

**Administrative Case No. 387**  
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**Duke Energy Kentucky  
Administrative Case No. 387  
March 31, 2021**

**STAFF-DR-01-003**

**REQUEST:**

Actual and weather-normalized monthly coincident peak demands for the just completed calendar year. Demands should be disaggregated into (a) native load demand (firm and non-firm) and (b) off-system demand (firm and non-firm).

**RESPONSE:**

<b>Duke Energy Kentucky Electric Energy Demands - MW</b>				
	<b>Native Peak</b>	<b>Internal*</b> <b>Peak</b>	<b>Weather Normal Internal Peak</b>	<b>Total</b>
Jan-20	656	656	737	737
Feb-20	672	672	641	641
Mar-20	541	541	527	527
Apr-20	481	481	420	420
May-20	667	667	634	634
Jun-20	739	739	681	681
Jul-20	809	809	797	797
Aug-20	799	799	789	789
Sep-20	741	741	687	687
Oct-20	520	520	443	443
Nov-20	566	566	553	553
Dec-20	602	602	634	634

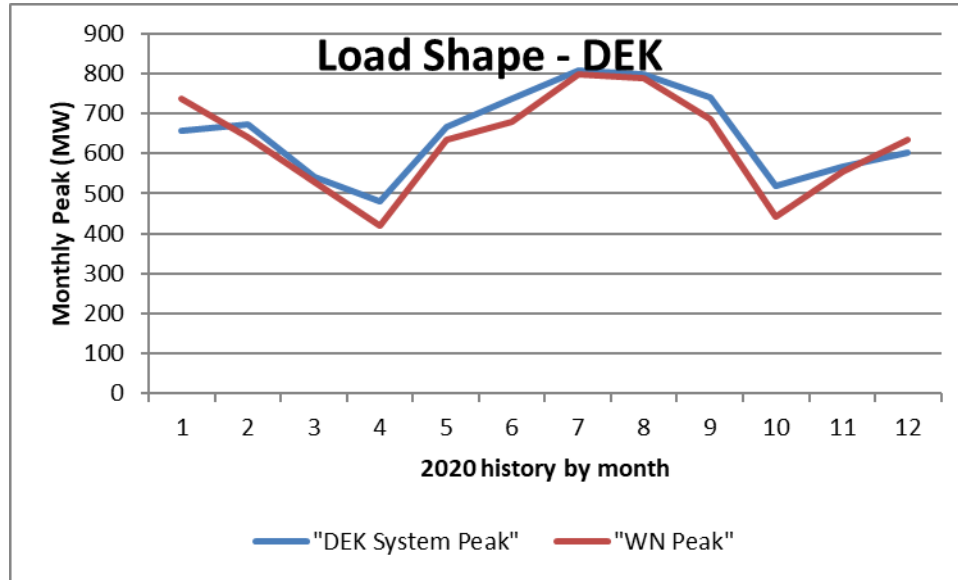
\*Please note that reported figures do not include any demand response measures; data for these is not available as of this writing.

**PERSON RESPONSIBLE:** Benjamin Passty

**REQUEST:**

Load shape curves that show actual peak demands and weather-normalized peak demands (native load demand and total demand) on a monthly basis for the just completed calendar year.

**RESPONSE:**



**PERSON RESPONSIBLE:** Benjamin Passty

**REQUEST:**

Based on the most recent demand forecast, the base case demand and energy forecasts and high case demand and energy forecasts and high case demand and energy forecasts for the current year and the following four years. The information should be disaggregated into (a) native load (firm and non-firm demand) and (b) off-system load (both firm and non-firm demand).

**RESPONSE:**

<b>Duke Energy Kentucky – Native Load Forecast</b>				
	<b>Demand – MW</b>		<b>Energy - GWH</b>	
	<b>Base</b>	<b>High</b>	<b>Base</b>	<b>High</b>
<b>2021</b>	<b>814</b>	<b>896</b>	<b>3,975</b>	<b>4,354</b>
<b>2022</b>	<b>822</b>	<b>904</b>	<b>4,034</b>	<b>4,419</b>
<b>2023</b>	<b>835</b>	<b>919</b>	<b>4,109</b>	<b>4,502</b>
<b>2024</b>	<b>839</b>	<b>924</b>	<b>4,123</b>	<b>4,516</b>
<b>2025</b>	<b>850</b>	<b>936</b>	<b>4,191</b>	<b>4,591</b>

<b>Duke Energy Kentucky – Non-Firm Electric Forecast</b>				
	<b>Demand – MW</b>		<b>Energy - MWH</b>	
	<b>Base</b>	<b>High</b>	<b>Base</b>	<b>High</b>
<b>2018</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>2019</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>2020</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>2021</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>2022</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>

**PERSON RESPONSIBLE:** Benjamin Passty

**REQUEST:**

The target reserve margin currently used for planning purposes, stated as a percentage of demand. If changed from what was in use in 2001, include a detailed explanation for the change.

**RESPONSE:**

In order to better align our internal planning process with that of PJM we are contemplating the use of the UCAP methodology for the 2021 Duke Energy Kentucky IRP. This will reflect the capacity accreditation that PJM uses for different types of resources. And given the potential for significant change in the generation fleet over the long term, there are benefits to adopting the UCAP methodology that PJM uses.

This will require Duke Energy Kentucky to forecast the Planning Reserve Margin over the long term. Historically, the metric has varied between 8%-9% and at a high level is consistent with the 13.7% ICAP reserve margin that we have used in previous IRPs.

This change is not expected to result in a significant change in the resource plan over the next 5-10 years.

**PERSON RESPONSIBLE:** Scott Park

**REQUEST:**

Projected reserve margins stated in megawatts and as a percentage of demand for the current year and the following 4 years. Identify projected deficits and current plans for addressing these. For each year identify the level of firm capacity purchases projected to meet native load demand.

**RESPONSE:**

Projected reserve margins are calculated as follows:

$$\text{Reserve Margin (MW)} = \text{Generating Capacity} - \text{Peak Demand} - \text{Demand Response}$$

$$\text{Reserve Margin (\%)} = (\text{Generating Capacity} / (\text{Peak Demand} - \text{Demand Response})) - 1$$

Year	Projected Reserves (MW)	Projected Reserve Margin (%)
2021	273	34%
2022	263	32%
2023	247	29%
2024	247	29%
2025	244	29%

This data reflects the Fall 2020 Load Forecast and addition of 7 MW of solar to the Duke Energy Kentucky generating fleet. The current fleet consists of the 600 MW East Bend 2 and 476 MW Woodsdale generating stations plus 7 MW solar.

Relative to the 2020 filing, projected reserves and reserve margins have increased due to the reduction in the load forecast due to the COVID pandemic.

**PERSON RESPONSIBLE:** Scott Park

**REQUEST:**

A list that identifies scheduled outages or retirements of generating capacity during the current year and the following four years.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

<b>Unit Name</b>	<b>Year</b>	<b>Duration (Weeks)</b>
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
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**PERSON RESPONSIBLE:** Brad Daniel

**REQUEST:**

Identify all planned base load or peaking capacity additions to meet native load requirements over the next 10 years. Show the expected in-service date, size and site for all planned additions. Include additions planned by the utility, as well as those by affiliates, if constructed in Kentucky or intended to meet load in Kentucky.

**RESPONSE:**

There are currently no planned base load capacity additions forecasted for the next 10 years. Duke Energy Kentucky continually evaluates its needs for additional base or peaking capacity based upon annual load projections. No decision has been made at this time. The 2021 Duke Energy Kentucky IRP will be submitted by June 21, 2021.

**PERSON RESPONSIBLE:** Scott Park

**REQUEST:**

The following transmission energy data for the just completed calendar year and the forecast for the current year and the following four years:

- a. Total energy received from all interconnections and generation sources connected to the transmission system.
- b. Total energy delivered to all interconnections on the transmission system.
- c. Peak load capacity of the transmission system.
- d. Peak demand for summer and winter seasons on the transmission system.

**RESPONSE:**

a.

Year	Month	Total Energy Received
2020	January	366,250
	February	352,384
	March	319,480
	April	271,903
	May	299,508
	June	370,835
	July	442,659
	August	401,135
	September	338,665
	October	301,791
	November	300,281
	December	360,855
2020 Total		4,125,747

- b. There were 225,809 MWh delivered to the transmission system from Duke Energy Kentucky.
- c. Neither Duke Energy Kentucky nor the electric utility industry has defined a term “peak load capacity of the transmission system.” There is no single number that defines the capacity of a transmission system due to the interconnected nature of the electric grid. Duke Energy Kentucky does perform assessments of its transmission system to ensure all firm loads can be served in a reliable manner. This ensures that the transmission system has the capacity required to reliably serve the load.

d. **SUMMER PEAK**

<b>Date</b>	<b>Hour</b>	<b>MW's</b>
July 20, 2020	16	809

**WINTER PEAK**

<b>Date</b>	<b>Hour</b>	<b>MW's</b>
February 14, 2020	9	672

**PERSON RESPONSIBLE:** Maida Session – a., b., d.  
 Tim Hohenstatt – c.

**REQUEST:**

Identify all planned transmission capacity additions for the next 10 years. Include the expected in-service date, size and site for all planned additions and identify the transmission need each addition is intended to address.

**RESPONSE:**

The following transmission capacity additions are planned with planned in-service dates indicated:

- Woodspoint to Aero 138 kV line – erect a single circuit 138 kV line from Woodspoint Substation to Aero Substation, approximately 1.5 miles in length. Planned in-service Date: 6/1/2021
- Hebron to Oakbrook 69 kV line – erect a single circuit 69 kV line from Hebron Substation to the vicinity of St. Route 237 and Northside Drive, approximately 1.1 miles in length. Rebuild/upgrade the capacity of a section of an existing 69 kV line from Limaburg Substation south to St. Route 18, approximately 1.4 miles in length. Planned in-service Date: 06/01/2025.

The purpose of the above planned projects is to provide service to the Duke Energy Kentucky transmission and distribution systems to serve load growth in Boone County, in the vicinity of the Cincinnati/Northern Kentucky International Airport.

**PERSON RESPONSIBLE:** Tim Hohenstatt