

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Commission's)	
Review of Chapter 4901:1-22, Ohio)	Case No. 12-2051-EL-ORD
Administrative Code, Regarding)	
Interconnection Services)	

**COMMENTS OF INTERSTATE RENEWABLE ENERGY
COUNCIL, INC. ON PROPOSED MODIFICATIONS
TO INTERCONNECTION SERVICES AND STANDARDS**

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On behalf of the Interstate Renewable
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Pursuant to Rules of Administrative Provisions and Procedure, Chapter 4901:1-1, *et seq.*, Ohio Administrative Code (O.A.C.), and the Public Utilities Commission of Ohio's (Commission) Entry dated October 17, 2012, the Interstate Renewable Energy Council, Inc. (IREC) respectfully submits these comments on the proposed rule changes to Chapter 4901:1-22, O.A.C. (Interconnection Rule).

IREC is a non-profit organization that has worked for three decades to expand retail electric customer access to renewable energy resources through the development of programs and policies that reduce barriers to renewable energy deployment and increase consumer access to solar and other distributed renewable energy technologies. IREC has worked in over 40 states to implement successful regulatory policies that further deployment of these technologies, including net metering rules, interconnection procedures, and community renewable power programs. IREC publishes model rules on these policies and its team members, who are considered national experts on these topics, have authored several reports for the Solar America Board for Codes and Standards (Solar ABCs) on the topic of interconnection. IREC is presently active in interconnection reform efforts in California, Hawaii, New Jersey and Massachusetts.

IREC appreciates the opportunity to submit these comments.

The Commission's Entry requests comments on proposed revisions to the interconnection rule and on certain proposals related to the interconnection rule. IREC supports those revisions to the interconnection rule that better align the Ohio interconnection framework with nationally prevalent standards, which we discuss below. IREC also supports the Commission's consideration of public input on issues that could bring incremental, but important, improvements to the interconnection process, such as a database of approved field-tested equipment, a rational framework of security postings in the interconnection process to provide greater certainty to developers and electric distribution utilities (EDUs), and greater access to queue data that could enable developers to make more efficient siting decisions.

I. IREC Supports Proposed Rule Revisions That Make Ohio Interconnection Rules More Consistent with Prevailing National Standards.

IREC has worked nationally with policy makers and regulators to move state interconnection standards toward best practices and national consistency. Consistency across jurisdictions is an important goal because many solar developers and utilities operate in multiple regulatory environments or in multiple states. Familiarity with common practices increases the efficiency and cost effectiveness of the interconnection process for both the developer and the facilitating utility. Additionally, there is typically no technical reason and no benefit to local variation from industry-wide norms for the technical standards and procedural aspects of interconnection.

IREC recognizes the Federal Energy Regulatory Commission's Small Generator Interconnection Standards (SGIP) as a solid starting point and framework for state interconnection procedures. The SGIP is well vetted and is a widely used, as it is the process used nationally for interconnections subject to FERC jurisdiction. Moreover, many states have

modeled their procedures on the SGIP, and most states that use an expedited technical screening process use SGIP’s “Fast Track” technical screens.¹ IREC notes that the current Ohio interconnection rules use a similar structure and screening process as SGIP, and IREC supports proposed rule modifications that would move Ohio interconnection practices closer to the SGIP standards and, thus, closer to national practices. In particular, IREC supports the following proposed revisions:

- **A clear three-level review process:** IREC supports eliminating separate Level 1 review for renewable (former Level 1) and non-renewable (former Level 1.1) inverter-based generators of 10 kW or less. Eligibility for the proposed three levels of review match the generator eligibility breakpoints for the three levels of review in SGIP and numerous state procedures and therefore align Ohio rules with national practices.
- **The removal of the 2 MW limit for aggregate generation on a circuit under Level 2 interconnection:** IREC supports elimination of the 2 MW cap on aggregate generation on a circuit because it unnecessarily limits the expedited review path without improving the safety, reliability or power quality of that circuit. Eliminating this restriction brings Ohio in line with the SGIP and the majority of states that feature expedited review.
- **The improvement of technical screens to meet or exceed the SGIP:** IREC supports changes to the “transient stability screen” (proposed Level 2 screen (c)) and the “short circuit contribution screen” (proposed Level 2 screen (f)).
- **The improved framework for Level 2 supplemental review:** IREC supports the proposed framework for supplemental review, which establishes a timeframe and basic process for resolving issues arising during the initial review process.

The proposed revisions discussed above are a positive step that will create greater

¹ For example, Connecticut, Illinois, Kentucky, North Carolina, Pennsylvania, South Dakota, and others adopted the SGIP technical screens for their respective Fast Track processes. Other states feature slight variations to certain of the SGIP screens, or do not include certain of the screens, including Virginia and Oregon and high penetration states such as Colorado, New Jersey and Massachusetts. Although initial review in Hawaii and California is structured differently, the technical review screens are highly consistent with the SGIP.

consistency between federal and state interconnection standards used in Ohio. In addition to those modifications, the Commission may also wish to consider three others that would either further align Ohio rules with national practices or incorporate evolving best practices for generator interconnection.

- IREC encourages the Commission to preserve the ability for generators up to 50 kW to interconnect to secondary networks under some form of expedited procedure. The proposed revisions limit the path to interconnection for these generators over 10 kW that would interconnect to these networks, as compared to existing rules that allow 50 kW systems to interconnect to area networks. Additionally, IREC notes that the Ohio spot network screen differs slightly from the SGIP Fast Track screen and suggests that the screen in the Ohio rules could be improved by adopting the SGIP's standard, which allows aggregate generation up to 5% of maximum load on the network or up to 50 kW.² To accomplish this, the Commission would need to move the spot network screen—and the area network screen and process—from Level 1 to Level 2, and would need to modify proposed Level 2 screen (b) to allow for secondary network interconnections.
- IREC encourages the Commission to retain its current timeframe for notifying customers whether or not an application is complete. The current rules provide that such notice will be sent to the customer within three business days, but the proposed revisions would allow for ten. IREC suggests that lengthening the time for a simple administrative determination of completion is not consistent with the purpose of the rule revisions to improve the speed and efficiency of the interconnection process.
- The Commission may wish to consider incorporating the specific supplemental review screens recently adopted in California, which provide basic parameters for reviewing generators during supplemental review while also allowing the

² See SGIP § 2.2.1.3 (“For interconnection of a proposed Small Generating Facility to the load side of spot network protectors, the proposed Small Generating Facility must utilize an inverter-based equipment package and, together with the aggregated other inverter-based generation, shall not exceed the smaller of 5 % of a spot network's maximum load or 50 kW.”).

facilitating utility to maintain local distribution system safety, reliability and power quality.³

II. Comments on Additional Proposals to Improve Efficiency and Certainty in the Interconnection Process.

In addition to the proposed revisions to the interconnection rule, the Commission set out several potential issues for public comment that could be incorporated into the current proposed rules to further improve upon the efficiency, clarity, and transparency of the interconnection process. IREC comments below on the topics identified by the Commission in the Entry at paragraphs (9) through (12).

A. Allowing the Use of Field-Tested Equipment Furthers Best Practices (Paragraph 9).

Allowing field-tested equipment to be approved for interconnection eliminates unnecessary duplication where an equipment package or configuration has already been vetted and there is therefore no need for “re-testing” an identical equipment scenario. IREC supports the idea of having the EDUs maintain a database of approved equipment or configurations that is accessible by developers.

B. IREC Supports Well-designed Security Posting Requirements (Paragraph 10).

It is important for security postings to balance the risks of developers and EDUs. A well designed financial security framework does not demand “too much, too soon” or require “too little, too late.” Sufficient security requirements will give the EDUs confidence that they will be able to recover costs that are actually being incurred, while not overburdening developers with large security requirements that come prior to the time costs are actually being incurred by an EDU or prior to the time a developer has reasonable certainty that a project will obtain financing and move forward. IREC encourages the Commission to consider a framework for financial

³ See Attachment A: California Rule 21 Supplemental Review Screens (Rule 21 G.2)

security postings that appropriately balances the risks of the parties and requires an amount that is rationally related to the stage of project development. Specifically, IREC suggests that the Commission consider the following principles:

- Financial postings should allow common forms of financial security;
- The timing of financial security requirements should relate logically to milestones in project development in order to support project finance and confidence from financial institutions that underwrite projects;
- No security should be required before the period where the EDU will actually start incurring costs.

California recently overhauled its state interconnection rule (Rule 21) and made significant improvements in regards to security posting requirements. The revised Rule 21 requires an applicant for interconnection to post “certain portions of the cost of triggered upgrades within established deadlines” and provides refunds of postings to developers where a “portion of the posted financial security [is] not used by costs incurred by the utility or already irrevocably committed.”⁴ Rule 21 allows common forms of security to be used to satisfy posting requirements.⁵ IREC encourages the Commission to consider California’s Rule 21 as a model for instituting rational security posting requirements that balance risk and optimize certainty for EDUs, developers, and the marketplace.

⁴ California Public Utilities Commission Decision 12-09-018 (Revised Rule 21 is attached to the decision), *available at*

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M028/K168/28168335.pdf>.

⁵ For example, revised Rule 21 subsection F.4.a provides the following types of security instruments to be used to satisfy postings: “(a) an irrevocable and unconditional letter of credit issued by a bank or financial institution that has a credit rating of A or better by Standard and Poor’s or A2 or better by Moody’s; (b) an unconditional and irrevocable guaranty issued by a company has a credit rating of A or better by Standard and Poor’s or A2 or better by Moody’s; (c) a cash deposit standing to the credit of Distribution Provider and in an interest-bearing escrow account maintained at a bank or financial institution that is reasonably acceptable to Distribution Provider.” *See id.*

C. It Is Reasonable to Extend the Interconnection Standards to Generators Larger than 20 MW (Paragraph 11).

IREC supports a 20 MW cap, at a minimum. However, IREC notes that qualifying facilities under the Public Utilities Regulatory Policy Act of 1978 (PURPA) are typically state jurisdictional interconnections, so long as the QF sells its full output to the interconnected utility. It is important to consider that QFs may be sized up to 80 MW. For this reason, the Commission may want to remove all system size caps for interconnection procedures. This approach has been taken in several states, including New Mexico and Massachusetts.

D. Providing Detailed Queue Information to Developers at Early Stages of Development Can Foster More Efficient Siting Decisions (Paragraph 12).

IREC supports policies that maximize the transparency of the interconnection process. One way of accomplishing this is to share data regarding the interconnection queue to give developers an accurate picture of the size and location of pending projects. An even more detailed approach, one that is currently being employed in California and Hawaii, is to provide detailed maps that show either the available capacity of circuits and line sections (relevant to the Fast Track “penetration screen”) or the general area of preferred locations where a generator might be expected to interconnect successfully under expedited procedures.⁶

Although a mapping of circuits and line sections may be more than what is necessary in Ohio at this time, IREC encourages the Commission to explore approaches that provide developers with sufficient information to locate projects where: (1) the distribution system would benefit from distribution generation and its ability to reduce congestion or reduce peak demand

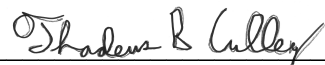
⁶ For example, Southern California Edison maintains an “Interconnection Map” that shows whether a circuit is preferred for new interconnection, the voltage of the distribution circuit, the amount of queued generation, and the available capacity on the distribution circuit. A further description is available at <http://www.sce.com/EnergyProcurement/renewables/renewable-auction-mechanism.htm>.

on a circuit; and (2) where a Level 2 interconnection request is likely to succeed and the developer can avoid expensive upgrades or lengthy study. Several states, including California under its revised Rule 21, encourage prospective applicants to seek such information through a pre-application report prior to submitting an application for interconnection. At a minimum, IREC believes it would be helpful for developers to have access to queue data to see whether the review of a proposed interconnection may be contingent upon an earlier queued application.

III. Conclusion

IREC appreciates the opportunity to offer these comments and its perspective on the Commission's proposed revisions to its interconnection rules and its further consideration of additional topics that will advance the efficiency, clarity, and transparency of the interconnection process in Ohio. IREC looks forward to future opportunities to comment on this and related matters.

Respectfully submitted,



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California Rule 21 Supplemental Review Screens (Rule 21 G.2)

G. Engineering Review Details

2. *Supplemental Review Screens*

The Supplemental Review consists of Screens N through P. If any of the Screens are not passed, a quick review of the failed Screen(s) will determine the requirements to address the failure(s) or that Detailed Studies are required. In certain instances, Distribution Provider may be able to identify the necessary solution and determine that Detailed Studies are unnecessary. Some examples of solutions that may be available to mitigate the impact of a failed Screen are:

1. Replacing a fixed capacitor bank with a switched capacitor bank.
2. Adjustment of line regulation settings.
3. Simple reconfiguration of the distribution circuit.

a. Screen N: Penetration Test

Where 12 months of line section minimum load data is available, can be calculated, can be estimated from existing data, or determined from a power flow model, is the aggregate Generating Facility capacity on the Line Section less than 100% of the minimum load for all line sections bounded by automatic sectionalizing devices upstream of the Generating Facility?

- If yes (pass), continue to Screen O.
- If no (fail), a quick review of the failure may determine the requirements to address the failure; otherwise Electrical Independence Tests and Detailed Studies are required. Continue to Screen O. (Note: If Electrical Independence tests and Detailed Studies are required, Applicants will continue to the Electrical Independence Tests and Detailed Studies after review of the remaining Supplemental Review Screens.)

Note 1: If none of the above options are available [for determining minimum load], this screen defaults to [the 15% peak load screen].

Note 2: The type of generation will be taken into account when calculating, estimating, or determining circuit or Line Section minimum load relevant for the application of this screen. Solar generation systems with no battery storage use daytime minimum load (i.e. 10 am to 4 pm for fixed panel systems and 8 am to 6 pm for systems utilizing tracking systems), while all other generation uses absolute minimum load.

IREC Attachment A
Case No. 12-2051-EL-ORD

Note 3: When this screen is being applied to a [net energy metered] Generating Facility, the net export in kW, if known, that may flow across the Point of Common Coupling into Distribution Provider's Distribution System will be considered as part of the aggregate generation.

Note 4: Distribution Provider will not consider as part of the aggregate generation for purposes of this screen Generating Facility capacity known to be already reflected in the minimum load data.

Note 5: NEM Generating Facilities with net export less than or equal to 500 kW that may flow across the Point of Common Coupling into Distribution Provider's Distribution or Transmission System will not be studied in the Transmission Cluster Study Process, but may be studied under the Independent Study Process.

Significance: Penetration of Generating Facility installations that does not result in power flow from the circuit back toward the substation will have a minimal impact on equipment loading, operation, and protection of the Distribution System.

b. Screen O: Power Quality and Voltage Tests

In aggregate with existing generation on the line section,

- a) Can it be determined within the Supplemental Review that the voltage regulation on the line section can be maintained in compliance with Commission Rule 2 and/or Conservation Voltage Regulation voltage requirements under all system conditions?
 - b) Can it be determined within the Supplemental Review that the voltage fluctuation is within acceptable limits as defined by IEEE 1453 or utility practice similar to IEEE1453?
 - c) Can it be determined within the Supplemental Review that the harmonic levels meet IEEE 519 limits at the Point of Common Coupling (PCC)?
- If yes to all of the above (pass), continue to Screen P.
 - If no to any of the above (fail), a quick review of the failure may determine the requirements to address the failure; otherwise Electrical Independence Tests and Detailed Studies are required. Continue to Screen P. (Note: If Electrical Independence tests and Detailed Studies are required, Applicants will continue to the Electrical Independence Tests and Detailed Studies after review of the remaining Supplemental Review Screens.)

Significance: Adverse voltages and undesirable interference may be experienced by other Customers on Distribution Provider's Distribution System caused by operation

IREC Attachment A
Case No. 12-2051-EL-ORD

of the Generating Facility(ies).

c. Screen P: Safety and Reliability Tests

Does the location of the proposed Generating Facility or the aggregate generation capacity on the Line Section create impacts to safety or reliability that cannot be adequately addressed without Detailed Study?

- If yes (fail), review of the failure may determine the requirements to address the failure; otherwise Electrical Independence Tests and Detailed Studies are required. Continue to Section G.3.
- If no (pass), Supplemental Review is complete.

Significance: In the safety and reliability test, there are several factors that may affect the nature and performance of an Interconnection. These include, but are not limited to:

1. Generation energy source
2. Modes of synchronization
3. Unique system topology
4. Possible impacts to critical load customers
5. Possible safety impacts

The specific combination of these factors will determine if any system study requirements are needed. The following are some examples of the items that may be considered under this screen:

1. Does the Line Section have significant minimum loading levels dominated by a small number of customers (i.e. several large commercial customers)?
2. Is there an even or uneven distribution of loading along the feeder?
3. Is the proposed Generating Facility located in close proximity to the substation (i.e. <2.5 electrical line miles), and is the distribution line from the substation to the customer composed of large conductor/cable (i.e. 600A class cable)?
4. Does the Generating Facility incorporate a time delay function to prevent reconnection of the generator to the system until system voltage and frequency are within normal limits for a prescribed time?

IREC Attachment A
Case No. 12-2051-EL-ORD

5. Is operational flexibility reduced by the proposed Generating Facility, such that transfer of the line section(s) of the Generating Facility to a neighboring distribution circuit/substation may trigger overloads or voltage issues?
6. Does the Generating Facility utilize Certified anti-islanding functions and equipment?

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