**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

| | | |
|---|---|---|
| DUKE ENERGY KENTUCKY, INC.'S INTEGRATED RESOURCE PLAN | ) ) ) | Case No. 2018-00195 |

**PETITION OF DUKE ENERGY KENTUCKY, INC. FOR CONFIDENTIAL TREATMENT OF CERTAIN RESPONSES TO COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION AND TO THE KENTUCKY ATTORNEY GENERAL'S OFFICE'S FIRST REQUEST FOR INFORMATION**

Duke Energy Kentucky, Inc. (Duke Energy Kentucky or Company), pursuant to 807 KAR 5:001, Section 13, respectfully requests the Kentucky Public Service Commission (Commission) to classify and protect certain information provided by the Company in its Responses to Commission Staff's (Staff) First Request for Information issued on January 28, 2019 and the Kentucky Attorney General's (AG) Office's First Request for Information issued on February 4, 2019. Specifically, the Company requests confidential treatment for responses to Staff's Information Request Nos. 7, 10, and 12, and the AG's Information Request No. 17. The information that Duke Energy Kentucky seeks confidential treatment on generally includes: (1) information related to operations and management (O&M) costs, projected fuel and environmental compliance forecasted costs, power market prices, and projected capacity and resource alternative capital costs; (3) resource evaluations; and (4) third party owned and licensed modeling tools.

The public disclosure of the information described would place Duke Energy Kentucky at a commercial disadvantage as it negotiates contracts with various suppliers and

vendors and could potentially harm Duke Energy Kentucky's competitive position in the marketplace, to the detriment of Duke Energy Kentucky and its customers.

In support of this Petition, Duke Energy Kentucky states:

1. The Kentucky Open Records Act exempts from disclosure certain commercial information. KRS 61.878 (1)(c). To qualify for this exemption and, therefore, maintain the confidentiality of the information, a party must establish that disclosure of the commercial information would permit an unfair advantage to competitors of that party. Public disclosure of the information identified herein would, in fact, prompt such a result for the reasons set forth below.

2. The information provided in responses to Staff's Information Request Nos. 7 and 12 and AG's Information Request No. 17 include power production costs (projected costs of fuel and various compliance and other O&M expenses, capital costs, power market prices, and projected capacity cost), historic and projected forced outage rates and power production costs, and planning reserve margins, respectively, that Duke Energy Kentucky wishes to protect from public disclosure. This information was developed internally by Duke Energy Kentucky personnel, is not on file with any public agency, and is not available from any commercial or other source outside Duke Energy Kentucky. The aforementioned information is distributed within Duke Energy Kentucky only to those employees who must have access for business reasons. If publicly disclosed, this information setting forth Duke Energy Kentucky's costs of operation, expected need for fuel and allowances, forced outage rates, and projected capacity reserves could give competitors an advantage in under valuing the Company's generation through market manipulation. Similarly, disclosure would afford an undue advantage to Duke Energy Kentucky's vendors and suppliers as they would enjoy

an obvious advantage in any contractual negotiations to the extent they could calculate Duke Energy Kentucky's requirements and what Duke Energy Kentucky anticipates those requirements to cost. Finally, public disclosure of this information, particularly as it relates to supply-side alternatives, would reveal the business model Duke Energy Kentucky uses - the procedure it follows and the factors and inputs it considers - in evaluating the economic viability of various generation related projects, and future capacity needs. Public disclosure would give Duke Energy Kentucky's contractors, vendors and competitor's access to Duke Energy Kentucky's cost and operational parameters, as well as insight into its contracting practices. Such access would impair Duke Energy Kentucky's ability to negotiate with prospective contractors and vendors, and could harm Duke Energy Kentucky's competitive position in the power market, ultimately affecting the costs to serve customers.

3. Duke Energy Kentucky requests confidential protections for certain third-party data contained in response to Staff's Information Request No. 10. In developing the 2018 IRP, Duke Energy Kentucky used certain confidential and proprietary data consisting of confidential information belonging to third parties who take reasonable steps to protect their confidential information, such as only releasing such information subject to confidentiality agreements. Duke Energy Kentucky used forecasts of various commodities and inputs such as power market data and fuel price forecasts (coal prices and gas prices) developed by independent third parties, EIA, Burns & McDonnell, and Navigant, subject to confidentiality restrictions. Burns and McDonnell provided operating specifications and costs for potential future generating units, and the capital cost data was derived from data obtained from Navigant and Burns & McDonnell. Duke Energy Kentucky is contractually bound to maintain such information confidential. Moreover, this information is deserving of protection

to protect Duke Energy Kentucky's customers. If future vendors or other suppliers such as allowance brokers or equipment vendors knew Duke Energy Kentucky's estimated valuation for various supply-side resources, by resource type, or otherwise, such brokers or vendors would have an unfair advantage in negotiating future equipment sales, to the detriment of Duke Energy Kentucky and its customers. Furthermore, if competitors of Duke Energy Kentucky knew such forecasts, they could have an advantage in competing for new business against Duke Energy Kentucky.

4. Duke Energy Kentucky does not object to limited disclosure of the confidential information described herein, pursuant to an acceptable protective agreement, with the Attorney General or other intervenors with a legitimate interest in reviewing the same for the purpose of participating in this case.

5. This information was, and remains, integral to Duke Energy Kentucky's effective execution of business decisions. And such information is generally regarded as confidential or proprietary. Indeed, as the Kentucky Supreme Court has found, "information concerning the inner workings of a corporation is 'generally accepted as confidential or proprietary.'" *Hoy v. Kentucky Industrial Revitalization Authority*, Ky., 904 S.W.2d 766, 768 (Ky. 1995).

6. In accordance with the provisions of 807 KAR 5:001, Section 13(3), the Company is filing one copy of the Confidential Information separately under seal, and one copy without the confidential information included.

7. Duke Energy Kentucky respectfully requests that the Confidential Information, be withheld from public disclosure for a period of ten years. This will assure that the Confidential Information – if disclosed after that time – will no longer be

commercially sensitive so as to likely impair the interests of the Company or its customers if publicly disclosed.

8. To the extent the Confidential information becomes generally available to the public, whether through filings required by other agencies or otherwise, Duke Energy Kentucky will notify the Commission and have its confidential status removed pursuant to 807 KAR 5:001 Section 13(10)(a).

WHEREFORE, Duke Energy Kentucky, Inc. respectfully requests the Commission classify and protect as confidential the specific information described herein.

Respectfully submitted,

DUKE ENERGY KENTUCKY, INC.

Rocco O. D'Ascenzo (92796)
Deputy General Counsel
Duke Energy Business Services LLC
139 East Fourth Street, 1303 Main
Cincinnati, Ohio 45201-0960
Phone: (513) 287-4320
Fax: (513) 287-4385
E-mail: rocco.d'ascenzo@duke-energy.com
*Counsel for Duke Energy Kentucky, Inc.*

## CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing filing was served on the following via U.S. Mail, first class, postage prepaid, this 25th day of February 2019:

Rebecca W. Goodman
The Office of the Attorney General
Utility Intervention and Rate Division
700 Capital Avenue, Suite 20
Frankfort, Kentucky 40601

Rocco D'Ascenzo

# KYPSC CASE NO. 2018-00195
# TABLE OF CONTENTS

**VERIFICATION**

**STATE OF OHIO** )
) **SS:**
**COUNTY OF HAMILTON** )

The undersigned, Michael Geers, Manager Environmental Services, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

J. Michael Geers, Affiant

Subscribed and sworn to before me by J. Michael Geers, on this 22nd day of February, 2019.

NOTARY PUBLIC

My Commission Expires:

NOTARIAL SEAL
STATE OF OHIO

RUTH M. LOCCISANO
Notary Public, State of Ohio
My Commission Expires 06-18-2022

**VERIFICATION**

**STATE OF NORTH CAROLINA** )
) **SS:**
**COUNTY OF MECKLENBURG** )

The undersigned, Scott Park, Director IRP & Analytics-Midwest, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

Scott Park, Affiant

Subscribed and sworn to before me by Scott Park on this 18th day of Feb, 2019.

NOTARY PUBLIC

My Commission Expires: Oct. 20, 2023

## VERIFICATION

**STATE OF NORTH CAROLINA** )
) **SS:**
**COUNTY OF MECKLENBURG** )

The undersigned, Benjamin Walter Bohdan Passty, Lead Load Forecasting Analyst, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing post-hearing data requests and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

Benjamin W B Passty
Benjamin Walter Bohdan Passty Affiant

Subscribed and sworn to before me by Benjamin Walter Bohdan Passty on this 12th day of Febuary 2019.

NOTARY PUBLIC

MICHAEL SZUPER
Mecklenburg County
My Commission Expires
July 29, 2023

My Commission Expires: July 29th, 2023

**VERIFICATION**

**STATE OF OHIO** )
)
**COUNTY OF HAMILTON** )

**SS:**

The undersigned, Andrew Ritch, Wholesale Renewable Manager IV, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

Andrew Ritch, Affiant

Subscribed and sworn to before me by Andrew Ritch, on this 7th day of February, 2019.

NOTARY PUBLIC

My Commission Expires: 1/5/2024


ADELE M. FRISCH
Notary Public, State of Ohio
My Commission Expires 01-05-2024

**VERIFICATION**

**STATE OF OHIO** )
) **SS:**
**COUNTY OF HAMILTON** )

The undersigned, Troy Wilhelm, Manager General Project Engineering, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

Troy Wilhelm, Affiant

Subscribed and sworn to before me by Troy Wilhelm, on this 7th day of February, 2019.

NOTARY PUBLIC

My Commission Expires: July 8, 2022

NOTARY PUBLIC STATE OF OHIO

E. MINNA ROLFES-ADKINS
Notary Public, State of Ohio
My Commission Expires
July 8, 2022

**VERIFICATION**

**STATE OF OHIO** )
) **SS:**
**COUNTY OF HAMILTON** )

The undersigned, Zachary Kuznar, Manager Director CHP Microgrid & Engineer Storage Development, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

Zachary Kuznar, Affiant

Subscribed and sworn to before me by Zachary Kuznar, on this 5TH day of FEBRUARY, 2019.

NOTARY PUBLIC

My Commission Expires: 1/5/2024

ADELE M. FRISCH
Notary Public, State of Ohio
My Commission Expires 01-05-2024

**VERIFICATION**

**STATE OF NORTH CAROLINA** )
) **SS:**
**COUNTY OF MECKLENBURG** )

The undersigned, John A. Verderame, Managing Direct – Power, Trading & Dispatch, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

John A. Verderame, Affiant

Subscribed and sworn to before me by John A. Verderame on this 30 day of January, 2019.

NOTARY PUBLIC

My Commission Expires:

MARY B VICKNAIR
NOTARY PUBLIC
Davie County
North Carolina
My Commission Expires Sept. 21, 2022

**Duke Energy Kentucky**
**Case No. 2018-00195**
**STAFF First Set Data Requests**
**Date Received: January 28, 2019**

**STAFF-DR-01-001**

**REQUEST:**

Refer to the 2017 Integrated Resource Plan (IRP), page 11, regarding the emerging interest for renewable energy. Explain the process Duke Kentucky utilized to inform new and existing customers of additional renewable energy and how that information was utilized to determine the amount of renewable energy that is identified in the IRP.

**RESPONSE:**

Generally speaking, Duke Energy Kentucky is made aware of a customer's interest in renewable energy through our network of customer account managers, who work closely with an assigned group of our larger customers. Typically, although not exclusively, it is our larger, industrial customers who have historically expressed interest in increased options for renewable energy, primarily on account of specific, corporate sustainability goals or measures that they are seeking to achieve internally. This information is taken into consideration alongside other sources of data in identifying the proper amount of renewable energy to add to the portfolio.

**PERSON RESPONSIBLE:** Andrew Ritch

**STAFF-DR-01-002**

**REQUEST:**

Refer to the IRP, page 11, regarding Duke Kentucky's PJM Interconnect LLC's requirements.

a. Explain how the impact of PJM Capacity Performance (CP) requirements has affected Duke Kentucky's decision making with regard to operating in PJM under the fixed resource requirement (FRR) construct or under the reliability pricing model (RPM) construct.

b. Identify and explain any changes to the process Duke Kentucky underwent in deciding on whether to operate in PJM's CP under the FRR or RPM construct.

c. Provide any studies that Duke Kentucky has undertaken (or will undertake) since the CP requirements have been put in place to determine which construct would be most beneficial to its customers.

**RESPONSE:**

a. When PJM achieves full transition to the Capacity Performance construct on June 1, 2019, Duke Energy Kentucky will be subject to all performance aspects of CP. CP requirements do not specifically or materially impact the decision to remain an FRR Entity. During the CP transition period, FRR entities were relieved of CP performance requirements until PJM achieved full transition. This period of exemption as an FRR was beneficial and allowed Duke Energy Kentucky to plan for an construct dual fuel capability at Woodsdale, which it would not have been

able to accomplish as an full RPM entity. Going forward FRR entities also retain the ability to cure capacity performance assessments with physical capacity. Full RPM participants do not enjoy this option. Duke Energy Kentucky does however, anticipate that the contractual complications arising from CP penalty indemnification may have an adverse effect on Duke Energy Kentucky's ability to transact for capacity in the bilateral market. This lessening of liquidity could impact the ability to secure cost effective capacity if the need should arise.

b. Duke Energy Kentucky has maintained a similar process in evaluating whether to remain an FRR entity. As noted above, upon full transition, the CP requirements effective apply equally to FRR and RPM entities.

c. Duke Energy Kentucky did review potential options as part of the Woodsdale Dual Fuel decision process. Those efforts were described in the Woodsdale Dual Fuel Certificate of Public Convenience and Necessity proceeding.[1] No further studies have been done outside of the IRP planning process. Pending potential changes to the Reliability Pricing Model, Duke Energy Kentucky will further evaluate its status as an FRR entity, particularly if it anticipates the need to add additional generation to the portfolio.

**PERSON RESPONSIBLE:** John Verderame

[1] *In the Matter of the Application of Duke Energy Kentucky, Inc., for a Certificate of Public Convenience and Necessity for Construction of a Number 2 Distillate Fuel Oil System at the Company's Woodsdale Natural Gas-Fired Generating Station,* Case No. 2017-00186.

**STAFF-DR-01-003**

**REQUEST:**

Refer to the IRP, page 11, regarding the impacts of sharp increases in load. Identify all known projects that will increase Duke Kentucky's load including the amount of load and the time such load will occur. Consider this an on-going request throughout this proceeding.

**RESPONSE:**

The utility has been in discussion with companies that could bring new load to the service territory. The exact load amounts and timing have not been definitively determined.

**PERSON RESPONSIBLE:** Scott Park

**STAFF-DR-01-004**

**REQUEST:**

Refer to the IRP, page 15, Figure 2.2. Provide the amount of losses from 2013 through 2017 as a percentage and explain the fluctuation in the amount of losses each year during that period.

**RESPONSE:**

Please see STAFF-DR-01-004 Attachment.

This attachment calculates losses based on "unaccounted for energy", which is the difference between (1) the known calendar month available sources of energy, either generated or purchased, and (2) the estimated uses of energy which include calendar month sales of energy (determined by actual billed sales plus an estimate of unbilled sales for a month) and company use of energy. The calculation of the loss percentage is performed using a 12-month rolling average.

Since Duke Energy Kentucky's acquisition of its generating assets, there has always been a fluctuation in the loss percentages over any given period. While it is unable to pinpoint the exact reason for these variations, the Company believes that the variations in the loss percentages between 2013 and 2017 are likely due to a combination of the following technical and non-technical factors:

Technical losses include:

1. Heat dissipation resulting from current passing through resistance in conductors and magnetic losses in transformers, and

2. Varying load conditions.

Non-Technical losses include:

1. Power lines making contact with tree limbs,
2. Unmetered load,
3. Metering,
4. Billing corrections,
5. Theft and non-payment,
6. Meter read errors,
7. Estimation errors for accounting, and
8. Timing differences.

**PERSON RESPONSIBLE:** Scott Park
John Swez

Duke Energy Kentucky
12 Month Average Line Loss
November 2012 - October 2014

| (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|
| Month | Total kWh Sources 12 Months Ended Current Month | Total kWh System Losses 12 Months Ended Current Month | 12 Months End % Losses | Total kWh Sources Current Month | Current Month Calculates System Losses (kWh) |
| | | | (3) / (2) | | (4) x (5) |
| Nov-12 | 4,230,972,700 | 227,307,573 | 5.372470% | 321,973,720 | 17,297,942 |
| Dec-12 | 4,232,864,400 | 233,353,539 | 5.512900% | 349,666,830 | 19,276,783 |
| Jan-13 | 4,240,639,050 | 232,990,160 | 5.494220% | 375,254,140 | 20,617,288 |
| Feb-13 | 4,250,126,800 | 234,685,580 | 5.521850% | 338,095,200 | 18,669,110 |
| Mar-13 | 4,284,942,810 | 242,789,441 | 5.666110% | 354,203,460 | 20,069,558 |
| Apr-13 | 4,296,078,670 | 232,348,565 | 5.408390% | 299,812,550 | 16,215,032 |
| May-13 | 4,276,389,730 | 225,470,352 | 5.272450% | 336,910,380 | 17,763,431 |
| Jun-13 | 4,276,319,790 | 256,809,527 | 6.005390% | 381,314,830 | 22,899,443 |
| Jul-13 | 4,236,065,700 | 254,286,054 | 6.002880% | 417,415,620 | 25,056,959 |
| Aug-13 | 4,244,292,400 | 268,970,164 | 6.337220% | 421,815,490 | 26,731,376 |
| Sep-13 | 4,273,602,060 | 279,433,070 | 6.538580% | 363,964,180 | 23,798,089 |
| Oct-13 | 4,295,302,340 | 291,473,830 | 6.785870% | 334,875,940 | 22,724,246 |
| Nov-13 | 4,312,206,870 | 295,767,701 | 6.858850% | 338,878,250 | 23,243,151 |
| Dec-13 | 4,345,090,660 | 311,767,195 | 7.175160% | 382,550,620 | 27,448,619 |
| Jan-14 | 4,409,715,670 | 325,312,404 | 7.377170% | 439,879,150 | 32,450,633 |
| Feb-14 | 4,444,082,271 | 339,027,146 | 7.628730% | 372,461,801 | 28,414,105 |
| Mar-14 | 4,454,111,901 | 369,130,742 | 8.287420% | 364,233,090 | 30,185,526 |
| Apr-14 | 4,463,433,001 | 377,660,312 | 8.461210% | 309,133,650 | 26,156,447 |
| May-14 | 4,477,695,671 | 403,889,655 | 9.020030% | 351,173,050 | 31,675,914 |
| Jun-14 | 4,496,715,131 | 400,517,177 | 8.906880% | 400,334,290 | 35,657,295 |
| Jul-14 | 4,467,935,341 | 382,667,754 | 8.564760% | 388,635,830 | 33,285,726 |
| Aug-14 | 4,466,511,841 | 415,802,829 | 9.309340% | 420,391,990 | 39,135,720 |
| Sep-14 | 4,455,656,361 | 403,074,959 | 9.046370% | 353,108,700 | 31,943,520 |
| Oct-14 | 4,441,811,671 | 394,952,379 | 8.891700% | 321,031,250 | 28,545,136 |

Duke Energy Kentucky
12 Month Average Line Loss
November 2014 - October 2016

| (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|
| Month | Total kWh Sources 12 Months Ended Current Month | Total kWh System Losses 12 Months Ended Current Month | 12 Months End % Losses | Total kWh Sources Current Month | Current Month Calculated System Losses (kWh) |
| | | | (3) / (2) | | (4) x (5) |
| Nov-14 | 4,373,259,942 | 321,585,563 | 7.353450% | 341,287,320 | 25,096,392 |
| Dec-14 | 4,368,416,052 | 305,486,759 | 6.993080% | 370,835,150 | 25,932,799 |
| Jan-15 | 4,333,302,010 | 300,055,910 | 6.924420% | 396,547,940 | 27,458,645 |
| Feb-15 | 4,347,653,100 | 299,065,208 | 6.878770% | 380,281,370 | 26,158,681 |
| Mar-15 | 4,339,969,240 | 280,469,603 | 6.462480% | 350,998,490 | 22,683,207 |
| Apr-15 | 4,334,460,370 | 280,635,707 | 6.474520% | 297,496,570 | 19,261,475 |
| May-15 | 4,336,108,910 | 267,120,518 | 6.160370% | 345,523,470 | 21,285,524 |
| Jun-15 | 4,317,682,060 | 245,394,471 | 5.683480% | 374,127,010 | 21,263,434 |
| Jul-15 | 4,333,164,130 | 249,986,644 | 5.769150% | 401,963,500 | 23,189,877 |
| Aug-15 | 4,304,638,610 | 205,359,653 | 4.770660% | 385,066,380 | 18,370,208 |
| Sep-15 | 4,308,130,790 | 197,458,644 | 4.583390% | 349,625,940 | 16,024,720 |
| Oct-15 | 4,295,956,390 | 195,835,029 | 4.558590% | 302,203,250 | 13,776,207 |
| Nov-15 | 4,266,111,460 | 191,255,668 | 4.483140% | 311,442,390 | 13,962,398 |
| Dec-15 | 4,238,180,150 | 204,153,870 | 4.817020% | 342,903,840 | 16,517,747 |
| Jan-16 | 4,238,470,900 | 218,064,883 | 5.144900% | 396,838,690 | 20,416,954 |
| Feb-16 | 4,212,621,720 | 219,304,235 | 5.205880% | 354,432,190 | 18,451,314 |
| Mar-16 | 4,195,716,600 | 224,055,212 | 5.340090% | 334,093,370 | 17,840,887 |
| Apr-16 | 4,217,007,850 | 240,693,869 | 5.707690% | 318,787,820 | 18,195,421 |
| May-16 | 4,206,269,320 | 252,040,086 | 5.992010% | 334,784,940 | 20,060,347 |
| Jun-16 | 4,236,250,080 | 288,405,554 | 6.808040% | 404,107,770 | 27,511,819 |
| Jul-16 | 4,274,888,710 | 304,062,010 | 7.112750% | 440,602,130 | 31,338,928 |
| Aug-16 | 4,352,067,800 | 337,596,647 | 7.757160% | 462,245,470 | 35,857,121 |
| Sep-16 | 4,391,083,460 | 342,608,676 | 7.802370% | 388,641,600 | 30,323,256 |
| Oct-16 | 4,415,746,460 | 360,738,732 | 8.169370% | 326,866,250 | 26,702,913 |

Duke Energy Kentucky
12 Month Average Line Loss
November 2016 - October 2018

| (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|
| Month | Total kWh Sources 12 Months Ended Current Month | Total kWh System Losses 12 Months Ended Current Month | 12 Months End % Losses | Total kWh Sources Current Month | Current Month Calculated System Losses (kWh) |
| | | | (3) / (2) | | (4) x (5) |
| Nov-16 | 4,421,063,190 | 357,934,302 | 8.096110% | 316,418,540 | 25,617,593 |
| Dec-16 | 4,457,753,100 | 357,860,105 | 8.027810% | 379,593,750 | 30,473,065 |
| Jan-17 | 4,434,013,300 | 347,507,598 | 7.837320% | 373,098,890 | 29,240,954 |
| Feb-17 | 4,394,821,760 | 343,754,519 | 7.821810% | 315,240,650 | 24,657,525 |
| Mar-17 | 4,406,325,150 | 351,209,429 | 7.970570% | 345,596,760 | 27,546,032 |
| Apr-17 | 4,396,372,090 | 343,583,889 | 7.815170% | 308,834,760 | 24,135,962 |
| May-17 | 4,404,820,590 | 342,557,374 | 7.776870% | 343,233,440 | 26,692,818 |
| Jun-17 | 4,385,795,060 | 341,068,376 | 7.776660% | 385,082,240 | 29,946,537 |
| Jul-17 | 4,374,993,630 | 334,573,027 | 7.647390% | 429,800,700 | 32,868,536 |
| Aug-17 | 4,318,418,160 | 321,729,352 | 7.450170% | 405,670,000 | 30,223,105 |
| Sep-17 | 4,274,804,880 | 323,466,056 | 7.566800% | 345,028,320 | 26,107,603 |
| Oct-17 | 4,269,431,800 | 320,963,291 | 7.517710% | 321,833,750 | 24,194,528 |
| Nov-17 | 4,281,153,640 | 316,670,139 | 7.396840% | 328,140,380 | 24,272,019 |
| Dec-17 | 4,289,350,450 | 331,176,190 | 7.720890% | 387,790,560 | 29,940,883 |
| Jan-18 | 4,332,687,770 | 356,046,060 | 8.217670% | 416,436,210 | 34,221,353 |
| Feb-18 | 4,341,968,520 | 341,054,805 | 7.854840% | 324,521,400 | 25,490,637 |
| Mar-18 | 4,360,565,820 | 360,002,100 | 8.255860% | 364,194,060 | 30,067,352 |
| Apr-18 | 4,381,314,960 | 370,396,848 | 8.454010% | 329,583,900 | 27,863,056 |
| May-18 | 4,417,497,660 | 383,174,631 | 8.674020% | 379,416,140 | 32,910,632 |
| Jun-18 | 4,433,471,570 | 364,234,082 | 8.215550% | 401,056,150 | 32,948,969 |
| Jul-18 | 4,427,013,050 | 359,038,160 | 8.110170% | 423,342,180 | 34,333,770 |
| Aug-18 | 4,443,601,380 | 353,591,121 | 7.957310% | 422,258,330 | 33,600,404 |
| Sep-18 | 4,468,395,970 | 354,801,680 | 7.940250% | 369,822,910 | 29,364,864 |
| Oct-18 | 4,491,866,450 | 363,524,441 | 8.092950% | 345,304,230 | 27,945,299 |

**STAFF-DR-01-005**

**REQUEST:**

Refer to the IRP, page 15, Figure 2.3. Provide Duke Kentucky's all-time summer and winter peak demand and energy requirements.

**RESPONSE:**

- Summer Peak Demand: 895.1 MW on June 29, 2012, for hour-beginning 3 pm
- Winter Peak Demand: 859.7 MW on January 6, 2014, for hour-beginning 7 pm
- Energy Requirements Peak: 4,133,807 MWh in calendar year 2018

**PERSON RESPONSIBLE:** Scott Park

**STAFF-DR-01-006**

**REQUEST:**

Refer to the IRP, page 17, regarding the duel-fuel project at the Woodsdale Station. Provide an update of the progress of the project and its adherence to the proposed timelines of the project.

**RESPONSE:**

Project Update:

**Fuel Oil Tanks (Qty: 2)**

- Both tanks are complete and have been commissioned. Started unloading fuel oil into the new fuel oil tanks on 2/12/19 to support unit testing/commissioning activities.

**General Contract Work**

- Most mechanical/electrical BOP and units #1 and #2 systems are complete (95%).
- Piping and electrical to units #3-#6 is in progress and on schedule to support spring outages for fuel oil tie-in, testing and commissioning.
- Slightly behind schedule due to getting final engineering design later than expected, weather delays and contractor performance during construction. Original 12/21 date of having Units #1 and #2 available to run on fuel oil is now 3/15/19 for unit #1 and 4/15/19 for unit #2.

**Financial**

- Project is currently tracking to the $55.5M original budget.

High Level Schedule

| | Original CPCN | Actual/Current |
|---|---|---|
| CPCN Approval | By 4Q 2017 | December 2017 |
| Purchase Long Lead Material | 12/1/2017 | February 2018 |
| Obtain Air Permit Approval | 4/15/2017 | October 2017 |
| Construction Begins | 2/1/2018 | March 2018 |
| Final Engineering Design | 3/1/2018 | 6/30/2018 |
| Unit Outages | 4Q 2018 to 1Q 2019 | 1Q 2019 to 2Q 2019 |
| Unit #1 & #2 In Service Date | 12/15/2018 | 4/15/2019 |
| Construction Complete | 4/15/2019 | 5/1/2019 |
| Unit #3 - #6 In Service Date | 4/30/2019 | 5/24/2019 |

**PERSON RESPONSIBLE:** Troy Wilhelm

**REQUEST:**

Refer to the IRP, page 20. Explain how Duke Kentucky determined the planning reserve margin used in its IRP models.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment Only)**

Duke Energy Kentucky is required to calculate a planning reserve margin (PRM) annually based on PJM capacity planning inputs. These annnal PRMs have fluctuated between 12.1% and 14.5% between 2013 and 2018. While these numbers are calculated annually, for a longer-term planning process such as the Integrated Resource Plan, it makes sense to plan to a more consistent number rather than attempting to forecast fluctuating annual PRMs.

The PRM utilized for the 2014 IRP was 13.7%. Given that the running average over the past six years has remained very close to that 13.7% figure, it seems appropriate to maintain the same PRM going forward unless a clear trend appears indicating a higher or lower PRM should be utilized for long-term planning.

A summary of the 2013-2018 calculated PRMs are show below. Detailed calculations used to arrive at the annual PRM can be found in STAFF-DR-01-007 CONFIDENTIAL Attachment, which is being filed under the seal of a Petition for Confidential Treatment.

KY Case 387 Annual Load/Demand Forecast, STAFF-DR-01-007 Target Reserve Margin Calculations 2013-2018

| | | |
|---|---|---|
| 2013 | 13.7% | Utilized for 2014 IRP |
| 2014 | 12.1% | |
| 2015 | 13.8% | |
| 2016 | 13.1% | |
| 2017 | 14.5% | |
| 2018 | 14.2% | |
| Running Average | 13.6% | |

**PERSON RESPONSIBLE:** Scott Park
John Verderame

# KyPSC Case No. 2018-00195

# STAFF-DR-01-007

# CONFIDENTIAL

# ATTACHMENT

# IS BEING FILED UNDER THE

# SEAL OF A PETITION FOR

# CONFIDENTIAL

# TREATMENT

**STAFF-DR-01-008**

**REQUEST:**

Refer to the IRP, page 22, regarding fuel prices. Explain how Duke Kentucky develops its low-sulfur diesel fuel price forecasts.

**RESPONSE:**

The NYMEX heating oil NY Harbor curve is used in all jurisdictions (DEC/DEP/DEI/DEK/DEF) and goes out approximately six years (currently through 11/2025). Contracted transportation rates are than added to the market price to create a total delivered price and then converted to $/MMBtu.

These fuel oil costs are included in the Duke Energy Kentucky IRP models as a component of unit startup costs. The non-fuel portion of startup costs are inflated annually at 2.5% for the time horizon where a NYMEX forward curve exists and total startup cost, including fuel, is inflated at 2.5% for the years following the end of the NYMEX forward curve.

**PERSON RESPONSIBLE:** Scott Park

**STAFF-DR-01-009**

**REQUEST:**

Refer to the IRP, page 23, regarding forecasted capital costs.

a. Identify and explain the impacts the recently enacted tariffs on steel and aluminum have had on the metal products producer price indices.

b. Explain how the tariffs on steel and aluminum have impacted the assumptions and conclusions contained in its IRP.

**RESPONSE:**

The forecasts used in this IRP were developed prior to the enactment of the tariffs on steel and aluminum, and therefore the impacts of the tariffs are not reflected in the assumptions and conclusions of the IRP. However, because all new generation technologies would be affected to some extent, Duke Energy Kentucky does not believe that the tariffs lead to a material change in the conclusions of the IRP.

**PERSON RESPONSIBLE:** Scott Park

**PUBLIC STAFF-DR-01-010**

**REQUEST:**

Refer to the IRP, page 24, regarding capital cost. Identify and provide copies of the third-party capital cost-projections.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment Only)**

See STAFF-DR-01-010 Confidential Attachment which includes the projections for overnight capital cost (2018 $/kW based on winter capacity). This Attachment is being provided under seal of a Protective Order. These projections are based on input from three different third-parties (EIA, Burns & McDonnell, Navigant) and Duke's own experience.

**PERSON RESPONSIBLE:** Scott Park

*Real 2018 $/kW (winter capacity)*

| Year | F Frame CT | J Class CC | Reciprocating Engines | Ultra-Supercritical Pulverized Coal | IGCC | Nuclear | Onshore Wind | Solar PV | Battery Storage | CHP |
|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | [redacted] | | | | | | | | | |
| 2019 | | | | | | | | | | |
| 2020 | | | | | | | | | | |
| 2021 | | | | | | | | | | |
| 2022 | | | | | | | | | | |
| 2023 | | | | | | | | | | |
| 2024 | | | | | | | | | | |
| 2025 | | | | | | | | | | |
| 2026 | | | | | | | | | | |
| 2027 | | | | | | | | | | |
| 2028 | | | | | | | | | | |
| 2029 | | | | | | | | | | |
| 2030 | | | | | | | | | | |
| 2031 | | | | | | | | | | |
| 2032 | | | | | | | | | | |

**Duke Energy Kentucky**
**Case No. 2018-00195**
**STAFF First Set Data Requests**
**Date Received: January 28, 2019**

**STAFF-DR-01-011**

**REQUEST:**

Refer to the IRP, page 32, regarding the price of carbon emissions.

a. Explain how Duke Kentucky determined the $5/ton price for carbon emissions in 2025 and the $3/ton/year increase over the planning period.

b. Explain if Duke Kentucky made any changes in the methodology used to determine the price for carbon emissions since its 2014 IRP. If so, provide an explanation as to why these changes were made.

**RESPONSE:**

a. In the current legislative/regulatory environment it is very difficult to project what a carbon-constrained future will look like. Duke developed internally the cost of carbon emissions required to achieve a 40% reduction by 2030 (from a 2005 baseline), a 50% reduction by 2040, and a 60% reduction by 2050 across the regulated enterprise (Indiana, Kentucky, Florida, North Carolina and South Carolina). The resulting CO2 price was $5/ton starting in 2025, increasing at $3/ton each year thereafter. This price falls between the expected cost of allowances under the Clean Power Plan (low end) and past proposed Waxman/Markey legislation (high end).

b. The method used to determine carbon price in the 2014 IRP was based on the rules set forth under the proposed Clean Power Plan. Since that plan was abandoned, Duke Energy Kentucky has transitioned to a methodology based on a carbon tax,

which is the method of carbon regulation on which current policy recommendations are focused.

**PERSON RESPONSIBLE:** Scott Park

**PUBLIC STAFF-DR-01-012**
**(As to Attachment Only)**

**REQUEST:**

Refer to the IRP, page 42. Provide the cost of coal and gas utilized in the Duke Kentucky's modeling and the low and high gas and coal price and explain how they were determined.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment Only)**

The base case (Business as Usual) fuel price forecasts used in the IRP are a blend of market pricing (early years) and fundamentals-based forecasts provided by IHS Markit (later years). The alternative (high and low) cases were developed using alternative cases from the EIA's Annual Energy Outlook (AEO) for 2018. The difference, in percentage terms, between the gas and coal price forecasts for the AEO Reference Case and the "High Oil and Gas Resource and Technology" and "Low Oil and Gas Resource and Technology" cases was applied to the Duke base case to calculate the high and low price cases. The resulting price forecasts are shown in IRP Figure 4.5 and Figure 4.6. The monthly forecast used in the modeling are shown in STAFF-DR-01-012 Confidential Attachment. This Attachment is being provided under seal of a Protective Order.

**PERSON RESPONSIBLE:** Scott Park

| Fuel Price Forecasts Used in 2018 IRP Modeling ($/MMBtu) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gas Price Forecast | | | Coal Price Forecast | | | | Gas Price Forecast | | | Coal Price Forecast | | | | Gas Price Forecast | | | Coal Price Forecast | | |
| Month | BAU Case | Low Case | High Case | BAU Case | Low Case | High Case | Month | BAU Case | Low Case | High Case | BAU Case | Low Case | High Case | Month | BAU Case | Low Case | High Case | BAU Case | Low Case | High Case |
| Jan-18 | | | | | | | Jan-23 | | | | | | | Jan-28 | | | | | | |
| Feb-18 | | | | | | | Feb-23 | | | | | | | Feb-28 | | | | | | |
| Mar-18 | | | | | | | Mar-23 | | | | | | | Mar-28 | | | | | | |
| Apr-18 | | | | | | | Apr-23 | | | | | | | Apr-28 | | | | | | |
| May-18 | | | | | | | May-23 | | | | | | | May-28 | | | | | | |
| Jun-18 | | | | | | | Jun-23 | | | | | | | Jun-28 | | | | | | |
| Jul-18 | | | | | | | Jul-23 | | | | | | | Jul-28 | | | | | | |
| Aug-18 | | | | | | | Aug-23 | | | | | | | Aug-28 | | | | | | |
| Sep-18 | | | | | | | Sep-23 | | | | | | | Sep-28 | | | | | | |
| Oct-18 | | | | | | | Oct-23 | | | | | | | Oct-28 | | | | | | |
| Nov-18 | | | | | | | Nov-23 | | | | | | | Nov-28 | | | | | | |
| Dec-18 | | | | | | | Dec-23 | | | | | | | Dec-28 | | | | | | |
| Jan-19 | | | | | | | Jan-24 | | | | | | | Jan-29 | | | | | | |
| Feb-19 | | | | | | | Feb-24 | | | | | | | Feb-29 | | | | | | |
| Mar-19 | | | | | | | Mar-24 | | | | | | | Mar-29 | | | | | | |
| Apr-19 | | | | | | | Apr-24 | | | | | | | Apr-29 | | | | | | |
| May-19 | | | | | | | May-24 | | | | | | | May-29 | | | | | | |
| Jun-19 | | | | | | | Jun-24 | | | | | | | Jun-29 | | | | | | |
| Jul-19 | | | | | | | Jul-24 | | | | | | | Jul-29 | | | | | | |
| Aug-19 | | | | | | | Aug-24 | | | | | | | Aug-29 | | | | | | |
| Sep-19 | | | | | | | Sep-24 | | | | | | | Sep-29 | | | | | | |
| Oct-19 | | | | | | | Oct-24 | | | | | | | Oct-29 | | | | | | |
| Nov-19 | | | | | | | Nov-24 | | | | | | | Nov-29 | | | | | | |
| Dec-19 | | | | | | | Dec-24 | | | | | | | Dec-29 | | | | | | |
| Jan-20 | | | | | | | Jan-25 | | | | | | | Jan-30 | | | | | | |
| Feb-20 | | | | | | | Feb-25 | | | | | | | Feb-30 | | | | | | |
| Mar-20 | | | | | | | Mar-25 | | | | | | | Mar-30 | | | | | | |
| Apr-20 | | | | | | | Apr-25 | | | | | | | Apr-30 | | | | | | |
| May-20 | | | | | | | May-25 | | | | | | | May-30 | | | | | | |
| Jun-20 | | | | | | | Jun-25 | | | | | | | Jun-30 | | | | | | |
| Jul-20 | | | | | | | Jul-25 | | | | | | | Jul-30 | | | | | | |
| Aug-20 | | | | | | | Aug-25 | | | | | | | Aug-30 | | | | | | |
| Sep-20 | | | | | | | Sep-25 | | | | | | | Sep-30 | | | | | | |
| Oct-20 | | | | | | | Oct-25 | | | | | | | Oct-30 | | | | | | |
| Nov-20 | | | | | | | Nov-25 | | | | | | | Nov-30 | | | | | | |
| Dec-20 | | | | | | | Dec-25 | | | | | | | Dec-30 | | | | | | |
| Jan-21 | | | | | | | Jan-26 | | | | | | | Jan-31 | | | | | | |
| Feb-21 | | | | | | | Feb-26 | | | | | | | Feb-31 | | | | | | |
| Mar-21 | | | | | | | Mar-26 | | | | | | | Mar-31 | | | | | | |
| Apr-21 | | | | | | | Apr-26 | | | | | | | Apr-31 | | | | | | |
| May-21 | | | | | | | May-26 | | | | | | | May-31 | | | | | | |
| Jun-21 | | | | | | | Jun-26 | | | | | | | Jun-31 | | | | | | |
| Jul-21 | | | | | | | Jul-26 | | | | | | | Jul-31 | | | | | | |
| Aug-21 | | | | | | | Aug-26 | | | | | | | Aug-31 | | | | | | |
| Sep-21 | | | | | | | Sep-26 | | | | | | | Sep-31 | | | | | | |
| Oct-21 | | | | | | | Oct-26 | | | | | | | Oct-31 | | | | | | |
| Nov-21 | | | | | | | Nov-26 | | | | | | | Nov-31 | | | | | | |
| Dec-21 | | | | | | | Dec-26 | | | | | | | Dec-31 | | | | | | |
| Jan-22 | | | | | | | Jan-27 | | | | | | | Jan-32 | | | | | | |
| Feb-22 | | | | | | | Feb-27 | | | | | | | Feb-32 | | | | | | |
| Mar-22 | | | | | | | Mar-27 | | | | | | | Mar-32 | | | | | | |
| Apr-22 | | | | | | | Apr-27 | | | | | | | Apr-32 | | | | | | |
| May-22 | | | | | | | May-27 | | | | | | | May-32 | | | | | | |
| Jun-22 | | | | | | | Jun-27 | | | | | | | Jun-32 | | | | | | |
| Jul-22 | | | | | | | Jul-27 | | | | | | | Jul-32 | | | | | | |
| Aug-22 | | | | | | | Aug-27 | | | | | | | Aug-32 | | | | | | |
| Sep-22 | | | | | | | Sep-27 | | | | | | | Sep-32 | | | | | | |
| Oct-22 | | | | | | | Oct-27 | | | | | | | Oct-32 | | | | | | |
| Nov-22 | | | | | | | Nov-27 | | | | | | | Nov-32 | | | | | | |
| Dec-22 | | | | | | | Dec-27 | | | | | | | Dec-32 | | | | | | |

**STAFF-DR-01-013**

**REQUEST:**

Refer to the IRP, page 51, Table 5.4. Explain the large decrease in coal-fired generation from 2017 to 2018.

**RESPONSE:**

The decrease in coal-fired generation in chart A.4 is due to an extended outage of East Bend Unit 2 during the spring of 2018. The loss of coal-fired generation during this period was made up through purchases from the PJM market.

**PERSON RESPONSIBLE:** Scott Park

**STAFF-DR-01-014**

**REQUEST:**

Refer to the IRP, page 55. Identify and explain how the heating and cooling thresholds were determined.

**RESPONSE:**

Duke Energy Kentucky typically implements a 59-degree threshold for heating degree days and a 65-degree threshold for cooling degree days; in some rare instances, a second base of 45-degrees was used for heating, with the goal of measuring more accurately the impacts of very cold weather on energy demand. One method for selecting these was visual inspection of scatter plots showing how energy usage relates to temperature. A second method involves model performance.

**PERSON RESPONSIBLE:** Scott Park
Benjamin Passty

**STAFF-DR-01-015**

**REQUEST:**

Refer to the IRP, page 57. Confirm if the period used for Duke Kentucky's forecasted population is indeed 2014 to 2034.

**RESPONSE:**

Correct.

**PERSON RESPONSIBLE:** Scott Park

**STAFF-DR-01-016**

**REQUEST:**

Refer to the IRP, page 62, Table 8.2. Provide an update to the table reflecting all the data for winter 2017 and 2018 to date. Consider this an on-going request throughout this proceeding.

**RESPONSE:**

The final recorded peak for winter 2017 was 797 MW, which translates to 793 MW on a weather normalized basis. 2018 data are not yet available.

**PERSON RESPONSIBLE:** Scott Park

**Duke Energy Kentucky**
**Case No. 2018-00195**
**STAFF First Set Data Requests**
**Date Received: January 28, 2019**

**STAFF-DR-01-017**

**REQUEST:**

Refer to the IRP, page 95. Explain if any of Duke Kentucky customers indicated an interest in a Combined Heat and Power project since the filing of the IRP.

**RESPONSE:**

Duke Energy is not aware of any Duke Energy Kentucky customers interested in Combined Heat and Power at this time.

**PERSON RESPONSIBLE:** Zachary Kuznar

**STAFF-DR-01-018**

**REQUEST:**

Refer to the IRP, Appendix C, page 75.

a. Explain what impact the EPA's recent action on December 27, 2018, when it issued a proposed revised Supplemental Cost Finding for the Mercury and Air Toxics Standard Rule and the Clean Air Act had on Duke Kentucky's environmental compliance activities.

b. Provide a listing of the dates when the Miami 6 emission allowances expire.

c. Explain any changes to emission allowances since Duke Kentucky's last IRP.

**RESPONSE:**

a. EPA's proposed rule will not affect Duke Energy Kentucky's compliance activities. EPA is not proposing to remove coal- and oil-fired EGUs as a source category to be regulated under the Clean Air Act Section 112. Therefore, the regulatory standards and compliance activities currently in place under MATS will remain in effect.

b. We will receive CSAPR allowances for Miami 6 through 2020. Beginning in 2021, we will no longer receive these allowances.

c. The 2014 DEK IRP filing references Title IV allowances (Acid Rain) that were surrendered under the CAIR and ARP programs. These allowances were allocated based on Duke Energy Kentucky's ownership share of East Bend Unit 2. With the purchase of Dayton Power & Light's 31% share of East Bend 2, Duke Energy

Kentucky began receiving all allocations as determined by EPA for East Bend 2. CAIR was replaced with CSAPR in 2015 and Duke Energy Kentucky receives 100% of the allocated allowances for East Bend 2.

**PERSON RESPONSIBLE:** Michael Geers

**STAFF-DR-01-019**

**REQUEST:**

Refer to the IRP, Appendix E, page 93.

a. Discuss whether Duke Kentucky utilized a period other than a thirty-year weather normalization period.

b. Identify any of Duke Kentucky's affiliates that utilized a period other than a thirty-year weather normalization period.

c. Explain any alternative weather normalization period utilized by Duke Kentucky affiliates above and discuss how it compares to a thirty-year weather normalization period.

**RESPONSE:**

a. Duke Energy Kentucky only used thirty-year weather normalization for projections contained in the 2018 IRP.

b. The Company is aware of any affiliates who use a period other than thirty years.

c. Not applicable. While more recent years tend to be warmer, using a smaller number of years--such as ten years--also means that there is more volatility in the measurements. The winter forecasts for a ten-year normalization period would be unduly affected by the extreme winters in 2014 and 2015, for example. Duke Energy Kentucky hasn't performed any calculations at the level of detail that would be necessary to perform a load forecast.

**PERSON RESPONSIBLE:** Benjamin Passty