

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. )

FINDING AND ORDER

The Commission finds:

- (1) Section 119.032, Revised Code, requires all state agencies to conduct a review, every five years, of their rules and to determine whether to continue their rules without change, amend their rules, or rescind their rules. The rules in Chapter 4901:1-22, Ohio Administrative Code (O.A.C.), set forth electric interconnection services and standards.
- (2) Section 119.032(C), Revised Code, requires the Commission to determine whether:
  - (a) The rules should be continued without amendment, be amended, or be rescinded, taking into consideration the purpose, scope, and intent of the statute(s) under which the rules were adopted;
  - (b) The rules need amendment or rescission to give more flexibility at the local level;
  - (c) The rules need amendment or rescission to eliminate unnecessary paperwork, or whether the rule incorporates a text or other material by reference and, if so, whether the text or other material incorporated by reference is deposited or displayed as required by Section 121.74, Revised Code, and whether the incorporation by reference meets the standards stated in Sections 121.71, 121.75, and 121.76, Revised Code;
  - (d) The rules duplicate, overlap with, or conflict with other rules; and

- (e) Whether the rules have an adverse impact on businesses and whether any such adverse impact has been eliminated or reduced.
- (3) In addition, on January 10, 2011, the Governor of the state of Ohio issued Executive Order 2011-01K, entitled "Establishing the Common Sense Initiative," which sets forth several factors to be considered in the promulgation of rules and the review of existing rules. Among other things, the Commission must review its rules to determine the impact that a rule has on small businesses; attempt to balance properly the critical objectives of regulation and the cost of compliance by the regulated parties; and amend or rescind rules that are unnecessary, ineffective, contradictory, redundant, inefficient, or needlessly burdensome, or that have had negative unintended consequences, or unnecessarily impede business growth.
- (4) Additionally, in accordance with Section 121.82, Revised Code, in the course of developing draft rules, the Commission must evaluate the rules against the business impact analysis (BIA). If there will be an adverse impact on businesses, as defined in Section 107.52, Revised Code, the agency is to incorporate features into the draft rules to eliminate or adequately reduce any adverse impact. The proposed revisions to the rules must be sent to the Common Sense Initiative Office (CSI), and CSI will then review the proposed revisions and provide recommendations.
- (5) On October 17, 2012, the Commission issued Staff's proposed amendments and requested comments to assist in the review. Comments were filed by Fosdick and Hilmer, Inc., GEM Energy (GEM), Cleveland Thermal, LLC (CT), Ohio Power Company (OPCo), Labyrinth Management Group (LMG), Interstate Renewable Energy Council, Inc. (IREC), Ohio Consumers' Counsel (OCC), Interstate Gas Supply, Inc. (IGS), Ohio Edison Company, the Cleveland Electric Illuminating Company, the Toledo Edison Company (collectively, FirstEnergy), The Dayton Power and Light Company (DP&L), Recycled Energy Development (RED), MetroCD Engineering, LCC

(MetroCD), Duke Energy Ohio, Inc. (Duke), and Janice Karlak. Reply comments were filed by IREC, FirstEnergy, and OCC.

- (6) By Entry issued on January 16, 2013, the Commission opened a supplemental comment and supplemental reply comment period to address further changes proposed by Staff. Supplemental comments were filed by OMA, Duke, Fosdick and Hilmer, IGS, OCC, IREC, the Environmental Law and Policy Center (ELPC), Ohio Environmental Council (OEC), Solar Energy Industries Associations, and Vote Solar Initiative (collectively, Solar Advocates), Energy Resources Center (ERC), DP&L, FirstEnergy, and OPCo. Supplemental reply comments were filed by Duke, Fosdick and Hilmer, IREC, Ohio Hospital Association (OHA), FirstEnergy, and Solar Advocates.
- (7) The Commission has carefully reviewed the existing rules, proposed Staff changes, comments, reply comments, supplemental comments, and supplemental reply comments filed by interested parties. The Commission addresses some of the more relevant comments below. The Commission notes that there were a substantial number of comments, reply comments, supplemental comments, and supplemental reply comments. While they have all been considered by the Commission, they are not all addressed by the Commission in this finding and order. Any recommended change that is not discussed below or incorporated into the proposed rules should be considered denied by the Commission.

#### **Comments on Rule 4901:1-22, O.A.C – Interconnection Services**

##### **General Comments**

- (8) In its October 17, 2012, proposal, Staff recommended consolidation of the application process into a three-level review procedure. Under Staff's proposal, Level 1 review would be a simplified evaluation procedure that utilizes technical screens and applies to certified, inverter-based systems that have a nameplate capacity of 10 kilowatts (kW) or less. Level 2 review would be an expedited evaluation procedure utilizing technical screens that would apply to

certified systems that have a nameplate capacity of 2 megawatts (MW) or less. Level 3 review would be a standard study process applying to systems that do not qualify for Level 1 or Level 2 review and have a nameplate capacity of 20 MW or less.

In their November 19, 2012, comments, OPCo, IREC, OCC, IGS, FirstEnergy, and DP&L were generally supportive of Staff's proposed changes. OPCo, DP&L, OCC, and IREC recommended raising the eligibility capacity limit for Level 1 'short form' application review from 10 kW to 25 kW. OPCo stated that increasing the capacity limit would reduce the time and resources needed, since systems of this size are a large volume of what OPCo processes (OPCo Comments at 6). DP&L stated that many residential installations are above the 10 kW threshold and that subjecting residential applications to the Level 2 process would be lengthy, costly, and unnecessary (DP&L Comments at 1). OCC stated that 25 kW is the recommended Level 1 capacity limit proposed in the IREC model procedures and noted that the state of Washington is considering adopting this threshold. Additionally, OCC noted that several local developers supported increasing the eligibility limit and asserted that customers would benefit from this change by allowing more applications to qualify for simplified review (OCC Comments at 3). LMG proposed raising the Level 1 eligible capacity limit to 30 kW. LMG argued that establishing a 10 kW Level 1 review threshold would adversely impact micro-residential and commercial energy projects and reduce their number, claiming that approximately half of the commercial, non-profit, and governmental solar projects have exceeded 10 kW in the last four years (LMG Comments at 2).

In its December 4, 2012, reply comments, FirstEnergy opposed increasing the Level 1 review eligibility threshold from 10 kW to 25 kW, as proposed by commenters. FirstEnergy claimed that the eligibility level is set at the point at which the potential impact upon the reliability of

the distribution system lends itself to an abbreviated and expedited review process that serves to reduce costs, completion time, and risks to all parties involved (FirstEnergy Reply at 2). FirstEnergy asserted that systems larger than 10 kW are much more likely to require distribution equipment upgrades and that no mechanism exists for utilities to recover system upgrade costs from customer projects under Level 1 review. FirstEnergy maintained that applicants should be required to pay construction costs should the Level 1 eligibility limit be increased. Finally, FirstEnergy noted that the incremental cost difference to the customer between Level 1 and Level 2 review is relatively low and that the Level 2 process only lengthens review timeframes as necessary to maintain grid safety and reliability.

In its December 4, 2012 reply comments, IREC stated that increasing the Level 1 eligibility limit would expedite the process for an even larger portion of customers and, in doing so, reduce the application processing cost for both utilities and customers (IREC Reply at 3). IREC noted that the states of Oregon, Massachusetts, and West Virginia provide a simplified process for inverter-based systems of 25 kW or less.

The Commission finds that Staff's proposed consolidation of Level 1, 1.1, and 1.2 reviews into a single Level 1 review process for small inverter-based generators should be adopted. The Commission further finds that Level 1 review should be for small inverter-based generators rated 25 kW or less, as proposed by stakeholders. The Commission believes that increasing the Level 1 capacity limit from 10 kW to 25 kW will expedite the interconnection process by allowing greater utilization of the short form combined application and interconnection agreement. Reduction in administrative time spent reviewing applications and processing separate interconnection agreements could benefit both utilities and customers. Additionally, the

anticipated efficiency benefits associated with a higher Level 1 eligibility limit outweigh the concern that more generators may require distribution equipment upgrades. The Commission agrees with FirstEnergy that distribution equipment upgrade costs be the responsibility of the applicant regardless of review level. To clarify this principle, the Commission will adopt additional language in Rule 4901:1-22-04(G), O.A.C.

Finally, the Commission is adopting language clarifying that applications failing Level 1 review can be resubmitted under Level 2 or Level 3 review without losing their queue position.

#### **Field Certified Database**

- (9) In its October 17, 2012, proposal, Staff requested comments on whether two provisions should be adopted to improve access to information for developers seeking interconnection to an EDU's distribution system: a field-certified equipment database and a publically available distribution queue. Staff proposed a rule adopting standard procedures for field-certified equipment intended to quicken the interconnection process for large generators.

In their November 19, 2012, comments, IREC, IGS, and OCC supported Staff's recommendation for a field-certified database. IREC stated that allowing the use of field-tested equipment furthers best practices, eliminating duplicate testing of equipment packages or configurations that have already been vetted. IREC also supported the idea of having the EDUs maintain a database of approved equipment or configurations that is accessible to developers (IREC Comments at 6). IGS argued that it may be redundant or unnecessary to require an extended interconnection approval process each time previously approved equipment is proposed to be installed. IGS further contended that standardized procedures for field-tested equipment would likely expedite the interconnection review process. Finally, IGS asserted that any additional procedures should not administratively burden applicants (IGS Comments at 2). OCC argued that maintaining a

database of field-certified equipment for developers would expedite the interconnection process for utilities and customers. OCC contends that the database could avoid the need for customers to file complaints before the Commission in cases where an EDU rejects a customer's interconnection application for equipment or equipment configurations (such as programmable relays) that the utility has approved on a previous occasion (OCC Comments at 5).

In their November 19, 2012, comments, FirstEnergy, OPCo, Duke, DP&L and Janice Karlak opposed Staff's recommendation for a field-certified equipment database. FirstEnergy argued that there is no way of knowing that previously tested customer generation equipment is identical to other generation equipment without proper certification or proper field testing of each unit. (FirstEnergy Comments at 3). OPCo argued that each system is different and must comply with Institute of Electrical and Electronics Engineers (IEEE) requirements. OPCo contended that individual field tests provide baselines for future performance tests. OPCo also objected to maintaining a database, the increased cost of a database, decreased competitiveness, and the risk of disclosure of confidential information (OPCo Comments at 6, 7).

The Commission finds that, at this time, a field-certified database would be overly-burdensome to maintain and could potentially result in the disclosure of confidential information. Further, the Commission believes that further analysis is needed on the effects and application of a field-certified database.

#### **Financial Risk Minimization**

- (10) In its October 17, 2012, proposal, Staff requested comments on whether the interconnection rules should create a framework for minimizing the financial risk associated with the cost of distribution system modifications for interconnection.

In their November 19, 2012, comments, IREC, DP&L, IGS, Duke, and FirstEnergy supported Staff's recommendation. In its comments, IREC supported posting requirements that balance the risks of developers and EDUs. Specifically, IREC supported financial posting requirements that allow common forms of financial security, relate posting timeframes with project milestones, and prohibit posting requirements prior to the period in which a utility's costs become incurred. (IREC Comments at 6). DP&L supported the proposal, claiming that utilities should not bear the risk of costs related to terminated or withdrawn projects (DP&L Comments at 2). IGS noted that interconnection costs vary greatly by project and argued that a one-size-fits-all security deposit is not the most effective way to ensure that the applicant's security requirements are in alignment with the actual cost of the project (IGS Comments at 3). IGS stated that a three-phase security posting framework would better align security requirements with project costs. FirstEnergy and Duke did not oppose a standard process for minimizing financial risk. However, Duke recommended that such a process be as simple and straightforward as possible (Duke Comments at 4).

OPCo and OCC suggested that there is no need for a risk management provision. OPCo claimed that the EDUs currently have the ability to enter into agreements to minimize the financial risk, and stated that these practices have been sufficient to date (OPCo Comments at 7). Similarly, OCC was unaware of any instances in which utilities have suffered interconnection-related financial harm, and argued that any risk management provisions adopted should be administratively simple for the customer. Janice Karlak was generally opposed to the risk minimization framework, and noted that she believed Rule 4901:1-22-10(E)(1), O.A.C., prohibits an EDU from requiring financial instruments (Karlak Comments at 3).



The Commission finds that it is not necessary at this time to establish security deposit requirements. While the proposed framework may provide potential benefits, implementing such a provision could introduce additional complexity to the interconnection process. The Commission is not convinced that, at this time, such a provision is needed.

### **Removal of the 20 Megawatt Capacity Limit**

- (11) In its October 17, 2012, proposal, Staff requested comments on whether the interconnection rules should be expanded by lifting the 20 MW capacity limit for distributed generation facilities seeking to interconnect at the distribution level.

In their November 19, 2012, comments, OCC, RED, and CT supported removing the 20 MW capacity limit. OCC asserted that the limit is not necessary as long as technical and safety requirements are met. OCC argued that eliminating the limit would help EDUs meet their alternative energy requirements and would support state legislative and Commission efforts to promote combined heat and power (CHP) development (OCC Comments at 6). CT described the potential efficiency benefits of CHP installations that could exceed the 20 MW limit. In addition to lifting the capacity limit, CT proposed recognizing interconnection protocols adopted by applicable regional transmission organizations or reliability organizations applicable to projects that are larger than 20 MW, encouraging coordination to streamline the interconnection process, and further incenting distributed generation that provides efficiency benefits (CT Comments at 3). RED claimed that arbitrary size limitations distort the market and reduce opportunities to advance projects that would bring both economic development and environmental quality to Ohio (RED Comments at 1). OPCo did not oppose removing the 20 MW capacity limit but noted that the operating limits of most distribution system equipment in use will likely limit projects to less than 20 MW (OPCo Comments at 7). IREC supported the 20 MW limit as a minimum but suggested its removal may be appropriate in

order to accommodate the installation of large qualifying facilities (IREC Comments at 8).

In their November 19, 2012, comments, FirstEnergy, Duke, and DP&L opposed lifting the 20 MW capacity limit. FirstEnergy stated that the company has never received an interconnection request for a project exceeding 20 MW and argued that, given the substantial impact such projects would have on the distribution system, the current limit should be left in place. FirstEnergy then advocated that utilities negotiate mutually acceptable interconnection arrangements with project developers on a case-by-case basis for projects of this size (FirstEnergy Comments at 4). Duke indicated that it did not see a need to remove the 20 MW limit (Duke Comments at 4). DP&L noted that most distribution circuits are rated for less than 20 MW and that the majority of facilities larger than 20 MW would be interconnected at the transmission level and would be subject to PJM interconnection procedures (DP&L Comments at 2).

In its December 4, 2012, reply comments, FirstEnergy stated that the question of eliminating the 20 MW capacity limit rests on whether large projects should be processed under standard review and interconnection procedures or whether some size limit should exist, warranting distinct treatment. FirstEnergy noted that the Federal Energy Regulatory Commission (FERC) threshold between small and large generator interconnection procedures is 20 MW. FirstEnergy argued that applying the FERC Small Generator Interconnection Procedures (SGIP) to larger projects would exceed the scope and understanding of the applicability of the rules. FirstEnergy asserted that the capacity limit enables EDUs to determine the scope and depth of analysis required to maintain the safe and reliable operation of the distribution system. Finally, FirstEnergy noted that the capacity limit does not preclude projects exceeding 20 MW from going forward but rather prevents the automatic application of Ohio's interconnection rules to such projects (FirstEnergy Reply at 5).

The Commission finds that the 20 MW capacity limit for state jurisdictional interconnections should be retained. The

Commission is persuaded by the comments that it is not necessary to raise the 20 MW capacity limit, at this time. The Commission also agrees with FirstEnergy and finds that the capacity limit does not preclude interconnection of facilities larger than 20 MW at the distribution Level. Applicants for projects larger than 20 MW intending to interconnect at the distribution Level should collaborate with the EDU to determine the most appropriate interconnection procedures, including whether these interconnection rules should be applied to the project.

### **Public Interconnection Queue**

- (12) In its October 17, 2012, proposal, Staff requested comments on provisions that would require that the interconnection queues for distribution-level projects be made publically-available, much like the PJM queue.

In their November 19, 2012, comments, OCC, IGS, CT, and RED supported the development of a publically available interconnection queue for distribution-level projects. OCC claimed that a publically available queue could alert developers of bottlenecks on a particular distribution line and enable them to relocate their projects accordingly. OCC stated that such information would be particularly valuable to developers of larger projects with geographic flexibility and would already be collected by EDUs, thus reducing the amount of utility resources needed to implement the proposal. (OCC Comments at 6). IGS stated that a publically available queue would help developers more accurately predict the interconnection timeframe associated with a project and would increase transparency, ensuring that all interconnection projects are treated equally (IGS Comments at 3). RED and CT asserted that a publically available queue would help developers predict the feasibility of interconnecting at a specific location.

In its November 19, 2012, comments, IREC stated that sharing interconnection queue data could be beneficial, but suggested other methods of improving developer access to information. IREC noted that several states encourage applicants to acquire detailed information concerning distribution system conditions at a point of interconnection

from utilities through a pre-application report obtained prior to the submission of an application for interconnection. IREC claimed that such information could enable developers to locate projects where the distribution system would benefit from distributed generation or where expedited review of a project is more likely to succeed without the need of system upgrades (IREC Comments at 9).

In their November 19, 2012, comments, FirstEnergy, OPCo, Duke, and DP&L opposed a publically available interconnection queue. FirstEnergy raised administrative cost and customer privacy concerns and noted that the vast majority of projects reviewed have been less than 10 kW in capacity. FirstEnergy argued that such a queue would seem to provide limited benefits for predicting feasibility and costs compared to the current methods used by developers and customers (FirstEnergy Comments at 3). OPCo acknowledged the value of transmission-level interconnection queues. However, OPCo argued against applying the same value to distribution-level projects on the grounds that the distribution system is predominantly radial in nature and that, in most cases, multiple generators are not simultaneously applying for interconnection at the same location. OPCo also agreed with FirstEnergy's administrative cost concerns, adding that existing communication between EDUs and applicants is sufficient to enable most applications to be processed well within prescribed timeframes. OPCo argued that, should a publically available queue be required, the costs of developing and maintaining it should be borne by the applicants (OPCo Comments at 8). DP&L raised residential privacy concerns and argued that a publically available queue would have little benefit because distributed generation projects are not usually sited to reduce grid congestion (DP&L Comments at 2). Duke argued that the existing Level 3 process better addressed project siting feasibility, but suggested that providing some preliminary information to developers might better facilitate the siting process (Duke Comments at 6).

In its December 4, 2012, reply comments, FirstEnergy asserted that the vague benefits claimed by other

commenters do not outweigh facility implementation costs and confidential information concerns. FirstEnergy also maintained that communication between utilities and interconnection applicants eliminates the need for a publically available distribution queue. Finally, FirstEnergy stated that the costs of implementing any such provision should be borne by interconnection applicants (FirstEnergy Reply at 6).

The Commission believes that, at this time, the costs to develop a publically-available distribution queue would exceed the benefits.

#### **Rule 4901:1-22-04(B) - Pre-Application**

- (13) In its January 16, 2013, proposal, Staff requested supplemental comments on the incorporation of a pre-application report provision into Rule 4901:1-22-04(B), O.A.C. The pre-application report would make relevant information available to developers seeking project siting and planning guidance from utilities. The pre-application report would provide developers with a formal channel for requesting a specified list of readily-accessible information concerning system design characteristics at one or more points of interconnection on a utility's system.

In its January 31, 2013, supplemental comments, FirstEnergy opposed adopting a pre-application report provision, maintaining that informal information requests are sufficient (FirstEnergy Supp. Comments at 6). OPCo stated that the pre-application report would be a more appropriate method of guiding developer site selection than a field-certified database or public distribution queue but continued to raise cost and system security concerns (OPCo Supp. Comments at 4). DP&L and Duke did not oppose the proposal but offered several recommendations for how it might be improved. IREC, OCC, and Solar Advocates generally supported the pre-application report provision.

The Commission believes that making pre-application reports available to developers would streamline the interconnection process by enabling developers to identify locations on the distribution system where project siting

would create minimal grid impacts. The Commission finds that Staff's pre-application report proposal should be adopted.

- (14) In its January 16, 2013, proposal, Staff proposed that utilities be required to provide general information on the requirements of a utility's application process through informal request.

DP&L raised concern that Staff's proposal enables customers to informally request information but does not provide a compensation mechanism for utilities to recover costs associated with responding to such inquiries (DP&L Supp. Comments at 5). OPCo suggested that subsection (c) of Rule 4901:1-22-04(B)(1), O.A.C., should be removed, arguing that this provision is redundant with information specified in subsection (d). Furthermore, OPCo suggested that provisions requiring utilities to respond to reasonable requests for relevant system studies should be moved from the informal request provision to the pre-application report. OPCo claimed that the only relevant system study would be a system impact study, and such an analysis should be paid for and provided in the formal pre-application report (OPCo Supp. Comments at 5.)

The Commission finds that it would be unreasonable to charge potential interconnection applicants for informally requesting information about a potential project. Such informal inquiries could take the form of calling or emailing a utility's designated point of contact with general questions about the interconnection review process. The Commission agrees with OPCo that subsection (c) is redundant with information specified in subsection (d) and finds that subsection (c) should be removed from Rule 4901:1-22-04(B)(1), O.A.C. Further, the Commission believes that subsection (d) better applies to Level 3 scoping meetings and finds that language addressing the exchange of relevant system studies should be moved to Rule 4901:1-22-09, O.A.C. Finally, the Commission finds that Rule 4901:1-22-09, O.A.C., should be modified to more clearly establish the purpose of the Level 3 scoping meeting as it relates to the pre-application report.

- (15) In its January 16, 2013, proposal Staff proposed establishing a flat pre-application fee of \$300.

DP&L and OPCo suggested that Staff's proposed pre-application report fee of \$300 may not fully compensate utilities for the cost of researching and preparing the requested information (DP&L Supp. Comments at 5; OPCo Supp. Comments at 4-5.) OPCo estimated that the overall pre-application report cost would be approximately \$500 to \$1,000. OPCo suggested that six of the items specified in the report would be readily available and cost \$200 to prepare. The remaining items would require distribution system modeling and cost applicants an additional \$800 (OPCo Supp. Comments at 5). Finally, Duke argued that the report fee should be based on the hourly cost of engineering work required to prepare the report (Duke Supp. Comments at 3).

The Commission finds that a flat rate of \$300 is a reasonable compensation mechanism for providing the pre-application report. The Commission notes that the proposal language does not require utilities to provide information that is not readily available. Most of the information specified in the report proposal would be accessible to utility personnel. The Commission believes that a flat rate would be more administratively efficient than an hourly rate.

- (16) In its January 16, 2013, proposal, Staff proposed 12 items to be included pre-application reports under Rule 4901:1-22-04(B)(3), O.A.C.

DP&L argued that providing applicants with the miscellaneous information specified in item (l) would be difficult without extensive labor and additional study (DP&L Supp. Comments at 5). OPCo recommends clarifying modifications to subsections (a) and (d) by specifying that the items refer to generation capacity. Duke noted that the information on the likely service source capacity, specified in subsection (a), may require that multiple reports be prepared for each potential source. Additionally, Duke stated that distribution system changes may render the information specified in subsection (c) obsolete by the time a proposed facility is constructed.

Finally, Duke argued that subsection (d) in Staff's proposal is not necessary because the value can be easily calculated from other specified data in the report (Duke Supp. Comments at 3-4).

With regard to the miscellaneous information listed in Rule 4901:1-22-04(B)(3), O.A.C., the Commission clarifies that the utility would only be required to provide the applicant with information if it is known. Accordingly, the Commission finds that DP&L's proposal to eliminate subsection (l) should be denied. The Commission believes that incorporating OPCo's clarifying language into subsections (a) and (d) should be adopted. With regard to Duke's comment about subsection (a), the Commission acknowledges that a single project site could be served from multiple interconnections. Under these circumstances, an applicant would have the option to request and pay for multiple reports. The Commission agrees with Duke that, due to the dynamic nature of the distribution system, it is unavoidable that some information in the pre-application report could potentially become outdated. However, the Commission notes that the proposed language contains a disclaimer indicating that data provided in the report may become outdated and emphasizes that the utility is under no obligation to guarantee the accuracy of all information provided in the report. Finally, the Commission denies Duke's proposal to eliminate subsection (d) from the report. The Commission believes that, while this information is easily derived, its inclusion in the report may still be beneficial to some applicants.

- (17) In its proposal for Rule 4901:1-22-04, O.A.C., Staff recommended that utilities only be required to provide specified pre-application information that is pre-existing and readily available. Staff's proposal was that if a utility cannot complete a pre-application report because certain information is not readily available, the utility must refund the applicants \$25 for each missing item.

OPCo supported Staff's proposal that applicants be refunded for each unavailable item (OPCo Supp. Comments at 5). In contrast, DP&L claimed that any partial refund would be inappropriate and that utilities should be



compensated for all time researching the specified information (DP&L Supp. Comments at 5). Similarly, Duke pointed out that this refunding \$25 for each missing item decreases the certainty that comes with a flat, non-refundable fee (Duke Supp. Comments at 4.)

The Commission finds that a flat, non-refundable processing fee for the pre-application report provides greater certainty than a partially refundable fee. Therefore, the Commission finds that the fee for pre-application reports should be a flat, non-refundable fee.

- (18) In its January 16, 2013, proposal Staff proposed combining the notice of receipt and application completeness into a single procedural step.

In its November 19, 2012, comments, IREC recommended retaining the current timeframe for utilities to notify an applicant when an application is complete. IREC argued that Staff's proposal lengthens the deadline for notifying customers of application completeness from three business days to ten business days, and claimed that extending this deadline is inconsistent with the goal of interconnection rule revisions: to improve the efficiency and speed of the interconnection process (IREC Comments at 5).

In its December 4, 2012, reply comments, FirstEnergy disagreed with IREC's recommendation, noting that Staff's proposal combines the current requirement to separately notify customers of application receipt and completion into one step. FirstEnergy supported Staff's proposal allowing EDUs to send one notification instead of two (FirstEnergy Reply at 7).

The Commission denies IREC's proposed modification. The Commission notes that by combining two required notifications into a single step, processing deadlines could be reduced by as much as three business days.

**Rule 4901:1-22-05(A) - Application Forms**

- (19) In its October 17, 2012, proposal, Staff recommended redefining the term "short form application" to apply to distributed generators rated ten kW or less.

In its December 17, 2012, comments Duke requested that the short form application apply to systems utilizing UL 1741 certified inverters rated 50 kW or less as opposed to corresponding with Level 1 simplified review. Duke argued that, if a customer generator's system is of a design which uses equipment that has been rigorously accepted to industry standards, and the customer generator's proposed system passes the other screens for systems or for its size, it is unduly burdensome on both the customer generator and the utility to have to issue a detailed interconnection agreement (Duke Comments at 2).

The Commission finds that establishing separate eligibility requirements for application forms and review levels would complicate the rules and could lead to considerable confusion regarding the appropriate application of short forms and standard interconnection agreements. The Commission believes that, in the interest of rule simplicity and consistency with federal, state, and utility practices, the application form used should reflect the level of review applied. Combined short form applications and interconnection agreements should apply to generators that are eligible for Level 1 review. Separate standard applications and interconnection agreements should apply to generators qualifying for Level 2 and Level 3 reviews.

- (20) In its November 19, 2012, comments, OPCo requested that the Commission enable EDUs to prohibit the installation of internal switching devices on solar units. OPCo stated that allowing internal switching devices can lead to circumstances in which service restoration is delayed and can create safety and security concerns. OPCo stated that customers interpret the existing language as a requirement to have internal switching devices (OPCo Comments at 2).

In its December 5, 2012, comments, MetroCD opposed OPCo's recommendation, stating that the National Electric

Code requires a disconnecting means for the system that may be located either outside or inside a building or structure. MetroCD noted that modern inverters typically integrate the disconnecting means inside the inverter equipment in order to reduce the amount of equipment and simplify installations (MetroCD Comments at 3). MetroCD contends that prohibiting internal switching devices adds unnecessary implementation costs for both the customer and the utility, claiming that the customer must install a utility external disconnect switch, and the utility must maintain a database of switch locations and incorporate their use by utility personnel during emergency and maintenance procedures.

Furthermore, MetroCD recommended that external disconnect switches be prohibited for certified, inverter-based systems that are 25 kW or less. MetroCD noted that the existing interconnection rules require the use of inverter equipment that has been certified by a nationally recognized testing laboratory and tested for compliance with IEEE 1547 standards. MetroCD argued that certified equipment will automatically de-energize within two seconds of a disturbance or loss of utility source and will reconnect after five minutes of normal utility conditions, addressing the issue of utility personnel safety during maintenance and emergency conditions (MetroCD Comments at 3).

Initially, the Commission notes that the National Electric Code requires all buildings to have switches or breakers capable of disconnecting them from all sources of power, which are manually operable and readily accessible. Modern inverters often integrate these disconnecting means into their equipment packages to simplify system installations. The Commission finds that, rather than adopt OPCo's proposed modification, it will eliminate Rule 4901:1-22-05(E), O.A.C. The Commission believes that requiring that keys to customer premises be made available to utility personnel creates potential liability and safety issues.

Further, the Commission recognizes that, in the case of small, UL listed, inverter-based generators, utility accessible

disconnect switches may be redundant devices. However, the Commission emphasizes that protecting the safety of utility personnel is of paramount importance and is a primary objective of Ohio's interconnection rules. Therefore, the Commission will not adopt MetroCD's proposed modification.

#### **Rule 4901:1-22-06 – Level 1 Simplified Review Procedure**

- (21) In its October 17, 2012, proposal, Staff proposed in Rule 4901:1-22-06(B)(1)(d), O.A.C., a screen that limits the amount of aggregate generation located on the load side of a spot network to no greater than five percent the spot network's maximum load when aggregated with other inverter-based generation.

In its November 19, 2012, comments, IREC encouraged enabling generators up to 50 kW in capacity to interconnect to secondary networks through some expedited path. Specifically, IREC suggests modifying the Level 1 spot network screen to align with the FERC SGIP model, which allows aggregate generation up to five percent of maximum load on a network or up to 50 kW (IREC Comments at 5).

OCC also proposed language modifications to Rule 4901:1-22-06(B)(1)(h), O.A.C., that, if the distributed generation facility is interconnected to an area network, then the aggregate of all other facilities interconnected to that area network should not exceed five percent of the area network's maximum load (OCC Comments at 4).

In its December 4, 2012, reply comments, FirstEnergy recommended that the word "other" be eliminated before the word "facilities" in OCC's proposed language to consider the aggregate generation on a network, including the proposed generation facility (FirstEnergy Reply at 7).

In its October 17, 2012, comments, IREC recommended moving both the spot and area network screens, as well as the area network study from Level 1 simplified review to Level 2 expedited review (IREC Comments at 5). Similarly,

GEM recommended that the rules address both spot and area networks.

The Commission finds that the spot network screen should be retained for Level 1 simplified review. Consequently, the Commission believes that the Level 2 screen, requiring that a fast-tracked facility be interconnected to a radial circuit, should be eliminated. Furthermore, the Commission finds that the area network screen should be combined with the spot network screen and moved to Level 2 expedited review as a subset of the initial review screens. Finally, the Commission finds that any area network study, originally provided for in Levels 1.1 and 1.2 review should now be incorporated into Level 2 supplemental review.

- (22) In its October 17, 2012, proposal, Staff proposed shortening the Level 1 review deadline from one month to 15 business days.

In its December 17, 2012, comments, Duke opposed shortening the deadline for processing short form applications under Level 1 review from one month to 15 business days, arguing that the volume of interconnection applications increases significantly every year and reducing the processing deadline would be illogical (Duke Comments at 2).

The Commission acknowledges Duke's concern that reducing the Level 1 processing deadline could potentially strain EDU resources. However, the Commission notes that Rule 4901:1-22-04(B)(5), O.A.C., currently provides EDUs with the ability to extend review deadlines in the event that they cannot be met on time by notifying applicants in writing. Shortening the deadline will ensure the timely processing of short form applications. Therefore, the Commission adopts Staff's original recommendation to shorten the Level 1 review deadline from one month to 15 business days.

#### **Rule 4901:1-22-07 – Level 2 Expedited Review Procedure**

- (23) In the October 17, 2012, entry, Staff proposed retaining the two MW Level 2 eligibility limit.

In its November 19, 2012, comments, LMG proposed raising the Level 2 eligible capacity limit from two MW to six MW. LMG maintained that the two MW Level 2 eligibility threshold is not a fair or reasonable standard for the significantly less complex interconnection process associated with CHP systems that usually interconnect at the distribution level and would likely exceed this size threshold (LMG Comments at 3). LMG stated that the six MW threshold corresponds to common natural gas turbine models and maintains that adopting this capacity limit would recognize industry standardization and expertise and allow CHP projects at hospitals, universities, and other building campuses to be processed under expedited procedures.

In its January 16, 2013, entry, Staff proposed an alternative framework that scales the Level 2 capacity limit to reflect other system design characteristics at the point of interconnection.

In their January 31, 2013, supplemental comments, FirstEnergy, Duke, and DP&L expressed concerns over Staff's proposed Level 2 eligibility framework. Duke submitted modifications to the tiered threshold values proposed by Staff, substantially decreasing the eligibility thresholds for facilities located anywhere on the distribution system. Duke argued that Staff's proposed thresholds would result in applications failing one or more Level 2 screens. Specifically, Duke claimed that a one MW generator interconnected to a 4.15 kilovolt feeder would definitely exceed 100 percent of minimum section load and may exceed the feeder rating. In response to Staff's proposal to separately categorize interconnections to 600 amp lines, Duke indicated that their largest 4.16 kilovolt feeder is rated 500 amps and that they own only two of these (Duke Supp. Comments at 1).

DP&L raised concerns over allowing Level 2 review for generators regardless of location, citing potential voltage problems in circumstances where developers request interconnection to long, rural circuits with small conductors. FirstEnergy indicated that Staff's framework would require applicants to have advanced knowledge of

how the utility will serve a particular generator and also argued that Level 2 eligibility limits must recognize the impacts of existing generators, generators that have already been approved for generation, and generators that are ahead of applicants on the interconnection queue.

In their January 31, 2013, comments, OPCo, OCC, IREC, ELPC, OEC, and Solar Advocates supported Staff's proposed framework and believe that its parameters are reasonable.

In its February 7, 2013, supplemental reply comments, FirstEnergy shared Duke's and DP&L's concerns that projects over one MW frequently fail initial review screens, and cautioned against fostering an unrealistic expectation for fast track eligibility (FirstEnergy Supp. Reply at 2). FirstEnergy asserted that, while projects near substations are less likely to create grid impacts, the potential for such impacts still exist, and these could be severe in some circumstances. Finally, FirstEnergy argued that Staff's proposed eligibility thresholds approach the maximum limits on total generation connected to a substation power transformer (FirstEnergy Supp. Reply at 3).

In its February 7, 2013, supplemental reply comments, IREC argued that scaling the eligibility limit to distribution system conditions reduces the number of projects evaluated under the resource-intensive Level 3 study process without increasing the likelihood of grid impacts. IREC further asserted that Staff's proposed size limits reflect system sizes that have a realistic possibility of passing the Level 2 review process and claimed that the increased eligibility limits would not change the baseline technical considerations that all Level 2 requests must pass (IREC Supp. Reply at 4). In response to Duke's proposal to lower the framework's lowest voltage threshold to 100 kW, IREC noted that the current Level 2 eligibility threshold for all feeders is two MW. IREC noted that the proposed framework sets the system size limit for interconnections to the 4.16 kilovolt lines lower than the existing two MW limit. Moreover, IREC maintained that Staff's proposed framework encourages distributed generation development in areas

that are better suited to accommodate larger generators (IREC Supp. Reply at 5).

The Commission recognizes the potential interconnection complications with 4.16 kilovolt circuits and adopts Staff's proposed Level 2 eligibility framework with modification so that fast track eligibility, regardless of location for a line voltage of less than or equal to 5kV, is 500 kW. Additionally, the Commission adopts additional language emphasizing that these eligibility limits merely qualify a project for expedited treatment and by no means guarantee fast track approval.

- (24) In its proposal, Staff proposed to remove screen language mandating that facilities comply with IEEE 1547 and UL 1741 standards.

In their initial comments, GEM and FirstEnergy recommended that Level 2 eligibility criteria retain the requirement that generators be composed of equipment that is certified according to the IEEE 1547 and UL 1741 Standards. GEM stated that equipment certification is what justifies and supports an expedited review and approval (GEM Comments at 1). FirstEnergy asserted that removal of this provision would undermine the safety of interconnections, and that these equipment standards provide a universal safety standard that employees and contractors are familiar with and typically operate under. Furthermore, FirstEnergy claimed that this provision clarifies to customers that lack of UL certification triggers Level 3 review (FirstEnergy Comments at 5).

The Commission agrees with GEM Energy and FirstEnergy that Level 2 eligibility criteria should retain the certified equipment requirement. Therefore, the Commission adopts additional language that generator equipment must comply with IEEE 1547 and UL 1741 standards to be eligible for Level 2 review.

- (25) In its October 17, 2013, proposal, Staff recommended modifying Rule 4901:1-22-07(B)(1)(c), O.A.C., to change the aggregate generation threshold from two to ten MW.



In its November 19, 2012, comments, Duke requested that the Commission modify Staff's proposal to be scaled according to the level of distribution voltage on the circuit. Duke argued that the proposed ten MW limit could not easily be accommodated on a 12 kilovolt feeder and therefore should not qualify for expedited review (Duke Comments at 3).

In its January 16, 2013, supplemental proposal, Staff proposed modifying the screen to determine whether the proposed generator has interdependencies with other queued generators on the transmission or sub-transmission system. Staff proposed screen language requiring additional study if the proposed generator is in an area where there are known or posted transient stability limitations or if the proposed generator has interdependencies, known to the EDU, with earlier queued transmission system interconnection requests.

No parties opposed Staff's subsequent proposal although FirstEnergy raised concerns that the screen may require disclosure of confidential transmission system data. Additionally, DP&L requested clarification on how it is to be determined that a proposed generator has interdependencies on the transmission or sub-transmission system.

The Commission adopts Staff's subsequent proposal and notes that shifting the focus of the screen to transmission and subtransmission level interdependencies better enables identification of generators in need of full study. Interdependencies can be identified by reviewing planned or existing transmission or subtransmission level generation interconnection requests. These can be found in the publically available PJM Interconnection queue. In response to the confidentiality concerns raised by FirstEnergy, the Commission adopts the additional screen language to ensure the confidentiality of transmission system data.

- (26) In its October 17, 2013, proposal, Staff recommended a technical screen in Rule 4901:1-22-07(B)(1)(d), O.A.C., that is passed when a proposed facility, in aggregation with other

generation on a circuit, does not exceed 15 percent of that line section's annual peak load.

In their November 19, 2012, comments, OP&Co and DP&L requested that the Commission clarify the meaning of this screen. OP&Co recommended that the screen language be clarified to address the location of the generator in relation to the sectionalizing device, as well as to specify what the device is intended to isolate. Additionally, OP&Co requested clarification as to whether or not this criterion is to be applied with the understanding of how it affects reverse power flow and islanding conditions (OP&Co Comments at 3). DP&L recommended defining the term line section as set forth in this screen to indicate whether the term refers to a fused line section, or a line section beyond a sectionalizing point, such as an air break switch (DP&L Comments at 3).

IREC noted that the aggregate generation screen differs between Level 1 and Level 2 review and stated that the screens leave room for clarification regarding the allowed aggregate generation limit on a circuit. IREC proposed adopting the FERC SGIP screen language set forth in FERC SGIP Section 2.2.1.2 for both Level 1 and Level 2 review to clarify and make consistent the aggregate generation limit based on the peak load of a line section, as measured at the substation (IREC Comments at 2).

The Commission adopts IREC's proposal and, therefore, the FERC SGIP screen language set forth in FERC SGIP Section 2.2.1.2 for both Level 1 and Level 2 reviews. To clarify the rule, the Commission adopts additional language regarding the applicability of the screen to reverse power flow and islanding conditions.

In regards to DP&L's request for clarification regarding the meaning of sectionalizing device, the Commission adopts a definition for the term in Rule 4901:1-22-01, O.A.C. In regards to OP&Co's request for clarification regarding the meaning of line section, the Commission also adopts a definition for the term in Rule 4901:1-22-01, O.A.C.

- (27) In its October 17, 2013, proposal, Staff recommended modifying the technical screen in Rule 4901:1-22-07(B)(1)(f),

O.A.C., to limit protective device fault current exposure to no more than ninety percent their short-circuit interrupting capability.

OPCo requested that Rule 4901:1-22-07(B)(1)(f), O.A.C., be modified to acknowledge that a customer would not know, prior to application, what the short circuit interrupting capability would be.

The Commission recognizes OPCo's comments and finds that additional language should be adopted indicating that an applicant will not be permitted to connect on a line that already exceeds ninety percent of its short-circuit interrupting capability.

- (28) In its October 17, 2013, proposal, Staff recommended modifying the screen in Rule 4901:1-22-07(B)(1)(j), O.A.C., to raise the limit of aggregate generation capacity on a shared secondary line from ten to twenty kW. In its January 16, 2013, proposal, Staff subsequently proposed adopting an alternative technical screen that sets the aggregate generation capacity limit on a single phase shared secondary at 65 percent the transformer nameplate power rating, as opposed to a static capacity threshold of ten kW.

DP&L opposed Staff's original proposal, arguing that the threshold be left at ten kW because it is unclear what impact such increase would have on the system (DP&L Comments at 3). No Parties opposed Staff's subsequent recommendation, although FirstEnergy emphasized that such a screen would be unworkable for the Level 1 Simplified Review Procedure.

The Commission notes that this screen is only applicable to Level 2 expedited review procedure and believes that setting the aggregate generation capacity limit on a single-phase shared secondary to a percentage of transformer nameplate power rating more accurately accounts for variations in transformer capacities. Therefore, the Commission adopts the proposed revision.

- (29) In its October 17, 2012, proposal, Staff recommended establishing in Rule 4901:1-22-07(C), (D), and (E), O.A.C., a

more formalized supplemental review approach, that incorporates a procedural timeframe for performing minor system modifications, and conducting a supplemental review.

In its November 19, 2012, comments DP&L requested clarification on Staff's proposal to adopt Level 2 supplemental review language. Specifically, DP&L sought explanatory language describing the purpose of supplemental review, when such review is required, what must be included in such a review, what triggers supplemental review, and the number of supplemental reviews that can be requested by an applicant (Duke Comments at 3).

IREC, in its November 19, 2012, comments, suggested that the Commission may wish to consider adopting three supplemental review screens. IREC stated that the screens establish the basic parameters for reviewing generators during supplemental review, while preserving the safety, reliability, and power quality of the EDU's distribution systems (IREC Comments at 5).

In its January 16, 2013, proposal, Staff proposed that the technical screens introduced by IREC be incorporated into the supplemental review process.

In their January 31, 2013, supplemental comments, Duke, FirstEnergy, and DP&L questioned the necessity of establishing a formalized supplemental review process. Duke and FirstEnergy stated that the supplemental review process need not be formalized. They suggested that a formal procedure may reduce study flexibility and increase associated costs. Duke asserted that, should a project fail one or more of the Level 2 review criteria, informal discussion is generally sufficient to address the reasons for failure before agreeing to initiate Level 3 standard review (Duke Supp. Comments at 2). FirstEnergy objected to establishing a single supplemental review process in favor of FirstEnergy's existing review protocol, which consists of incremental studies. FirstEnergy asserted that incremental studies enable greater flexibility on the part of the developer to modify projects in response to initial studies

(FirstEnergy Supp. Comments at 4). DP&L claimed that it may be difficult to implement a formal supplemental review process because it lacks sufficient interconnection experience to address easily identifiable grid impacts without Level 3 standard review (DP&L Supp. Comments at 2).

OPCo, OCC, IREC, and the Solar Advocates supported adopting a formalized supplemental review process. OPCo supported Staff's proposal, so long as the applicant is responsible for all costs (OPCo Supp. Comments at 2). IREC argued that the proposed supplemental review process provides certainty for customer generators by specifying the procedural cost, timeframe, and technical considerations to be addressed, and enables more projects to avoid Level 3 standard review, creating a more cost-effective interconnection procedure (IREC Supp. Comments at 3). OCC and Solar Advocates generally approved of Staff's proposal.

In its February 7, 2013, supplemental reply comments, IREC agreed with FirstEnergy that supplemental review can provide an opportunity for a developer to modify a project based on study results, but disagreed that an informal, incremental study process would be more beneficial than the well-defined, uniform procedural framework proposed by Staff (IREC Supp. Reply at 7).

The Commission finds that the formalized supplemental review process, which defines a procedural framework for minor system modifications and supplemental review, should be adopted. The Commission notes that the proposed framework does not prohibit the informal resolution of interconnection issues. The Commission believes that the proposed supplemental review screens create a transparent evaluation process that may prevent projects with easily addressed issues from undergoing detailed Level 3 standard review. Furthermore, the Commission believes that this process allows sufficient flexibility for engineering judgment on the potential safety and reliability impacts associated with a proposed project. The Commission notes that an incremental study approach, as described by FirstEnergy, is inconsistent with Level 2

expedited review. Level 2 review applies technical screens to a project in order to ascertain whether its interconnection will create adverse grid impacts. The inclusion of Staff's proposal would not prevent applicants from modifying the size or design of their systems based on feedback from EDU personnel at any time during the interconnection process. Accordingly, the Commission finds that Staff's proposal should be adopted.

- (30) Staff recommended in its proposal that applicants be assessed a flat \$2,500 fee to recover the costs of implementing supplemental review. OPCo preferred that a flat fee be assessed for supplemental review and that the customer than be billed at actual cost following study completion (OPCo Comments at 2).

The Commission adopts OPCo's proposal, in part, and finds that the \$2,500 fee should act as a deposit that is then adjusted to actual cost following study completion. Furthermore, the Commission finds that, in the event that an application fails supplemental review and the applicant elects to proceed to Level 3 standard review, the actual cost of supplemental review should be deducted from the otherwise applicable Level 3 standard review fee. In the event that the applicable Level 3 standard review fee is less than the cost of supplemental review, the Commission finds that this fee should be waived.

- (31) Staff's proposed Rule 4901:1-22-07(E)(1)(a), O.A.C., asks whether the aggregate generating facility capacity on a line section is less than 100 percent the minimum load for all line sections bounded by automatic sectionalizing devices upstream of the proposed distributed generation facility. If minimum load data is not available, or cannot be calculated or estimated, the screen asks whether the aggregate generating facility capacity on a line section is less than 30 percent of the peak load for all line sections bounded by automatic sectionalizing devices upstream of the proposed distributed generation facility.

In its January 31, 2013, supplemental comments, Duke recommended that the 30 percent peak section load threshold set forth in this provision be lowered to 20

percent. Furthermore, Duke claimed that the default minimum load threshold has changed from 30 percent to 15 percent peak section load (Duke Supp. Comments at 2-3.)

In its February 7, 2013, supplemental reply comments, IREC advocated retaining the 30 percent default threshold. IREC suggested Duke may not need to apply the default 30 percent threshold (IREC Supp. Reply at 10-11.)

The Commission finds that EDUs should be granted latitude in determining a 100 percent minimum load estimate appropriate to their individual system characteristics. Accordingly, Staff's proposal should be adopted.

- (32) Staff's proposed Rule 4901:1-22-07(E)(1)(a)(i), O.A.C., states that the type of generation used by the proposed distributed generation facility will be taken into account when calculating, estimating, or determining circuit or line section minimum load relevant for the application of solar photovoltaic (PV) 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 PV systems utilizing tracking systems), while all other generation uses absolute minimum load.

In its January 31, 2013, supplemental comments, DP&L recommended that subsection (a)(i), establishing minimum load measurement periods for solar photovoltaic systems, be removed. DP&L claimed that determining minimum load for daylight hours would be unduly burdensome and costly (DP&L Supp. Comments at 3-4.)

In its February 2, 2013, reply comments, IREC recommended leaving the provision unaltered. IREC acknowledged that minimum load data is not always available, but noted that the screen provides flexibility with regards to whether minimum load is calculated, estimated, or determined using a power flow model. Furthermore, IREC noted that the screen includes a default threshold value of 30 percent peak section load, which may be applied in the event that daytime minimum load data cannot otherwise be determined (IREC Supp. Reply at 7-11.)

The Commission acknowledges that the difficulty of deriving minimum daytime load may vary by utility and even by individual circuit. However, the Commission notes that the screen grants flexibility as to how this value is determined. Therefore, the Commission finds that Staff's proposal should be adopted.

- (33) Staff's proposed Rule 4901:1-22-07(E)(1)(a)(ii), O.A.C., states that when subsection (a) is being applied to a distributed generation facility that serves some onsite electrical load, only the net export in kW, if known, that may flow into EDU's system will be considered as part of the aggregate generation.

In their January 31, 2013, supplemental comments, OPco and Duke recommended modifying this provision. OPco and Duke proposed that, when this screen is being applied, it should consider all generation on a circuit as aggregate generation rather than considering only the net exported electricity. Doing so, they claimed, would ensure that the aggregate generation capacity cannot exceed the capacity of the line. (OPco Supp. Comments at 3; Duke Supp. Comments at 3.) DP&L suggested that the provision be removed entirely due to the difficulty of establishing a customer's minimum load from which net electricity export can be derived (DP&L Supp. Comm. at 4).

The Commission finds that this provision should be adopted because it clarifies how aggregate generation is to be defined in the application of subsection (a). However, the Commission is also convinced by OPco's comments and finds that OPco's proposed modification should be adopted.

- (34) Staff's proposed Rule 4901:1-22-07(E)(1)(a)(iii), O.A.C., states that the EDU shall not consider generating facility capacity known to be reflected in minimum load data as part of the aggregate generation on a line section for purposes of supplemental screen (a). In their January 31, 2013, comments, OPco and DP&L raised concerns regarding this provision. OPco suggested that the provision be modified to evaluate full generating capacity. DP&L argued that the provision be eliminated due to the



difficulty of identifying power production through historic minimum load data (DP&L Supp. Comments at 4).

The Commission finds that this provision should be adopted because it clarifies how aggregate generation is to be defined in the application of subsection (a). However, the Commission also adopts OPCo's proposed modification, and finds that the full generating capacity should be evaluated.

- (35) In its January 31, 2013, supplemental comments, OPCo suggested that it may be impractical to adopt the proposed second and third supplemental review screens because there are too many variables to sufficiently address power quality and voltage issues. According to OPCo, these issues can only reasonably be addressed through distribution system modeling and the respective studies assessing steady state voltage, flicker, and adverse effects on the distribution system (OPCo Supp. Comments at 2).

In its February 7, 2013, supplemental reply comments, IREC acknowledged that the second and third screens are not as prescriptive as the other Level 2 technical screens but suggested that this lack of specificity provides utilities with more flexibility in evaluating projects with unique characteristics. Finally, IREC noted that the third screen beneficially lists some of the specific items utilities might evaluate to identify safety and reliability issues, while allowing sufficient flexibility for utilities to examine other issues (IREC Supp. Reply at 8).

The Commission finds that Staff's proposal should be adopted. The Commission believes that these screens are necessary compliments to subsection (a), designed to identify power quality, voltage, safety, and reliability issues that are not captured by the first supplemental screen.

- (36) Staff's proposed Rule 4901:1-22-07(E)(1)(b), O.A.C., applies relevant IEEE standards for voltage regulation, voltage fluctuation, and harmonic levels, to determine whether a project is likely to create adverse power flow or voltage conditions.

In their January 31, 2013, supplemental comments, OPCo and DP&L raised concerns regarding applying the IEEE standards. OPCo recommended modifying the provision to remove reference to the voltage regulation limits established in IEEE 1453. OPCo suggested that IEEE 1453 is a shadow reference guiding limits on voltage flicker and does not establish acceptable limits. Rather, OPCo asserted that established flicker limits are included in IEEE 519 (OPCo Supp. Comments at 3.)

DP&L advocated eliminating the provision altogether, arguing that voltage flicker issues are difficult to determine without detailed, Level 3 Study (DP&L Supp. Comments at 4.)

FirstEnergy suggested that the power quality and voltage tests may be difficult to apply. According to FirstEnergy, evaluation of voltage flicker and harmonic issues requires statistical models of various system parameters. FirstEnergy maintained that such data is essential for power quality or voltage analysis and must come from developers or system manufacturers. While not opposed to the screen, FirstEnergy recommended that if the applicant is unable or unwilling to provide necessary information in a timely manner, Level 3 standard review should be applied (FirstEnergy Supp. Comments at 5).

In it February 7, 2013, supplemental reply comments, IREC disagreed with FirstEnergy's assertion. IREC suggested that requiring the statistical models of various parameters that FirstEnergy indicates would be necessary may be unduly burdensome to applicants (IREC Supp. Reply at 9).

The Commission finds that Staff's proposed Rule 4901:1-22-07(E)(1)(b), O.A.C., should be adopted. Furthermore, the Commission also adopts the reference to the voltage regulation parameters established in IEEE 1453. The Commission notes that IEEE 1453 will replace the provisions addressing voltage flicker that are currently set forth in IEEE 519. Following this change, IEEE 519 will remain the standard addressing acceptable harmonics levels. With regard to FirstEnergy's proposal to require harmonic current injection data from developers, the

Commission notes that UL 1741 certified equipment must demonstrate through testing that it creates no harmonic impacts on the distribution system. Therefore, the Commission does not believe it is necessary to require developers to provide this information. Additionally, the Commission does not believe that it is necessary to require that developers provide output ramp rate data to determine compliance with IEEE 1453. The Commission believes that other methods of evaluating distributed generation flicker impacts exist. Therefore, the Commission does not believe it is necessary to require developers to provide this information.

- (37) Staff's proposed Rule 4901:1-22-07(E)(1)(c)(iii), O.A.C., asks whether the facility is located within 2.5 electrical line miles from a substation and whether the circuit to which connecting a proposed facility interconnects is 600 amps.

In its January 31, 2013, supplemental comments, OPco recommended modifying the use of the term "cable" in this provision. OPco claimed that "cable" is a term used to conduct a self-insulated conductor only, and argued that the provision should be written to include any conductor and conductor rating as installed in the field. (OPco Supp. Comments at 4.)

The Commission agrees with OPco's recommendation and finds that Staff's proposal, with OPco's modifications, should be adopted.

- (38) Staff's proposed Rule 4901:1-22-07(E)(1)(c)(vi), O.A.C., would allow the utility to analyze whether the facility utilizes anti-islanding functions or equipment.

In its January 31, 2013, supplemental comments, OPco recommended removing this provision, claiming that UL 1741 inverters are only tested as stand-alone units. OPco argued that the operational response is unknown for multiple inverter installations on a single circuit, and claimed that, depending upon the individual inverter anti-islanding algorithm, a certified inverter may not respond to an islanding condition in accordance with IEEE 1547. (OPco Supp. Comments at 4.)

The Commission finds that OPCo's proposal to remove this provision should be adopted because the provision is redundant with the eligibility requirements for Level 2 expedited review.

**Rule 4901:1-22-06(C)(1) and Rule 4901:1-22-07(C)(4)**

- (39) Existing Rule 4901:1-22-06(C)(1) and Rule 4901:1-22-07(C)(4), O.A.C., require utilities to provide applicants with copies of the analysis and data used by the utilities to evaluate their applications under Level 1 and Level 2 review.

In their November 19, 2012, comments, OPCo and Duke proposed that the Commission eliminate the requirement set forth in these provisions. OPCo asserted that, for projects of this size, this requirement creates additional work that is of no benefit to either the customer or the utility (OPCo Comments at 5). Duke contended that the requirement is unnecessary and unduly burdensome (Duke Comments at 3).

The Commission believes that, in the event an interconnection request fails one or more of the screening criteria, the applicant should have the opportunity to review relevant information in order to understand why their project requires additional study. Therefore, the Commission finds that the Level 1 and Level 2 provisions requiring disclosure of study data be revised to apply only to systems failing the applicable screening criteria. Where interconnection requests fail simple or expedited review, the Commission finds that the utility should provide applicants copies of the analysis and data warranting the need for further study at the applicant's request.

**Cost Itemization**

- (40) In its November 19, 2012, comments, LMG recommended requiring detailed itemization of costs generated by Level 1, Level 2, and Level 3 review to ensure transparency and the provision of fair and reasonable interconnection costs to customers. LMG claimed that the existing interconnection

rules do not require EDUs to provide customers a detailed itemization of estimated interconnection costs (LMG Comments at 3). LMG stated that, without such a requirement, utilities have little incentive to disclose detailed cost estimate information to customers so that they can determine whether or not interconnection costs are fair and reasonable. Finally, LMG claimed that customers often have difficulty obtaining private quotes from utilities that include new equipment and construction costs (LMG Comments at 3).

The Commission believes that, where detailed engineering work is required in the case of Level 2 supplemental review and any of the Level 3 interconnection studies, the applicant should be responsible for these hourly costs. Furthermore, the Commission believes that applicants should be responsible for all construction costs associated with EDU system upgrades, and that these costs be estimated in good faith and transparently disclosed to applicants. While the existing rules imply that detailed cost itemization should be included in any construction cost estimation, the existing rules do not specifically state this requirement, nor do they address construction work invoices. Accordingly, the Commission finds that LMG's proposal should be denied.

### **Study Cost Caps**

- (41) In its November 19, 2012, comments, LMG encouraged the Commission to establish interconnection cost limits for the various levels of study delineated in the interconnection rules. Specifically, LMG proposed a maximum fee of \$1,000 for the Level 1 area network impact study, a \$40,000 maximum fee for Level 2 studies, and a \$55,000 maximum fee for Level 3 studies (LMG Comments at 3-5). LMG asserted that the lack of maximum study fees in the existing interconnection rules results in uncertainty to distributed generation projects and is not fair and reasonable to customers. LMG based its proposed cost limits on MISO, which according to LMG, sets a maximum fee at \$5,000 for feasibility studies, \$40,000 for definitive planning studies and \$55,000 for generator interconnection studies from the feasibility study through definitive planning. LMG recommended that EDUs be required to submit detailed

cost justification for any interconnection costs exceeding these fee limits. Finally, LMG stated that all fees should be reasonable, appropriate, and in accordance with general industry practices and standards (LMG Comments at 4).

The Commission believes that improving cost certainty for developers is an important goal but does not believe that imposing study cost limits would be an appropriate means of achieving this goal. Therefore, the Commission finds that LMG's proposed modification should be denied.

### **Inverter-based Micro-turbine Approval**

- (42) In its November 19, 2012, comments, GEM recommended that the Commission adopt an expedited process and pre-approval for inverter-based micro-turbine power systems which are type-tested and certified by the UL under applicable standards. (GEM Comments at 1).

The Commission believes that creating a separate, expedited review procedure for micro-turbine power systems would unduly discriminate against other technologies and, therefore, finds that GEM's recommendation should be denied.

### **Conclusion**

- (43) In order to avoid needless production of paper copies, the Commission will not serve paper copies of the attached rules in Chapter 4901:1-22, O.A.C., or the business impact analysis, which is available online at: [www.puco.ohio.gov/puco/rules](http://www.puco.ohio.gov/puco/rules).

It is, therefore,

ORDERED, That attached amended Rules 4901:1-22-01 through 4901:1-22-13, O.A.C., be adopted. It is, further,

ORDERED, That the adopted rules be filed with the Joint Committee on Agency Rule Review, the Secretary of State, and the Legislative Service Commission, in accordance with Divisions (D) and (E) of Section 111.15, Revised Code. It is, further,

ORDERED, That the final rules be effective on the earliest date permitted. Unless otherwise ordered by the Commission, the five-year review date for Chapter 4901:1-22, O.A.C., shall be in compliance with Section 119.032, Revised Code. It is, further,

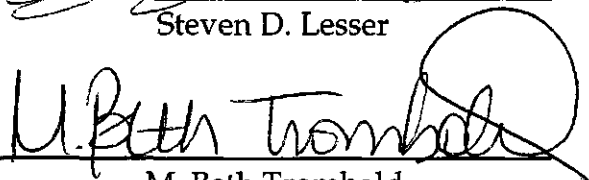
ORDERED, That a copy of this Finding and Order, without the attached rules, be sent to all electric utilities in the state of Ohio, all certified competitive retail electric service providers in the state of Ohio, the Electric-Energy industry list-serve, and all other interested persons of record.

THE PUBLIC UTILITIES COMMISSION OF OHIO

  
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Todd A. Spitchler, Chairman

  
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Steven D. Lesser

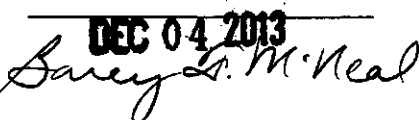
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M. Beth Trombold

  
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Barcy F. McNeal

Barcy F. McNeal  
Secretary

**\*\*\*DRAFT - NOT FOR FILING\*\*\***

**4901:1-22-01      Definitions.**

As used in this chapter:

- (A) "Applicant" means the person requesting interconnection service and may be any of the following:
  - (1) A customer generator as defined by division (A)(29) of section 4928.01 of the Revised Code.
  - (2) A self-generator as defined by division (A)(32) of section 4928.01 of the Revised Code.
  - (3) The owner or operator of distributed generation as defined in paragraph (H) of this rule.
- (B) "Application" means a request to an electric distribution utility (EDU) using the format set forth on the web site of the public utilities commission of Ohio for interconnection of distributed generation to the electric distribution system owned by the EDU.
- (C) "Area network" means a type of electric distribution system served by multiple transformers interconnected in an electrical network circuit, which is generally used in large metropolitan areas that are densely populated, in order to provide highly reliable service. Area network has the same meaning as the term "distribution secondary grid network" found in institute of electrical and electronics engineers (IEEE) standard 1547 sub clause 4.1.4.
- (D) "Automatic sectionalizing device" means any self-contained, circuit-opening device used in conjunction with a source-side protective device, which features automatic reclosing capability.
- ~~(D)~~(E) "Backup electricity supply" means replacement electric power supplied to an applicant by the EDU at a tariff rate or alternatively, as a market-based option or by a competitive retail electric service provider of the applicant's choice at a rate to be determined between the provider and the applicant.
- (F) "Business Day" means any day which is not a Saturday, Sunday, or legal holiday.
- (G) "Calendar Day" means any day, including Saturday, Sunday, and legal holidays.



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~~(E)~~(H)\_\_\_ "Commission" means the public utilities commission of Ohio.

~~(F)~~(I)\_\_\_ "Competitive retail electric service" means a component of retail electric service that is competitive as provided under division (B) of section 4928.01 of the Revised Code.

~~(G)~~(J)\_\_\_ "Cost recovery" means collection, upon approval by the commission pursuant to its authority under section 4909.15 of the Revised Code, of such documented EDU interconnection costs that are incurred at reasonable levels for prudent purposes and that are over and above the review processing fees set forth in rules 4901:1-22-06 to 4901:1-22-08 of the Administrative Code.

~~(H)~~(K)\_\_\_ "Distributed generation" is a general term for all or part of a system of a distributed electrical generator or a static inverter either by itself or in the aggregate of twenty megawatts or less in size together with all protective, safety, and associated equipment installed at a point of common coupling on the EDU's distribution system in close proximity to the customer load.

~~(I)~~(L)\_\_\_ "Electric distribution utility" or ~~(EDU)~~EDU means an electric distribution utility, which is an investor-owned electric utility that owns and operates a distribution wires system and supplies at least retail electric distribution service.

~~(J)~~(M)\_\_\_ "Equipment package" means distributed generation facility assembled to include not only a generator or electric source but related peripheral devices that facilitate operation of the distributed generation.

~~(K)~~(N)\_\_\_ "Expedited procedure" means a review process for certified distributed generation that passes a certain prespecified review procedure, has a capacity rating of two megawatts or less, and does not qualify for simplified procedures.

~~(L)~~(O)\_\_\_ "Interconnection" means the physical connection of the applicant's facilities to the EDU's system for the purpose of electrical power transfers.

~~(M)~~(P)\_\_\_ "Interconnection point" means the point at which the applicant's distributed generation facility physically connects to the EDU's system.

~~(N)~~(Q)\_\_\_ "Interconnection service" means the services provided by an EDU or transmission provider for the applicant's distributed generation facility.

(R) "Line section" means either that portion of an EDU's electric system connected to a customer bounded by automatic sectionalizing devices, the end of the distribution line, or a line segment identified as appropriate for study by a utility engineer.

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~~(S)~~(S) "Minor modification" to an interconnection application means a change in the technical characteristics that improves the reliability, safety and compatibility of the interconnection with the electric distribution system while not materially increasing the size or cost of the intended distributed generation facility installation.

~~(P)~~(T) "Parallel operation with the EDU's system" means all electrical connections between the applicant's distributed generation facility and the EDU's system that are capable of operating in conjunction with each other.

~~(Q)~~(U) "Point of common coupling" means the point which the distributed generation facility is connected to the EDU's system.

~~(R)~~(V) "Reliability" means the degree of performance of the elements of the electric system that results in electricity being delivered to and from an applicant in the amount desired while avoiding adverse effects on the adequacy and security of the electric supply, defined respectively as:

- (1) The ability of the electric system to supply the aggregate electrical demand and energy requirements at all times, taking into account scheduled and unscheduled outages of system elements.
- (2) The ability of the electric system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system elements.

~~(S)~~(W) "Retail electric service provider" means any entity in this state that provides retail electric service as defined by division (A)(27) of section 4928.01 of the Revised Code.

~~(T)~~(X) "Sale for resale" means a sale of energy to an energy supplier, electric utility or a public authority for resale purposes.

~~(U)~~(Y) "Scoping meeting" means a meeting between representatives of the applicant and the EDU conducted for but not limited to the following purposes:

- (1) To discuss alternative interconnection options.
- (2) To exchange information including any electric distribution system data and earlier study evaluations that would be expected to impact such interconnection options.
- (3) To analyze such information.
- (4) To determine the potential points of common coupling.

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~~(V)~~~~(Z)~~ \_\_\_ "Simplified procedures" means a review process for interconnection of inverter-based distributed generation ~~fifty twenty-five~~ kilowatts or less in size on a radial or spot network system under certain conditions.

~~(W)~~~~(AA)~~ \_\_\_ "Standard procedure" means a review process for interconnection of any generating facility(s) that has a power rating of twenty megawatts or less, not qualifying for either simplified or expedited interconnection review processes.

~~(X)~~~~(BB)~~ \_\_\_ "Spot network," as defined by IEEE standard 1547 sub clause 4.1.4, means a type of electric distribution system that uses two or more inter-tied transformers to supply an electrical network circuit and is generally used to supply power to a single customer or a small group of customers.

**4901:1-22-02      Scope and application.**

(A) The rules in this chapter are intended to do all of the following:

- (1) Make compliance within this chapter not unduly burdensome or expensive for any applicant in accordance with division (A) of section 4928.11 of the Revised Code.
- (2) Establish uniform ~~requirements for offering nondiscriminatory, technology-neutral procedures for interconnecting distributed generators to distribution facilities~~ interconnection to customers who generate electricity, on the customer's side of the meter, to any electric distribution system that is owned and operated by a commission-regulated electric distribution utility (EDU) in Ohio, in a manner that protects public and worker safety and system reliability to the extent the commission's governing authority is not preempted by federal law.
- (3) Apply in the entire territory where commission-approved tariffs apply to those situations where an applicant seeks to physically connect distributed generation to, and operate it in parallel with, the EDU's distribution system.
- (4) Provide three review options for an applicant's request for interconnection with the EDU including simplified procedures, expedited procedures, and standard procedures.

(B) Each EDU in the state of Ohio shall file uniform interconnection service tariffs for commission review and approval pursuant to division (A) of section 4928.11 of the Revised Code, that includes the procedures and technical requirements set forth in this chapter for interconnection service on a first-come, first-served basis.

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- (C) The rules in this chapter shall not relieve any applicant from complying with all applicable federal, state, and local laws and ordinances.

**4901:1-22-03      Industry standards.**

The safety and performance standards established by the institute of electrical and electronics engineers (IEEE), the underwriters laboratory (UL), and the National Electric Code (NEC), as included in this chapter by reference, and as required consistent with division (B)(4) of section 4928.67 of the Revised Code, shall be the ~~versions adopted in final form and effective as of July 31, 2008~~version at the time the applicant applies for interconnection.

**4901:1-22-04      General provisions.**

**(A) Prohibitions**

- (1) In accordance with the ~~electric distribution utility's (EDU)~~EDU's code of conduct adopted pursuant to section 4928.17 of the Revised Code, an EDU or its affiliates shall not use, without the customer's consent, such knowledge of proposed interconnection service to prepare competing proposals to the interconnection service that offer either discounted rates in return for not providing the interconnection service or competing generation.
- (2) No EDU shall reject, penalize, or discourage the use or development of new technology for interconnection service in accordance with division (A) of section 4928.11 of the Revised Code.

**(B) Pre-Application**

- (1) The EDU will designate an employee or office from which information on the requirements for EDU's application review process can be obtained through an informal request by the applicant that includes discussion of the following:
  - (a) The applicant's proposed interconnection of a distributed generation facility at a specific location on the EDU's distribution system.
  - (b) Qualifications under EDU's level 1, level 2 or level 3 review procedures.
- (2) In addition to the information described in Subsection (1), which may be provided in response to an informal request, an applicant may submit a formal request along with a non-refundable processing fee of \$300 for a preapplication report on

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a proposed project at a specific site. The EDU shall provide the pre-application data described in Subsection (3) to the applicant within ten business days of receipt of the written request and payment of the \$300 processing fee.

(3) The pre-application report will include the following information:

- (a) Total generation capacity (in megawatts) of substation/area bus, bank or circuit based on normal or operating ratings likely to serve the proposed site.
- (b) Existing aggregate generation capacity (in megawatts) interconnected to a substation/area bus, bank or circuit, which is the online amount of generation, likely to serve the proposed site.
- (c) Aggregate queued generation capacity (in megawatts) for a substation/area bus, bank or circuit, which is the amount of generation in the queue likely to serve the proposed site.
- (d) Available generation capacity (in megawatts) of substation/area bus or bank and circuit most likely to serve the proposed site, which is the total capacity less the sum of existing aggregate generation capacity and aggregate queued generation capacity.
- (e) Substation nominal distribution voltage and/or transmission nominal voltage, if applicable.
- (f) Nominal distribution circuit voltage at the proposed site.
- (g) Approximate circuit distance between the proposed site and the substation.
- (h) Relevant line section(s) peak load estimate, and minimum load data, when available.
- (i) Number and rating of protective devices and number and type (standard, bi-directional) of voltage regulating devices between the proposed site and the substation/area. Identify whether substation has a load tap changer.
- (j) Number of phases available at the site.
- (k) Limiting conductor ratings from the proposed point of interconnection to the distribution substation.
- (l) Based on the proposed point of interconnection, existing or known constraints such as, but not limited to, electrical dependencies at that location, short

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circuit interrupting capacity issues, power quality or stability issues on the circuit, capacity constraints, or secondary networks.

- (4) The pre-application report need only include pre-existing data. A pre-application report request does not obligate the EDU to conduct a study or other analysis of the proposed generator in the event that data is not readily available. If the EDU cannot complete some of a preapplication report due to lack of available data, the EDU shall provide the applicant with a pre-application report that includes the data that is available.

(B)(C) Application processing

- (1) EDUs shall process all applications for interconnection service and parallel operation with the EDU's system in a nondiscriminatory manner and in the order in which they are received.
- (2) Where minor modifications to a pending application are required during the EDU's review of the application, such minor modifications shall not require a new or separate application to be filed by the applicant.
- (3) When an application is submitted, the EDU shall determine whether the application is complete and provide the applicant with a written or email notice of receipt within ten business days after the application has been received.
- (3)(4) The If the EDU determines that the application is complete, the EDU shall issue automatically provide each applicant with a written notice of the EDU's receipt of an application within three business days after the application has been received. The notice of receipt shall include with the following:
  - (a) A copy of the applicable review process.
  - (b) A target date for processing the application.
- (4)(5) If the EDU determines that the application is incomplete, the EDU personnel identified as being responsible for reviewing the application must provide shall issue a notice of receipt with the following:
  - (a) A written notice within ten business days after copy of the application has been received indicating that the application is not complete review process.
  - (b) A checklist or description of the information needed to complete the application.

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- (c) A statement that processing the application cannot begin until the needed information is received.

~~(5)-(6)~~ Upon receiving any necessary application materials missing from the original application, the EDU shall provide the applicant with a second, written or email notice establishing a target date for processing the application.

~~(5)-(7)~~ If an EDU determines that it cannot connect the applicant's facility within the time frames stated in this chapter, it will notify the applicant in writing of that fact within ten business days after the application has been received. The notification must include the following:

- (a) The reason or reasons interconnection service could not be performed within the time frames stated in this rule.
- (b) An alternative date for interconnection service.

~~(C)-(D)~~ Compliance with national industry standards

An EDU shall file tariffs for uniform interconnection service with the commission that are consistent with the following:

- (1) The institute of electric and electronics engineers 1547 standard, effective as set forth in rule 4901:1-22-03 of the Administrative Code.
- (2) Underwriters laboratory 1741 standard for inverters, converters, and controllers for use in independent power systems, effective as set forth in rule 4901:1-22-03 of the Administrative Code.
- (3) The appropriate criteria and interconnection parameters for the customer's technology, so as not to impose technical and economic barriers to new technology or the development, installation, and interconnection of an applicant's facilities, pursuant to division (A) of section 4928.11 of the Revised Code.

~~(D)-(E)~~ Metering

Any metering installation, testing, or recalibration performed by the EDU at the request of the applicant for installation of the applicant's distributed generation facility shall be provided consistent with the electric service and safety standards pursuant to Chapter 4928. of the Revised Code, and rule 4901:1-10-05 and, as applicable, paragraph (C) of rule 4901:1-10-28 of the Administrative Code. Interconnection requested by the applicant for the purposes of net metering must follow the commission's net metering rules promulgated pursuant to division (A)(31)

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of section 4928.01 of the Revised Code. Any exception to the net metering rules shall be implemented in accordance with any special metering or communication infrastructure ordered by the commission.

~~(E)~~ (F) Disposal of excess energy produced by the applicant's distributed generation

- (1) An applicant proposing to install a self-generator as defined in division (A)(32) of section 4928.01 of the Revised Code for the purposes of selling excess electricity to retail electric service providers as a competitive service to the extent not preempted by federal law must first seek certification of managerial, technical and financial capability consistent with section 4928.08 of the Revised Code.
- (2) An applicant requesting interconnection for the purpose of selling energy to any party as a sale for resale or as a wholesale transaction may be subject to applicable rules for regional interstate sales at wholesale prices in markets operated by independent transmission system operators or regional transmission operators under the jurisdiction of the federal energy regulatory commission.

~~(F)~~ (G) Construction or system upgrades of the EDU's system

- (1) Where construction or system upgrades of the EDU's system are required by the applicant's installation of a distributed generation facility, the EDU shall provide the applicant with an estimate of the timetable and the applicant's cost for the construction or system upgrades, consistent with the provisions of this chapter.
- (2) All construction or distribution system upgrade costs shall be the responsibility of the interconnection applicant.
- ~~(2)~~ (3) If the applicant desires to proceed with the construction or system upgrades, the applicant and EDU shall enter into a contract for the completion of the construction or system upgrades.
- (4) All construction and system upgrade cost estimates and invoices shall be itemized and clearly explained.
- ~~(3)~~ (5) Interconnection service shall take place no later than two weeks following the completion of such construction or system upgrades.



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**4901:1-22-05      Application requirements for interconnection.**

**(A) Application forms**

- (1) Each applicant for interconnection to an ~~electric distribution utility (EDU)~~EDU's system shall complete either of the following:
  - (a) A "short form" application for interconnection of ~~generating equipment distributed generators that are twenty-five fifty kilowatts or less and utilize equipment that is certified in compliance with IEEE 1547 standard and UL 1741 standard, as set forth in rule 4901:1-22-03 of the Administrative Code.~~
  - (b) A standard application for interconnection of generation equipment that does not qualify for a "short form" application.
- (2) The application form shall follow the format and content set forth on the commission's website, and must be submitted to the EDU from which the applicant receives retail electric distribution service. Application forms will be available from the applicant's local EDU. The applicant's completed application form should not be sent to the commission for the purposes of review and approval.
- (3) The applicant also is advised to refer to the "applicant's checklist" found on the commission website to determine whether to complete the "short form" or the standard form to request interconnection service.

**(B) Certified equipment**

- (1) Each applicant shall provide the EDU a description of the applicant's distributed generation equipment package that is consistent with the following:
  - (a) An applicant's equipment package shall be considered certified for interconnected operation if it has been:
    - (i) Submitted by a manufacturer to a nationally recognized testing laboratory for certification.
    - (ii) Type-tested consistent with the institute of electrical and electronics engineers 1547.1 standard, effective as set forth in rule 4901:1-22-03 of the Administrative Code.
    - (iii) Listed by a nationally recognized testing and certification laboratory for

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continuous interactive operation with a utility grid in compliance with the applicable codes and standards listed in rule 4901:1-22-03 of the Administrative Code.

(b) Certified equipment does not include equipment provided by the EDU.

(C) Equipment packages

(1) An applicant's equipment package shall include the following:

- (a) All interface components including switchgear, inverters, or other interface devices.
- (b) An integrated generator or electric source.
- (c) Access for the EDU for commissioning purposes.
- (d) A schedule for periodic compliance testing.

(2) If the applicant's equipment package includes only the interface components (switchgear, inverters, or other interface devices), then the applicant must show in writing that the generator or electric source to be used with the equipment package meets the following criteria:

- (a) Compatibility with the equipment package.
- (b) Consistency with the testing and listing specified for the package.

(D) Disconnect switch

A disconnect switch provided, installed by, and paid for by the applicant, whether or not it is an integrated feature of the equipment package or a compatible external device, must meet the following criteria:

- (1) The applicant's disconnect switch must be capable of isolating the distributed generation facility for the purposes of safety during EDU system maintenance and during emergency conditions.
- (2) If the applicant's disconnect switch is external to the equipment package, it must be accessible to and lockable by the EDU personnel at either the primary voltage level, which may include load-break cutouts, switches and elbows, or the secondary voltage level, which may include a secondary breaker or switch.

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- (3) The applicant's disconnect switch must be clearly labeled as a distributed generation facility disconnect switch.

(E) Solar equipment

In the case of solar equipment, the photovoltaic power source shall be clearly labeled in accordance with the requirements of the National Electric Code article 690, effective as set forth in rule 4901:1-22-03 of the Administrative Code, to identify the following:

- (1) Operating current (a-system maximum-power current).
  - (2) Operating voltage (system maximum-power voltage).
  - (3) Maximum system voltage.
  - (4) Short-circuit current.
- ~~(2) In the case of solar units with internal switching devices, a customer lock box containing a key to the applicant's premises where the solar unit is installed should be accessible to EDU personnel.~~

(F) The EDU's review processing fees

- (1) Each applicant shall pay the EDU's interconnection fees in accordance with the EDU's tariff for the EDU review and processing of an application, established at levels consistent with the distributed generation size and technology as well as the location on the electric distribution system of the interconnection.
- (2) The EDU's review processing fee levels will apply in accordance with the EDU's tariff to all interconnections, including those for the purposes of net metering, combined heat and power or waste heat from industrial processes, as well as any customer-generator used for energy efficiency or the promotion and utilization of renewable or clean secondary fuels.
- (3) Exception to the EDU's fee schedule may be determined by the EDU if the EDU invokes a fee-free feature on a nondiscriminatory basis.

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4901:1-22-06 ~~Simplified procedures and fees for application processing~~ Level 1 simplified review procedure.

(A) ~~Level 1 simplified review procedure qualifying criteria~~

In order for the application to be approved by the EDU under the level 1 simplified review procedure, the applicant's generating facility must meet the following requirements:

- (1) The generation facility must use inverter-based equipment that is certified in compliance with IEEE 1547 standard and UL 1741 standard, as set forth in rule 4901:1-22-03 of the Administrative Code.
- (2) The generation facility must have a nameplate capacity of twenty-five kilowatts or less.

(B) Level 1 approval criteria

- (1) The EDU shall approve an application for interconnection under level 1 simplified review procedures if the generation facility meets the following approval criteria:
  - (a) The applicant's proposed distributed generation facility's point of common coupling is not on a transmission line.
  - (b) For interconnection of a proposed distributed generation facility to a radial distribution circuit, the aggregated generation, including the proposed distributed generation facility, on the circuit shall not exceed fifteen per cent of the line section annual peak load as most recently measured at the substation.
  - (c) The proposed distributed generation facility, in aggregation with other generation on the distribution circuit, shall not contribute more than ten per cent to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of common coupling.
  - (d) For interconnection of a proposed distributed generation facility to the load side of spot network protectors, the proposed distributed generation facility must utilize an inverter-based equipment package and, together with the aggregated other inverter-based generation, shall not exceed the smaller of five per cent of a spot network's maximum load or fifty kilowatts.
  - (e) Direct current injection shall be maintained at or below five-tenths of a per cent of full rated inverter output current into the point of common coupling.

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- (f) When a proposed distributed generation facility is single phase and is to be interconnected on a center tap neutral of a two hundred forty volt service, its addition shall not create an imbalance between the two sides of the two hundred forty volt service of more than twenty per cent of the nameplate rating of the service transformer.
- (g) The proposed distributed generation facility installation is certified to pass an applicable non-islanding test, or uses reverse power relays or other means to meet the unintentional islanding requirements of the institute of electrical and electronics engineers (IEEE) 1547 standard, effective as set forth in rule 4901:1-22-03 of the Administrative Code.
- (h) The proposed distributed generation facility installation complies with the IEEE 1547 standard and underwriters laboratory 1741 standard, as set forth in rule 4901:1-22-03 of the Administrative Code.
- (2) Having complied with the parameters set forth in paragraph (B)(1) of this rule, the applicant's proposed distributed generation facility installation requires no further study by the EDU for the purpose of interconnection to the EDU's distribution system

(C) Level 1 review timeframe

- (1) Within fifteen business days after the EDU notifies the applicant that it has received a complete short form interconnection service application, the EDU shall perform a review using the criteria set forth in (B)(1) of this rule and shall notify the applicant of the results, and shall include with the notification copies of the analysis and data underlying the EDU's determinations under the criteria.
- (2) If the proposed interconnection fails one or more of the screening criteria, the application shall be denied. At the applicant's request, the EDU shall provide copies of the analysis and data underlying the EDU's determinations under the criteria. Upon denial of the level 1 interconnection request, the applicant may elect to submit a new application for consideration under level 2 or level 3 procedures, in which case the queue position assigned to the level 1 application shall be retained.
- (3) If the proposed interconnection meets the criteria, the application shall be approved and the EDU will provide the applicant a standard interconnection agreement within five business days after the determination. The standard interconnection agreement shall be consistent with the uniform requirements for

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an interconnection agreement in rule 4901:1-22-10 of the Administrative Code, and include a timetable for the physical interconnection of the applicant's proposed distributed generation facility to the EDU's system.

(D) Level 1 application fee

The EDU's tariff for a level 1 fee shall not exceed fifty dollars and may be waived.

~~(1) The electric distribution utility (EDU) shall review an applicant's completed interconnection service application that meets the criteria set forth in paragraph (A)(2) of this rule within four weeks of receiving the completed application.~~

~~(2) In order for the application to be approved by the EDU under the level 1 simplified review procedure, the applicant's generating facility must be an inverter-based system with a maximum nameplate capacity of ten kilowatts or less that uses renewable energy as fuel and the results of interconnecting the applicant's generating facility to the EDU's distribution system must comply with the following parameters:~~

~~(a) The applicant's proposed distributed generation facility's point of common coupling is not on a transmission line.~~

~~(b) The aggregated generation on the circuit, including the proposed distributed generation facility, may not exceed fifteen per cent of the peak load on the smallest part of the primary distribution system that could remain connected after operation of sectionalizing devices.~~

~~(c) The proposed distributed generation facility, in aggregation with other generation on the distribution circuit, shall not contribute more than ten per cent to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of common coupling.~~

~~(d) The proposed distributed generation facility in aggregation with other generation located on the load side of a spot network shall not exceed five per cent of the spot network's maximum load when aggregated with other inverter-based generation.~~

~~(e) Direct current injection shall be maintained at or below five tenths of a per cent of full rated inverter output current into the point of common coupling.~~

~~(f) When a proposed distributed generation facility is single phase and is to be interconnected on a center tap neutral of a two hundred forty volt service, its~~

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~~addition shall not create an imbalance between the two sides of the two hundred forty volt service of more than twenty per cent of the nameplate rating of the service transformer.~~

~~(g) The proposed distributed generation facility installation is certified to pass an applicable non-islanding test, or uses reverse power relays or other means to meet the unintentional islanding requirements of the institute of electrical and electronics engineers (IEEE) 1547 standard, effective as set forth in rule 4901:1-22-03 of the Administrative Code.~~

~~(h) The proposed distributed generation facility installation complies with the IEEE 1547 standard and underwriters laboratory 1741 standard, effective as set forth in rule 4901:1-22-03 of the Administrative Code.~~

~~(3) Having complied with the parameters set forth in paragraph (A)(2) of this rule, the applicant's proposed distributed generation facility installation requires no further study by the EDU for the purpose of interconnection to the EDU's distribution system.~~

~~(4) The EDU's tariff for a level 1 fee will be based on actual costs per one tenth of an hour of time spent on the simplified review, and not on a flat rate.~~

~~(5) Construction of facilities by the EDU on its own system is not required to accommodate the distributed generation facility.~~

~~(6) Within five days after completion of the level 1 simplified procedure leading to the EDU's approval for interconnection of the applicant's distributed generation facility, the EDU shall provide the applicant with a standard interconnection agreement. The standard interconnection agreement shall be consistent with the uniform requirements for an interconnection agreement enumerated in rule 4901:1-22-10 of the Administrative Code and include a timetable for the physical interconnection of the applicant's proposed distributed generation facility to the EDU's system.~~

~~(B) Level 1.1 simplified review procedure~~

~~(1) The EDU shall review an applicant's completed interconnection service application that meets the criteria set forth in paragraph (B)(2) of this rule within four weeks of receiving a completed application, except that the EDU shall have an additional twenty business days to conduct an area network impact study to determine potential adverse impacts of interconnecting to its area network.~~

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- ~~(2) In order for the application to be approved by the EDU under the level 1.1 simplified review procedure, the generating unit must be an inverter-based system with a maximum nameplate capacity of ten kilowatts or less and the results of interconnecting the applicant's generating facility to the EDU's distribution system must comply with the following parameters:~~
- ~~(a) The proposed distributed generation facility's point of common coupling is not on a transmission line.~~
  - ~~(b) The interconnection is to be located on the load side of an area network.~~
  - ~~(c) The aggregated other generation on the area network does not exceed five per cent of an area network's maximum load.~~
  - ~~(d) The proposed distributed generation facility installation is certified to pass an applicable non-islanding test, or uses reverse power relays or other means to meet IEEE 1547 standard unintentional islanding requirements, effective as set forth in rule 4901:1-22-03 of the Administrative Code.~~
- ~~(3) The EDU's tariff for a level 1.1 fee will be based on actual costs per one-tenth of an hour of time spent on the simplified review, and not on a flat rate.~~
- ~~(4) Any area network impact study shall be conducted at the EDU's own expense.~~
- ~~(5) Construction of facilities by the EDU on its own system is not required to accommodate the distributed generation facility.~~
- ~~(6) Within five days after completion of the level 1.1 simplified procedure leading to the EDU's approval for interconnection of the applicant's distributed generation facility, the EDU shall provide the applicant with a standard interconnection agreement. The standard interconnection agreement shall be consistent with the uniform requirements for an interconnection agreement enumerated in rule 4901:1-22-10 of the Administrative Code and include a timetable for the physical interconnection of the applicant's proposed distributed generation facility to the EDU's system.~~
- ~~(7) When an area network impact study identifies potential adverse system impacts, the EDU may determine that it is inappropriate for the distributed generation facility to interconnect to the area network and the application filed for level 1.1 review shall be denied.~~
- ~~(a) When the EDU denies a level 1.1 application, it shall provide the applicant~~



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~~with a copy of the area network impact study and a written justification for denying the interconnection request.~~

- ~~(b) Upon denial of the level 1.1 interconnection request, the applicant may elect to submit a new application for consideration under level 2 or level 3 procedures, in which case the queue position assigned to the level 1.1 application shall be retained.~~

~~(C) Level 1.2 simplified review procedure~~

- ~~(1) The EDU shall review a completed interconnection service application that meets the criteria set forth in paragraph (C)(2) of this rule within four weeks of receiving a completed application, except that the EDU shall have an additional twenty-five days to conduct an area network impact study to determine any potential adverse impacts of interconnecting to its area network.~~
- ~~(2) In order for the application to be approved by the EDU under the level 1.2 simplified review procedure, the generating unit must be a certified inverter-based system with a maximum nameplate capacity of equal to fifty kilowatts or less and the results of interconnecting the applicant's generating facility to the EDU's distribution system must comply with the following parameters:~~
- ~~(a) The interconnection is to be to an area network distribution system.~~
- ~~(b) The proposed distributed generation facility installation is certified to pass an applicable non-islanding test, or uses reverse power relays or other means to meet IEEE 1547 standard unintentional islanding requirements, effective as set forth in rule 4901:1-22-03 of the Administrative Code.~~
- ~~(c) The proposed level 1.2 distributed generation facility meeting level 1.1 parameters in paragraphs (B)(2)(a) to (B)(2)(d) of this rule shall be presumed to be appropriate for interconnecting to an area network~~
- ~~(3) The EDU's tariff for a level 1.2 fee will be based on actual costs per one-tenth of an hour of time spent on the simplified review, and not on a flat rate.~~
- ~~(4) Any area network impact study shall be conducted at the EDU's own expense.~~
- ~~(5) Within five days after completion of the level 1.2 simplified procedure leading to the EDU's approval for interconnection of the applicant's distributed generation facility, the EDU shall provide the applicant with a standard interconnection agreement. The standard interconnection agreement shall be consistent with the~~

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~~uniform requirements for an interconnection agreement enumerated in rule 4901:1-22-10 of the Administrative Code and include a timetable for the physical interconnection of the applicant's proposed distributed generation facility to the EDU's system.~~

**4901:1-22-07 Expedited procedures Level 2 expedited review procedure.**

Level 2 expedited review process

(A) Level 2 qualifying criteria

In order for the application to be reviewed by the EDU under the level 2 expedited review procedure, the applicant's generating facility must meet the following requirements:

- (1) The generating facility utilizes equipment that is certified in compliance with IEEE 1547 standard and UL 1741 standard as set forth in rule 4901:1-22-03 of the Administrative Code.
- (2) The generating facility does not meet the level 1 interconnection review requirements.
- (3) The generating facility capacity does not exceed the limits identified in the table below, which vary according to the voltage of the line at the proposed point of interconnection. Distributed generation facilities located within 2.5 miles of a substation and on a main distribution line with minimum 600-ampere capacity are eligible for expedited review under the higher thresholds. These eligibility limits do not guarantee fast track approval.

<u>Line Voltage</u>	<u>Expedited Review Regardless of Location</u>	<u>Expedited Review on a 600 amp line and within 2.5 feeder miles from substation</u>
<u>less than or equal to 5kV</u>	<u>less than or equal to 500 kW</u>	<u>less than 2 MW</u>
<u>5kV less than or equal to 15 kV</u>	<u>less than or equal to 2MW</u>	<u>less than 3 MW</u>
<u>15 kV less than or equal to 30 kV</u>	<u>less than or equal to 3MW</u>	<u>less than 4 MW</u>
<u>30 kV less than or equal to 69 kV</u>	<u>less than or equal to 4MW</u>	<u>less than 5 MW</u>

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(B) Level 2 approval criteria

(1) The EDU shall approve an application for interconnection under level 2 review procedures if the generation facility meets the following criteria:

- (a) The proposed distributed generation facility's point of interconnection is not on a transmission line.
- (b) The proposed distributed generation facility complies with IEEE 1547 standard and UL 1741 standard, effective as set forth in rule 4901:1-22-03 of the Administrative Code.
- (c) The proposed distributed generation facility is not located in an area where there are known or posted transient stability limitations to generating units located in the general electrical vicinity (for example, three or four distribution busses from the point of interconnection), or the proposed distributed generation facility shall not have interdependencies, known to the EDU, with earlier queued transmission system interconnection requests. The EDU shall not disclose confidential information in the application of this screen.
- (d) For interconnection of a proposed distributed generation facility to a radial distribution circuit, the aggregated generation, including the proposed distributed generation facility, on the circuit shall not exceed fifteen per cent of the line section annual peak load as most recently measured at the substation. The application of this screen addresses back feed and islanding conditions.
- (e) The proposed distributed generation facility, in aggregation with other generation on the distribution circuit, shall not contribute more than ten per cent to the distribution circuit's maximum fault current at the point on the primary voltage distribution line nearest the point of common coupling.
- (f) The proposed distributed generation facility, in aggregation with other generation on the distribution circuit, may not cause any distribution protective devices and equipment including substation breakers, fuse cutouts, and line reclosers, or other customer equipment on the electric distribution system, to be exposed to fault currents exceeding ninety per cent of the short circuit interrupting capability; nor shall an applicant requesting interconnection on a circuit that already exceeds ninety per cent of the short circuit interrupting capability be permitted.

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- (g) When a proposed distributed generation facility is single phase and is to be interconnected on a center tap neutral of a two hundred forty volt service, its addition shall not create an imbalance between the two sides of the two hundred forty volt service of more than twenty per cent of the nameplate rating of the service transformer.
- (h) The proposed distributed generation facility shall be interconnected to the EDU's primary distribution system as shown below:

<u>Primary Distribution Line Configuration</u>	<u>Interconnection to Primary Distribution Line</u>
<u>Three phase, three wire</u>	<u>If a three-phase or single-phase generating facility, interconnection must be phase-to-phase</u>
<u>Three phase, four wire</u>	<u>If a three-phase (effectively grounded) or single phase generating facility, interconnection must be line-to-neutral</u>

- (i) A review of the type of electrical service provided to the applicant, including line configuration and the transformer connection, will be conducted to limit the potential for creating over voltages on the EDU's electric distribution system due to a loss of ground during the operating time of any anti-islanding function.
- (j) When the proposed distributed generation facility is to be interconnected on single-phase shared secondary line, the aggregate generation capacity on the shared secondary line, including the proposed distributed generation facility, will not exceed sixty-five per cent of the transformer nameplate rating.
- (k) For interconnection of a proposed distributed generation facility to the load side of spot or area network protectors, the proposed distributed generation facility must utilize an inverter-based equipment package and, together with the aggregated other inverter-based generation, shall not exceed the lesser of five per cent of a spot or area network's maximum load or fifty kilowatts.
- (l) Construction of facilities by the EDU on its own system is not required to accommodate the distributed generation facility.

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(C) Level 2 review timeframe

- (1) Within twenty business days after the EDU notifies the applicant it has received a complete application, the EDU shall perform an initial review using the criteria set forth in (B) and shall notify the applicant of the results.
- (2) If the proposed interconnection meets the criteria, the application shall be approved and the EDU will provide the applicant a standard interconnection agreement within five business days after the determination. The standard interconnection agreement shall be consistent with the uniform requirements for an interconnection agreement enumerated in rule 4901:1-22-10 of the Administrative Code, and include a timetable for the physical interconnection of the applicant's proposed distributed generation facility to the EDU's system.
- (3) If the proposed interconnection fails to meet the criteria, but the EDU determines that the proposed distributed generation facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards, the EDU shall provide the applicant a standard interconnection agreement within five business days after the determination and include a timetable for the physical interconnection of the applicant's proposed distributed generation facility to the EDU's system.
- (4) If the proposed interconnection fails to meet the criteria and the EDU determines that minor modifications or further study may be required to interconnect the proposed distributed generation facility to the EDU's distribution system consistent with safety, reliability, and power quality standards, the EDU shall:
  - (a) Offer to perform facility modifications or minor modifications to the EDU's electric system (e.g., change meters, fuses, relay settings), or,
  - (b) Offer to perform a supplemental review if the EDU concludes that the supplemental review might determine that the proposed distributed generation facility could continue to qualify for interconnection pursuant to the expedited review process,
  - (c) Obtain the applicant's agreement to continue evaluating the application under level 3 standard review.
- (5) At the applicant's request, the EDU shall provide copies of the analysis and the data underlying the EDU's determinations that minor modifications or further study is required.

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(D) Facility or minor system modifications

- (1) If facility modifications or minor system modifications are required to allow the proposed distributed generation facility to be interconnected consistent with safety, reliability, and power quality standards under these procedures, the EDU shall provide the applicant with a non-binding good faith estimate of the cost to make such modifications.
- (2) If the interconnection customer agrees to pay for the modifications to the EDU's distribution system, the EDU shall provide the applicant with a standard distributed generation interconnection agreement within five business days. The standard interconnection agreement shall be consistent with the uniform requirements for an interconnection agreement enumerated in rule 4901:1-22-10 of the Administrative Code, and include a timetable for the physical interconnection of the applicant's proposed distributed generation facility to the EDU's system.

(E) Level 2 supplemental review

- (1) If the customer requests that the EDU perform a supplemental review, the customer shall agree in writing within fifteen business days of the offer, and submit a supplemental review deposit of \$2,500, or the application shall be deemed withdrawn. Within twenty-five business days following receipt of the supplemental review deposit, the EDU shall perform a supplemental review using the screens set forth below and notify the applicant of the results. For interconnection of a proposed distributed generation facility to an area network, the EDU may utilize different analytical procedures for conducting supplemental review than those set forth in this rule. Following study completion, the EDU shall bill or credit the applicant any difference between the supplemental review deposit and the actual cost to perform the review. If the proposed interconnection fails one or more of the supplemental review screens, the EDU shall include with the notification copies of the analysis and data underlying the EDU's determinations under the screens.
  - (a) A supplemental review may be performed where twelve months of line section minimum load data is available or can be calculated, estimated from existing data, or determined from a power flow model, and where the aggregate distributed generation facility capacity on the line section is less than one hundred per cent of the minimum load for all line sections bounded by automatic sectionalizing devices upstream of the proposed distributed generation facility. If minimum load data is not available, or cannot be calculated, estimated or determined, the EDU shall include the reason(s) that

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it is unable to calculate, estimate or determine minimum load in its supplemental review results notification as set forth in rule 4901:1-22-07(E)(1) of the Administrative Code.

- (i) The type of generation used by the proposed distributed generation facility will be taken into account when calculating, estimating, or determining the circuit or line section minimum load. For the application of a solar photovoltaic generation system with no battery storage, use daytime minimum load, and use absolute minimum load for other generation.
- (ii) When this screen is being applied to a distributed generation facility that serves some onsite electrical load, the total load must be considered as part of the aggregate generation.
- (iii) The EDU will consider generating facility capacity known to be reflected in the minimum load data as part of the aggregate generation for purposes of this screen.
- (b) In aggregate with existing generation on the line section: (1) the voltage regulation on the line section can be maintained in compliance with relevant requirements under all system conditions, (2) the voltage fluctuation is within acceptable limits as defined by IEEE 1453 or utility practice similar to IEEE 1453, and (3) the harmonic levels meet IEEE 519 limits at the point of interconnection.
- (c) The location of the proposed distributed generation facility and the aggregate generation capacity on the line section do not create impacts to safety or reliability that cannot be adequately addressed without application of the level 3 standard review. The EDU may consider the following and other factors in determining potential impacts to safety and reliability in applying the screen:

  - (i) Whether the line section has significant minimum loading levels dominated by a small number of customers.
  - (ii) If there is an even or uneven distribution of loading along the feeder.
  - (iii) If the proposed distributed generation facility is located within 2.5 electrical line miles to the substation and if the distribution line from the substation to the customer is composed of a 600A class cable or conductor.

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- (iv) If the proposed distributed generation facility incorporates 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.
- (v) If operational flexibility is reduced by the proposed distributed generation facility, such that transfer of the line section(s) of the distributed generation facility to a neighboring distribution circuit/substation may trigger overloads or voltage issues.
- (2) If the proposed interconnection meets the supplemental review criteria, the application shall be approved and the EDU will provide the applicant a standard interconnection agreement within five business days after the determination. The standard interconnection agreement shall be consistent with the uniform requirements for an interconnection agreement enumerated in rule 4901:1-22-10 of the Administrative Code and include a timetable for the physical interconnection of the applicant's proposed distributed generation facility to the EDU's system.
- (3) If the proposed interconnection fails the supplemental review criteria, the EDU shall obtain the applicant's agreement to continue evaluating the application under Level 3 standard review. If the applicant agrees to have the project evaluated under the Level 3 standard review process, the cost of supplemental review shall be deducted from the otherwise applicable Level 3 standard review fee. If the Level 3 standard review fee is less than the supplemental review cost, standard review fee shall be waived.

(F) Level 2 fees

The EDU's tariff for level 2 expedited review processing fees will include the following:

- (1) An application fee of up to fifty dollars, plus one dollar per kilowatt of the applicant's system nameplate capacity rating.
- (2) In the event that an application is evaluated under supplemental review, any or all of the following fees may be assessed by the EDU:
  - (a) The \$2,500 supplemental review deposit, adjusted following study completion to reflect the cost of engineering work billed at actual costs.



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(b) The actual cost of any minor modification of the electric distribution utility's system that would otherwise not be done but for the applicant's interconnection request

~~(A) The electric distribution utility (EDU) shall review an applicant's completed interconnection service application that meets the criteria set forth in paragraph (B) of this rule on an expedited basis.~~

~~(B) In order for the application to be approved by the EDU under the level 2 expedited review procedure, the applicant's proposed certified inverter-based or synchronous distributed generation facility in aggregation with all other generators on the EDU's circuit must be two megawatts or less and the results of interconnecting the applicant's generating facility to the EDU's distribution system must comply with the following parameters:~~

~~(1) The proposed distributed generation facility's point of interconnection shall not be on a transmission line.~~

~~(2) The interconnection is to a radial distribution circuit.~~

~~(3) The proposed distributed generation facility complies with institute of electrical and electronics engineers (IEEE) 1547 standard and underwriters laboratory 1741 standard, effective as set forth in rule 4901:1-22-03 of the Administrative Code.~~

~~(4) The proposed distributed generation facility, in aggregation with other generation interconnected to the distribution side of a substation transformer feeding the circuit where the distributed generation facility proposes to interconnect, shall not exceed two megawatts in an area where there are known or posted transient stability limitations to generating units located in the general electrical vicinity (for example, three or four distribution busses from the point of interconnection).~~

~~(5) The proposed distributed generation's capacity in aggregation with other generation on the circuit shall not exceed fifteen per cent of the total circuit peak load as most recently measured at the substation; nor will it exceed fifteen per cent of a distribution circuit line section annual peak load.~~

~~(6) The proposed distributed generation facility, in aggregation with other generation on the distribution circuit, shall not contribute more than ten per cent to the distribution circuit's maximum fault current at the point on the primary voltage distribution line nearest the point of common coupling.~~

~~(7) The proposed distributed generation facility, in aggregation with other generation~~

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~~on the distribution circuit, may not cause any distribution protective devices and equipment (including substation breakers, fuse cutouts, and line reclosers), or other customer equipment on the electric distribution system to be exposed to fault currents exceeding eighty-five per cent of the short circuit interrupting capability.~~

- ~~(8) The applicant shall not request interconnection on a circuit that already exceeds eighty-five per cent of the short circuit interrupting capability.~~
- ~~(9) When a proposed distributed generation facility is single phase and is to be interconnected on a center tap neutral of a two hundred forty volt service, its addition shall not create an imbalance between the two sides of the two hundred forty volt service of more than twenty per cent of the nameplate rating of the service transformer.~~
- ~~(10) The proposed distributed generation facility installation is certified to pass an applicable non-islanding test, or uses reverse power relays or other means to meet IEEE 1547 standard unintentional islanding requirements, effective as set forth in rule 4901:1-22-03 of the Administrative Code.~~
- ~~(11) On a three phase, three wire primary electric distribution line, a three or single phase generator shall be connected phase-to-phase.~~
- ~~(12) When the applicant's facility is to be connected to three phase, four wire primary EDU distribution lines, a three or single phase generator will be connected line-to-neutral and will be effectively grounded.~~
- ~~(13) A review of the type of electrical service provided to the applicant, including line configuration and the transformer connection, will be conducted to limit the potential for creating over voltages on the EDU's electric distribution system due to a loss of ground during the operating time of any anti islanding function.~~
- ~~(14) When the proposed distributed generation facility is to be interconnected on single phase shared secondary line, the aggregate generation capacity on the shared secondary line, including the proposed distributed generation facility, will not exceed ten kilowatts.~~
- ~~(15) Construction of facilities by the EDU on its own system is not required to accommodate the distributed generation facility.~~
- ~~(C) The EDU's tariff for level 2 expedited review processing fees will include the following:~~

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- ~~(1) An application fee of up to fifty dollars, plus one dollar per kilowatt of the applicants' system nameplate capacity rating.~~
- ~~(2) The cost of engineering work done as part of any impact or facilities study, billed at actual costs incurred.~~
- ~~(3) The actual cost of any minor modification of the electric distribution utility's system that would otherwise not be done but for the applicant's interconnection request~~
- ~~(D) When an EDU determines that the application passes the level 2 review process, or fails one or more of the level 2 criteria set forth in paragraph (B) of this rule but the EDU determines that the distributed generation facility can be interconnected safely and reliably, the EDU shall provide the applicant with a standard distributed generation interconnection agreement within five business days after such determination. The standard interconnection agreement shall be consistent with the uniform requirements for an interconnection agreement enumerated in rule 4901:1-22-10 of the Administrative Code and include a timetable for the physical interconnection of the applicant's proposed distributed generation facility to the EDU's system.~~
- ~~(E) When additional review by the EDU may be appropriate for an application failing to meet one or more of the level 2 criteria, the EDU shall offer to do the following for the applicant:
  - ~~(1) Perform additional review to determine whether minor modifications to the electric distribution system would enable the interconnection to be made consistent with safety, reliability and power quality criteria.~~
  - ~~(2) Provide the applicant with a nonbinding, good faith estimate of the EDU's costs of additional review and minor modifications.~~
  - ~~(3) Notify the applicant that the additional review or modifications will be undertaken only after the applicant consents in writing to pay for the review and modifications.~~~~
- ~~(F) Within five days after completion of the level 2 expedited procedure leading to the EDU's approval for interconnection of the applicant's proposed distributed generation facility installation and collection by the EDU of the applicant's payment pursuant to paragraph (E)(3) of this rule, the EDU shall provide the applicant with a standard interconnection agreement. The standard interconnection agreement shall be consistent with the uniform requirements for an interconnection agreement enumerated in rule 4901:1-22-10 of the Administrative Code and include a mutually agreed upon timetable for the physical interconnection of the applicant's proposed~~

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~~distributed generation facility to the EDU's system.~~

4901:1-22-08      ~~Standard procedure~~ Level 3 standard review procedure.

~~Level 3 standard review procedure~~

(A) Level 3 standard review procedurequalifying criteria

In order for the application to be approved by the EDU under the level 3 review procedure, the following conditions must apply:

- (1) The generation facility does not qualify or failed to meet the level 1 or level 2 interconnection review requirements.
- (2) The generation does not utilize equipment that is certified in compliance with IEEE 1547 standard and UL 1741 standard as set forth in rule 4901:1-22-03 of the Administrative Code.
- (3) The generation facility has a nameplate capacity of twenty megawatts or less.

(B) Level 3 approval criteria

- (1) Level 3 standard review procedure shall use the determinations made in the scoping meeting and any feasibility, system impact, or facilities study defined in rule 4901:1-22-09 of the Administrative Code for technical analysis of the applicant's proposed distributed generation facility installation.
- (2) The EDU shall approve an application for interconnection under level 3 review procedures if the EDU determines that the safety and reliability of the public utility's transmission or distribution system will not be compromised by interconnecting with the generation facility.

(C) Level 3 fees

- (1) The EDU's tariff for level 3 standard review fees will include the following:
  - (a) An application fee of up to one hundred dollars, plus two dollars per kilowatt of the system's nameplate capacity.
  - (b) In addition to the level 3 standard review application fee, any or all of the following fees may be assessed by the EDU:
    - (i) The cost of engineering work done as part of any feasibility, system impact or facilities study, billed at actual cost.

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- (ii) The actual cost of any modifications of the EDU's system that would otherwise not be done but for the applicant's interconnection request.
- (2) Within five business days after completion of the level 3 standard procedure including any applicable feasibility, system impact or facilities studies leading to the EDU's approval for interconnection of the applicant's proposed distributed generation facility installation and collection by the EDU of all the actual costs for the studies as billed to the applicant, the EDU shall provide the applicant with a standard interconnection agreement.
- ~~(A) 3 standard review procedure shall use the determinations made in the scoping meeting and the interconnection studies defined in rule 4901:1-22-09 of the Administrative Code for technical analysis of the applicant's proposed distributed generation facility installation.~~
- ~~(B) Level 3 is applicable for systems that do not qualify for either level 1 or level 2 review procedures. In order for the application to be approved under the level 3 standard review procedure, the applicant's inverter based or synchronous distributed generation facility, either individually or in the aggregate, must have a nameplate capacity of twenty megawatts or less, and the results of interconnecting the applicant's generating facility to a radial distribution circuit on the electric distribution utility's (EDU) distribution system must comply with any of the following applicable parameters:~~
- ~~(1) distributed generation facility is less than two megawatts and is not certified or the distributed generation facility is less than two megawatts and non-inverter based.~~
- ~~(2) or posted transient stability limits to generating units located in the general electrical vicinity of the proposed point of common coupling require the proposed application to be subject to a level 3 standard review process.~~
- ~~(3) application's failure to meet any criteria under level 2 for the expedited process requires the EDU to use the level 3 interconnection procedures.~~
- ~~(4) application was considered but not approved under a level 2 review and the applicant is submitting a new interconnection request for consideration under a level 3 review procedure. The queue position assigned to the level 2 interconnection application in accordance with paragraph (C) of rule 4901:1-22-09 of the Administrative Code shall be retained.~~
- ~~(C) EDU's tariff for level 3 standard review fees will include the following:~~

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- ~~(1) application fee of up to one hundred dollars, plus two dollars per kilowatt of the system's nameplate capacity.~~
- ~~(2) addition to the level 3 standard review application fee, any or all of the following fees may be assessed by the EDU:~~
  - ~~(a) cost of engineering work done as part of any feasibility, system impact or facilities study, billed at actual cost.~~
  - ~~(b) actual cost of any modifications of the EDU's system that would otherwise not be done but for the applicant's interconnection request.~~
- ~~(D) five days after completion of the level 3 standard procedure including any applicable feasibility, system impact or facilities studies leading to the EDU's approval for interconnection of the applicant's proposed distributed generation facility installation and collection by the EDU of all the actual costs for the studies as billed to the applicant, the EDU shall provide the applicant with a standard interconnection agreement. The standard interconnection agreement shall be consistent with the uniform requirements for an interconnection agreement enumerated in rule 4901:1-22-10 of the Administrative Code, and a mutually agreed upon timetable for the physical interconnection of the applicant's proposed distributed generation facility to the EDU's system.~~

**4901:1-22-09      Scoping meeting and interconnection studies.**

- ~~(A) Scoping meeting The electric distribution utility (EDU) will designate an employee or office from which information on the requirements for EDU's application review process can be obtained through an informal request by the applicant during a scoping meeting that includes discussion of the following:~~
  - ~~(1) A scoping meeting will be held within ten business days after the interconnection application is deemed complete, or as otherwise mutually agreed to by the parties. The EDU and the applicant may bring to the meeting personnel, including system engineers and other resources as may be reasonably required to accomplish the purpose of the meeting. The applicant's proposed interconnection of a distributed generation facility at a specific location on the EDU's distribution system.~~
  - ~~(2) The purpose of the scoping meeting is to discuss alternative interconnection options, to determine potential points of common coupling, to examine the~~

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applicant's proposed point of interconnection on the EDU's distribution system, or to review an applicant's pre-application report or existing studies relevant to the interconnection application. The parties shall further discuss the appropriate level 3 interconnection studies required to evaluate the interconnection of the proposed distributed generation facility to the EDU's distribution system.  
~~Qualifications under EDU's level 1, level 2 or level 3 review procedures~~

- (3) The scoping meeting may be waived by mutual agreement if the parties decide to proceed directly to the level 3 interconnection studies. Existing EDU studies relevant to the interconnection request

- ~~(4) (4) Reasonable requests from the applicant for EDU information including relevant system studies as well as other material useful to an understanding of an interconnection at a particular point on the system to the extent such information does not violate confidentiality provisions of prior agreements or critical infrastructure requirements.~~

- ~~(B) Scheduling of a scoping meeting will be established within ten business days after the scoping meeting has been requested by the applicant or as agreed to by the parties.~~

~~(C)~~ (B) Queuing

- (1) When an interconnection request is complete, the EDU shall assign the application a queue position to establish the order in which the interconnection request will be reviewed in relation to other interconnection requests on the same or nearby sections of the EDU's distribution system.
- (2) The queue position of an interconnection request shall be used to determine the cost responsibility necessary for the construction of any facilities to accommodate the interconnection in relation to other interconnection requests on the same or nearby sections of the EDU's distribution system.
- (3) The EDU shall notify the applicant at the scoping meeting about other higher-queued applicants.

~~(D)~~ (C) Interconnection study requirements

- (1) A specific One or more interconnection study studies may be required by the EDU prior to interconnection service including a feasibility study, a system impact study, and a facilities study. that will include the following:

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- (a)(2) Each type of study required will include an EDU interconnection tariff fee schedule approved by the commission as set forth in Rule 4901:1-22-08 of the Administrative Code.
- (b)(3) Each type of study will be the subject of a written study agreement between the applicant and the EDU that includes the following:
- (i)(a) A target date for completion of any required feasibility study, system impact study, and facilities study.
  - (ii)(b) A provision to share the results of the study by the EDU with the applicant.
  - (c) A clear explanation of all estimated charges.
  - (d) A good faith estimate of the total number of hours needed to complete the study.
  - (e) An estimate of the total interconnection study fee.
  - (e)(c) The written agreement discussed in paragraph (D)(1)(b) of this rule may include an alternative provision that allows the required studies related to the interconnection of the generating facility(s) to be conducted by a qualified third party with the consent of the EDU.
- (d)(4) A written study agreement statement provided to the applicant by may include an alternative provision that allows the required studies related to the interconnection of the generating facility(s) to be conducted by a qualified third party with the consent of the EDU, prior to the study that includes the following:
- (i) A clear explanation of all charges.
  - (ii) A good faith estimate of the number of hours that will be needed to complete the study.
  - (iii) An estimate of the total interconnection study fee.
- (2)(5) By mutual agreement of the parties, a feasibility study, a system impact study, or a facilities study under level 3 procedures may be waived by the EDU.
- (3)(6) When the EDU determines, as a result of the studies conducted under a level 3 review, that it is appropriate to interconnect the distributed generation facility, the EDU shall provide the applicant with a standard distributed generation



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~~interconnection agreement. The standard interconnection agreement shall incorporate the uniform requirements for an interconnection agreement enumerated in rule 4901:1-22-10 of the Administrative Code, and a mutually agreed upon timetable for the physical interconnection of the applicant's proposed distributed generation facility to the EDU's system.~~

- (4)-(7) If the interconnection request is denied, the EDU shall provide a written explanation within five business days from the denial. The EDU must allow the applicant thirty business days to cure the reasons for denial while the applicant's position in the queue is maintained.

~~(E)-(D)~~      The feasibility study

- (1) No later than five business days after the scoping meeting, the EDU shall provide the applicant with a feasibility study agreement in accordance with the EDU's tariff to determine the feasibility of interconnecting the applicant's proposed distributed generation facility at a particular point on the EDU's system. The study shall include both of the following:
  - (a) An outline of the scope of the study.
  - (b) A non-binding good faith estimate of the cost to perform the study.
- (2) A feasibility study shall include the following analyses for the purpose of identifying a potential adverse system impact to the EDU's system that would result from the interconnection:
  - (a) Initial identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection.
  - (b) Initial identification of any thermal overload or voltage limit violations resulting from the interconnection.
  - (c) Initial review of grounding requirements and system protection.
  - (d) A description and nonbinding estimated cost of facilities required to interconnect the distributed generation facility to the EDU's system in a safe and reliable manner.
- (3) When an applicant requests that the feasibility study evaluate multiple potential points of interconnection, additional evaluations may be required.

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(4) The actual cost of the EDU's additional evaluations shall be paid by the applicant.

~~(F)~~ (E) The system impact study

- (1) No later than five business days after the completion of or a waiver of the feasibility study, the EDU shall provide a distribution system impact study agreement to the applicant, using a form of system impact study agreement in accordance with the EDU's tariff that includes an outline of the scope of the study and a nonbinding good faith estimate of the cost to perform the study.
- (2) If the feasibility study concludes there is no adverse system impact, or the study identifies an adverse system impact but the EDU is able to identify a remedy, no system impact study is required.
- (3) A system impact study shall evaluate the impact of the proposed interconnection on the safety and reliability of the EDU's system. The study shall:
  - (a) Identify and detail the system impacts that result when a distributed generation facility is interconnected without project or system modifications.
  - (b) Consider the adverse system impacts identified in the feasibility study, or potential impacts including those identified in the scoping meeting.
  - (c) Consider all generating facilities that, on the date the system impact study is commenced, are directly interconnected with the EDU's system.
  - (d) Consider pending higher queue position of facilities requesting interconnection to the system, or consider pending higher queue position of facilities requesting interconnection having a signed interconnection agreement.
- (4) A system impact study performed by the EDU shall consider the following criteria:
  - (a) A load flow study.
  - (b) A short circuit analysis.
  - (c) A stability analysis.
  - (d) Voltage drop and flicker studies.

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- (e) Protection and set point coordination studies.
- (f) Grounding reviews.
- (5) The EDU shall state the underlying assumptions of the study and show the results of the analyses to the applicant, including the following:
  - (a) Any potential impediments to providing the requested interconnection service.
  - (b) Any required distribution system upgrades and provide a nonbinding good faith estimate of cost and time to construct the system upgrades.

~~(G)~~(F) The facilities study

- (1) Within five business days of completion of the system impact study, a report will be transmitted by the EDU to the applicant with a facilities study agreement in accordance with the EDU's interconnection tariff.
- (2) When the parties agree at the scoping meeting that no system impact study is required, the EDU shall provide to the applicant, no later than five business days after the scoping meeting, a facilities study agreement in accordance with the EDU's interconnection tariff that enables the EDU to determine the interconnection facilities needed to interconnect the applicant's proposed distributed generation facility at a particular point on the EDU's system.
- (3) The facilities study agreement shall include both of the following:
  - (a) An outline of the scope of the study.
  - (b) A nonbinding good faith estimate of the cost to perform the study to cover the cost of the equipment, engineering, procurement and construction work, including overheads, needed to implement the conclusions of the feasibility study and/or the system impact study to interconnect the distributed generation facility.
- (4) The facilities study shall identify all of the following:
  - (a) The electrical switching configuration of the equipment, including transformer, switchgear, meters, and other station equipment.
  - (b) The nature and estimated cost of the EDU's interconnection facilities and distribution upgrades necessary to accomplish the interconnection.

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- (c) An estimate of the time required to complete the construction and installation of such facilities.
- (5) The parties may agree to permit an applicant to separately arrange for a third party to design and construct the required interconnection facilities under the following conditions:
  - (a) The EDU may review the facilities to be designed and constructed by a third party under provisions included in the facilities study agreement for that purpose.
  - (b) The applicant and the third party separately arranging for design and construction agree to comply with security and confidentiality requirements.
  - (c) The EDU shall provide the applicant with all relevant information and required specifications available to permit the applicant to obtain an independent design and cost estimate for the facilities, which must be built in accordance with the specifications.

**4901:1-22-10      Uniform requirements for interconnection agreements.**

- (A) The ~~electric distribution utility (EDU)~~EDU shall provide the applicant with a standard interconnection agreement for distributed generation within five business days following completion of project review. If applicable, the applicant must pay for the interconnection facilities and distribution upgrades identified in the facilities study.
- (B) The applicant shall have thirty business days or another mutually agreeable time frame after the standard interconnection agreement is received to sign and return the interconnection agreement to the EDU.
- (C) When the applicant does not sign the agreement within thirty business days, the interconnection request will be deemed withdrawn unless the applicant requests an extension of the deadline in writing. The request for extension shall not be denied by the EDU, unless conditions on the EDU system have changed.
- (D) Milestones for construction
  - (1) When construction is required, the interconnection of the distributed generation will proceed according to any milestones agreed to by the parties in the standard interconnection agreement.
  - (2) The interconnection agreement may not become effective until the milestones

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agreed to in the standard interconnection agreement are satisfied, including the following:

- (a) The distributed generation is approved by electric code officials with jurisdiction over the interconnection.
- (b) The applicant provides a certificate of completion to the EDU; or there is a successful completion of an on-site operational test within ten business days or at a mutually convenient time, unless waived. The operational test shall be observed by EDU personnel or a qualified third party with sufficient expertise to verify that the criteria for testing have been met.

(E) Insurance

- (1) Any EDU interconnection agreement with the applicant shall not require additional liability insurance beyond proof of insurance or any other suitable financial instrument sufficient to meet its construction, operating and liability responsibilities in accordance with the EDU's tariff with respect to this rule.
- (2) At no time shall the EDU require the applicant to negotiate any policy or renewal of any policy covering any liability through a particular insurance agent, solicitor, or broker.

(F) Alternative dispute resolution

The EDU or the applicant who is a nonmercantile, nonresidential customer may seek resolution of any disputes which may arise out the EDU tariffs filed under these rules, in accordance with Chapter 4901:1-26 of the Administrative Code, for alternative dispute resolution procedures.

(G) Site testing

The applicant must provide the EDU a reasonable opportunity to witness the testing of installed switchgear, protection system, and generator as included in the applicant's installation test plan and maintenance schedule that has been reviewed and approved by the EDU.

(H) Periodic testing

- (1) Any periodic tests of the interconnection equipment (including any relays, interrupting devices, control schemes, and batteries that involve protection of the EDU's system) as recommended by the applicant's equipment manufacturer or required by the institute of electrical and electronics engineers (IEEE) 1547

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standards, effective as set forth in rule 4901:1-22-03 of the Administrative Code, shall be the responsibility of the applicant.

- (2) Such periodic tests shall be included in the applicant's installation test plan and maintenance schedule that has been reviewed and approved by the EDU.
- (3) The applicant shall make copies of the periodic test reports or inspection logs available to the EDU for review.
- (4) Upon a written request, the EDU is to be informed of the next scheduled maintenance and be able to witness the maintenance program and any associated testing.

(I) Disconnection of the applicant's facility

Except as provided for in paragraph (J)(2) of this rule, when the EDU discovers the applicant's equipment is not in compliance with IEEE 1547 standards, effective as set forth in rule 4901:1-22-03 of the Administrative Code, and such noncompliance has the potential to adversely affect the safety and reliability of the electric system, the EDU may disconnect the applicant's facility according to the following procedures:

- (1) The EDU shall provide a notice to the applicant with a description of the specific noncompliance condition.
- (2) The disconnection can only occur after a reasonable time to cure the noncompliance condition has elapsed.

(J) Other disconnection of the unit

- (1) The applicant retains the option to temporarily disconnect from the EDU's system at any time. Such temporary disconnection shall not be a termination of the interconnection agreement unless the applicant exercises its termination rights under the interconnection agreement.
- (2) The EDU shall have the right to disconnect the applicant's unit(s) without notice in the event of an emergency or to eliminate conditions that constitute a potential hazard to the EDU personnel or the general public. The EDU shall notify the applicant of the emergency as soon as circumstances permit.

(K) Service interruption

During routine maintenance and repairs on the EDU's system consistent with Chapter 4901:1-23 of the Administrative Code, or other commission order, the EDU shall

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provide the applicant with a seven-day notice of service interruption.

(L) Effective term and termination rights of an interconnection agreement

- (1) An interconnection agreement becomes effective when executed by both parties and shall continue in force until terminated under any of the following conditions:
  - (a) The applicant terminates the interconnection agreement at any time by giving the EDU sixty calendar days prior notice.
  - (b) The EDU terminates the interconnection agreement upon failure of the applicant to generate energy from the applicant's facility in parallel with the EDU's system by the later of two years from the date of the executed interconnection agreement or twelve months after completion of the interconnection.
  - (c) Either party terminates by giving the other party at least sixty calendar days prior written notice that the other party is in default of any of the material terms and conditions of the interconnection agreement, so long as the notice specifies the basis for the termination and there is reasonable opportunity to cure the default.
- (2) All applicants' installations existing on or before the effective date of this rule are exempted from the changes instituted by this rule.
- (3) Upon termination of an interconnection agreement, the applicant's facilities will be disconnected from the EDU's system.
- (4) The termination of the interconnection agreement shall not relieve either party of its liabilities and obligations, owed or continuing at the time of the termination.

**4901:1-22-11      Backup electricity supply.**

Replacement electric power for the applicant shall be supplied in accordance with division (C) of section 4928.15 of the Revised Code, by either of the following:

- (A) The ~~electric distribution utility~~ EDU either at a tariff rate or at the market price as provided for in its tariff.
- (B) By the applicant's competitive retail electric service provider at a rate to be determined by contract.

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**4901:1-22-12      Complaints.**

All formal complaints brought by applicants or interconnection service customers pursuant to section 4905.26 of the Revised Code, will be handled according to the procedural standards set forth in Chapters 4901-1 and 4901-9 of the Administrative Code. Each ~~electric distribution utility~~ EDU must provide to the commission utilities department the name and telephone number of a contact person to assist the commission staff with the resolution of informal complaints regarding provisions in Chapter 4901:1-22 of the Administrative Code.

**4901:1-22-13      Exceptions.**

Except where rule requirements are mandated by federal or state law, the commission may waive any provision contained in this chapter for good cause upon its own motion or upon application by a company.



# CSI - Ohio

## The Common Sense Initiative

### Business Impact Analysis

Agency Name: Public Utilities Commission of Ohio (PUCO)  
Attention: Angela Hawkins, Legal Director  
Phone: 614-466-0122 Fax: 614-728-8373  
Angela.Hawkins@puc.state.oh.us  
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Phone: 614-752-9410 Fax: 614-728-8373  
greg.price@puc.state.oh.us

Regulation/Package Title: Interconnection Services

Rule Number(s): Chapter 4901:1-22, O.A.C.

Date: December 4, 2013

**Rule Type:**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> New     | <input checked="" type="checkbox"/> 5-Year Review |
| <input checked="" type="checkbox"/> Amended | <input checked="" type="checkbox"/> Rescinded     |
| <input type="checkbox"/> No Change          |   |

The Common Sense Initiative was established by Executive Order 2011-01K and placed within the Office of the Lieutenant Governor. Under the CSI Initiative, agencies should balance the critical objectives of all regulations with the costs of compliance by the regulated parties. Agencies should promote transparency, consistency, predictability, and flexibility in regulatory activities. Agencies should prioritize compliance over punishment, and to that end, should utilize plain language in the development of regulations.

**Regulatory Intent**

- 1. Please briefly describe the draft regulation in plain language. Please include the key provisions of the regulation as well as any proposed amendments.**

The proposed revisions to the rules in Chapter 4901:1-22, Ohio Administrative Code (O.A.C.), are in accordance with the State of Ohio's 5-year rule review procedures. Section 119.032, Revised Code, requires all state agencies to conduct a review, every five years, of their rules and to determine whether to continue their rules without change, amend their rules, or rescind their rules. The rules in Chapter 4901:1-22, O.A.C., set forth electric interconnection services and standards. The proposed revisions to Chapter 4901:1-22, O.A.C., would create a more stream-lined and clear process for interconnection with an electric distribution utility. The new process would provide three levels of interconnection review procedures based upon the size and type of the customer's distributed generation facility. Level 1 would be a simplified review procedure for customers with an inverter-based system of twenty-five kilowatts or less. Level 2 would be an expedited review procedure for customers with systems that do not qualify or fail to meet Level 1 simplified review and have a nameplate capacity of two megawatts or less. Level 3 would be a standard review procedure for all customers with systems that do not qualify or fail to meet Level 1 and Level 2 interconnection review requirements and have a nameplate capacity of twenty megawatts or less.

- 2. Please list the Ohio statute authorizing the Agency to adopt this regulation.**

The amendments to the rules in Chapter 4901:1-22, Administrative Code, are in response Section 119.032, Revised Code, which requires all state agencies to conduct a review, every five years, of their rules and to determine whether to continue the rules without change, with amendments, or with rescissions. The Public Utilities Commission of Ohio (PUCO) has determined that certain amendments to the rules are necessary for safe and expedient interconnection, which should have a positive impact on small business.

- 3. Does the regulation implement a federal requirement? Is the proposed regulation being adopted or amended to enable the state to obtain or maintain approval to administer and enforce a federal law or to participate in a federal program? If yes, please briefly explain the source and substance of the federal requirement.**

This regulation implements state requirements. While the rules are not being implemented in response to a federal requirement, they do adopt the national

standards established by the institute of electrical and electronics engineers (IEEE), the underwriters laboratory (UL), and the National Electric Code (NEC).

4. **If the regulation includes provisions not specifically required by the federal government, please explain the rationale for exceeding the federal requirement.**

The regulation does not contain provisions specifically required by the federal government. The rationale for the regulation is for the safe and reliable operation of the electric grid, particularly for customers installing/interconnecting distributed generation facilities.

5. **What is the public purpose for this regulation (i.e., why does the Agency feel that there needs to be any regulation in this area at all)?**

The rules contained in this chapter are intended to make interconnection not unduly burdensome or expensive, to establish uniform requirements for nondiscriminatory technology-neutral interconnection to customers who generate electricity on the customer's side of the meter, to apply in all commission jurisdictional areas, and to provide a process for expedient interconnection with the electric distribution utility.

6. **How will the Agency measure the success of this regulation in terms of outputs and/or outcomes?**

The rules contained in this chapter govern interconnection. The success of the regulation in terms of outputs and outcomes will be measured based upon customer and electric distribution utility feedback on the simplicity, expediency, and safety of interconnection.

#### **Development of the Regulation**

7. **Please list the stakeholders included by the Agency in the development or initial review of the draft regulation. *If applicable, please include the date and medium by which the stakeholders were initially contacted.***

The PUCO conducted a workshop on August 17, 2012, at the offices of the Commission to receive feedback from interested stakeholders and the general public. The case number for the commission's review of Chapter 4901:1-22, O.A.C., is 12-2051-EL-ORD. The entry providing notice of the workshop was served upon all investor-owned utilities in the state of Ohio, all competitive retail electric service providers in the state of Ohio, and the Electric-Energy industry list-serve. Over 21

stakeholders signed the provided sign-in sheet for the workshop. The workshop was held in conjunction with other electric industry rules workshops, including for rules in chapters 4901:1-9, 4901:1-10, 4901:1-23, and 4901:1-25, O.A.C.

Subsequent to the workshops, the Commission issued an entry requesting comments and reply comments on the proposed rules. Fourteen stakeholders filed initial comments and three of those stakeholders filed reply comments. Additionally, on January 16, 2013, the Commission requested additional comments and reply comments from stakeholders to receive further feedback on streamlining the interconnection process. Eleven stakeholders filed supplemental initial comments and six of those stakeholders filed supplemental reply comments.

**8. What input was provided by the stakeholders, and how did that input affect the draft regulation being proposed by the Agency?**

Recommendations were provided by stakeholders at the workshop in Case No. 12-2051-EL-ORD. Stakeholders recommended that the rules provide a simplified process for interconnection with an electric distribution utility. Staff believes that it has adequately considered and adopted the recommendations provided by stakeholders. Further, the Commission's Opinion and Order addresses numerous stakeholder recommendations and the Commission's responses to those recommendations. Many of the stakeholder recommendations were regarding proposal made by the Commission Staff in its entry requesting comment. Those proposals were not included in Staff's proposed rules but only in the entry requesting comments so that Staff could receive further information from stakeholders on those issues to determine whether they should be adopted now or in the future. Staff requested comments on a field-certified database, financial risk minimization measures for utilities, a public distribution interconnection queue, and removal of the 20 megawatt capacity limit for Level 3 review. These issues were not formally proposed by Staff because they were not included in Staff's proposed rules, but the comments on those issues will be instrumental in ensuring that the Commission and Staff have sufficient data to review these processes in future rule-making proceedings. The rest of the comments and reply comments from stakeholders were primarily related to changing Staff's proposed Level 1, Level 2, and Level 3 interconnection processes. The Commission has denied multiple proposals from stakeholders for the purpose of striking an appropriate balance between maintaining the safety of interconnecting to the distribution infrastructure, while ensuring efficiency and cost-effectiveness in the process.

**9. What scientific data was used to develop the rule or the measurable outcomes of the rule? How does this data support the regulation being proposed?**

No scientific data was provided or considered. In adopting any changes to Chapter 4901:1-22, O.A.C., the Commission takes into account feedback from stakeholders and the general public.

**10. What alternative regulations (or specific provisions within the regulation) did the Agency consider, and why did it determine that these alternatives were not appropriate? If none, why didn't the Agency consider regulatory alternatives?**

Some of the alternatives considered by staff include whether an additional rule should be provided regarding standard procedures for field-tested equipment, whether customers attempting to interconnect should be required to provide some financial security to cover the costs of interconnection as they accrue, whether the rules should be expanded by removing the 20 megawatt capacity limit for generating facilities, whether an interconnection queue should be made publicly available, and whether there would be any security concerns from making an interconnection queue publicly available. These alternatives have been explained by the Commission in Case No. 12-2051-EL-ORD to allow stakeholders to provide comments on the. The comments and reply comments generally addressed the alternative provisions and the alternative will be considered further in future rule-making cases, when more data and analysis has been provided to the Commission.

**11. Did the Agency specifically consider a performance-based regulation? Please explain. *Performance-based regulations define the required outcome, but don't dictate the process the regulated stakeholders must use to achieve compliance.***

No performance-based regulations were considered. The proposed revisions dictate a particular process and not a required outcome.

**12. What measures did the Agency take to ensure that this regulation does not duplicate an existing Ohio regulation?**

The Commission has reviewed other Ohio regulations and found no duplicate. Furthermore, no duplicate has been identified by stakeholders.

- 13. Please describe the Agency's plan for implementation of the regulation, including any measures to ensure that the regulation is applied consistently and predictably for the regulated community.**

Upon completion of the rulemaking process, the rule changes made in Chapter 4901:1-22, O.A.C., will be attached to the Commission's finding and order and served upon all investor-owned utilities in the state of Ohio, all competitive retail electric service providers in the state of Ohio, and the Electric-Energy industry list-serve.

**Adverse Impact to Business**

- 14. Provide a summary of the estimated cost of compliance with the rule. Specifically, please do the following:**

- a. Identify the scope of the impacted business community;**

The scope of the business community impacted by the proposed revisions to Chapter 4901:1-22, O.A.C., includes any business, or person, with a distributed generation facility needing to interconnect to an electric distribution utility's distribution infrastructure. Any business impact resulting from the proposed revisions will be a positive impact due to the clarity and simplicity of the proposed new interconnection procedures. Therefore, the scope of the impacted business community is equivalent to the number of interconnection applicants from the business community. The rules in Chapter 4901:1-22, O.A.C., apply to all interconnection applicants, and not just the business community.

- b. Identify the nature of the adverse impact (e.g., license fees, fines, employer time for compliance); and**

The proposed revisions were drafted in an effort to minimize any adverse impact on business, while providing a simplified and more expedient process for interconnection. The proposed revisions will improve the safety and expediency of interconnection. No adverse impact to business has been identified.

However, the rules in Chapter 4901:1-22, O.A.C., contain multiple fees for utilities to recover expenses related to interconnection. These fees do not

provide an adverse impact on business when compared to the existing fee structure. First, the Commission has denied a stakeholder proposal that interconnection applicants, including applicants from the business community, be charged for informally requesting information about a potential project. The Commission believes that informal inquiries should be permitted without a fee charged to the interconnection applicant, and that the utility should respond to such informal requests with readily available information. Furthermore, the Commission has established a flat pre-application fee of \$300. Multiple stakeholders proposed that the fee be increased to between \$500 and \$1,000, which would increase the cost of interconnection on interconnection applicants, including applicants from the business community. The Commission has denied the stakeholders proposal to increase the pre-application report fee, and has set the fee at \$300. The Commission also established a flat fee of \$2,500 for utilities to recover the costs of implementing Level 2 Supplemental Review. Stakeholders requested that the \$2,500 flat fee to recover the costs of Level 2 Supplemental Review should be deducted from the Level 3 Standard Review fee if the applicant fails Level 2 Supplemental Review and elects to proceed to Level 3 Review. The Commission adopted this recommendation so that interconnection applicants, including applicants in the business community, are not charged twice; once for Level 2 Supplemental Review and once for Level 3 Review. The Commission notes that it is adopting the proposed flat fees as a benefit to interconnection applicants, including applicants in the business community, as opposed to unspecified hourly rates. The flat fees adopted by the Commission are beneficial to business because they are reasonable at the rate that they are being set and they will enable better cost projections for interconnection. While hourly rates still exist in the rules for detailed engineering work, due to the variability in the amount of time spent on such work, the flat fees being adopted by the Commission will improve the interconnection process for all interconnection applicants, including interconnection applicants in the business community.

- c. **Quantify the expected adverse impact from the regulation.** *The adverse impact can be quantified in terms of dollars, hours to comply, or other factors; and may be estimated for the entire regulated population or for a "representative business." Please include the source for your information/estimated impact.*

As indicated above, the Commission does not believe that the flat fees it is adopting provide an adverse impact on business. These fees will provide

interconnection applicants with better cost projections for interconnection, are preferred over hourly fees, and are set at a fair amount that balances the needs of interconnection applicants and the EDUs. Furthermore, the principle of cost causation directs that the party causing a cost should be required to pay that cost. In the instance of interconnection, there are certain costs for changes to the distribution infrastructure and studies on grid impacts. Because these costs are caused by interconnection applicants, the utilities should be permitted to charge reasonable fees for the recovery of these costs. Some of the quantifiable costs provided in Chapter 4901:1-22.

O.A.C., are detailed below:

Pre-Application Report: \$300

Level 1 Application Fee: \$50

Level 2 Fee: \$50, plus \$1 per kilowatt of the applicant's system nameplate capacity

Level 2 Supplemental Review Fee: \$2,500, plus the actual cost of the minor modifications to the EDU's distribution system that would not otherwise be done but for the applicant's interconnection request

Level 3 Review Fee: \$100, plus \$2 per kilowatt of the system's nameplate capacity and the actual cost of the modifications to the EDU's distribution system that would not otherwise be done but for the applicant's interconnection request.

Note: If an applicant pays the Level 2 Supplemental Review Fee and subsequently fails Level 2 Supplemental Review, the applicant may elect for Level 3 Review and the \$2,500 will be deducted from the total Level 3 Review fee.

**15. Why did the Agency determine that the regulatory intent justifies the adverse impact to the regulated business community?**

As indicated above, the Commission does not believe that the flat fees it is adopting provide an adverse impact on business. Any business impact resulting from the proposed revisions will be a positive impact due to the clarity and simplicity of the proposed new interconnection procedures.

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**Regulatory Flexibility**

**16. Does the regulation provide any exemptions or alternative means of compliance for small businesses? Please explain.**

No. A business in an area under the jurisdiction of the Commission may not be exempted from the interconnection requirements provided in Chapter 4901:1-22, O.A.C., for the purpose of ensuring safe interconnection with an electric distribution utility's distribution infrastructure.

**17. How will the agency apply Ohio Revised Code section 119.14 (waiver of fines and penalties for paperwork violations and first-time offenders) into implementation of the regulation?**

The Commission has already adopted Rule 4901:1-22-05(F), O.A.C., which permits exceptions to the EDU's fee schedule, as determined by the EDU, if the EDU invokes a fee-free feature on a nondiscriminatory basis. This means that the EDU may adopt a fee-free feature for any level of review. Furthermore, the Commission has indicated in Rule 4901:1-22-06(D), O.A.C., that the Level 1 Review fee may be waived by the EDU.

**18. What resources are available to assist small businesses with compliance of the regulation?**

Commission Staff works with small businesses to ensure compliance with the rules. In Commission Case No. 12-2051-EL-ORD, stakeholders and the general public, including small businesses, were invited to participate in a workshop to explain to Commission Staff potential revisions to the rules to decrease or eliminate any negative effects on business. Small businesses may contact Commission Staff at any time and may comment on the proposed revisions during the open comment period once the proposed revisions have been released via Commission Entry. Furthermore, small businesses may contact their electric distribution utility before interconnecting to find assistance with compliance of the PUCO regulations.