

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC INVESTIGATION OF)	CASE NO.
INTERCONNECTION AND NET METERING)	2020-00302
GUIDELINES)	

KENTUCKY SOLAR INDUSTRIES ASSOCIATION, INC.
WRITTEN BRIEF

Comes now the Kentucky Solar Industries Association, Inc. (KYSEIA), by and through counsel and per the February 16, 2021 and March 4, 2021 Commission Orders, and tenders its Written Brief setting forth current and reasonably anticipated issues and concerns regarding net metering interconnection guidelines and FERC Order No. 2222, as follows:

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I. INTRODUCTION

KYSEIA is a Kentucky trade association of solar business supporters that unites businesses across the solar industry including the contractors responsible for building solar arrays, the developers creating new generating facilities, the solar manufacturers crafting innovative products, the many businesses that support the industry, and the customers that install solar systems. KYSEIA's members span the state with active or completed projects across the Commonwealth. KYSEIA's objectives include, among other things, providing leadership and promoting sound policy in Kentucky as the power sector enters the solar age.

KYSEIA members are proud to contribute to Kentucky's vital energy sector and are eager to contribute to energy diversity within the Commonwealth, while continuing to create in-state jobs, providing consumers a choice in their energy supply, and vitalizing local economic development. KYSEIA has been intimately involved in net metering tariffs, policy, and legislation in Kentucky for several years. KYSEIA members were also involved in the negotiation and approval of the 2009 Interconnection Guidelines adopted by the Commission, and continue to be involved with the interconnection process in Kentucky pursuant to those Guidelines on a daily basis. KYSEIA continues to have a special and distinct interest in these interconnection procedures and net metering guidelines, as it not only represents customer generators and potential customer generators who are subject to those procedures and guidelines, it also represents the solar companies that will ultimately be assisting these customers and potential customers in complying with those interconnection procedures and net metering applications.

Interconnection standards allow projects to smoothly connect to the grid. The quality of interconnection rules can facilitate easy flow of electricity and prevent unnecessary

complications and congestion. With regards to distributed energy resources, interconnection standards should outline “with clarity the timelines, fees, technical requirements and steps in the review process for connecting distributed energy resources...to the electricity grid.”¹ The interconnection process should not be a source of frustration and contention for any party involved.² Clear, forward-thinking rules are “essential to maintain the safety and reliability of the grid, while also enabling the adoption of distributed energy resources and achieving broader clean energy and resiliency goals.”³

The current Interconnection Guidelines were approved in 2009.⁴ As stated in KYSEIA’s comments, the Guidelines were adopted through a transparent and inclusive process that involved the participation of a diverse group of stakeholders, including retail electric suppliers subject to the Commission’s jurisdiction, renewable energy installers, and the Kentucky Office of the Attorney General (“Attorney General”).

Since that time, best practices for safe, reliable, and fair interconnections of distributed energy resources continued to evolve, and Kentucky’s Guidelines have yet to be amended to reflect that evolution. Specifically, updated guidelines should include the latest processes, practices, and technologies that can facilitate higher Distributed Energy Resources (DER) penetration on the grid, while maintaining grid safety and reliability and a fair, just, and reasonable interconnection process for all parties. In addition, KYSEIA members routinely experience inconsistent and disparate treatment with regards to interconnection among the

¹ **Exhibit 2**; IREC, *Priority Considerations for Interconnection Standards: A Quick Reference Guide for Utility Regulators* (Aug. 2017), at Intro.

² *Id.*

³ *Id.*

⁴ Interconnection and Net Metering Guideline – Kentucky (“Interconnection Guidelines”), available at <https://www.psc.ky.gov/agencies/psc/Industry/Electric/Final%20Net%20Metering-Interconnection%20Guidelines%201-8-09.pdf>, last visited April 16, 2021.

jurisdictional utilities. The Interconnection Guidelines must be updated to address the many shortcomings and deficiencies that continue to surface in light of new technologies, updated practices, and processing inconsistencies.

In order to address these issues, KYSEIA recommends the Commission adopt the most recent iteration (2019) of the IREC Model Interconnection Procedures (“Model Procedures”) with some modifications.⁵ The IREC model reflects the national best practices for the interconnection of (DERs). The Model Procedures provide robust step-by-step set of procedures to guide both interconnection applicants and utilities through the process of reviewing and approving interconnections for all types of state-jurisdictional projects. The Model Procedures include many provisions missing from the current rules, including a process for evaluating energy storage systems, requirements for publishing a public queue and reporting, a much needed dispute resolution process, clarification of material modification provisions, and accommodation of ongoing technological standard updates.

KYSEIA also recommends that the Commission require a separate robust and transparent stakeholder process to adopt IEEE Standard 1547-2018, clarify that the receipt of an application constitutes the in-service date for purposes of consistency and stability within the DER installer industry, and require utility’s inform interconnection applicants and the public as a utility approaches the 1% statutory cap.

Lastly, and in regards to FERC Order 2222, while FERC Order 2222 does provide a potential cure for to insufficient utility valuation of customer-owned resources, it is unclear what ISOs/RTOs will be submitting in compliance with the Order and how utilities not participating in

⁵ See **Exhibit 1**.

ISOs/RTOs will be affected. Regardless, KYSEIA believes it is appropriate for the Commission explore how to implement DER aggregation.

II. PROCEDURAL BACKGROUND

KYSEIA initially provided comments requesting review and update of the Interconnection Guidelines in Commission Case No. 2019-00256, *In the Matter of: Electronic Consideration of the Implementation of the Net Metering Act*.⁶ On September 24, 2020, the Commission, on its own motion, initiated an administrative case to investigate and potentially modify and update the Interconnection Guidelines. In that September 24, 2020, Order, the Commission noted that it “concurred with several of the commenters [in Case No. 2019-00256] that net metering interconnection guidelines needed to be updated.”⁷ The Commission found “that this proceeding is necessary due to the passage of time since the Commission last visited these issues in Case No. 2008-00169 [the case approving the current Interconnection Guidelines].”⁸ The Commission made all jurisdictional electric utilities parties to the instant case, and encouraged any individuals or groups with a special interest in the interconnection standards applicable to net metering, to participate, either by moving for intervention as dictated by statute and regulation, or by filing comments.⁹ KYSEIA moved for full intervention on October 26, 2020,¹⁰ and was granted full intervention on November 6, 2020.¹¹

⁶ Case No. 2019-00256, *Electronic Consideration of the Implementation of the Net Metering Act*.

⁷ Case No. 2020-00302, *Electronic Investigation of Interconnection and Net Metering Guidelines* (Ky. PSC Sep. 24, 2019), Order at 1.

⁸ *Id.*

⁹ *Id.* at 2.

¹⁰ Case No. 2020-00302, *Electronic Investigation of Interconnection and Net Metering Guidelines* (Ky. PSC Sep. 24, 2019), KYSEIA Motion to Intervene, filed on October 26, 2020.

¹¹ Case No. 2020-00302, *Electronic Investigation of Interconnection and Net Metering Guidelines* (Ky. PSC Nov. 6, 2020), Order at 1.

On February 8, 2021, the Commission provided notice to all parties that Federal Energy Regulatory Commission (FERC) Order No. 2222, *Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators*, final rule issued September 17, 2020, in Docket No. RM18-9-000, has been filed in the instant case.

This Written Brief is timely and filed consistent with the Commission's March 4, 2021 Order, and addresses current and reasonably anticipated issues, concerns, and recommendations regarding net metering interconnection guidelines and FERC Order No. 2222.

III. 2009 INTERCONNECTION GUIDELINES

1. ISSUANCE OF THE 2009 INTERCONNECTION GUIDELINES

The Commission initiated Case No. 2008-00169, *In the Matter of: Development of Guidelines for Interconnection and Net Metering for Certain Generators with Capacity Up to Thirty Kilowatts*, to establish interconnection and net metering guidelines in accordance with Senate Bill 83 enacted by the Kentucky General Assembly and signed by the Governor in 2008. SB 83 was designed to increase the number of net metering customers by expanding the type and sizes of customer-owned electric generating facilities that qualify for net metering. The bill also required that interconnection and net metering guidelines be developed by the Commission for all retail electric suppliers by January 11, 2009.¹²

In that proceeding, the Commission made all jurisdictional utilities parties and granted full intervenor status to the Attorney General, Appalachia-Science in the Public Interest, Solar Energy Solutions LLC (now a KYSEIA member), and Joshua Bills. The Commission adopted a

¹² See generally Case No. 2008-00169, *In the Matter of: Development of Guidelines for Interconnection and Net Metering for Certain Generators with Capacity Up to Thirty Kilowatts* (Ky. PSC Jan. 8, 2009), Order at 1-6.

cooperative approach, hosting several informal conferences with the parties. The utilities and intervening parties also engaged in additional settlement negotiations with Commission staff and the Attorney General. Draft guidelines were prepared and distributed to all parties for review on October 2, 2008. On January 8, 2009, the Commission issued the Interconnection and Net Metering Guidelines – Kentucky. The Commission commended the parties for their willingness to engage productively and cooperatively and noted that all parties were well-represented and were provided the opportunity to fully voice their opinions. KYSEIA hopes this cooperation continues through this amendment process. The Guidelines issued on January 8, 2009 remain in effect today unchanged.

2. SUMMARY OF THE 2009 INTERCONNECTION GUIDELINES.

The Guidelines are intended to “facilitate the use of net metering and interconnection of renewable energy generators by establishing interconnection and net metering guidelines for all retail electric suppliers operating in the Commonwealth, incorporating all applicable safety and power quality standards established by the National Electrical Code (NEC), Institute of Electrical and Electronics Engineers (IEEE) and accredited testing laboratories such as Underwriters Laboratories (UL).”¹³

The Guidelines establish that net metering is available to eligible customer generators in a utility’s service territory, upon request, and on a first-come, first-served basis up to a cumulative capacity of one percent (1%) of the utility's single hour peak load in Kentucky during the previous year.¹⁴ If the cumulative generating capacity of net metering systems reaches 1% of a supplier's single hour peak load during the previous year, upon Commission approval, the

¹³ *Interconnection Guidelines* at 1.

¹⁴ *Id.*

Utility's obligation to offer net metering to a new customer-generator may be limited.¹⁵

Unfortunately, SB 100 now requires a mandatory 1% cap, one of the most restrictive in the United States.

Consistent with SB 83, an eligible customer-generator means:

[A] retail electric customer of the Utility with a generating facility that:

- (1) Generates electricity using solar energy, wind energy, biomass or biogas energy, or hydro energy;
- (2) Has a rated capacity of not greater than thirty (30) kilowatts;¹⁶
- (3) Is located on the customer's premises;
- (4) Is owned and operated by the customer;
- (5) Is connected in parallel with the Utility's electric distribution system;
and
- (6) Has the primary purpose of supplying all or part of the customer's own electricity requirements.

The Guidelines also allow utilities to provide net metering to other customer-generators not meeting all these conditions on a case-by-case basis.¹⁷

Metering and Billing

Due to variability between utilities, the Guidelines do not specify the type of meter required, other than that the utility must provide net metering services, without any cost to the customer for metering equipment, through a standard kilowatt-hour metering system capable of

¹⁵ *Id.*

¹⁶ SB 100 changed this rated capacity to forty five (45) kW. The implementation of SB 100 and KYSEIA's comments on that implementation can be found in Commission Case No. 2019-00256 referenced above.

¹⁷ *Interconnection Guidelines* at 1.

measuring the flow of electricity in two (2) directions. However, the customer is not relieved from paying metering costs embedded in the utility's Commission-approved base rates.¹⁸

The Commission also found that it was impracticable to have common requirements that clearly describes the billing details of any one utility, other than requiring each utility to provide language in its tariff filing that uniquely describes its billing practice consistent with the requirements in KRS 278.465 to 278.468.¹⁹

Application and Approval

Under the Interconnection Guidelines, a customer must submit an application and receive approval from the utility prior to connecting the generating facility to the utility's system. Applications can either be Level 1 or Level 2. The majority of applications submitted are Level 1.

The Guidelines do not contain a formal dispute resolution process. Instead, the Guidelines allow the utilities to "reject an Application for violations of any code, standard, or regulation related to the reliability or safety; however, the Utility will work with the Customer to resolve those issues to the extent practicable."²⁰ Customers may call utilities to check on an application status or ask questions prior to filing an application.²¹ Utilities are required to provide electronic and phone contact information on application forms, websites, and customer bill inserts.²² Every utility with a website must provide net metering application for and information regarding the net metering program. Companies must accept applications by mail or in person and may accept applications electronically.²³

Level 1 Review

¹⁸ *Id.* at 2.

¹⁹ *Id.*

²⁰ *Id.* at 2.

²¹ *Id.*

²² *Id.*

²³ *Id.* at 3.

A Level 1 Application must be used if the generating facility is inverter-based and is certified by a nationally recognized testing laboratory to meet the requirements of Underwriters Laboratories (UL) Standard 1741 “Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources” (UL 1741).²⁴ As most KYSEIA members install inverter-based systems as described above, most applicants follow Level 1 procedures. A utility must approve the Level 1 Application if the following conditions are met:

- 1) When interconnecting on a radial distribution circuit, the aggregated generation on the circuit, including the applicant, cannot exceed 15% of the line section’s most recent annual one hour peak load. In addition to the 1% net metering limitation imposed by SB 100, this adds another limitation to approval with regard to interconnection with the grid based upon the size and location of a facility.
- 2) If interconnected on a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the applicant, cannot exceed the smaller of 20 kVA or the nameplate rating of the transformer.
- 3) If the facility is single-phase and interconnected on a center tap neutral of a 240 volt service, its addition shall not create an imbalance between the two sides of the 240 volt service of more than 20% of the nameplate rating of the service transformer.
- 4) If the facility is to be connected to three-phase, three wire primary utility distribution lines, the generator shall appear as a phase-to-phase connection at the primary utility distribution line.
- 5) If the facility is to be connected to three-phase, four wire primary utility distribution lines, the generator shall appear to the primary utility distribution line as an effectively grounded source.²⁵

In addition:

- 1) The interconnection cannot be on an area or spot network, which is defined as systems in which multiple transformers are interconnected on the secondary side and multiple primary voltage circuits are used to feed the transformers.

²⁴ *Id.*

²⁵ *Id.* Also, KYSEIA members have disagreed with utilities on this particular issue, and having no dispute resolution process continues to leave installers with no practical recourse.

- 2) The Utility does not identify any violations of any applicable provisions of IEEE 1547, “Standard for Interconnecting Distributed Resources with Electric Power Systems.”
- 3) No construction of facilities by the Utility on its own system will be required to accommodate the generating facility.²⁶

If these criteria are not met, the utility, in its sole discretion, may (1) approve the generating facility under the Level 1 Application if the utility determines that the generating facility can be safely and reliably connected to the utility’s system or 2) deny the application.²⁷ The application must be processed in twenty days.²⁸ If more information is required, the utility must notify the customer with the additional information required and can add on time to the 20-day deadline.²⁹ If denied, the utility must supply the applicant with reason for denial.³⁰ The applicant may resubmit under Level 2.³¹

If approved for Level 1, the utility must sign the approval line on the Level 1 application. Approval is subject to an installation inspection and a witness test, if required by the utility.³² The witness test must be completed within 10 days of notification by the applicant after the facility has been installed. If the applicant fails the inspection or witness test due to non-compliance with the Guidelines, the applicant cannot operate the facility until in compliance and re-inspected.³³

Utilities are not allowed to charge application fees or other review, study, inspection, or witness test fees for Level 1 Applications.³⁴

²⁶ *Id.* at 4.

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ *Id.*

³⁴ *Id.* at 6.

Level 2 Review

Level 2 review is required where: (1) the facility is not inverter based; (2) the facility uses equipment that is not certified by a nationally recognized testing laboratory to meet the requirements of UL 1741; or (3) the facility does not meet one or more of the additional conditions under Level 1 review.³⁵

The utility must approve the Level 2 application if the generating facility meets the utility's technical interconnection requirements, which are based on the IEEE 1547 standard.³⁶

The utility must make its technical interconnection requirements available online and upon request.³⁷ The utility has 30 business days to process upon receipt of a complete application.³⁸

Within that time period, the utility must:

- (1) Approve the application and provide an Interconnection Agreement to sign.
- (2) Give notice to customer of additional construction or other changes and offer to meet with applicant to discuss estimated costs and construction timing. Applicant is responsible for those costs. If customer agrees and proceeds, utility must provide the applicant with an Interconnection Agreement within a reasonable time.
- (3) Deny the application, with stated reasons for denial. If denied, the applicant may resubmit.³⁹

³⁵ *Id.* at 5.

³⁶ *Id.* Also, "IEEE 1547" should reference the IEEE 1547 Standard adopted by the IEEE at the time the Guidelines were issued, as it would be impossible for the Commission to know what future IEEE standards would be approved by the IEEE. For example, and as discussed below, IEEE Standard 1547-2018 makes significant changes to equipment requirements for DERs that have yet to be fully certified and will not be until 2022.

³⁷ *Id.*

³⁸ *Id.* While described as obligation to process within 30 business day in the second full paragraph on page 5, the 30-business day deadline is described as a "target" in the last full paragraph on page 5. Such inconsistencies in an already ambiguous document makes enforcement difficult.

³⁹ *Id.*

Like in Level 1, if more information is required, the utility must notify the customer with the additional information required and then add on time to the 30-business day deadline to process that information.⁴⁰ The Interconnection Agreement will contain all the terms and conditions for interconnection consistent with this “tariff,” inspection and witness testing requirements, description of construction and other changes to the Utility's distribution system required to accommodate the generating facility, costs, and detailed documentation of the generating facilities which may include single line diagrams, relay settings, and a description of operation.⁴¹

A customer may not operate a generating facility until an Interconnection Agreement is signed by the applicant and utilities and all necessary conditions in the Interconnection Agreement are met.⁴²

For Level 2 applications, utilities may require an applicant to submit a non-refundable application, inspection, and processing fee of up to one hundred dollars (\$100).⁴³ If the utility determines an impact study is necessary for a Level 2 application, the applicant is responsible for any reasonable costs up to \$1,000 for the initial impact study.⁴⁴ The utility must provide

⁴⁰ *Id.*

⁴¹ *Id.* at 5-6. This portion also described the Guidelines as a “tariff.” As discussed in the January 8, 2009 Order in Case No. 2008-00169, the Commission had originally classified these Guidelines as a tariff. However, several parties objected to this term, and the Commission agreed. Finally issued as “guidelines,” the reference to tariff in this paragraph appears to be an inadvertent remnant from a previous version. Other seemingly inadvertent references to “tariff” instead of “guideline” can be found at page 8, paragraph 9, and page 9, paragraph 14.

⁴² *Id.* at 6.

⁴³ *Id.*

⁴⁴ *Id.*

documentation of the actual cost of the impact study.⁴⁵ The applicant is required to cover any other studies requested by the applicant.⁴⁶

Interconnection Terms and Conditions

After defining the Level 1 and Level 2 application process, the Guidelines list requirements to interconnect the proposed facility to the utility's distribution system.⁴⁷ The following summarizes those terms and conditions.

A utility is required to provide for a standard kilowatt-hour metering system capable of measuring the flow of electricity in two directions at no charge to the customer. The customer is responsible for the costs of any additional meters, distribution upgrades needed to monitor flow in two directions, and any control, protective or other equipment on a customer's system required by a utility's technical interconnection requirements based on IEEE 1547 the NEC, UL, or other accredited testing facilities. This includes the manufacturer's suggested practices for safe and reliable operation of the facility in parallel with the distribution system. The applicant must warranty compliance with all IEEE standards, the NEC, utility rules, utility tariffs, Commission regulations, and all other applicable local, state, and federal statutes and regulations. The generating facility must also pass an electrical inspection by the local authority having jurisdiction over the inspection. The applicant must pay for any changes or additions to the utility's system required to accommodate their generating facility.

Customers must operate the generating facility to not allow undue fluctuations in voltage, intermittent load characteristics, or otherwise interfere with the operation of the utility's system. The generating facility shall not be operated in a way that interferes with any of the utility's

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *See generally, id.* at 6-9.

other customers or to any electric system interconnected to the utility's system. Applicants must agree that the interconnection and operation of its generating facility is secondary to, and shall not interfere with, the utility's ability to meet its primary responsibility of furnishing reasonably adequate service to its customers. The applicant is responsible for protecting the generating facility for any condition or disturbance on the utility's system including voltage sags or swells, system faults, outages, loss of single phase of supply, equipment failures, and lightning or switching surges at the customer's expense. Utilities are still responsible for repairs and damages caused to the generating facility resulting from the utility's negligence or willful misconduct.

After initial installation, the utility has the right to inspect and witness commissioning tests. Upon reasonable notice to the customer and following the initial testing and inspection, utilities are allowed 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 this tariff.

The customer is also responsible for furnishing and installing on the customer side a safety disconnect switch that can fully disconnect the customer's generating equipment from the utility's electric service under the fully rated conditions of the customer's facility. The external disconnect must be located adjacent to the utility's meter or noted by a sticker, and must be a visible break type capable of being secured by a padlock. The customer is responsible for properly identifying the location of the switch and the switch shall be accessible to the utility at all times. The utility can waive the external disconnect switch requirement. If a utility requires an external disconnect, it is required to establish a training protocol for its staff on the location and use of the switch, and that the switch be turned back on when no longer necessary.

The utility has the right to isolate the generating facility or require disconnection if (a) continued interconnection and parallel operation of the generating facility with the utility's electric system may create or contribute to a system emergency on either a utility's or customer's electric system; (b) the generating facility is not in compliance with the requirements of these guidelines, adversely affecting the safety, reliability, or power quality of utility's electric system; or (c) the generating facility interferes with the operation of utility's electric system. In a non-emergency situation, the utility must give notice of noncompliance and allow the customer reasonable time to cure. In emergency situations, if the utility is unable to immediately isolate or cause the customer to isolate only the generating facility, the utility may isolate the customer's entire facility.

Customers cannot change, without prior written approval from the utility, any initially approved plans by the utility. Increase in generating facility capacity requires a new application, evaluated on the same basis as any other new application.⁴⁸ 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.

The liability of the customer to the utility and vice versa for injury to person and property shall be governed by the tariffs for the class of service under which the customer is taking service. However, the utility may require, per its standard tariffs and conditions of service, the customer to protect, indemnify, and hold harmless the utility and its directors, officers, employees, agents, representatives and contractors against and from all loss, claims, actions or

⁴⁸ This is a problematic and ongoing issue between KYSEIA members and utilities. How and when changes in a generating facility require a new application or new approvals is addressed in KYSEIA's recommendations below.

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 utility except where such injury, death or damage was caused or contributed to by the fault or negligence of the utility or its employees, agents, representatives, or contractors. Customers must maintain general liability insurance coverage for generating facilities and submit proof of insurance with an application. By entering into an interconnection agreement, a utility 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.

A generating facility is transferable to other persons or service location after notification to the utility has been made and verification that the installation is in compliance with the guidelines. Upon written notification of transfer, the utility will verify compliance with the guidelines within 20 business days. If the installation is no longer in compliance with the guidelines, the utility will notify the customer in writing and list what must be done to place the facility in compliance.

Lastly, the customer retains any and all renewable energy credits (RECs) that may be generated by their generating facility.

The Guidelines set forth a form for a Level 1 Application for Interconnection and Net Metering and forms for a Level 2 Application for Interconnection and Net Metering and a Level 2 Interconnection Agreement consistent with the requirements of the Guidelines.

IV. ONGOING ISSUES OF CONCERN WITH CURRENT INTERCONNECTION GUIDELINES AND PROCESS.

KYSEIA continues to survey its members on their experiences related to interconnection and the Interconnection Guidelines. Most members cite their frustrations with the process, including both inter and intra-utility inconsistencies, *ad hoc* requirements, and failure to process applications in a timely manner.

KYSEIA members, as expressed in multiple Commission cases, are particularly concerned with timeliness of processing and the ability for applicants to efficiently and fairly interconnect without arbitrary requirements or limitations. KYSEIA submits that it has experienced interconnection practices that create unnecessary and unreasonable barriers and delays. KYSEIA seeks the establishment of new guidelines by the Commission that will render the process fair and consistent to applicants across the state.

1. THE GUIDELINES, IN CURRENT FORM, ARE DEFICIENT TO ADDRESS CHANGING TECHNOLOGIES AND PROCESSES.

As DER deployment has increased and technology has changed since the Interconnection Guidelines were first issued, several problems have emerged.

The Interconnection Guidelines address both net metering and Interconnection policy. They are intended only to apply to net metering systems. The Interconnection Guidelines do not address interconnection procedures for non-net metering systems such as Qualifying Facilities or other types of procurement. This is especially important as DER penetration exceeds the mandatory 1% cap per SB 100.

The Interconnection Guidelines also combine both net metering and interconnections policy and procedures. Interconnection procedures should be separate and distinct from net metering policy. For example, the current Interconnection Guidelines include provisions concerning net metering availability and billing, and state that they are only available to eligible

customer generators in a utility's service territory, upon request, and on a first-come, first-served basis up to a cumulative capacity of one percent (1%) of the utility's single hour peak load in Kentucky during the previous year.⁴⁹ KYSEIA requests that any updates to the Interconnection Guidelines exclude provisions related to net metering policy and only concern the interconnection process for all DERs.

The current Interconnection Guidelines also do not provide an adequate dispute resolution process, a process through which a party can timely and reasonably pursue a grievance with the application process. Many of the issues addressed by KYSEIA members are fact dependent on an individual application. Currently, the only dispute resolution process available to an applicant is the informal and formal complaint process through the Commission. These processes can be unduly burdensome for the applicant, the utility, and the Commission, especially regarding issues such as timeline compliance or technical standard disagreements. For example, KYSEIA members have had interconnection disputes regarding Level 1 approval, locations and necessity of external disconnect switches, timeliness of application processing, and availability of utility representatives, among others. All of these issues could likely be addressed and resolved through dispute resolution.

The Interconnection Guidelines are also silent regarding energy storage devices (ESD) and non-exporting systems. An example of technology adoption, at the time the Interconnection Guidelines were approved, the installation and utilization of energy storage technologies were in their infancy. Now, energy storage is much more affordable and efficient, and provides another strategy for energy resiliency, efficiency, conservation, and safety. Having a thoughtful, efficient, fair, and safe process to accommodate energy storage systems is critical to

⁴⁹ *Interconnection Guidelines* at 1-2.

interconnection going forward. This includes policies that demonstrate how a system can be designed to prevent energy export, defining acceptable export controls, and thereby preventing the need to upgrade or replace other expensive customer and utility system components. If those controls are in place, the system nameplate generating capacity for purposes of interconnection should not be affected by the addition of energy storage.⁵⁰

The Interconnection Guidelines also have unreasonably burdensome insurance requirements. Inverter based projects below 1 MW should not require a minimum insurance coverage limit. A reasonable insurance coverage limit should only be required for system sizes of 1 MW or above.

In sum, while the Interconnection Guidelines were issued cooperatively with stakeholder agreement in 2009, DER interconnection has substantially evolved. The Guidelines must be updated to address this evolution and to resolve the problems experienced by all parties since being issued over ten years ago.

2. SPECIFIC ISSUES WITH INTERCONNECTION GUIDELINE IMPLEMENTATION AND PROCESS.

In previously submitted Comments to the Commission in Case No. 2019-00256, KYSEIA requested that the Commission modify the Interconnection Guidelines to conform to SB 100, improve consistency across jurisdictional utilities, streamline the process of interconnecting distributed generation facilities, make revisions to reflect advancements in technology that have occurred at a rapid pace since the current Guidelines were adopted over a

⁵⁰ The current Interconnection Guidelines only contemplate system sizes of 30 kW or below. KYSEIA requests that Commission updates the Guidelines to include the interconnection of all DERs, but, in the least, the Interconnection Guidelines must be amended to reflect the larger 45 kW system size now allowed by SB 100.

decade ago, and reduce unnecessary and costly red tape and unneeded equipment and infrastructure.⁵¹

Specifically, KYSEIA noted that many utilities require customer generators to install an expensive and duplicative lockable, solar-specific external disconnect switch (EDS) adjacent to the utility meter. However, the statute already requires that systems comply with the National Electrical Code (NEC) and utilize equipment listed by UL or an equivalent organization, which provides adequate assurance that systems will safely disconnect. As noted in those Comments, for well over a decade, experts have recognized that modern rooftop solar facilities, particularly small systems such as those eligible under net metering, do not need EDS equipment to safely interconnect with the grid. KYSEIA again asserts this position through these comments, and requests the Commission take steps to eliminate inefficient and unnecessary duplication as outlined below.

A continuing primary concern of KYSEIA and its members is that the interconnection process is inefficient and provides unreasonable deference to utilities to unilaterally limit and frustrate customer generators. Adopting an efficient and streamlined process without unnecessary red tape and delays would benefit not only customer generators, but also the utilities and the Commission.

Other than identifying the appropriate application forms and an incomplete set of deadlines, the Interconnection Guidelines are silent on how utilities process information. On several occasions, utilities have “lost” applications, or let them sit in inboxes or otherwise unprocessed for an unreasonable amount of time.

⁵¹ Case No. 2019-00256, *Electronic Consideration of the Implementation of the Net Metering, KYSEIA EQ Comments* (October 15, 2019), pages 4-6, and *KYSEIA Strobo Barkley Comments* (October 16, 2019), pages 23-28.

The time requirements set forth in the current Guidelines are often ignored. There is no tool, online or otherwise, that allows an applicant to track the application through the process. Applicants should be able to reasonably and quickly determine the status of an application. After the application is submitted, the applicant does not know if the application is received and does not know, from a timing standpoint, when the application may be fully processed. Utilities process and communicate with the applicant at their own discretion and at their own time and are often unresponsive to applicant inquiries. Many utilities also fail to give clear, formal communication of approval and permission to operate. Utilities also fail to give clear, written documentation of any denial of interconnection or permission to operate.

Utilities also insist on duplicative and unnecessary equipment, infrastructure and upgrades. Unnecessary EDSs are mentioned above, but utilities are requiring even more drastic unnecessary upgrades like transformer replacement when PV performance is not likely to cause exceedance of transformer ratings. Customer generators should only be responsible to pay for that portion of the interconnection costs resulting from the system modifications required to allow for safe, reliable parallel operation of the generating facility with the utility system. If a utility combines the installation of system modifications with additions to the utility's system to serve other customers or interconnecting customers, the Company should not be allowed to force the customer generator to pay the costs of such separate or incremental facilities. Other strategies such as cost tables that show the prices of typical equipment and cost envelopes that provide a binding cost estimate should also be considered as necessary to balance the interests of the utilities and applicants for interconnection through reducing, if not eliminating, the asymmetry of interconnection cost information.

In another instance when a member was inquiring about interconnection to Louisville Gas and Electric Company's ("LG&E") system, LG&E required the applicant to use a technology that had yet to be developed and certified under UL standards. Greater and broader stakeholder participation is essential to assisting utilities in becoming proficient in interconnection issues. Again, the reduction if not elimination of information gaps between the utilities and customers will improve the interconnection application process.

Also related to unnecessary equipment requirements, utilities have required installers to configure system inverters to provide reactive power in inappropriate situations, with the rationale being that this will prevent overvoltage issues. KYSEIA is concerned that, under these circumstances, the utilities are benefitting from information asymmetries to pursue their preferential recommendations without regard to the material impact on the DER owner.

Utilities are also imposing unreasonable justifications for system size before an application is approved. This requirement is another unneeded and unfair burden to the customer, especially when the customer anticipates adding load in the future for different wholly permissible and reasonable purposes such as transitioning to electric heat pumps or purchasing an electric vehicle.

KYSEIA also has concerns with inconsistencies and arbitrary decision making when a utility is identifying and assigning costs. Applicants should not have to unfairly or unreasonably bear the costs of a utility to upgrade and modernize its overall system for general system benefit when the cost is not exclusively or proximately necessary to accommodate and permit DER. The Guidelines should include a safeguard to make sure that cost assignments are properly determined such that an individual applicant for interconnection is not required to pay a cost, in whole or in part, that the utility would otherwise collect from other ratepayers in the absence of

interconnection. An otherwise general upgrade or maintenance of the existing system should not be assigned to an interconnection applicant because it an unfair, unjust, and unreasonable cost assignment. A customer specific charge, as a non-recurring charge, necessarily requires thorough cost documentation and should be subject to a high level of scrutiny.

KYSEIA requests that the Commission will correct the current disparity between applicants and the utilities, and take steps to even the playing field between those parties to allow for a more just, fair, and reasonable interconnection process. This can be accomplished by adopting the recommendations outlined below.

V. INTERCONNECTION RECOMMENDATIONS

1. KYSEIA RECOMMENDS THE ADOPTION OF THE MOST RECENT VERSION OF THE IREC MODEL INTERCONNECTION PROCEDURES (2019 EDITION).

The Interstate Renewable Energy Council (IREC) is a national non-profit organization that publishes Model Interconnection Procedures (“Model Procedures”) intended to provide states with a starting point for updating or adopting interconnection procedures that reflect national best practices. The Model Procedures were initially developed in 2005, updated in 2009, 2013, and again recently in 2019.

Adoption of the Model Procedures in Kentucky will streamline the process for safe and reliable interconnection for customer generators, while also helping utilities and the Commission save time and resources as they address interconnection issues.⁵² The Model Procedures were developed, in part, using the process outlined in the Federal Energy Regulatory Commission (FERC) Small Generator Interconnection Procedures (SGIP), but were designed specifically for state jurisdictional interconnections and are updated more frequently than the FERC rules (last

⁵² **Exhibit 1**, *Model Procedures* at 1.

updated in 2013) to incorporate process and technical improvements and innovations that are constantly under development in states across the country. The Model Procedures reflect the input of a wide range of stakeholders participating in interconnection policy, including DER developers, trade associations, utilities, manufacturers, national laboratories, consumer advocates, regulators, and other energy stakeholders throughout the United States. The Model Procedures address many important technological and policy updates, including updates that directly address current interconnection problems identified by KYSIEA. They also provide a more comprehensive set of procedures that can apply to a wider range of project types and sizes. The following also summarizes several documents provided by IREC and others in support of the Model Procedures including the Model Interconnection Procedures (2019), IREC’s Making the Grid Smarter primer, and Priority Considerations for Interconnection Standards report, among others. The Model Procedures are applied to all jurisdictional interconnections of generating facilities, including Energy Storage Devices.

The Model Procedures also accommodate the rollout of IEEE Standard 1547-2018 for *Interconnection and Interoperability of Distributed⁵³ Energy Resources with Associated Electric Power Systems Interfaces* (“IEEE Standard 1547-2018”).⁵⁴ This updated Standard will require “DERs to be capable of providing specific grid support functionalities relating to voltage, frequency, communications and controls,” and “will enable higher penetration of DERs on the grid, while maintaining grid safety and reliability and providing new grid and consumer benefits.”⁵⁵ As discussed below in Section V., 3., KYSEIA recommends the Commission also

⁵³ *Id.* at 3.

⁵⁴ While the Model Procedures accommodate the roll out of IEEE Standard 1547-2018, it does not adopt the necessary settings and other detailed provisions of it. The adoption of those specific requirements should be done through a separate stakeholder process and in a separate regulation.

⁵⁵ *Id.* at 3.

begin the process of formally adopting this new standard which will require the Commission to make determinations about particular settings for inverters, amongst other things.

The Model Procedures have been used as an interconnection model for a diverse set of jurisdictions across the United States, including Maine, West Virginia, Utah, Illinois, and many others.⁵⁶ The Model addresses several issues identified by KYSEIA, and highlight several key processes to streamline interconnection going forward. These include, among others: pre-application review and reporting, energy storage integration (including processes for non-exporting and limited exporting systems and use of power control systems), defined timelines throughout each step in the process, a robust dispute resolution process, efficient and streamlined “tiered” review, material modification review, queues and utility reporting to allow for better planning and transparency, electronic submittal, and overall consistency across utilities. KYSEIA supports the adoption of the Model Procedures, but is also open to a discussion for additional modifications to accommodate other parties and stakeholders.

While KYSEIA recommends the adoption of the Model Procedures as a whole, we will refrain from reviewing the Model Procedures line by line. The Model Procedures speak for themselves. However, KYSEIA provides the following commentary and suggested modifications for each section as follows.

Overview⁵⁷

⁵⁶ Some states, such as Maine, have used the Model Procedures as their initial starting document, while others utilize the Model as a guide to what additional changes or improvements need to be made to their existing procedures (regardless of their original model) to keep abreast with best practices.

⁵⁷ See generally *Model Procedures*, Section I, A. and B.

This section gives an overview of the Model Procedures, including a pre-application process, the different application Levels and screening process, and queueing. KYSEIA recommends full adoption of this section.

Application and Processing⁵⁸

This section provides for more concrete timelines for processing applications and transparency, including customer notice, queues, publicly available information and updates, review of modifications, and group studies. KYSEIA recommends full adoption of this section.

Pre-Application Report⁵⁹

The Model Procedures provide an opportunity for a potential applicant to gather important information about the grid at their proposed point of interconnection to help evaluate the viability of the site prior to submitting an interconnection application. This pre-application report process has now been adopted by FERC and widely across the United States in jurisdictions such as Minnesota, North Carolina, Massachusetts, and many others. KYSEIA recommends adoption of this section, with the exception of the suggested pre-application report request fee. KYSEIA recommends a request fee of one hundred dollars (\$100) given the low penetration levels in Kentucky.

Interconnection Review⁶⁰

The Model Procedures are designed to streamline routine applications that will have limited effect on the utility's system by applying screens to applications to allow efficient use of time and resources. As the Levels increase, the more complicated the review process. The Model Procedures also invoke multiple deadlines to keep applications moving through the review and

⁵⁸ See generally *Model Procedures*, Section I, C.

⁵⁹ See generally *Model Procedures*, Section II.

⁶⁰ See generally *Model Procedures*, Section III.

inspection process, holding both the utilities and the applicant responsible for those deadlines. KYSEIA intends for almost all net metering applications to receive Level 1 review.

Level 1 Review⁶¹

Level 1 review allows for an expedited review process for small, inverter-based systems (e.g., solar PV and storage) and is intended to provide a streamlined process for generators that are unlikely to trigger adverse system impacts. For Level 1 applications, the Model Procedures recommend an application fee of one hundred dollars (\$100). Keeping in line with current practices under the Interconnection Guidelines, KYSEIA recommends that Level 1 review should require no fees. If a utility requests a larger fee, it must demonstrate that any additional fee is fair, just, and reasonable. KYSEIA also recommends that a facility have a nameplate rating not greater than 45 kW rather than the recommended 25 kW. Otherwise, KYSEIA recommends adoption of this Section.

Level 2 Review⁶²

Level 2 review consists of a broader set of technical screens intended to easily identify proposed interconnections that will not threaten the safety and reliability of the electric system and allow these systems to proceed through an expedited review process. For Level 2 applications, the Model Procedures recommend an application fee of one hundred dollars (\$100) plus ten dollars (\$10) per kW of nameplate rating up to a maximum of \$2,000. Again, keeping in line with current practice under the Interconnection Guidelines, KYSEIA recommends that Level 2 review should require a fee of no more than one hundred dollars (\$100) and no more than one thousand dollars (\$1000) for any additional studies. If a utility requests a larger fee, it must

⁶¹ See generally *Model Procedures*, Section III, A.

⁶² See generally *Model Procedures*, Section III, B.

demonstrate than any additional fee is fair, just, and reasonable. Otherwise, KYSEIA recommends adoption of this Section.

Level 3 Review⁶³

Level 3 review is designed for non-exporting systems interconnecting on a radial distribution circuit. Under this process, if an applicant is proposing to use an acceptable means of export control, as described in a later section, the utility shall apply some of the Level 2 screens but under a more expeditious timeframe. This accelerated timeframe is designed to recognize that non-exporting projects typically have fewer system impacts and thus can be reviewed more efficiently. Non-export projects eligible for Level 3 are allowed to use the Level 2 process for generating facilities, including an energy storage device, that uses protective devices in accordance with the Limited Export and Non-Exporting Generating Facilities section (Model Procedures, IV., E.) of the Model Procedures (except for inadvertent export). KYSEIA recommends full adoption of this Section.

Supplemental Review⁶⁴

If an applicant fails one or more of the screens in the Level 1 to 3 processes, and the utility does not, at its discretion, determine that the interconnection should be allowed to proceed consistent with safety and reliability, then the applicant shall be provided the opportunity to proceed to Supplemental Review. As the initial screens in Levels 1 to 3 apply conservative screens to quickly evaluate potential system impacts, Supplemental Review enables the utility additional time to evaluate the project more closely for potential impacts through the use of three additional screens. KYSEIA recommends full adoption of this Section.

⁶³ See generally *Model Procedures*, Section III, C.

⁶⁴ See generally *Model Procedures*, Section III.D.

Applicant Options Meeting⁶⁵

If a utility determines an application cannot be approved without evaluation under Level 4 review, at the time the utility notifies the applicant of either the Level 1, 2, or 3 review or Supplemental Review results, the utility must provide the applicant the option of proceeding to Level 4 review or of participating in an Applicant Options Meeting with the utility. The Applicant Options Meeting is used to review possible generating facility modifications, the screen analysis, or related results, to determine what further steps are needed to permit the generating facility to be connected safely and reliably. KYSEIA recommends full adoption of this Section.

Level 4 Review⁶⁶

The Level 4 application process is used for all other generating facilities that do not qualify for approval under Level 1, 2, or 3, or the Applicant Options Meeting. An Applicant who failed the Level 1, Level 2, Level 3 or Supplemental Review screens may request the utility to treat the existing application as a new Level 4 application.

For Level 4 applications, the Model Procedures recommend an application fee of one hundred dollars (\$100) plus ten dollars (\$10) per kW of nameplate rating up to a maximum of \$2,000, in addition to any charge for actual time spent on any interconnection study. Instead, KYSEIA recommends that Level 4 review should require a fee of no more than one hundred dollars (\$100) and no more than one thousand dollars (\$1000) for any additional studies. If a utility requests a larger fee, it must demonstrate that any additional fee is fair, just, and reasonable. Otherwise, KYSEIA recommends adoption of this Section.

⁶⁵ See generally *Model Procedures*, Section III, E.

⁶⁶ See generally *Model Procedures*, Section III, E.

Limited-Export and Non-Exporting Generating Facilities⁶⁷

The Model Procedures recognize that in order for utilities to be able to evaluate whether a project can safely be studied as a non-export or limited-export project they must demonstrate the use of acceptable export controls. This is particularly important with the increased installation of energy storage systems. Clearly defining these export controls and their capabilities enables utilities to determine the export or generating capacity of the project which is important for appropriately apply the interconnection screens (some of which are applied looking at the full nameplate of the project, while others need only evaluate the generating/export capacity).⁶⁸

KYSEIA recommends full adoption of this Section.

Dispute Resolution⁶⁹

The Model Procedures provide robust and fair dispute resolution procedures. The dispute resolution process requires the parties to first try to resolve their differences without the help of Commission staff. KYSEIA recommends that the Commission retain an ombudsperson on staff to facilitate the dispute resolution process. Otherwise, KYSEIA recommends full adoption of this Section.

Timelines and Extensions⁷⁰

Under this section, the utility must make all reasonable efforts to meet all timelines set by the Model Procedures. This section also provides reasonable procedures to address failures to meet timelines for all parties. KYSEIA recommends full adoption of this Section.

⁶⁷ See generally *Model Procedures*, Section IV.E.

⁶⁸ UL has published a Certification Requirements Decision (CRD) for Power Control Systems that enables these systems to be tested according to the UL standard. This CRD is expected to be incorporated into UL 1741 later this year.

⁶⁹ See generally *Model Procedures*, Section IV, C.

⁷⁰ See generally *Model Procedures*, Section IV, A.

Online Applications and Electronic Signatures⁷¹

Each utility is required to accept interconnection applications via email or through the utility's website. The utilities must also dedicate an easy to locate page on their website to interconnection procedure that includes current Interconnection Procedures, Interconnection Application forms, and Interconnection Agreements. In addition to the requirements of this section, KYSEIA also recommends adding that the utility shall allow for electronic payment of any application, study or other fees that are required. Otherwise, KYSEIA recommends adoption of this Section.

Utility Reporting Requirements⁷²

Each Utility must submit an interconnection report (see Model Procedures, Attachment 9) to the Commission at least two times per year and make the report available to the public on its website. The report shall contain information in the form required by Attachment 9, including relevant totals for both the year and the most recent reporting period. These reports enable the Commission and stakeholders to stay apprised of the overall status of the interconnection process and can help with proactive identification of issues that may require broader resolution. KYSEIA recommends full adoption of this Section.

Other Miscellaneous Provisions⁷³

The Model Procedures also adopt several miscellaneous provisions. These include:

- The applicant is responsible for construction of the generating facility and obtaining any necessary local code official approval.
- The applicant must conduct the commissioning test pursuant to the IEEE Standard 1547-2018 and comply with all manufacturer requirements.

⁷¹ See generally *Model Procedures*, Section IV, B.

⁷² See generally *Model Procedures*, Section IV, D.

⁷³ See generally *Model Procedures*, Section IV, F.

- The utility must designate an employee or office from which basic information on interconnections can be obtained.
- Upon request, the utility must provide interested applicants with all relevant forms, documents and technical requirements for filing a complete application, and the utility shall meet with an applicant at the utility's offices or by telephone prior to submission for up to one hour for Level 1 applicants and two hours for other applicants.
- The authorized hourly rate for engineering review under Supplemental Review or Level 4 must be \$100 per hour or less so there are no disparities among utilities or between different applications to ensure fair treatment.
- An applicant cannot be required to install additional controls (other than a utility accessible disconnect switch for non-inverter-based generating facilities), or to perform or pay for additional tests not identified herein to obtain approval to interconnect.
- A utility may only require an applicant to purchase insurance covering utility damages for non-inverter systems above 1 MW, and then only in the amounts outlined in Model Procedures, IV.F.6.
- Additional protection equipment not included with the interconnection equipment package (a group of components connecting an electric generator with an electric delivery system, and includes all interface equipment including switchgear, inverters or other interface devices) may be required at the utility's discretion as long as the performance of an applicant's generating facility is not negatively impacted and the applicant is not charged for any equipment that provides protection that is already provided by certified interconnection equipment.
- Metering and monitoring must be as set forth in the utility's tariff for sale or exchange of energy, capacity or other ancillary services. Metering or other revenue based requirements that are necessary to qualify for rates or programs such as net metering should be addressed in tariffs, regulations, or rules related to those programs rather than in the interconnection procedures.
- The Model Procedures suggest that telemetry may be required by the utility for generating facilities with a nameplate rating of 1 MVA or higher. KYSEIA recommends this be changed to generating facilities with a nameplate rating of 1 MVA and equal to at least 25% of the peak load on the interconnected distribution or transmission circuit.
- After an interconnection has been approved, a utility cannot require an applicant to test its generating facility except for any manufacturer-recommended testing and under certain circumstances for Levels 2, 3, and 4 outlined in Model Procedures Section IV.F.10.

- A utility has the right to inspect a generating facility before and after interconnection approval is granted, at reasonable hours and with reasonable prior notice provided to the customer. If the Utility discovers a generating facility is not in compliance with the requirements of IEEE Standard 1547, and the non-compliance adversely affects the safety or reliability of the electric system, the utility may require disconnection of the generating facility until it complies with IEEE Standard 1547.
- A customer may disconnect the generating facility at any time without notice to the utility and may terminate the Interconnection Agreement at any time with one day's notice to the utility.
- On the application form, an applicant may designate a representative to process an application on applicant's behalf and to meet some or all responsibilities under the Interconnection Agreement.
- For a generating facility offsetting part or all of the load of a utility customer at a given site, that customer is the Interconnection Customer and that customer may assign its interconnection Agreement to a subsequent occupant of the site.
- For a generating facility providing all of its energy directly to a utility, the Interconnection Customer is the owner of the generating facility and may assign its Interconnection Agreement to a subsequent owner of the generating facility.
- Assignment is only effective after the assignee provides written notice of the assignment to the utility and agrees to accept the Interconnection Customer's responsibilities under the Interconnection Agreement.
- If an applicant is seeking approval for an Energy Storage Device, a separate application for the interconnection of new or modified load will not be required as a result of a customer's application for interconnection under these Interconnection Procedures and instead the review shall occur under these Interconnection Procedures.

Other than the changes suggested above, KYSEIA recommends adoption of this Section.

Glossary and Forms

The Model Procedures also include a glossary of terms, a list of codes and standards, applications, agreements, certifications, public queue requirements, and reporting requirements, all of which should be adopted by the Commission.

In summary, the Model Procedures streamline the process for safe and reliable interconnection for customer generators, while also helping utilities and the Commission save time and resources as they address interconnection issues. The Commission should adopt the Model Procedures as recommended with the modifications provided by KYSEIA.

2. THE COMMISSION SHOULD REQUIRE A SEPARATE ROBUST AND TRANSPARENT STAKEHOLDER PROCESS PRIOR TO ADOPTION OF IEEE STANDARD 1547-2018.

The Institute of Electrical and Electronics Engineers (IEEE) published IEEE Standard 1547-2018 in April 2018. IEEE Standard 1547-2018 is an update to IEEE Standard 1547-2003 and transforms how distributed energy resources interact and function on the electric distribution system.⁷⁴ The standard requires DERs to allow specific grid supportive functionalities relating to voltage, frequency, communications, and controls (like smart inverters), will enable higher penetration of DERS on the grid while maintaining safety and reliability, and will require changes to the interconnection process to the grid.⁷⁵ The Standard will also allow for new grid and consumer benefits. NARUC recently adopted a resolution recommending state commissions act to adopt these new standards.⁷⁶ KYSEIA supports IEEE Standard 1547-2018 if the adoption and rollout is fair, just, and reasonable.

Proper rollout of IEEE Standard 1547-2018 would require a robust and time consuming process requiring a significant investment of resources and time, but if the Commission allows for a measured and deliberate process, the adoption will allow for more efficient development in DERs in the long run. Allowing for an early start will grant the Commission, customers,

⁷⁴ **Exhibit 3**; IREC, *Making the Grid Smarter, Primer on Adopting the New IEEE 1547TM-2018 Standard for Distributed Energy Resources* (January 2019), at 4.

⁷⁵ *Id.*

⁷⁶ See <https://www.naruc.org/resolutions-index/2020-winter-policy-summit-resolutions/>, last visited April 16, 2021.

generating facilities, utilities, and other stakeholders ample time to navigate the complex issues that involve stakeholder coordination and a smoother path for widespread deployment of smarter DER technologies.⁷⁷

Unfortunately, as noted above, at least one KYSIEA member has reported that a utility required it to use equipment that complies with the IEEE Standard 1547-2018. This is problematic because no equipment has been certified under IEEE Standard 1547-2018. This is currently impossible because the publishing of the IEEE Standard 1547-2018 is only the first step. IEEE Standard 1547.1, *IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems*, development was recently completed in 2020 and will guide manufactures as they test and certify their products to the IEEE Standard 1547-2018.⁷⁸ UL must then update its product certification standard, *Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources* (UL 1741), to which all equipment must be tested and certified.⁷⁹ That was also only recently completed. It is anticipated that it will then take up to 18 months for all DER products to comply with the updated requirements and be made commercially available.⁸⁰ IREC anticipates products will be in compliance and commercially available sometime in 2022.⁸¹

Until a robust and deliberate stakeholder process is conducted to implement IEEE Standard 1547-2018, the Commission must not allow utilities to require compliance with the new Standard, though once the certified equipment is available it may be possible to utilize the

⁷⁷ *Making the Grid Smarter* at 5.

⁷⁸ *Id.* at 8.

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.*

benefits of the smart inverters by mutual agreement while the Commission undertakes the process described above.

3. THE COMMISSION SHOULD CONSIDER WHETHER TO REQUIRE UTILITIES TO CONDUCT HOST CAPACITY ANALYSES.

Although Kentucky has relatively light DER penetration, the Commission should begin considering whether to require utilities to analyze hosting capacity. Hosting capacity is “the amount of DERs that can be accommodated on the distribution system at a given time and at a given location under existing grid conditions and operations, without adversely impacting safety, power quality, reliability or other operational criteria, and without requiring significant infrastructure upgrades.”⁸² A Hosting Capacity Analysis (HCA) is a grid modernization tool that allows “utilities, regulators and electric customers to make more efficient and cost-effective choices about deploying DERs on the grid,” and “may also function as a bridge to span information gaps between developers, customers and utilities, thus enabling more productive grid interactions and more economical grid solutions.”⁸³ HCA is used to “determine the amount of DERs that the distribution system can accommodate at a given time and a given location.”⁸⁴ Hosting Capacity is a topic that the Kentucky Office of Energy Policy has identified for the Commission to consider.⁸⁵

Adoption of HCA requirements requires a substantial investment in time, energy and resources from all stakeholders. It requires taking time early in the process to ensure that the tool

⁸² **Exhibit 4**; Stanfield et al, *Optimizing the Grid, A Regulator’s Guide to Hosting Capacity Analyses for Distributed Energy Resources* (Dec. 2017) at 1.

⁸³ *Id.*

⁸⁴ *Id.* at 1.

⁸⁵ Case No. 2019-00256, *Electronic Consideration of the Implementation of the Net Metering*, Kentucky Office of Energy Policy Comments (October 10, 2019), at 27-28.

being developed is capable of meeting identified objectives.⁸⁶ This would require the Commission to establish a stakeholder process to work with utilities and other stakeholders to select, refine and implement the HCA; select and define use cases for the HCA; and identify criteria to guide implementation; and validate the results of an HCA over time.

As Kentucky continues to invest in DER and as interconnection becomes more complex, the Commission should consider HCA as a tool for grid modernization and more efficient interconnection.

4. THE COMMISSION SHOULD CLARIFY THAT THE RECEIPT OF AN APPLICATION CONSTITUTES THE IN SERVICE DATE FOR PURPOSES OF LEGACY RIGHTS.

As noted above, the interconnection of systems is currently ripe with delays and inconsistent treatment, mostly at no fault of the applicant. With the passage of SB 100, allowing utilities to file cases to change the rate of compensation for net metering customers, the legislature has created a race to the finish as utilities file to change those rates. For utilities in active rate cases, this has left KYSEIA and its members unable to give accurate information to their clients regarding the value of a net metering system because it is unknown if or when the Commission may approve those compensation rates and to what customers those rates will apply. Most KYSEIA members install systems months after contracting for the work (as the guidelines herein establish, interconnection procedures take time). The window between a utility beginning a rate case and conclusion of that case is typically six to seven months. For at least half of that window, KYSEIA members are unable to provide sound financial guidance to clients because the system will not be installed until after new rates are in effect and the Commission has not yet established that a net metering application constitutes the in-service date. Given the

⁸⁶ *Optimizing the Grid*, at iii.

frequency with which some utilities now propose rate changes, this uncertainty creates a cyclical chilling effect in the solar market.

In order to allow certainty for consumers and some stability in the KYSEIA member's day to day business operations, KYSEIA requests that the Commission require the utilities to consider the application date for interconnection as the in-service date for purposes of legacy rights under SB 100. **KYSEIA requests the Commission move to adopt this policy with urgency.** KYSEIA members are already experiencing significant problems as a result of this issue.

5. THE COMMISSION SHOULD REQUIRE UTILITIES TO INFORM INTERCONNECTION APPLICANTS AND THE PUBLIC AS THEY APPROACH THE 1% CAP.

KYSEIA addressed this issue in its Comments provided in Case No. 2019-00256, *Electronic Consideration of the Implementation of the Net Metering*⁸⁷ and in Case No. 2020-00332, *Electronic Investigation into Kenergy Corp.'s Compliance with KRS 278.160 and Its Net Metering Tariff*. This case allows the Commission to establish the information required to be conveyed to interconnection applicants to allow applicants to determine if net metering will be available to them.

Prior to December 31, 2019, KRS 278.466(1) provided:

Each retail electric supplier shall make net metering available to any eligible customer-generator that the supplier currently serves or solicits for service. If the cumulative generating capacity of net metering systems reaches **one percent (1%) of a supplier's single hour peak load during the previous year, the obligation of the supplier to offer net metering to a new customer-generator may be limited by the commission.** (Emphasis added).

Effective January 1, 2020, as amended by Senate Bill 100, KRS 278.466 (1), now states:

⁸⁷ Case No. 2019-00256, *Electronic Consideration of the Implementation of the Net Metering, KYSEIA EQ Comments* (October 15, 2019), pages 4-6, and *KYSEIA Strobo Barkley Comments* (October 16, 2019) at 23-28.

Each retail electric supplier shall make net metering available to any eligible customer-generator that the supplier currently serves or solicits for service. If the cumulative generating capacity of net metering systems reaches **one percent (1%) of a supplier's single hour peak load during a calendar year, the supplier shall have no further obligation to offer net metering to any new customer-generator at any subsequent time.** (Emphasis added).

Senate Bill 100 revised the circumstances in which a retail electric supplier is no longer obligated to offer net metering service to any new customer-generators. Now, upon reaching the one percent (1%) statutory cap, upon Commission approval, a supplier is no longer obligated to offer net metering to any new customer-generators.

Electric utilities providing net metering service are in a transition period that has many moving parts. Regarding applications for new net metering service, until the Commission finds that the one percent (1%) threshold has been satisfied and issues an order approving the closure of net metering service to new customer-generators as of a date certain through a replacement tariff, a utility should be required to continue to accept and process net metering applications for eligible customer-generators. The postmarked date, and for digital correspondence the timestamp date, of a net metering application should be used to establish or otherwise identify timely-submitted applications prior to the closure of net metering service to additional customer-generators.

Utilities offering net metering service should also be encouraged to establish transparent reporting requirements so that stakeholders have clear and up-to-date information about a utility's current operating net-metering capacity and single-hour peak load used in this calculation. During this transition period, each retail electric utility should be encouraged to keep its customers, and potential applicants for net metering service, informed regarding its provision of net metering service and relevant information through its website, publications, and other communications. Such an approach will minimize customer confusion and help customers

understand when and how the statutory cap is reached. This can be achieved, in the transition period, by:

- Each retail electric supplier including in its annual report to the Commission, as a separate line item, the cumulative generating capacity of net metering systems as a percentage of the supplier's single hour peak load during the calendar year.
- At the time that the eligible customer-generator begins taking net metering service, the utility shall verify and record the rated capacity of the eligible electric generating facility. The rated capacity amount verified and recorded by the utility shall be the amount used by the utility for purposes of determining the cumulative generating capacity of its net metering systems.
- Each utility offering net metering filing monthly progress reports that clearly identify both the total existing net-metered capacity on their system and the total capacity in pending net metering applications, as well as a calculation showing the overall remaining capacity available to customers based on the utility's one percent (1%) cap, and file a specific written notice to the Commission upon the cumulative generating capacity of its net metering customers reaching or exceeding 0.9 percent of a retail electric supplier's single hour peak load during a calendar year.
- Each utility offering net metering make the foregoing information readily available on the utility's website so customers can easily find information on the current status of net metering in their utility service area.
- When a utility reaches 0.9 percent of a retail electric supplier's single hour peak load during a calendar year, based on submitted net metering applications, requiring utilities to increase its reporting frequency on its website from a monthly to a weekly basis to allow potential customers and solar installers the ability to more accurately forecast when specifically the utility could reach its cap.
- For each electric utility required by 807 KAR 5:058 to file an Integrated Resource Plan with the Commission, the plan should include a specific discussion of the utility's net metering systems, the cumulative generating capacity of net metering systems, single peak hour load, and projections of growth in the capacity of net metering systems and the single peak hour load over the course of the period covered by the plan.⁸⁸
- Emphasizing that the closing of net metering service is through issuing and filing revised tariffs with the Commission which state that the net metering tariff is no longer available for new customer generators and which establishes a new method of interconnection for new customer generators.

⁸⁸ See, for example, Case No. 2017-00384, *Integrated Resource Plan of Big Rivers Electric Corporation*, (Ky. PSC Oct. 1, 2019) at 46.

Public utility commissions in other states have taken similar action. For example, the Indiana Utilities Regulatory Commission directed utilities in August 2019 to begin filing more frequent reports on net metering participation, establish net metering queues, post queue information on the utility's webpage, and update the queue information monthly as part of its implementation of Senate Enrolled Act 309 of 2017, which provided for a limited amount of capacity under its existing net metering program.

KYSEIA requests the Commission, as part of interconnection review process, to consider the above information and recommendations as a means provide customers and potential customers of utilities providing net metering service with reasonable access to information, particularly notice of when the utility's cumulative generating capacity of net metering customers reaches or exceeds 0.9 percent of a retail electric supplier's single hour peak load during a calendar year.

VI. KYSEIA'S CURRENT AND REASONABLY ANTICIPATED CONCERNS REGARDING FERC ORDER NO. 2222.

Legacy market rules have left DER with limited opportunities to provide energy, capacity, or ancillary services in wholesale markets operated by ISOs and RTOs. FERC Order No. 2222 requires ISOs and RTOs to address these market barriers that prevent DERs from fully participating in electricity markets by requiring the development of tariff provisions allowing the aggregations of DERs to participate directly in wholesale markets. These tariff provisions must address technical and operational details for DER aggregator market participation. This will allow for increased grid reliability and resilience, more innovation and competition, lower consumer bills, and provides more opportunity for DERs to access wholesale markets. FERC Order 2222 also allows for DER aggregation for different DER technologies including energy

storage, renewable energy, distributed generation demand response, energy efficiency, thermal storage, and electric vehicles, and grants FERC jurisdiction over the interconnection of DERs to the distribution system when those DERs intend to participate in wholesale markets exclusively through an aggregator. There are still many issues that utilities, RTOs/ISOs, and FERC continue to develop including resolving double counting, maximum capacity size of aggregators, geographic scope, and data and informational requirements, among others.

While FERC Order 2222 does provide a potential opportunity to support customer generator value, the Order was only recently issued, and it is unclear what ISOs/RTOs will be submitting to comply with the Order, or how utilities not participating in ISOs/RTOs will be affected. However, FERC Order 2222 does require RTOs/ISOs to specify how they will accommodate voluntary involvement of state retail regulators to allow aggregated DERs to participate in wholesale markets. In the meantime, the Commission should consider policies to facilitate the market participation of aggregators, identify aggregation opportunities, and remove barriers that make compliance with the Order difficult. FERC Order 2222 also creates an opportunity for the Commission to adopt system planning policies to allow for more efficient DER integration, including aggregation, with strategies such as HCAs and similar processes.

FERC Order 2222 can provide a potential cure to insufficient utility valuation of DERs. This cure exists only so long as state commissions adopt a policy that allows for DERs to access wholesale markets. In Kentucky, no practical access exists. Should the PSC wish to address FERC Order 2222, it would need to establish a path through which DERs can easily participate in markets. The logical solution, given the size of most DERs and low penetration levels through the state, would be to allow for aggregation of systems statewide. The only financially viable

pathway under which any entity is likely to soon provide this service is one in which the aggregator becomes the generation service provider to participating DERs.

VII. CONCLUSION

KYSEIA appreciates the opportunity to provide this Written Brief to the Kentucky Public Service Commission. KYSEIA hopes that the Commission finds these recommendations of assistance and looks forward to the opportunity to again assist the Commission by providing more detailed recommendations and expert testimony as needed by the Commission.

WHEREFORE, KYSEIA submits its Written Brief setting forth current and reasonably anticipated issues and concerns regarding net metering interconnection guidelines and FERC Order No. 2222.

Respectfully submitted,

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