

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF DUKE ENERGY KENTUCKY, INC.)
FOR AN ADJUSTMENT TO RIDER NM RATES AND) CASE NO.
FOR TARIFF APPROVAL) 2023-00413

**PETITION FOR CONFIDENTIAL TREATMENT OF DUKE ENERGY
KENTUCKY, INC. FOR CERTAIN RESPONSES TO THE STAFF OF
THE PUBLIC SERVICE COMMISSION'S MARCH 12, 2024
THIRD REQUEST FOR INFORMATION**

Duke Energy Kentucky, Inc. (Duke Energy Kentucky or Company), pursuant to 807 KAR 5:001, Section 13, respectfully requests the Commission to classify and protect certain information provided by Duke Energy Kentucky in its response to Staff's Third Request for Information, as requested by Commission Staff (Staff) in this case on March 12, 2024. The information that Staff seeks through discovery and for which Duke Energy Kentucky now seeks confidential treatment is contained in the attachment to the Company's response to Data Request No. 2 (STAFF-DR-03-002 Confidential Attachment or Confidential Information). 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). In particular, KRS 61.878(1)(c)(1) excludes

from the Open Records Act:

Records confidentially disclosed to an agency or required by an agency to be disclosed to it, generally recognized as confidential or proprietary, which if openly disclosed would permit an unfair commercial advantage to competitors of the entity that disclosed the records.

Public disclosure of the information identified herein would, in fact, prompt such a result for the reasons set forth below.

2. The Confidential Information in the response to Data Request No. 2, *i.e.*, STAFF-DR-03-002 Confidential Attachment, contains hourly prices calculated through modeling via a third-party's power planning software. Duke Energy Kentucky uses the third-party capacity expansion model to determine the optimized least cost mix of resources for the entire Eastern Interconnection based on the inputs in the database. Then, the Company uses the third-party production cost model to dispatch the optimized mix of resources on an hourly basis. The forecasted LMPs represent the hourly dispatch price of the marginal unit in PJM based on the production cost model results. These LMPs incorporate anticipated environmental costs and impacts of the Inflation Reduction Act of 2022 (*i.e.*, the IRA). The STAFF-DR-03-002 Confidential Attachment also names datasets and other inputs used in the third-party model of LMP prices. The Company requests that this Confidential Information be afforded confidential treatment pursuant to KRS 61.878(1)(c)(1), and additionally requests that STAFF-DR-03-002 Confidential Attachment be treated as confidential in its entirety pursuant to 807 KAR 5:001, Section 13(2)(a)(3)(b).

3. STAFF-DR-03-002 Confidential Attachment contains confidential and proprietary information provided confidentially by a third-party vendor who take reasonable steps to protect their confidential information, such as only releasing such

information subject to confidentiality agreements. This information is not on file with any public agency, and is not available from any commercial or other source than the vendor. The aforementioned information is distributed within Duke Energy Kentucky only to those employees who must have access for business reasons.

4. 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. The Company would be placed at a competitive disadvantage if such information is released publicly as it would allow the competitors and potential counterparties and vendors for Duke Energy Kentucky to make decisions regarding pricing they otherwise would not have done, thereby making Duke Energy Kentucky and, in turn, its customers pay more than they otherwise would absent such information. Additionally, if competitors of Duke Energy Kentucky knew such forecasts, they could have an advantage in competing against Duke Energy Kentucky.

5. 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 if publicly disclosed.

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

7. 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 that the Commission classify and protect as confidential the Confidential Information described herein.

Respectfully submitted,

/s/ Larisa M. Vaysman

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CERTIFICATE OF SERVICE

This is to certify that the foregoing electronic filing is a true and accurate copy of the document in paper medium; that the electronic filing was transmitted to the Commission on March 22, 2024; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; and that submitting the original filing to the Commission in paper medium is no longer required as it has been granted a permanent deviation.¹

/s/ Larisa M. Vaysman

Counsel for Duke Energy Kentucky, Inc.

¹*In the Matter of Electronic Emergency Docket Related to the Novel Coronavirus COVID-19, Order, Case No. 2020-00085 (Ky. PSC July 22, 2021).*

VERIFICATION

STATE OF OHIO)
)
COUNTY OF HAMILTON) SS:

The undersigned, Bruce Sailors, Director Jurisdictional Rate Administration, 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.

Bruce L. Sailors
Bruce Sailors Affiant

Subscribed and sworn to before me by Bruce Sailors on this 19TH day of MARCH, 2024.



Adele M. Frisch
NOTARY PUBLIC

My Commission Expires: 1/5/2029

VERIFICATION

STATE OF OHIO)
)
COUNTY OF HAMILTON) SS:

The undersigned, Dominic Melillo, Director Asset Management, 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.

Dominic Melillo
Dominic Melillo Affiant

Subscribed and sworn to before me by Dominic Melillo on this 19TH day of MARCH, 2024.



Adele M. Frisch
NOTARY PUBLIC

My Commission Expires: 1/5/2029

KyPSC Case No. 2023-0413
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Duke Energy Kentucky
Case No. 2023-00413
STAFF's Third Set Data Requests
Date Received: March 12, 2024

STAFF-DR-03-001

REQUEST:

Refer to the Direct Testimony of Bruce Sailers (Sailers Direct Testimony) at 16-17.

- a. Recognizing the Commission's approved method in Case No. 2020- 00174¹, provide justification for using forecasted LMPs over the next 25 years to develop average annual prices instead of two historic years of LMP data and then levelized the average LMPs over a 25-year period. Include in the explanation specific reasons for the variance.
- b. Explain step-by-step how "a weighted average price is calculated based on the actual residential excess generation profile from the 2022 customer generator sample" and identify the cells and tabs in BLS-3 CONFIDENTIAL that represent each step of the calculation.
- c. Confirm if the 2022 customer-generator sample refers to the 225 Residential Customer-generators in Table 2 of Sailers Direct Testimony. If not confirmed, explain what comprises the 2022 customer generator sample.

RESPONSE:

- a. The Company proposes a method that utilizes information which is more comprehensive for purposes of this filing as compared to the information discussed above. Although such data is not publicly available, the fact that it is

¹ Case No. 2020-00174 *Electronic Application of Kentucky Power Company for (1) A General Adjustment of its Rates for Electric Service; (2) Approval of Tariffs and Riders; (3) Approval of Accounting Practices to Establish Regulatory Assets and Liabilities (4) Approval of a Certificate of Public Convenience and Necessity; and (5) All Other Required Approvals and Relief* (Ky. PSC May 14, 2021), Order at 26-27.

comprehensive and robust makes it a superior source for tailoring a retail rate for Duke Energy Kentucky customers. Additional comments and details in support and justification of the calculation are provided below.

- i. The Company's LMP forecast incorporates a robust analysis related to multiple types of generation. Where the Commission notes in footnote 84 on page 27 of the referenced case that natural gas forwards and futures are used, such prices for gas, coal, and other options are embedded in the PJM LMP modeling of the cleared energy prices. The availability of forward-looking hourly price data matches very well with the Commission's guiding principle of using forward looking analysis.²
- ii. An additional benefit of the Company's approach is that it avoids the embedding of unusual LMP data in its calculations. In the referenced case, the Commission notes that 2020 LMP data is removed from the calculations to avoid uncommon impacts on the calculation results.³ The Commission's concern regarding outlier data points is noted by the Company, and therefore the Company believes that 2022 LMP data for the Company is also quite uncommon due to the spike in LMP prices that has since subsided. It seems unlikely that an uncommon impact such as this would be embedded in the forward-looking avoided energy price. The Company's proposal avoids the assessments of historical data incorporation. As reference, the table below provides the average hourly LMPs across all hours of the year for the years 2020 – 2023. Also provided for 2022 and 2023 are weighted

² See *id.*, p.23.

³ See *id.*, p. 27, n. 80.

average LMP prices that are weighted by the Company’s samples (2022 sample used in this case and a new developed 2023 sample) of actual customer-generator excess generation data.

Year	PJM Average Hourly Real Time LMP for DEK (\$/MWH)	PJM Weighted Average Hourly Real Time LMP for DEK (\$/MWH)
2020	\$21.14	NA
2021	\$39.43	NA
2022	\$72.52	\$81.17
2023	\$30.53	\$31.83

- iii. The Company’s proposal, unlike the proposal in the referenced case, incorporates an actual excess generation profile and does not utilize inconsistent periods. In the referenced order, the Commission expressed concern with the inconsistent weighting periods (*i.e.*, hours) used in the avoided energy calculation. In the Company’s proposal, the incorporation of an actual excess generation profile to provide insight into not only solar production but excess generation itself is insightful. Excess generation data is used for the residential calculations while publicly available PVWatts solar output information is used for non-residential calculations.

- b. See the Company’s response to STAFF-DR-03-002 which provides column reference detail. In summary for residential customer-generators, the following steps are taken.

- i. The Company calculates a percentage of excess generation for each hour of the year from the aggregated excess generation data from the sample of customer-generators. This information provides insight into the hours that customer generators export energy. Summing these values across a calendar year results in 100%.
 - ii. The annual percentage profile (8760 hourly values for a non-leap year) is applied (i.e., multiplied) to hours of the forecast energy prices. Note that an adjustment is made for leap years by copying February 28 data to February 29 and then recalculating percentages for all the hours.
 - iii. Since the percentages represent an annual profile, once the profile is applied to the hourly energy prices, the sum across all hours of a calendar year provides the weighted annual energy value.
- c. Confirmed.

PERSON RESPONSIBLE: Bruce L. Sailors

**Duke Energy Kentucky
Case No. 2023-00413
STAFF's Third Set Data Requests
Date Received: March 12, 2024**

STAFF-DR-03-002 PUBLIC

REQUEST:

Refer to Sailers Direct Testimony, Attachment BLS-3 CONFIDENTIAL.

- a. Describe the data in Column E of tab Energy Inputs. Provide the data source and any underlying workpapers to used derive the data.
- b. Describe the data in Column H and L of tab Energy Inputs. Provide the data source and any underlying workpapers to used derive the data.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (as to Attachment only)

- a. Column E contains the hourly energy values representing the PJM Locational Marginal Price (LMP) for years 2023 through 2050. This data is discussed in the direct testimony of Mr. Matthew Kalemba, starting at page 3. These hourly prices are calculated through modeling in Anchor Power Solutions Encompass (a third party) power planning software. Duke Energy Kentucky uses Encompass's capacity expansion model to determine the optimized least cost mix of resources for the entire Eastern Interconnection based on the inputs in the database. Then, the Company uses Encompass's production cost model to dispatch the optimized mix of resources on an hourly basis. The forecasted LMPs represent the hourly dispatch price of the marginal unit in PJM based on the production cost model results. These LMPs incorporate anticipated environmental costs and impacts of the Inflation Reduction Act of 2022 (i.e., the IRA). The attached file, STAFF-DR-03-002

CONFIDENTIAL Attachment is the only output that is delivered by the Encompass model. The values in Column G of the “Energy Prices” tab of STAFF-DR-03-002 CONFIDENTIAL Attachment are the values in Column E of Attachment BLS-3 CONFIDENTIAL.

- b. Column H contains an annual percentage profile of the total kWh exported to the grid from a residential customer-generator. Summing this column of data for a calendar year results in the value of 1.0 (i.e., 100%). This data is used to determine an annual residential excess generation weighted average energy LMP value. This data is used in Column I in the formula $\text{Column E} * \text{Column H}$. The Column I data is not particularly useful in raw form but when summed for a calendar year, it provides the proposed residential annual excess generation weighted average LMP value. The annual residential excess generation weighted average LMP is contained in Column E of the Avoided Energy tab. The individual profile weights in Column H are calculated in KSES-DR-01-004(b) Attachment 2 on tab Net Gen Percent Profile in Columns DY and DZ using the sample data from the 225 customer-generators referenced in my direct testimony on page 8.

Column L contains an annual percentage profile of the total kWh produced from a solar installation. Summing this column of data for a calendar year results in the value of 1.0 (i.e., 100%). This data is used to determine an annual non-residential weighted average energy LMP value. As noted in my testimony starting at page 16 line 11, this solar output profile is used since the non-residential sample of DEK customer-generators is too small for use as a reasonable excess generation profile. Column L data is used in Column M in the generic formula $\text{Column E} * \text{Column L}$. The Column M data is not particularly useful in raw form but when summed for

a calendar year, it provides the proposed non-residential annual excess generation weighted average LMP value. The non-residential annual excess generation weighted average LMP (i.e., based on solar output instead of excess generation) is contained in Column K of the Avoided Energy tab. The individual profile weights in Column L are calculated in KSES-DR-01-004(b) Attachment 1 Columns R and S from the PVWatts generated solar output profile contained in the referenced file.

PERSON RESPONSIBLE: a) Matthew Kalemba
b) Bruce L. Sailors

**CONFIDENTIAL PROPRIETARY TRADE
SECRET**

**STAFF-DR-03-002
CONFIDENTIAL ATTACHMENT**

FILED UNDER SEAL

Duke Energy Kentucky
Case No. 2023-00413
STAFF's Third Set Data Requests
Date Received: March 12, 2024

STAFF-DR-03-003

REQUEST:

Refer to the Direct Testimony of Matthew Kalemba (Kalemba Direct Testimony) at 4, line 15 through page 5, line 8. Confirm that in using the production cost model in Encompass, all resources were dispatched economically. In other words, confirm that there were no constraints in the model that required certain units to run. If this is not the case, please explain.

RESPONSE: The Horizon's Energy database within the Encompass model does include must run requirements for some resources within PJM. Coal assets contain must run requirements in conjunction with a monthly forced outage rate as an availability function. The reason the database includes these requirements is to ensure that potential coal outages are varied throughout the month so that they do not all fall on the same day or set of days. Horizon's Energy has found that adding must-run requirements made market prices align more closely with historical on/off peak prices.

PERSON RESPONSIBLE: Matthew Kalemba

**Duke Energy Kentucky
Case No. 2023-00413
STAFF's Third Set Data Requests
Date Received: March 12, 2024**

STAFF-DR-03-004

REQUEST:

Provide a copy of Duke Kentucky's distribution system planning manual or equivalent document.

RESPONSE: See STAFF-DR-03-004 Attachment

PERSON RESPONSIBLE: Nick Melillo

PLANNING GUIDELINES FOR THE DISTRIBUTION AND SUBTRANSMISSION SYSTEM

INTRODUCTION

T&D planning is a process of study and analysis through which Duke assures itself that it will economically and reliably meet its present and future delivery obligations. To this end the T&D Planning Department has adopted the following mission statement:

Planning will be a valuable technical resource for Duke that aggressively manages existing electric delivery system assets as well as future capital investment decisions within the precepts of safety, reliability, and financial objectives.

In order to be consistent within the planning organization, the following set of guidelines should be used as a general reference in developing studies and recommendations. These guides are not intended to be all inclusive. It is impossible for every situation to be taken into account. The objective of this document is to establish uniform methods by which the planners will deliver high quality and reliable service to our customers at a reasonable cost.

There are many performance factors to look at when determining where there may be needs on the system. Equipment load capabilities, power factor correction, system efficiency (losses), average voltage level, voltage and load balance, power quality (flicker, surges, sags, transients, harmonic distortion, neutral to earth voltage), reliability factors (SAIDI, SAIFI, average cost of outages to customers, maximum restoration time), system protection factors (fault duty, available fault current, protection device load carrying capabilities). As a planning department, we may not be solely or directly responsible for seeing that all these areas are addressed in each study. We may touch on each at specific times, and communicate to those other responsible departments where we see a potential system deficiency. We can provide input and guidance in evaluating potential solutions.

The guidelines are divided into two sections. Section one covers the distribution planning guidelines. Section two covers the subtransmission guidelines.

SECTION ONE DISTRIBUTION PLANNING GUIDELINES

RELIABILITY

Distribution planning has a direct impact on service reliability for our customers, and we also interface with other departments having responsibility for review and improvement of distribution circuit reliability.

EQUIPMENT LOAD CAPABILITIES

Keeping equipment at proper loading levels is one way we ensure that the load will be served with a reasonable continuity. Duke's normal service facilities will be adequate to supply the half hour integrated electric energy and reactive volt-ampere demands. Non-traditional approaches such as targeted DSM, distributed generation, or interruptible loads will also be considered as alternatives to traditional capacity enhancements.

- Substation Transformers

Substation transformers are one of the most expensive single pieces of equipment on the distribution system. Their loading capabilities will normally be determined according to the "Duke Transformer Loading Guidelines" which is based on the thermal capability of the transformer under a normal daily load cycle and a normal ambient temperature variation over a 24-hour period. If the transformer is subjected to an unusual load cycle (i.e....high load factor) or has some other limiting concern, then that will need to be taken into account.

- Conductor and Cable

Conductor capacity will normally be defined by ampacity as determined by thermal capability and line sag design. Historically we have used an 80°C design limit with a 35°C ambient temperature and a 2 mph wind for determining minimum sag clearances. From a planning perspective, the conductor temperature could rise to 100°C without any detrimental loss of life to the conductor. However, the conductor must still meet clearance requirements.

Underground cable ampacity is determined on a thermal capability at 90°C cable temperature with a 25°C ambient earth temperature and a 75% load factor.

- Ancillary Equipment

Ancillary equipment (i.e.... switches, protection devices, LTC's, regulators, etc...) capacity will normally be determined by manufacturer ratings or industry standards. These devices are usually limited by their load breaking capability instead of thermal capability as is the case for transformers and conductors. Limiting the travel of LTC's or regulators can sometimes increase their capability based on manufacture published tables. The risk that each device adds to the system must be considered separately as its manufacturer's rating is approached or exceeded.

SERVICE RESTORATION

Duke's normal service facilities include one source of supply. These facilities are sometimes referred to as a radial system. Therefore, immediate back-up capability will not be provided as a normal practice. We should be able to restore service after an outage or failure of any single system component in 24 hours or less. Longer interruptions may occur when numerous outages occur simultaneously or when damage is catastrophic (major thunderstorms, tornadoes, ice storms, etc...). Distribution substation transformer failures can normally be restored with mobile transformers and/or remotely stored replacement units that will require transport and connection. For transformers larger than available mobile substations and/or spare units, remotely installed capacity or other options will be considered for that portion of capacity that is greater than the available mobile substation and/or spare units. Partial substation transformer backup capacity is often available from adjacent transformers in multi-bank substations or via circuit ties with remote capacity, although the distribution system is not specifically designed for this purpose.

RELIABILITY STUDIES

Distribution Planning will use probabilistic planning techniques as a tool to evaluate the reliability impact of different options available to serve customers' load. This will help ensure that the customer's total cost of electric power is considered in the decision making process.

Historically poor performing distribution circuits will be evaluated on an annual basis to determine problem areas and prudent improvements will be recommended.

POWER FACTOR CORRECTION

Planning takes responsibility for power factor correction because of the impact on our ability to serve Duke's electric delivery obligations in a reliable and economic manner. Power factor correction frees up equipment capacity, provides voltage support to the electric system, and allows a method of system loss reduction.

CAPACITOR PLACEMENT

The general guideline is to install capacitors close to the producer of lagging vars to improve their effects in reducing system losses and freeing up capacity on more pieces of equipment. Most capacitors are strategically placed, along the distribution circuits, to allow for effective voltage control which historically has given a corrected power factor close to unity at the high side of the distribution substation transformer.

Where it is not practical to install more capacitors on the distribution system, there may be a need to install capacitors directly to the subtransmission system.

CAPACITOR SWITCHING

New capacitor installations will be designed for a 3% maximum voltage change during switching. From a practical standpoint, the voltage change is usually 2.5% or less in order to make the control settings coordinate properly.

VOLTAGE REQUIREMENTS

This is another area for which distribution planners are responsible. The distribution system will provide delivered customer utilization voltages as specified by ANSI C84.1-1996. We interface with the design group in this function because they are responsible for sizing service equipment to meet rms average voltage requirements. We also interface with the power quality group to assist them as they deal with harmonic distortion, voltage sags, voltage swells, flicker, transient over voltages and neutral to earth voltage. Much of the following information is found in the “Electric Service from Duke.” document, and changes to that document will supersede these planning guidelines.

RMS AVERAGE VOLTAGE

Steady state voltages should comply with ANSI C84.1-1996. This standard describes a preferred range A and occasional occurrence range B of voltages for each of three voltage classes. Those ranges are shown in the table below. It is recommended practice to limit total voltage drop in customer utilization voltage systems to no more than 5%.

Table 1: Standard nominal service voltages and voltage ranges (ANSI C84.1-1996).

Nominal Service Voltage at Meter	Minimum Range B	Minimum Range A	Maximum Range A	Maximum Range B
Low Voltage				
208Y/120	191Y/110	197Y/114	218Y/126	220Y/127
240/120	220/110	228/114	252/126	254/127
480Y/277	424Y/245	456Y/263	504Y/291	508Y/293
Distribution Voltage				
4,160/2,400	3,950/2,280	4,050/2,340	4,370Y/2,520	4,400Y/2,540
12,470/7,200	11,850Y/6,840	12,160Y/7,020	13,090Y/7,560	13,200Y/7,620
34,500/19,920	32,780Y/18,930	33,640Y/19,420	36,230Y/20,920	36,510Y/21,080
Transmission - 69,000 Volts and Higher				
These are considered to be bulk energy delivery systems. Voltage may vary between -12% and +8%. Customers should provide their own regulation.				

A statistical method measures the rms voltage. This method calculates the average rms voltage in 10 minute intervals over each week for a total of 1,008 intervals per week. At least 95% of all 10 minute rms averages for each week will be within Range A. At least 98% of the 10 minute average intervals each week will meet Range B. Normally

engineering should allow no more than 3% voltage drop in the secondary service facilities. In order to meet the requirements of Range A from the table above, Distribution Planning will normally plan the primary distribution system to range from 105% to 98% of nominal voltage. An example of the resulting voltage profile is shown in the IEEE Red Book, Chapter 3.

VOLTAGE UNBALANCE

During each period of one week, 95% of the 10 minute average rms unbalance values of the supply voltage shall be within the range between 0 to 2%. In some areas with partly single phase or two-phase connected customers, unbalances up to about 3% at three-phase supply terminals occur. In cases where customer loads are the main source of unbalance, the customer may need to balance load currents. The equation for calculating percent voltage unbalance is:

$$\text{Percent Unbalance} = \frac{\text{Maximum Deviation From Average}}{\text{Average of 3 Phase to Phase Voltages}} \bullet 100$$

HARMONIC DISTORTION

Duke will deliver voltage quality that meets or exceeds IEEE Standard 519-1992 ***provided the customer harmonic current demands also comply with the same standard.*** Duke may relax the current requirements provided the customer releases Duke from voltage distortion requirements and provided IEEE 519 is met at the point of common coupling with other Duke customers. Voltage and current quality standards will be met for 95% of all ten minute average samples in each week.

FLICKER

Voltage flicker at the delivery point will be better than IEEE Standard 141-1993 border line of irritation. Flicker above this level may occur up to 5% of the time in any single weekly period. Customers with flicker causing loads may wish to accept higher flicker levels at their own loads that cause the flicker to avoid financial penalties for excess supply facilities. Customers with flicker causing loads will be required to prevent their loads from causing flicker worse than these limits for other customers.

NEUTRAL TO EARTH VOLTAGE

Duke operates a multi-grounded wye distribution system. One characteristic of this system is that the neutral conductor will have some voltage on it with respect to the earth voltage (Neutral to Earth Voltage - NEV). This gives rise to a small voltage difference between grounded objects and nearby earth. Neutral to earth voltage may cause slight shock sensations to people and animals. Indicative values for NEV range from zero to four volts for normal operation. NEV may be higher during short circuits or other unusual circumstances.

SECTION TWO SUBTRANSMISSION PLANNING GUIDELINES

For the purposes of these guidelines the subtransmission system is defined as the regional electric transmission system serving distribution substations, usually 69kV and in specific locations 138kV.

CAPACITY

Installed capacity will be available to serve the peak MW and MVA_r demands of the system under anticipated normal operating conditions.

Capacity to serve peak MW and MVA_r demands during single contingency component outages will be planned using a combination of traditional deterministic planning and newly developed probabilistic planning techniques. The deterministic approach will be used to screen for system operational deviations from planning guidelines and to determine traditional system need date for correctional actions. The probabilistic techniques will be used to help match projects with optimal timing taking into account the probability of a system failure, the estimated outage cost, length of repair, and severity of system impact.

Non-traditional approaches such as targeted DSM, distributed generation, or interruptible loads will also be considered as alternatives to traditional capacity enhancements.

EQUIPMENT LOAD CAPABILITIES

- Substation Transformers
Substation transformers are one of the most expensive single pieces of equipment on the subtransmission system. Their loading capabilities will normally be determined according to the “*Duke Transformer Loading Guidelines*” which is based on the thermal capability of the transformer under a normal daily load cycle and a normal ambient temperature variation over a 24 hour period. If the transformer is subjected to an unusual load cycle (i.e... high load factor) or has some other limiting concern, then that will need to be taken into account.
- Conductor
Conductor capacity will normally be defined by ampacity as determined by thermal capability and line sag design. Historically we have used an 80°C design limit with a 35°C ambient temperature and a 2 mph wind for determining minimum sag clearances. From a planning perspective, the conductor temperature could rise to 100°C without any detrimental loss of life to the conductor. However, the conductor must still meet clearance requirements.

- Ancillary Equipment
Ancillary equipment (i.e...switches, protection devices, LTC's, regulators, etc...) capacity will normally be determined by manufacturer ratings or industry standards. These devices are usually limited by their load breaking capability instead of thermal capability as is the case for transformers and conductors. Limiting the travel of LTC's or regulators can sometimes increase their capability based on manufacture published tables. The risk that each device adds to the system must be considered separately as its manufacturer's rating is approached or exceeded.

VOLTAGE REQUIREMENTS

The subtransmission system itself is not considered to be regulated within any prescribed limits. It is intended as a source of supply to lower voltage systems which are equipped with voltage regulating equipment or other means to insure adequate voltage. The subtransmission system voltages will be maintained to enable delivered customer utilization voltages to be as specified by ANSI standard C84.1-1996. Large customers taking service at 69kV or higher voltage are responsible for the maintenance of adequate utilization voltages. In general, fulfilling the above requirements will require the subtransmission voltages to be in the range of -12% to +5% of nominal.

VOLTAGE FLICKER

Voltage flicker at the delivery point will be better than IEEE Standard 141-1993 border line of irritation. Flicker above this level may occur up to 5% of the time in any single weekly period. Customers with flicker causing loads may wish to accept higher flicker levels at their own loads that cause the flicker to avoid financial penalties for excess supply facilities. Customers with flicker causing loads will be required to prevent their loads from causing flicker worse than these limits for other customers

New 69kV capacitor installations will generally be designed for a 3% maximum voltage change during switching with normal system operations. The voltage change may be considerably higher for switching during contingencies and emergency situations.

RELIABILITY

Reliability impact of the recommended plan and the alternate plans will be evaluated as part of all area subtransmission planning studies. This will be done by considering estimated outage cost, outage indices such as SAIDI and SAIFI, and other factors.

Historically poor performing subtransmission circuits will be evaluated on an annual basis to determine and recommend feasible improvements.

Duke Energy Kentucky
Case No. 2023-00413
STAFF's Third Set Data Requests
Date Received: March 12, 2024

STAFF-DR-03-005

REQUEST:

Refer to Duke Kentucky's tariff on file with the Commission, pdf pages 138- 148

(<https://psc.ky.gov/tariffs/Electric/Duke%20Energy%20Kentucky/Tariff.pdf>).

- a. Explain whether Duke Kentucky has made or plans to make any changes to the Interconnection Approval form and the Level 1 and Level 2 Applications for Interconnection and Net Metering – Kentucky.
- b. If changes have been made to the forms, provide a clean and redlined copy of the revised forms and explain why the revised forms were not included in this application.
- c. Explain whether Duke Kentucky plans to keep these forms in its tariff.

RESPONSE:

- a. No material change has been made to the forms or proposed in this proceeding. However, upon review of the forms prompted by this discovery, the Company has identified a number of non-substantive revisions that should be made, mostly to update contact and website information and to add “as applicable” or “if applicable” in places to allow for the fact that not all interconnectors are net metering customers. See the identified changes in the forms in STAFF-DR-03-005a Attachments 1 through 4. Subject to approval by the Commission, the Company will file these forms in compliance with the order in this proceeding.

- b. For redline forms, see the response to part a above. For clean versions of the forms, see STAFF-DR-03-005b Attachments 1 through 4. Subject to approval by the Commission, the Company will file these forms in compliance with the order in this proceeding. The Company did not include these in its Application because it had not planned to make any substantive changes to the interconnection process in this proceeding and therefore did not identify the need for the updates to the application forms.
- c. Yes. The Company plans to keep these forms in its tariff.

PERSON RESPONSIBLE: Bruce L. Sailors



Level 1

Application for Interconnection and Net Metering -- Kentucky Level 1

Use this application form only for a 30 kW or smaller generation facility in Kentucky that is inverter based and certified by a nationally recognized testing laboratory to meet the requirements of UL 1741.

Submit a signed copy of this Application (including all required attachments) by mail or, email, ~~or FAX~~ to:

Mailing address: _____ Duke Energy Kentucky
9700 David Taylor Drive
P.O. Box 1010
Charlotte, NC 28262
Attention: Customer Owned Generation – DT02W

Contact information listed is subject to change. Please visit our website for up-to-date information at:
<http://www.duke-energy.com/kentucky/customer-owned-generation.asp>

Overnight address: _____ Duke Energy Kentucky
9700 David Taylor Drive
Charlotte, NC 28262
Attention: Customer Owned Generation – DT02W
FAX: 980-373-5244
EMAIL: customerownedgeneration@duke-energy.com

If you have questions regarding this Application or its status, contact Duke Energy by email at customerownedgeneration@duke-energy.com or by phone at please call 866-233-2290.

APPLICANT INFORMATION – Use name as it appears on Duke Energy bill

Customer Name: _____ Account Number: _____

Customer Address: _____

Phone No.: _____ E-Mail Address(Optional): _____

Project Contact Person (If different than above): _____

Phone No.: _____ E-mail Address (Optional): _____

Provide names and contact information for other contractors, installers, or engineering firms involved in the design and installation of the generating facilities:

GENERATING FACILITY INFORMATION

Energy Source: Solar Wind Hydro Biogas Biomass

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Inverter Manufacturer, Model # & Quantity: _____

Total Inverter Power Rating: _____ Inverter Voltage Rating: _____

Power Rating of Energy Source (*i.e.*, solar panels, wind turbine): _____

Is Battery Storage Used: No Yes If Yes, Battery Power Rating: _____

Expected Start-up Date: _____

Attach documentation showing that inverter is certified by a nationally recognized testing laboratory to meet the requirements of UL 1741.

Attach site drawing or sketch showing location of the energy source, inverter, and Duke Energy's meter.

Attach single line drawing showing all electrical equipment from Duke Energy's metering location to the energy source including switches, fuses, breakers, panels, transformers, inverters, energy source, wire size, equipment ratings, and transformer connections.

TERMS AND CONDITIONS

Any Customer operating a generating device in parallel with the Company's system shall comply with the following Terms and Conditions. The term "Company" refers to Duke Energy Kentucky.

1. The Company shall provide Customer net metering services, without charge for standard metering equipment, through a standard kilowatt-hour metering system capable of measuring the flow of electricity in two (2) directions. If the Customer requests any additional meter or meters or distribution upgrades are needed to monitor the flow in each direction, such installations shall be at the Customer's expense.
2. Customer shall install, operate, and maintain, at Customer's sole cost and expense, any control, protective, or other equipment on the Customer's system required by the Company's technical interconnection requirements based on IEEE 1547, the NEC, accredited testing laboratories such as Underwriters Laboratories, and the manufacturer's suggested practices for safe, efficient and reliable operation of the generating facility in parallel with Company's electric system. Customer shall bear full responsibility for the installation, maintenance and safe operation of the generating facility. Upon reasonable request from the Company, Customer shall demonstrate generating facility compliance.
3. The generating facility shall comply with, and Customer shall represent and warrant its compliance with: (a) any applicable safety and power quality standards established by IEEE and accredited testing laboratories such as Underwriters Laboratories; (b) the (NEC) as may be revised from time to time; (c) Company's rules, regulations, and Company's Service Regulations as contained in Company's Retail Electric Tariff as may be revised from time to time with the approval of the Kentucky Public Service Commission (Commission); ~~(d) the rules and regulations of the Commission, as such rules;~~ (d) the rules and regulations of the Commission, as such rules and regulations may be revised from time to time by the Commission; and (e) all other applicable local, state, and federal codes and laws, as the same may be in effect from time to time. Where required by law, Customer shall pass an electrical inspection of the generating facility by a local authority having jurisdiction over the installation. (D)
4. Any changes or additions to the Company's system required to accommodate the generating facility shall be considered excess facilities. Customer shall agree to pay Company for actual costs incurred for all such excess facilities prior to construction.
5. Customer shall operate the generating facility in such a manner as not to cause undue fluctuations in voltage, intermittent load characteristics or otherwise interfere with the operation of Company's electric system. At all times when the generating facility is being operated in parallel with Company's electric system, Customer shall so operate the generating facility in such a manner that no adverse impacts will be produced thereby to the service quality rendered by Company to any of its other customers or to any electric system interconnected with Company's electric system. Customer shall agree that the interconnection and operation of the generating facility is secondary to, and shall not interfere with, Company's ability to meet its primary responsibility of furnishing reasonably adequate service to its customers.
6. Customer shall be responsible for protecting, at Customer's sole cost and expense, the generating facility from any condition or disturbance on Company's electric system, including, but not limited to, voltage sags or swells, system faults, outages, loss of a single phase of supply, equipment failures, and lightning or switching surges, except that the Company shall be

responsible for repair of damage caused to the generating facility resulting solely from the negligence or willful misconduct on the part of the Company.

7. After initial installation, Company shall have the right to inspect and/or witness commissioning tests, as specified in the Level 1 application and approval process. Following the initial testing and inspection of the generating facility and upon reasonable advance notice to Customer, Company shall have access at reasonable times to the generating facility to perform reasonable on-site inspections to verify that the installation, maintenance and operation of the generating facility comply with the requirements of the Company's Net Metering Tariff.
8. For inverter based systems that are certified by a nationally recognized testing laboratory to meet the requirements of UL 1741 and qualify for a Level 1 application, the Company does not require a Customer owned external disconnect switch.
9. Company shall have the right and authority at Company's sole discretion to isolate the generating facility or require the Customer to discontinue operation of the generating facility if Company believes that: (a) continued interconnection and parallel operation of the generating facility with Company's electric system creates or contributes (or may create or contribute) to a system emergency on either Company's or Customer's electric system; (b) the generating facility is not in compliance with the requirements of the Company's Net Metering Tariff, and the non-compliance adversely affects the safety, reliability or power quality of Company's electric system; or (c) the generating facility interferes with the operation of Company's electric system. In non-emergency situations, Company shall give Customer notice of noncompliance including a description of the specific noncompliance condition and allow Customer a reasonable time to cure the noncompliance prior to isolating the Generating Facilities. In emergency situations, where the Company is unable to immediately isolate or cause the Customer to isolate only the generating facility, the Company may isolate the Customer's entire facility.
10. Customer shall agree that, without the prior written permission from Company, no changes shall be made to the generating facility as initially approved. Increases in generating facility capacity will require a new "Application for Interconnection and Net Metering" which will be evaluated on the same basis as any other new application. Repair and replacement of existing generating facility components with like components that meet UL 1741 certification requirements for Level 1 facilities and not resulting in increases in generating facility capacity is allowed without approval.
11. To the extent permitted by law, the Customer shall protect, indemnify and hold harmless the Company and its directors, officers, employees, agents, representatives and contractors against and from all loss, claims, actions or suits, including costs and attorneys fees, for or on account of any injury or death of persons or damage to property caused by the Customer or the Customer's employees, agents, representatives and contractors in tampering with, repairing, maintaining or operating the Customer's generating facility or any related equipment or any facilities owned by the Company except where such injury, death or damage was caused or contributed to by the fault or negligence of the Company or its employees, agents, representatives or contractors.

The liability of the Company to the Customer for injury to person and property shall be governed by the tariff(s) for the class of service under which the Customer is taking service.
12. The Customer shall maintain general liability insurance coverage (through a standard homeowner's, commercial or other policy) for Level 1 generating facilities. Customer shall upon request provide Company with proof of such insurance at the time that application is made for net metering.
13. By entering into an Interconnection Agreement, or by inspection, if any, or by non-rejection, or by approval, or in any other way, Company does not give any warranty, express or implied, as to the adequacy, safety, compliance with applicable codes or requirements, or as to any other characteristics, of the generating facility equipment, controls, and protective relays and equipment.
14. A Customer's generating facility is transferable to other persons or service locations only after notification to the Company has been made and verification that the installation is in compliance with the Company's Net Metering Tariff. Upon written notification that an approved generating facility is being transferred to another person, customer or location, the Company will verify that the installation is in compliance with the Company's Net Metering Tariff and provide written notification to the customer(s) within 20 business days. If the installation is no longer in compliance with the Company's Net Metering Tariff, the Company will notify the Customer in writing and list what must be done to place the facility in compliance.
15. The Customer shall retain any and all Renewable Energy Credits (RECs) that may be generated by their generating facility.

Effective Term and Termination Rights

This Agreement becomes effective when executed by both parties (the application is signed by the Customer and written approval is given by the Company) and shall continue in effect until terminated. This Agreement may be terminated as follows: (a) Customer may terminate this Agreement at any time by giving the Company at least sixty (60) days' written notice; (b) Company may terminate upon failure by the Customer to continue ongoing operation of the generating facility; (c) either party may terminate by giving the other party at least thirty (30) days prior written notice that the other party is in default of any of the terms and conditions of the Agreement or the Rules or any rate schedule, tariff, regulation, contract, or policy of the Company, so long as the notice specifies the basis for termination and there is opportunity to cure the default; (d) the company may terminate by giving the Customer at least thirty (30) days notice in the event that there is a material change in an applicable law, regulation or statute affecting this Agreement or which renders the system out of compliance with the new law or statute.

CUSTOMER SIGNATURE

I hereby certify that, to the best of my knowledge, all of the information provided in this application is true and I agree to abide by all the Special Terms and Conditions included in this “Application for Interconnection and Net Metering” and the Company’s Rider NM – Net Metering.

Customer Signature

Date

Printed Name

Title



Level 2

Application for Interconnection ~~and Net Metering~~ -- Kentucky Level 2

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Use this application form when generation facility is in Kentucky and is not inverter-based or is not certified by a nationally recognized testing laboratory to meet the requirements of UL 1741.

Submit a signed copy of this Application (including all required attachments) by mail or, email, ~~or FAX~~ to:

(D)

Mailing address: _____ Duke Energy Kentucky
9700 David Taylor Drive ~~Attn: Customer Owned Generation~~
~~P.O. Box 1040~~
Charlotte, NC 28262
Attention: Customer Owned Generation – DT02W

Contact information listed is subject to change. Please visit our website for up-to-date information at : <http://www.duke-energy.com/kentucky/customer-owned-generation.asp>

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Overnight address: _____ Duke Energy Kentucky
9700 David Taylor Drive
Charlotte, NC 28262
Attention: Customer Owned Generation – DT02W
FAX: 980-373-5244

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EMAIL: customerownedgeneration@duke-energy.com

If you have questions regarding this Application or its status, contact Duke Energy by email at customerownedgeneration@duke-energy.com or by phone at please call 866-233-2290.

(T)
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APPLICANT INFORMATION – Use name as it appears on Duke Energy bill

Customer Name: _____ Account Number: _____

Customer Address: _____

Phone No.: _____ E-Mail Address(Optional): _____

Project Contact Person (If different than above): _____

Phone No.: _____ E-mail Address (Optional): _____

Provide names and contact information for other contractors, installers, or engineering firms involved in the design and installation of the generating facilities:

GENERATING FACILITY INFORMATION

Type of Generator: Inverter-Based Synchronous Induction

Power Source: Solar Wind Hydro Biogas Biomass

Total Generating Capacity of Generating Facility: _____

Adequate documentation and information must be submitted with this application to be considered complete. Typically this should include the following:

1. Single-line diagram of the customer's system showing all electrical equipment from the generator to the point of interconnection with the Company's distribution system, including generators, transformers, switchgear, switches, breakers, fuses, voltage transformers, current transformers, wire sizes, equipment ratings, and transformer connections.
2. Control drawings for relays and breakers.
3. Site Plans showing the physical location of major equipment.
4. Relevant ratings of equipment. Transformer information should include capacity ratings, voltage ratings, winding arrangements, and impedance.
5. If protective relays are used, settings applicable to the interconnection protection. If programmable relays are used, a description of how the relay is programmed to operate as applicable to interconnection protection.
6. A description of how the generator system will be operated including all modes of operation.
7. For inverters, the manufacturer name, model number, and AC power rating. For certified inverters, attach documentation showing that inverter is certified by a nationally recognized testing laboratory to meet the requirements of UL 1741.
8. For synchronous generators, manufacturer and model number, nameplate ratings, and impedance data (X_d , X'_d , & X''_d).
9. For induction generators, manufacturer and model number, nameplate ratings, and locked rotor current.

CUSTOMER SIGNATURE

Customer Signature

Date



Interconnection Approval

Date

Customer name
Street address
City, State, Zip

Dear (customer name):

Your *Level 1 Application for Interconnection and Net Metering* dated (xxxx) for (describe generating system) located at (address) has been approved by Duke Energy subject to the provisions contained in the *Level 1 Application for Interconnection and Net Metering* and as indicated below.

Duke Energy inspection and witness test: Required Waived

If a Duke Energy inspection and witness test is required, Customer shall notify Duke Energy within 3 business days of completion of the generating facility installation and schedule an inspection and witness test with Duke Energy to occur within 10 business days of completion of the generation facility installation or as otherwise agreed to by Duke Energy and the Customer. The Customer may not operate the generation facility (except for operational testing not to exceed two hours) until such inspection and witness test is successfully completed and all other terms and conditions in the Application have been met. Call _____ to schedule an inspection and witness test.

If a Duke Energy inspection and witness test is waived, operation of the generation facility may begin when installation is complete and all other terms and conditions in the Application have been met.

Additions, Changes, or Clarifications to Application Information:

None As specified here: _____

Approved by: (Duke Representative)
(Title)
(phone)
(email)

LEVEL 2
INTERCONNECTION AGREEMENT

THIS INTERCONNECTION AGREEMENT (Agreement) is made and entered into this _____ day of _____, 20____, by and between Duke Energy Kentucky (Company), and _____ (Customer). Company and Customer are hereinafter sometimes referred to individually as “Party” or collectively as “Parties”.

WITNESSETH:

WHEREAS, Customer is installing, or has installed, generating equipment, controls, and protective relays and equipment (Generating Facility) used to interconnect and operate in parallel with Company’s electric system, which Generating Facility is more fully described in Exhibit A, attached hereto and incorporated herein by this Agreement, and as follows:

Location: _____

Generator Size and Type: _____

NOW, THEREFORE, in consideration thereof, Customer and Company agree as follows:

Company agrees to allow Customer to interconnect and operate the Generating Facility in parallel with the Company’s electric system and Customer agrees to abide by Company’s Net Metering Tariff, if applicable, and all the Terms and Conditions listed in this Agreement including any additional conditions listed in Exhibit A.

(T)

Terms and Conditions:

To interconnect to the Company’s distribution system, the Customer’s generating facility shall comply with the following terms and conditions:

1. The Company shall provide Customer net metering services, as applicable, without charge for standard metering equipment, through a standard kilowatt-hour metering system capable of measuring the flow of electricity in two (2) directions. If the Customer requests any additional meter or meters or distribution upgrades are needed to monitor the flow in each direction, such installations shall be at the Customer’s expense.
2. Customer shall install, operate, and maintain, at Customer’s sole cost and expense, any control, protective, or other equipment on the Customer’s system required by the Company’s technical interconnection requirements based on IEEE 1547, the NEC, accredited testing laboratories such as Underwriters Laboratories, and the manufacturer’s suggested practices for safe, efficient and reliable operation of the generating facility in parallel with Company’s electric system. Customer shall bear full responsibility for the installation, maintenance and safe operation of the generating facility. Upon reasonable request from the Company, Customer shall demonstrate generating facility compliance.
3. The generating facility shall comply with, and Customer shall represent and warrant its compliance with: (a) any applicable safety and power quality standards established by the Institute of Electrical and Electronics Engineers (IEEE) and accredited testing

(T)

laboratories such as Underwriters Laboratories (UL); (b) the National Electrical Code (NEC) as may be revised from time to time; (c) Company's rules, regulations, and Company's Service Regulations as contained in Company's Retail Electric Tariff as may be revised from time to time with the approval of the Kentucky Public Service Commission (Commission); (d) the rules and regulations of the Commission, as such rules and regulations may be revised from time to time by the Commission; and (e) all other applicable local, state, and federal codes and laws, as the same may be in effect from time to time. Where required by law, Customer shall pass an electrical inspection of the generating facility by a local authority having jurisdiction over the installation.

4. Any changes or additions to the Company's system required to accommodate the generating facility shall be considered excess facilities. Customer shall agree to pay Company for actual costs incurred for all such excess facilities prior to construction.
5. Customer shall operate the generating facility in such a manner as not to cause undue fluctuations in voltage, intermittent load characteristics or otherwise interfere with the operation of Company's electric system. At all times when the generating facility is being operated in parallel with Company's electric system, Customer shall so operate the generating facility in such a manner that no adverse impacts will be produced thereby to the service quality rendered by Company to any of its other customers or to any electric system interconnected with Company's electric system. Customer shall agree that the interconnection and operation of the generating facility is secondary to, and shall not interfere with, Company's ability to meet its primary responsibility of furnishing reasonably adequate service to its customers.
6. Customer shall be responsible for protecting, at Customer's sole cost and expense, the generating facility from any condition or disturbance on Company's electric system, including, but not limited to, voltage sags or swells, system faults, outages, loss of a single phase of supply, equipment failures, and lightning or switching surges, except that the Company shall be responsible for repair of damage caused to the generating facility resulting solely from the negligence or willful misconduct on the part of the Company.
7. After initial installation, Company shall have the right to inspect and/or witness commissioning tests, as specified in Exhibit A of this Agreement. Following the initial testing and inspection of the generating facility and upon reasonable advance notice to Customer, Company shall have access at reasonable times to the generating facility to perform reasonable on-site inspections to verify that the installation, maintenance and operation of the generating facility comply with the requirements of the Company's Net Metering Tariff, as applicable, and this Agreement.
8. For Level 2 generating facilities, where required by the Company, an eligible Customer shall furnish and install on Customer's side of the point of common coupling a safety disconnect switch which shall be capable of fully disconnecting the Customer's energy generating equipment from Company's electric service under the full rated conditions of the Customer's generating facility. The external disconnect switch (EDS) shall be located adjacent to Company's meters or the location of the EDS shall be noted by placing a sticker on the meter and shall be of the visible break type in a metal enclosure which can be secured by a padlock. If the EDS is not located directly adjacent to the meter, the Customer shall be responsible for ensuring the location of the EDS is properly and legibly identified for so long as the generating facility is operational. The disconnect switch shall be accessible to Company personnel at all times. The Company may waive the requirement for an external disconnect switch for a generating facility at its sole

discretion, and on a case by case basis, upon review of the generating facility operating parameters and if permitted under the Company's safety and operating protocols.

9. Company shall have the right and authority at Company's sole discretion to isolate the generating facility or require the Customer to discontinue operation of the generating facility if Company believes that: (a) continued interconnection and parallel operation of the generating facility with Company's electric system creates or contributes (or may create or contribute) to a system emergency on either Company's or Customer's electric system; (b) the generating facility is not in compliance with the requirements of the Company's Net Metering Tariff, as applicable, and this Agreement, and the non-compliance adversely affects the safety, reliability or power quality of Company's electric system; or (c) the generating facility interferes with the operation of Company's electric system. In non-emergency situations, Company shall give Customer notice of noncompliance including a description of the specific noncompliance condition and allow Customer a reasonable time to cure the noncompliance prior to isolating the Generating Facilities. In emergency situations, where the Company is unable to immediately isolate or cause the Customer to isolate only the generating facility, the Company may isolate the Customer's entire facility.

(T)

10. Customer shall agree that, without the prior written permission from Company, no changes shall be made to the generating facility as initially approved. Increases in generating facility capacity will require a new "Application for Interconnection ~~and Net Metering~~" which will be evaluated on the same basis as any other new application. Repair and replacement of existing generating facility components not resulting in increases in generating facility capacity is allowed without approval.

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(D)

11. To the extent permitted by law, the Customer shall protect, indemnify and hold harmless the Company and its directors, officers, employees, agents, representatives and contractors against and from all loss, claims, actions or suits, including costs and attorneys fees, for or on account of any injury or death of persons or damage to property caused by the Customer or the Customer's employees, agents, representatives and contractors in tampering with, repairing, maintaining or operating the Customer's generating facility or any related equipment or any facilities owned by the Company except where such injury, death or damage was caused or contributed to by the fault or negligence of the Company or its employees, agents, representatives or contractors.

The liability of the Company to the Customer for injury to person and property shall be governed by the tariff(s) for the class of service under which the Customer is taking service.

12. The Customer shall maintain general liability insurance coverage (through a standard homeowner's, commercial or other policy). Customer shall provide Company with proof of such insurance at the time that application is made ~~for net metering~~.

(D)

13. By entering into an Interconnection Agreement, or by inspection, if any, or by non-rejection, or by approval, or in any other way, Company does not give any warranty, express or implied, as to the adequacy, safety, compliance with applicable codes or requirements, or as to any other characteristics, of the generating facility equipment, controls, and protective relays and equipment.

14. A Customer's generating facility is transferable to other persons or service locations only after notification to the Company has been made and verification that the installation is in compliance with the Company's Net Metering Tariff, as applicable, and this Agreement.

(T)

Upon written notification that an approved generating facility is being transferred to another person, customer or location, the Company will verify that the installation is in compliance with the Company's Net Metering Tariff, as applicable, and this Agreement and provide written notification to the customer(s) within 20 business days. If the installation is no longer in compliance with the Company's Net Metering Tariff, as applicable, and this Agreement, the Company will notify the Customer in writing and list what must be done to place the facility in compliance.

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15. The Customer shall retain any and all Renewable Energy Credits (RECs) that may be generated by their generating facility.

Effective Term and Termination Rights

This Agreement becomes effective when executed by both parties and shall continue in effect until terminated. This Agreement may be terminated as follows: (a) Customer may terminate this Agreement at any time by giving the Company at least sixty (60) days' written notice; (b) Company may terminate upon failure by the Customer to continue ongoing operation of the generating facility; (c) either party may terminate by giving the other party at least thirty (30) days prior written notice that the other party is in default of any of the terms and conditions of the Agreement or the Rules or any rate schedule, tariff, regulation, contract, or policy of the Company, so long as the notice specifies the basis for termination and there is opportunity to cure the default; (d) the Company may terminate by giving the Customer at least thirty (30) days notice in the event that there is a material change in an applicable law, regulation or statute affecting this Agreement or which renders the system out of compliance with the new law or statute

IN WITNESS WHEREOF, the Parties have executed this Agreement, effective as of the date first above written.

COMPANY

CUSTOMER

By: _____

By: _____

Printed Name

Printed Name

Title: _____

Title: _____

Exhibit A

Exhibit A will contain additional detailed information about the Generating Facility such as a single line diagram, relay settings, and a description of operation.

When construction of Company facilities is required, Exhibit A will also contain a description and associated cost.

Exhibit A will also specify requirements for a Company inspection and witness test and when limited operation for testing or full operation may begin.



Application for Interconnection and Net Metering – Kentucky Level 1

Use this application form only for a 30 kW or smaller generation facility in Kentucky that is inverter based and certified by a nationally recognized testing laboratory to meet the requirements of UL 1741.

Submit a signed copy of this Application (including all required attachments) by mail or email to:

Mailing address: Duke Energy Kentucky
9700 David Taylor Drive
Charlotte, NC 28262
Attention: Customer Owned Generation – DT02W

Contact information listed is subject to change. Please visit our website for up-to-date information at:
www.duke-energy.com/kentucky/customer-owned-generation.asp

Overnight address: Duke Energy Kentucky
9700 David Taylor Drive
Charlotte, NC 28262
Attention: Customer Owned Generation – DT02W

EMAIL: customerownedgeneration@duke-energy.com

If you have questions regarding this Application or its status, contact Duke Energy by email at customerownedgeneration@duke-energy.com or by phone at 866-233-2290.

APPLICANT INFORMATION – Use name as it appears on Duke Energy bill

Customer Name: _____ Account Number: _____
Customer Address: _____
Phone No.: _____ E-Mail Address(Optional): _____

Project Contact Person (If different than above): _____
Phone No.: _____ E-mail Address (Optional): _____

Provide names and contact information for other contractors, installers, or engineering firms involved in the design and installation of the generating facilities:

GENERATING FACILITY INFORMATION

Energy Source: Solar Wind Hydro Biogas Biomass

Inverter Manufacturer, Model # & Quantity: _____

Total Inverter Power Rating: _____ Inverter Voltage Rating: _____

Power Rating of Energy Source (i.e., solar panels, wind turbine): _____

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Is Battery Storage Used: No Yes If Yes, Battery Power Rating: _____

Expected Start-up Date: _____

Attach documentation showing that inverter is certified by a nationally recognized testing laboratory to meet the requirements of UL 1741.

Attach site drawing or sketch showing location of the energy source, inverter, and Duke Energy's meter.

Attach single line drawing showing all electrical equipment from Duke Energy's metering location to the energy source including switches, fuses, breakers, panels, transformers, inverters, energy source, wire size, equipment ratings, and transformer connections.

TERMS AND CONDITIONS

Any Customer operating a generating device in parallel with the Company's system shall comply with the following Terms and Conditions. The term "Company" refers to Duke Energy Kentucky.

1. The Company shall provide Customer net metering services, without charge for standard metering equipment, through a standard kilowatt-hour metering system capable of measuring the flow of electricity in two (2) directions. If the Customer requests any additional meter or meters or distribution upgrades are needed to monitor the flow in each direction, such installations shall be at the Customer's expense.
2. Customer shall install, operate, and maintain, at Customer's sole cost and expense, any control, protective, or other equipment on the Customer's system required by the Company's technical interconnection requirements based on IEEE 1547, the NEC, accredited testing laboratories such as Underwriters Laboratories, and the manufacturer's suggested practices for safe, efficient and reliable operation of the generating facility in parallel with Company's electric system. Customer shall bear full responsibility for the installation, maintenance and safe operation of the generating facility. Upon reasonable request from the Company, Customer shall demonstrate generating facility compliance.
3. The generating facility shall comply with, and Customer shall represent and warrant its compliance with: (a) any applicable safety and power quality standards established by IEEE and accredited testing laboratories such as Underwriters Laboratories; (b) the (NEC) as may be revised from time to time; (c) Company's rules, regulations, and Company's Service Regulations as contained in Company's Retail Electric Tariff as may be revised from time to time with the approval of the Kentucky Public Service Commission (Commission); (d) the rules and regulations of the Commission, as such rules and regulations may be revised from time to time by the Commission; and (e) all other applicable local, state, and federal codes and laws, as the same may be in effect from time to time. Where required by law, Customer shall pass an electrical inspection of the generating facility by a local authority having jurisdiction over the installation. (D)
4. Any changes or additions to the Company's system required to accommodate the generating facility shall be considered excess facilities. Customer shall agree to pay Company for actual costs incurred for all such excess facilities prior to construction.
5. Customer shall operate the generating facility in such a manner as not to cause undue fluctuations in voltage, intermittent load characteristics or otherwise interfere with the operation of Company's electric system. At all times when the generating facility is being operated in parallel with Company's electric system, Customer shall so operate the generating facility in such a manner that no adverse impacts will be produced thereby to the service quality rendered by Company to any of its other customers or to any electric system interconnected with Company's electric system. Customer shall agree that the interconnection and operation of the generating facility is secondary to, and shall not interfere with, Company's ability to meet its primary responsibility of furnishing reasonably adequate service to its customers.
6. Customer shall be responsible for protecting, at Customer's sole cost and expense, the generating facility from any condition or disturbance on Company's electric system, including, but not limited to, voltage sags or swells, system faults, outages, loss of a single phase of supply, equipment failures, and lightning or switching surges, except that the Company shall be responsible for repair of damage caused to the generating facility resulting solely from the negligence or willful misconduct on the part of the Company.
7. After initial installation, Company shall have the right to inspect and/or witness commissioning tests, as specified in the Level 1 application and approval process. Following the initial testing and inspection of the generating facility and upon reasonable advance notice to Customer, Company shall have access at reasonable times to the generating facility to perform reasonable on-site inspections to verify that the installation, maintenance and operation of the generating facility comply with the requirements of the Company's Net Metering Tariff.

8. For inverter based systems that are certified by a nationally recognized testing laboratory to meet the requirements of UL 1741 and qualify for a Level 1 application, the Company does not require a Customer owned external disconnect switch.
9. Company shall have the right and authority at Company's sole discretion to isolate the generating facility or require the Customer to discontinue operation of the generating facility if Company believes that: (a) continued interconnection and parallel operation of the generating facility with Company's electric system creates or contributes (or may create or contribute) to a system emergency on either Company's or Customer's electric system; (b) the generating facility is not in compliance with the requirements of the Company's Net Metering Tariff, and the non-compliance adversely affects the safety, reliability or power quality of Company's electric system; or (c) the generating facility interferes with the operation of Company's electric system. In non-emergency situations, Company shall give Customer notice of noncompliance including a description of the specific noncompliance condition and allow Customer a reasonable time to cure the noncompliance prior to isolating the Generating Facilities. In emergency situations, where the Company is unable to immediately isolate or cause the Customer to isolate only the generating facility, the Company may isolate the Customer's entire facility.
10. Customer shall agree that, without the prior written permission from Company, no changes shall be made to the generating facility as initially approved. Increases in generating facility capacity will require a new "Application for Interconnection and Net Metering" which will be evaluated on the same basis as any other new application. Repair and replacement of existing generating facility components with like components that meet UL 1741 certification requirements for Level 1 facilities and not resulting in increases in generating facility capacity is allowed without approval.
11. To the extent permitted by law, the Customer shall protect, indemnify and hold harmless the Company and its directors, officers, employees, agents, representatives and contractors against and from all loss, claims, actions or suits, including costs and attorneys fees, for or on account of any injury or death of persons or damage to property caused by the Customer or the Customer's employees, agents, representatives and contractors in tampering with, repairing, maintaining or operating the Customer's generating facility or any related equipment or any facilities owned by the Company except where such injury, death or damage was caused or contributed to by the fault or negligence of the Company or its employees, agents, representatives or contractors.

The liability of the Company to the Customer for injury to person and property shall be governed by the tariff(s) for the class of service under which the Customer is taking service.
12. The Customer shall maintain general liability insurance coverage (through a standard homeowner's, commercial or other policy) for Level 1 generating facilities. Customer shall upon request provide Company with proof of such insurance at the time that application is made for net metering.
13. By entering into an Interconnection Agreement, or by inspection, if any, or by non-rejection, or by approval, or in any other way, Company does not give any warranty, express or implied, as to the adequacy, safety, compliance with applicable codes or requirements, or as to any other characteristics, of the generating facility equipment, controls, and protective relays and equipment.
14. A Customer's generating facility is transferable to other persons or service locations only after notification to the Company has been made and verification that the installation is in compliance with the Company's Net Metering Tariff. Upon written notification that an approved generating facility is being transferred to another person, customer or location, the Company will verify that the installation is in compliance with the Company's Net Metering Tariff and provide written notification to the customer(s) within 20 business days. If the installation is no longer in compliance with the Company's Net Metering Tariff, the Company will notify the Customer in writing and list what must be done to place the facility in compliance.
15. The Customer shall retain any and all Renewable Energy Credits (RECs) that may be generated by their generating facility.

Effective Term and Termination Rights

This Agreement becomes effective when executed by both parties (the application is signed by the Customer and written approval is given by the Company) and shall continue in effect until terminated. This Agreement may be terminated as follows: (a) Customer may terminate this Agreement at any time by giving the Company at least sixty (60) days' written notice; (b) Company may terminate upon failure by the Customer to continue ongoing operation of the generating facility; (c) either party may terminate by giving the other party at least thirty (30) days prior written notice that the other party is in default of any of the terms and conditions of the Agreement or the Rules or any rate schedule, tariff, regulation, contract, or policy of the Company, so long as the notice specifies the basis for termination and there is opportunity to cure the default; (d) the company may terminate by giving the Customer at least thirty (30) days notice in the event that there is a material change in an applicable law, regulation or statute affecting this Agreement or which renders the system out of compliance with the new law or statute.

CUSTOMER SIGNATURE

I hereby certify that, to the best of my knowledge, all of the information provided in this application is true and I agree to abide by all the Special Terms and Conditions included in this "Application for Interconnection and Net Metering" and the Company's Rider NM – Net Metering.

Duke Energy Kentucky Level 1 Application for Interconnection and Net Metering
Page 3 of 4

Customer Signature

Date

Printed Name

Title

Application for Interconnection – Kentucky Level 2

Use this application form when generation facility is in Kentucky and is not inverter-based or is not certified by a nationally recognized testing laboratory to meet the requirements of UL 1741.

Submit a signed copy of this Application (including all required attachments) by mail or email to:

Mailing address: Duke Energy Kentucky
9700 David Taylor Drive
Charlotte, NC 28262
Attention: Customer Owned Generation – DT02W

Contact information listed is subject to change. Please visit our website for up-to-date information at :
www.duke-energy.com/kentucky/customer-owned-generation.asp

Overnight address: Duke Energy Kentucky
9700 David Taylor Drive
Charlotte, NC 28262
Attention: Customer Owned Generation – DT02W

EMAIL: customerownedgeneration@duke-energy.com

If you have questions regarding this Application or its status, contact Duke Energy by email at customerownedgeneration@duke-energy.com or by phone at 866-233-2290.

APPLICANT INFORMATION – Use name as it appears on Duke Energy bill

Customer Name: _____ Account Number: _____

Customer Address: _____

Phone No.: _____ E-Mail Address(Optional): _____

Project Contact Person (If different than above): _____

Phone No.: _____ E-mail Address (Optional): _____

Provide names and contact information for other contractors, installers, or engineering firms involved in the design and installation of the generating facilities:

GENERATING FACILITY INFORMATION

Type of Generator: Inverter-Based Synchronous Induction

Power Source: Solar Wind Hydro Biogas Biomass

Total Generating Capacity of Generating Facility: _____

Adequate documentation and information must be submitted with this application to be considered complete. Typically this should include the following:

1. Single-line diagram of the customer's system showing all electrical equipment from the generator to the point of interconnection with the Company's distribution system, including generators, transformers, switchgear, switches, breakers, fuses, voltage transformers, current transformers, wire sizes, equipment ratings, and transformer connections.
2. Control drawings for relays and breakers.
3. Site Plans showing the physical location of major equipment.
4. Relevant ratings of equipment. Transformer information should include capacity ratings, voltage ratings, winding arrangements, and impedance.
5. If protective relays are used, settings applicable to the interconnection protection. If programmable relays are used, a description of how the relay is programmed to operate as applicable to interconnection protection.
6. A description of how the generator system will be operated including all modes of operation.
7. For inverters, the manufacturer name, model number, and AC power rating. For certified inverters, attach documentation showing that inverter is certified by a nationally recognized testing laboratory to meet the requirements of UL 1741.
8. For synchronous generators, manufacturer and model number, nameplate ratings, and impedance data (X_d , X'_d , & X''_d).
9. For induction generators, manufacturer and model number, nameplate ratings, and locked rotor current.

CUSTOMER SIGNATURE

Customer Signature

Date



Interconnection Approval

Date

Customer name
Street address
City, State, Zip

Dear (customer name):

Your *Level 1 Application for Interconnection and Net Metering* dated (xxxx) for (describe generating system) located at (address) has been approved by Duke Energy subject to the provisions contained in the *Level 1 Application for Interconnection and Net Metering* and as indicated below.

Duke Energy inspection and witness test: Required Waived

If a Duke Energy inspection and witness test is required, Customer shall notify Duke Energy within 3 business days of completion of the generating facility installation and schedule an inspection and witness test with Duke Energy to occur within 10 business days of completion of the generation facility installation or as otherwise agreed to by Duke Energy and the Customer. The Customer may not operate the generation facility (except for operational testing not to exceed two hours) until such inspection and witness test is successfully completed and all other terms and conditions in the Application have been met. Call _____ to schedule an inspection and witness test.

If a Duke Energy inspection and witness test is waived, operation of the generation facility may begin when installation is complete and all other terms and conditions in the Application have been met.

Additions, Changes, or Clarifications to Application Information:

None As specified here: _____

Approved by: (Duke Representative)
(Title)
(phone)
(email)

LEVEL 2
INTERCONNECTION AGREEMENT

THIS INTERCONNECTION AGREEMENT (Agreement) is made and entered into this _____ day of _____, 20____, by and between Duke Energy Kentucky (Company), and _____ (Customer). Company and Customer are hereinafter sometimes referred to individually as “Party” or collectively as “Parties”.

WITNESSETH:

WHEREAS, Customer is installing, or has installed, generating equipment, controls, and protective relays and equipment (Generating Facility) used to interconnect and operate in parallel with Company’s electric system, which Generating Facility is more fully described in Exhibit A, attached hereto and incorporated herein by this Agreement, and as follows:

Location: _____

Generator Size and Type: _____

NOW, THEREFORE, in consideration thereof, Customer and Company agree as follows:

Company agrees to allow Customer to interconnect and operate the Generating Facility in parallel with the Company’s electric system and Customer agrees to abide by Company’s Net Metering Tariff, if applicable, and all the Terms and Conditions listed in this Agreement including any additional conditions listed in Exhibit A.

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Terms and Conditions:

To interconnect to the Company’s distribution system, the Customer’s generating facility shall comply with the following terms and conditions:

1. The Company shall provide Customer net metering services, as applicable, without charge for standard metering equipment, through a standard kilowatt-hour metering system capable of measuring the flow of electricity in two (2) directions. If the Customer requests any additional meter or meters or distribution upgrades are needed to monitor the flow in each direction, such installations shall be at the Customer’s expense.
2. Customer shall install, operate, and maintain, at Customer’s sole cost and expense, any control, protective, or other equipment on the Customer’s system required by the Company’s technical interconnection requirements based on IEEE 1547, the NEC, accredited testing laboratories such as Underwriters Laboratories, and the manufacturer’s suggested practices for safe, efficient and reliable operation of the generating facility in parallel with Company’s electric system. Customer shall bear full responsibility for the installation, maintenance and safe operation of the generating facility. Upon reasonable request from the Company, Customer shall demonstrate generating facility compliance.
3. The generating facility shall comply with, and Customer shall represent and warrant its compliance with: (a) any applicable safety and power quality standards established by the Institute of Electrical and Electronics Engineers (IEEE) and accredited testing

(T)

- laboratories such as Underwriters Laboratories (UL); (b) the National Electrical Code (NEC) as may be revised from time to time; (c) Company's rules, regulations, and Company's Service Regulations as contained in Company's Retail Electric Tariff as may be revised from time to time with the approval of the Kentucky Public Service Commission (Commission); (d) the rules and regulations of the Commission, as such rules and regulations may be revised from time to time by the Commission; and (e) all other applicable local, state, and federal codes and laws, as the same may be in effect from time to time. Where required by law, Customer shall pass an electrical inspection of the generating facility by a local authority having jurisdiction over the installation.
4. Any changes or additions to the Company's system required to accommodate the generating facility shall be considered excess facilities. Customer shall agree to pay Company for actual costs incurred for all such excess facilities prior to construction.
 5. Customer shall operate the generating facility in such a manner as not to cause undue fluctuations in voltage, intermittent load characteristics or otherwise interfere with the operation of Company's electric system. At all times when the generating facility is being operated in parallel with Company's electric system, Customer shall so operate the generating facility in such a manner that no adverse impacts will be produced thereby to the service quality rendered by Company to any of its other customers or to any electric system interconnected with Company's electric system. Customer shall agree that the interconnection and operation of the generating facility is secondary to, and shall not interfere with, Company's ability to meet its primary responsibility of furnishing reasonably adequate service to its customers.
 6. Customer shall be responsible for protecting, at Customer's sole cost and expense, the generating facility from any condition or disturbance on Company's electric system, including, but not limited to, voltage sags or swells, system faults, outages, loss of a single phase of supply, equipment failures, and lightning or switching surges, except that the Company shall be responsible for repair of damage caused to the generating facility resulting solely from the negligence or willful misconduct on the part of the Company.
 7. After initial installation, Company shall have the right to inspect and/or witness commissioning tests, as specified in Exhibit A of this Agreement. Following the initial testing and inspection of the generating facility and upon reasonable advance notice to Customer, Company shall have access at reasonable times to the generating facility to perform reasonable on-site inspections to verify that the installation, maintenance and operation of the generating facility comply with the requirements of the Company's Net Metering Tariff, as applicable, and this Agreement.
 8. For Level 2 generating facilities, where required by the Company, an eligible Customer shall furnish and install on Customer's side of the point of common coupling a safety disconnect switch which shall be capable of fully disconnecting the Customer's energy generating equipment from Company's electric service under the full rated conditions of the Customer's generating facility. The external disconnect switch (EDS) shall be located adjacent to Company's meters or the location of the EDS shall be noted by placing a sticker on the meter and shall be of the visible break type in a metal enclosure which can be secured by a padlock. If the EDS is not located directly adjacent to the meter, the Customer shall be responsible for ensuring the location of the EDS is properly and legibly identified for so long as the generating facility is operational. The disconnect switch shall be accessible to Company personnel at all times. The Company may waive the requirement for an external disconnect switch for a generating facility at its sole

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discretion, and on a case by case basis, upon review of the generating facility operating parameters and if permitted under the Company's safety and operating protocols.

9. Company shall have the right and authority at Company's sole discretion to isolate the generating facility or require the Customer to discontinue operation of the generating facility if Company believes that: (a) continued interconnection and parallel operation of the generating facility with Company's electric system creates or contributes (or may create or contribute) to a system emergency on either Company's or Customer's electric system; (b) the generating facility is not in compliance with the requirements of the Company's Net Metering Tariff, as applicable, and this Agreement, and the non-compliance adversely affects the safety, reliability or power quality of Company's electric system; or (c) the generating facility interferes with the operation of Company's electric system. In non-emergency situations, Company shall give Customer notice of noncompliance including a description of the specific noncompliance condition and allow Customer a reasonable time to cure the noncompliance prior to isolating the Generating Facilities. In emergency situations, where the Company is unable to immediately isolate or cause the Customer to isolate only the generating facility, the Company may isolate the Customer's entire facility. (T)

10. Customer shall agree that, without the prior written permission from Company, no changes shall be made to the generating facility as initially approved. Increases in generating facility capacity will require a new "Application for Interconnection" which will be evaluated on the same basis as any other new application. Repair and replacement of existing generating facility components not resulting in increases in generating facility capacity is allowed without approval. (D)

11. To the extent permitted by law, the Customer shall protect, indemnify and hold harmless the Company and its directors, officers, employees, agents, representatives and contractors against and from all loss, claims, actions or suits, including costs and attorneys fees, for or on account of any injury or death of persons or damage to property caused by the Customer or the Customer's employees, agents, representatives and contractors in tampering with, repairing, maintaining or operating the Customer's generating facility or any related equipment or any facilities owned by the Company except where such injury, death or damage was caused or contributed to by the fault or negligence of the Company or its employees, agents, representatives or contractors.

The liability of the Company to the Customer for injury to person and property shall be governed by the tariff(s) for the class of service under which the Customer is taking service.

12. The Customer shall maintain general liability insurance coverage (through a standard homeowner's, commercial or other policy). Customer shall provide Company with proof of such insurance at the time that application is made. (D)

13. By entering into an Interconnection Agreement, or by inspection, if any, or by non-rejection, or by approval, or in any other way, Company does not give any warranty, express or implied, as to the adequacy, safety, compliance with applicable codes or requirements, or as to any other characteristics, of the generating facility equipment, controls, and protective relays and equipment.

14. A Customer's generating facility is transferable to other persons or service locations only after notification to the Company has been made and verification that the installation is in compliance with the Company's Net Metering Tariff, as applicable, and this Agreement. (T)

Upon written notification that an approved generating facility is being transferred to another person, customer or location, the Company will verify that the installation is in compliance with the Company's Net Metering Tariff, as applicable, and this Agreement and provide written notification to the customer(s) within 20 business days. If the installation is no longer in compliance with the Company's Net Metering Tariff, as applicable, and this Agreement, the Company will notify the Customer in writing and list what must be done to place the facility in compliance.

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15. The Customer shall retain any and all Renewable Energy Credits (RECs) that may be generated by their generating facility.

Effective Term and Termination Rights

This Agreement becomes effective when executed by both parties and shall continue in effect until terminated. This Agreement may be terminated as follows: (a) Customer may terminate this Agreement at any time by giving the Company at least sixty (60) days' written notice; (b) Company may terminate upon failure by the Customer to continue ongoing operation of the generating facility; (c) either party may terminate by giving the other party at least thirty (30) days prior written notice that the other party is in default of any of the terms and conditions of the Agreement or the Rules or any rate schedule, tariff, regulation, contract, or policy of the Company, so long as the notice specifies the basis for termination and there is opportunity to cure the default; (d) the Company may terminate by giving the Customer at least thirty (30) days notice in the event that there is a material change in an applicable law, regulation or statute affecting this Agreement or which renders the system out of compliance with the new law or statute

IN WITNESS WHEREOF, the Parties have executed this Agreement, effective as of the date first above written.

COMPANY

CUSTOMER

By: _____

By: _____

Printed Name

Printed Name

Title: _____

Title: _____

Exhibit A

Exhibit A will contain additional detailed information about the Generating Facility such as a single line diagram, relay settings, and a description of operation.

When construction of Company facilities is required, Exhibit A will also contain a description and associated cost.

Exhibit A will also specify requirements for a Company inspection and witness test and when limited operation for testing or full operation may begin.