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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS
SUSAN BITTER SMITH, Chairman
BOB STUMP
BOB BURNS
DOUG LITTLE
TOM FORESE

IN THE MATTER OF THE NOTICE OF PROPOSED RULEMAKING REGARDING INTERCONNECTION OF DISTRIBUTED GENERATION FACILITIES.	DOCKET NO. RE-00000A-07-0609 **SWEEP COMMENTS ON THE DRAFT PROPOSED RULES FOR THE INTERCONNECTION OF DISTRIBUTED GENERATION FACILITIES**

COMMENTS OF THE SOUTHWEST ENERGY EFFICIENCY PROJECT

The Southwest Energy Efficiency Project (SWEEP) appreciates the opportunity to provide these comments in response to Staff's draft proposed rules for the Interconnection of Distributed Generation Facilities.

SWEEP thanks the Commission for taking steps to finalize interconnection rules and to remove barriers to the deployment of combined heat and power (CHP). SWEEP supports CHP because it can provide many Arizona businesses and industries with more options for managing their energy supply and for reducing their energy costs, and greater assurance of high electrical reliability. The economic advantages and potential cost savings from CHP also allow Arizona businesses to invest more money in jobs, production, exports, and innovation.

Notably, Arizona is one of only about a dozen states without statewide, standardized interconnection rules. Without these rules, CHP developers have faced a patchwork of utility-by-utility requirements and procedures that can be time-consuming, costly, confusing, and arbitrary. Properly designed statewide, standardized interconnection rules provide clear and uniform processes and technical requirements for safely connecting new distributed energy systems, such as CHP, to the electric utility grid. A clear, consistent, and streamlined interconnection process also reduces uncertainty, prevents delays, and ensures that the requirements are appropriate for the size, scope, and technology of systems under consideration.

SWEEP actively participated in the staff-led workshops that helped develop the draft rules in 2005-2006 and eagerly awaits their adoption. However, to ensure the interconnection process goes as smoothly as possible and functions as intended, SWEEP recommends several changes to bring the draft rules up-to-date and up to the level of national best practices.

Dispute Resolution

One of our top concerns is that the draft rules appear to be missing a Dispute Resolution clause. Interconnection disputes between the Utility and Customers are bound to occur on occasion despite clear and carefully-crafted interconnection rules. CHP adopters and project developers need to know the steps they can take to get such disputes resolved with the minimum time and cost. Many CHP adopters or project developers may not be familiar with Commission procedures for resolving case-by-case disagreements or misunderstandings over technical issues, study requirements, study contents, interconnection costs, or interconnection processes, and may not have the legal budget for a formal complaint to the Commission.

The Dispute Resolution clause need not be complicated, and the Dispute Resolution process need not be expensive or drawn-out. Indeed, having a Dispute Resolution process delineated in the final rules will help ensure it is not.

We attach in Appendices A, B, and C respectively the Dispute Resolution section from the staff and working group's 2005-2006 draft rules, the Federal Energy Regulatory Commission's (FERC's) Small Generator Interconnection Procedures (SGIP),[1] and the Interstate Renewable Energy Council's (IREC's) 2013 Model Interconnection Procedures.[2]

Dispute Resolution clauses typically start with the Utility and Customer first addressing the dispute between themselves in writing, then having the option to turn to a neutral third-party with technical expertise (perhaps at the Commission), and finally escalating the dispute to a formal complaint at the Commission if necessary. This can be adapted to meet Arizona's needs, but it is a critical component of well-designed and effective interconnection rules.

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[1] Federal Energy Regulatory Commission, "Standard Interconnection Agreements & Procedures for Large Generators," https://www.ferc.gov/industries/electric/indus-act/gi/small-gen.asp

[2] Interstate Renewable Energy Council, "Model Interconnection Procedures, 2013 Edition," www.irecusa.org/wp-content/uploads/2014/11/2013-IREC-Interconnection-Model-Procedures-3.pdf

Draft Rules Capacity Limits

The draft rules only apply for projects up to 10 MW. The same rules could and should apply to projects above 10 MW. We recommend removing this size cap for two main reasons:

- Arizona should have procedures for all state jurisdictional projects.
- Projects above 10 MW still need clarity on the process.

The basic study framework set out in the draft rules works fine for larger projects. A similar study process for larger projects is at play in other states and in the FERC Large Generator Interconnection Procedures (LGIP).[3] If needed, longer or rampable timeframes could be included for greater-than-10-MW projects.[4]

Queuing

The rules should include a process for managing queue positions. The simplest solution would be "first come, first served." FERC SGIP has the following language:

> 1.6 Queue Position
>
> The Utility shall assign a Queue Position based upon the date- and time-stamp of the Interconnection Request. The Queue Position of each Interconnection Request will be used to determine the cost responsibility for the upgrades necessary to accommodate the interconnection. The Utility shall maintain a single queue per geographic region. At the Utility's option, interconnection requests may be studied serially or in clusters for the purpose of the System Impact Study.[5]

Electronic Communications

The interconnection rules should make clear that the Applications, Agreements, and other communications between the Utility and Customer can be through electronic means, including the use of electronic signatures. This can help streamline the administrative process for both Utilities and Customers.

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[3] Federal Energy Regulatory Commission, "Standard Interconnection Agreements & Procedures for Large Generators," https://www.ferc.gov/industries/electric/indus-act/gi/stnd-gen.asp

[4] If the rules need to contain an upper capacity limit, we suggest it be raised to at least 20 MW, as reflected in the FERC SGIP. An upper capacity limit may not be necessary, though.

[5] FERC [1]

Optional Pre-Application Report

In the years between when Arizona's interconnection guidelines were developed and today, an important best practice that has emerged in other states, in the FERC SGIP, and in the IREC 2013 Model Interconnection Procedures is an optional Pre-Application Report. Arizona should add this into its rules as well.

Potential applicants may request this optional report from the Utility in order to get information about system conditions at their proposed point of interconnection before submitting a full interconnection application.

As explained in the IREC 2013 Model Interconnection Procedures:

> A structured Pre-Application Report can reduce unnecessary interconnection applications by providing information about system conditions at a proposed point of interconnection. Without this information, developers may submit multiple applications to find out which of many potential project locations have the lowest costs, resulting in a high volume of applications. Utilities may find it increasingly difficult to keep up with the number of applications they have to review and it is inefficient for Utilities to have to process applications that are unlikely to result in projects. It also raises the overall costs of development when developers are forced to try a scatter-shot approach to identify the lowest-cost opportunities.[6]

For example, a project developer may only wish to have one project interconnected but will submit five speculative applications to find which location requires the least-significant upgrades, thereby clogging up the queue and stalling projects in the queue behind them. The number of dropouts is likely to increase as higher penetrations are reached and fewer generators are able to interconnect without triggering expensive upgrades.[7] The optional Pre-Application Report fixes this by giving readily-available information about specific, relevant technical conditions at a proposed point of interconnection, when requested. Utilities only have to provide information they have at hand, meaning they don't need to conduct new analyses in order to respond to a request. The information provided is also understood to be subject to change prior to an application being submitted.

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[6] IREC [2]

[7] K. Fox, S. Stanfield, L. Varnado, T. Culley, M. Sheehan, and M. Coddington, "Updating Small Generator Interconnection Procedures for New Market Conditions," National Renewable Energy Laboratory, 2012, www.nrel.gov/docs/fy13osti/56790.pdf

This addition to interconnection rules in other states has been generally non-controversial, supported by Utilities and Customers alike.

Our suggested draft language for the rules is as follows (based on the provisions in the IREC 2013 Model Interconnection Procedures):[8]

R14-2-xxxx Pre-Application Report

A. Pre-Application Report Request

1. A Pre-Application Report Request shall include:
   a. Contact information (name, address, phone and email).
   b. A 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.
   c. Generation technology and fuel source.
   d. A non-refundable processing fee, if a tariff containing such a fee is approved by the Commission.

2. In requesting a Pre-Application Report, a potential Applicant understands that:
   a. 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.
   b. The distribution system is dynamic and subject to change.
   c. Data provided in the Pre-Application Report may become outdated and not useful at the time of submission of the complete Interconnection Request.

B. Pre-Application Report. Within 12 calendar days of receipt of a completed Pre-Application Report Request, the Utility shall provide a Pre-Application Report. The Pre-Application Report shall include the following information, if available:

1. Total Capacity (MW) of substation/area bus or bank and circuit likely to serve proposed site.
2. Allocated Capacity (MW) of substation/area bus or bank and circuit likely to serve proposed site.

[8] IREC [2]

3. Queued Capacity (MW) of substation/area bus or bank and circuit likely to serve proposed site.
4. Available Capacity (MW) of substation/area bus or bank and circuit most likely to serve proposed site.
5. Whether the proposed Generating Facility is located on an area, spot or radial network.
6. Substation nominal distribution voltage or transmission nominal voltage if applicable.
7. Nominal distribution circuit voltage at the proposed site.
8. Approximate circuit distance between the proposed site and the substation.
9. Relevant Line Section(s) peak load estimate, and minimum load data, when available.
10. Number of protective devices and number of voltage regulating devices between the proposed site and the substation/area.
11. Whether or not three-phase power is available at the site and/or distance from three-phase service.
12. Limiting conductor rating from proposed Point of Interconnection to distribution substation.
13. Based on 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.

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 PreApplication Report due to lack of available data, the Utility will provide the potential Applicant with a Pre-Application Report that includes the information that is available and identify the information that is unavailable. Notwithstanding any of the provisions of this Section, the Utility shall, in good faith, provide Pre-Application Report data that represents the best available information at the time of reporting.

Pre-Application Mapping

A related, emerging best practice in location-planning involves the use of mapping tools, as explained in the NREL report:

> In addition to the pre-application report, California has required Utilities to publish maps of their distribution systems that identify areas with capacity available. Hawaii has taken a similar approach in providing information via online maps on the penetration levels that have been reached on distribution circuits. These maps enable developers to screen wider areas for potentially good locations for interconnection. Though they do not provide sufficient detail to accurately predict the outcome of application of the Fast Track screens, they provide a useful initial screening tool. These maps may also help the Utilities reduce the number of specific information requests to which they may need to respond.[9]

Screens Failure

The Super Fast Track and Fast Track process should include a provision similar to this one, from the IREC 2013 Model Interconnection Standards:[10]

> Screens failure: Despite the failure of one or more screens, the Utility, at its sole option, may approve the interconnection provided such approval is consistent with safety and reliability.

Fast Track Eligibility

When Arizona's draft rules were developed in 2005-2006, most states and FERC used 2 MW as the cut off for the middle track. Since then, states are seeing an increasing number of generators seeking interconnection that exceed the 2 MW limit. Requiring all of these generators to proceed through a detailed study process may prove costly and resource-intensive. Rather than cutting off Fast Track eligibility at 2 MW, consider extending it to up to 5 MW depending on the voltage of the line it is connecting to and the distance from the substation—as has been adopted in the FERC SGIP, the IREC 2013 Model Interconnection Procedures, and a number of states. This is a more reasoned approach, since a 2 MW limit may be too high in some cases and too low in others. Generators located close to a substation and on a main distribution line are less likely to

[9] NREL [6]
[10] IREC [2]

raise impacts that may require study than generating facilities located at the end of a long distribution line.[11] We recommend the rules use the following table:

Fast Track Eligibility

Line Capacity	Fast Track Eligibility- regardless of location	Fast Track Eligibility on > 600 amp line and < 2.5 miles from substation
< 4kV	< 1 MW	< 2 MW
5 kV – 14 kV	< 2 MW	< 3 MW
15 kV – 30 kV	< 3 MW	< 4 MW
31 kV – 60 kV	< 4 MW	< 5 MW

Technical Substance of Screens

We recommend a screen-by-screen comparison with the FERC SGIP[12] and the IREC 2013 Model Interconnection Standards.[13] These have been tested and vetted in dozens of states, represent best practices, were developed with high-penetration scenarios in mind, and are sufficiently conservative with regards to safety, reliability, and power quality. Many of the updates to the FERC and IREC screens between 2005 and the present, bringing them up to national best practices, are explained in the National Renewable Energy Laboratory report "Updating Small Generator Interconnection Procedures for New Market Conditions" from 2012.[14]

We'd like to call particular attention to Screen A in the draft rules, regarding 15% of peak load. This screen as written is unnecessarily conservative given the experience in other states, and may unnecessarily deter CHP deployment in Arizona. Many mid-size CHP systems could be unlikely to pass the 15% of peak load screen in the Fast Track (especially once higher levels of penetrations are reached, and especially if the rules include our above recommendations to Fast Track Eligibility). These projects would thus frequently be bumped out of the Fast Track and into the Study Track, using up time and resources of both the Utility and the CHP Customer, causing an unnecessary backlog in the queue behind them, and discouraging these projects from moving forward.

[11] NREL [6]
[12] FERC [1]
[13] IREC [2]
[14] NREL [6]

An approach reached in the high penetration states, and accepted by FERC, is to keep the 15% of peak load screen but expand the supplemental review (or additional review) process to allow projects up to 100% of minimum load. This approach allows for a greater number of projects to interconnect without full study at higher penetrations, but also gives the Utility a bit more time to evaluate any safety, reliability and power quality concerns that may arise at those higher penetrations. This is a suitable fix that is working well in the states that have adopted it. The full study process is lengthy and costly, but supplemental review can be appropriate for systems not exceeding 100 percent of minimum load on a circuit.[15]

We recommend incorporating supplemental review or additional review procedures and screens more explicitly into Arizona's rules. The specific screens for supplemental review or additional review should provide additional guidance on the power quality, voltage regulation, safety, and reliability considerations that will be reviewed. Although Arizona's proposed rules contain some limited language on additional review, this component is vague and doesn't contain specific screens. More detailed procedures here are essential to add clarity and transparency to the process, help the rules more efficiently accommodate new CHP systems once higher penetrations are reached, and help Arizona avoid needing to update and refine its rules in a couple years.

For specific supplemental review procedures and screens, we recommend whole adoption of those in the IREC Model Interconnection Procedures (Section III (D), page 15).[16]

Screen I in the proposed rules also warrants revision. In some CHP and waste heat to power (WHP) installations, the Customer may be offsetting constant load with constant generation, such that the maximum resulting exported power is less than the customer's service capacity, even though the maximum generation is rated higher than the customer's service capacity. We suggest Screen I read: "The proposed Generating Facility cannot exceed the capacity of the Customer's existing electrical service, unless there is a simultaneous request for an upgrade to the Customer's electrical service commensurate with the capacity of the Generating Facility or if the Generating Facility is configured to never inject power onto the feeder that exceeds the capacity of the electrical service."

[15] Federal Energy Regulatory Commission Order 792, Paragraphs 21and 26, November 22, 2013, www.ferc.gov/whats-new/comm-meet/2013/112113/E-1.pdf
[16] IREC [2]

Standard Applications and Standard Agreements

Standardized statewide interconnection rules should include standardized applications and agreements. Most states' procedures, the FERC SGIP, and the IREC 2013 Model Interconnection Procedures include standard applications and agreements.

The reasons are the same as for the interconnection rules themselves: reduce delays, reduce opportunities for disputes, reduce the patchwork of utility-by-utility procedures, and streamline increase the effectiveness of the process. In addition, adopting one standard set of applications and agreements in the rulemaking will save time for the Commission, staff, and stakeholders compared to reviewing and approving each individual Utility's applications and agreements one by one.

The standard applications and agreements in the IREC 2013 Model Interconnection procedures provide a good starting point for Arizona.[17]

We thank you again for the opportunity to submit these comments.

Respectfully submitted this 24th day of July 2015 by:

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ORIGINAL and thirteen (13) copies filed this 24th day of July 2015, with:

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[17] IREC [2]

APPENDIX A:
DISPUTE RESOLUTION CLAUSE FROM 2005-2006 ARIZONA DRAFT INTERCONNECTION RULES[18]

Dispute Resolution

If a dispute arises between the parties regarding a provision contained in this Document and/or Agreement, or a party's performance of its obligations as stated in this Document and/or Agreement, or any other matter governed by the terms of the Document and/or Agreement, the Parties agree that such dispute will be resolved in the manner prescribed in this Section.

Initiation and Response. Promptly upon the occurrence of the dispute, the aggrieved Party will notify the other party in writing (the "Claimant's Statement"), setting forth in sufficient detail the basis for the dispute, the aggrieved party's position and its proposal for resolution of the dispute. Within ten (10) business days following receipt of the Claimant's Statement, the other party will respond in writing (the "Responsive Statement") setting forth in sufficient detail the respondent's position and its proposal for resolution of the dispute.

Good Faith Negotiation. Within ten (10) business days after the aggrieved party's receipt of the Responsive Statement, the Parties will meet and attempt in good faith to expeditiously negotiate a resolution to the dispute. In attendance for each party at that opening session and throughout the dispute resolution procedure described in this Section will be a representative or representatives of each party who are authorized to act for the party and resolve this dispute without resort to higher authority.

Dispute Resolution by Mediation. Any dispute(s) arising out of or relating to this Rule shall be subject to binding mediation by a mutually acceptable mediator. If no mediator is mutually acceptable, then a mediator shall be appointed by the Arizona Office of the American Arbitration Association, at the request of any party. The costs of mediation shall be borne by the losing party and as prescribed by the Mediator.

Arizona Corporation Commission. In the event such dispute is not resolved by mediation, then the Parties irrevocably consent to exclusive jurisdiction to resolve any such dispute by the Arizona Corporation Commission of the State of Arizona.

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[18] Arizona Corporation Commission, Staff Report on Interconnection for the Generic Investigation of Distributed Generation. (Docket No.E-00000A-99-043 1), January 24, 2007

APPENDIX B:
DISPUTE RESOLUTION CLAUSE FROM FEDERAL ENERGY REGULATORY COMMISSION SMALL GENERATOR INTERCONNECTION PROCEDURES[19]

4.2 Disputes

4.2.1 The Parties agree to attempt to resolve all disputes arising out of the interconnection process according to the provisions of this article.

4.2.2 In the event of a dispute, either Party shall provide the other Party with a written Notice of Dispute. Such Notice shall describe in detail the nature of the dispute.

4.2.3 If the dispute has not been resolved within two Business Days after receipt of the Notice, either Party may contact FERC's Dispute Resolution Service (DRS) for assistance in resolving the dispute.

4.2.4 The DRS will assist the Parties in either resolving their dispute or in selecting an appropriate dispute resolution venue (e.g., mediation, settlement judge, early neutral evaluation, or technical expert) to assist the Parties in resolving their dispute. DRS can be reached at 1-877-337-2237 or via the internet at http://www.ferc.gov/legal/adr.asp.

4.2.5 Each Party agrees to conduct all negotiations in good faith and will be responsible for one-half of any costs paid to neutral third-parties.

4.2.6 If neither Party elects to seek assistance from the DRS, or if the attempted dispute resolution fails, then either Party may exercise whatever rights and remedies it may have in equity or law consistent with the terms of these procedures.

[19] FERC [1]

APPENDIX C: DISPUTE RESOLUTION CLAUSE FROM INTERSTATE RENEWABLE ENERGY COUNCIL 2015 MODEL INTERCONNECTION STANDARDS[20]

B. Dispute Resolution

1. For a dispute related to these rules, either Party may submit a written request to the other Party for an informal meeting by phone, electronic media, or in person to attempt to resolve the dispute. Following such a request, each Party shall make available a person with authority to resolve the dispute. A meeting shall be scheduled for at least one hour, but may be shorter at the option of the Party requesting the meeting. The meeting shall take place at a time and in a manner agreeable to the Party receiving the request within three (3) Business Days of the Party's receipt of the request for a meeting. If a dispute involves technical issues, persons with sufficient technical expertise and familiarity with the issue in dispute from each Party shall attend the informal meeting.

2. If an informal meeting of the Parties does not resolve a dispute, the Parties may mutually agree to further discussions or either Party may seek resolution of the dispute through the complaint or mediation procedures available at the Commission. Dispute resolution at the Commission will be initially conducted in an informal, expeditious manner to reach resolution with minimal costs and delay. If no resolution is reached after informal discussions, either Party may file a formal complaint with the Commission.

[20] IREC [2]