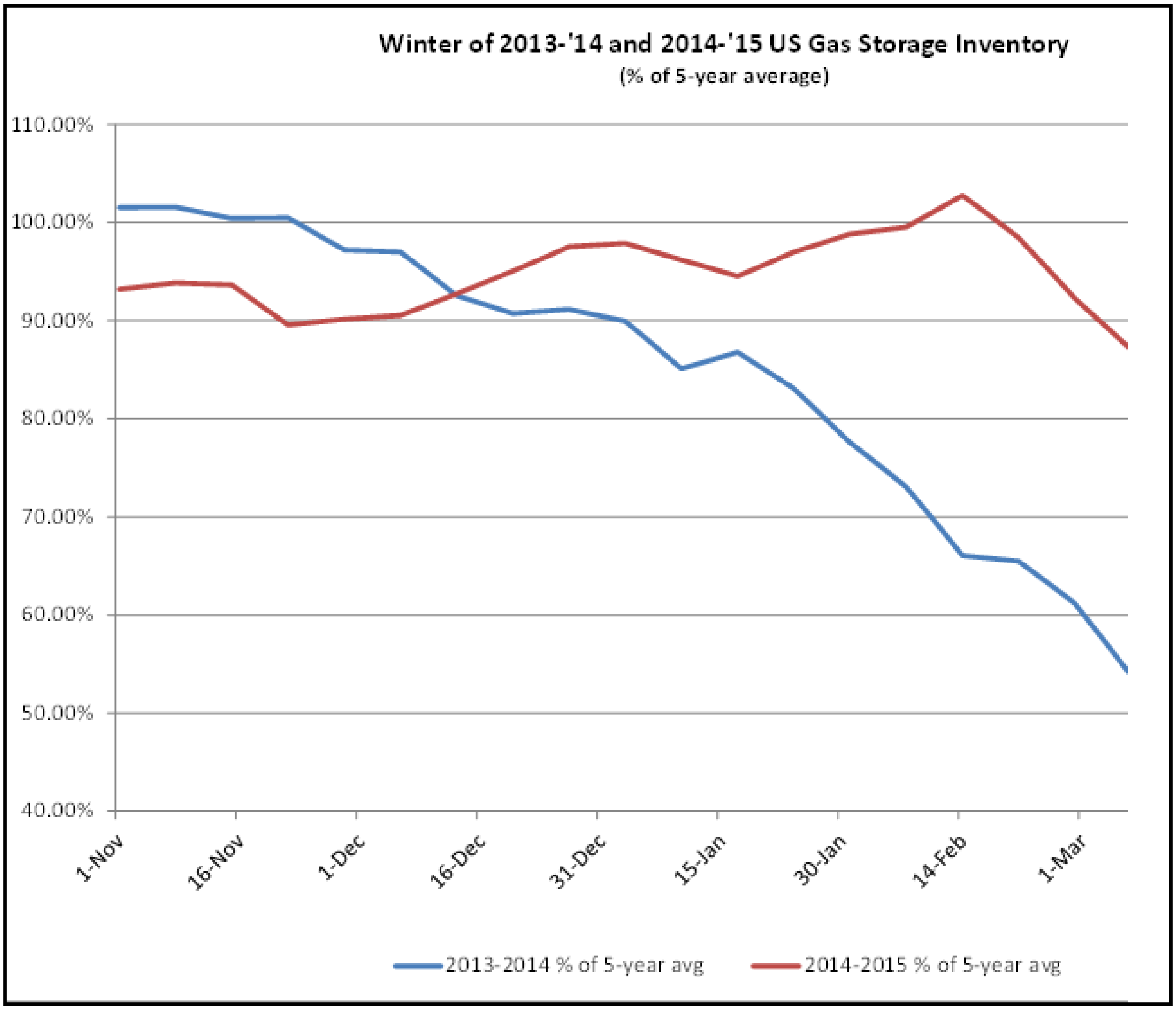

- **The glaring exclusion of the reasonably known Clean Power Plan Final Rule** – Futures market prices do not exhibit any salient inclusion of a $CO_2$ allowance price. The Fundamentals Forecast inclusion of a $15 per metric tonne $CO_2$ allowance price on a Clean Power Plan Final Rule-affected bituminous coal-fired generating facility results in a $15 per MWh burden to dispatch costs which ultimate results in less total energy production. Likewise, a natural gas-fired combined cycled facility would realize an approximate $7 per MWh burden. Consequently, this glaring exclusion of future $CO_2$ emission costs from futures contract prices provides strong evidence that natural gas and electric power futures market participants have no ability to accurately forecast actual energy values.

**Q. MR. LEANZA ASSERTS THAT THERE WAS LITTLE DIFFERENCE BETWEEN THE 2013-2014 POLAR VORTEX WINTER AND THE SUBSEQUENT 2014-2015 WINTER WITH RESPECT TO HEATING DEGREE DAYS. ARE HEATING DEGREE DAYS THE SOLE KEY VARIABLE TO OHIO'S NATURAL GAS PRICE VOLATILITY?**

A. No. Mr. Leanza ignores the fact that the combination of *both* heating degree days and below normal (5-year average) storage inventory levels are the primary factors affecting Ohio's natural gas price volatility. As illustrated in Figure 2 below, natural gas storage inventory during the Polar Vortex winter of 2013-14 began at, or near, 5-year average levels but was depleted to 85% by early January. In contrast, during the 2014-15 winter, storage inventory remained at, or very near, the normal (5-year average) levels throughout the withdrawal period. As a result, the upward pressure of significantly reduced storage inventory that drove natural gas prices in the 2013-14 Polar Vortex was not repeated during the 2014-15 winter. It is critical to understand that natural gas storage provides the necessary deliverability (bcf per day) and volume (bcf) to assure reliable supply on days of peak delivery. Low temperatures, along with compromised storage deliverability and inventory levels due to volatile weather were the primary drivers of the Appalachian Index price response illustrated in figure 2 of Bletzacker

Direct testimony on page 7. This gas storage inventory/price response relationship is well-known by energy consultancies as the Storage Yield Curve. In general, February 15th is the point where further storage inventory decline is of less concern because the chance of a peak day diminishes exponentially.

**Figure 2**




**Q. WHY ARE NATURAL GAS PRICES PRESENTED BY THE COMPANY FOR ANALYSIS IN THIS CASE NOT AS LOW AS THOSE PREFERRED BY MESSRS. WILSON AND LEANZA?**

A. Through the use of natural gas futures contract prices, Messrs. Wilson and Leanza are prematurely dismissing credible upside threats to US natural gas prices including the prospect of liquefied natural gas exports and compressed or liquefied natural gas for use as a transportation fuel. As of October 14, 2015, 46.3 bcf per day of natural gas liquefaction for export to Free Trade Agreement countries has been proposed to the US Department of Energy. Although it is not likely that every project gets approved and built, this potential incremental demand represents over a half of current domestic natural gas consumption. In addition, the use of natural gas for US light-duty vehicles in the form of compressed natural gas and for US long-haul trucking in the form of liquefied natural gas is a reasonable expectation. For US long-haul trucking alone, liquefied natural gas has the potential to increase natural gas consumption by 9.1 bcf per day. The potential for increased costs associated with environmental requirements due to hydraulic fracturing is also a very likely upside threat to natural gas prices. AEPSC does monitor and recognize these developments and others for inclusion in its Fundamentals Forecast.

**Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

A. Yes.

## CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of Ohio Power Company's *Rebuttal Testimony of Karl R. Bletzacker* have been served upon the below-named counsel and Attorney Examiners by electronic mail to all Parties this 27th day of October, 2015.

/s/ Steven T. Nourse
Steven T. Nourse

**EMAIL SERVICE LIST**

Bojko@carpenterlipps.com;
charris@spilmanlaw.com;
chris@envlaw.com;
Christopher.Miller@icemiller.com;
ckilgard@taftlaw,com
cmooney@ohiopartners.org;
dstinson@bricker.com;
ghiloni@carpenterlipps.com;
dclark1@aep.com;
dboehm@BKLlawfirm.com;
dconway@porterwright.com;
dwilliamson@spilmanlaw.com;
fdarr@mwncmh.com;
gaunder@CarpenterLipps.com;
ghull@eckertseamans.com;
glpetrucci@vorys.com;
Greta.see@puc.state.oh.us;
haydenm@firstenergycorp.com;
mhpetricoff@vorys.com;
jeffrey.mayes@monitoringanalytics.com;
jennifer.spinosi@directenergy.com;
jkylercohn@BKLlawfirm.com;
jlang@calfee.com;
jmcdermott@firstenergycorp.com;
Jodi.bair@occ.ohio.gov;
joliker@igsenergy.com;
Allison@carpenterlipps.com;
Katie.johnson@puc.state.oh.us;
Kevin.moore@occ.ohio.gov;
Kristin.henry@sierraclub.org;
Kurt.Helfrich@ThompsonHine.com;
Larry.sauer@occ.ohio.gov;
laurie.williams@sierraclub.org;
lhawrot@spilmanlaw.com;
mjsatterwhite@aep.com;
msmckenzie@aep.com;
mdortch@kravitzllc.com;
mfleisher@elpc.org;
msoules@earthjustice.org;
mjsettineri@vorys.com;
mkurtz@BKLlawfirm.com;
mpritchard@mwncmh.com;
msmalz@ohiopovertylaw.org;
myurick@taftlaw.com;
ricks@ohanet.org;
rsahli@columbus.rr.com;
sam@mwncmh.com;
Sarah.Parrot@puc.state.oh.us;
scasto@firstenergycorp.com;
schmidt@sppgrp.com;
Scott.Campbell@ThompsonHine.com;
sfisk@earthjustice.org;
sasloan@aep.com;
Stephanie.Chmiel@ThompsonHine.com

steven.beeler@puc.state.oh.us;
jvickers@elpc.org;
stnourse@aep.com;
talexander@calfee.com;
tdougherty@theOEC.org;
tobrien@bricker.com;
twilliams@snhslaw.com;
todonnell@dickinsonwright.com;
tony.mendoza@sierraclub.org;
Werner.margard@puc.state.oh.us;
William.michael@occ.ohio.gov;
william.wright@puc.state.oh.us;