TESTIMONY OF WENBIN (MICHAEL) CHEN
MANAGER, MIDWEST TRADING
DUKE ENERGY BUSINESS SERVICES LLC
ON BEHALF OF
DUKE ENERGY INDIANA, LLC
CAUSE NO. 38707-FAC 127 BEFORE THE
INDIANA UTILITY REGULATORY COMMISSION

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Wenbin (Michael) Chen, and my business address is 526 South Church Street, Charlotte, North Carolina 28202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed as Manager, Midwest Trading, by Duke Energy Business Services LLC, a service company subsidiary of Duke Energy Corporation and a non-utility affiliate of Duke Energy Indiana, LLC ("Duke Energy Indiana" or "Company").

Q. PLEASE STATE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I received a Bachelor's degree in Economics from Shanghai Maritime University and a Master's degree in Business Administration from The Ohio State University. I also hold the Chartered Financial Analyst ("CFA") designation conferred by the CFA Institute and I am a Financial Risk Manager ("FRM") certified by the Global Association of Risk Professionals.

I was employed by China Merchants Group in Hong Kong and later its affiliate Transocean Grabbulk Pool Ltd in Singapore from 1993 to 2000. During

these seven years I held various positions in marketing, operations, and bulk carrier chartering. In 2002, I joined Cinergy Services, Inc. (a predecessor of Duke Energy Business Services LLC) as a Portfolio Analyst and have worked in the Fuels & Systems Optimization group since then. I assumed my current position on January 1, 2014.

Q. WHAT ARE YOUR DUTIES AND RESPONSIBILITIES AS MANAGER, POWER TRADING MIDWEST?

A. I am responsible for power and natural gas hedging programs for Duke Energy Indiana and Duke Energy Kentucky. The primary goal of the hedging programs is to reduce impact of energy market price volatility to the Company's load and generation portfolio. I also manage capacity positions, Financial Transmission Rights ("FTR") positions, load forecast, demand bids submission, and financial scheduling for the two companies.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I will update the Company's gas and power hedging activities that have been described in previous FAC proceedings.

II. REALIZED NATIVE NATURAL GAS HEDGING RESULTS

Q. DO YOU BELIEVE THAT IT IS REASONABLE FOR THE COMPANY TO ENTER INTO HEDGES AGAINST GAS PRICES?

A. Yes, I do.

Q. PLEASE EXPLAIN WHY YOU BELIEVE THAT SUCH ACTIONS ARE REASONABLE.

A. Duke Energy Indiana continues to rely on natural gas as fuel for the Company's gas generation plants and natural gas prices have historically been volatile. From March 2006 through November 2020, prompt month Henry Hub natural gas prices have settled between $1.44 and $13.58 per Mmbtu. The lowest settlement price of $1.44/Mmbtu in this wide range happened recently on June 25, 2020, when COVID-19 pandemic related lockdowns and other restriction measures significantly reduced demand for natural gas. As of January 14, 2021, prompt month natural gas contract settled at $2.66/Mmbtu. Though it's a rebound of more than 80%, gas price is still close to the low end of its historical price range. Furthermore, because Duke Energy Indiana's natural gas demand is somewhat linked to weather, the Company is further exposed to such fluctuations in natural gas prices. The natural gas market is highly visible and liquid and there are a number of hedging tools available to help protect against such price fluctuations. In my opinion, it only makes sense for the Company to take advantage of these tools.

Q. HAS THE COMPANY COMPLETED ANY GAS HEDGING TRANSACTIONS SINCE THE LAST UPDATE TO THE COMMISSION IN THE FAC126 PROCEEDING?

A. Yes. The Company used hedging tools available on InterContinental Exchange ("ICE") and purchased hedges based on forecasted forward expected native gas

burns for the period from October 2020 through March 2021. As discussed in FAC108 testimony, in addition to Henry Hub future contracts that the Company always used as a hedging tool, Duke Energy Indiana made an improvement to gas hedging strategy and started using two new types of financial future contracts since 2015 to convert Henry Hub hedging trades to a hedging position that settles at Chicago Citygate daily gas index. This improvement was inspired by significant price separation between Henry Hub and Chicago Citygate gas price that occurred in the winters of 2014 and 2015, due to increasing production of shale gas in the Midwest. The cost of natural gas the Company pays for its gas generation units now moves more closely with Chicago Citygate daily gas index and sometimes disconnects from Henry Hub price.

Q. WHAT WERE THE RESULTS OF THE GAS HEDGING APPLICABLE TO THE RECONCILIATION PERIOD FOR THIS FAC PROCEEDING?

A. Natural gas purchases made to hedge September 2020, October 2020, and November 2020 native gas burn realized a loss of $266,998. These gas hedges were purchased prior to fall 2020 outage season to reduce volatility and lock in certainty of price following the Duke Energy Indiana hedge plan. During this FAC reconciliation period, market price for gas realized lower values than the hedged prices, attributable to high shale gas production and low gas usage caused by the COVID-19 pandemic.

Realized Native Natural Gas Hedging Results

September 2020	October 2020	November 2020
($148,875)	(40,767)	(77,356)

Low spot gas prices made the Company's gas generation plants more economic to generate power and increased expected native gas burn. As with our past practice, the Company will evaluate gas burn needs regularly and may purchase gas hedges as needed and when it is prudent to do so.

III. REALIZED NATIVE POWER HEDGING RESULTS

Q. DOES THE COMPANY CONDUCT OTHER HEDGING ACTIVITIES?

A. Yes, Duke Energy Indiana also hedges the costs of purchased power. Power prices have been volatile since the beginning of the Midcontinent Independent System Operator, Inc. ("MISO") energy markets in April of 2005. Through the end of November 2020, the average peak daily Indiana Hub Day Ahead LMP was $42.68/MWH. For the same period, average daily Indiana Hub Real Time LMP was $41.52/MWH. However, there was a wide range of prices. Day Ahead daily price settled between $17.83 and $398.63 while Real Time price went from as low as $15.57/MWH to as high as $298.68/MWH. There were 63 days where Day Ahead daily price exceeded $100/MWH and 73 days in the same period that we experienced daily Real Time peak power prices higher than $100/MWH. Moreover, we observed hourly Indiana Hub, and CIN Hub before 1/1/2012, Day Ahead or Real Time LMP over $100/MWH in most months since April of 2005,

with the highest LMP at $1,966.29/MWH and the lowest at negative $242.96/MWH. To help hedge against this volatility, if the position warrants, the Company enters into forward power purchase contracts that are financially settled on a specific future date at MISO Indiana Hub Day-Ahead or Real Time LMPs.[1] The applicable LMPs on the settlement date for these contracts may be higher or lower than the price the Company paid for the forward contract and the Company will either pay or be refunded the difference.

Q. WHAT PRICE DOES THE COMPANY PAY FOR THESE POWER CONTRACTS?

A. The Company didn't buy monthly forward hedge contracts in this reconciliation period because its native positions were expected to be long in all three months. On the other hand, the Company did put on short-term hedges and paid the then market prices between $21.50/MWH and $39/MWH to hedge portfolio imbalances in daily and weekly markets.

Q. HOW IS IT DETERMINED WHETHER TO ENTER INTO FORWARD POWER HEDGING TRANSACTIONS?

A. When entering into these transactions, Duke Energy Indiana measures the purchase price for the forward power purchase contract against the expected cost of operating the incremental Company generation units needed to meet the forecasted load. For example, if our forecasted native load would require the

[1] Since the onset of MISO energy markets, almost all bi-lateral contracts have been "financial" rather than "physical" contracts.

Company to operate a gas turbine peaking plant at a cost of $100/MWH and we could purchase a forward power purchase contract at a cost of $80/MWH, Duke Energy Indiana would make that purchase, essentially fixing a price for purchased power at a cost lower than the expected cost of operating our own generation. The Company never makes a forward power purchase unless the cost of such purchase is less than the cost of running the incremental generating unit needed to meet the forecasted load.

If, on the settlement date, the LMP is higher than the forward contract price, the Company would be credited the difference from the counterparty. On the other hand, if the LMP is lower than the forward contract price, the Company would have to pay the difference to the counterparty. The actual purchase of power or dispatch of units to serve native load would still be done on an economic basis.

Q. WHEN DID THE COMPANY BEGIN THIS HEDGING PROGRAM?

A. Duke Energy Indiana started making such purchases for January 2006, and made forward power purchases for each month of 2006, and have generally continued that practice to the present.[2]

Q. WHAT WERE THE RESULTS FOR SEPTEMBER THROUGH NOVEMBER 2020?

[2] As noted later in my testimony, Duke Energy Indiana's power hedging practices subsequent to the effectiveness of a settlement with the Indiana Office of Utility Consumer Counselor and the Commission's Order on June 25, 2008, in Cause No. 38707-FAC68-S1 are consistent with such settlement and Commission Order.

A. The final realized value of the native power hedges for this period was $75,228 negative, resulting from forward monthly transactions, intra-month transactions, as well as any MISO virtual trades. The small negative result was primarily driven by soft power prices due to warmer than normal weather in the Company's service territory. As a result, the hedges purchased to mitigate native exposure realized a loss.

Realized Native Power Hedging Results

September 2020	October 2020	November 2020
($17,186)	($28,900)	($29,142)

As noted in the pre-filed testimony of Ms. Suzanne E. Sieferman, the net realized results for the reconciliation period from the power hedging activity exclusive of MISO virtual trades, and including prior period adjustments, was a loss of $78,270.

Including net realized results from native natural gas hedging mentioned above, total cost to the customers for this FAC filing is $345,268.

Q. HAVE THERE BEEN ANY CHANGES WITH REGARDS TO HEDGING PRACTICES THROUGH MISO?

A. No. Duke Energy Indiana did not make changes to the Company's hedging practices. As mentioned in the FAC 100 filing, the Company restarted using virtual trades as a hedging tool for expected forced outages in the Real-Time

market because of heightened LMP price volatility caused by gas supply issues and extremely cold weather experienced in the past winter.

Q. CAN YOU EXPLAIN THE MISO VIRTUAL TRADES MENTIONED ABOVE?

A. Yes. As a MISO market participant, the Company must offer all available generation to the MISO Day-Ahead energy market. If a generation unit clears the Day-Ahead market, it receives a financially binding award to sell energy to MISO at Day-Ahead LMP. If the unit becomes unavailable in the MISO Real-Time market, it is then obligated to buy back energy it sold in the Day-Ahead market, but at the Real-Time hourly LMP price. In such case, the unit is exposed to the price risk between Day-Ahead LMP and Real-Time LMP. In order to mitigate this risk, when there is a valid concern that a generation unit could become unavailable in the Real-Time market, virtual trades can be used to buy back all or a portion of energy it sold at the Day-Ahead LMP and at the same time, sell the unit's energy output in the Real-Time market at Real-Time LMP. By doing so, the unit is no longer subject to the difference between Day-Ahead LMP and Real-Time LMP.

A virtual transaction itself has two legs. Based on the way the Company uses virtual trades as a hedging tool, the first leg is to buy back a unit's Day-Ahead energy sale to MISO, and the second leg is to sell the same amount of energy to the MISO Real-Time market. Therefore, the above-mentioned hedging strategy has 3 transactions:

a) Sell unit energy to MISO at Day-Ahead LMP

b) Buy unit energy back from MISO at Day-Ahead LMP

c) Sell unit energy to MISO at Real-Time LMP

The transactions in b) and c) are a virtual trade. Since a) and b) offset each other, the end result is c), *i.e.*, sell unit energy to MISO at Real-Time LMP.

Q. IS THE COMPANY CONTINUING ITS POWER HEDGING PRACTICES?

A. Yes. Though Duke Energy Indiana didn't make monthly native load forward power hedges during this reconciliation period mostly due to increased expected generation output after implementation of coal cost decrement, the Company made intra-month native purchases and sales in December 2020 and January 2021 to hedge changes in forecasted load, economic generation, and forced outages. In any event, the Company's methodology for making purchases has remained consistent. If the forward purchase price of power is less than the cost of running the incremental generating units required to meet the forecasted load, then Duke Energy Indiana may purchase a forward power hedge. Of course, forward power prices, gas prices, emission allowance prices, weather conditions, expected load, and availability of generating units, among other factors, are constantly changing. As conditions change, the Company would evaluate these conditions and adapt. Using sophisticated computer analysis, Duke Energy Indiana constantly assess the Company's forward power positions on a monthly, daily and even intra-day basis.

The goal is to maintain forward power hedges only in an amount necessary to economically cover our forecasted load.

Q. HOW DID THE COMMISSION'S JUNE 25, 2008 ORDER IN CAUSE NO. 38707 FAC68-S1 AFFECT THE COMPANY'S CURRENT HEDGING METHODOLOGY?

A. The Company's hedging methodology is consistent with the Settlement Agreement with the OUCC and the Commission order. Accordingly, beginning on August 1, 2008, Duke Energy Indiana has not utilized its flat hedging methodology. Rather, Duke Energy Indiana will hedge up to approximately flat minus 150 MW on a forward, monthly and intra-month basis, and up to approximately flat on a Day Ahead/Real-Time basis. This methodology will leave the Company with at least approximately 150 MW of expected load unhedged on a forward forecasted basis.

Q. HAS THE COMPANY MADE ANY RECENT CHANGES TO ITS POWER HEDGING PLANS?

A. No.

Q. DO YOU BELIEVE THE COMPANY'S GAS AND POWER HEDGING PRACTICES ARE REASONABLE?

A. Yes, I do. The Company never speculates on future prices, but rather uses a sophisticated model to determine when it is economic to purchase and sell on a forward basis. The practice is economic at the time the decision is made and reduces volatility because Duke Energy Indiana is transacting in a less volatile

forward market, as opposed to more volatile spot markets (*i.e.*, the MISO day ahead and real-time markets).

Just as an electric reserve margin reduces risk that capacity may not be available when it is needed, Duke Energy Indiana believes its power hedging practice benefits customers by reducing customers' risk of paying potentially higher spot market prices. Further, as stated above, our practices going forward will be consistent with the Commission Order in Cause No. 38707 FAC68-S1.

Q. DOES THIS CONCLUDE YOUR PREFILED DIRECT TESTIMONY?

A. Yes, it does.

VERIFICATION

I hereby verify under the penalties of perjury that the foregoing representations are true to the best of my knowledge, information and belief.

Signed: _____ Dated: 1/29/2021

Wenbin (Michael) Chen