STATE OF IOWA
BEFORE THE IOWA UTILITIES BOARD

IN RE:	)	
	)	**DOCKET NO. NOI-2014-0001**
DISTRIBUTED GENERATION	)	
	)	
	)	**RESPONSE TO BOARD ORDER**
	)	**SOLICITING PROPOSED RULE**
	)	**CHANGES**
	)	

The Environmental Law & Policy Center, Iowa Environmental Council, and Interstate Renewable Energy Council, Inc., collectively the "Joint Commenters," jointly file these comments pursuant to the Iowa Utilities Board Order Soliciting Proposed Rule Changes Regarding Certain Interconnection Issues on December 22, 2014.

TABLE OF CONTENTS

DESCRIPTION OF THE PARTIES

The Environmental Law & Policy Center (ELPC) is a non-profit corporation with an office in Des Moines, Iowa and members who reside in the State of Iowa. ELPC's goals include promoting clean energy development and advocating for policies and practices that facilitate the use and development of clean energy such as solar and wind power.

The Iowa Environmental Council (IEC) is a broad-based environmental policy organization with over 70 diverse member organizations and a mission to create a safe, healthy environment and sustainable future for Iowa. IEC's work focuses on clean water, clean air, conservation, and clean energy, including the promotion of policies that would facilitate the development of clean energy and clean energy jobs.

The Interstate Renewable Energy Council, Inc. (IREC) is a non-profit organization that has worked for three decades to accelerate the sustainable utilization of renewable energy resources through the development of programs and policies that reduce barriers to renewable energy deployment. IREC participates in state level interconnection rulemakings and at the Federal Energy Regulatory Commission (FERC) to provide regulators with information regarding best practices from across the country. IREC also publishes Model Interconnection Procedures that reflect national best practices and can act as a guide for regulators. IREC has recently participated in interconnection proceedings in Ohio, Illinois, North Carolina, Massachusetts, Hawaii and California.

Together, the "Joint Commenters" represent a coalition of the leading national, regional and local non-profit organizations working on distributed generation (DG) regulatory and policy issues in Iowa and across the nation. We are well positioned to offer the Board insights from our diverse experiences in states throughout the country, informed by our practical experiences on the ground in Iowa.

I. INTRODUCTION

In 2005, FERC adopted Small Generator Interconnection Procedures ("SGIP") for FERC jurisdictional interconnections that were also intended to serve as model state interconnection procedures. *See* FERC Order 2006 ("Standardization of Small Generator Interconnection Agreements and Procedures") (May 12, 2005). IREC has also adopted and maintained "Model Interconnection Procedures" based on best state practices for many years.[1] The Board's existing Chapter 45 interconnection rules are largely based on the 2008 Illinois interconnection rules which were themselves largely based on the FERC SGIP and IREC's model rules. Since FERC adopted the SGIP in 2005, the volume of DG, including solar PV, has grown dramatically, and utilities and other stakeholders have learned that higher penetrations of DG can be successfully and safely interconnected to the distribution grid than what was originally envisioned when the rules were adopted. Over time, NREL and other experts have identified that the technical screens embedded in the 2005 FERC SGIP have become a barrier to efficient and streamlined processing of interconnection applications. The experience in Iowa has born this out as there have been several interconnection requests that Iowa utilities have felt required a waiver of the interconnection rules to proceed even though the requests were for projects that the utility had

[1] *See http://www.irecusa.org/regulatory-reform/interconnection/.*

determined would not raise any safety or reliability concerns.[2] These technical experts recommend revisions to the SGIP and state procedures in order to eliminate unnecessary market barriers for distributed generation interconnection while still ensuring the safety and reliability of the distribution grid.[3]

In November 2013, after a lengthy stakeholder process, FERC substantially revised its SGIP and incorporated many new best practices and innovations to improve the interconnection process for distributed generators, with a particular focus on changes that streamline the process for projects seeking to interconnect in areas with DG high penetration. *See* FERC Order 792, 145 FERC ¶ 61,159 (adopting revised SGIP). The revised SGIP includes many innovations to streamline DG interconnection, including the creation of a pre-application report, adoption of new thresholds for participation in the expedited interconnection review process, and changes to the supplemental review process to allow a greater number of systems to proceed without full study while also maintaining system safety, reliability, and power quality. Other states, including Ohio and Illinois, have recently adopted updates to their interconnection standards or are

[2] *See* IUB Docket Nos. WRU-2014-0011-0150, WRU-2014-0014-0150, and WRU-2014-0016-0150.

[3] *See*, *e.g.*, NREL Technical Report 5500-54063, *Updating Interconnection Screens for PV System Integration* (Feb. 2012) (available at http://www.nrel.gov/docs/fy12osti/54063.pdf); NREL Technical Report 5500-56790, *Updating Small Generator Interconnection Procedures for New Market Conditions* (December 2012) (available at http://www.nrel.gov/docs/fy13osti/56790.pdf); NREL Technical Report 550-45061 *Photovoltaic Systems Interconnected onto Secondary Network Distribution Systems – Success Stories* (April 2009) (available at http://www.nrel.gov/docs/fy09osti/45061.pdf); NREL Technical Report 581-42675, *Utility-Interconnected Photovoltaic Systems: Evaluating the Rationale for the Utility-Accessible External Disconnect Switch* (January 2008) (available at http://www.nrel.gov/docs/fy08osti/42675.pdf).

considering changes that include elements of the updated SGIP.[4] IREC played a key role in developing and negotiating many of the innovations ultimately adopted by the states and at FERC.[5] The interconnection rule changes proposed here reflect those discussions and best practices learned at FERC and in other recent state proceedings. A redline version of the specific rule language changes we propose is attached as Exhibit 1. Our citations refer to the section numbers reflected in Exhibit 1 unless expressly noted. The redline changes are a combination of changes in the FERC SGIP, IREC Model Rules, and national best practices that have been adopted by other states.

II. PURPOSE AND SUMMARY OF PROPOSED RULE CHANGES

The goal of these proposed rules is to align Iowa's interconnection rules with well-vetted and national best practices in an effort to continue to provide clear regulatory and procedural framework for utility companies, distributed generation developers, and customers. Using these best practices as a guide, these proposed updates to Iowa's rules will streamline the interconnection process for all interested parties—including the utilities and customers. The updated rules explicitly target elements of the interconnection review process by enhancing transparency, minimizing costly and unnecessary review when possible, while also bolstering the review process to more accurately reflect distribution grid capabilities when required. While there are still additional improvements that could be considered, removing the external

[4] *See* PUCO Docket 12-2051-EL-ORD (adopting amended interconnection rules in Chapter 4901:1-22 of the Ohio Revised Code) (December 4, 2013); Illinois Commerce Commission, Docket 14-0135, "Petition to Initiate Rulemaking with Notice and Comment for Approval of Certain Amendments to Illinois Administrative Code Parts 466 and 467 Concerning Interconnection Standards for Distributed Generation" (proposing draft rule updates that would incorporate the majority of the FERC SGIP innovations). The ICC granted the petition to update the Illinois rules, and the case is fully briefed and awaiting a proposed order by the ALJ.

[5] *See http://www.irecusa.org/regulatory-reform/interconnection/.*

disconnect switch requirement for small inverter based systems being a notable example, these changes translate to a more efficient process for all parties while continuing to ensure safety, reliability and power quality on the utilities' system.

The proposed changes focus on the Board's request for parties to address pre-application, site control and supplemental review. In proposing best practices for pre-application and Level 2/supplemental review, there are several changes or best practices that would improve the entire interconnection rules or should be consistently applied throughout the rules. Therefore some of the proposed changes impacting pre-application, supplemental review and site control have broader application throughout the rules. The proposed changes strategically improve upon the existing rules and lay the groundwork for the future of distributed generation in the following major ways:

- Increases transparency and minimizes administrative burden on utilities and developers by establishing a pre-application report process. This process can help identify unviable projects before they enter the review process or construction queues to eliminate unnecessary reviews and streamline the interconnection process for both applicants and utilities. 199 Iowa Admin. Code § 45.XX.
- Clarifies the site control language in the general requirements in order to avoid confusion in cases where the applicant is not a customer of the utility at the proposed site. 199 Iowa Admin. Code § 45.5(6)
- Creates a more robust "supplemental review" process that provides applicants that fail one or more of the Level 2 screens the option of avoiding a costly and time-consuming Level 4 study if the project passes three additional screens that evaluate potential system impacts to ensure safe and reliable interconnection. The utility is provided additional time

to complete this review along with recovery for the costs of the review. 199 Iowa Admin. Code § 45.9(6).

- Provides an avenue for projects that do not violate any of the technical screens in Level 2, but still require some construction to avoid a costly and time consuming study process. Because the no construction screen also appears in Level 1 and Level 3 reviews, we propose revisions to make all three review levels consistent. 199 Iowa Admin. Code §§ 45.1, 45.7(1)-(3), 45.8(1)-(2), 45.9(1) and (3), 45.10(2).
- Refines the Level 2 size limit for inverter-based systems to utilize a more technically accurate approach that evaluates not only system size but also the voltage of the line at the point of interconnection and the proposed generator's distance from the substation. This results in a lower size limit on lower voltage lines and higher limits on lines with higher voltage. 199 Iowa Admin. Code § 45.7(2).
- Increases the Level 1 ("Fast Track") eligibility limit to 25 kVA, to better reflect grid capabilities, allowing more small-scale projects to safely come online while enjoying the benefits of a more expedited review process. 199 Iowa Admin. Code § 45.7(1)(b).
- Streamlines the project application process by creating an online submission process that allows for electronic signatures and ensures that relevant information is publicly available on utility websites. 199 Iowa Admin. Code § 45.4(3), 45.4(4), 45.5(11).
- Adds energy storage to the definition of distributed generation facility in order to clarify that distributed energy storage that will later inject electricity into the electric distribution system is subject to interconnection rules. 199 Iowa Admin. Code § 45.1.

- Updates reporting requirements to include pre-application reports, supplemental review and additional information that will increase transparency of the interconnection process and help track distributed generation. 199 Iowa Admin. Code § 45.13(1)-(4).

III. PROPOSED RULE UPDATES

A. Increased Transparency Through the Provision of Pre-Application Reports for Both Smaller and Larger Generators Will Minimize the Number of Unviable Applications, Reducing the Study Burden for Utilities While Maximizing Use of the Existing Infrastructure.

Sections Affected: 45.XX [new rule section that we propose between the technical standards 45.3 and interconnection requests 45.4]

The proposed Pre-Application Report, 199 Iowa Admin. Code § 45.XX (this is a new rule section that we propose to include between the technical standards, 45.3, and interconnection requests, 45.4), would be a significant enhancement to Iowa's interconnection procedures, and should make the processes for both smaller and larger generators more transparent and efficient while also reducing utility workload. The Pre-Application Report provides potential interconnection applicants the opportunity to request certain, readily available, system information about a particular point of interconnection. Upon submission of a request and $300 fee, the utility has 10 days to provide this information.

The length of the interconnection process and the costs associated with upgrades on a distribution system can vary considerably depending upon the point of interconnection and can be one of the most important factors in determining project viability. When a utility provides access to relevant system information, developers can pre-screen locations that offer better system conditions and reduce the number of applications submitted for projects that are later withdrawn because they are prohibitively expensive. Generators will not be able to use pre-application information to anticipate all potential issues or to determine fully the costs of upgrades, but the Pre-Application Report should assist them in evaluating interconnection

viability at different locations. From the utility's perspective, the Pre-Application Report reduces the number of applications they have to process and relieves some of the burden on their resources.[6] As the distributed generation market in Iowa continues to grow, utilities will receive increasingly higher volumes of interconnection applications, which will only enhance the value of the Pre-Application Report for generators and utilities. Finally, ratepayers as a whole also benefit when developers are able to find the lowest cost points of interconnection as it can reduce the cost of procured energy and maximize use of existing system resources.

Although the utilities in Iowa likely make their best efforts to provide customers with relevant information upon request, unlike the FERC SGIP, § 1.2.1, the interconnection procedures in Iowa currently provide no identified process for customers to obtain information from the utilities to enable them to determine high-value system locations.

Following the Pre-Application Report process approved by FERC in Order 792, SGIP § 1.2.2 – 1.2.3, specific information is recommended for inclusion in a Pre-Application Report request by a generator, as well as specific information for the utility to provide in return. Section 45.XX(1) specifies the information the generator shall provide to the utility in order to ensure that the utility has the information it needs to properly identify the applicant's proposed point of interconnection and to process the report efficiently.

Section 45.XX(2) identifies the information the utility must provide to the generator. These data are intended to assist generators in optimally locating their systems and avoiding

[6] In Massachusetts systems above 500 kW are required to obtain a pre-application report, at no fee, because the utilities strongly wanted to encourage generators to evaluate system conditions. Massachusetts, DPU Order 11-75-E, Appendix A (MA Interconnection Standards), § 3.2; *see also* DPU 11-75-E at 7-8, 39 (adopting the pre-application report based on the distributed generation working group's suggestion that it will "reduce the number of speculative interconnection applications, thereby increasing the likelihood of viable interconnection application.").

submission of unnecessary applications. Based on the FERC proceeding, as well as IREC's discussions with current and former distribution engineers from across the country, the items to be provided are both relevant for developers and can be provided without the need for additional analysis in many cases. If additional analyses would be required, however, section 45.XX(3) makes clear that the utility *need only include existing, readily available data*. In certain cases, particularly with minimum or peak load data, the information may not currently be available without analysis. However, utilities have begun to make significant investments in smart grid infrastructure, supervisory control and data acquisition (SCADA) and other methods of gathering system information. The expectation is that these critical data points will be available on a much more granular basis in coming years and therefore the interconnection procedures should encourage utilization of such information when available.

The 10-day timeframe and $300 fee proposed are appropriate for the effort required to provide the Pre-Application Report. The fee is consistent with the FERC SGIP, § 1.2.2. In most cases, there will be no reason that providing the information will take more than a few hours of staff time, especially given the limitation requiring only existing, readily available data. In addition, as utilities get more efficient at providing this information, they should be able to streamline the process and thus reduce the costs of providing the information. In fact, Ohio's recently updated interconnection procedures require just a 10-business-day turn-around along with the $300 fee. OAC § 4901:1-22-04(B)(2). Both California and Massachusetts have also incorporated Pre-Application Reports into their interconnection procedures with 10 day timeframe and similar, or no, fees. California, CPUC D.12-09-018, Attachment A (CA Rule 21 Tariff), § E.1 ($300 fee and 10 business day turnaround) and Massachusetts, DPU Order 11-75-E, Appendix A (MA Interconnection Standards), § 3.2 (no fee and 10 business day turnaround).

FERC adopted a longer 20-day timeframe for response, largely to allow additional time for Independent System Operators and Regional Transmission Operators to obtain information from the local Transmission Owner, a circumstance that does not come up in state level procedures.[7] As noted above, most state procedures have used a 10-day response time.

A standardized Pre-Application Report request form can make the process more streamlined across utilities. IREC has developed a model form based on the forms used in Massachusetts and California, which we have attached to these comments as Exhibit 2.

B. Adoption of the FERC SGIP Site Control Language Will Clarify Requirements for Interconnection in Third-Party Ownership Situations.

Sections Affected: 45.5(6)

Both the original FERC SGIP and the current Iowa interconnection rules allow for the interconnection of third-party owned distributed generation systems. Both required the third party to demonstrate the legal right to control the site in order to be authorized to interconnect at that location. *See* 199 Iowa Admin. Code § 45.5(6) (existing). While we do not believe that any rule change would be necessary for third-party owned systems to continue to interconnect, adopting the FERC SGIP update would make Iowa's interconnection rules more explicit about what is needed for a party to demonstrate site control. Explicitly addressing the site control requirements would make Iowa's interconnection rules more transparent and easier for consumers and utilities to follow, and avoid confusion that could needlessly delay projects.

[7] FERC in Order 792 at ¶¶ 39 and 51-52.

C. Adoption of a More Structured and Transparent Supplemental Review Process Will More Efficiently Accommodate Higher Penetrations of Distributed Generation Without Undermining Safety, Reliability or Power Quality.

Sections Affected: 45.9

As the amount of distributed generation on a circuit or line section grows there is an increased need to evaluate whether the addition of new generation will result in system impacts that warrant more thorough review. When processes for evaluating whether small generator interconnections required study were first being developed, one of the screens that was adopted widely asks whether the total generation on the circuit or line section, with the addition of the proposed generator, would exceed 15% of peak load on the circuit. *See* 199 Iowa Admin. Code § 45.9(1)(a). The intent of this screen was to determine whether there was a risk that generation would exceed load on the circuit at any point, and thereby possibly result in backfeeding electricity onto the distribution system.[8]

The 15% of peak load screen is imperfect. The relevant measurement is actually minimum load rather than peak load because the risk of backfeed only occurs when generation exceeds the load. However, since peak load data was, at the time this screen was originally drafted, generally more readily available engineers identified the following method to use peak load as a proxy for minimum load:

[8] "The 15% threshold is based on a rationale that unintentional islanding, voltage deviations, protection miscoordination, and other potentially negative impacts are negligible if the combined DG generation on a line section is always less than the minimum load." Michael Coddington, Benjamin Kroposki, Barry Mather (National Renewable Energy Laboratory); Kevin Lynn, Alvin Razon (Department of Energy); Abrahim Ellis, Roger Hill (Sandia National Laboratories); Tom Key, Kristen Nicole, Jeff Smith (Electric Power Research Institute), *Updating Interconnection Screens for PV System Integration,* National Renewable Energy Laboratory Technical Report NREL/TP-5500-54063 (hereinafter *Interconnection Screens Report*) (January 2012), at p. 2, *available at* www.nrel.gov/docs/fy12osti/54063.pdf;

> For typical distribution circuits in the United States, minimum load is approximately 30% of peak load. The actual ratio varies widely depending on many factors such as the type of load served. Based on this generalization, the 15% penetration level (one half of the 30%) was selected as a conservative penetration level for general screening purposes.[9]

As the quote above indicates, it is a doubly conservative estimate of when projects are likely to require further review. With DG penetrations having increased across the country, more and more distribution circuits are approaching and exceeding the cumulative 15% penetration level. This situation effectively forecloses a streamlined "fast-track" review for all subsequent projects on the feeder and requires an expensive study process, even for very small projects that could be interconnected safely without the need for further study. Several recent "waiver" filings from Iowa utilities highlight how this is already beginning to occur in Iowa. For example, an IPL waiver request concerned a level 2 application to interconnect a 9.5 kW solar array to be interconnected on a distribution circuit with "one or more turbines that exceed the minimum load of the given substation." IUB Docket WRU-2014-0014-0150, Request for Waiver of Level 2 Review Requirement for 8kW Solar Array (filed Oct. 1, 2014). IPL stated that the interconnection of the solar array would not have adverse system impacts and noted that the 15% screen is not specifically mandated by statute or another provision of law. *Id.*

The waiver filings described above provide clear examples of how the 15% screen is a very imprecise tool that often "screens out" projects that could otherwise be interconnected safely and quickly. This is occurring with great frequency in states with higher penetrations of distributed generation and will begin to occur with more frequency in Iowa as more distributed generation is installed. This is why FERC and several states have adopted a supplemental review

[9] *Id.*

process that incorporates a 100% of minimum load screen to avoid needlessly sending projects to study as the volume of distributed generation applications grows.

Under the current rules, utilities have the option of conducting "additional review" when a facility fails one or more of the Level 2 screens, including the 15% peak load screen. 199 Iowa Admin. Code § 45.9(6) (current rules). The process is vague, however, with no timelines or detail about what it entails. In several cases where the 15% screen has been failed in Iowa, Iowa utilities have interpreted additional review to require them to seek a waiver from the IUB to proceed.[10] The proposed rule has a more structured and transparent "supplemental review" process intended to help utilities handle increasing volumes and penetrations of distributed generation efficiently without compromising the safety and reliability of their electrical systems. This new process utilizes three new technical screens to help guide the review. Under the proposed 100% of minimum load penetration screen, the process recognizes that systems that will cause the generation to exceed the minimum load on the circuit could require further review. 199 Iowa Admin. Code § 45.9(6)(d)(1). The safety, reliability, and power quality screens that form the backbone of the supplemental review process, along with the provision of 30 business days for the application of the screens, provide the utilities with sufficient time and flexibility to evaluate how a proposed generator will interact with the system as long as it is below 100% of minimum load. 199 Iowa Admin. Code § 45.9(6)(d).

States that are already seeing higher penetrations of distributed generation, such as California and Massachusetts, pioneered this approach to supplemental review. CA Rule 21 Tariff § G.2; MA Interconnection Standards Fig. 1, n.8 (as modified by DPU Order 11-75-F at

[10] *See* IUB Docket Nos. WRU-2014-0011-0150, WRU-2014-0014-0150, and WRU-2014-0016-0150.

12-14). Both states, and now FERC and Ohio, have adopted processes essentially identical to our proposal here, relying on a 100% of minimum load penetration screen and two additional screens addressing safety, reliability, and power quality. IREC recently analyzed interconnection data from the two largest California investor-owned utilities, Southern California Edison (SCE) and Pacific Gas and Electric Company (PG&E), to determine the impact adopting an enhanced supplemental review process has had on reducing the need for full system impact studies, and, as noted below in Table 1, supplemental review has enabled a significant number of projects to avoid full study.[11] This process has been in effect in California for approximately two years.

Table 1: Interconnection at Higher Penetrations of Distributed Generation in California*

	SCE	**PG&E**
Fast Track** projects that failed initial screening	46%	82%
Of projects that failed, those that failed the 15% of peak load screen	85%	92%
Of those that failed the 15% screen, those that later passed supplemental review (100% of minimum load screen)	21%	44%

** These data only reflect wholesale projects, not net metered projects, which are evaluated separately.*

*** Fast Track is essentially equivalent to Level 2 review as described in this docket.*

As seen in Table 1, while many projects failed the 15% of peak load initial review screen due to high circuit penetration, PG&E, for example, was able to bypass the lengthy study process in 44% of cases by relying on the supplemental review process. This data provides a concrete illustration of the fact that a well applied supplemental review process can enable utilities to avoid requiring full study in many cases. This saves time and resources for utilities as well as for

[11] This data was collected from the quarterly interconnection reports filed by the California utilities, which can be found at: http://www.cpuc.ca.gov/PUC/energy/Procurement/LTPP/rule21.htm

project applicants. FERC has also incorporated this supplemental review process into its SGIP, FERC SGIP § 2.4, and other states, including Ohio, OAC 4901:1-22-07(E), have begun to adopt it, as well.

1. Utilization of a Minimum Load Standard Is a More Accurate Evaluation of System Risk and Utilities Are Capable of Adequately Determining Minimum Load in the Majority of Cases.

As mentioned above, when an expedited screening approach was first being developed in California's Rule 21, and later in the FERC SGIP, the 15% of peak load screen was chosen as a proxy for minimum load data.[12] Although minimum load—that is, the time of lowest usage on the relevant circuit—is a more appropriate metric for determining whether distributed generation penetration could pose system issues, at the time that those rules were developed, the tools for tracking minimum load were not as common as they are today. Since that time, there has been a significant increase in the amount of data that is collected on the distribution system, and the availability of such data continues to increase at a rapid pace with greater deployment of SCADA and other smart grid technologies. Thus, many utilities will now be capable of measuring minimum load data on their circuits. Where data does not exist, however, there are well-established methods for calculating or estimating minimum load using standard load profiles that are maintained by the utilities.[13]

For these reasons, it is appropriate to require the use of a penetration screen that relies on minimum load in supplemental review. In the proposed rule changes, the 15% of peak load

---

[12] *Interconnection Screens Report* at p. 2-3 www.nrel.gov/docs/fy12osti/54063.pdfwww.nrel.gov/docs/fy12osti/54063.pdfwww.nrel.gov/docs/fy12osti/54063.pdfwww.nrel.gov/docs/fy12osti/54063.pdf; *Updating Interconnection Procedures,* at p. 22-24.

[13] *Interconnection Screens Report* at p. 6-9.

screen would remain the technical screen for the initial Level 2 review and the determination of minimum load would only be required as circuits begin to see higher penetrations of distributed generation. In those cases, the proposed supplemental review process provides the utility time to obtain existing minimum load data, or to make the necessary calculation or estimation of minimum load. If the utility is unable to make a reliable estimation of minimum load, however, it may use the 15% of peak limitation as a default, as long as it offers a written explanation of why calculating or estimating minimum load calculation is not possible. 199 Iowa Admin. Code § 45.9(6)(d)(1).

The proposed screen also indicates that the minimum load measurement utilized should take into account the type of generator seeking to interconnect. For solar PV systems, the proposed screen utilizes the daytime minimum load, instead of the absolute minimum load, to reflect that PV systems only generate during the daytime.

Utilities in high-penetration states such as Hawaii, California and Massachusetts have already begun to use minimum load because of the recognized benefits doing so will have in accommodating PV systems in particular, that tend to operate at their highest output during periods where minimum load is higher.[14] In the nearer term, Iowa utilities that may not be experiencing high penetrations will not encounter the need to determine minimum load, and thus will have time to refine their process for making such an evaluation as penetration grows in their service territories. Iowa should not wait until there is a clogged study queue to consider making this improvement, however.

[14] For further explanation of the benefits of using a minimum load screen, particularly for screening PV systems, *see Interconnection Screens Report* at 6-9*; Updating Interconnection* at p. 22-24.

2. A Supplemental Review Screen Using 100% of Minimum Load Is Necessary to Keep the Interconnection Process Moving with Greater Amounts of Distributed Generation and Does not Pose Unreasonable Risks or System Constraints for Utilities.

As penetration of DG increases on a circuit, there is an increased potential for certain undesirable system conditions to arise. Those risks are relatively low where generation remains below minimum load since power is unlikely to feed back past the substation, however, and recent studies have shown that penetrations up to and even exceeding 100% of minimum load can be safely accommodated.[15] Indeed, recent analyses in Hawaii lead the utility there to voluntarily propose a limit of 250% of minimum load where certain additional inverter functions are adopted.[16] In addition, a full System Impact Study is not always necessary for each new generator as greater penetrations are reached. Rather, utilities operating in states where high penetration is becoming common have found that, with some additional time and screening, they are able to safely interconnect systems at high penetrations without conducting a full Level 4 review. Iowa can benefit from this experience and modify its procedures to prevent unnecessary study and accommodate more distributed generation in accordance with state and national policy

[15] *See* K. Burman, J. Keller, and B. Kroposki (National Renewable Energy Laboratory); P. Lilienthal, R. Slaughter, and J. Glassmire (Homer Energy, LLC), *Renewable Power Options for Electrical Generation on Kaua'i: Economics and Performance,* NREL/TP-7A40-52076, p. 34 (November 2011), *available at* www1.eere.energy.gov/office_eere/pdfs/52076.pdf*;* J. Bank, B. Mather, J. Keller, M. Coddington, National Renewable Energy Laboratory, *High Penetration Photovoltaic Case Study Report*, January 2013. http://www.nrel.gov/docs/fy13osti/54742.pdf; *see also* these studies at https://solarhighpen.energy.gov/resources/?type%5B%5D=73.

[16] The Hawaiian Electric Company (HECO) has proposed moving to 250% of minimum load after conducting an analysis with the National Renewable Energy Laboratories (NREL), Electric Power Research Institute (EPRI) and SolarCity that found that transient overvoltage can reasonably addressed through inverter settings. Hawaiian Electric Companies' Motion for Approval of NEM Program Modification and Establishment of Transitional Distributed Generation Program Tariff, Docket No. 2014-0192, at 10 and 16-20, Jan. 20, 2015; A. Nelson, et. al., *Inverter Load Rejection Over-Voltage Testing: SolarCity CRADA Task 1a Final Report*, NREL *available at* http://www.nrel.gov/docs/fy15osti/63510.pdf.

goals and before study queues become problematically clogged as the number of project applications increases. The consequences of failing to do so will be increased costs for ratepayers and generators and the administrative burden of growing study queues for utilities.

IPL recently sought a specific waiver to allow applicants to proceed with expedited review in three different cases where a proposed generator failed the 15% of peak load screen.[17] In each case the utility found that it could interconnect these generators safely without requiring full study despite the failure of the penetration screen. These cases provide a perfect illustration of the value of adopting the supplemental review approach to allow efficient interconnection of projects that can be accommodated safely without requiring full study even when they exceed the 15% of peak load screen. In addition, the supplemental review process would avoid the need for the utilities to seek individual approval from the Board each time this happens, which is likely to occur with increased frequency in the future as DG penetration increases in Iowa.

Sometimes questions arise regarding how utilities would handle a significant load drop off, either unintentional or intentional, if the 100% of minimum load standard were adopted. It is important to remember that this is a question that could be raised for projects that undergo full study as well. There will always be a chance that load, in large or small amounts, could drop off suddenly, for example in the case of emergencies, or in a more anticipated manner as the result of economic fluctuations or other circumstances that cause changes in load. Utilities have always adapted to such changes. Increasing the number of generators that are able to interconnect without study does not heighten this problem of load changes, nor would studying a greater number of projects reduce this risk.

[17] IUB Docket Nos. WRU-2014-0011-0150, WRU-2014-0014-0150, and WRU-2014-0016-0150.

The 100% of minimum load screen should also be considered in view of the numerous features of inverter based systems that already minimize the risks that may arise at higher penetrations. As the experiences from high penetration states such as California, Hawaii, and Massachusetts show, a 100% of minimum load screen incorporated into a three-screen supplemental review process is a safe and effective way to enable efficient interconnections and to help utilities manage their interconnection queues. In fact, in Massachusetts, the state Technical Standards Review Group spent months considering the appropriate approach to supplemental review, and ultimately determined that the 100% of minimum load screen was appropriate "as long as the voltage/power quality and safety/reliability screens are defined by and conducted at each utility's discretion." DPU 11-75-E Compliance Report Regarding Penetration Test Screening. In addition, as referenced above, Hawaii is already using 120% of minimum load and the utility has just proposed to move to 250% where certain additional inverter functions are incorporated. 100% of minimum load is a sufficiently conservative and an appropriate step for Iowa at this time.

3. The Two Additional Supplemental Review Screens, Addressing Safety, Reliability and Power Quality, Provide Utilities with the Ability to Address Unique Circumstances that Might Require Further Study.

In evaluating the proposed supplemental review process, it is important not to view the 100% of minimum load screen in a vacuum. The 100% of minimum load screen does not unduly restrict a utility's options for maintaining system safety and reliability. There are three main system risks that are often raised in the context of higher penetrations of DG: unintentional islanding, voltage control, and protection coordination.[18] The two additional proposed

[18] For a full explanation of the technical considerations *see Updating Interconnection Screens for PV System Integration.*

supplemental review screens are capable of identifying when further study is required to mitigate these impacts.

The two additional supplemental review screens provide utilities with ample flexibility to identify circumstances where high penetrations on a particular circuit may require further study. The "Voltage and Power Quality Screen," section 45.9(6)(d)(2), identifies the key technical standards for voltage regulation and requires compliance with those standards to proceed under Supplemental Review. In addition, the "Safety and Reliability Screen", section 45.9(6)(d)(3), was drafted to give utilities flexibility in identifying a full range of possible technical considerations. It identifies typical considerations that might be relevant to help applicants better understand the review process, but does not require that they be applied in every circumstance and also allows the utility the discretion to identify "other factors" in evaluating safety and reliability impacts. As long as the utility can articulate the technical concerns identified when providing the supplemental review results, it has the ability to require a system to proceed to full study. 199 Iowa Admin. Code § 45.9(7).

D. Removing the No-Construction Screen Can Help Avoid Unnecessary Studies and the Modifications Proposed Will Provide the Opportunity to Assess Which Upgrades Are Needed.

Sections Affected: 45.1, 45.7, 45.8, 45.9 45.10

The expedited review provisions in Levels 1, 2 and 3 of the existing Iowa rules include technical "screens" to determine whether a project can be interconnected safely and reliably on an expedited basis without having to undergo a lengthy and expensive study process under Level 4. The "no-construction screen" refers to the screen in Levels 1, 2 and 3, which does not allow projects to receive expedited review if they would require construction of any facilities by the utility to accommodate the project. 199 Iowa Admin. Code §§ 45.7(1)(e), 45.7(2)(e), 45.7(3)(a)(6), 45.7(3)(b)(5), 45.8(1)(e), 45.9(1)(j) (current procedures). This screen is intended to

provide utilities time to determine the extent of the construction needed on their own systems and a mechanism to estimate the cost of upgrades for which the applicant will be responsible. The effect of this screen, however, is that a project that passes all the other technical screens may be required to pay for and undergo the full Level 4 study process even if there are no safety, reliability or power quality concerns warranting further system impacts review. Occasionally generators will pass all the other technical screens, but require some sort of minor, low-cost upgrade, such as a service entrance or other interconnection facilities. Less typically, more significant upgrades can be required. This screen can be particularly problematic for DG systems that interconnect in locations where there is no onsite load because in most of these cases the utility will need to construct interconnection facilities to be able to electrically interconnect a proposed generator to its distribution system.

There are more efficient means to address the legitimate need to determine the cost and schedule for upgrades than sending an interconnection request that passes the other technical screens to the full study process, particularly where the required upgrades are minor. Instead of disallowing any construction to receive expedited treatment, the proposed amendments remove the no-construction screen and instead allow utilities additional time to provide a cost estimate along with an Interconnection Agreement when it determines that upgrades are necessary. 199 Iowa Admin. Code §§ 45.8(2)(e)(2), 45.9(3)(b), 45.10(2)(b).

Specifically, our proposal is to remove the no-construction screen from each level, specifically by deleting the following language: "No construction of facilities by an utility shall be required to accommodate the distributed generation facility"[19]; "The utility shall not be required to construct any facilities on its own system to accommodate the distributed generation

[19] 199 Iowa Admin. Code § 45.7(1)(e), 45.7(3)(a)(6), 45.7(3)(b)(5) (current procedures).

facility's interconnection"[20]; and "Except as permitted by additional review in subrule 45.9(6), the utility shall not be required to construct any facilities on its own system to accommodate the distributed generation facility's interconnection."[21] We propose instead provisions allowing the utility varying timeframes for responding to projects that pass all other expedited review screens, and require either no modifications (no construction), only minor system modifications, or more than minor system modifications.

For generators requiring no construction of facilities, the utility would provide the Interconnection Agreement within five business days after the notification of review results. For generators needing only interconnection facilities or Minor System Modifications, the utility is given 15 business days to develop the cost estimate and provide the Interconnection Agreement. The definition for "Minor System Modifications," 199 Iowa Admin. Code § 45.1, is based on IREC's *Model Interconnection Procedures* and was further informed by recent discussions in Illinois. The intent of the Minor System Modifications definition is that any modifications between the service tap and the meter be considered minor while changes on the utility's side of the service tap will have to be below four hours of work and $1,000 in materials to qualify as minor. This added definition is necessary to enable generators that have passed the Level 1-3 screens, but require some minor system upgrades to be interconnected, to proceed under expedited review rather than having to undergo the more rigorous Level 4 study process. Finally, for generators requiring more than Minor System Modifications, the utility is given 20

[20] 199 Iowa Admin. Code § 45.8(1)(e) (current procedures).

[21] 199 Iowa Admin. Code § 45.9(1)(j) (current procedures).

business days to develop the cost estimate and provide the Interconnection Agreement. Alternately, the utility can opt to conduct a Facilities Study[22] for these projects if necessary.

In all cases, after reviewing the estimate provided by the utility, the generator will have to agree to pay the costs associated with the upgrades identified in order to sign the Interconnection Agreement. The modified approach offers the utility additional time, depending on the degree of construction necessary, to ascertain the extent and cost of those upgrades, and apportion the cost to the applicant appropriately, rather than removing the projects from the expedited review process entirely. When this change has been considered in other states, there has been some confusion on this point, and we want to be completely clear to the Board and other interested stakeholders that we are not suggesting any changes to the underlying principle that projects should shoulder their project-specific interconnection costs.

The process we propose in place of the no-construction screen is similar to those seen in many state procedures, which do not require projects needing upgrades to proceed through study if they pass the expedited review screens, and is an emerging best practice nationally.[23] In addition, it is consistent with the treatment of interconnection requests that pass the FERC SGIP Supplemental Review Process. FERC SGIP § 2.4.5. FERC has also approved very similar

[22] The Level 4 review process employs a series of three studies. The Feasibility Study, a System Impacts Study, and a Facilities Study. A Facilities Study is the third study in the Level 4 review process that is used to determine the costs of necessary upgrades after the system impacts have been evaluated. *See* 199 Iowa Admin. Code § 45.11(7).

[23] *See, e.g.*, CA Rule 21 Tariff § F.2.a; Hawaiian Electric Company (HECO) Rule 14H, Appendix III (Interconnection Process Overview), § 1.c; IREC *Model Interconnection Procedures* §§ III.A.5, B.5, D.2; *Updating Interconnection Procedures* at 28-30.

processes for providing cost estimates in lieu of full study for FERC jurisdictional interconnections in Southern California Edison and Pacific Gas & Electric's territories.[24]

The timelines we propose for each case — no construction, Minor System Modifications, and more than Minor System Modifications — are reasonable and consistent with the timelines used in other states. For example, California allows 15 days for the utilities to provide a cost estimate for upgrades after the provision of the equivalent Level 1 or 2 screening results. CA Rule 21 Tariff § F.2.a. The timelines also generally comport with existing timelines within 199 Iowa Admin. Code Chapter 45. For example, the 5 business days specified for the utility to provide an Interconnection Agreement to a project requiring no construction is analogous to the timeline for the determination of whether or not an interconnection request is complete (7 or 10 business days, depending on Level). 199 Iowa Admin. Code §§ 45.8(2)(b), 45.9(2)(b), 45.10(1)(b), 45.11(2). Similarly, the 15-business-day timeline for projects requiring only Minor System Modifications is analogous to the timeline for the utility to run the technical screens for Level 1 and 2 review (15 and 20 business days, respectively). 199 Iowa Admin. Code §§ 45.8(2)(c), 45.9(2)(e). The proposed timeline for providing a cost estimate and Interconnection Agreement to a project requiring more than Minor System Modifications is similar to the current

[24] 135 FERC ¶ 61,093, at ¶¶ 76-80, 91 (April 29, 2011) ("SoCal Edison further states that the ability of a generating project to pass the first nine fast track screens . . . signifies that the proposed project will have an insignificant effect on the SoCal Edison distribution system, and that SoCal Edison can determine the interconnection requirements necessary to interconnect the project safely and reliably without additional studies. Therefore, according to SoCal Edison, denying fast track approval and, thereby forcing projects to undergo the study process simply because they require the construction of some interconnection facilities is an unnecessary burden, in terms of time and money, on interconnection applicants, and on the SoCal Edison study process. SoCal Edison states that unless fast track screen ten is revised, certain generating projects would be excluded from the fast track process simply because they require construction of some facilities to interconnect to the distribution system."); 135 FERC ¶ 61,094, at ¶¶ 10, 27-28 (April 29, 2011).

timeline for conducting facility study (15 days where no distribution upgrades are required and 35 days where they are). 199 Iowa Admin. Code 45:20 Appendix G. Since preparing a good faith cost estimate should not take quite as long as a full facilities study, the proposed timeframes are reasonable.

The utilities may have to develop a process for determining cost estimates in a timely manner, but developing this process could ultimately free up staff who would otherwise be required to conduct unnecessary system impact and facilities studies if the no-construction screen were retained. It is also reasonable to expect the utilities to be able to develop good-faith cost estimates more quickly than it would take them to complete a full Facilities Study. As a result, the interconnection review process will avoid unnecessary study and move more efficiently for all parties.

There are several key reasons to adopt these amendments. Removing the no-construction screen language would promote clarity within the procedures. Removing that screening language and replacing it with language describing the three timeframe options for the utilities, depending on what level of modifications a project requires (none, minor or non-minor) makes it clear that a technically sound project can require construction and still pass through expedited review, albeit on a slightly longer schedule. Our suggested approach would be consistent across all three levels, thereby minimizing potential confusion. There is no reason to differentiate projects receiving Levels 1, 2 or 3 review with respect to addressing system modifications that may be necessary to accommodate the project. In every case, the existing process ensures that utilities can screen all projects for any safety and reliability issues via the technical screens and study projects that pose any such issues (i.e., that fail the screens), and the proposed modifications ensure that utilities

have adequate time to ascertain and allocate costs for any upgrades needed for projects that pass the screens.

E. Refining the Level 2 Size Limit by Using a Table Incorporating Certain System Characteristics Will Enable a Greater Number of Small Generators to Utilize the Benefits of the Process without Sacrificing System Safety and Reliability.

Sections Affected: 45.7(2)

Similar to the proposal to increase the Level 1 size eligibility limit discussed above, the proposed rules refine and ultimately expand Level 2 eligibility to take into account the increasing demand for access to expedited interconnection procedures for small generators in Iowa. 199 Iowa Admin. Code § 45.7(2). It recognizes that full Level 4 study of higher volumes of interconnection applications is neither necessary nor realistic and that the cost savings in this approach can be extended to more projects within the right technical parameters. As recognized by FERC, the proposed size table approach is a constructive method for achieving these goals and also balances the need for system safety and realistic customer expectations.[25]

Level 2 review was designed to enable utilities to efficiently review a proposed project by applying ten screens that are designed to quickly identify reliability or safety issues. Currently, in order to qualify for Level 2, a proposed generator must be sized below 2 MVA, regardless of generator type or location on the utility's system. It is important to recognize that the purpose of limiting Level 2 eligibility should be to filter out projects that would be highly unlikely to pass the Level 2 screens and more efficiently direct them immediately towards the study process. The technical screens are robust enough to identify projects needing study and the eligibility limits do not need to duplicate or go beyond the screens.

[25] FERC Order 792 at p. 51-65.

The original FERC SGIP did not elaborate on what specific safety and reliability issues projects exceeding the 2 MW[26] eligibility limit were of particular concern, or why 2 MW was the appropriate limit.[27] While the size of a generator is indeed a critical indicator of whether a project is likely to require full study, and possibly upgrades, there are other technical factors that are also important. Distribution line voltage at the point of interconnection is one of the key factors in determining whether a project of a certain size can interconnect without full study.[28] Generally speaking, larger lines can accommodate larger systems, and most utilities operate lines of various voltages within their territory. Considering this variation, a fixed 2 MVA size limit for Level 2 may be unduly conservative in some cases, and not conservative enough in others. To address this, FERC recently modified the SGIP size limit for the equivalent process so that it is more targeted to the voltage on the line where the generator seeks to interconnect.[29] FERC also took into account that larger generators may pose a lower likelihood of causing impacts when

[26] We note that the FERC SGIP and most other states use MW and kW size limits. Iowa's current interconnection rules use MVA and kVA for its size limits. We have proposed our size limits in MVA and kVA to match current Iowa rules, but we would recommend changing to MW and kW in most places within the rules to be consistent with best practices.

[27] *Standardization of Small Generator Interconnection Agreements and Procedures*, Order No. 2006, FERC Stats. & Regs. ¶ 31,180 at p. 51 (¶172).

[28] At the July 17, 2012 Technical Conference hosted by FERC to discuss changes to SGIP, a number of experienced utility distribution engineers identified line voltage as an important factor in determining whether projects are likely to pass the Fast Track Review screens. *Review of Small Generator Interconnection Agreements and Procedures Technical Conference*, Docket No. AD12-17-000, Transcript of Technical Conference ("Transcript"); Carranza at p. 35 ("The distribution system voltage also plays a big part in the amount of penetration that could be afforded in a circuit. The higher the voltage, the stiffer the circuit, potentially allowing penetration to go up. Not all of us have the same voltage on our distribution system across our systems."); Roughan at p. 105; *see also* NREL, *Updating Interconnection Procedures*, February 2011, at p. 19-21.

[29] FERC Order 792 at pp. 51-65.

located close to the substation and on main feeder lines.[30] Together these changes resulted in a variable size limit for the FERC Fast Track process (similar to Level 2 in Iowa) that is lower than the original 2 MVA in some cases and higher in others. A similar approach is proposed here to allow for more technically valid method of sorting projects into the study process.

During the process of evaluating the proposed changes to the FERC SGIP, a stakeholder working group consisting of the Edison Electric Institute ("EEI"), the National Rural Electric Cooperative Association ("NRECA"), and the American Public Power Association ("APPA") and NREL, amongst others, collectively agreed upon the technical limits identified in the table adopted by FERC, including a limit that allowed systems of up to 3 MW to interconnect to lines in the >5 kV to <15 kV range. FERC Order 792 at ¶ 13-14, 93-94, 96-99 and 102-103. The size limits for different levels adopted by FERC were deemed acceptable by a wide range of the nation's utilities. In addition, it is important to recognize that if an individual project is too large, the Level 2 technical screens will prevent the project from interconnecting without going through the Level 4 studies.[31]

The table adopted by FERC and, subsequently Ohio, contains three columns for inverter-based systems. FERC SGIP § 2.1; OAC 4901:1-22-07(A). The first identifies the line voltage, the second provides the eligibility limit, based upon the line voltage, no matter where the generator is located on the circuit. The table provides for a smaller size limits for projects connecting to smaller lines (e.g., ≤ 500 kW when connecting to lines ≤ 5 kV) and larger size

[30] *Id.*

[31] *See, e.g.* FERC Order 792 at ¶ 109 ("The Commission acknowledges NYISO & NYTO's comment that certain facilities in New York may require a detailed study to ensure safety and reliability. However, the Fast Track Process itself will identify such facilities so they need not be eliminated from Fast Track eligibility.).

limits for projects connecting to larger lines (e.g., ≤ 5 MW when connecting to lines from 30 kV to 69 kV). The third column allows for greater size eligibility if the system is also located on a main line and within 2.5 miles of the substation.

The proposed table shows that the Level 2 process would only be available to projects connecting to lines at or below 69 kilovolts (kV). All projects interconnecting to lines greater than 69 kV would be ineligible for Level 2 review. Although not all such projects require study, in many cases this will be true, and the costs of interconnecting to those larger lines are likely significant enough that those generators may benefit from the more thorough estimate developed through the study process. The proposed approach also recognizes the important technical differences between the operation of inverter-based systems and synchronous, induction machines. The proposed table therefore applies only to inverter-based systems. The original 2-MW limit remains in place for synchronous, induction machines.

F. Increasing the Level 1 Size Limit to 25 kVA Allows More Projects to Benefit from the More Efficient Level 1 Process While Still Ensuring System Safety and Reliability.

Sections Affected: Section 45.7(1)(b)

The Level 1 review process is the most basic of the four levels of review and is intended for inverter-based generators, such as solar PV generators, which are unlikely to trigger adverse system impacts or upgrades. Such generators require inverters to convert the direct-current (DC) power they produce to alternating-current (AC) power for use by the customer or utility. Inverter-based equipment has a lower likelihood of causing such impacts because it can quickly disconnect when a disturbance occurs. Nonetheless, Level 1 provides for rigorous technical screens similar to the Level 2 screens, but provides the additional benefit of faster timeframes and lower costs and the ability to submit a relatively short, combined application and interconnection agreement. This process efficiency benefits both customers and utilities.

The current size limitation for Level 1 review is 10 kilovolt-amperes (kVA)[32]. 199 Iowa Admin. Code § 45.7(1)(b). As the number and size of small inverter based systems grows there has been a recognition that the efficiencies in the Level 1 process can be extended to larger projects without creating additional system impacts. In order to allow more small, inverter-based systems, including small commercial systems, to take advantage of the benefits of Level 1 review, we propose increasing the size eligibility limit to 25 kVA. The suggested rules contain no other changes to the technical screens aside from the no-construction screen modifications discussed above. Therefore these screens continue to ensure that generators attempting to interconnect under Level 1 do not cause any safety, reliability or power quality impacts.

Several other states, including Ohio, Oregon, and Massachusetts, have already increased their Level 1 review size limit to 25 kW. OAC 4901:1-22-06(A)(2); OAR 860-082-025(2)(a); MA Interconnection Standards § 3.1 (at locations receiving three-phase service from a three-phase transformer configuration). In addition, both NREL and IREC have identified it as a best practice. NREL *Updating Interconnection Procedures* at 15-16; IREC *Model Interconnection Procedures* § III.A.2.a.

G. The Incorporation of the Proposed Requirements Related to Electronic Submittal and the Utilities' Websites Will Improve the Interconnection Process for Both Customers and Utilities.

Affected sections: 45.4(3), 45.4(4), 45.5(11).

For both larger and smaller generators, the proposed rule includes improvements to the procedures to encourage easier submittal of interconnection applications for customers, easier review by utilities, and the more transparent provision of interconnection-related information.

[32] We note that the FERC SGIP and most other states use MW and kW size limits. Iowa's current interconnection rules use MVA and kVA for its size limits. We have proposed our size limits in MVA and kVA to match current Iowa rules, but we would recommend changing to MW and kW in most places within the rules to be consistent with best practices.

199 Iowa Admin. Code §§ 45.4(3), 45.4(4), 45.5(11). These recommended changes come from the IREC Model Rules and include:

- Allowing interconnection applications to be submitted through a utility's web site.
- The utilities' provision of a page on their web sites dedicated to interconnection procedures, to include at least the procedures and their attachments in an electronically searchable format, the interconnection application forms in a format that allows for electronic entry of data, the interconnection agreements, and the point of contact for submission of interconnection requests.
- Allowing electronic signatures to be used for interconnection applications.

These improvements should promote a more streamlined, efficient process for both customers and utilities.

H. Allowing an Interconnection Customer Whose Application Is Denied Under Level 1 Review to Retain Review Order Position for 15 Days Promotes Fairness and Ease of Administration.

Affected Sections: 45.8(2)(f)

The proposed rule includes a provision within the Level 1 review process that allows an applicant who fails the review screens to keep the review order position so long as the applicant makes a new interconnection request under the study process within 15 days. 199 Iowa Admin. Code § 45.8(2)(f). This proposed provision is consistent with existing provisions within Levels 2 and 3. 199 Iowa Admin. Code §§ 45.9(7), 45.10(1)(e)(2), 45.10(5). All of these provisions promote fairness to customers by allowing them to address any utility concerns without losing their place in the review order, in addition to improving administration for utilities.

I. Explicitly Including Storage in the Definition of Distributed Generation Facility Makes the Rules More Transparent and Clear.

Affected Sections: 45.1, 45.17 Appendix D

The proposed rule includes an addition to the definition of distributed generation facility to include energy storage when that electricity will be later injected into the grid. 199 Iowa Admin Code § 45.1 and 45.17 Appendix D. The update to the FERC SGIP included a modification of the definition of small generating facility to add "storage for later injection" to the definition. FERC SGIP Attachment 1 Glossary of Terms. While FERC believed that the original definition of small generating facility was broad enough to include storage devices, FERC added storage to definition to improve transparency and to ensure that storage devices are interconnected in a just and reasonable and not unduly discriminatory manner. FERC Order 792 at ¶ 227-28. We think that the Iowa interconnection rules should cover those storage facilities capable of injecting electricity into the grid. The addition of storage in the definition of distributed generation facility will improve transparency and increase clarity in the Iowa rules by explicitly accounting for storage facilities.

J. Updating Reporting Requirements Will Make the Interconnection Process More Transparent and Help Identify Future Policy Improvements.

Affected Sections: 45.13

The proposed rules include changes to the current reporting requirements to account for the addition of pre-application reports and supplemental review to the rules. In addition, the proposed rules include several additional requirements that will help better track the interconnection process and the resulting distributed generation. These changes to the reporting requirements will significantly improve transparency of the interconnection process and the understanding of distributed generation in Iowa. These changes will provide consistent information across the utilities about the interconnection process, the time it takes to process

applications, screens that are failed, and the amount of distributed generation capacity. This additional information would not require significant additional effort from the utilities. IPL currently provides the reporting information in table format, and the additional information would only require a few additional columns. *See e.g.* IPL, Filing of Interconnection Request Annual Report (filed May 01, 2014)[33]. IPL has also previously provided much of the summary information that we suggest in past reports. The transparency and consistency of the additional information would help us understand if the interconnection rules are working effectively, would help inform the need for future policy changes and would be consistent with and a natural addition to the Board's information gathering efforts in this Notice of Inquiry.

DATE: February 16, 2015

Respectfully submitted,

/s/ Joshua T. Mandelbaum
Joshua T. Mandelbaum (AT0010151)
Bradley D. Klein
Environmental Law & Policy Center
505 5th Avenue, Suite 333
Des Moines, Iowa 50309
P: (515) 244-0253
jmandelbaum@elpc.org

/s/ Nathaniel Baer
Nathaniel Baer
Iowa Environmental Council
521 East Locust, Suite 220
Des Moines, Iowa 50309
P: (515) 244-1194 x206
baer@iaenvironment.org

/s/ Sky Stanfield
Sky Stanfield
Interstate Renewable Energy Council, Inc.
Keyes, Fox & Wiedman LLP
436 14th Street, Suite 1305
Oakland, CA 94612
Phone: 510-314-8204
sstanfield@kflaw.com

[33] *Available at* https://efs.iowa.gov/cs/groups/external/documents/docket/mdaw/mji3/~edisp/227276.pdf.

CHAPTER 45
ELECTRIC INTERCONNECTION OF DISTRIBUTED GENERATION FACILITIES

199—45.1(476) Definitions. Terms defined in the Public Utility Regulatory Policies Act of 1978 (PURPA), 16 U.S.C. 2601 et seq., shall have the same meaning for purposes of these rules as they have under PURPA, unless further defined in this chapter.

"Adverse system impact" means a negative effect that compromises the safety or reliability of the electric distribution system or materially affects the quality of electric service provided by the utility to other customers.

"AEP facility" means an AEP facility, as defined in 199—Chapter 15, used by an interconnection customer to generate electricity that operates in parallel with the electric distribution system. An AEP facility typically includes an electric generator and the interconnection equipment required to interconnect safely with the electric distribution system or local electric power system.

"Affected system" means an electric system not owned or operated by the utility reviewing the interconnection request that could suffer an adverse system impact from the proposed interconnection.

"Applicant" means a person (or entity) who has submitted an interconnection request to interconnect a distributed generation facility to a utility's electric distribution system.

"Area network" means a type of electric distribution system served by multiple transformers interconnected in an electrical network circuit, generally used in large, densely populated metropolitan areas.

"Board" means the Iowa utilities board.

"Business day" means Monday through Friday, excluding state and federal holidays.

"Calendar day" means any day, including Saturdays, Sundays, and state and federal holidays.

"Certificate of completion" means the Standard Certificate of Completion in Appendix B (199—45.15(476)) that contains information about the interconnection equipment to be used, its installation, and local inspections.

"Commissioning test" means a test applied to a distributed generation facility by the applicant after construction is completed to verify that the facility does not create adverse system impacts and performs to the submitted specifications. At a minimum, the scope of the commissioning tests performed shall include the commissioning test specified in Institute of Electrical and Electronics Engineers, Inc. (IEEE), Standard 1547, Section 5.4 "Commissioning tests."

"Distributed generation facility" means a qualifying facility, ~~or~~ an AEP facility, and/or the equipment used by an interconnection customer to store electricity for later injection into the electric distribution system.

"Distribution upgrade" means a required addition or modification to the electric distribution system to accommodate the interconnection of the distributed generation facility. Distribution upgrades do not include interconnection facilities.

"Draw-out type circuit breaker" means a switching device capable of making, carrying and breaking currents under normal and abnormal circuit conditions such as those of a short circuit. A draw-out type circuit breaker can be physically removed from its enclosure creating a visible break in the circuit. The draw-out type circuit breaker shall be capable of being locked in the open, drawn-out position.

"Electric distribution system" means the facilities and equipment owned and operated by the utility and used to transmit electricity to ultimate usage points such as homes and industries from interchanges with higher voltage transmission networks that transport bulk power over longer distances. The voltage levels at which electric distribution systems operate differ among areas but generally operate at less than 100 kilovolts of electricity. "Electric distribution system" has the same meaning as the term "Area EPS," as defined in Section 3.1.6.1 of IEEE Standard 1547.

"Fault current" is the electrical current that flows through a circuit during an electrical fault condition. A fault condition occurs when one or more electrical conductors contact ground or each other. Types of faults include phase to ground, double-phase to ground, three-phase to ground, phase-to-phase, and three-phase. Often, a fault current is several times larger in magnitude than the current that normally flows through a circuit.

"IEEE Standard 1547" is the Institute of Electrical and Electronics Engineers, Inc., 3 Park Avenue, New York, NY 10016-5997, Standard 1547 (2003) "Standard for Interconnecting Distributed Resources with

Electric Power Systems."

"*IEEE Standard 1547.1"* is the IEEE Standard 1547.1 (2005) "Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems."

"*Interconnection customer"* means a person or entity that interconnects a distributed generation facility to an electric distribution system.

"*Interconnection equipment"* means a group of components or an integrated system owned and operated by the interconnection customer that connects an electric generator with a local electric power system, as that term is defined in Section 3.1.6.2 of IEEE Standard 1547, or with the electric distribution system. Interconnection equipment is all interface equipment including switchgear, protective devices, inverters, or other interface devices. Interconnection equipment may be installed as part of an integrated equipment package that includes a generator or other electric source.

"*Interconnection facilities"* means facilities and equipment required by the utility to accommodate the interconnection of a distributed generation facility. Collectively, interconnection facilities include all facilities and equipment between the distributed generation facility's interconnection equipment and the point of interconnection, including any modifications, additions, or upgrades necessary to physically and electrically interconnect the distributed generation facility to the electric distribution system. Interconnection facilities are sole-use facilities and do not include distribution upgrades.

"*Interconnection request"* means an applicant's request, in a form approved by the board, for interconnection of a new distributed generation facility or to change the capacity or other operating characteristics of an existing distributed generation facility already interconnected with the electric distribution system.

"*Interconnection study"* is any study described in rule 199—45.11(476).

"*Lab-certified"* means a designation that the interconnection equipment meets the requirements set forth in rule 199—45.6(476).

"*Line section"* is that portion of an electric distribution system connected to an interconnection customer's site, bounded by automatic sectionalizing devices or the end of the distribution line, or both.

"*Local electric power system"* means facilities that deliver electric power to a load that is contained entirely within a single premises or group of premises. "Local electric power system" has the same meaning as that term as defined in Section 3.1.6.2 of IEEE Standard 1547.

"*Minor system modifications*" means modifications to a utility's electric distribution system located between the service tap on the distribution circuit and the meter serving the interconnection customer, or other minor system changes that the utility estimates will entail less than four hours of work and $1000 in materials. Such modifications may include, for example, changing the fuse in a fuse holder cut-out or changing the settings in a circuit recloser.

"*Nameplate capacity"* is the maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer and usually indicated on a nameplate physically attached to the power production equipment.

"*Nationally recognized testing laboratory"* or "*NRTL"* means a qualified private organization that meets the requirements of the Occupational Safety and Health Administration's (OSHA) regulations. See 29 CFR 1910.7 as amended through April 9, 2014. NRTLs perform independent safety testing and product certification. Each NRTL shall meet the requirements as set forth by OSHA in its NRTL program.

"*Parallel operation"* or "*parallel"* means a distributed generation facility that is connected electrically to the electric distribution system for longer than 100 milliseconds.

"*Point of interconnection"* has the same meaning as the term "point of common coupling" as defined in Section 3.1.13 of IEEE Standard 1547.

"*Primary line"* means an electric distribution system line operating at greater than 600 volts.

"*Qualifying facility"* means a cogeneration facility or a small power production facility that is a qualifying facility under 18 CFR Part 292, Subpart B, used by an interconnection customer to generate electricity that operates in parallel with the electric distribution system. A qualifying facility typically includes an electric generator and the interconnection equipment required to interconnect safely with the electric distribution system or local electric power system.

"Radial distribution circuit" means a circuit configuration in which independent feeders branch out radially from a common source of supply.

"Review order position" means, for each distribution circuit or line section, the order of a completed interconnection request relative to all other pending completed interconnection requests on that distribution circuit or line section. The review order position is established by the date that the utility receives the completed interconnection request.

"Scoping meeting" means a meeting between representatives of the applicant and utility conducted for the purpose of discussing interconnection issues and exchanging relevant information.

"Secondary line" means an electric distribution system line, or service line, operating at 600 volts or less.

"Shared transformer" means a transformer that supplies secondary voltage to more than one customer.

"Spot network" means a type of electric distribution system that uses two or more inter-tied transformers to supply an electrical network circuit. A spot network is generally used to supply power to a single customer or a small group of customers. "Spot network" has the same meaning as the term "spot network" as defined in Section 4.1.4 of IEEE Standard 1547.

"Standard distributed generation interconnection agreement" means the Standard Distributed Generation Interconnection Agreements in Appendix A (199—45.14(476)) and Appendix D (199—45.17(476)) applicable to interconnection requests for distributed generation facilities.

"UL Standard 1741" means the standard titled "Inverters, Converters, and Controllers for Use in Independent Power Systems," January 28, 2010, edition, Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

"Utility" means an electric utility that is subject to rate regulation by the Iowa utilities board.

"Witness test" for lab-certified equipment means a verification either by an on-site observation or review of documents that the interconnection installation evaluation required by IEEE Standard 1547, Section 5.3 and the commissioning test required by IEEE Standard 1547, Section 5.4 have been adequately performed. For interconnection equipment that has not been lab-certified, the witness test shall also include verification of the on-site design tests as required by IEEE Standard 1547, Section 5.1 and verification of production tests required by IEEE Standard 1547, Section 5.2. All verified tests are to be performed in accordance with the test procedures specified by IEEE Standard 1547.1.

199—45.2(476) Scope.

45.2(1) This chapter applies to utilities, and distributed generation facilities seeking to operate in parallel with utilities, provided the facilities are not subject to the interconnection requirements of the Federal Energy Regulatory Commission (FERC), the ~~Midwest~~ Midcontinent Independent Transmission System Operator, Inc. (MISO), or the Mid-Continent Area Power Pool (MAPP).

~~**45.2(2)** If the nameplate capacity of the facility is greater than 10 MVA, the interconnection customer and the utility shall start with the Level 4 review process and agreements under rules 199—45.11(476), 199—45.17(476), 199—45.18(476), 199—45.19(476), and 199—45.20(476), and modify the process and agreements as needed by mutual agreement. In addition, the interconnection customer and the utility shall start with the technical standards under rule 199—45.3(476) and modify the standards as needed by mutual agreement. If the interconnection customer and the utility cannot reach mutual agreement, the interconnection customer may seek resolution through the rule 199—45.12(476) dispute process.~~

Comment [A1]: We recommend moving this language to a new section 45.7(5). The location of this section here is an odd place to deal with Level 4 review and makes the rules more difficult to follow.

199—45.3(476) Technical standards. The technical standard to be used in evaluating interconnection requests governed by this chapter is IEEE Standard 1547, unless otherwise noted.

45.3(1) *Acceptable standards.* The interconnection of distributed generation facilities and associated interconnection equipment to an electric utility system shall meet the applicable provisions of the publications listed below:

a. Standard for Interconnecting Distributed Resources with Electric Power Systems, IEEE Standard 1547. For guidance in applying IEEE Standard 1547, the utility may refer to:

(1) IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems—IEEE Standard 519-1992; and

(2) IEC/TR3 61000-3-7 Assessment of Emission Limits for Fluctuating Loads in MV and HV Power

Systems.

b. Iowa Electrical Safety Code, as defined in 199—Chapter 25.

c. National Electrical Code, ANSI/NFPA 70-2008.

45.3(2) *Interconnection facilities.*

a. The utility may require the distributed generation facility to have the capability to be isolated from the utility, either by means of a lockable, visible-break isolation device accessible by the utility, or by means of a lockable isolation device whose status is indicated and is accessible by the utility. If an isolation device is required by the utility, the device shall be installed, owned, and maintained by the owner of the distributed generation facility and located electrically between the distributed generation facility and the point of interconnection. A draw-out type of circuit breaker accessible to the utility with a provision for padlocking at the drawn-out position satisfies the requirement for an isolation device.

b. The interconnection shall include overcurrent devices on the facility to automatically disconnect the facility at all currents that exceed the full-load current rating of the facility.

c. Distributed generation facilities with a design capacity of 100 kVA or less must be equipped with automatic disconnection upon loss of electric utility-supplied voltage.

d. Those facilities that produce a terminal voltage prior to the closure of the interconnection shall be provided with synchronism-check devices to prevent closure of the interconnection under conditions other than a reasonable degree of synchronization between the voltages on each side of the interconnection switch.

45.3(3) *Access.* If an isolation device is required by the utility, both the operator of the distributed generation facility and the utility shall have access to the isolation device at all times. An interconnection customer may elect to provide the utility with access to an isolation device that is contained in a building or area that may be unoccupied and locked or not otherwise accessible to the utility by installing a lockbox provided by the utility that allows ready access to the isolation device. The lockbox shall be in a location determined by the utility to be accessible by the utility. The interconnection customer shall permit the utility to affix a placard in a location of the utility's choosing that provides instructions to utility operating personnel for accessing the isolation device. If the utility needs to isolate the distribution generation facility, the utility shall not be held liable for any damages resulting from the actions necessary to isolate the generation facility.

45.3(4) *Inspections.* The operator of the distributed generation facility shall adopt a program of inspection of the generator and its appurtenances and the interconnection facilities in order to determine necessity for replacement and repair. Representatives of the utility shall have access at all reasonable hours to the interconnection equipment specified in subrule 45.3(2) for inspection and testing.

45.3(5) *Emergency disconnection.* In the event that an electric utility or its customers experience problems of a type that could be caused by the presence of alternating currents or voltages with a frequency higher than 60 Hertz, the utility shall be permitted to open and lock the interconnection switch pending a complete investigation of the problem. Where the utility believes the condition creates a hazard to the public or to property, the disconnection may be made without prior notice. However, the utility shall notify the operator of the distributed generation facility by written notice and, where possible, verbal notice as soon as practicable after the disconnections.

45.XX Pre-Application Report

45.XX(1) In addition to the information described in section 45.5(4) which may be provided in response to an informal request, a potential applicant may submit a formal written request form along with a non-refundable fee of $300 for a pre-application report on a proposed project at a specific site. The utility shall provide the pre-application data described in this section to the potential applicant within 10 business days of receipt of the completed request form and payment of the $300 fee. The pre-application report produced by the utility is non-binding, does not confer any rights, and the potential applicant must still successfully apply to interconnect to the utility's system. The written pre-application report request form shall include the information in sections (a) through (h) below to clearly and sufficiently identify the location of the proposed point of interconnection.

(a) Project contact information, including name, address, phone number, and email address.
(b) Project location (street address with nearby cross streets and town).
(c) Meter number, pole number, or other equivalent information identifying proposed Point of Interconnection, if available.
(d) Generator Type (e.g., solar, wind, combined heat and power, etc.)
(e) Size (alternating current kW)
(f) Single or three phase generator configuration
(g) Stand-alone generator (no onsite load, not including station service – Yes or No?)
(h) Is new service requested? Yes or No? If there is existing service, include the customer account number, site minimum and maximum current or proposed electric loads in kW (if available) and specify if the load is expected to change.

45.XX(2) Using the information provided in the pre-application report request form in subsection (1) of this section, the utility will identify the substation/area bus, bank or circuit likely to serve the proposed point of interconnection. This selection by the utility does not necessarily indicate, after application of the relevant review process that this would be the circuit the project ultimately connects to. The potential applicant must request additional pre-application reports if information about multiple points of interconnection is requested. Subject to subsection (3) of this section, the pre-application report will include the following information:

(a) Total capacity (in MW) of substation/area bus, bank or circuit based on normal or operating ratings likely to serve the proposed Point of Interconnection.

(b) Existing aggregate generation capacity (in MW) interconnected to a substation/area bus, bank or circuit (i.e., amount of generation online) likely to serve the proposed point of interconnection.

(c) Aggregate queued generation capacity (in MW) for a substation/area bus, bank or circuit (i.e., amount of generation in the queue) likely to serve the proposed point of interconnection.

(d) Available capacity (in MW) of substation/area bus or bank and circuit likely to serve the proposed Point of Interconnection (i.e., 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 point of interconnection.

(g) Approximate circuit distance between the proposed point of interconnection and the substation.

(h) Relevant line section(s) actual or estimated peak load and minimum load data, including daytime minimum load as described in section 45.9(f) below and absolute minimum load, when available.

(i) Number and rating of protective devices and number and type (standard, bi-directional) of voltage regulating devices between the proposed point of

interconnection and the substation/area. Identify whether the substation has a load tap changer.

(j) Number of phases available at the proposed point of interconnection. If a single phase, distance from the three-phase circuit.

(k) Limiting conductor ratings from the proposed point of interconnection to the distribution substation.

(l) Whether the point of interconnection is located on a spot network, grid network, or radial supply.

(m) Based on the proposed point of interconnection, existing or known constraints such as, but not limited to, electrical dependencies at that location, short circuit interrupting capacity issues, power quality or stability issues on the circuit, capacity constraints, or secondary networks.

45.XX(3) The pre-application report need only include existing data. A pre-application report request does not obligate the utility to conduct a study or other analysis of the proposed generator in the event that data is not readily available. If the utility cannot complete all or some of a pre-application report due to lack of available data, the utility shall provide the interconnection customer with a pre-application report that includes the data that is available. The provision of information on "available capacity" pursuant to subsection (2)(d) of this section does not imply that an interconnection up to this level may be completed without impacts since there are many variables studied as part of the interconnection review process, and data provided in the pre-application report may become outdated at the time of the submission of the complete Application. Notwithstanding any of the provisions of this section, the utility shall, in good faith, include data in the pre-application report that represents the best available information at the time of reporting.

199—45.4(476) Interconnection requests.

45.4(1) Applicants seeking to interconnect a distributed generation facility shall submit an interconnection request to the utility that owns the electric distribution system to which interconnection is sought. Applicants shall use interconnection request forms approved by the board.

45.4(2) Utilities shall specify the fee by level that the applicant shall remit to process the interconnection request. The fee shall be specified in the interconnection request forms. Utilities may charge a fee by level that applicants must remit in order to process an interconnection request. The utilities shall not charge more than the fees specified in the Standard Application Forms in Appendix A (199—45.14(476)) and Appendix C (199—45.16(476)).

45.4(3) ~~Interconnection requests may be submitted electronically, if agreed to by the parties.~~Each utility shall allow interconnection requests to be submitted through the utility's website.

45.4(4) Each utility shall allow electronic signatures to be used for interconnection requests.

199—45.5(476) General requirements.

45.5(1) When an interconnection request for a distributed generation facility includes multiple energy production devices at a site for which the applicant seeks a single point of interconnection, the interconnection request shall be evaluated on the basis of the aggregate nameplate capacity of the multiple devices.

45.5(2) When an interconnection request is for an increase in capacity for an existing distributed generation facility, the interconnection request shall be evaluated on the basis of the new total nameplate capacity of the distributed generation facility.

45.5(3) The utility shall designate a point of contact and provide contact information on the utility's Web site, as described in 45.5(11). The point of contact shall be able to direct applicant questions concerning

interconnection request submissions and the interconnection request process to knowledgeable individuals within the utility.

45.5(4) The information that the utility makes available to potential applicants can include previously existing utility studies that help applicants understand whether it is feasible to interconnect a distributed generation facility at a particular point on the utility's electric distribution system. However, the utility can refuse to provide the information to the extent that providing it violates security requirements or confidentiality agreements, or is contrary to state or federal law. In appropriate circumstances, the utility may require a confidentiality agreement prior to release of this information.

45.5(5) When an interconnection request is deemed complete by the utility, any modification that is not agreed to by the utility requires submission of a new interconnection request.

45.5(6) When an applicant is not currently a customer of the utility at the proposed site, the applicant shall provide, upon utility request, proof of the applicant's legal right to control the site~~, evidenced by the applicant's name on a property tax bill, deed, lease agreement or other legally binding contract~~. Site control may be demonstrated through:

a. Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the distributed generation facility;

b. An option to purchase or acquire a leasehold site for such purpose; or

c. An exclusivity or other business relationship between the Interconnection Customer and the entity having the right to sell, lease, or grant the Interconnection Customer the right to possess or occupy a site for such purpose.

45.5(7) To minimize the cost to interconnect multiple distributed generation facilities, the utility or the applicant may propose a single point of interconnection for multiple distributed generation facilities located at an interconnection customer site that is on contiguous property. If the applicant rejects the utility's proposal for a single point of interconnection, the applicant shall pay any additional cost to provide a separate point of interconnection for each distributed generation facility. If the utility, without written technical explanation, rejects the customer's proposal for a single point of interconnection, the utility shall pay any additional cost to provide separate points of interconnection for each distributed generation facility.

45.5(8) Any metering required for a distributed generation interconnection shall be installed, operated, and maintained in accordance with the utility's metering rules filed with the board under 199—subrule 20.2(5), and inspection and testing practices adopted under rule 199—20.6(476). Any such metering requirements shall be identified in the Standard Distributed Generation Interconnection Agreement executed between the interconnection customer and the utility.

45.5(9) Utility requirements for monitoring and control of distributed generation facilities are permitted only when the nameplate capacity rating is greater than 1 MVA. Monitoring and control requirements shall be reasonable, consistent with the utility's published requirements, and shall be clearly identified in the interconnection agreement between the interconnection customer and the utility. Transfer trip shall not be considered utility monitoring and control when required and installed to protect the electric distribution system or an affected system against adverse system impacts.

45.5(10) The utility may require a witness test after the distributed generation facility is constructed. The applicant shall provide the utility with at least 15 business days' notice of the planned commissioning test for the distributed generation facility. The applicant and utility shall schedule the witness test at a mutually agreeable time. If the witness test results are not acceptable to the utility, the applicant shall be granted 30 business days to address and resolve any deficiencies. The time period for addressing and resolving any deficiencies may be extended upon the mutual agreement of the utility and the applicant prior to the end of the 30 business days. An initial request for extension shall not be denied by the utility; subsequent requests may be denied. If the applicant fails to address and resolve the deficiencies to the utility's satisfaction, the interconnection request shall be deemed withdrawn. Even if the utility or an entity approved by the utility does not witness a commissioning test, the applicant remains obligated to satisfy the interconnection test specifications and requirements set forth in IEEE Standard 1547, Section 5. The applicant shall, if requested by the utility, provide a copy of all documentation in its possession regarding testing conducted pursuant to IEEE Standard 1547.1.

45.5(11) Each utility shall dedicate a page on their website to interconnection procedures. That page shall be able to be reached by no more than three logical, prominent hyperlinks from the utility's home page. The relevant website page shall include:

a) The utility's interconnection procedures and attachments in an electronically searchable format,

b) The utility's interconnection Application forms in a format that allows for electronic entry of data,

c) The utility's interconnection agreements, and

d) The utility's point of contact designated pursuant to 45.5(3), including email and phone number.

199—45.6(476) Lab-certified equipment. An interconnection request may be eligible for expedited interconnection review under rule 199—45.8(476), 199—45.9(476), or 199—45.10(476) (as described in rule 199—45.7(476)) if the distributed generation facility uses interconnection equipment that is lab-certified.

45.6(1) Interconnection equipment shall be deemed to be lab-certified if:

a. The interconnection equipment has been successfully tested in accordance with IEEE Standard 1547.1 (as appropriate for lab testing) or complies with UL Standard 1741, as demonstrated by any NRTL recognized by OSHA to test and certify interconnection equipment; and

b. The interconnection equipment has been labeled and is publicly listed by the NRTL at the time of the interconnection application; and

c. The applicant's proposed use of the interconnection equipment falls within the use or uses for which the interconnection equipment was labeled and listed by the NRTL; and

d. The generator, other electric sources, and interface components being utilized are compatible with the interconnection equipment and are consistent with the testing and listing specified by the NRTL for this type of interconnection equipment.

45.6(2) Lab-certified interconnection equipment shall not require further design testing or production testing, as specified by IEEE Standard 1547, Sections 5.1 and 5.2, or additional interconnection equipment modification to meet the requirements for expedited review; however, nothing in this subrule shall preclude the need for an interconnection installation evaluation, commissioning tests, or periodic testing as specified by IEEE Standard 1547, Sections 5.3, 5.4, and 5.5, or for a witness test conducted by a utility.

199—45.7(476) Determining the review level. A utility shall determine whether an interconnection request should be processed under the Level 1, 2, 3, or 4 procedures by using the following screens.

45.7(1) A utility shall use Level 1 procedures to evaluate all interconnection requests to connect a distributed generation facility when:

a. The applicant has filed a Level 1 application; and

b. The distributed generation facility has a nameplate capacity rating of ~~10~~ 25 kVA or less; and

c. The distributed generation facility is inverter-based; and

d. The customer interconnection equipment proposed for the distributed generation facility is lab-certified.~~; and~~

~~*e.* No construction of facilities by the utility shall be required to accommodate the distributed generation facility.~~

45.7(2) A utility shall use Level 2 procedures for evaluating interconnection requests when:

a. The applicant has filed a Level 2 application; and

~~*b.* The nameplate capacity rating is 2 MVA or less; and~~

~~*c*~~*b.* The interconnection equipment proposed for the distributed generation facility is lab-certified; ~~and~~

~~*d*~~*c.* The proposed interconnection is to a radial distribution circuit or a spot network limited to serving one customer; and

~~*e.* No construction of facilities by the utility shall be required to accommodate the distributed generation facility, other than minor modifications provided for in subrule 45.9(6).~~

d. The generator type, the size of the generator, voltage of the line and the location of and the type of line at the Point of Interconnection meet the following qualifications. All distributed generation facilities connecting to lines greater than 69 kilovolt (kV) are ineligible for Level 2 review regardless of size. All synchronous and induction machines must be no larger than 2 MVA to be eligible for Level 2 review,

regardless of location. For certified inverter-based systems, the size limit varies according to the voltage of the line at the proposed Point of Interconnection. Certified inverter-based distributed generation facilities located within 2.5 electrical circuit miles of a substation and on a mainline (as defined in the table) are eligible for Level 2 review under the higher thresholds according to the table below.

Level 2 Eligibility for Inverter-Based Systems		
Line Voltage	Level 2 Eligibility Regardless of Location	Level 2 Eligibility on a Mainline* and < 2.5 Electrical Circuit Miles from Substation**
< 5 kV	< 500 kVA	< 500 kVA
> 5 kV and < 15 kV	< 2 MVA	< 3 MVA
> 15 kV and < 30 kV	< 3 MVA	< 4 MVA
> 30 kV and < 69 kV	< 4 MVA	< 5 MVA

* For purposes of this table, a mainline is the three-phase backbone of a circuit. It will typically constitute lines with wire sizes of 4/0 American wire gauge, 336.4 kcmil, 397.5 kcmil, 477 kcmil and 795 kcmil.

** An Applicant can determine this information about its proposed interconnection location in advance by requesting a pre-application report pursuant to section 45.XX.

45.7(3) A utility shall use Level 3 review procedures for evaluating interconnection requests to area networks and radial distribution circuits where power will not be exported based on the following criteria.

a. For interconnection requests to the load side of an area network, the following criteria shall be satisfied to qualify for a Level 3 expedited review:

(1) The applicant has filed a Level 3 application; and

(2) The nameplate capacity rating of the distributed generation facility is 50 kVA or less; and

(3) The proposed distributed generation facility uses a lab-certified inverter-based equipment package; and

(4) The distributed generation facility will use reverse power relays or other protection functions that prevent the export of power into the area network; and

(5) The aggregate of all generation on the area network does not exceed the lower of 5 percent of an area network's maximum load or 50 kVA.~~; and~~

~~(6) No construction of facilities by the utility shall be required to accommodate the distributed generation facility~~.

b. For interconnection requests to a radial distribution circuit, the following criteria shall be satisfied to qualify for a Level 3 expedited review:

(1) The applicant has filed a Level 3 application; and

(2) The aggregated total of the nameplate capacity ratings of all of the generators on the circuit, including the proposed distributed generation facility, is 10 MVA or less; and

(3) The distributed generation facility will use reverse power relays or other protection functions that prevent power flow onto the electric distribution system; and

(4) The distributed generation facility is not served by a shared transformer.~~; and~~

~~(5) No construction of facilities by the utility on its own system shall be required to accommodate the distributed generation facility.~~

45.7(4) A utility shall use the Level 4 study review procedures for evaluating interconnection requests when:

a. The applicant has filed a Level 4 application; and

b. The nameplate capacity rating of the small generation facility is 10 MVA or less; and

c. Not all of the interconnection equipment or distributed generation facilities being used for the application are lab-certified.

45.2~~7~~(~~2~~5) If the nameplate capacity of the facility is greater than 10 MVA, the interconnection customer and the utility shall start with the Level 4 review process and agreements under rules 199—45.11(476), 199—45.17(476), 199—45.18(476), 199—45.19(476), and 199—45.20(476), and modify the process and agreements as needed by mutual agreement. In addition, the interconnection customer and the utility shall start with the technical standards under rule 199—45.3(476) and modify the standards as needed by mutual agreement. If the interconnection customer and the utility cannot reach mutual agreement, the interconnection customer may seek resolution through the rule 199—45.12(476) dispute process.

199—45.8(476) Level 1 expedited review. A utility shall use the Level 1 interconnection review procedures for an interconnection request that meet the requirements specified in subrule 45.7(1). A utility may not impose additional requirements on Level 1 reviews that are not specifically authorized under this rule or rule 199—45.3(476) unless the applicant agrees.

45.8(1) The utility shall evaluate the potential for adverse system impacts using the following screens, which shall be satisfied:

a. For interconnection of a proposed distributed generation facility to a radial distribution circuit, the total distributed generation connected to the distribution circuit, including the proposed distributed generation facility, may not exceed 15 percent of the maximum load normally supplied by the distribution circuit.

b. For interconnection within a spot network, the distributed generation facility must use a minimum import relay or other protective scheme that will ensure that power imported from the utility to the network will, during normal utility operations, remain above 1 percent of the network's maximum load over the past year, or will remain above a point reasonably set by the utility in good faith. At the utility's discretion, the requirement for minimum import relays or other protective schemes may be waived and alternative screening criteria may be applied.

c. When a proposed distributed generation facility is to be interconnected on a single-phase shared secondary line, the aggregate generation capacity on the shared secondary line, including the proposed distributed generation facility, shall not exceed 20 kVA.

d. When a proposed distributed generation facility is single-phase and is to be interconnected on a center tap neutral of a 240-volt service, its addition may not create an imbalance between the two sides of the 240-volt service of more than 20 percent of the nameplate rating of the service transformer.

~~*e.* The utility shall not be required to construct any facilities on its own system to accommodate the distributed generation facility's interconnection.~~

45.8(2) The Level 1 interconnection shall use the following procedures:

a. The applicant shall submit an interconnection request using the appropriate Standard Application Form in Appendix A (199—45.14(476)) along with the Level 1 application fee.

b. Within seven business days after receipt of the interconnection request, the utility shall inform the applicant whether the interconnection request is complete. If the request is incomplete, the utility shall specify what information is missing and the applicant has ten business days after receiving notice from the utility to provide the missing information or the interconnection request shall be deemed withdrawn.

c. Within 15 business days after the utility notifies the applicant that its interconnection request is complete, the utility shall verify whether the distributed generation facility passes all the relevant Level 1 screens.

d. If the utility determines and demonstrates that a distributed generation facility does not pass all relevant Level 1 screens, the utility shall provide a letter to the applicant explaining the reasons that the facility did not pass the screens.

e. Otherwise, if the proposed interconnection meets all of the applicable Level 1 screens, the request shall be approved and the utility will provide the applicant an executed version of the "Conditional Agreement to Interconnect Distributed Generation Facility" in Appendix A within the following timeframes:

1) If the proposed interconnection requires no construction of facilities by the utility on its own system, the utility shall send the applicant an executed "Conditional Agreement to Interconnect Distributed Generation Facility" (Appendix A) within 5 business days after notification of the Level 1 review results.

2) If the proposed interconnection requires only minor system modifications, an executed "Conditional Agreement to Interconnect Distributed Generation Facility" (Appendix A), along with a non-binding good faith cost estimate and construction schedule for such upgrades, shall be provided within 15 business days after notification of the Level 1 review results.

3) If the proposed interconnection requires more than minor system modifications, the utility shall either: (a) provide an executed "Conditional Agreement to Interconnect Distributed Generation Facility" (Appendix A), along with a non-binding good faith cost estimate and construction schedule for such upgrades, within 20 business days after notification of the Level 1 review results; or (b) notify the customer when it provides the Level 1 results, that it must first fund an interconnection facilities study under section 45.11 to determine the necessary upgrades. If the customer elects to fund an interconnection facilities study, the utility shall proceed with the interconnection facilities study according to the timeframes and process in section 45.11(7).

~~*e*~~*f*. ~~Otherwise, the utility shall approve the~~Upon approving interconnection request, the utility shall ~~and~~ provide to the applicant a signed version of the standard "Conditional Agreement to Interconnect Distributed Generation Facility" in Appendix A (199—45.14(476)) subject to the following conditions:

(1) The distributed generation facility has been approved by local or municipal electric code officials with jurisdiction over the interconnection;

(2) The Standard Certificate of Completion in Appendix B (199—45.15(476)) has been returned to the utility. Completion of local inspections may be designated on inspection forms used by local inspecting authorities;

(3) The witness test has either been successfully completed or waived by the utility in accordance with Section (2)(c)(ii) of the Terms and Conditions for Interconnection in Appendix A (199—45.14(476)); and

(4) The applicant has signed the standard "Conditional Agreement to Interconnect Distributed Generation Facility" in Appendix A (199—45.14(476)). When an applicant does not sign the agreement within 30 business days after receipt of the agreement from the utility, the interconnection request is deemed withdrawn unless the applicant requests to have the deadline extended for no more than 15 business days. An initial request for extension shall not be denied by the utility, but subsequent requests may be denied.

~~*f*~~*g*. If a distributed generation facility is not approved under a Level 1 review, and the utility's reasons for denying Level 1 status are not subject to dispute, the applicant may submit a new interconnection request for consideration under Level 2, Level 3, or Level 4 procedures. The review order position assigned to the Level 1 interconnection request shall be retained, provided that the request is made by the applicant within 15 business days after notification that the Level 1 interconnection request is denied.

199—45.9(476) Level 2 expedited review. A utility shall use the Level 2 review procedure for interconnection requests that meet the Level 2 criteria in subrule 45.7(2). A utility may not impose additional requirements for Level 2 reviews that are not specifically authorized under this rule or rule 199—45.3(476) or subrule 45.5(9) unless the applicant agrees.

45.9(1) The utility shall evaluate the potential for adverse system impacts using the following screens, which shall be satisfied:

a. For interconnection of a proposed distributed generation facility to a radial distribution circuit, the total distributed generation connected to the distribution circuit, including the proposed distributed generation facility, may not exceed 15 percent of the maximum normal load normally supplied by the distribution circuit.

b. For interconnection of a proposed distributed generation facility within a spot network, the proposed distributed generation facility must be inverter-based and use a minimum import relay or other protective scheme that will ensure that power imported from the utility to the network will, during normal utility operations, remain above 1 percent of the network's maximum load over the past year, or will remain above a point reasonably set by the utility in good faith. At the utility's discretion, the requirement for minimum import relays or other protective schemes may be waived and alternative screening criteria may be applied.

c. The proposed distributed generation facility, in aggregation with other generation on the distribution circuit, may not contribute more than 10 percent to the distribution circuit's maximum fault current at the point on the primary line nearest the point of interconnection.

d. Any proposed distributed generation facility, in aggregate with other generation on the distribution circuit, shall not cause any electric utility distribution devices to be exposed to fault currents exceeding 90 percent of their short-circuit interrupting capability. Interconnection of a non-inverter-based distributed generation facility may not occur under Level 2 if equipment on the utility's distribution circuit is already exposed to fault currents of between 90 and 100 percent of the utility's equipment short-circuit interrupting capability. However, if fault currents exceed 100 percent of the utility's equipment short-circuit interrupting capability even without the distributed generation being interconnected, the utility shall replace the equipment at its own expense, and interconnection may proceed under Level 2.

e. When a customer-generator facility is to be connected to 3-phase, 3-wire primary utility distribution lines, a 3-phase or single-phase generator shall be connected phase-to-phase.

f. When a customer-generator facility is to be connected to 3-phase, 4-wire primary utility distribution lines, a 3-phase or single-phase generator shall be connected line-to-neutral and shall be grounded.

g. When the proposed distributed generation facility is to be interconnected on a single-phase shared secondary line, the aggregate generation capacity on the shared secondary line, including the proposed distributed generation facility, may not exceed 20 kVA.

h. When a proposed distributed generation facility is single-phase and is to be interconnected on a center tap neutral of a 240-volt service, its addition may not create an imbalance between the two sides of the 240-volt service of more than 20 percent of the nameplate rating of the service transformer.

i. A distributed generation facility, in aggregate with other generation interconnected to the distribution side of a substation transformer feeding the circuit where the distributed generation facility proposes to interconnect, may not exceed 10 MVA in an area where there are transient stability limitations to generating units located in the general electrical vicinity, as publicly posted by the Mid-Continent Area Power Pool (MAPP), the ~~Midwest~~ Midcontinent Independent Transmission System Operator, Inc. (MISO), or the Midwest Reliability Organization (MRO).

~~*j.* Except as permitted by additional review in subrule 45.9(6), the utility shall not be required to construct any facilities on its own system to accommodate the distributed generation facility's interconnection.~~

45.9(2) The Level 2 interconnection shall use the following procedures:

a. The applicant submits an interconnection request using the appropriate Standard Application Form in Appendix C (199—45.16(476)) along with the Level 2 application fee.

b. Within ten business days after receiving the interconnection request, the utility shall inform the applicant as to whether the interconnection request is complete. If the request is incomplete, the utility shall specify what materials are missing and the applicant has ten business days to provide the missing information or the interconnection request shall be deemed withdrawn.

c. After an interconnection request is deemed complete, the utility shall assign a review order position based upon the date that the interconnection request is determined to be complete. The utility shall then inform the applicant of its review order position.

d. If, after determining that the interconnection request is complete, the utility determines that it needs additional information to evaluate the distributed generation facility's adverse system impact, it shall request this information. The utility may not restart the review process or alter the applicant's review order position because it requires the additional information. The utility can extend the time to finish its evaluation only to the extent of the delay required for receipt of the additional information. If the additional information is not provided by the applicant within 15 business days, the interconnection request shall be deemed withdrawn.

e. Within 20 business days after the utility notifies the applicant it has received a completed interconnection request, the utility shall:

(1) Evaluate the interconnection request using the Level 2 screening criteria; and

(2) Provide the applicant with the utility's evaluation, including a written technical explanation. If a utility does not have a record of receipt of the interconnection request and the applicant can demonstrate that the original interconnection request was delivered, the utility shall complete the evaluation of the interconnection request within 20 business days after applicant's demonstration.

45.9(3) When a utility determines that the interconnection request passes the Level 2 screening criteria, or the utility determines that the distributed generation facility can be interconnected safely and will not cause adverse system impacts, even if it fails one or more of the Level 2 screening criteria, it shall provide the applicant with the Standard Distributed Generation Interconnection Agreement in Appendix D (199—45.17(476)) within ~~three business days of the date the utility makes its determination~~the following timeframes.

a. If the proposed interconnection requires no construction of facilities by the utility on its own system, the interconnection agreement shall be provided within 5 business days after the notification of Level 2 review results.

b. If the proposed interconnection requires only minor system modifications, the interconnection agreement, along with a non-binding good faith cost estimate and construction schedule for such upgrades, shall be provided within 15 business days after notification of the Level 2 review results.

c. If the proposed interconnection requires more than minor system modifications, the utility shall either: (a) provide an executed "Conditional Agreement to Interconnect Distributed Generation Facility" (Appendix A), along with a non-binding good faith cost estimate and construction schedule for such upgrades, within 20 business days after notification of the Level 1 review results; or (b) notify the customer when it provides the Level 2 results that it must first fund an interconnection facilities study under section 45.11 to determine the necessary upgrades. If the customer elects to fund an interconnection facilities study, the utility shall proceed with the interconnection facilities study according to the timeframes and process in section 45.11(7)

45.9(4) Within 35 business days after issuance by the utility of the Standard Distributed Generation Interconnection Agreement, the applicant shall sign and return the agreement to the utility. If the applicant does not sign and return the agreement within 35 business days, the interconnection request shall be deemed withdrawn unless the applicant requests a 15-business-day extension in writing before the end of the 35-day period. The initial request for extension may not be denied by the utility. ~~When the utility conducts an additional review under the provisions of subrule 45.9(6), the interconnection of the distributed generation facility shall proceed according to milestones agreed to by the parties in the Standard Distributed Generation Interconnection Agreement.~~

45.9(5) The Standard Distributed Generation Interconnection Agreement is not final until:

a. All requirements in the agreement are satisfied;

b. The distributed generation facility is approved by the electric code officials with jurisdiction over the interconnection;

c. The applicant provides the Standard Certificate of Completion in Appendix B (199—45.15(476)) to the utility. Completion of local inspections may be designated on inspection forms used by local inspecting authorities; and

d. The witness test has either been successfully completed or waived by the utility in accordance with Article 2.1.1 of the Standard Distributed Generation Interconnection Agreement.

~~—~~**45.9(6)** ~~Additional~~ Supplemental review may be appropriate when a distributed generation facility fails to meet one or more of the Level 2 screens. The utility shall offer to perform ~~additional~~ supplemental review ~~to determine whether there are minor modifications to the distributed generation facility or electric distribution system that would enable the interconnection to be made safely and so that it will not cause~~

~~adverse system impacts. The utility shall~~in accordance with the following subsections and provide the applicant with a nonbinding estimate for the costs of ~~additional~~ the supplemental review.

~~and the costs of minor modifications to the electric distribution system. The utility shall undertake the additional review only after the applicant pays for the additional review. The utility shall undertake the modifications only after the applicant pays for the modifications.~~

a. If the applicant accepts the offer of a supplemental review, the applicant shall agree in writing and submit a deposit for the estimated costs of the supplemental review in the amount of the utility's good faith estimate of the costs of such review, both within 15 business days of the offer. If the written agreement and deposit have not been received by the utility within that timeframe, the interconnection request shall be considered withdrawn by the applicant.

b. The applicant may specify the order in which the utility will complete the screens in this section.

c. The applicant shall be responsible for the utility's actual costs for conducting the supplemental review. The applicant must pay any review costs that exceed the deposit within 20 business days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced costs, the utility will return such excess within 20 business days of the invoice without interest.

d. Within 30 business days following receipt of the deposit for a supplemental review, the utility shall (1) perform a supplemental review using the screens set forth below; (2) notify in writing the applicant of the results; and (3) include with the notification copies of the analysis and data underlying the utility's determinations under the screens. Unless the applicant provided instructions for how to respond to the failure of any of the supplemental review screens below at the time the applicant accepted the offer of supplemental review, the utility shall notify the applicant following the failure of any of the screens, or if it is unable to perform the screen in subsection (5), within 2 business days of making such determination to obtain the applicant's permission to: (1) continue evaluating the proposed interconnection under this section; or (2) terminate the supplemental review upon withdrawal of the interconnection request by the applicant.

1) Minimum Load Screen: Where 12 months of line section minimum load data (including onsite load but not station service load served by the proposed distributed generation facility) are available, can be calculated, can be estimated from existing data, or determined from a power flow model, the aggregate generating facility capacity on the line section is less than 100% 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 utility shall include the reason(s) that it is unable to calculate, estimate or determine minimum load in its supplemental review results notification under this section.

A) 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 this screen. Solar photovoltaic (PV) generation systems with no battery storage use daytime minimum load (i.e. 10 a.m. to 4 p.m. for fixed panel systems and 8 a.m. to 6 p.m. for PV systems utilizing tracking systems), while all other generation uses absolute minimum load.

B) When this screen is being applied to a distributed generation facility that serves some station service load, only the net injection into the utility's electric system will be considered as part of the aggregate generation.

C) The utility will not consider as part of the aggregate generation for purposes of this screen generating facility capacity known to be already reflected in the minimum load data.

2) Voltage and Power Quality Screen: 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 Standard 1453, or utility practice similar to IEEE Standard 1453; and (3) the harmonic levels meet IEEE Standard 519 limits.

3) Safety and Reliability Screen: 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 4 process. The utility shall give due consideration to the following and other factors in determining potential impacts to safety and reliability in applying this screen.

A) Whether the line section has significant minimum loading levels dominated by a small number of customers (e.g., several large commercial customers).

B) Whether the loading along the line section uniform or even.

C) Whether the proposed distributed generation facility is located in close proximity to the substation (i.e., less than 2.5 electrical circuit miles), and whether the line section from the substation to the point of interconnection is a Mainline rated for normal and emergency ampacity.

D) Whether 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.

E) Whether 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.

F) Whether the proposed distributed generation facility employs equipment or systems certified by a recognized standards organization to address technical issues such as, but not limited to, islanding, reverse power flow, or voltage quality.

e. If the proposed interconnection passes the supplemental screening in this section, the interconnection request shall be approved and the utility will provide the applicant with an executable interconnection agreement pursuant to Section 45.9(3).

45.9(7) If the distributed generation facility is not approved under a Level 2 review, the utility shall provide the applicant with written notification explaining its reasons for denying the interconnection request. The applicant may submit a new interconnection request for consideration under a Level 4 interconnection review. The review order position assigned to the Level 2 interconnection request shall be retained, provided that the request is made by the applicant within 15 business days after notification that the current interconnection request is denied.

199—45.10(476) Level 3 expedited review. A utility shall use the Level 3 expedited review procedure for an interconnection request that meets the criteria in subrule 45.7(3) or 45.7(4). A utility may not impose additional requirements for Level 3 reviews not specifically authorized under this rule or rule 199—45.3(476) unless the applicant agrees.

45.10(1) A Level 3 interconnection shall use the following procedures:

a. The applicant shall submit an interconnection request using the appropriate Standard Application Form in Appendix C (199—45.16(476)) along with the Level 3 application fee.

b. Within ten business days after receiving the interconnection request, the utility shall inform the applicant as to whether the interconnection request is complete. If the request is incomplete, the utility shall specify what materials are missing and the applicant has ten business days to provide the missing information, or the interconnection request shall be deemed withdrawn.

c. After an interconnection request is deemed complete, the utility shall assign a review order position to it based upon the date the interconnection request is determined to be complete. The utility shall then inform the applicant of its review order position.

d. If, after determining that the interconnection request is complete, the utility determines that it needs

additional information to evaluate the distributed generation facility's adverse system impact, the utility shall request this information. The utility may not restart the review process or alter the applicant's review order position because it requires the additional information. The utility can extend the time to finish its evaluation only to the extent the delay is required for receipt of the additional information. If this additional information is not provided by the applicant within 15 business days, the interconnection request shall be deemed withdrawn.

e. Interconnection requests meeting the requirements set forth in paragraph 45.7(3)*"a"* for nonexporting distributed generation facilities interconnecting to an area network shall be presumed to be appropriate for interconnection. The utility shall process the interconnection requests using the following procedures:

(1) The utility shall evaluate the interconnection request under Level 2 interconnection review procedures as set forth in subrule 45.9(1) except that the utility has 25 business days to evaluate the interconnection request against the screens to determine whether interconnecting the distributed generation facility to the utility's area network has any potential adverse system impacts.

(2) If the Level 2 screens for area networks identify potential adverse system impacts, the utility may determine at its sole discretion that it is inappropriate for the distributed generation facility to interconnect to the area network under Level 3 review, and the interconnection request is denied. The applicant may submit a new interconnection request for consideration under Level 4 procedures at the review order position assigned to the Level 3 interconnection request, if the request is made within 15 business days after notification that the current application is denied.

f. For interconnection requests that meet the requirements of paragraph 45.7(3)*"b"* for nonexporting distributed generation facilities interconnecting to a radial distribution circuit, the utility shall evaluate the interconnection request under the Level 2 expedited review in subrule 45.9(1), except for the screen in paragraph 45.9(1)*"a."*

45.10(2) For a distributed generation facility that satisfies the criteria in paragraph 45.10(1)*"e"* or 45.10(1)*"f,"* the utility shall approve the interconnection request and provide the Standard Distributed Generation Interconnection Agreement in Appendix D (199—45.17(476)) for the applicant to sign within ~~three business days of the date the utility makes its determination~~the following timeframes.

a. If the proposed interconnection requires no construction of facilities by the utility on its own system, the interconnection agreement shall be provided within 5 business days after the notification of Level 2 review results.

b. If the proposed interconnection requires only minor system modifications, the interconnection agreement, along with a non-binding good faith cost estimate and construction schedule for such upgrades, shall be provided within 15 business days after notification of the Level 2 review results.

c. If the proposed interconnection requires more than minor system modifications, the utility shall either: (a) provide an executed "Conditional Agreement to Interconnect Distributed Generation Facility" (Appendix A), along with a non-binding good faith cost estimate and construction schedule for such upgrades, within 20 business days after notification of the Level 1 review results; or (b) notify the customer when it provides the Level 2 results that it must first fund an interconnection facilities study under section 45.11 to determine the necessary upgrades. If the customer elects to fund an interconnection facilities study, the utility shall proceed with the interconnection facilities study according to the timeframes and process in section 45.11(7).

45.10(3) Within 35 business days after issuance by the utility of the Standard Distributed Generation Interconnection Agreement, the applicant shall complete, sign, and return the agreement to the utility. If the applicant does not sign the agreement within 35 business days, the request shall be deemed withdrawn, unless the applicant requests a 15-business-day extension in writing before the end of the 35-day period. An initial request for extension may not be denied by the utility. After the agreement is signed by the parties, interconnection of the distributed generation facility shall proceed according to any milestones agreed to by the parties in the Standard Distributed Generation Interconnection Agreement.

45.10(4) The Standard Distributed Generation Interconnection Agreement shall not be final until:

a. All requirements in the agreement are satisfied; and

b. The distributed generation facility is approved by the electric code officials with jurisdiction over the

distributed generation facility; and

c. The applicant provides the Standard Certificate of Completion in Appendix B (199—45.15(476)) to the utility; and

d. The witness test has either been successfully completed or waived by the utility in accordance with Article 2.1.1 of the Standard Distributed Generation Interconnection Agreement.

45.10(5) If the distributed generation facility is not approved under a Level 3 review, the utility shall provide the applicant with written notification explaining its reasons for denying the interconnection request. The applicant may submit a new interconnection request for consideration under a Level 4 interconnection review. The review order position assigned to the Level 3 interconnection request shall be retained, provided that the request is made within 15 business days after notification that the current interconnection request is denied.

199—45.11(476) Level 4 review. A utility shall use the following Level 4 study review procedures for an interconnection request that meets the criteria in subrule 45.7(4).

45.11(1) The applicant submits an interconnection request using the appropriate Standard Application Form in Appendix C (199—45.16(476)) along with the Level 4 application fee.

45.11(2) Within ten business days after receipt of an interconnection request, the utility shall notify the applicant whether the request is complete. When the interconnection request is not complete, the utility shall provide the applicant with a written list detailing the information required to complete the interconnection request. The applicant has ten business days to provide the required information or the interconnection request is considered withdrawn. The parties may agree to extend the time for receipt of the additional information. The interconnection request is deemed complete when the required information has been provided by the applicant, or the parties have agreed that the applicant may provide additional information at a later time.

45.11(3) After an interconnection request is deemed complete, the utility shall assign a review order position to it based upon the date the interconnection request is determined to be complete. When assigning a review order position, a utility may consider whether there are any other interconnection projects on the same distribution circuit. If there are other interconnection projects on the same distribution circuit, the utility may consider them together. If a utility assigns a review order position based on the existence of interconnection projects on the same distribution circuit, the utility shall notify the applicant of that fact when it assigns the review order position. The review order position of an interconnection request is used to determine the cost responsibility for the facilities necessary to accommodate the interconnection. The utility shall notify the applicant as to its position in the review order. If the interconnection request is subsequently amended, it shall receive a new review order position based on the date that it was amended.

45.11(4) Level 4 study review procedures. After the interconnection request has been assigned to the review order, a Level 4 study review shall be conducted:

a. Waiver or combination of standard Level 4 study review procedures. By mutual agreement of the parties in writing, the scoping meeting, feasibility study, system impact study, or facilities study in paragraph 45.11(4)*"b"* may be waived or combined with other studies. Otherwise, the standard Level 4 study review procedures in paragraph 45.11(4)*"b"* shall apply.

b. Standard Level 4 study review procedures.

(1) Scoping meeting. Unless waived or combined with other studies pursuant to paragraph 45.11(4)*"a,"* a scoping meeting shall be held with the applicant on a mutually agreed-upon date and time, after the utility has notified the applicant that the Level 4 interconnection request is deemed complete, or after the applicant has requested that its interconnection request proceed under Level 4 review after failing the requirements of a Level 1, Level 2, or Level 3 review. The purpose of the meeting is to review the interconnection request, any existing studies relevant to the interconnection request, and the results of any Level 1, Level 2, or Level 3 screening criteria.

(2) Feasibility study. Unless waived or combined with other studies pursuant to paragraph 45.11(4)*"a,"* an interconnection feasibility study (subrule 45.11(5)) shall be performed.

1. The utility shall provide the applicant a copy of the Standard Interconnection Feasibility Study Agreement in Appendix E (199—45.18(476)) or a mutually agreed-upon alternative form, plus a description of the study and a nonbinding estimate of the cost to perform the study.

2. The utility shall provide the study agreement and information no later than 10 business days after the following have occurred, as applicable:

- Receipt of a complete interconnection request; and
- The scoping meeting (if held).

3. If the applicant does not sign and return the study agreement with payment of the estimated costs of the study within 15 business days, the application shall be deemed withdrawn.

(3) System impact study. Unless waived or combined with other studies pursuant to paragraph 45.11(4)*"a,"* an interconnection system impact study (subrule 45.11(6)) shall be performed.

1. The utility shall provide the applicant a copy of the Standard Interconnection System Impact Study Agreement in Appendix F (199—45.19(476)) or a mutually agreed-upon alternative form, plus an outline of the scope of the study and a nonbinding estimate of the cost to perform the study.

2. The utility shall provide the study agreement and information no later than 10 business days after the following have occurred, as applicable:

- Receipt of a complete interconnection request;
- The scoping meeting (if held); and
- Transmittal of the interconnection feasibility study (if performed).

3. If the applicant does not sign and return the study agreement with payment of the estimated costs of the study within 15 business days, the application shall be deemed withdrawn.

(4) Facilities study. Unless waived or combined with other studies pursuant to paragraph 45.11(4)*"a,"* an interconnection facilities study (subrule 45.11(7)) shall be performed.

1. The utility shall provide the applicant a copy of the Standard Interconnection Facilities Study Agreement in Appendix G (199—45.20(476)) or a mutually agreed-upon alternative form, plus an outline of the scope of the study and a nonbinding estimate of the cost to perform the study.

2. The utility shall provide the study agreement and information no later than 10 business days after the following have occurred, as applicable:

- Receipt of a complete interconnection request;
- The scoping meeting (if held);
- Transmittal of the interconnection feasibility study (if performed); and
- Transmittal of the interconnection system impact study (if performed).

3. If the applicant does not sign and return the study agreement with payment of the estimated costs of the study within 15 business days, the application shall be deemed withdrawn.

45.11(5) Interconnection feasibility study.

a. Unless waived or combined with other studies by agreement of the parties pursuant to paragraph 45.11(4)*"a,"* the interconnection feasibility study shall include any necessary analyses for the purpose of identifying potential adverse system impacts to the utility's electric system that would result from the interconnection from among the following:

(1) Initial identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection;

(2) Initial identification of any thermal overload or voltage limit violations resulting from the interconnection; and

(3) Initial review of grounding requirements and system protection.

b. Before performing the study, the utility shall provide the applicant a description of the study and a nonbinding estimate of the cost to perform the study.

c. If an applicant requests that the interconnection feasibility study evaluate multiple potential points of interconnection, additional evaluations may be required. Additional evaluations shall be paid for by the applicant.

d. An interconnection system impact study is not required when the interconnection feasibility study concludes that there is no adverse system impact, or when the study identifies an adverse system impact but the utility is able to identify a remedy without the need for an interconnection system impact study.

e. Either party can require that the Standard Interconnection Feasibility Study Agreement in Appendix E (199—45.18(476)) be used. However, if both parties agree, an alternative form can be used.

45.11(6) Interconnection system impact study. An interconnection system impact study evaluates the impact of the proposed interconnection on both the safety and reliability of the utility's electric distribution system. The study identifies and details the system impacts that interconnecting the distributed generation facility to the utility's electric system have if there are no system modifications. It focuses on the potential or actual adverse system impacts identified in the interconnection feasibility study, including those that were identified in the scoping meeting. The study shall consider all other distributed generation facilities that, on the date the interconnection system impact study is commenced, are directly interconnected with the utility's system, have a pending higher review order position to interconnect to the electric distribution system, or have signed an interconnection agreement.

a. Unless waived or combined with other studies by agreement of the parties pursuant to paragraph 45.11(4)*"a,"* an interconnection system impact study shall be performed when either a potential adverse system impact is identified in the interconnection feasibility study, or an interconnection feasibility study has not been performed. Before performing the study, the utility shall provide the applicant an outline of the scope of the study and a nonbinding estimate of the cost to perform the study. The interconnection system impact study shall include any pertinent elements from among the following:

(1) A load flow study;
(2) Identification of affected systems;
(3) An analysis of equipment interrupting ratings;
(4) A protection coordination study;
(5) Voltage drop and flicker studies;
(6) Protection and set point coordination studies;
(7) Grounding reviews; and
(8) Impact on system operation.

b. An interconnection system impact study shall consider any necessary criteria from among the following:

(1) A short-circuit analysis;
(2) A stability analysis;
(3) Alternatives for mitigating adverse system impacts on affected systems;
(4) Voltage drop and flicker studies;
(5) Protection and set point coordination studies; and
(6) Grounding reviews.

c. The final interconnection system impact study shall provide the following:

(1) The underlying assumptions of the study;
(2) The results of the analyses;
(3) A list of any potential impediments to providing the requested interconnection service;
(4) Required distribution upgrades; and
(5) A nonbinding estimate of cost and time to construct any required distribution upgrades.

d. Either party can require that the Standard Interconnection System Impact Study Agreement in Appendix F (199—45.19(476)) be used. However, if both parties agree, an alternative form can be used.

45.11(7) Interconnection facilities study. Unless waived or combined with other studies by agreement of the parties pursuant to paragraph 45.11(4)*"a,"* an interconnection facilities study shall be performed as follows:

a. Before performing the study, the utility shall provide the applicant an outline of the scope of the study and a nonbinding estimate of the cost to perform the study.

b. The interconnection facilities study shall estimate the cost of the equipment, engineering, procurement and construction work, including overheads, needed to implement the conclusions of the interconnection feasibility study and the interconnection system impact study. The interconnection facilities study shall identify:

(1) The electrical switching configuration of the equipment, including transformer, switchgear, meters and other station equipment;

(2) The nature and estimated cost of the utility's interconnection facilities and distribution upgrades

necessary to accomplish the interconnection; and

(3) An estimate for the time required to complete the construction and installation of the interconnection facilities and distribution upgrades.

c. The utility may agree to permit an applicant to arrange separately for a third party to design and construct the required interconnection facilities. In such a case, when the applicant agrees to separately arrange for design and construction, and to comply with security and confidentiality requirements, the utility shall make all relevant information and required specifications available to the applicant to permit the applicant to obtain an independent design and cost estimate for the facilities, which shall be built in accordance with the utility's specifications.

d. Upon completion of the interconnection facilities study, and after the applicant agrees to pay for the interconnection facilities and distribution upgrades identified in the interconnection facilities study, the utility shall provide the Standard Distributed Generation Interconnection Agreement in Appendix D (199—45.17(476)) for the applicant to sign within three business days of the date the utility makes its determination.

e. In the event that distribution upgrades are identified in the interconnection system impact study that shall be added only in the event that customers with higher review order positions not yet interconnected eventually complete and interconnect their generation facilities, the applicant may elect to interconnect without paying the estimate for such upgrades at the time of the interconnection, provided that the applicant pays for such upgrades prior to commencement of construction of such upgrades to be completed by the time the customer with higher review order position is ready to interconnect. If the applicant does not pay for such upgrades at that time, the utility shall require the applicant to immediately disconnect its distributed generation facility to accommodate the customer with higher review order position.

f. Either party can require that the Standard Interconnection Facilities Study Agreement in Appendix G (199—45.20(476)) be used. However, if both parties agree, an alternative form can be used.

45.11(8) When a utility determines, as a result of the studies conducted under a Level 4 review, that it is appropriate to interconnect the distributed generation facility, the utility shall provide the applicant with the Standard Distributed Generation Interconnection Agreement in Appendix D (199—45.17(476)). If the interconnection request is denied, the utility shall provide the applicant with a written explanation as to its reasons for denying interconnection. If denied, the interconnection request does not retain its position in the review order.

45.11(9) Within 30 business days after receipt of the Standard Distributed Generation Interconnection Agreement, the applicant shall provide all necessary information required of the applicant by the agreement, and the utility shall develop all other information required of the utility by the agreement. After completing the agreement with the additional information, the utility will transmit the completed agreement to the applicant. Within 30 business days after receipt of the completed agreement, the applicant shall sign and return the completed agreement to the utility. If the applicant does not sign and return the agreement within 30 business days after receipt, the interconnection request shall be deemed withdrawn, unless the applicant requests in writing to have the deadline extended by no more than 15 business days, prior to the expiration of the 30-business-day period. The initial request for extension may not be denied by the utility. If the applicant does not sign and return the agreement after the 15-business-day extension, the interconnection request shall be deemed withdrawn. If withdrawn, the interconnection request does not retain its position in the review order. When construction is required, the interconnection of the distributed generation facility shall proceed according to milestones agreed to by the parties in the Standard Distributed Generation Interconnection Agreement.

45.11(10) The Standard Distributed Generation Interconnection Agreement is not final until:

a. The requirements of the agreement are satisfied; and

b. The distributed generation facility is approved by electric code officials with jurisdiction over the interconnection; and

c. The applicant provides the Standard Certificate of Completion in Appendix B (199—45.15(476)) to the utility. Completion of local inspections may be designated on inspection forms used by local inspecting authorities; and

d. The witness test has either been successfully completed or waived by the utility in accordance with

Article 2.1.1 of the Standard Distributed Generation Interconnection Agreement in Appendix D (199—45.17(476)).

199—45.12(476) Disputes.

45.12(1) A party shall attempt to resolve all disputes regarding interconnection promptly and in a good-faith manner. A party shall provide prompt written notice of the existence of the dispute, including sufficient detail to identify the scope of the dispute, to the other party in order to attempt to resolve the dispute in a good-faith manner.

45.12(2) An informal meeting between the parties shall be held within ten business days after receipt of the written notice. Persons with decision-making authority from each party shall attend such meeting. In the event said dispute involves technical issues, persons with sufficient technical expertise and familiarity with the issue in dispute from each party shall also attend the informal meeting. If the parties agree, such a meeting may be conducted by teleconference.

45.12(3) Subsequent to the informal meeting referred to in subrule 45.12(2), a party may seek resolution of any disputes through the 199—Chapter 6 complaint procedures of the board. Dispute resolution under these procedures will initially be conducted informally under rules 199—6.2(476) through 199—6.4(476) to reach resolution with minimal cost and delay. If any party is dissatisfied with the outcome of the informal process, the party may file a formal complaint with the board under rule 199—6.5(476).

45.12(4) Pursuit of dispute resolution shall not affect an interconnection applicant with regard to consideration of an interconnection request or an interconnection applicant's position in the utility's interconnection review order.

199—45.13(476) Records and reports.

45.13(1) For each completed interconnection request received by the utility, the utility shall maintain records of the following for a minimum of three years:

a. The date when the application was received;

b. The total nameplate capacity and fuel type of the distributed generation facility;

~~*b*~~*c.* The level of review received (Level 1, Level 2, Level 3, or Level 4), and whether the project failed any initial review screens and if so which screens, whether the project received supplemental review, and whether any impact study and/or facility study was conducted; and

~~*c*~~*d.* Whether the interconnection was approved, ~~or~~ denied or withdrawn and the date of such action.

e. Whether the distributed generation facility was constructed and began operation and, if so, the date the facility began operation.

45.13(2) For each pre-application report request received by the utility, the utility shall maintain records of the following for a minimum of three years: the number of reports requested, issued and withdrawn and the dates of each request and follow up issuance/withdrawal.

45.13(~~2~~3) Beginning May 1, 2011, each utility shall file a nonconfidential annual report detailing the information required in subrule 45.13(1) and (2) for the previous calendar year. Each utility shall include a summary as part of the report that provides aggregate information on the pre-application reports and interconnections requests and distributed generation that has been interconnected in the utility's service territory including distributed generation capacity added in the previous calendar year by fuel type and total distributed generation capacity operating in the utility's service territory by fuel type.

45.13(~~3~~4) Each utility shall retain copies of studies it performs to determine the feasibility of, system impacts of, or facilities required by the interconnection of any distributed generation facility including pre-application reports. The utility shall provide the applicant copies of any studies performed in analyzing the applicant's interconnection request upon applicant request. However, a utility has no obligation to provide any future applicants any information regarding prior interconnection requests to the extent that providing the information would violate security requirements or confidentiality agreements, or is contrary to state or federal law. In appropriate circumstances, the utility may require a confidentiality agreement prior to release of this

information.

199—45.14(476) Appendix A – Level 1 standard application form and distributed generation interconnection agreement.

LEVEL 1:
STANDARD APPLICATION FORM AND INTERCONNECTION AGREEMENT

Interconnection Request Application Form and
Conditional Agreement to Interconnect
(For Lab-Certified Inverter-Based Distributed Generation Facilities ~~10kVA~~ 25 kVA or Smaller)

AN APPLICATION FEE OF $50.00 MUST BE SUBMITTED WITH THE APPLICATION

Interconnection Applicant Contact Information

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Alternate Contact Information (if different from Applicant)

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Equipment Contractor

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

License number: _____

Active License? Yes No

Electrical Contractor (if Different from Equipment Contractor):

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

License number: _____

Active License? Yes ____ No ____

Is the Interconnection Customer requesting Net Metering in accordance with Iowa Utilities Board rule 199 IAC 15.11(5) and the utility's net metering or net billing tariff?
Yes_____ No_____

Intent of Generation

___ Net Metering (Unit will operate in parallel and will export power to utility pursuant to Iowa Utilities Board rule 199 IAC 15.11(5) and the utility's net metering or net billing tariff)

___ Self-Use and Sales to the Utility (Unit will operate in parallel and may export and sell Excess power to utility pursuant to Iowa Utilities Board rule 199 IAC 15.5 and the utility's tariff)

___ Other (Please explain):_____
_____
_____
_____

Distributed Generation Facility ("Facility") Information

Facility Address: _____

City: _____ State: _____ Zip Code: _____

Utility serving Facility site: _____

Account Number of Facility site (existing utility customers): _____

Inverter Manufacturer: _____ Model: _____

Is the inverter lab-certified as that term is defined in Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation (199 IAC 45.1)?
Yes_____ No_____

(If yes, attach manufacturer's technical specifications and label information from a nationally recognized testing laboratory.)

Generation Facility Nameplate Rating: _____ (kW) _____ (kVA) _____ (AC Volts)

Energy Source: Wind Solar Biomass Diesel

Natural Gas Fuel Oil Other _____

Energy Source: Wind Turbine Photovoltaic Cell Fuel Cell

Reciprocating Engine Other _____

Commissioning Test Date: _____

(If the Commissioning Test Date changes, the interconnection customer must inform the utility as soon as it is aware of the changed date.)

Insurance Disclosure

The attached terms and conditions contain provisions related to liability and indemnification and should be carefully considered by the interconnection customer. The interconnection customer shall carry general liability insurance coverage, such as, but not limited to, homeowner's insurance.

Other Facility Information

One Line Diagram – A basic drawing of an electric circuit in which one or more conductors are represented by a single line and each electrical device and major component of the installation, from the generator to the point of interconnection, are noted by symbols.

One Line Diagram attached: _____Yes

Plot Plan – A map showing the distributed generation facility's location in relation to streets, alleys, or other geographic markers.

Plot Plan attached: _____Yes

Customer Signature

I hereby certify that: (1) I have read and understand the terms and conditions, which are attached hereto by reference; (2) I hereby agree to comply with the attached terms and conditions; and (3) to the best of my knowledge, all of the information provided in this application request form is complete and true.

Applicant Signature: _____

Title: _____ Date: _____

.....

This Application Form and Interconnection Agreement is comprised of: 1) the Level 1 Standard Application Form and Interconnection Agreement; 2) the Attachment of Terms and Conditions for Interconnection; and 3) the Certificate of Completion.

NOTE: If the Certificate of Completion is not completed and returned to the utility within 12 months following the utility's dated conditional agreement to interconnect below, this Application Form and Interconnection Agreement will automatically terminate and be of no further force and effect.

.....

Conditional Agreement to Interconnect Distributed Generation Facility

Receipt of the application fee is acknowledged and, by its signature below, the utility has determined the interconnection request is complete. Interconnection of the distributed generation facility is conditionally approved contingent upon the attached terms and conditions of this Agreement, the return of the attached Certificate of Completion, duly executed verification of electrical inspection and successful witness test.

Utility Signature: _____ Date: _____

Name: _____ Title: _____

ATTACHMENT
Level1: Standard Interconnection Agreement

Terms and Conditions for Interconnection

1) Construction of the Distributed Generation Facility. The interconnection customer may proceed to construct (including operational testing not to exceed 2 hours) the distributed generation facility, once the conditional Agreement to interconnect a distributed generation facility has been signed by the utility.

2) Final Interconnection and Operation. The interconnection customer may operate the distributed generation facility and interconnect with the utility's electric distribution system after all of the following have occurred:
   a) Electrical Inspection: Upon completing construction, the interconnection customer shall cause the distributed generation facility to be inspected by the local electrical inspection authority, who shall establish that the distributed generation facility meets local code requirements.
   b) Certificate of Completion: The interconnection customer shall provide the utility with a copy of the Certificate of Completion with all relevant and necessary information fully completed by the interconnection customer, as well as an inspection form from the local electrical inspection authority demonstrating that the distributed generation facility passed inspection.
   c) The utility has completed its witness test as per the following:
      i) The interconnection customer shall provide the utility at least 15 business days' notice of the planned commissioning test for the distributed generation facility. Within 10 business days after the commissioning test, the utility may, upon reasonable notice and at a mutually convenient time, conduct a witness test of the distributed generation facility to ensure that all equipment has been appropriately installed and operating as designed and in accordance with the requirements of IEEE 1547.
      ii) If the utility does not perform the witness test within the 10 business days after the commissioning test or such other time as is mutually agreed to by the Parties, the witness test is deemed waived, unless the utility cannot do so for good cause. In these cases, upon utility request, the interconnection customer shall agree to another date for the test within 10 business days after the original scheduled date.

3) IEEE 1547. The distributed generation facility shall be installed, operated and tested in accordance with the requirements of The Institute of Electrical and Electronics Engineers, Inc. (IEEE), 3 Park Avenue, New York, NY 10016-5997, Standard 1547 (2003) "Standard for Interconnecting Distributed Resources with Electric Power Systems," as well as any applicable federal, state, or local law s, regulations, codes, ordinances, orders, or similar directives of any government or other authority having jurisdiction.

4) Access. The utility must have access to the isolation device or disconnect switch and metering equipment of the distributed generation facility at all times. When practical, the utility shall provide notice to the customer prior to using its right of access.

5) Metering. Any required metering shall be installed pursuant to the utility's metering rules filed with the Iowa Utilities Board under subrule 199 IAC 20.2(5).

6) Disconnection. The utility may disconnect the distributed generation facility upon any of the following conditions, but must reconnect the distributed generation facility once the condition is cured:
   a) For scheduled outages, provided that the distributed generation facility is treated in the same manner as utility's load customers;

b) For unscheduled outages or emergency conditions;
c) If the distributed generation facility does not operate in a manner consistent with this Agreement or the applicable requirements of 199 IAC Chapter 15 or 45;
d) Improper installation or failure to pass the witness test;
e) If the distributed generation facility is creating a safety, reliability, or power quality problem;
f) The interconnection equipment used by the distributed generation facility is de-listed by the Nationally Recognized Testing Laboratory that provided the listing at the time the interconnection was approved;
g) Unauthorized modification of the interconnection facilities or the distributed generation facility; or
h) Unauthorized connection to the utility's electric system.

7) Indemnification. The interconnection customer shall indemnify and defend the utility and the utility's directors, officers, employees, and agents from all claims, damages and expenses, including reasonable attorney's fees, to the extent resulting from the interconnection customer's negligent installation, operation, modification, maintenance, or removal of its distributed generation facility or interconnection facilities, or the interconnection customer's willful misconduct or breach of this Agreement. The utility shall indemnify and defend the interconnection customer and the interconnection customer's directors, officers, employees, and agents from all claims, damages, and expenses, including reasonable attorney's fees, to the extent resulting from the utility's negligent installation, operation, modification, maintenance, or removal of its interconnection facilities or electric distribution system, or the utility's willful misconduct or breach of this Agreement.

8) Insurance. The interconnection customer shall provide the utility with proof that it has a current homeowner's insurance policy or other general liability policy.

9) Limitation of Liability. Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either Party be liable to the other Party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever, provided that in no event shall death, bodily injury or third-party claims be construed as indirect or consequential damages.

10) Termination. This Agreement will remain in effect until terminated and may be terminated under the following conditions:
a) By interconnection customer -The interconnection customer may terminate this interconnection agreement by providing written notice to the utility. If the interconnection customer ceases operation of the distributed generation facility, the interconnection customer must notify the utility.
b) By the utility- The utility may terminate this Agreement without liability to the interconnection customer if the interconnection customer fails to remedy a violation of terms of this Agreement within 30 calendar days after notice, or such other date as may be mutually agreed to in writing prior to the expiration of the 30 calendar day remedy period. The termination date may be no less than 30 calendar days after the interconnection customer receives notice of its violation from the utility.

11) Modification of Distributed Generation Facility. The interconnection customer must receive written authorization from the utility before making any changes to the distributed generation facility that could affect the utility's distribution system. If the interconnection customer makes such modifications without the utility's prior written authorization, the utility shall have the right to disconnect the distributed generation facility.

12) Permanent Disconnection. In the event the Agreement is terminated, the utility shall have the right to disconnect its facilities or direct the interconnection customer to disconnect its distributed generation facility.

13) Disputes. Each Party agrees to attempt to resolve all disputes regarding the provisions of this Agreement that cannot be resolved between the two Parties pursuant to the dispute resolution provisions found in Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.12).

14) Governing Law, Regulatory Authority, and Rules. The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of Iowa. Nothing in this Agreement is intended to affect any other agreement between the utility and the interconnection customer.

15) Survival Rights. This Agreement shall remain in effect after termination to the extent necessary to allow or require either Party to fulfill rights or obligations that arose under the Agreement.

16) Assignment/Transfer of Ownership of the Distributed Generation Facility. This Agreement shall terminate upon the transfer of ownership of the distributed generation facility to a new owner unless the transferring owner assigns the Agreement to the new owner, the new owner agrees in writing to the terms of this Agreement, and the transferring owner so notifies the utility in writing prior to the transfer of ownership.

17) Definitions. Any term used herein and not defined shall have the same meaning as the defined terms used in Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.1).

18) Notice. The Parties may mutually agree to provide notices, demands, comments, or requests by electronic means such as e-mail. Absent agreement to electronic communication, or unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement shall be deemed properly given when receipt is confirmed after notices are delivered in person, delivered by recognized national courier service, or sent by first-class mail, postage prepaid, return receipt requested, to the person specified below:

If Notice is to Interconnection Customer:

Use the contact information provided in the interconnection customer's application. The interconnection customer is responsible for notifying the utility of any change in the contact party information, including change of ownership.

If Notice is to Utility:

Use the contact information provided below. The utility is responsible for notifying the interconnection customer of any change in the contact party information.

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

199—45.15(476) Appendix B – Standard certificate of completion.

CERTIFICATE OF COMPLETION

(To be completed and returned to the utility when installation is complete and final electric inspector approval has been obtained- Use contact information provided on the utility's web page for generator interconnection to obtain mailing address/fax number/e-mail address)

Interconnection Customer Information

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Installer Check if owner-installed

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Final Electric Inspection and Interconnection Customer Signature

The distributed generation facility is complete and has been approved by the local electric inspector having jurisdiction. A signed copy of the electric inspector's form indicating final approval is attached. The interconnection customer acknowledges that it shall not operate the distributed generation facility until receipt of the final acceptance and approval by the utility as provided below.

Signed: _____ Date: _____
(Signature of interconnection customer)

Printed Name: _____

Check if copy of signed electric inspection form is attached: ____
Check if copy of as-built documents is attached (projects larger than ~~10~~ 25 kVA only): _____

Acceptance and Final Approval for Interconnection (for utility use only)

The interconnection agreement is approved and the distributed generation facility is approved for interconnected operation upon the signing and return of this Certificate of Completion by utility:

Utility waives Witness Test? (Initial) Yes(____) No(_)

If not waived, date of successful Witness Test: _____Passed: (Initial)(_____)

Utility Signature:_____ Date: _____

Printed Name: _____ Title: _____

199—45.16(476) Appendix C – Levels 2 to 4: standard application form.

LEVELS 2 TO 4
STANDARD INTERCONNECTION REQUEST APPLICATION FORM
(For Distributed Generation Facilities greater than 25kVA to 10MVA or less)

Interconnection Customer Contact Information

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Alternative Contact Information (if different from Customer Contact Information)

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Facility Address (if different from above): _____

City: _____ State: _____ Zip Code: _____

Utility Serving Facility Site: _____

Account Number of Facility Site (existing utility customers): _____

Inverter Manufacturer: _____ Model: _____

Equipment Contractor

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Electrical Contractor (if different from Equipment Contractor)

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

License Number: _____

Electric Service Information for Customer Facility Where Generator Will Be Interconnected

Capacity: _____ (Amps) Voltage: _____ (Volts)

Type of Service: Single Phase Three Phase

If 3 Phase Transformer, Indicate Type:

Primary Winding Wye Delta

Secondary Winding Wye Delta

Transformer Size: _____ Impedance: _____

Intent of Generation

_____ Offset Load (Unit will operate in parallel, but will not export power to utility)

_____ Net Metering (Unit will operate in parallel and will export power to utility pursuant to Iowa Utilities Board rule 199 IAC 15. 11(5) and the utility's net metering or net billing tariff)

_____ Self-Use and Sales to the Utility (Unit will operate in parallel and may export and sell excess power to utility pursuant to Iowa Utilities Board rule 199 IAC 15.5 and the utility's tariff)

_____ Wholesale Market Transaction (Unit will operate in parallel and participate in MISO or other wholesale power markets pursuant to separate requirements and agreements with MISO or other transmission providers, and applicable rules of the Federal Energy Regulatory Commission)

_____ Back-up Generation (Units that temporarily operate in parallel with the electric distribution system for more than 100 milliseconds)

Note: Back-up units that do not operate in parallel for more than 100 milliseconds do not need an interconnection agreement.

Generator & Prime Mover Information

ENERGY SOURCE (Hydro, Wind, Solar, Process Byproduct, Biomass, Oil, Natural Gas, Coal, etc.):

_____

ENERGY CONVERTER TYPE (Wind Turbine, Photovoltaic Cell, Fuel Cell, Steam Turbine, etc.):

_____

GENERATOR SIZE: _____ kW or _____ kVA NUMBER OF UNITS:_____

TOTAL CAPACITY: _____ kW or _____ kVA

GENERATOR TYPE (Check one):
_____ Induction _____ Inverter _____ Synchronous Other _____

Requested Procedure Under Which to Evaluate Interconnection Request

Please indicate below which review procedure applies to the interconnection request. The review procedure used is subject to confirmation by the utility.

_____ Level 2- Lab-certified interconnection equipment with an aggregate electric nameplate capacity less than or equal to 2 MVA. Lab-certified is defined in Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 lAC 45.1). (Application fee is $100 plus $1.00 per kVA.)

_____ Level 3- Distributed generation facility does not export power. Nameplate capacity rating is less than or equal to 50 kVA if connecting to area network or less than or equal to 10 MVA if connecting to a radial distribution feeder. (Application fee amount is $500 plus $2.00 per kVA.)

_____ Level 4 - Nameplate capacity rating is less than or equal to 10 MVA and the distributed generation facility does not qualify for a Level 1, Level 2, or Level 3 review, or the distributed generation facility has been reviewed but not approved under a Level1, Level2, or Level3 review. (Application fee amount is $1,000 plus $2.00 per kVA, to be applied toward any subsequent studies related to this application.)

Note: Descriptions for interconnection review categories do not list all criteria that must be satisfied. For a complete list of criteria, please refer to Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 lAC 45).

Distributed Generation Facility Information
Commissioning Test Date: _____

List interconnection components/systems to be used in the distributed generation facility that are lab-certified.

Component/System NRTL Providing Label & Listing

1. _____
2. _____
3. _____
4. _____
5. _____

Please provide copies of manufacturer brochures or technical specifications.

Energy Production Equipment/Inverter Information:

Synchronous ____ Induction _____ Inverter _____ Other _____

Rating: _____ kW Rating: _____ kVA

Rated Voltage: _____ Volts

Rated Current: _____ Amps

System Type Tested (Total System): Yes No; attach product literature

For Synchronous Machines:

Note: Contact utility to determine if all the information requested in this section is required for the proposed distributed generation facility.

Manufacturer: _____

Model No.: _____ Version No.: _____

Submit copies of the Saturation Curve and the Vee Curve

Salient Non-Salient

Torque: _____ lb/ft Rated RPM: _____ Field Amperes: _____ at rated generator voltage and current and _____ % PF over-excited

Type of Exciter: _____

Output Power of Exciter: _____

Type of Voltage Regulator: _____ Locked Rotor Current: _____ Amps Synchronous Speed: _____ RPM

Winding Connection: _____ Min. Operating Freq./Time: _____

Generator Connection: Delta Wye Wye Grounded

Direct-axis Synchronous Reactance: (Xd) _____ ohms

Direct-axis Transient Reactance: (X'd) _____ ohms

Direct-axis Sub-transient Reactance: (X"d) _____ ohms

Negative Sequence Reactance: _____ ohms

Zero Sequence Reactance: _____ ohms

Neutral Impedance or Grounding Resister (if any): _____ ohms

For Induction Machines:

Note: Contact utility to determine if all the information requested in this section is required for the proposed distributed generation facility.

Manufacturer: _____

Model No.: _____ Version No.: _____

Locked Rotor Current: _____ Amps

Rotor Resistance (Rr): _____ ohms Exciting Current: _____ Amps

Rotor Reactance (Xr): _____ ohms Reactive Power Required: _____

Magnetizing Reactance (Xm): _____ ohms _____ VARs (No Load)

Stator Resistance (Rs): _____ ohms _____ VARs (Full Load)

Stator Reactance (Xs): _____ ohms

Short Circuit Reactance (X"d): _____ ohms

Phases: Single Three Phase

Frame Size: _____ Design Letter: _____ Temp. Rise: _____ °C.

Reverse Power Relay Information (Level 3 Review Only)

Manufacturer: _____

Relay Type: _____ Model Number: _____

Reverse Power Setting: _____

Reverse Power Time Delay (if any): _____

Additional Information For Inverter-Based Facilities

Inverter Information:

Manufacturer: _____ Model: _____

Type: Forced Commutated Line Commutated

Rated Output: _____ Watts _____ Volts

Efficiency: _____ % Power Factor: _____ %

Inverter UL 1741 Listed: Yes No

DC Source / Prime Mover:

Rating: _____ kW Rating: _____ kVA

Rated Voltage: _____ Volts

Open Circuit Voltage (if applicable): _____ Volts

Rated Current: _____ Amps

Short Circuit Current (if applicable): _____ Amps

Other Facility Information:

One Line Diagram attached: _____ Yes

Plot Plan – A map showing the distributed generation facility's location in relation to streets, alleys, or other geographic markers.

Plot Plan attached: _____ Yes

Customer Signature:

I hereby certify that all of the information provided in this Interconnection Request Application Form is true.

Applicant Signature: _____

Title: _____ Date: _____

An application fee is required before the application can be processed. Please verify that the appropriate fee is included with the application:

Amount: _____

Utility Acknowledgement:

Receipt of the application fee is acknowledged and this interconnection request is complete.

Utility Signature: _____ Date: _____

Printed Name: _____ Title: _____

199—45.17 (476) Appendix D – Levels 2 to 4: standard distributed generation interconnection agreement.

LEVELS 2 TO 4:
STANDARD INTERCONNECTION AGREEMENT
(For Distributed Generation Facilities with a capacity of 10 MVA or less)

This agreement ("Agreement") is made and entered into this _____ day of _____ by and between _____ ("interconnection customer"), as an individual person, or as a _____ organized and existing under the laws of the State of _____ , and _____ , ("utility"), a _____ existing under the laws of the State of Iowa. Interconnection customer and utility each may be referred to as a "Party", or collectively as the "Parties".

Recitals:
Whereas, interconnection customer is proposing to install or direct the installation of a distributed generation facility, or is proposing a generating capacity addition to an existing distributed generation facility, consistent with the interconnection request application form completed by interconnection customer on _____; and

Whereas, the interconnection customer will operate and maintain, or cause the operation and maintenance of, the distributed generation facility; and

Whereas, interconnection customer desires to interconnect the distributed generation facility with utility's electric distribution system

Now, therefore, in consideration of the premises and mutual covenants set forth in this Agreement, the Parties covenant and agree as follows:

Article 1. Scope and Limitations of Agreement

1.1 This Agreement shall be used for all approved interconnection requests for distributed generation facilities that fall under Levels 2, 3, and 4 according to the procedures set forth in Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45).

1.2 This Agreement governs the terms and conditions under which the distributed generation facility will interconnect to, and operate in parallel with, the utility's electric distribution system

1.3 This Agreement does not constitute an agreement to purchase or deliver the interconnection customer's power.

1.4 Nothing in this Agreement is intended to affect any other agreement between the utility and the interconnection customer.

1.5 Terms used in this Agreement are defined in Attachment 1 hereto or in Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.1) unless otherwise noted.

1.6 Responsibilities of the Parties

1.6.1 The Parties shall perform all obligations of this Agreement in accordance with all applicable laws, regulations, codes, ordinances, orders, or similar directives of any government or other authority having jurisdiction.

1.6.2 The utility shall construct, own, operate, and maintain its interconnection facilities in accordance with this Agreement.

1.6.3 The interconnection customer shall construct, own, operate, and maintain its distributed generation facility and interconnection facilities in accordance with this Agreement.

1.6.4 Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for, the facilities that it now owns or subsequently may own unless otherwise specified in the attachments to this Agreement. Each Party shall be responsible for the safe installation, maintenance, repair, and condition of its respective lines and appurtenances on its respective sides of the point of interconnection.

1.6.5 The interconnection customer agrees to design, install, maintain, and operate its distributed generation facility so as to minimize the likelihood of causing an adverse system impact on the electric distribution system or any other electric system that is not owned or operated by the utility.

1.7 Parallel Operation Obligations

Once the distributed generation facility has been authorized to commence parallel operation, the interconnection customer shall abide by all operating procedures established in IEEE Standard 1547 and any other applicable laws, statutes or guidelines, including those specified in Attachment 4 of this Agreement.

1.8 Metering

The interconnection customer shall be responsible for the cost to purchase, install, operate, maintain, test, repair, and replace metering and data acquisition equipment specified in Attachments 5 and 6 of this Agreement.

1.9 Reactive Power

1.9.1 Interconnection customers with a distributed generation facility larger than or equal to 1 MVA shall design their distributed generation facilities to maintain a power factor at the point of interconnection between .95 lagging and .95 leading at all times. Interconnection customers with a distributed generation facility smaller than 1 MVA shall design their distributed generation facility to maintain a power factor at the point of interconnection between .90 lagging and .90 leading at all times.

1.9.2 Any utility requirements for meeting a specific voltage or specific reactive power schedule as a condition for interconnection shall be clearly specified in Attachment 4. Under no circumstance shall the utility's additional requirements for voltage or reactive power schedules be outside of the agreed-upon operating parameters defined in Attachment 4.

1.9.3 If the interconnection customer does not operate the distributed generation facility within the power factor range specified in Attachment 4, or does not operate the distributed generation facility in accordance with a voltage or reactive power schedule specified in Attachment 4, the interconnection customer is in default, and the terms of Article 6.5 apply.

1.10 Standards of Operations

The interconnection customer must obtain all certifications, permits, licenses, and approvals necessary to construct, operate, and maintain the facility and to perform its obligations under this Agreement. The interconnection customer is responsible for coordinating and synchronizing the distributed generation facility with the utility's system. The interconnection customer is responsible

for any damage that is caused by the interconnection customer's failure to coordinate or synchronize the distributed generation facility with the electric distribution system. The interconnection customer agrees to be primarily liable for any damages resulting from the continued operation of the distributed generation facility after the utility ceases to energize the line section to which the distributed generation facility is connected. In Attachment 4, the utility shall specify the shortest reclose time setting for its protection equipment that could affect the distributed generation facility. The utility shall notify the interconnection customer at least 10 business days prior to adopting a faster reclose time on any automatic protective equipment, such as a circuit breaker or line recloser, that might affect the distributed generation facility.

Article 2. Inspection, Testing, Authorization, and Right of Access

2.1 Equipment Testing and Inspection

The interconnection customer shall test and inspect its distributed generation facility including the interconnection equipment prior to interconnection in accordance with IEEE Standard 1547 (2003) and IEEE Standard 1547.1 (2005). The interconnection customer shall not operate its distributed generation facility in parallel with the utility's electric distribution system without prior written authorization by the utility as provided for in Articles 2.1.1-2.1.3.

2.1.1 The utility shall perform a witness test after construction of the distributed generation facility is completed, but before parallel operation, unless the utility specifically waives the witness test. The interconnection customer shall provide the utility at least 15 business days' notice of the planned commissioning test for the distributed generation facility. If the utility performs a witness test at a time that is not concurrent with the commissioning test, it shall contact the interconnection customer to schedule the witness test at a mutually agreeable time within 10 business days after the scheduled commissioning test designated on the application. If the utility does not perform the witness test within 10 business days after the commissioning test, the witness test is deemed waived unless the Parties mutually agree to extend the date for scheduling the witness test, or unless the utility cannot do so for good cause, in which case, the Parties shall agree to another date for scheduling the test within 10 business days after the original scheduled date. If the witness test is not acceptable to the utility, the interconnection customer has 30 business days to address and resolve any deficiencies. This time period may be extended upon agreement in writing between the utility and the interconnection customer. If the interconnection customer fails to address and resolve the deficiencies to the satisfaction of the utility, the applicable cure provisions of Article 6.5 shall apply. The interconnection customer shall, if requested by the utility, provide a copy of all documentation in its possession regarding testing conducted pursuant to IEEE Standard 1547.1.

2.1.2 If the interconnection customer conducts interim testing of the distributed generation facility prior to the witness test, the interconnection customer shall obtain permission from the utility before each occurrence of operating the distributed generation facility in parallel with the electric distribution system. The utility may, at its own expense, send qualified personnel to the distributed generation facility to observe such interim testing, but it cannot mandate that these tests be considered in the final witness test. The utility is not required to observe the interim testing or precluded from requiring the tests be repeated at the final witness test.

2.1.3 After the distributed generation facility passes the witness test, the utility shall affix an authorized signature to the certificate of completion and return it to the interconnection customer approving the interconnection and authorizing parallel operation. The authorization shall not be conditioned or delayed.

2.2 Commercial Operation

The interconnection customer shall not operate the distributed generation facility, except for interim testing as provided in Article 2.1, until such time as the certificate of completion is signed by all Parties.

2.3 Right of Access

The utility must have access to the isolation device or disconnect switch and metering equipment of the distributed generation facility at all times. When practical, the utility shall provide notice to the customer prior to using its right of access.

Article 3. Effective Date, Term, Termination, and Disconnection

3.1 Effective Date

This Agreement shall become effective upon execution by all Parties.

3.2 Term of Agreement

This Agreement shall become effective on the effective date and shall remain in effect unless terminated in accordance with Article 3.3 of this Agreement.

3.3 Termination

3.3.1 The interconnection customer may terminate this Agreement at any time by giving the utility 30 calendar days' prior written notice.

3.3.2 Either Party may terminate this Agreement after default pursuant to Article 6.5.

3.3.3 The utility may terminate, upon 60 calendar days' prior written notice, for failure of the interconnection customer to complete construction of the distributed generation facility within 12 months after the in-service date as specified by the Parties in Attachment 2, which may be extended by mutual written agreement between the Parties prior to the expiration of the 12-month period.

3.3.4 The utility may terminate this Agreement, upon 60 calendar days' prior written notice, if the interconnection customer has abandoned, cancelled, permanently disconnected or stopped development, construction, or operation of the distributed generation facility, or if the interconnection customer fails to operate the distributed generation facility in parallel with the utility's electric system for three consecutive years.

3.3.5 Upon termination of this Agreement, the distributed generation facility will be disconnected from the utility's electric distribution system. Terminating this Agreement does not relieve either Party of its liabilities and obligations that are owed or continuing when the Agreement is terminated.

3.3.6 If the Agreement is terminated, the interconnection customer loses its position in the interconnection review order.

3.4 Temporary Disconnection

A Party may temporarily disconnect the distributed generation facility from the electric distribution system in the event one or more of the following conditions or events occurs:

3.4.1 Emergency conditions- Shall mean any condition or situation: (1) that in the judgment of the Party making the claim is likely to endanger life or property; or (2) that the utility determines is likely to cause an adverse system impact, or is likely to have a material

adverse effect on the utility's electric distribution system, interconnection facilities or other facilities, or is likely to interrupt or materially interfere with the provision of electric utility service to other customers; or (3) that is likely to cause a material adverse effect on the distributed generation facility or the interconnection equipment. Under emergency conditions, the utility or the interconnection customer may suspend interconnection service and temporarily disconnect the distributed generation facility from the electric distribution system without giving notice to the other Party, provided that it gives notice as soon as practicable thereafter. The utility must notify the interconnection customer when it becomes aware of any conditions that might affect the interconnection customer's operation of the distributed generation facility. The interconnection customer shall notify the utility when it becomes aware of any condition that might affect the utility's electric distribution system. To the extent information is known, the notification shall describe the condition, the extent of the damage or deficiency, the expected effect on the operation of both Parties' facilities and operations, its anticipated duration, and the necessary corrective action.

3.4.2 Scheduled maintenance, construction, or repair- the utility may interrupt interconnection service or curtail the output of the distributed generation facility and temporarily disconnect the distributed generation facility from the utility's electric distribution system when necessary for scheduled maintenance, construction, or repairs on utility's electric distribution system. To the extent possible, the utility shall provide the interconnection customer with notice five business days before an interruption. The utility shall coordinate the reduction or temporary disconnection with the interconnection customer; however, the interconnection customer is responsible for out-of-pocket costs incurred by the utility for deferring or rescheduling maintenance, construction, or repair at the interconnection customer's request.

3.4.3 Forced outages- The utility may suspend interconnection service to repair the utility's electric distribution system. The utility shall provide the interconnection customer with prior notice, if possible. If prior notice is not possible, the utility shall, upon written request, provide the interconnection customer with written documentation, after the fact, explaining the circumstances of the disconnection.

3.4.4 Adverse system impact -The utility must provide the interconnection customer with written notice of its intention to disconnect the distributed generation facility, if the utility determines that operation of the distributed generation facility creates an adverse system impact. The documentation that supports the utility's decision to disconnect must be provided to the interconnection customer. The utility may disconnect the distributed generation facility if, after receipt of the notice, the interconnection customer fails to remedy the adverse system impact within 12 days, unless emergency conditions exist, in which case, the provisions of Article 3.4.1 apply. The utility may continue to leave the generating facility disconnected until the adverse system impact is corrected to the satisfaction of both the utility and the adversely-impacted customer.

3.4.5 Modification of the distributed generation facility- The interconnection customer must receive written authorization from the utility prior to making any change to the distributed generation facility, other than a minor equipment modification. If the interconnection customer modifies its facility without the utility's prior written authorization, the utility has the right to disconnect the distributed generation facility until such time as the utility concludes the modification poses no threat to the safety or reliability of its electric distribution system.

3.4.6 Unauthorized connection to the utility's electric distribution system.

3.4.7 Failure of the distributed generation facility to operate in accordance with this Agreement or the applicable requirements of 199 IAC Chapter 15 or 45.

3.4.8 The utility is not responsible for any lost opportunity or other costs incurred by interconnection customer as a result of an interruption of service under Article 3.

Article 4. Cost Responsibility for Interconnection Facilities and Distribution Upgrades

4.1 Interconnection Facilities

4.1.1 The interconnection customer shall pay for the cost of the interconnection facilities itemized in Attachment 3. The utility shall identify the additional interconnection facilities necessary to interconnect the distributed generation facility with the utility's electric distribution system, the cost of those facilities, and the time required to build and install those facilities, as well as an estimated date of completion of the building or installation of those facilities.

4.1.2 The interconnection customer is responsible for its expenses, including overheads, associated with owning, operating, maintaining, repairing, and replacing its interconnection equipment.

4.2 Distribution Upgrades

The utility shall design, procure, construct, install, and own any distribution upgrades. The actual cost of the distribution upgrades, including overheads, shall be directly assigned to the interconnection customer w hose distributed generation facility caused the need for the distribution upgrades.

Article 5. Billing, Payment, Milestones, and Financial Security

5.1 Billing and Payment Procedures and Final Accounting (Applies to additional reviews conducted under a Level 2 review and Level 4 reviews)

5.1.1 The utility shall bill the interconnection customer for the design, engineering, construction, and procurement costs of utility-provided interconnection facilities and distribution upgrades contemplated by this Agreement as set forth in Attachment 3. The billing shall occur on a monthly basis, or as otherwise agreed to between the Parties. The interconnection customer shall pay each billing invoice within 30 calendar days after receipt, or as otherwise agreed to between the Parties, if a balance due is showing after any customer deposit funds have been expended.

5.1.2 Within 90 calendar days after completing the construction and installation of the utility's interconnection facilities and distribution upgrades described in Attachments 2 and 3 to this Agreement, the utility shall provide the interconnection customer with a final accounting report of any difference between: (1) the actual cost incurred to complete the construction and installation of the utility's interconnection facilities and distribution upgrades; and (2) the interconnection customer's previous deposit and aggregate payments to the utility for the interconnection facilities and distribution upgrades. If the interconnection customer's cost responsibility exceeds its previous deposit and aggregate payments, the utility shall invoice the interconnection customer for the amount due and the interconnection customer shall make payment to the utility within 30 calendar days. If the interconnection customer's previous deposit and aggregate payments exceed its cost responsibility under this Agreement, the utility shall refund to the interconnection customer an amount equal to the difference within 30 calendar days after the final accounting report. Upon request from the interconnection customer, if the difference between the budget estimate and the actual cost exceeds 20%, the utility will provide a written explanation for the difference.

5.1.3 If a Party disputes any portion of its payment obligation pursuant to this Article 5, the Party shall pay in a timely manner all non-disputed portions of its invoice, and the disputed amount shall be resolved pursuant to the dispute resolution provisions contained in Article 8. A Party disputing a portion of an Article 5 payment shall not be considered to be in default of its obligations under this Article.

5.2 Interconnection Customer Deposit

At least 20 business days prior to the commencement of the design, procurement, installation, or construction of the utility's interconnection facilities and distribution upgrades, the interconnection customer shall provide the utility with a deposit equal to 100% of the estimated, nonbinding cost to procure, install, or construct any such facilities. However, when the estimated date of completion of the building or installation of facilities exceeds three months from the date of payment of the deposit, pursuant to Article 4.1.1 of this Agreement, this deposit may be held by the utility and will accrue interest in accordance with 199 lAC 20.4(4), with any interest to inure to the benefit of the interconnection customer.

Article 6. Assignment, Limitation on Damages, Indemnity, Force Majeure, and Default

6.1 Assignment

This Agreement may be assigned by either Party with the prior consent of the other Party. If the interconnection customer attempts to assign this Agreement, the assignee must agree to the terms of this Agreement in writing and such writing must be provided to the utility. Any attempted assignment that violates this Article is void and ineffective. Assignment shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason of the assignment. An assignee is responsible for meeting the same obligations as the assignor.

6.1.1 Either Party may assign this Agreement without the consent of the other Party to any affiliate (including mergers, consolidations, or transfers or a sale of a substantial portion of the Party's assets, between the Party and another entity), of the assigning Party that has an equal or greater credit rating and the legal authority and operational ability to satisfy the obligations of the assigning Party under this Agreement.

6.1.2 The interconnection customer can assign this Agreement, without the consent of the utility, for collateral security purposes to aid in providing financing for the distributed generation facility.

6.2 Limitation on Damages

Except for cases of gross negligence or willful misconduct, the liability of any Party to this Agreement shall be limited to direct actual damages, including death, bodily injury, third- party claims, and reasonable attorney's fees, and all other damages at law are waived. Under no circumstances, except for cases of gross negligence or willful misconduct, shall any Party or its directors, officers, employees, and agents, or any of them, be liable to another Party, whether in tort, contract, or other basis in law or equity for any special, indirect, punitive, exemplary, or consequential damages, including lost profits, lost revenues, replacement power, cost of capital, or replacement equipment. This limitation on damages shall not affect any Party's rights to obtain equitable relief, including specific performance, as otherwise provided in this Agreement. The provisions of this Article 6.2 shall survive the termination or expiration of the Agreement.

6.3 Indemnity

6.3.1 This provision protects each Party from liability incurred as a result of carrying out the provisions of this Agreement. Liability under this provision is exempt from the general limitations on liability found in Article 6.2.

6.3.2 The interconnection customer shall indemnify and defend the utility and the utility's directors, officers, employees, and agents, from all claims, damages, and expenses, including reasonable attorney's fees, to the extent resulting from the interconnection customer's negligent installation, operation, modification, maintenance, or removal of its distributed generation facility or interconnection facilities, or the interconnection customer's willful misconduct or breach of this Agreement.

6.3.3 The utility shall indemnify and defend the interconnection customer and the interconnection customer's directors, officers, employees, and agents from all claims, damages, and expenses, including reasonable attorney's fees, to the extent resulting from the utility's negligent installation, operation, modification, maintenance, or removal of its interconnection facilities or electric distribution system, or the utility's willful misconduct or breach of this Agreement.

6.3.4 Within 5 business days after receipt by an indemnified Party of any claim or notice that an action or administrative or legal proceeding or investigation as to which the indemnity provided for in this Article may apply has commenced, the indemnified Party shall notify the indemnifying Party of such fact. The failure to notify, or a delay in notification, shall not affect a Party's indemnification obligation unless that failure or delay is materially prejudicial to the indemnifying Party.

6.3.5 If an indemnified Party is entitled to indemnification under this Article as a result of a claim, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under this Article, to assume the defense of such claim, that indemnified Party may, at the expense of the indemnifying Party, contest, settle, or consent to the entry of any judgment with respect to, or pay in full, the claim.

6.3.6 If an indemnifying Party is obligated to indemnify and hold any indemnified Party harmless under this Article, the amount owing to the indemnified person shall be the amount of the indemnified Party's actual loss, net of any insurance or other recovery by the indemnified Party.

6.4 Force Majeure

6.4.1 As used in this Article, a force majeure event shall mean any act of God, labor disturbance, act of the public enemy, war, acts of terrorism, insurrection, riot, fire, storm or flood, explosion, breakage, or accident to machinery or equipment through no direct, indirect, or contributory act of a Party, any order, regulation or restriction imposed by governmental, military, or lawfully established civilian authorities (e.g., MISO), or any other cause beyond a Party's control. A force majeure event does not include an act of gross negligence or intentional wrongdoing by the Party claiming force majeure.

6.4.2 If a force majeure event prevents a Party from fulfilling any obligations under this Agreement, the Party affected by the force majeure event ("Affected Party") shall notify the other Party of the existence of the force majeure event as soon as reasonably possible. The notification will specify the circumstances of the force majeure event, its expected duration (if known), and the steps that the Affected Party is taking and will take to mitigate the effects of the event on its performance (if known). If the initial notification is verbal, it must be followed up with a written notification promptly thereafter. The Affected Party shall keep the other Party informed on a periodic basis of developments relating to the force majeure event until the event ends. The Affected Party may suspend or modify

its obligations under this Agreement without liability only to the extent that the effect of the force majeure event cannot be otherwise mitigated.

6.5 Default

6.5.1 No default shall exist when the failure to discharge an obligation results from a force majeure event as defined in this Agreement, or the result of an act or omission of the other Party.

6.5.2 A Party shall be in default ("Default") of this Agreement if it fails in any material respect to comply with, observe, or perform, or defaults in the performance of, any covenant or obligation under this Agreement and fails to cure the failure within 60 calendar days after receiving written notice from the other Party. Upon a default of this Agreement, the non-defaulting Party shall give written notice of the default to the defaulting Party. Except as provided in Article 6.5.3, the defaulting Party has 60 calendar days after receipt of the default notice to cure the default; provided, however, if the default cannot be cured within 60 calendar days, the defaulting Party shall commence the cure within 20 calendar days after original notice and complete the cure within six months from receipt of the default notice; and, if cured within that time, the default specified in the notice shall cease to exist.

6.5.3 If a Party has assigned this Agreement in a manner that is not specifically authorized by Article 6.1, fails to provide reasonable access pursuant to Article 2.3, and is in default of its obligations pursuant to Article 7, or if a Party is in default of its payment obligations pursuant to Article 5 of this Agreement, the defaulting Party has 30 days from receipt of the default notice to cure the default.

6.5.4 If a default is not cured as provided for in this Article, or if a default is not capable of being cured within the period provided for in this Article, the non-defaulting Party shall have the right to terminate this Agreement without liability by written notice, and be relieved of any further obligation under this Agreement and, whether or not that Party terminates this Agreement, to recover from the defaulting Party all amounts due under this Agreement, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this Article shall survive termination of this Agreement.

Article 7. Insurance

7.1 For distributed generation facilities with a nameplate capacity less than 1 MVA, the interconnection customer shall carry general liability insurance coverage, such as, but not limited to, homeowner's insurance.

7.2 For distributed generation facilities with a nameplate capacity of 1 MVA or above, the interconnection customer shall carry sufficient insurance coverage so that the maximum comprehensive/general liability coverage that is continuously maintained by the interconnection customer during the term shall be not less than $2,000,000 for each occurrence, and an aggregate, if any, of at least $4,000,000. The utility, its officers, employees, and agents shall be added as an additional insured on this policy. The interconnection customer agrees to provide the utility with at least 30 calendar days' advance written notice of cancellation, reduction in limits, or non-renewal of any insurance policy required by this Article.

Article 8. Dispute Resolution

8.1 Parties shall attempt to resolve all disputes regarding interconnection as provided in this Article in a good faith manner.

8.2 If there is a dispute between the Parties about an interpretation of the Agreement, the aggrieved Party shall issue a written notice to the other Party to the agreement that specifies the dispute and the Agreement articles that are disputed.

8.3 A meeting between the Parties shall be held within ten business days after receipt of the written notice. Persons with decision-making authority from each Party shall attend the meeting. If the dispute involves technical issues, persons with sufficient technical expertise and familiarity with the issue in dispute from each Party shall also attend the meeting. If the Parties agree, the meeting may be conducted by teleconference.

8.4 After the first meeting, each Party may seek resolution through the Iowa Utilities Board Chapter 6 complaint procedures (199 lAC 6). Dispute resolution under these procedures will initially be conducted informally under 199 lAC 6.2 through 64 to minimize cost and delay. If any Party is dissatisfied with the outcome of the informal process, the Party may file a formal complaint with the Board under 199 lAC 6.5.

8.5 Pursuit of dispute resolution may not affect an interconnection request or an interconnection applicant's position in the utility's interconnection review order.

8.6 If the Parties fail to resolve their dispute under the dispute resolution provisions of this Article, nothing in this Article shall affect any Party's rights to obtain equitable relief, including specific performance, as otherwise provided in this Agreement.

Article 9. Miscellaneous

9.1 Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of Iowa, without regard to its conflicts of law principles. This Agreement is subject to all applicable laws and regulations. Each Party expressly reserves the right to seek change in, appeal, or otherwise contest any laws, orders, or regulations of a governmental authority. The language in all parts of this Agreement shall in all cases be construed as a whole, according to its fair meaning, and not strictly for or against the utility or interconnection customer, regardless of the involvement of either Party in drafting this Agreement.

9 2 Amendment

Modification of this Agreement shall be only by a written instrument duly executed by both Parties.

9 3 No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations in this Agreement assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

9.4 Waiver

9.4.1 Except as otherwise provided in this Agreement, a Party's compliance with any obligation, covenant, agreement, or condition in this Agreement may be waived by the Party entitled to the benefits thereof only by a written instrument signed by the Party granting the waiver, but the waiver or failure to insist upon strict compliance with the obligation, covenant, agreement, or condition shall not operate as a waiver of, or estoppel with respect to, any subsequent or other failure.

9.4.2 Failure of any Party to enforce or insist upon compliance with any of the terms or conditions of this Agreement, or to give notice or declare this Agreement or the rights under this Agreement terminated, shall not constitute a waiver or relinquishment of any rights set out in this Agreement, but the same shall be and remain at all times in full force and effect, unless and only to the extent expressly set forth in a written document signed by that Party granting the waiver or relinquishing any such rights. Any waiver granted, or relinquishment of any right, by a Party shall not operate as a relinquishment of any other rights or a waiver of any other failure of the Party granted the waiver to comply with any obligation, covenant, agreement, or condition of this Agreement.

9.5 Entire Agreement

Except as provided in Article 9.1, this Agreement, including all attachments and the completed standard Certificate of Completion (199 IAC 45.15), constitutes the entire Agreement between the Parties with reference to the subject matter of this Agreement, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants that constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this Agreement.

9.6 Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original, but all constitute one and the same instrument.

9.7 No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties, or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power, or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

9.8 Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other governmental authority, (1) that portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by the ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

9.9 Environmental Releases

Each Party shall notify the other Party of the release of any hazardous substances, any asbestos or lead abatement activities, or any type of remediation activities related to the distributed generation facility or the interconnection facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall (1) provide the notice as soon as practicable, provided that Party makes a good faith effort to provide the notice no later than 24 hours after that Party becomes aware of the occurrence, and (2) promptly furnish to the other Party copies of any publicly available reports filed with any governmental authorities addressing such events.

9.10 Subcontractors

Nothing in this Agreement shall prevent a Party from using the services of any subcontractor it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this

Agreement in providing services and each Party shall remain primarily liable to the other Party for the performance of the subcontractor.

9.10.1 A subcontract relationship does not relieve any Party of any of its obligations under this Agreement. The hiring Party remains responsible to the other Party for the acts or omissions of its subcontractor. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of the hiring Party.

9.10.2 The obligations under this Article cannot be limited in any way by any limitation of subcontractor's insurance.

Article 10. Notices

10.1 General

Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national courier service, or sent by first-class mail, postage prepaid, to the person specified below:

If to Interconnection Customer:

Interconnection Customer: _____

Attention: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____ E-Mail: _____

If to Utility:

Utility: _____

Attention: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____ E-Mail: _____

Alternative Forms of Notice:

Any notice or request required or permitted to be given by either Party to the other Party and not required by this Agreement to be in writing may be given by telephone, facsimile or e-mail to the telephone numbers and e-mail addresses set out above.

10.2 Billing and Payment

Billings and payments shall be sent to the contacts specified for Notices in Article 10.1 above, unless a different address is set out below:

If Billing or Payment is to Interconnection Customer:

Interconnection Customer: _____

Attention: _____

Address: _____

City: _____ State: _____ Zip: _____

If Billing or Payment is to Utility:

Utility: _____

Attention: _____

Address: _____

City: _____ State: _____ Zip: _____

10.3 Designated Operating Representative

The Parties may also designate operating representatives to conduct the communications that may be necessary or convenient for the administration of this Agreement. This person will also serve as the point of contact with respect to operations and maintenance of the Party's facilities. If no such operating representative is designated below, such notices will be sent to the contacts listed in Article 10.1 above.

Interconnection Customer's Operating Representative:

Name: _____

Attention: _____

Address: _____

City: _____ State: _____ Zip: _____

Utility's Operating Representative:

Name: _____

Attention: _____

Address: _____

City: _____ State: _____ Zip: _____

10.4 Changes to the Notice Information

Either Party may change this notice information by giving five business days' written notice before the effective date of the change.

Article 11. Signatures

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For the Interconnection Customer:

Name: _____

Title: _____

Date: _____

For the Utility:

Name: _____

Title: _____

Date: _____

ATTACHMENT 1
Levels 2 To 4: Standard Interconnection Agreement

Definitions

Adverse system impact - A negative effect that compromises the safety or reliability of the electric distribution system or materially affects the quality of electric service provided by the utility to other customers.

AEP facility - An AEP facility as defined in 199 IAC 15 (Iowa Utilities Board Chapter 15 rules on Cogeneration and Small Power Production), used by an interconnection customer to generate electricity that operates in parallel with the electric distribution system. An AEP facility typically includes an electric generator and the interconnection equipment required to interconnect safely with the electric distribution system or local electric power system

Applicable laws and regulations - All duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any governmental authority, having jurisdiction over the Parties.

Commissioning test - Tests applied to a distributed generation facility by the applicant after construction is completed to verify that the facility does not create adverse system impacts. At a minimum, the scope of the commissioning tests performed shall include the commissioning test specified IEEE Standard 1547 Section 5.4 "Commissioning tests."

Distributed generation facility - A qualifying facility ~~or,~~ an AEP facility, and/or the equipment used by an interconnection customer to store electricity for later injection into the electric distribution system.

Distribution upgrades - A required addition or modification to the utility's electric distribution system at or beyond the point of interconnection to accommodate the interconnection of a distributed generation facility. Distribution upgrades do not include interconnection facilities.

Electric distribution system - The facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries from interchanges with higher voltage transmission networks that transport bulk power over longer distances. The voltage levels at which electric distribution systems operate differ among areas but generally carry less than 100 kilovolts of electricity. Electric distribution system has the same meaning as the term Area EPS, as defined in
3.1.6.1 of IEEE standard 1547.

Facilities study - An engineering study conducted by the utility to determine the required modifications to the utility's electric distribution system, including the cost and the time required to build and install the modifications, as necessary to accommodate an interconnection request.

Force majeure event - Any act of God, labor disturbance, act of the public enemy, war, acts of terrorism, insurrection, riot, fire, storm or flood, explosion, breakage, or accident to machinery or equipment through no direct, indirect, or contributory act of a Party, any order, regulation, or restriction imposed by governmental, military, or lawfully established civilian authorities (e.g., MISO), or any other cause beyond a Party's control. A force majeure event does not include an act of gross negligence or intentional wrongdoing by the Party claiming force majeure.

Governmental authority - Any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that this term does not include the interconnection customer, utility, or any affiliate of either.

IEEE Standard 1547 - The Institute of Electrical and Electronics Engineers, Inc. (IEEE), 3 Park Avenue, New York, NY 10016-5997, Standard 1547 (2003), "Standard for Interconnecting Distributed Resources with Electric Power Systems."

IEEE Standard 1547.1 - The IEEE Standard 1547.1 (2005), "Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems."

Interconnection agreement or Agreement - The agreement between the interconnection customer and the utility. The interconnection agreement governs the connection of the distributed generation facility to the utility's electric distribution system and the ongoing operation of the distributed generation facility after it is connected to the utility's electric distribution system.

Interconnection customer - The entity entering into this Agreement for the purpose of interconnecting a distributed generation facility to the utility's electric distribution system.

Interconnection equipment - A group of components or an integrated system connecting an electric generator with a local electric power system or an electric distribution system that includes all interface equipment, including switchgear, protective devices, inverters, or other
interface devices. Interconnection equipment may be installed as part of an integrated equipment package that includes a generator or other electric source.

Interconnection facilities - Facilities and equipment required by the utility to accommodate the interconnection of a distributed generation facility. Collectively, interconnection facilities include all facilities and equipment between the distributed generation facility and the point of interconnection, including modification, additions, or upgrades that are necessary to physically and electrically interconnect the distributed generation facility to the electric distribution system. Interconnection facilities are sole use facilities and do not include distribution upgrades.

Interconnection request - An interconnection customer's request, on the required form, for the interconnection of a new distributed generation facility, or to increase the capacity or change the operating characteristics of an existing distributed generation facility that is interconnected with the utility's electric distribution system.

Interconnection study - Any of the following studies, as determined to be appropriate by the utility: the interconnection feasibility study, the interconnection system impact study, and the interconnection facilities study.

Iowa standard distributed generation interconnection rules - The most current version of the procedures for interconnecting distributed generation facilities adopted by the Iowa Utilities Board. See Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45).

Parallel operation or Parallel -The state of operation that occurs when a distributed generation facility is connected electrically to the electric distribution system for longer than 100 milliseconds.

Point of interconnection - The point where the distributed generation facility is electrically connected to the electric distribution system. Point of interconnection has the same meaning as the term "point of common coupling" defined in 3.1.13 of IEEE Standard 1547.

Qualifying facility - A cogeneration facility or a small power production facility that is a qualifying facility under 18 CFR Part 292, Subpart B, used by an interconnection customer to generate electricity that operates in parallel with the electric distribution system. A qualifying facility typically includes an electric generator and the interconnection equipment required to interconnect safely with the electric distribution system or local electric power system.

Utility - Any electric utility that is subject to rate regulation by the Iowa Utilities Board.

Witness test - For lab-certified equipment, verification (either by an on-site observation or review of documents) by the utility that the interconnection installation evaluation required by IEEE Standard 1547 Section 5.3 and the commissioning test required by IEEE Standard 1547 Section 5.4 have been adequately performed. For interconnection equipment that has not been lab certified, the witness test shall also include verification by the utility of the on-site design tests required by IEEE Standard 1547 Section 5.1 and verification by the utility of production tests required by IEEE Standard 1547 Section 5.2. All tests verified by the utility are to be performed in accordance with the test procedures specified by IEEE Standard 1547.1.

ATTACHMENT 2
Levels 2 To 4: Standard Interconnection Agreement

Construction Schedule. Proposed Equipment & Settings

This attachment is to be completed by the interconnection customer and shall include the following:

1. The construction schedule for the distributed generation facility.

2. A one-line diagram indicating the distributed generation facility, interconnection equipment, interconnection facilities, metering equipment and distribution upgrades.

3. Component specifications for equipment identified in the one-line diagram.

4. Component settings.

5. Proposed sequence of operations.

6. A three-line diagram showing current potential circuits for protective relays.

7. Relay tripping and control schematic diagram.

8. A plot plan showing the distributed generation facility's location in relation to streets, alleys, address or other geographical markers.

ATTACHMENT 3
Levels 2 To 4: Standard Interconnection Agreement

Description. Costs and Time Required to
Build and Install the Utility's Interconnection Facilities

This attachment is to be completed by the utility and shall include the following:

1. Required interconnection facilities, including any required metering.

2. An estimate of itemized costs charged by the utility for interconnection, including overheads, based on results from prior studies.

3. An estimate for the time required to build and install the utility's interconnection facilities based on results from prior studies and an estimate of the date upon which the facilities will be completed.

ATTACHMENT 4
Levels 2 To 4: Standard Interconnection Agreement

Operating Requirements for Distributed Generation Facilities Operating in Parallel

The utility shall list specific operating practices that apply to this distributed generation interconnection and the conditions under which each listed specific operating practice applies.

ATTACHMENT 5
Levels 2 To 4: Standard Interconnection Agreement

Monitoring and Control Requirements

This attachment is to be completed by the utility and shall include the following:

1. The utility's monitoring and control requirements must be specified, along with a reference to the utility's written requirements documents from which these requirements are derived.

2. An internet link to the requirements documents.

ATTACHMENT 6
Levels 2 To 4: Standard Interconnection Agreement

Metering Requirements

This attachment is to be completed by the utility and shall include the following:

1. The metering requirements for the distributed generation facility.

2. Identification of the appropriate metering rules filed with the Iowa Utilities Board under subrule 199 IAC 20.2(5), and inspection and testing practices adopted under rule 199 IAC 20.6 that establish these requirements.

3. An internet link to these rules and practices.

ATTACHMENT 7
Levels 2 to 4: Standard Interconnection Agreement

As-Built Documents

This attachment is to be completed by the interconnection customer and shall include the following:

When it returns the certificate of completion to the utility, the interconnection customer shall provide the utility with documents detailing the as-built status of the following:

1. A one-line diagram indicating the distributed generation facility, interconnection equipment, interconnection facilities, and metering equipment.

2. Component specifications for equipment identified in the one-line diagram.

3. Component settings.

4. Proposed sequence of operations.

5. A three-line diagram showing current potential circuits for protective relays.

6. Relay tripping and control schematic diagram.

199—45.18(476) Appendix E – Standard interconnection feasibility study agreement.

Interconnection Feasibility Study Agreement

This agreement ("Agreement") is made and entered into this _____ day of _____ by and between _____ ("interconnection customer"), as an individual person, or as a _____ organized and existing under the laws of the State of _____ , and _____ , ("utility"), , a _____ existing under the laws of the State of Iowa. Interconnection customer and utility each may be referred to as a "Party", or collectively as the "Parties".

Recitals:

Whereas, interconnection customer is proposing to develop a distributed generation facility or modify an existing distributed generation facility consistent with the interconnection request application form submitted by interconnection customer on _____; and

Whereas, interconnection customer desires to interconnect the distributed generation facility with utility's electric distribution system; and

Whereas, interconnection customer has requested utility to perform an interconnection feasibility study to assess the feasibility of interconnecting the proposed distributed generation facility to utility's electric distribution system;

Now, therefore, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

1. All terms defined in Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.1) shall have the meanings indicated in that rule when used in this Agreement.
2. Interconnection customer elects and utility shall cause to be performed an interconnection feasibility study consistent with Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.11).
3. The scope of the interconnection feasibility study shall be based upon the information set forth in the interconnection request application form and Attachment A to this Agreement.
4. The interconnection feasibility study shall be based on the technical information provided by interconnection customer in the interconnection request application form, as modified with the written agreement of the Parties. Utility has the right to request additional technical information from interconnection customer during the course of the interconnection feasibility study. If the interconnection customer modifies its interconnection request, the time to complete the interconnection feasibility study may be extended by the utility.
5. In performing the study, utility shall rely on existing studies of recent vintage to the extent practical. The interconnection customer will not be charged for such existing studies; however, interconnection customer is responsible for the cost of applying any existing study to the interconnection customer specific requirements and for any new study that the utility performs.
6. The interconnection feasibility study report must provide the following information:
   - 6.1 Identification of any equipment short circuit capability limits exceeded as a result of the interconnection,
   - 6.2 Identification of any thermal overload or voltage limit violations resulting from the interconnection, and
   - 6.3 A description and nonbinding estimated cost of facilities required to interconnect the distributed generation facility to utility's electric distribution

system as required under Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.11(5)"a").

7. Interconnection customer shall provide a study deposit equal to 100% of the estimated nonbinding study costs at least 20 business days prior to the date upon which the study commences.
8. The interconnection feasibility study shall be completed and the results shall be transmitted to interconnection customer within 45 business days after this Agreement is signed by the Parties or the complete study deposit is received by the utility, whichever occurs later. If the interconnection customer's study request involves more than one point of interconnection and configuration, the time to complete the interconnection feasibility study may be extended by the utility.
9. Study fees shall be based on actual costs and will be invoiced to interconnection customer after the study is transmitted to interconnection customer. The invoice must include an itemized listing of employee time and costs expended on the study.
10. Interconnection customer shall pay any actual study costs that exceed the deposit without interest within 30 calendar days on receipt of the invoice. Utility shall refund any excess deposit amount without interest within 30 calendar days after the invoice.

In witness whereof, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of interconnection customer]

Signed: _____

Name (Printed): _____ Title: _____

[Insert name of utility]

Signed: _____

Name (Printed): _____ Title: _____

ATTACHMENT A
Interconnection Feasibility Study Agreement

Assumptions Used in Conducting the Interconnection Feasibility Study

The interconnection feasibility study will be based upon the information in the interconnection request application form, agree upon on _____:

1. Point of interconnection and configuration to be studied.

2. Alternative points of interconnection and configurations to be studied.

Note: 1 and 2 are to be completed by the interconnection customer. Any additional assumptions (explained below) may be provided by either the interconnection customer or the utility.

199—45.19(476) Appendix F – Standard interconnection system impact study agreement.

INTERCONNECTION SYSTEM IMPACT STUDY AGREEMENT

This agreement ("Agreement") is made and entered into this _____ day of _____ by and between _____ ("interconnection customer"), as an individual person, or as a _____ organized and existing under the laws of the State of _____ , and _____ , ("utility"), a _____ existing under the laws of the State of Iowa. Interconnection customer and utility each may be referred to as a "Party", or collectively as the "Parties".

Recitals:
Whereas, interconnection customer is proposing to develop a distributed generation facility or modifying an existing distributed generation facility consistent with the interconnection request application form completed by interconnection customer on _____; and

Whereas, interconnection customer desires to interconnect the distributed generation facility to utility's electric distribution system; and

Whereas, utility has completed an interconnection feasibility study and provided the results of said study to interconnection customer (this recital to be omitted if the Parties have agreed to forego the interconnection feasibility study); and

Whereas, interconnection customer has requested utility to perform an interconnection system impact study to assess the impact of interconnecting the distributed generation facility to utility's electric distribution system;

Now, therefore, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

1. All terms defined in Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.1) shall have the meanings indicated in that rule when used in this Agreement.
2. Interconnection customer elects and utility shall cause to be performed an interconnection system impact study consistent with Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.11).
3. The scope of the interconnection system impact study shall be based upon the information set forth in the interconnection request application form and in Attachment A to this Agreement.
4. The interconnection system impact study shall be based upon the interconnection feasibility study and the technical information provided by interconnection customer in the interconnection request application form. Utility reserves the right to request additional technical information from interconnection customer. If interconnection customer modifies its proposed point of interconnection, interconnection request, or the technical information provided therein is modified, the time to complete the interconnection system impact study may be extended.
5. The interconnection system impact study report shall provide the following information:
   - 5.1 Identification of any equipment short circuit capability limits exceeded as a result of the interconnection,
   - 5.2 Identification of any thermal overload or voltage limit violations resulting from the interconnection,
   - 5.3 Identification of any instability or inadequately damped response to system disturbances resulting from the interconnection, and

5.4 Description and nonbinding estimated cost of facilities required to interconnect the distributed generation facility to utility's electric distribution system and to address the identified short circuit, thermal overload, voltage, and instability issues as required under Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.11(5) "b").

6. Interconnection customer shall provide a study deposit equal to 100% of the estimated nonbinding study costs at least 20 business days prior to the date upon which the study commences.
7. The interconnection system impact study, if required, shall be completed and the results transmitted to interconnection customer within 45 business days after this Agreement is signed by the Parties or the complete study deposit is received by the utility, whichever occurs later. If the interconnection customer's study request involves more than one point of interconnection and configuration, the time to complete the interconnection system impact study may be extended by the utility.
8. Study fees shall be based on actual costs and shall be invoiced to interconnection customer after the study is transmitted to interconnection customer. The invoice shall include an itemized listing of employee time and costs expended on the study.
9. Interconnection customer shall pay any study costs that exceed the deposit within 30 calendar days after receipt of the invoice. Utility shall refund any excess deposit amount within 30 calendar days of the invoice.

In witness thereof, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of interconnection customer]

Signed: _____

Name (Printed): _____ Title: _____

[Insert name of utility]

Signed: _____

Name (Printed): _____ Title: _____

ATTACHMENT A
Interconnection System Impact Study Agreement

Assumptions Used in Conducting the Interconnection System Impact Study

The interconnection system impact study shall be based upon the results of the interconnection feasibility study, subject to any modifications in accordance with Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.11), and the following assumptions:

1. Point of interconnection and configuration to be studied.

2. Alternative Points of interconnection and configurations to be studied.

Note: 1 and 2 are to be completed by the interconnection customer. Any additional assumptions (explained below) may be provided by either the interconnection customer or the utility.

199—45.20(476) Appendix G – Standard interconnection facilities study agreement.

INTERCONNECTION FACILITIES STUDY AGREEMENT

This agreement ("Agreement") is made and entered into this _____ day of _____ by and between _____ ("interconnection customer"), as an individual person, or as a _____ organized and existing under the laws of the State of _____ , and _____ , ("utility"), a _____ existing under the laws of the State of Iowa. Interconnection customer and utility each may be referred to as a "Party", or collectively as the "Parties".

Recitals:

Whereas, interconnection customer is proposing to develop a distributed generation facility or modifying an existing distributed generation facility consistent with the interconnection request application form completed by interconnection customer on _____ _____and

Whereas, interconnection customer desires to interconnect the distributed generation facility with utility's electric distribution system; and

Whereas, utility has completed an interconnection system impact study and provided the results of said study to interconnection customer; and

Whereas, interconnection customer has requested utility to perform an interconnection facilities study to specify and estimate the cost of the equipment, engineering, procurement and construction work needed to interconnect the distributed generation facility;

Now, therefore, in consideration of and subject to the mutual covenants contained in this Agreement, the Parties agree as follows:

1. All terms defined in Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.1) shall have the meanings indicated in that rule when used in this Agreement.
2. Interconnection customer elects and utility shall cause to be performed an interconnection facilities study consistent with Iowa Utilities Board Chapter 45 rules on Electric Interconnection of Distributed Generation Facilities (199 IAC 45.11).
3. The scope of the interconnection facilities study shall be determined by the information provided in Attachment A to this Agreement.
4. An interconnection facilities study report (1) shall provide a description, estimated cost of distribution upgrades, and a schedule for required facilities to interconnect the distributed generation facility to utility's electric distribution system; and (2) shall address all issues identified in the interconnection system impact study (or identified in this study if the system impact study is combined herein).
5. Interconnection customer shall provide a study deposit of 100% of the estimated nonbinding study costs at least 20 business days prior to the date upon which the study commences.
6. In cases where no distribution upgrades are required, the interconnection facilities study shall be completed and the results shall be transmitted to interconnection customer within 15 business days after this Agreement is signed by the Parties. In cases where distribution upgrades are required, the interconnection facilities study shall be completed and the results shall be transmitted to interconnection customer within 35 business days after this Agreement is signed by the Parties or the complete study deposit is received by the utility, whichever occurs later.

7. Study fees shall be based on actual costs and will be invoiced to interconnection customer after the study is transmitted to interconnection customer. The invoice shall include an itemized listing of employee time and costs expended on the study.
8. Interconnection customer shall pay any actual study costs that exceed the deposit within 30 calendar days on receipt of the invoice. Utility shall refund any excess deposit amount within 30 calendar days after the invoice.

In witness whereof, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of interconnection customer]

Signed: _____

Name (Printed): _____ Title: _____

[Insert name of utility]

Signed: _____

Name (Printed): Title: _____

ATTACHMENT A
Interconnection Facilities Study Agreement

Minimum Information that the Interconnection Customer Must Provide with the Interconnection Facilities Study Agreement

Provide location plan and simplified one-line diagram of the distributed generation facilities.

For staged projects, please indicate size and location of planned additional future generation.

On the one-line diagram, indicate the generation capacity attached at each metering location. (Maximum load on CT/PT).

On the one-line diagram, indicate the location of auxiliary power. (Minimum load on CT/PT) Amps.

One set of metering is required for each generation connection to the utility's electric distribution system.

Number of generation connections: _____

Will an alternate source of auxiliary power be available during CT/PT maintenance?
Yes_____ No_____

Will a transfer bus on the generation side of the metering require that each meter set be designed for the total distributed generation capacity? Yes_____ No_____
(Please indicate on the one-line diagram).

What type of control system or PLC will be located at the distributed generation facility?
_____.

What protocol does the control system or PLC use? _____

Please provide a scale drawing of the site. Indicate the point of interconnection, distribution line, and property lines.

Number of third-party easements required for utility's interconnection facilities: _____

……

To be Completed in Coordination with the Utility

Is the distributed generation facility located in utility's service area?
Yes_____ No_____

If No, please provide name of local provider:
_____

Please provide the following proposed schedule dates:

Begin construction date: _____

Generator step-up transformers receive back feed power date:
_____

Commissioning testing date: _____

Witness testing date: _____

Commercial operation date: _____

INTERCONNECTION PRE-APPLICATION REQUEST FORM

Upon receipt of a completed pre-application report request and a non-refundable processing fee of $300, the utility shall provide the pre-application data described in section 45.XX(2) within 10 business days of receipt.

Pre-application report requests shall include the information identified in section 45.XX(1) (and as provided in the fields below) to clearly and sufficiently identify the location of the proposed point of interconnection.

The pre-application report need only include pre-existing data. A pre-application report request does not obligate the utility to conduct a study or other analysis of the proposed project in the event that data is not available. If the utility cannot complete all or some of a pre-application report due to lack of available data, the utility will provide applicant with a pre-application report that includes the information that is available.

In requesting a pre-application report, applicant understands that 1) the existence of "available capacity" in no way implies that an interconnection up to this level may be completed without impacts since there are many variables studied as part of the interconnection review process, 2) the distribution system is dynamic and subject to change, and 3) data provided in the pre-application report may become outdated and not useful at the time of submission of the complete interconnection request. Notwithstanding any of the provisions of section 45.XX(3), the utility shall, in good faith, provide pre-application report data that represents the best available information at the time of reporting.

1. This pre-application report request is for (check only one):
   - ☐ A proposed new distributed generation facility.
   - ☐ An increase in the generating capacity or a material modification of an existing distributed generation facility.

   This pre-application report request is for (check only one):
   - ☐ A project that **will export** power to [utility] system.
   - ☐ A project that **will not export** power to [utility] system.

2. Applicant provides the following information (**if available**):

   a. Approximate proposed point of interconnection. The proposed point of interconnection shall be defined by latitude and longitude, site map, street address, utility equipment number (e.g. pole number), meter number, account number or some combination of the above sufficient to clearly identify the location of the point of interconnection. In the case of an existing distributed generation facility, the name and specific location, including the county, of the existing distributed generation facility;

Project Name:

Project Location:
Street Address:
City:
County:
Zip Code:
Latitude (in degrees/minutes/seconds OR 6 decimal places):
Longitude (in degrees/minutes/seconds OR 6 decimal places):

Utility Equipment Number [nearest one (ex. pole number 1234567E, transformer number T12345)]:

Meter Badge Number:

Account Number (if existing service account is in place):

Proposed Nominal Service Voltage (ex. 480V, 12kV, etc.):

b. **Attach copy of site map for proposed project**. Site map should show:

- True north
- Proposed project location, including general area of project
- Proposed service point location
- Major roads, streets and/or highways

c. Generation technology, fuel source (i.e., gas turbine, hydro turbine, wind turbine, etc.) and optionally MW;

☐ Cogeneration MW_____Fuel Source: _____

☐ Reciprocating Engine MW_____Fuel Source:_____

☐ Biomass MW_____Fuel Source:

☐ Steam Turbine MW_____

☐ Gas Turbine MW_____Fuel Source:_____

☐ Wind Turbine MW_____

☐ Hydro Turbine MW_____

☐ Inverter Based: (e.g., Photovoltaic, Fuel Cell) MW_____

- If Fuel Cell, please describe primary fuel source:

☐ Combined Cycle MW_____Fuel Source:_____

☐ Battery System MW_____

☐ Fuel Cell MW_____Fuel Source:_____

☐ Other (please describe):

d. Number and type of units to be interconnected:

e. Name, address, telephone number, and e-mail address of applicant (primary person who will be contacted);

Name:
Title:
Company Name:
Street Address:
City, State:
Zip Code:
Phone Number:
Fax Number:
Email Address:

3. Non-refundable processing fee of $300 as specified in section 45.XX(1) is required to complete this pre-application report request. This fee shall be submitted [fill in method for submittal as specified by utility]

4. This pre-application report request shall be submitted with attachments to:

Electronically to (preferred): [utility contact email]

OR by mail to:

[utility address]

Overnight address: [utility address]

OR by facsimile: [utility fax]

5. I understand that the contents of the pre-application report are confidential and shall not be disclosed to anyone who is not an employee or other representative (including consultants) of the company or corporation I am employed with.

6. This pre-application report request is submitted by:

   Legal name of applicant: _____

   By (signature): _____

   Name (type or print): _____

   Title: _____

   Date: _____

   Phone Number: _____

DISCLAIMER: Be aware that this pre-application report is simply a snapshot in time and is non-binding. System conditions can and do change frequently.