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Rocco O. D'Ascenzo
Associate General Counsel

VIA OVERNIGHT DELIVERY

October 31, 2014

Mr. Jeff Derouen
Executive Director
Kentucky Public Service Commission
211 Sower Blvd
Frankfort, KY 40601

Re: Case No. 2014-273
In the Matter of 2014 Joint Integrated Resource Plan of Duke Energy Kentucky, Inc.

Dear Mr. Derouen:

Enclosed please find an original and twelve copies of Duke Energy Kentucky's responses to Staff's Second Request for Information. Please date-stamp the extra 2 copies of the filing and return to me in the enclosed overnight envelope.

Sincerely,

Rocco D'Ascenzo
Associate General Counsel

cc: Jennifer Hans

VERIFICATION

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

The undersigned, Leon Brunson, Lead Load Forecasting Analyst, 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.

Leon Brunson

Leon Brunson, Affiant

Subscribed and sworn to before me by Leon Brunson on this 22 day of October, 2014.

Sheila Lemoine

NOTARY PUBLIC

My Commission Expires:

Sheila Lemoine
Notary Public
Mecklenburg County
North Carolina
My Commission Expires 7/2/2019

VERIFICATION

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

The undersigned, Jeffrey E. Gindling, Principal Engineer, 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.

Jeffrey E. Gindling, Affiant

Subscribed and sworn to before me by Jeffrey E. Gindling on this 28TH day of October, 2014.

NOTARY PUBLIC

ADELE M. FRISCH
Notary Public, State of Ohio
My Commission Expires 01-05-2019

My Commission Expires: 1/5/2019

VERIFICATION

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

The undersigned, Thomas Wiles, Director Analytics, 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.

Thomas Wiles, Affiant

Subscribed and sworn to before me by Thomas Wiles on this 21st day of October, 2014.

NOTARY PUBLIC

ADELE M. FRISCH
Notary Public, State of Ohio
My Commission Expires 01-05-2019

My Commission Expires: 1/5/2019

VERIFICATION

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

The undersigned, Trisha Haemmerle, Strategy & Collaboration Manager, being duly sworn, deposes and says that she 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 her knowledge, information and belief.

Trisha Haemmerle, Affiant

Subscribed and sworn to before me by Trisha Haemmerle on this 21st day of October, 2014.

NOTARY PUBLIC

ADELE M. FRISCH
Notary Public, State of Ohio
My Commission Expires 01-05-2019

My Commission Expires: 1/5/2019

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Duke Energy Kentucky
Case No. 2014-00273
Staff Second Set Data Requests
Date Received: October 17, 2014

STAFF-DR-02-001

REQUEST:

Refer to the response to Item 6.a. of Staff's First Request for Information ("Staff's First Request"). Identify and explain whether Table 4-A of the 2014 Integrated Resource Plan ("IRP") or the table listed in the response is a better indicator of demand-side management/energy-efficiency ("DSM/EE") program impacts.

RESPONSE:

The response to data request 6a provided a projection of peak load impacts assuming a constant hour of the peak for each of the programs. This hour is consistent with the expected peak hour for the system peak. However, when one aggregates all of the individual program impacts together, the hour for the system peak (after reduction for energy efficiency impacts) can and will change. Table 4-A in the IRP provides the best estimate of the aggregate energy efficiency impacts on the peak load. The impacts provided in response to data request 6a provides the best estimate if one wants to know the impact of an individual program.

PERSON RESPONSIBLE: Tom Wiles

Duke Energy Kentucky
Case No. 2014-00273
Staff Second Set Data Requests
Date Received: October 17, 2014

STAFF-DR-02-002

REQUEST:

Refer to the response to Item 12 of Staff's First Request

a. Provide a detailed description of the rank-sort procedure that was used to generate a projection of peak weather.

b. Explain why the manner in which the peaks were generated for the 2014 IRP was changed from the way peaks were generated for Duke Kentucky's 2011 IRP.

c. Provide the peaks that would have resulted if the 90-10 process used in the 2011 IRP had been used in the 2014 IRP.

RESPONSE:

a. The rank-sort procedure is the process that Duke Kentucky adopted to forecast peaks shortly after implementing the Itron statistically end-use modeling method (SAE). Duke Kentucky's adoption of this method was driven by its objective to improve the accuracy of its peak forecasts.

The first step of rank-sort procedure is the calculation of a simple average of degree days ("DD's") (i.e. HDD or CDD) values for a designated period (i.e. for the month) using the 10 year history. Once the 10-year DD average or normals for the designated periods are calculated, DD normals are ranked by value.

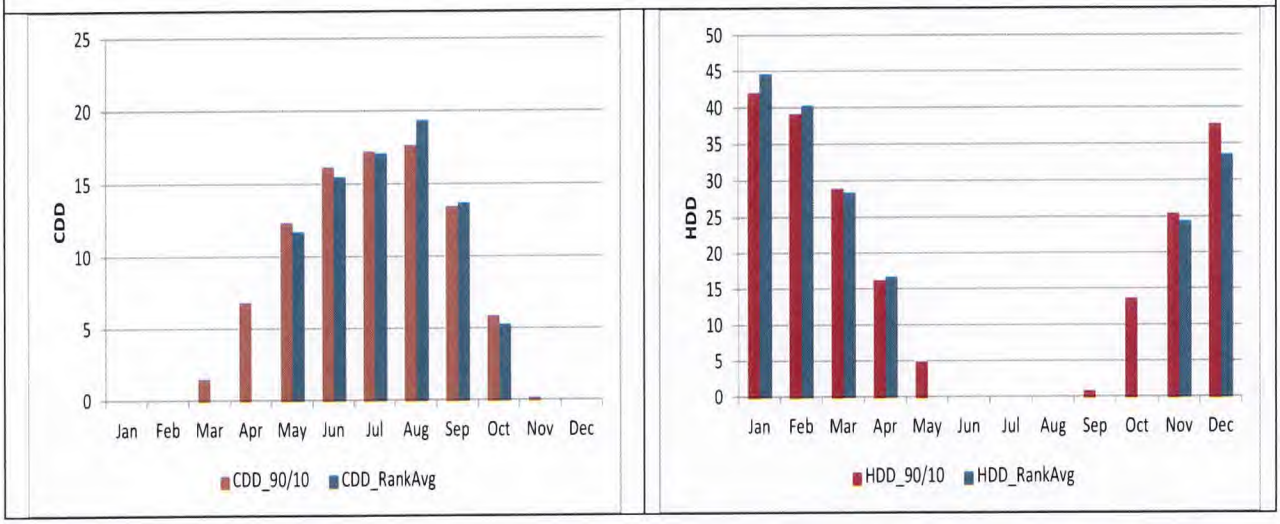
The second step is to sort the DD's in the designated periods from highest to lowest for each of the ten year periods. Once sorted, the 10-year average of each sorted level is calculated. This generates a sorted 10-year normal for the highest level; a sorted 10-year

normal for the 2nd highest level; and so on for the remaining levels (i.e. hours in the month). The highest level is then mapped to the highest ranking simple average determined in Step 1; the second highest level is mapped to the 2nd highest ranking in Step 1; and so on. The result of this mapping generates a 10-year rank-sort curve.

b. Generating peak forecasts utilizing the 90/10 method, which entails using multiple years of daily weather and averaging the maximum values for a given date across years, can lead to an over-estimation or under-estimation of peaks due to the simple averaging process. The rank-sort procedure is not negatively affected by positive or negative outliers, effectively minimizing the risk of these errors occurring when generating the peak forecast.

c. A comparison of the cooling degree days (CDD) and heating degree days (HDD) derived from the two methods provides a preliminary illustration of the impact switching to the daily weather normalization method had on peaks. As the charts below demonstrate, the rank-sort procedure, generates a January HDD value that is 5.8% higher than the 90/10 method used in the monthly normalization method. The rank-sort procedure also generates an August CDD value that is 9.4% higher than the 90/10 method used in the monthly normalization method.

Weather Normalization (WN) Process Comparison:
Daily WN Process (incl. Rank-Sort Method), vs. Monthly WN Process (incl. 90/10 Method)



Assuming everything else remains constant, the higher CDD and HDD generated in the peak winter and summer months using the rank-sort process results in summer and winter peaks that are approximately 3.0% and 1.4% higher than summer and winter 90/10 peaks (see table below).

	Rank_Sort		90/10		RS vs 90/10	
	Winter	Summer	Winter	Summer	Winter	Summer
2015	717	899	707	873	1.4%	3.0%
2016	731	912	721	885	1.4%	3.0%
2017	738	920	727	893	1.4%	3.0%
2018	744	928	734	900	1.4%	3.0%
2019	751	936	741	908	1.4%	3.0%
2020	754	943	744	915	1.4%	3.0%
2021	755	949	744	921	1.4%	3.0%
2022	759	956	748	928	1.4%	3.0%
2023	763	963	753	935	1.4%	3.0%
2024	769	972	759	943	1.4%	3.0%
2025	772	978	762	950	1.4%	3.0%
2026	777	986	767	957	1.3%	3.0%
2027	784	996	773	967	1.3%	3.0%
2028	792	1007	782	978	1.3%	3.0%
2029	797	1016	787	986	1.3%	3.0%
2030	804	1025	793	995	1.3%	3.0%
2031	811	1036	801	1005	1.3%	3.0%
2032	821	1047	811	1017	1.3%	3.0%
2033	828	1058	818	1027	1.3%	3.0%
2034	835	1068	825	1036	1.3%	3.0%

PERSON RESPONSIBLE: Leon Brunson

Duke Energy Kentucky
Case No. 2014-00273
Staff Second Set Data Requests
Date Received: October 17, 2014

STAFF-DR-02-003

REQUEST:

Refer to the response to Item 14 of Staff's First Request

a. Identify the primary weather source Duke Kentucky used before it began using the National Oceanic and Atmospheric Administration as its primary source approximately 15 years ago.

b. Identify the length of the normalization period Duke Kentucky used before it began using a 10-year normalization period approximately seven years ago.

RESPONSE:

a. Investigating historical records indicates that NOAA was used even prior to the 15 year period previously supplied.

b. Prior to using a 10-year weather normalization period, Duke Kentucky used a 30-year weather normalization period.

PERSON RESPONSIBLE: Leon Brunson

Duke Energy Kentucky
Case No. 2014-00273
Staff Second Set Data Requests
Date Received: October 17, 2014

STAFF-DR-02-004

REQUEST:

Refer to the response to Item 18 of Staff's First Request.

a. Provide the average line-loss percentage for each of the first three calendar quarters of 2014.

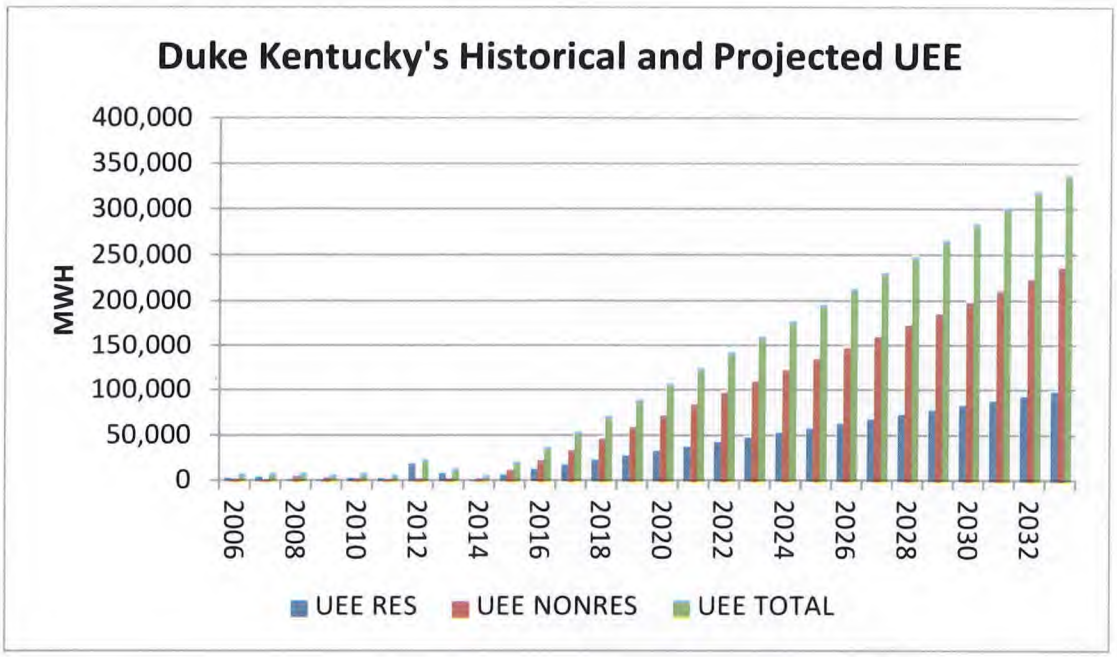
b. Explain in detail what is meant by "the large amount of mandated UEE that did not exist in the previous IRP."

RESPONSE:

a.

Duke Kentucky Average 2014 Line-Loss Percentage YTD		
Q1	Q2	Q3
8.6%	9.3%	8.0%

b. The projected level of Utility energy efficiency (UEE) mandated for the most recent forecast is significant compared to the level seen in previous years. To demonstrate, below is a chart of Duke Kentucky's projected UEE for the Spring 2014 forecast, along with Duke Kentucky's historical UEE values reported to the EIA. To incorporate this level of projected UEE into the IRP forecast, manual adjustments had to be made outside of the normal forecast modeling process in order to accommodate the UEE projection (see chart below).



PERSON RESPONSIBLE: Leon Brunson

Duke Energy Kentucky
Case No. 2014-00273
Staff Second Set Data Requests
Date Received: October 17, 2014

STAFF-DR-02-005

REQUEST:

Refer to the response to Item 19 of Staff's First Request. Describe what consideration has been given, if any, to lowering the thresholds in Duke Kentucky's economic development rider in order to attract industrial customers.

RESPONSE:

Lowering the thresholds of Duke Kentucky's economic development rider for the purpose of attracting industrial customers was not considered as an assumption in this forecast.

PERSON RESPONSIBLE: Leon Brunson

Duke Energy Kentucky
Case No. 2014-00273
Staff Second Set Data Requests
Date Received: October 17, 2014

STAFF-DR-02-006

REQUEST:

Refer to the response to Item 28 of Staff's First Request. Provide Duke Kentucky's total transmission demand losses at the time of its 2014 system peak.

RESPONSE:

2014 Demand Losses are not available at this time. To calculate this we would use a load flow with 2014 Summer actual peak loads updated into our planning model. Typically this would be available by mid-December.

PERSON RESPONSIBLE: Jeff Gindling

Duke Energy Kentucky
Case No. 2014-00273
Staff Second Set Data Requests
Date Received: October 17, 2014

STAFF-DR-02-007

REQUEST:

Refer to Case No. 2014-00280[1] in which Duke Kentucky seeks approval to amend its DSM/EE portfolio to expand the scope of several residential programs and create a new non-residential program. Explain whether the proposed expansion of the DSM/EE portfolio is reflected in the DSM/EE impacts identified in the IRP.

RESPONSE:

Due to the timing of the analysis required to create the 2014 IRP, the assumed DSM/EE impacts included in the IRP did not include the new measures that were included in the referenced filing.

PERSON RESPONSIBLE: Trisha Haemmerle

[1] Case No. 2014-00280, Application of Duke Energy Kentucky, Inc. to Amend Its Demand-Side Management Programs (filed Aug. 15, 2014).