



Requirements for Generator Interconnection

May 2018

UTILITY OPERATIONS

1400 HIGHWAY 13 SE • P.O. BOX 2517 • CEDAR RAPIDS, IOWA 52406-2517
(319) 366-8011 • (800) 373-8011 • FAX (319) 366-6328 • WWW.CIPCO.NET

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1.0 Introduction

1.1 Scope

This guide covers the basic requirements and procedures to interconnect a Customer's Generating Facility to Central Iowa Power Cooperative's (CIPCO's) Transmission System for the purposes of parallel operation.

1.2 Purpose

This purpose of this guide is to provide guidance to the Customer intending to construct a Generation Facility and interconnect that facility with the CIPCO Transmission System for purposes of parallel generation operation. This guide provides both administrative and technical guidelines to assist the Customer in establishing the interconnection.

This guide outlines the procedures and minimum requirements to:

- Ensure the safety of CIPCO personnel and the general public
- Ensure the Generation Facility is operated in a safe and reliable manner
- Minimize any possible damage to the electrical equipment owned by CIPCO or others
- Minimize adverse operating conditions on the CIPCO Transmission System
- Meet the applicable North American Electric Reliability Corporation (NERC), Regional Reliability Organization (RRO) and applicable Independent System Operator (ISO) requirements and regulations
- Maintain comparable reliability and service to all users of the CIPCO Transmission System

1.3 Authority

CIPCO's interconnection requirements comply with NERC standards and practices. While CIPCO is not regulated by the Federal Energy Regulatory Commission (FERC), the requirements in this guide generally follow the requirements of FERC Order No. 888. Since CIPCO is a Rural Utilities Service (RUS) borrower under the US Department of Agriculture, requirements other than those in FERC Order 888 may apply.

1.4 Customer Compliance with CIPCO Requirements

The intent of these requirements is to avoid inadequate designs of interconnection facilities that could adversely affect the safe operation of the CIPCO Transmission System or degrade its reliability. Due to the many types of interconnections

possible, the general requirements contained herein may be modified as specific circumstances dictate.

CIPCO reserves the right to provide additional specific requirements applicable to any request for interconnection. CIPCO also reserves the right to modify the interconnection requirements stated herein on a case-by-case basis. Any Customer desiring interconnection and parallel operation is required to comply with these requirements before the generator may interconnect and operate in parallel with the CIPCO Transmission System.

1.5 Customer's Financial Obligations for Interconnection

CIPCO requires the Customer fund, in advance, all costs associated with the generator interconnection.

1.6 Transmission Service Credits

CIPCO does not offer transmission service credits for any facilities or network upgrades associated with the generator interconnection.

1.7 Requests for Interconnection

It is expressly understood that a request for interconnection service **does not** constitute a request for transmission service. The approval of interconnection service is required before any generating facility can electrically connect to the transmission system, whereas the approval of transmission service is required before an interconnected generator can inject electric power into the grid.

Customer requests for interconnection will be made to CIPCO per the procedures outlined in this guide.

Customer requests for transmission service must be made to CIPCO through the Midcontinent Independent System Operator (MISO) OASIS (Open Access Same-Time Information System). Until such separate transmission service request is approved, CIPCO makes no representation, assurance, or warrantee that transmission capacity is available on its system or that of any other system to allow an interconnected generator to inject power into the grid.

2.0 General Policy

The requirements stated in this guide are applicable to any Customer owned and/or operated Generating Facility that will be operated in parallel with the CIPCO Transmission System. The requirements are intended to achieve the following:

- Ensure the safety of the general public, CIPCO customers and CIPCO personnel
- Permit the Customer to operate generating equipment in parallel with the CIPCO Transmission System in a safe, reliable and efficient manner
- Minimize any possible damage to the electrical equipment of CIPCO, CIPCO customers and others
- Minimize adverse operating conditions on the CIPCO Transmission System
- Maintain comparable reliability and service to all users of the CIPCO Transmission System
- Meet applicable NERC and ISO requirements and regulations

2.1 Customer Financial Obligation Associated with Parallel Operation

CIPCO requires that the interconnecting Customer fund, in advance, all costs associated with the generator interconnection, including but not limited to the following:

- All study costs and related expenses associated with the Feasibility, System Impact, Facility, and any other studies deemed necessary to determine the impacts and required upgrades to the CIPCO Transmission System and that of other Affected Systems
- All costs associated with securing the necessary study approvals from any regulatory or other entities deemed necessary
- All equipment, facilities and the associated costs such as labor, construction and installation costs necessary to modify or upgrade the CIPCO Transmission System to alleviate the impacts identified by the interconnection studies
- All equipment, facilities and the associated costs such as labor, construction and installation costs necessary to modify or upgrade the transmission systems of other Affected Systems to alleviate the impacts identified by the interconnection studies
- All transmission and substation interconnection facilities, equipment and associated costs such as labor, construction and installation costs
- Land, rights-of-way, permitting, licensing, engineering, etc
- Station development costs
- Metering installation, testing and maintenance, including all parts and related labor, meter reading and scheduling
- Telemetry installation, testing and maintenance, including all parts and

related labor

- Operating expenses, including communication circuits and associated equipment and installation costs
- Protective device equipment, installation costs, and related labor
- Review of design, inspection of facilities, and testing costs
- Facilities and equipment required to comply with RRO and MISO requirements, including the ability to receive and follow dispatch instructions
- Costs to incorporate generation data into CIPCO's energy management system as deemed necessary by CIPCO
- Agreement and contract development costs, including associated attorney fees
- Any other costs associated with the interconnection of the Customer's generation facilities to the CIPCO Transmission System

CIPCO does not offer transmission credits for any facilities or network upgrades associated with the generator interconnection.

2.2 Ownership of Facilities

Since CIPCO is responsible for the integrity and reliability of the CIPCO Transmission System, CIPCO may require CIPCO ownership and control over certain facilities funded by the Customer.

The ownership boundary between the CIPCO Transmission System and the Customer's System will be the high side disconnecting device of the generation step-up transformer and/or the reserve station auxiliary transformer unless otherwise agreed to by CIPCO and the Customer. In addition, CIPCO will own, at Customer's expense, all relaying and control systems associated with the transmission equipment from the high side disconnecting device to CIPCO's Transmission System. The Customer will provide a visible open interconnecting device at the point of interconnection to the CIPCO Transmission System. In addition to the facilities and equipment, the Customer will provide the land for the interconnection substation and provide an easement for CIPCO to access and construct its facilities.

All CIPCO equipment that is upgraded to allow for the interconnection with the Customer will be owned by CIPCO, at the Customer's expense.

2.3 CIPCO Standard Equipment

Any equipment CIPCO will own, operate, or maintain as a result of the interconnection will be of a manufacturer and type that is standard to the CIPCO Transmission System, to the extent possible. For any Customer-owned equipment that CIPCO will operate or maintain, such equipment will meet the technical specifications described in Section 7. In addition, the Customer will pay for the

training of CIPCO designated personnel to operate and maintain such equipment, if necessary. The Customer must also maintain a stock of spare parts and make them available to CIPCO maintenance personnel or contract employees.

All equipment, in which the operation or the failure to operate may result in the interruption of the transmission path through the interconnection, must conform to the technical specifications described in Section 7.

2.4 Design and Construction of Interconnection Facilities

CIPCO will either design and construct, or arrange for the design and construction of the required transmission facilities in the interconnecting substation. CIPCO may, at its option, contract with the Customer or others for any or all of these services. The Customer will own and construct from the visible open interconnecting device to the Customer's generator, including the generator step-up transformer and station auxiliary transformer.

2.5 Protective Devices

Protective devices, as defined in this document (e.g., relays, circuit breakers, etc), will be installed to disconnect the Customer's generation from the CIPCO Transmission System whenever a fault or electrical abnormality occurs. Such equipment must coordinate with existing CIPCO and ITC Midwest equipment and provide comparable levels of protection as practiced on CIPCO's Transmission System. In no event shall the level of protection and/or reliability be allowed to decrease due to the interconnection of the Customer's generation. Major factors generally determining the type of protective devices required include:

- 1 The type and size of the Customer's generating equipment
- 2 The location of the Customer on the CIPCO System
- 3 The manner in which the installation will operate

The specific requirements will be determined during the Interconnection Studies.

In addition to the protective devices, the addition of Customer generation may require modification to CIPCO's or a neighboring transmission system. Each request for generation addition will be handled individually. CIPCO will solely determine on a comparable basis, the protective devices, transmission system modifications and/or additions required. CIPCO will work with the Customer to achieve an installation that meets the requirements of both the Customer and CIPCO. The Customer shall bear the costs of protective devices and CIPCO Transmission System modifications required to permit the operation of parallel generation.

2.6 Operation and Control Area Obligation

CIPCO maintains an Integrated Transmission System (ITS) with ITC Midwest. The ITS, which is operated by ITC Midwest, is operated on a daily basis as though it were one single transmission system.

CIPCO or its designated agent will operate all equipment owned by CIPCO or located within the Local Balancing Area. CIPCO may, at its option, contract with the Customer or others to provide for any or all of its operational needs.

Any operations of interconnected transmission equipment must be under the direction of the responsible Transmission Operator. All interconnected transmission facilities must be under control of a NERC-certified Transmission Operator.

2.7 Responsibility and Approval

CIPCO does not assume responsibility for protection of the Customer's generating equipment or of any other Customer equipment. The Customer is solely responsible for protecting its equipment to prevent damage from faults, imbalances, or other disturbances on either its own system or on the transmission systems owned by CIPCO or others.

CIPCO will not be responsible for damage to the Customer's equipment due to out-of-phase reclosing. Such an event will likely cause damage to the generator and must be addressed by the Customer. Technical aspects addressing protection requirements are expanded in Section 7.

The process defined in this guide concludes with CIPCO approval of the parallel generation interconnection. Approval implies that CIPCO has reviewed the interconnection to ensure that the CIPCO Transmission System or CIPCO-owned generation facilities are not adversely affected by operation of the parallel generation.

By approving the interconnection, CIPCO is not assuming any liability or responsibility for Customer-owned equipment.

2.8 Compliance with Governing Entities Requirements

The requirements set forth by this document are intended to comply with all applicable local, state and federal regulatory agency requirements and the applicable requirements of other entities governing or regulating the owners and operators of electric systems and associated interconnected generation. These include entities and their successors such as Mid-Continent Area Power Pool), Midwest Reliability Organization (MRO), North American Electric Reliability Corporation (NERC), Rural Utilities Service (RUS) and/or any Independent System

Operator (ISO) with jurisdiction over CIPCO facilities. The Customer is also expected to work closely with CIPCO to keep abreast of changes in regulatory requirements and to comply with them as they develop.

The interconnection requirements for generation will vary depending upon issues such as:

- The interconnection voltage
- Interconnection power flow (one-way or two-way)
- Size and type of the proposed generation

It is the responsibility of the Customer to obtain all permits and approvals of the governing entities to allow the siting of its proposed generator. CIPCO may, at its option, choose to obtain any or all of those permits and approvals required for facilities funded by the Customer that CIPCO will ultimately own at Customer expense. The Customer must comply with applicable electrical and safety codes, studies, reporting requirements, policies and standards.

2.9 The Approval Process

Due to the heavily interconnected nature of the CIPCO and ITC Midwest transmission facilities in the Integrated Transmission System, MISO review and approval of the proposed interconnection may be required.

The process of securing interconnection approval requires substantial lead time to perform the necessary studies, secure approvals from regulators and other governing bodies, obtain rights-of-way, negotiate agreements, construct required facilities, all of which are outside CIPCO control.

2.10 NERC Policies and Standards Compliance

All generators operated normally parallel with the CIPCO System must satisfy MRO and NERC policies and standards for generation including providing data and obtaining any necessary approval. These standards require interconnected power system additions to maintain or improve the regional system security, reliability and transfer capability.

2.11 Financial Responsibility

The Customer is required to pay a deposit to CIPCO prior to CIPCO performing each Interconnection Study. These deposits are equivalent to the estimated cost to perform the study. The Customer shall pay CIPCO's actual cost to perform each study. Any funds remaining at the end of the study will be returned to the Customer. Should there be insufficient funds to complete a study; CIPCO will inform the Customer that additional funds are required. Study work will stop until

additional funding is provided by the Customer.

Once the studies are completed, CIPCO would provide a best estimate of costs to be paid by the Customer to effect the interconnection, and the Parties would negotiate milestones for completing the interconnection, all of which would be incorporated into the Generation Interconnection Agreement.

Once an interconnection request is deemed complete, any material modification to the proposed Generating Facility, Customer's Interconnection Facilities, or the site of the interconnection not agreed to in writing by CIPCO, shall require submission of a new interconnection request.

Insurance - A minimum insurance coverage must be maintained on the Generator Facility.

2.12 Study Requirements

The following studies are necessary to review, design, approve, and construct the requested interconnection to the CIPCO Transmission System. These processes for each of these studies are outlined in detail later in this guide. In general, the required studies include:

1. **Feasibility Study** – A rough, initial study to determine the practicality of the generation interconnection
2. **System Impact Study** – A detailed study to identify existing facilities that may be adversely impacted by the interconnection
3. **Facilities Study** – Determine the system upgrades and associated costs to alleviate the adverse impacts identified in the System Impact Study

Other detailed studies may also be required depending on the location and characteristics of the proposed generator, or depending on regulatory requirements and standards applicable at the time.

2.13 Self Generators

A Customer which owns and operates generation is required to obtain or provide for ancillary services or portions of such services as required by FERC, NERC, or MISO for any electric load served from the interconnected electric grid. Therefore, any generation provider operating normally in parallel with the system to serve its own electric load also must provide for regional accreditation of its generator, the reserve capacity requirements, spinning and non-spinning reserves, reserved load regulating capability, unit cycling capability to satisfy NERC control performance criteria, have the ability to determine actual after-the-fact load and generation, and have the delivery system capacity to receive emergency power. These services

can be provided in whole or in part through CIPCO services, by the Customer, or through arrangements with other utilities. However, the Customer must confirm with CIPCO that it is in compliance at all times with these requirements.

2.14 Interconnection Service not to Imply Transmission Service

Customers that meet the requirements of these guidelines and have obtained the necessary approvals to interconnect with the CIPCO Transmission System only have the right to interconnect. This does not convey the right to actually deliver power and energy into or over the CIPCO Transmission System or the transmission facilities of other entities, nor does securing interconnection approval imply the CIPCO Transmission System or that of others can accommodate the delivery of the Customers power and energy over the transmission network.

In order to transmit electric power and energy across the CIPCO Transmission System, the Customer must request transmission service under CIPCO's Transmission Tariff. The entity purchasing the plant energy and capacity may request these transmission services in lieu of the Customer. Approval of the Transmission Service request will be based on subsequent studies performed to determine the capability of the system to provide the requested service.

3.0 Interconnection Study Process

The following process applies to all Customers proposing to interconnect a generating unit to the CIPCO Transmission System or increase the capacity of an existing generating unit already interconnected with the CIPCO Transmission System. This process also applies to all generators connecting, or connected, to a member distribution system in which some or all of the power and energy capability of the generator(s) may, from time to time as determined by CIPCO, "come out from behind the meter" and flow into the CIPCO transmission system.

A request for Interconnection is different from a Request for Transmission Service. The studies described in this guide are not sufficient, nor intended, to determine the capability of the transmission network to deliver the Customer's power and energy. The studies described in this guide are solely intended to determine the requirements for interconnection of the generation facility to the CIPCO Transmission System.

A Customer desiring transmission service from CIPCO shall also follow the procedures of the CIPCO Tariff in requesting Transmission Service. If a Customer knows at the time of making the Request for Interconnection where the power and energy from the Generation Facility will be delivered to, the Customer may make a request for Transmission Service over the CIPCO Transmission System simultaneously with the request for interconnection. The advantage to the Customer is in time savings since to a large extent, both the study for interconnection and the study for transmission service can be done in parallel.

3.1 Requesting an Interconnection

Customers seeking to interconnect a new generator with the CIPCO Transmission System or seeking to increase the capacity of an existing generator already connected to the CIPCO Transmission System must formally initiate the process by submitting a Request for Interconnection.

The following procedure shall be followed by the Customer when submitting a Request for Interconnection:

- 1) The Customer shall complete the “CIPCO Generation Interconnection Request Form”, a copy of which is attached in Appendix 3. This form requests basic information, such as, but not limited to, the following:
 - Owner of the proposed facility (Name and address)
 - Operator of the proposed facility (Name and address)
 - Design Firm (Name and address)
 - Proposed in service date
 - Voltage level of interconnection
 - Number of generators
 - Generator operating hours per year
 - Anticipated Customer load without the generator (if applicable)
 - Anticipated Customer load with generator (if applicable)
 - Type of generating unit (i.e. synchronous or induction)
 - Manufacturer
 - Rated output
 - Rated power factor (min and max)
 - Rated voltage
 - Rated amps
 - Energy source
 - Relevant short circuit, power flow and stability modeling data
- 2) The Customer shall develop a detailed one-line electrical diagram of the proposed facility and interconnection, providing as much information as possible about the proposed project.
- 3) The Customer shall develop a physical map showing the physical location of the proposed interconnection, noting the county, township and section where the proposed generation facilities will be located and the anticipated point of interconnection with the CIPCO Transmission System.
- 4) The Customer will document site control. “Site Control” shall mean documentation reasonably demonstrating: (1) ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Generating Facility; (2) an option to purchase or acquire a leasehold site for such purpose; or (3) an exclusivity or other business relationship

between the Customer and the entity having the right to sell, lease or grant the Customer the right to possess or occupy a site for such purpose.

- 5) The Customer shall submit the above interconnection request form, maps, and statement of site control along with a \$10,000 deposit to CIPCO at the following address:

Dan Burns, PE
Director Engineering and Transmission Planning and Tariffs
Central Iowa Power Cooperative
P.O. Box 2517
Cedar Rapids, IA 52406-2517
dan.burns@cipco.net

CIPCO will process the application and review the forms, maps, site control statement and deposit submitted by the Customer to ensure completeness of the application. CIPCO may take up to 30 business days to complete this review. Once the review is complete, CIPCO will notify the Customer whether the request is deemed valid or whether additional information is needed in order to validate the request.

3.2 Request Validation and Queue Position Assignment

CIPCO will assign an initial temporary queue date to the request equivalent to the date of receipt of the application materials by CIPCO. The queue date will establish the request's position in CIPCO's study queue for processing. Obtaining a queue date as early as possible is important as the queue position may affect the interconnection customer's cost responsibility for upgrades.

If the request is validated by CIPCO without the need for CIPCO to request additional information from the Customer, the request for interconnection will be assigned a permanent queue date equivalent to the date in which the original request was received by CIPCO.

Should any additional information be required, or any portion of the forms, maps, site control statement or deposit be missing, the initial temporary queue date will be removed. The interconnection request shall be deemed complete when the Customer has provided the required information and CIPCO has validated its completeness, or the Parties have agreed that the Customer may provide additional information at a later date. Once the subsequent submittal of information has been validated by CIPCO, a permanent queue date will be assigned to the request. The permanent queue date in this case will be the date which validation of the request has been completed by CIPCO.

After the request has been validated by CIPCO, CIPCO will contact the Customer to schedule a scoping meeting (or conference call) to discuss the project in more

detail and to kick off the study process.

3.3 Initial Scoping Meeting

Once CIPCO has notified the interconnection customer that the interconnection request is deemed valid, a scoping meeting will be scheduled as soon as practical, usually within the next ten (10) business days.

The purpose of the scoping meeting shall be to review the Interconnection Request, identify existing studies that may be relevant to the interconnection request, and describe the study process and whether any additional information is required before proceeding with the studies. The parties are expected to have the appropriate personnel attend the meeting as reasonably required in order to accomplish the purpose of the meeting. Representatives from neighboring transmission systems will be invited since the interconnection may affect their system also.

Within ten (10) business days after the scoping meeting, CIPCO shall provide the Customer with an Interconnection Feasibility Study Agreement including an outline of the study scope and a non-binding good faith estimate of the cost to perform the study.

3.4 Interconnection Study Process Overview

The following sequential interconnection studies are necessary to review, design, approve, and construct the requested interconnection to the CIPCO Transmission System. A quick overview of these required studies is as follows:

- 1. Feasibility Study** – The purpose of this preliminary power flow screening study is to determine whether significant system upgrades may be required as a result of the interconnection that could potentially prevent the proposed generation project from being economically feasible.
- 2. System Impact Study** – The purpose of this detailed study is to determine all facilities that may be adversely impacted by the proposed interconnection. Additional power flow studies, short circuit studies, and stability studies may be performed. In addition to identification of impacted facilities, upgrades to the impacted facilities and rough cost-estimates will be determined.
- 3. Facilities Study** – After reviewing the results of the System Impact Study, should the Customer wish to proceed with the proposed interconnection project, the Facilities Study will determine more detailed cost estimates for the impacted facility upgrades and schedules for completion.

Other detailed studies may also be required depending on the location and characteristics of the proposed generator, or depending on regulatory

requirements and/or standards applicable at the time.

CIPCO or a designated agent will conduct the above interconnection studies to determine the impact of the Interconnection Request on the CIPCO Transmission System and any Affected Systems. Affected Systems include all neighboring transmission owners or remote transmission owners with impacted facilities as identified by the studies.

All wind, hydro, nuclear, coal, and waste heat study generation in the CIPCO interconnection queue will be dispatched at 100% in both the summer peak and shoulder cases. All combined cycle and solar in the CIPCO interconnection queue which will be dispatched at 100% in the summer peak case and 50% in the shoulder case. All combustion turbine, diesel engine, and oil generation in the CIPCO queue will be dispatched at 100% in the summer peak case and 0% in the shoulder case.

Throughout the study process, CIPCO will coordinate and communicate with all Affected Systems regarding various aspects of the studies. Affected System representatives will be invited to all meetings associated with the studies.

If facility upgrades are deemed necessary on an Affected System (a non-CIPCO Transmission System facility), CIPCO may not be able to compel that owner to perform any network upgrades required by the interconnection within the required timeline. It is the Interconnecting Customer's responsibility to work with the Affected System to resolve any adverse impacts on the Affected System prior to interconnecting with CIPCO.

3.5 Feasibility Study

The purpose of the Feasibility Study is to determine whether significant system upgrades may be required as a result of the proposed interconnection that could potentially prevent the proposed generation project from being economically feasible. The base case power flow models that will be used in the subsequent System Impact Study are developed and tuned as part of this study.

This screening study provides rough, preliminary information regarding the magnitude of the impacts the proposed Generating Facility may have on the CIPCO Transmission System and other Affected Systems. The study also provides an indication of the magnitude of cost that may be associated with the interconnection.

The Feasibility Study is not intended to be an in-depth analysis, but rather it is intended as a "screening" type of analysis. The results from this study are to be considered "preliminary". The advantage of the Feasibility Study is to reveal to the Customer at an early stage in the process that interconnection of the proposed Generation Facility may not be economically feasible due to possible significant system upgrades required. Such revelation during a Feasibility Study may save

the Customer valuable time and cost by avoiding subsequent detailed study work and analysis.

Note that by virtue of the screening nature of the power flow analysis performed as part of this study that it is highly probable that the Feasibility Study will not identify all impacts associated with the proposed Generation Interconnection. Since the Feasibility Study is not a detailed study, it is possible that the infeasibility of the interconnection project may not be revealed until a later point in the study process. There is no guarantee that the economic infeasibility of a project will be identified during the Feasibility Study.

CIPCO will make a good faith attempt to complete the Feasibility Study within the specified number of days from receipt of the signed Feasibility Study Agreement. If the study cannot be completed in the specified time period, CIPCO will notify the Customer.

A deposit for the performance of the study is required along with a signed study agreement before any study work will begin. The study deposit will equal the estimated cost to perform the study. The Customer is responsible for the actual costs of the study, and may receive a refund at the end of the study or be required to provide additional funds to complete the study, whichever the case may be.

The Feasibility Study will be carried out in accordance with the general guidelines of the North American Electric Reliability Corporation (NERC).

The Feasibility Study Process is outlined as follows:

1. **CIPCO Sends Feasibility Study Agreement to the Customer** - After the Interconnection Request is validated by CIPCO and the Initial Scoping Meeting is held, CIPCO will provide a Feasibility Study Agreement and an estimate of the cost to perform the study to the Customer.
2. **Customer Sends Feasibility Study Agreement and Deposit to CIPCO** - Within 30 Calendar Days, the Customer must provide CIPCO with the following items:
 - a) An executed Feasibility Study Agreement
 - b) Deposit in the amount of 100% of the estimated study cost
 - c) Continued demonstration of site control
 - d) Any additional data requested at the Initial Scoping Meeting

The above items must be completed and received by CIPCO within 30 Calendar Days of receipt or the Interconnection Request will lose its queue position.

3. **Ad Hoc Study Group Formation and Kickoff Meeting** – Once the study agreement is executed and returned with the required information and study

deposit, CIPCO will form an Ad Hoc Study Group. The Ad Hoc Study Group will consist of CIPCO staff and staff from any Affected Systems or neighboring or regional entities that may be impacted by the Project.

A meeting will be set up for the Customer, CIPCO and the Ad Hoc Study Group to kickoff the Study. Some of the items to be discussed at this meeting will include refining the work scope and schedule, clarifying study methodology, processes, assumptions, criteria, and reporting needs, model development issues and gathering necessary data to proceed with the study work.

- 4. Model Development** – The appropriate regional power flow models will be used for this analysis. These models will be modified as necessary per input from the Ad Hoc Study Group. Such modifications may be made to reflect model corrections, the addition of system improvements that are scheduled to be in-service ahead of the proposed Generation Facility, the addition of prior queued generator interconnection projects, changes to net interchange between control areas to reflect appropriate transmission service reservations, etc. These models will serve as benchmarks when comparing steady-state performance without and with the Project. The Project will be added to the benchmark models and generation levels will be adjusted to accommodate the output from the new generator dispatched according to standards defined in Section 3.4 of CIPCO's Requirements for Generator Interconnection, with input provided by the Ad Hoc Study Group at the kickoff meeting.
- 5. Power Flow Analysis** – The power flow analysis will consist of a linear "DC" contingency analysis intended to identify potential adverse thermal impacts attributed to the proposed Generation Facility. The linear analysis provides a quick but approximate analysis of potential system overloads. If adverse impacts are found, potential solutions will be determined that will allow interconnection of the full amount of proposed generation. The potential solutions will be modeled and evaluated from a thermal perspective to determine whether the adverse impacts identified by the interconnection will be alleviated through system reinforcements and upgrades.

In the subsequent System Impact Study, a more detailed and thorough AC contingency analysis will be performed to confirm the DC analysis results and to identify any voltage impacts associated with the proposed interconnection.

- 6. Flowgate Analysis** – Impacts of the proposed project on the loading of MISO flowgates will be evaluated.
- 7. Rough Cost Estimate of System Reinforcements** – A rough non-binding cost estimate for the required system reinforcements and upgrades to eliminate the thermal issues identified in the Feasibility Study will be

determined using typical unit cost data furnished by the Ad Hoc group members. Note that this rough cost estimate will be based on cost estimates for the “typical” installation and is intended to provide an indication of cost only. The actual cost for any specific installation may exceed the typical cost due to special circumstances or conditions associated with that particular installation. In addition, the Feasibility Study may not identify all the necessary system reinforcements and upgrades necessary (for example, the Feasibility Study does not identify upgrades associated with voltage violations – This is determined during the System Impact Study). Therefore, the rough cost estimate provided as part of the Feasibility Study could be significantly different than the actual cost. After the System Impact Study is complete, and if the Customer chooses to continue to move forward, a more refined cost estimate and a schedule to complete the installation of reinforcements will be developed as part of the Facilities Study.

- 8. Final Feasibility Study Report** – A report will be generated for review by the Ad Hoc Group. Any comments or concerns by the Ad Hoc Group will need to be addressed before a final report can be issued.
- 9. Short Circuit Analysis** – Short circuit analysis is normally not included in the Feasibility Study. However, short circuit analysis may be done at the request and expense of the Customer.
- 10. Time to Complete the Feasibility Study** – CIPCO anticipates that it will take approximately 7-10 weeks to complete the Feasibility Study after all of the necessary data is received. CIPCO will advise the Customer of any additional time that may be needed to complete the Study.
- 11. Study Cost** - Applicants will be charged for the actual cost of the study. If the cost of the study is less than the study deposit received by CIPCO, the Customer can choose whether to receive the balance as a refund or apply the balance to the System Impact Study. If the initial deposit is determined to be insufficient to cover the costs of the study, the Customer will be notified by CIPCO as soon as possible. Study work will terminate once costs incurred equal the deposit received by CIPCO. The Customer will have 30 days to provide additional funds, or the study will terminate and the Interconnection Request will be removed from the study queue.
- 12. Decision to Proceed with a System Impact Study** - At the completion of the Feasibility Study, a final report will be sent to the Customer, and a System Impact Study Agreement will be sent within 10 Business Days. The Customer must decide whether to continue to pursue the development of the interconnection. If the Customer chooses to proceed with the System Impact Study, the System Impact Study Agreement must be received by CIPCO within 30 Calendar Days of the date the System Impact Study Agreement was sent to the Customer.

3.6 System Impact Study

Within 30 Calendar Days of completion of the Feasibility Study, the Customer must decide whether to proceed with a System Impact Study. The System Impact Study will determine the system reinforcements and upgrades required to interconnection the proposed generation with the CIPCO Transmission System.

The System Impact Study can only commence once the Feasibility Study has been completed, unless the Interconnecting Customer chooses to forego the Feasibility Study and move directly into a System Impact Study. The power flow models used in the Feasibility Study will be used in the System Impact Study to the extent possible. It is anticipated that only relatively minor changes or updates to the Feasibility Study models would need to be made.

The System Impact Study builds on the steady state analysis efforts in the Feasibility Study and expands the evaluation to provide more detailed and thorough information regarding the magnitude of the impacts the proposed Generating Facility may have on the CIPCO Transmission System and other Affected Systems throughout the planning horizon. Additional steady state analysis will be performed as well as transient stability analysis and short circuit analysis.

Like the Feasibility Study, the System Impact Study will provide an indication of the magnitude of cost associated with the interconnection. It is expected that this new estimate may be a bit more refined than that provided with the Feasibility Study to the extent that the new estimate would include a more complete list of system reinforcements necessary to allow the interconnection, however this new estimate will still be a rough estimate based on "typical" installations. A more refined cost estimate will be made as part of the Facilities Study, should the customer decide to proceed to that level after completion of the System Impact Study.

The System Impact Study process also includes submittal of the study report to various governing bodies for approval. Physical interconnection of the Generating Facility can not be allowed without these necessary approvals.

CIPCO will make a good faith attempt to complete the System Impact Study within the specified number of days from receipt of the signed System Impact Study Agreement. If the study cannot be completed in the specified time period, CIPCO will notify the Customer.

A study deposit is required along with a signed study agreement before any study work will begin. The study deposit will equal the estimated cost to perform the study. The Customer is responsible for the actual costs of the study, and may receive a refund at the end of the study or be required to provide additional funds to complete the study, whichever the case may be.

The System Impact Study will be carried out in accordance with the general

guidelines of the North American Electric Reliability Corporation (NERC).

The System Impact Study Process is outlined as follows:

1. **CIPCO Sends System Impact Study Agreement to the Customer** - After completion of the Feasibility Study, and within 10 Calendar Days after the Customer notifies CIPCO that it wishes to proceed with a System Impact Study, CIPCO will provide the Customer with a System Impact Study Agreement along with an estimate of the cost to perform the study.
2. **Customer Sends System Impact Study Agreement and Deposit to CIPCO** - Within 30 Calendar Days, the Customer must provide CIPCO with the following items:
 - a) An executed System Impact Study Agreement
 - b) Deposit in the amount of 100% of the estimated study cost
 - c) Continued demonstration of site control
 - d) Any additional data requested by CIPCO

The above items must be completed and received by CIPCO within 30 Calendar Days or the Interconnection Request will be terminated and the Interconnecting Customer will lose its queue position.

3. **Ad Hoc Study Group Formation and Kickoff Meeting** – Once the study agreement is executed and returned with the required information and study deposit, CIPCO will form an Ad Hoc Study Group. The Ad Hoc Study Group will consist of CIPCO staff and staff from any Affected Systems or neighboring or regional entities that may be impacted by the Project.

A meeting will be set up for the Customer, CIPCO and the Ad Hoc Study Group to kickoff the study. Some of the items to be discussed at this meeting will include refining the work scope and schedule, clarifying study methodology, processes, assumptions, criteria, and reporting needs, model development issues and gathering necessary data to proceed with the study work.

4. **Model Development** – The appropriate regional power flow, stability and short circuit models will be used for this analysis. These models will be modified as necessary per input from the Ad Hoc Study Group. Such modifications may be made to reflect model corrections, the addition of system improvements that are scheduled to be in-service ahead of the proposed Generation Facility, the addition of prior queued generator interconnection projects, changes to net interchange between control areas to reflect appropriate transmission service reservations, etc. throughout the planning horizon. These models will serve as benchmarks when comparing steady-state performance without and with the Project. The Project will be added to the benchmark models and generation levels will be adjusted to

accommodate the output from the new generator dispatched according to standards defined in Section 3.4 of CIPCO's Requirements for Generator Interconnection, with input provided by the Ad Hoc Study Group at the kickoff meeting.

5. **Power Flow Analysis** – The power flow analysis will consist of a more detailed analysis than that which was performed in the Feasibility Study. A non-linear “AC” contingency analysis will be performed to identify potential adverse thermal and voltage impacts attributed to the proposed Generation Facility. System branch loading and bus voltage performance will be compared between models without and with the proposed Generation Facility to identify project impacts that will require further mitigation. If adverse impacts are found, potential solutions will be determined that will allow interconnection of the full amount of proposed generation. The potential solutions will be modeled and evaluated from both a thermal and voltage perspective to determine whether the adverse impacts can be alleviated through system reinforcements and upgrades.
6. **Flowgate Analysis** – Impacts of the proposed project on the loading of MISO flowgates will be evaluated.
7. **Short Circuit Analysis** – Information provided by the Customer will be used to add the proposed Generation Facility to the appropriate short circuit models. A short circuit analysis will then be performed to determine whether the Generation Facility will have an adverse impact on the fault interrupting capability of existing system equipment. Required upgrades to existing system equipment will be determined and will be the responsibility of the Customer. The interconnection bus arrangement requirements will be specified.

This analysis will also include a system protection and relay coordination study which will ensure that circuit breakers and associated system protection equipment added at the interconnection bus coordinates appropriately with existing circuit breakers and associated system protection equipment. Any necessary modifications and/or upgrades will be determined and will be the responsibility of the Customer.

8. **Transient Stability Analysis** – The transient stability analysis will be conducted upon completion of the steady state and short circuit analyses. The stability analysis will include the following sub-tasks:
 - a) **Stability Model Setup** – The power flow models will be modified to conform to the applicable guidelines for the analysis of interconnection service requests. Modification to the models may consist of model corrections, addition of system improvements scheduled to be in-service before the proposed Generation Facility, addition of prior queued generator interconnection

projects, and adjustments to establish desired transfer levels or to reflect stressed conditions

- b) Dynamic Simulation Study** – Dynamic simulations will be performed on the power flow base case models prepared in the previous step. Contingencies will be simulated on the models, with and without the proposed Generation Facility. The group of contingencies will consist of faults close to the proposed interconnection point as well as key system faults and will include three-phase faults with normal clearing as well as single-line-to-ground faults with delayed clearing. Upon completion of the simulations, the results will be documented for review by the Ad Hoc Study Group.
 - c) Resolution of Stability Problems** – Solutions to any stability problems found will be discussed by the Ad Hoc Study Group. If possible, the solutions will be tested to verify their effectiveness in resolving the problems. If the proposed changes involve transmission system additions or substation reconfigurations, the results of the steady state analysis will need to be reviewed and may need to be redone. Typical study cost estimates does not include additional steady state and stability analyses which may need to be repeated, nor does the schedule include this additional analysis to assess measures to improve stability performance.
 - d) Stability Results Review** – Summaries of the stability study will be forwarded to the Ad Hoc Study Group for review. This will include graphical presentations of bus voltages, machine rotor angles, protective relay systems and other parameters necessary to evaluate the impact of the proposed generator on system performance. If necessary, a telephone conference call will be conducted by the parties involved to discuss the stability analysis results.
- 9. System Impact Study Report** – Upon completion of the steady state and stability analyses, a draft Final Report will be written. The report will include a summary of the overall study, a brief description of the project, the methodology and criteria used in the study, the study assumptions, discussion of both steady state and stability results and conclusions. The Final Report will list all the assumptions made in the modeling of the generation as well as provide system conditions such as the transmission system topology.

The draft Final Report will be submitted to the Ad Hoc Study Group and any Affected Systems for review. If necessary, a telephone conference will be held to review interim results. All affected parties shall be afforded an opportunity to review and comment on any potentially adverse impacts on

their systems. For scheduling purposes, the Study Group will have one (1) week to provide comments. Upon receipt of comments from the Study Group, a Final Report will be issued. If necessary, a second telephone conference will be held to discuss the final report.

Approvals by the various entities listed above are assumed to be adequate notification of the interconnection. CIPCO will include the appropriate upgrades and new facilities on the CIPCO system in the next annual regional model building process. CIPCO will notify its Transmission Operator and Load Balancing Authority of the completion of any upgrade or new facilities as soon as practical. CIPCO also notifies any Affected System as appropriate.

10. Rough Cost Estimate of System Reinforcements – A rough non-binding cost estimate for the required system reinforcements and upgrades to eliminate the thermal issues identified in the System Impact Study will be determined using typical unit cost data furnished by the Ad Hoc group members. Note that this rough cost estimate will be based on cost estimates for the “typical” installation and is intended to provide an indication of cost only. The actual cost for any specific installation may exceed the typical cost due to special circumstances or conditions associated with that particular installation.

After the System Impact Study is complete, and if the Customer chooses to continue to move forward, a more refined cost estimate including estimated schedules for completion of the system reinforcements will be developed as part of the Facilities Study.

11. Time to Complete the System Impact Study – CIPCO anticipates that it will take approximately 12 weeks to complete the System Impact Study after all of the necessary data is received. This does not include time to secure necessary approvals, which could take several months. If additional time is needed to complete the study, CIPCO will inform the Customer.

12. Study Cost - Applicants will be charged for the actual cost of the study. If the cost of the study is less than the study deposit received by CIPCO, the Customer can choose whether to receive the balance as a refund or apply the balance to the Facility Study. If the initial deposit is determined to be insufficient to cover the costs of the study, the Customer will be notified by CIPCO as soon as possible. The Customer will have 30 days to provide additional funds, or the study will terminate and the Interconnection Request will be removed from the queue. Study work will terminate once costs incurred equal the deposit received by CIPCO. Work will begin once additional funds are provided by the Customer.

13. Decision to Proceed with a Facility Study - After all required study approvals are obtained, a final report will be sent to the Customer along with

a Facilities Study Agreement. The Customer must decide whether to continue to pursue the development of the interconnection. If the Customer chooses to proceed with the Facility Study, the Facility Study Agreement must be returned to CIPCO within 30 Calendar Days of the date of receipt.

3.7 Facilities Study

Simultaneously with the delivery of the System Impact Study report to the Customer, CIPCO shall provide to the Customer a Facilities Study Agreement. Within 15 Calendar Days, CIPCO shall provide to the Customer a non-binding good faith estimate of the cost and timeframe for completing the Facilities Study. The Customer shall execute the Facilities Study Agreement and return it to CIPCO within 30 Calendar Days after its receipt, together with the required technical data and a deposit equal to the estimated cost of the Facilities Study. The Customer will be responsible for all costs associated with the Facilities Study.

The purpose of the Facilities Study is to specify and estimate the cost of the equipment, engineering, procurement and construction work (including overheads) needed to implement the conclusions of the System Impact Study and to physically and electrically connect the Generation Facility to the CIPCO Transmission System in accordance with Good Utility Practice. The Facilities Study shall also identify the electrical switching configuration of the connection equipment, including, without limitation: the transformer, switchgear, meters, and other station equipment and an estimate of the time required to complete the construction and installation of such facilities. If reinforcements to Affected Systems were identified in the System Impact Study as being necessary to accomplish the interconnection, CIPCO will use reasonable efforts to obtain cost estimates for these reinforcements and an estimated construction schedule from the Affected System.

CIPCO will make a good-faith effort to complete the Facilities Study within a specified time after receiving the Facilities Study Agreement and deposit. If the Facilities Study cannot be completed in the specified time period, CIPCO will notify the requesting party and provide a new estimated completion date, along with an estimate of additional costs, if any.

Within approximately 10 Business Days of providing a draft Facilities Study report to the Customer, CIPCO and the Customer shall meet to discuss the results of the Facilities Study. A final Facilities Study report will be provided within 30 Calendar Days of the draft review meeting.

If Re-Study of the Facilities Study is required due to a higher queued project dropping out of the queue or a modification of a higher queued project, CIPCO shall so notify the Customer in writing. Such Re-Study is anticipated to take no longer than sixty (60) Calendar Days from the date of notice. Any cost of Re-Study shall be borne by the Interconnection Customer being restudied.

4.0 Interconnection Agreement Process

After successful completion of the Interconnection Studies and after receipt of all necessary regulatory approvals of these studies, a Generator Interconnection Agreement will need to be executed before the Engineering Design and Construction processes can begin.

At the completion of the Facilities Study, but prior to executing the Generator Interconnection Agreement, a Customer may advance the implementation of the interconnection by requesting an E&P Agreement that authorizes CIPCO to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection. This process is described in the following section.

4.1 Engineering and Procurement Agreement Process

CIPCO shall not be obligated to offer an Engineering and Procurement Agreement (E&P Agreement) if the Customer has failed to meet any milestones or comply with any prerequisites specified in other parts of these procedures. The E&P Agreement is an optional procedure and it will not alter the Customer's Queue Position or In-Service Date.

Prior to execution of the Generator Interconnection Agreement, the Customer may request an E&P Agreement to advance the implementation of the interconnection by authorizing CIPCO to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection.

The E&P Agreement shall provide for the Customer to pay the cost of all activities agreed to per the terms of the E&P Agreement and to make advance payments or provide other satisfactory security for such costs. If the Customer withdraws its application for interconnection or either Party terminates the E&P Agreement, the Customer shall be obligated to pay the associated cancellation costs. To the extent that the equipment cannot be reasonably cancelled, CIPCO will transfer title to and deliver such equipment to the Customer, and the Customer shall pay any unpaid balance and cost of delivery of such equipment.

4.2 Generator Interconnection Agreement

Once the final Facilities Study report has been issued, the Customer shall provide written notice to CIPCO of its intent to proceed with the construction of the Generating Facility and expressing its desire to execute a Generator Interconnection Agreement with CIPCO. Such notice shall be provided within 15 Calendar Days of final issuance of the Facilities Study. If such notice is not provided, the Customer's Interconnection Request shall be deemed withdrawn and will be terminated.

After receipt of the Customer's intent to proceed, CIPCO will send to the Customer a draft Generator Interconnection Agreement along with draft appendices within 90 Calendar Days. The results of the System Impact Study along with information from the Facilities Study will be the basis for the specifications of this Agreement. The Customer will have 30 Calendar Days to execute and return the completed draft appendices.

CIPCO and the Customer shall have 60 Calendar Days from the date CIPCO issued the draft Generator Interconnection Agreement to the Customer to negotiate any outstanding terms. Once negotiations are complete, CIPCO shall provide the Customer with two copies of the final Generator Interconnection Agreement within fifteen (15) Business Days after completion of the negotiation process. If the negotiations are at an impasse after 60 Calendar Days from CIPCO's issuance of the draft Generator Interconnection Agreement, the Interconnection Request will be deemed withdrawn and will be terminated.

The Customer shall execute the two originals of the final GIA and return both to CIPCO along with a letter of credit, or other form of security acceptable to CIPCO, equivalent to the costs of the new Interconnection Facilities and Network Upgrades within 15 Calendar Days of receipt. If the Customer does not provide the above items within the specified timeframe, the Customer's Interconnection Request shall be deemed withdrawn and will be terminated.

Upon execution of the final Generator Interconnection Agreement, CIPCO and the Customer shall perform their respective obligations in accordance with the terms of the Generator Interconnection Agreement.

5.0 Engineering Procurement and Construction

Once the Generator Interconnection Agreement is executed, the engineering design and construction process can begin for the Interconnection Facilities and the required Network Upgrades as determined by the Interconnection Studies.

5.1 Schedule

CIPCO shall design, procure, and construct the Interconnection Facilities and Network Upgrades on the CIPCO Transmission System using reasonable efforts to complete the project by the dates mutually agreed upon.

CIPCO shall not be required to undertake any action, which is inconsistent with its safety practices, its material and equipment specifications, its design criteria and construction procedures, its labor agreements, and Applicable Laws and Regulations.

In the event CIPCO expects that it will not be able to complete the project by the specified dates, CIPCO shall promptly provide written notice to the Customer.

5.2 Engineering Design and Procurement

CIPCO shall only commence engineering design of the project and procurement of necessary equipment after all of the following conditions have been met:

- All required Interconnection Studies are complete
- All required approvals (such as MISO) have been received
- Receipt of written authorization to proceed with design and procurement from the Customer by the date specified
- Security provided to CIPCO by the Customer by the date specified
- CIPCO Execution of the Generation Interconnection Agreement

CIPCO will only proceed with any final engineering work after the executed Generation Interconnection Agreement has been filed with the necessary agencies and the necessary funding by the Customer is in place. The completion date of such engineering will be consistent with the construction schedule defined in the Generator Interconnection Agreement.

CIPCO shall provide written notification to the Customer if CIPCO determines from the final engineering work that the estimate in the Facilities Study has changed significantly.

5.3 Construction of Interconnection Facilities and Network Upgrades

CIPCO shall commence construction of facilities for which it is responsible as soon as practical after all of the following conditions have been met:

- Approval of the appropriate Governmental Authority has been obtained for any facilities requiring regulatory approval
- Necessary real property rights and rights-of-way have been obtained, to the extent required for the construction of the project
- CIPCO has received written authorization to proceed with construction from the Customer by the specified date.

CIPCO will be the final approval entity for the planning, design, construction, and commissioning of all facilities directly connected to the CIPCO Transmission System. CIPCO shall, unless agreed to by the parties, design and construct the facility.

5.4 Construction of Network Upgrades on Other Affected Systems

CIPCO is not responsible for the engineering, design, procurement or construction of required Network Upgrades on Affected Systems other than the CIPCO Transmission System. CIPCO will use Reasonable Efforts to cause the Affected System to construct the required Network Upgrades according to the schedule, provided that the Customer has made arrangements and commitments to pay the Affected System for all costs associated with such Network Upgrades.

6.0 Commissioning Process

All Interconnection Facilities will undergo a Commissioning Process prior to energization. The intent of the Commissioning Process is to perform tests to ensure the safe and reliable installation and operation of the equipment.

The Commissioning Process is governed by the:

- American National Standards Institute (ANSI)
- American Society for Testing and Materials (ASTM)
- Institute of Electrical and Electronics Engineers (IEEE)
- National Electrical Manufacturers Association (NEMA) and Insulated Cable Engineers Association (ICEA)
- National Fire Protection Association (NFPA)

The Commissioning Process will include, but not be limited to, the following:

1. Equipment Tests
2. Auxiliary Equipment Energization (600V and below)
3. Control System Tests
4. Initial Energization
5. Post Energization Tests

Each party shall make modifications to its facilities that are found to be necessary as a result of such testing. The Customer shall bear the cost of all such testing and any required modifications. Each party shall notify the other party in advance of its performance of tests of its Interconnection Facilities, with CIPCO or its designated agent authorizing each test that involves the actual energizing of the interconnection or any testing that could impact the reliability of the CIPCO Transmission System. Each party shall comply with the applicable NERC and Regional Reliability Organization requirements for testing and commissioning.

CIPCO shall purchase and install, at Customer expense, Metering Equipment at the Point of Interconnection prior to any operation of the Generating Facility. CIPCO shall own, operate, test and maintain such Metering Equipment at Customer expense. The testing and inspection of the Metering Equipment will follow CIPCO's established maintenance and inspection procedures.

7.0 Facility Design Requirements

All facility designs must meet applicable Federal, State, and Local laws, ordinances, rules, regulations, codes, etc. Substation facilities will be generally designed to RUS 1724E-300 "Design Guide for Rural Substations". In addition, the interconnection must be designed for operation in accordance with the North American Electric Reliability Corporation's (NERC) Operating Policies and Planning Standards and any independent system operator requirements to ensure that the electric system operates reliably.

Facility connections to the CIPCO Transmission System shall be designed such that faults in the interconnection transformer(s), circuit breaker(s), bus, or bus connections and any misoperations of any protective relaying will not cause an interruption of service to the CIPCO Transmission System.

CIPCO shall have final approval on all protection schemes applied to the Customer's facilities and the Interconnection Facilities.

All Interconnections to the CIPCO Transmission System must meet, or exceed, the requirements outlined in this Section.

7.1 Supervisory Control and Data Acquisition

The Customer must provide and install a Remote Terminal Unit (RTU), which meets CIPCO's specifications or request that CIPCO provide and install the RTU at the requester's expense. The Customer's load and equipment status information will be telemetered to the CIPCO Operations Center.

7.2 Telemetry and Metering

The Customer shall furnish, own, and maintain indicating meters, meter panels, and associated wiring and connections. Metering equipment accuracy shall be better than one half of 1% (0.5%). The Customer shall provide and install telemetry equipment, or request CIPCO to provide and install equipment at the Customer's expense, capable of providing real time (2 second scan) data to CIPCO's Operations Center via the RTU. All metering shall be capable of accurately measuring all generation or bi-directional quantities, including station service requirements.

7.3 Communication During Normal and Emergency Conditions

Communications During Normal Conditions: At CIPCO's request, the Customer shall provide a 24-hour dedicated voice communication device from the Customer's 24-hour operations office to the CIPCO System Operations Center. Such dedicated communication may be required for the Customer's synchronization and operation

of significant capacity within the Control Area that may affect network capacity and operations. All other normal voice communication concerning facility operations shall be conducted through the public telephone network to the Operations Center's phone number(s) issued by CIPCO.

Communication During Emergency Conditions: Voice communications in the event of an emergency shall use the dedicated voice communication device, if requested by CIPCO, or the public telephone network and the phone number(s) designated for emergency use.

7.4 Voltage and Power Factor Control

The voltage at the point of connection shall be regulated to maintain 95% - 105% of the nominal bus voltage, during normal operating conditions. As a guideline to power factor operation, the Customer's power factor, as measured at the point of interconnection, must comply with limits stated by CIPCO.

The generation facility shall match or contribute to the performance of the CIPCO Transmission System. The Customer's Generating Facility may be required to supply or receive reactive power as necessary to support transmission voltages as directed by CIPCO's Operations Center. At minimum, synchronous units shall be able to operate between the range of 0.95 lead to 0.95 lag reactive capability.

7.5 Equipment Ratings

Electrical equipment used at the Generating Facility or the Interconnecting Facility shall meet the applicable ANSI and IEEE standards. The equipment shall be designed and rated for operation without damage within the full range of voltage and frequency excursions normal for a power system.

7.6 Short Circuit Conditions

All Generation Facilities and Interconnection Facilities must meet or exceed the fault duty capability necessary to meet short circuit requirements as determined through the short circuit analyses which was part of the System Impact Study.

7.7 System Protection and Coordination

The Customer is responsible for providing protective devices that will protect against faults and disturbances on CIPCO's Transmission System as well as their own system. All protective relays must be calibrated at least every three years. The Customer must provide a test report to CIPCO documenting the present settings as well as the "as found" and "as left" test results.

Generator connections to the CIPCO Transmission System shall be designed such that faults in the generator, generator step-up (GSU) transformer, circuit breakers, bus, or bus connections and misoperations of any generator protective relaying will not cause an interruption of load on the CIPCO Transmission System.

Protective Devices for the Customer's Generation

Protective devices, which are defined in this document (e.g., relays, circuit breakers), must be installed by the Customer to disconnect the Customer's generation from the CIPCO Transmission System whenever a fault or electrical abnormality occurs. Such equipment must coordinate with existing CIPCO equipment and provide comparable levels of protection as practiced on CIPCO's Transmission System. Major factors generally determining the type of protective devices required include:

- 1 The type and size of the Customer's generating equipment
- 2 The location of the Customer on the CIPCO Transmission System
- 3 The manner in which the installation will operate (one-way vs. two-way power flow)

The specific requirements will be determined in the Interconnection and Facilities Studies. CIPCO requires that the Customer use CIPCO-approved protective devices.

Modification to Existing Protective Devices

In addition to the protective devices, the addition of Customer generation may require modifying the CIPCO or neighboring utility Transmission System. Each request for generation addition will be handled individually. CIPCO will solely determine on a comparable basis, the protective devices, transmission system modifications and/or additions required. CIPCO will work with the Customer to achieve an installation that meets the requirements of both the Customer and CIPCO. The Customer shall bear the costs of protective devices and CIPCO Transmission System modifications required to permit the operation of parallel generation.

Fault Current Capability

CIPCO's protective equipment fault current capability is based on exceeding the maximum fault current available at a location. If the installation of Customer-owned generation equipment causes these fault current limits to be exceeded, the Customer must install equipment to limit the fault current on the CIPCO delivery system or compensate CIPCO for the additional costs of installing equipment that will safely operate within the available fault current.

The capability of the Customer's equipment must exceed the maximum fault current available. The exact value of available fault current depends upon location and

circuit configuration and will be determined in the interconnection studies. The Customer must work closely with CIPCO at the time of interconnection design to determine the available fault current at the specific location of interconnection.

Fault Detection

The Customer will provide and maintain in operable condition protective equipment to detect faults on its equipment and systems. At no time will the Customer operate its system without this protective equipment.

Fault Clearing

The Customer will provide and maintain in operable condition equipment and systems capable of interrupting maximum fault levels within the Customer's step-up transformer, auxiliary transformer and generator outlet circuits.

The Customer's internal auxiliary equipment, generator, or generator step-up transformer must not trip the transmission line as a primary protection method.

The Customer must immediately and automatically isolate any faulted or failed equipment from the transmission system. This automatic equipment must be compatible with the existing transmission system protection equipment.

Line protective relaying at 34.5 kV, 69 kV, 115 kV and 161 kV shall include, as a minimum, three zones of phase distance (with time delay trip for zones 2 and 3), ground directional overcurrents (with instantaneous and time delay elements), and breaker failure. Three zones of ground distance may be substituted for the ground directional overcurrent. Transfer trip (or other communication-assisted) relaying may be required in certain instances and other relays may be required as transmission conditions or operating guidelines warrant.

Protective Devices for the Interconnection

Protective devices are required for safe and proper operation of the CIPCO-Customer interconnection. CIPCO shall operate all CIPCO-owned protective equipment at the interconnection to ensure that these requirements are met. During the interconnection studies, CIPCO will approve the proposed type of interconnection protective devices, ownership, operating details and equipment settings. The Customer should not confuse interconnection protection in this section with Customer system protection. CIPCO is not liable or responsible for the Customer's system protection.

- A. Protective Relays** - Protective relays are required to promptly sense abnormal operating or fault conditions and initiate the isolation of the faulted area. The Customer will install only CIPCO approved relays where they may impact the operation of the CIPCO Transmission System. These relays shall meet, at minimum, the latest version of IEEE standards C37.90, C37.90.1

and C37.90.2.

The Customer shall submit complete control and relaying documentation for CIPCO review. CIPCO will approve only those portions of the document that pertain to the protection of the CIPCO System. CIPCO may make suggestions or comment on other areas, however, the Customer is responsible for the design of protection schemes protecting the Customer's facility.

B. Protection Function Requirements - The following protective relay recommendations are necessary for CIPCO to continue to supply its customers with reliable electric service when Customer-owned generation is supplying power through the interconnection with the CIPCO Transmission System or in an islanding situation.

1. Minimum Requirements - These functions will protect CIPCO equipment and its customer's equipment against electrical faults, degraded voltage or frequency operation, unwanted power flow and inadvertent out of phase closing of breaker/switches.
 - a. Over/Under Frequency (81O/U)
 - b. Over/Under Voltage (27/59)
 - c. Over Current (51, 51V) - for faults and over load
 - d. Ground Over Voltage (59 G) - ground fault protection for ungrounded system at the Customer's end
 - e. Reverse Power (32) toward the CIPCO System, the operation of which will be as defined in the interconnection agreement.
 - f. Synchronizing and reclosing relays (25)
2. Other Requirements - Additional protection functions may be suggested or required depending upon the size of the generator, nature of interconnection and CIPCO coordination requirements.
3. Back-Up/Redundant Protection - CIPCO requires redundant and back-up relay protection since the failure to trip during fault or abnormal system conditions due to relay or breaker hardware problems, or from incorrect relay settings, improper control wiring, etc. is always a possibility.

C. Interconnection Requirements - In general CIPCO will own, operate and maintain all interconnection tie devices up to but not including the high-side disconnect switch for the generator step-up transformer.

Group-operated disconnect switches are required on each side of any interconnection tie circuit breaker and may be required for a circuit switcher. These switches are necessary to provide the visible open for worker safety during breaker maintenance.

CIPCO System Voltages and Basic Impulse Insulation Levels

The following minimum Basic Impulse Levels will apply to all Customer equipment at the voltage specified:

<u>Nominal System Voltage</u>	<u>Basic Impulse Levels (BIL)*</u>
34.5 kV	200
69 kV	350
115 kV	550
161 kV	750

* Expressed in **kV** crest value of withstand voltage of a 1.5 x 40 microsecond full impulse wave.

Circuit Breakers, Circuit Switchers and Group-Operated Switches

Interconnection tie circuit breakers/switchers and group-operated switches shall meet the latest applicable ANSI and IEEE standards, shall be suitable for the local environment and system operating conditions and must also meet CIPCO approval.

Group-operated switches must have provisions for locking in the open position using a standard CIPCO padlock. Each motor operator must be equipped with a de-coupler mechanism that allows the switch to be disconnected from the motor operator and locked in the open position.

Arresters

In general all CIPCO incoming lines shall be protected with surge arresters located on the line side of disconnect switch.

Grounding System

The Customer shall submit the grounding system study and design for CIPCO review and approval.

Potential Transformers

CIPCO generally uses wound potential transformers at 69 KV and below. Above 69 kV, capacitor coupled voltage transformers are acceptable as long as their response characteristics meet relaying requirements. Any potential devices that are part of the interconnection tie shall meet CIPCO approval.

Automatic Reclosing/Voltage Check Schemes

CIPCO normally applies automatic reclosing to all transmission lines. Prior to automatic reclosing, the Customer must ensure that the generation is disconnected from CIPCO. It may be necessary to install voltage check schemes at various locations on the CIPCO Transmission System to prevent automatic reclosing in the event that a Customer generator remains connected to an isolated, unfaulted section of the CIPCO Transmission System. These voltage check schemes may be located at the interconnection point and may also be required on alternate circuits which may be used to feed the Customer. Details of any modifications to CIPCO reclosing practices and/or addition of voltage check schemes will be determined during the Facilities Studies.

CIPCO shall assume no responsibility for damage to Customer's equipment due to out-of-phase reclosing.

In general, reclosing practices should be as follows:

There should be no automatic reclosing for the breaker connecting the Customer to the CIPCO Transmission System.

The CIPCO Transmission line breaker may have one or more timed reclosures. It is expected that either the generator or the tie breaker will open before reclosing takes place. Voltage supervision will be required for closing the remote station breakers.

Communication Channel

CIPCO may require that a communication channel and associated communication equipment be installed as part of the protective scheme. This channel may consist of power line carrier, leased telephone line, pilot wire circuit, fiber optic cable, radio, or other means. The communication channel is required in cases where it is necessary to remotely send a signal to remove the Customer's generation from the CIPCO Transmission System due to a fault or other abnormal conditions which cannot be sensed by the protective devices at the Customer's location. Some instances may require installation of communication equipment in CIPCO substations to initiate the protective signals. CIPCO shall be reimbursed by the Customer for the cost of this equipment and its installation.

Another communication channel may be needed for monitoring and control purposes. The Facilities Study will determine the specific communication channel requirements. The cost of installation and additional monthly fees for this channel will be the responsibility of the Customer.

If a telephone circuit is used, the Customer must also provide the telephone circuit protection.

Customer Owned Interconnection Protective Devices

Interconnection protective devices owned by the Customer should be maintained and inspected according to manufacturer recommendations and/or industry standards. Procedures must be established for visual and operational inspections; in addition, provisions should be established for equipment maintenance and testing. Equipment should include, but not be limited to:

- Circuit Breakers
- Protective Relays
- Control Batteries

CIPCO maintains the right to review maintenance, calibration and operation data of all protective equipment for the purpose of protecting CIPCO facilities and other CIPCO customers. The Customer is responsible for providing the necessary test accessories (such as relay test plugs, instruction manuals, wiring diagrams, etc.) required to allow CIPCO to test these protective devices. Verification may include the tripping of the interconnection tie breaker.

If CIPCO performs work on the Customer's premises, an inspection of the work area may be made by CIPCO operating personnel. If hazardous working conditions are detected, the Customer shall be required to correct the unsafe conditions before CIPCO will perform the work.

Underfrequency Relay Protection

Underfrequency relay protection applied to a turbine-generator must coordinate with underfrequency relays applied to the CIPCO Transmission System. The turbine-generator relays must be set to allow all CIPCO Transmission System underfrequency relays to operate first. Typical CIPCO Transmission System underfrequency relays are set at 59.3 Hz, 59.0 Hz, and 58.7 Hz with a 0.1 second time delay. Generator isolation underfrequency relays are generally set at 58.3 Hz. Exact set points will be established by CIPCO prior to the installation of the interconnection.

Other relays may be required as transmission conditions or operating guidelines warrant.

7.8 Generation Disconnection

CIPCO shall retain the right to immediately sever or disconnect the Generation Facility if, in the sole judgment of CIPCO's Operations Center personnel, such action is necessary to protect its facilities, system's customers, employees, or the general public, and shall not be liable for any damage which may result from such disconnection.

7.9 Maintenance Coordination

The owner of the generator facility is responsible for all maintenance requirements except those specified in the Facility Operating Requirements section of this report. All maintenance projects that have any effect on the transmission system shall be coordinated in advance with regional transmission security coordinators through the CIPCO Operations Center.

7.10 Synchronization Facilities

The Customer will be responsible for synchronizing its facility to the CIPCO Transmission System. Generator voltage regulation is required to be in service whenever the generator is synchronized to the system. Generating Facility shall not synchronize unless authorized by CIPCO's Operations Center. Automatic synchronization shall be supervised by a synch check relay, IEEE Device 25.

7.11 System Grounding

Interconnection substation grounding will follow guidelines in the ANSI/IEEE Standard 80, Guide for Safety in AC Substation Grounding.

7.12 Responsibilities During Emergency Conditions

The Customer shall communicate with and shall cooperate with CIPCO Operations Center personnel in such a manner to support CIPCO's recovery efforts during emergency conditions. This may include, but may not be limited to: switching operations, VAR support, changes in generation output, increases or decreases of the Customer's internal plant load, tripping of generating unit(s) or starting of generating unit(s).

7.13 Normal Frequency and Voltage Operation

The voltage at the point of connection shall be regulated as stated in CIPCO's Planning Criteria.

The frequency of the power system shall be 60 Hz nominal and shall be maintained within the limits of 59.95-60.05 Hz under normal steady-state operation.

Voltage unbalance shall be limited to no more than 1 percent and current unbalance limited to no more than 5 percent as measured by the maximum deviation of one phase from the average of all three phases.

7.14 Power Quality

Voltage fluctuations at a point of common coupling (inside CIPCO's control area and connected to CIPCO's 161 kV, 69 kV and 34.5 kV Transmission System) shall not exceed the following:

- a) 1% of the voltage level for step changes, which may occur repetitively. Any large voltage excursions, other than step changes, may be allowed up to a level of 3.5% if this does not constitute a risk to CIPCO's system in CIPCO's sole opinion.
- b) Flicker shall meet IEEE Standard 519 requirements.

The interconnected generator shall not create voltage and current harmonics on CIPCO's Transmission System that exceed the limits specified in IEEE Standard 519. Harmonic distortion measurements may be conducted at the Point of Interconnection with the Generation Facility or other locations on CIPCO's Transmission System to determine whether the Generating Facility is the source of excessive harmonics.

Should harmonic levels be detected that exceed the IEEE Standard 519 levels, the Generating Facility shall be disconnected until the harmonics levels are corrected.

7.15 Inspection

Prior to a Customer-owned Facility being energized, it must pass a final inspection by CIPCO personnel. This inspection concentrates on all equipment up to and including the first protective fault interrupting device and the ground system. This may include circuit breakers, circuit switchers, power fuses, instrument transformers, switches, surge arresters, bushings, and relays and associated equipment (including battery and battery chargers).

The inspection will consist of a visual inspection of all major equipment as well as review of required test results. The ground system must be checked by using the resistance measurement procedures in accordance with IEEE Standard 81, IEEE Recommended Guide for Measuring Ground Resistance and Potential Gradients in the Earth. CIPCO may observe the testing and shall receive copies of the test documentation.

7.16 Connection Requirements

The requirements to connect to the CIPCO Transmission System may vary according to type of interconnection facility, the voltage level, location, and the number of lines or facilities terminating. CIPCO shall approve the final interconnection specifications. Three components are essential in interconnecting to the CIPCO Transmission System at 34.5 kV, 69 kV, 115 kV or 161 kV:

- a) Circuit breaker
- b) Ring bus or single bus-single breaker (at CIPCO's sole determination)
- c) Protection relays

Breakers shall have operational ratings to interrupt loop flow, line charging, load and fault current. All 34.5 kV, 69 kV and 161kV interconnection breakers shall have remote operation by CIPCO operators. Switches shall be arranged to provide isolation of the transmission line and the facility terminating at the connection point.

8.0 Facility Operating Requirements

CIPCO will own, operate, and maintain all components that are an integral (networked) part of the CIPCO Transmission System including all buses, circuit breakers, relays, and switches on the transmission side of the Generating Facility's Point of Interconnection.

8.1 Federal, State and Local Operating Guides

The CIPCO Transmission System operates under guidelines set forth by Regional Transmission Organizations (RTO's), Rural Utility Service (RUS), the North American Electric Reliability Corporation (NERC), and the National Electric Code (NEC) as approved by the American National Standards Institute (ANSI). The information contained in this document is supplementary to and does not intentionally conflict with or supersede the RTO, RUS, NERC, or NEC or federal and state laws, ordinances, rules, regulations, etc. It is the responsibility of the Customer to conform to all applicable national, state, and local laws, ordinances, rules, regulations, codes, etc.

8.2 Inspections

Prior to a Customer-owned Facility being energized, it must pass a final inspection by CIPCO personnel. This inspection concentrates on all equipment up to and including the first protective fault interrupting device and the ground system. This may include circuit breakers, circuit switchers, power fuses, instrument transformers, switches, surge arresters, bushings, and relays and associated equipment (including battery and battery chargers).

The inspection will consist of a visual inspection of all major equipment as well as review of required test results. The ground system must be checked by using the resistance measurement procedures in accordance with IEEE Standard 81, IEEE Recommended Guide for Measuring Ground Resistance and Potential Gradients in the Earth. CIPCO will document the inspection by completing a site-specific form supplied by the Transmission Planning and Protection Department.

Meter calibration records will be inspected to ensure compliance with specified System Design Requirements. CIPCO will document the inspections.

8.3 Communications During Normal and Emergency Conditions

With interconnected generation, Customer equipment events or actions may impact the CIPCO Transmission System and CIPCO Transmission System events may impact the Customer. Consequently, communication between parties becomes very important. The CIPCO representative will provide the Customer with the names and phone numbers of the CIPCO Control Center and Operations

Coordination personnel who are responsible for the CIPCO Transmission System at the interconnection. The Customer will provide CIPCO with the names and phone numbers of the Customer contact(s) with responsibility for operating the generator.

Customer contact(s) should include at least one 24-hr/day phone number. Contacts should be able to provide information on equipment status, explanation of events on Customer equipment, and relay target and alarm information when asked to do so by CIPCO personnel. Also, the Customer should contact CIPCO whenever:

- 1) Problems with the generator or substation equipment are detected that could result in misoperation of the relay protection or other generator/substation equipment.
- 2) The generator has tripped off line during Parallel Operation with the CIPCO Transmission System.
- 3) Generator or substation equipment problems result in an outage to a portion of the CIPCO Transmission System.
- 4) The Customer intends to initiate switching to parallel the generator(s) or energize the substation with the CIPCO Transmission System.
- 5) The Customer intends to open the parallel interconnection between their system and the CIPCO Transmission System.

Emergency Communications

It is the responsibility of CIPCO and the Customer to work together to reduce and eliminate emergency conditions as quickly as possible.

CIPCO requires the Customer communicate with and cooperate with CIPCO Operations Center personnel in such a manner to support recovery efforts. This may include, but may not be limited to: switching operations, VAR support, changes in generation output, increases or decreases of the generator provider's internal plant load, tripping of generating unit(s), starting of generating units, changes in transmission schedules, interruption of transmission schedules, or changes in scheduled energy deliveries.

8.4 Voltage and Power Factor

The voltage at the point of connection shall be regulated to maintain 95% - 105% of the nominal bus voltage, during normal operating conditions. As a guideline to power factor operation, the Customer's power factor, as measured at the point of interconnection, must comply with limits stated by CIPCO.

The generation facility shall match or contribute to the performance of the CIPCO Transmission System. The Customer's Generating Facility may be required to supply or receive reactive power as necessary to support transmission voltages as

directed by CIPCO's Operations Center. At minimum, synchronous units shall be able to operate between the range of 0.95 lead to 0.95 lag reactive capability.

8.5 Power Quality

Voltage fluctuations at a point of common coupling (inside CIPCO's control area and connected to CIPCO's 161 kV, 69 kV and 34.5 kV Transmission System) shall not exceed the following:

- c) 1% of the voltage level for step changes, which may occur repetitively. Any large voltage excursions, other than step changes, may be allowed up to a level of 3.5% if this does not constitute a risk to CIPCO's system in CIPCO's view.
- d) Flicker shall meet IEEE Standard 519 requirements.

The interconnected generator shall not create voltage and current harmonics on CIPCO's Transmission System that exceed the limits specified in IEEE Standard 519. Harmonic distortion measurements may be conducted at the Point of Interconnection with the Generation Facility or other locations on CIPCO's Transmission System to determine whether the Generating Facility is the source of excessive harmonics.

Should harmonic levels be detected that exceed the IEEE Standard 519 levels, the Generating Facility shall be disconnected until the harmonics levels are corrected.

8.6 Disconnection

CIPCO shall retain the right to immediately sever or disconnect the Generation Facility if, in the sole judgment of CIPCO's Operations Center personnel, such action is necessary to protect its facilities, system's customers, employees, or the general public, and shall not be liable for any damage which may result from such disconnection.

8.7 Maintenance and Coordination

The owner of the Generator Facility is responsible for all maintenance requirements except those specified in this Facility Operating Requirements section of this report.

All maintenance work that may have an effect on the CIPCO Transmission System shall be coordinated in advance with the CIPCO Operations Center.

All Interconnecting Facility equipment up to and including the first protective fault-interrupting device is to be maintained to CIPCO standards. This may include circuit breakers, circuit switchers, power fuses, instrument transformers, switches,

surge arresters, bushings, and relays and associated equipment (including battery and battery charger).

The Customer shall have a CIPCO-approved testing procedure and shall maintain all devices and control schemes owned by the Customer. Included in the testing and maintenance will be any initial setup, calibration, and checkout of the required protective devices, periodic routine testing and maintenance, and any testing and maintenance caused by the Customer or CIPCO change to the protective devices.

Maintenance intervals will be as specified by CIPCO. If the connecting party's testing and maintenance program is not performed to the satisfaction of CIPCO or at the required maintenance interval, CIPCO reserves the rights to inspect, test, or maintain the protective devices required for the protection of the CIPCO Transmission System.

All costs associated with the testing and maintenance of the protection devices provided by the Customer, including the costs incurred by CIPCO in performing any necessary tests or inspections, shall be the responsibility of the Customer. CIPCO reserves the right to approve the testing and maintenance practices of all systems operated as a network with the CIPCO Transmission System.

APPENDICES

Appendix 1

Glossary of Terms

A

Accreditation: Generating capability recognized as meeting MISO requirements to satisfy a portion of a MISO market participant's generating capacity obligation.

Adverse System Impact: The negative effects a proposed interconnection may have on the existing transmission system which may include thermal, voltage or stability limits being exceeded which may compromise the safety and reliability of the electric system.

Affected System: An electric system other than the Transmission Provider's Transmission System that may be affected by the proposed interconnection.

Affiliate: With respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

Alternating Current (AC): That form of electric current that alternates or changes in magnitude and polarity (direction) in what is normally a regular pattern for a given time period called frequency.

Ampere (amp): The unit of current flow of electricity. It is to electricity as the number of gallons per minute is to the flow of water. One ampere flow of current is equal to one coulomb per second flow.

ANSI: American National Standards Institute

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.

Applicable Reliability Standards: The requirements and guidelines established by NERC, the Regional Reliability Organization, and the Control Area of the Transmission System to which the Generating Facility is directly interconnected.

Automatic: Self-acting, operated by its own mechanism when actuated by some impersonal influence as, for example, a change in current strength; not manual; without personal intervention.

Automatic Reclosing: A feature of some circuit breakers, which allows them to reclose automatically after being tripped under abnormal conditions.

Automatic Tripping (Automatic Opening): The opening of a circuit breaker under predetermined conditions without the intervention of an operator.

B

Balanced Load: An equal distribution of load on all phases of an alternating current circuit.

Balancing Area: Also known as Control Area (Refer to definition for Control Area)

Base Case: The base case power flow, short circuit, and stability databases used for the Interconnection Studies by the Transmission Provider or Interconnection Customer.

Breach: The failure of a Party to perform, or observe, any material term or condition of an agreement.

Breaching Party: A Party that is in Breach of an agreement.

Business Day shall mean Monday through Friday, excluding Federal Holidays.

C

Calendar Day: Any day including Saturday, Sunday or a Federal Holiday.

Capacity: The number of amperes of electric current a wire will carry without becoming unduly heated; the capacity of a machine, apparatus, or devices is the maximum of which it is capable under existing service conditions; the load for which a generator turbine, transformer, transmission circuit, apparatus, station, or system is rated.

Capacity Factor: The ratio of average load on a generating resource to its capacity rating during a specified period of time, expressed in percentage.

Central Iowa Power Cooperative (CIPCO): A corporation organized under the laws of Iowa, which owns transmission lines (the "CIPCO Transmission System") and generation facilities in Iowa.

CIPCO Transmission System: Transmission facilities owned and operated by CIPCO and located in the state of Iowa.

Circuit: A conducting path through which an electric current is intended to flow.

Circuit Breaker: A device for interrupting a circuit between separable contacts under normal or fault conditions.

Cogeneration: The concurrent production of electricity and heat, steam or useful work from the same source.

Commercial Operation Date: The date on which the Interconnection Customer commences commercial operation of the Generating Facility.

Conductor: Material that can be used as a carrier of an electric current.

Confidential Information: Any confidential, proprietary or trade secret information of a plan, specification, pattern, procedure, design, device, list, concept, policy or compilation relating to the present or planned business of a Party, which is designated as confidential by the Party supplying the information, whether conveyed orally, electronically, in writing, through inspection, or otherwise.

Control Area: An electrical system or systems bounded by interconnection metering and telemetry, capable of controlling generation to maintain its interchange schedule with other Control Areas, contributing to frequency regulation of the interconnection and fulfilling its obligations and responsibilities in accordance with NERC and the reliability region.

Control Switch: A switch controlling a circuit through circuit breakers or other switches.

Current: A flow of electric charge measured in amperes.

Current Transformer (CT): A transformer intended for metering, protection or control purposes, which

has its primary winding connected in series with a circuit carrying the current to be measured. The secondary winding provides a current that is at a fixed ratio of the primary current. A CT secondary circuit must never be open circuited while energized.

Customer: The party requesting an interconnection with the CIPCO Transmission System.

D

Dead-End Structure: The structure on which the last span of conductor terminates.

Demand: The rate at which electric power is delivered to or by a system; normally expressed in kilowatts, megawatts, or kilovolt-amperes.

Delta Connected Circuit: A three-phase circuit with three-source windings connected in a closed delta (triangle). A closed delta is a connection in which each winding terminal is connected to the end (terminal) of another winding.

Demand: The rate at which electric energy is delivered to or by a system; normally expressed in kilowatts, megawatts or kilovolt amperes.

Designated CIPCO Control Center: The Control Center that has been assigned operational jurisdiction over a Load or Generation Entity's substation.

Designated CIPCO Switching Center: The CIPCO Control Center.

Direct Current (DC): An constant electric current flowing in one direction only.

Disconnect: A device used to isolate a piece of equipment. A disconnect may be gang operated (multiple device operated together) or individually operated.

Dispatch Ability: Ability and availability of a generating facility to operate so that a utility can call upon it to increase or decrease deliveries of capacity to any level up to contract capacity.

Dispute Resolution: The procedure for resolution of a dispute between the Parties.

Distribution System: The facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which Distribution Systems operate differ among areas.

Distribution Upgrades: The additions, modifications, and upgrades to the Distribution System at or beyond the point of Interconnection to facilitate interconnection of the Generating Facility. Distribution Upgrades do not include Interconnection Facilities.

E

Effective Date: The date on which the Standard Generator Interconnection Agreement becomes effective upon execution by the Parties subject to acceptance by any governing authority.

Emergency Condition: A condition or situation: (1) that in the judgment of the party making the claim is imminently likely to endanger life or property, or (2) that, in the case of a The Transmission Provider, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Transmission Provider's Transmission

System, the Transmission Provider's Interconnection Facilities or the electric systems of others to which the Transmission Provider's Transmission System is directly connected, or (3) that, in the case of interconnection customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or Interconnection Customer's Interconnection Facilities. System restoration and black start shall be considered Emergency Conditions; provided, that the interconnection customer is not obligated by the Generator Interconnection Agreement to possess black start capability.

End-User: A purchaser of electric power who purchases such power to satisfy a Load directly connected to the transmission system or to a distribution system and who does not resell the power.

Energize: To apply voltage to a circuit or piece of equipment; to connect a de-energized circuit or piece of equipment to a source of electric energy.

Energy Losses: The general term applied to energy lost in the operation of an electrical system. Losses may be classified as Transformation Losses, Transmission Line Losses or System Losses.

EMS: Energy Management System. The computer system CIPCO uses to provide real-time status and remote control of its electrical transmission system.

Engineering & Procurement (E&P) Agreement: An agreement that authorizes the Transmission Provider to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection and to advance the implementation of the interconnection request.

Environmental Law: Applicable Laws or Regulations relating to pollution or protection of the environment or natural resources.

F

Fault Current: The current that is produced by an electrical fault, such as single-phase to ground, double-phase to ground, three-phase to ground, phase-to-phase, and three-phase. The Fault Current is generally many times larger in magnitude than the current that normally flows through a circuit. A protective device must be able to interrupt this Fault Current within a few cycles. The Fault Current on a transmission system generally increases when a new generator is interconnected to it.

Feeder: A circuit that distributes electric energy.

FERC: The Federal Energy Regulatory Commission (Commission) or its successor.

Firm Capacity: Power committed to be available at all times during the period covered, except for forced outages and scheduled maintenance.

Force Majeure: Any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure event does not include an act of negligence or intentional wrongdoing.

Forced Outage: Any unplanned outage resulting from a design defect, inadequate construction, operator error or a breakdown of the mechanical or electrical equipment that fully or partially curtails the delivery of electricity.

Frequency: The number of cycles of AC electric current occurring in one second expressed in Hertz (Hz).

Fuse: A short piece of conducting material of low melting point, which is inserted in a circuit and will melt and open the circuit when the current reaches a certain value.

G

Generation is defined as any device producing (or releasing from storage) electrical energy. Such devices include rotating generators driven by steam turbines, internal combustion engines, or hydraulic turbines; windmills; photovoltaic arrays; fuel cells; battery arrays; or other energy sources with a Direct Current (DC) to Alternating Current (AC) inverter or any other electric generating device.

Generation Entity: An entity interconnected to CIPCO's Transmission System who has generation facilities (including parallel back-up generation) on its side of the point of interconnection with CIPCO's Transmission System.

Generation Facility: A plant in which electric energy is produced from some other form of energy by means of suitable converting apparatus. The term "Generation Facility" includes the generation apparatus and all associated equipment owned, maintained and operated by the Generation Entity.

Generating Facility Capacity: The net capacity of the Generating Facility or the aggregate net capacity of the Generating Facility when it includes multiple energy production devices.

Generator: The physical electrical equipment that produces electric power.

Generator Interconnection Agreement: An interconnection agreement between CIPCO and Generators connected to the CIPCO Transmission System.

Generator Operating Agreement: An agreement that establishes operating responsibilities and associated procedures for communications between a Generator and CIPCO's system operators.

Good Utility Practice: Any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

Governmental Authority: Any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or 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 such term does not include Interconnection Customer, the Transmission Provider, or any Affiliate thereof.

Ground: A term used to refer to the earth as a conductor or as the zero of potential. For safety purposes, circuits are grounded while work is being done on or near a circuit or piece of equipment in the circuit.

Ground Fault: A unintentional electric current flow between one or more energized conductors and the ground.

H

Hazardous Substances: Any chemicals, materials or substances defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "hazardous constituents," "restricted hazardous materials," "extremely hazardous substances," "toxic substances," "radioactive substances," "contaminants," "pollutants," "toxic pollutants" or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

Hertz: The term denoting frequency, equivalent to cycles per second.

High-Voltage: Any voltage level that is 34.5 kV, or greater.

I

IEEE (Institute of Electrical and Electronics Engineers): Among other things, the IEEE develops technical standards applicable to the electric industry.

Incoming Breaker: The Customer-owned breaker which connects the CIPCO Transmission System to the customer's bus.

Inductance: The property of an electric circuit which produces a voltage by electromagnetic induction when the current in the circuit changes or varies.

Initial Review: The Transmission Provider's review of the interconnection customer's interconnection request.

In-Service Date: The date upon which the interconnection customer reasonably expects it will be ready to interconnect its Generation Facility to the Transmission Provider's system.

Interconnection: The physical system of electrical facilities that connects the Customer's Generation Facility to the CIPCO Transmission System.

Interconnection Agreement: An agreement between the Interconnection Customer and the Transmission Provider that specifies various terms related to the Interconnection, such as operation, maintenance, communication, disconnection, etc.

Interconnection Customer: Any entity that proposes to interconnect a Generating Facility with the Transmission Provider's Transmission System.

Interconnection Customer's Interconnection Facilities: All facilities and equipment that are located between the Generating Facility and the Point of Change of Ownership, including any modification, addition, or upgrades to such facilities and equipment necessary to physically and electrically interconnect the Generating Facility to the Transmission Provider's Transmission System. Interconnection Customer's Interconnection Facilities are sole use facilities.

Interconnection Facilities: All means required and apparatus installed to interconnect and deliver power from a Generation Facility to the CIPCO Transmission System including, but not limited to, connection, transformation, switching, metering, communications, and safety equipment, such as

equipment required to protect (1) the CIPCO Transmission System and its generation facilities from faults occurring on any system and (2) the Generation Facility from faults occurring on the CIPCO Transmission System or on the systems of others to which the CIPCO Transmission System is directly or indirectly connected. Interconnected facilities also include any necessary additions and reinforcements to the CIPCO Transmission System or Affected Systems as identified in the interconnection studies.

Interconnection Facilities Study: The study conducted by the Transmission Provider or a designated entity to determine the cost and time required to construct the facilities required to interconnect the Generating Facility with the Transmission Provider's Transmission System.

Interconnection Facilities Study Agreement: The agreement covering the terms for conducting the Interconnection Facilities Study.

Interconnection Feasibility Study: A preliminary evaluation to determine the rough magnitude of impact and associated cost to interconnect a proposed Generating Facility to the CIPCO Transmission System.

Interconnection Feasibility Study Agreement: The agreement covering the terms for conducting the Interconnection Feasibility Study.

Interconnection Request: An interconnection customer's request to interconnect a new Generating Facility, or to increase the capacity of, or make a Material Modification to the operating characteristics of an existing Generating Facility that is interconnected with the CIPCO Transmission System.

Interconnection Service: The service provided by the Transmission Provider associated with interconnecting the interconnection customer's Generating Facility to the Transmission Provider's Transmission System and enabling it to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of the Standard Generator Interconnection Agreement and, if applicable, the Transmission Provider's Tariff.

Interconnection Study: A series of studies (Feasibility, System Impact, and Facilities Studies) conducted by the Transmission Provider or a designated entity to determine the facilities necessary to accomplish the interconnection in a safe and reliable fashion, the cost of the facilities, and the time required to build the facilities to interconnect the Generating Facility with the Transmission Provider's Transmission System.

Interconnection System Impact Study: An engineering study that evaluates the interconnection's impact on the safety and reliability of the Transmission Provider's Transmission System and, if applicable, any Affected System. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project modifications or system modifications, focusing on the Adverse System Impacts identified in the Interconnection Feasibility Study.

Interconnection System Impact Study Agreement: The agreement covering the terms for conducting the Interconnection System Impact Study.

Interrupting Capacity: The amount of current a switch, fuse, or circuit breaker can safely interrupt.

Interruption: A temporary discontinuance of the supply of electrical power.

Island: A portion of an interconnected system may become isolated from the rest of the system during a system disturbance and begin to operate as an "island" with its own generation, transmission,

distribution and load. The islanded portion can quickly become insecure and become difficult to reconnect back into the main system as the two systems drift out of synch with each other.

ISO (Independent System Operator): This is an entity corporately separate from the owners of transmission and other power market participants approved by FERC to direct the operation of the regional transmission system.

K

Kilovolt (kV): 1,000 volts.

Kilovolt-Ampere (kVA): One thousand volt amperes.

Kilowatt (kW): An electric unit of power which equals 1,000 watts.

Kilowatthour (kWh): A basic unit of electric energy equal to the use of 1 kilowatt for a period of 1 hour.

KVAR: Abbreviation for kilovolt-ampere-reactive. A measure of reactive power.

L

Lagging Power Factor: Occurs when reactive power flows in the same direction as real power. Stated with respect to a generator, lagging power factor occurs when the generator is producing VARs.

Leading Power Factor: Occurs when reactive power flows in the opposite direction to real power. Stated with respect to a generator, lagging power factor occurs when generator is absorbing VARs.

Line Losses: Electrical energy loss from the conversion of current to heat due to the electrical resistance in lines and other line-related equipment.

Load Entity: An entity interconnected to CIPCO's Transmission System at a transmission or distribution voltage level who has load but does not have generation of its own in parallel with CIPCO, and is not interconnected with any source of generation other than CIPCO.

Low-Voltage: Voltage levels below 34.5 kV.

M

Material Modification: A modification that has a significant impact on the cost or timing of any interconnection request with a later queue priority date.

Maximum Torque Angle (MTA): The phase angle between the relay measured quantities at which the relay is the most sensitive.

Megawatt (MW): 1 million watts. Often used to describe the capacity of a Generating Facility.

Megger: An ohmmeter device used to measure the ability of insulation to withstand voltage, as well as measuring the insulation resistance.

Metering: The methods of applying devices that measure and register the amount and direction of electrical quantities with respect to time.

Metering Equipment: All metering equipment installed or to be installed at the Generating Facility pursuant to the Interconnection Agreement at the metering points, including but not limited to instrument transformers, MWh-meters, data acquisition equipment, transducers, remote terminal unit, communications equipment, phone lines, and fiber optics.

Metering Services: Consists of ensuring meter design specifications, installation, calibration, and ongoing testing and maintenance of meters and eventual retirement of such equipment.

Milestones: The events and associated dates listed in the Generator Interconnection Agreement. The Milestones describe events that are to be met by either Party as the Generating Facility proceeds to Interconnection and Parallel Operation.

MISO (Midcontinent Independent System Operator): As a Regional Transmission Organization, MISO assures consumers of unbiased regional grid management and open access to the transmission facilities under MISO's functional supervision. MISO currently serves as CIPCO's Reliability Coordinator, Planning Authority, Tariff Administrator, and Balancing Authority.

N

Nameplate Rating (Facility): Rating information appearing on the nameplate or an electrical device, in accordance with applicable industry standards.

NEC: National Electric Code

NERC: North American Electric Reliability Corporation. Certified by FERC as the Electric Reliability Organization for North America, responsible for establishing the operating and planning standards to assure the reliability of the electric grid.

Net Energy Output: The generation facility's gross output in kilowatt-hours less station use to the point of delivery into the CIPCO Transmission System.

Network Resource: The portion of a Generating Facility that is integrated with the Transmission Provider's Transmission System, designated as a Network Resource pursuant to the terms of the Tariff, and subjected to redispatch directives as ordered by the Transmission Providers in accordance with the Tariff.

Network Resource Interconnection Service: An Interconnection Service that allows the Interconnection Customer to integrated its Generating Facility with the Transmission Provider's Transmission System (1) in a manner comparable to that in which the Transmission Provider integrates its generating facilities to serve native load customers; or (2) in an RTO or ISO with market based congestion management, in the same manner as all other Network Resources. Network Resource Interconnection Service in and of itself does not convey transmission service.

Network Upgrades: The required additions, modifications, and upgrades to the Transmission Provider's Transmission System and that of Affected Systems to accommodate the interconnection of the Generating Facility to the Transmission Provider's Transmission System.

Non-Spinning Reserve: All unloaded generating capability not meeting the Spinning Reserve criteria that can be made fully available in 10 minutes. This may include generation that shall be made available within 10 minutes by interrupting or curtailing loads or changing schedules.

O

OASIS (Open Access Same-time Information System) - An Internet based system designed to allow

all participants in the power market to obtain information concerning the capability and use of the transmission system in a non discriminatory manner.

Ohm: The unit of resistance of an electric circuit.

One-Line Diagram: A simplified diagram in which a single line represents three-phase devices and equipment. The purpose of such a diagram is to present a three-phase electrical circuit in a simple way so that its function and configuration can be readily grasped.

Operating Requirements: Any operating and technical requirements that may be applicable due to Regional Transmission Organization, Independent System Operator, Control Area, or the Transmission Provider requirements, including those set forth in the Generator Interconnection Agreement.

Operations Center: The facility in which operations are coordinated for the CIPCO Transmission System.

Outage: A condition existing when a line or a substation is de-energized.

Output: The energy delivered by a generation facility during its operation.

Overload: Current greater than an electric device or circuit is designed to carry.

Overvoltage: Voltage higher than that desired or for which the equipment is designed.

P

Parallel Operation: The operation of a Customer-owned generator while connected directly or through an intermediary's system to the CIPCO Transmission System. Generators that operate in parallel with a Transmission System require additional protection and control devices. Parallel Operation may be long-term or momentary (such as "make before break," "hot" or "closed-transition" transfer).

Party or Parties: The Transmission Provider, Transmission Owner, Interconnection Customer or any combination of the above.

Peak Load: The maximum electric load consumed or produced in a stated period of time.

Peaking Generation: Generating Facilities intended to meet maximum instantaneous electrical demands for short periods of time.

Point of Change of Ownership: The point where a Customer's ownership in facilities changes over to facilities owned by the Transmission Provider.

Point of Common Coupling: The point in the interconnection of the Generating Facility with the Transmission Provider's Transmission System at which harmonic limits are applied.

Point of Interconnection: The point where the Generation Facility's equipment connects to the CIPCO Transmission System.

PT (Potential Transformer): A transformer that reproduces a secondary voltage that is in proportion to the voltage of the primary circuit. Also known as a Voltage Transformer.

Power: The amount of electrical energy produced or transferred.

Power Factor: The ratio of real (MW) power to apparent power (MVA). Power factor is the cosine of the phase angle difference between the current and voltage of a given phase.

Power Flow: One-way power flow is the condition where the flow of power is entirely into the Customer's facility. Two way power flow is the condition where the net flow of power may be either into or out of the Customer's facility depending on the operation of the generator and other customer load.

Power System Stabilizer: Supplemental excitation device for dampening low frequency oscillations.

Protection: All of the relays and other equipment, which are used to open the necessary circuit breakers to clear lines or equipment when a fault occurs.

Protective Relay: A device whose function is to detect abnormal or dangerous power-system conditions and to initiate appropriate protective action.

Q

Queue Position: The order of a valid interconnection request, relative to all other pending valid interconnection requests, that is established based upon the date and time of receipt of the valid interconnection request by the Transmission Provider.

R

Reactance: The opposition to the flow of current attributable to the inductance and capacitance in an alternating current circuit.

Reactive Load: The reactive power demand of an AC load in which the current is not in phase with the voltage.

Reactive Power (VAR): The power produced by capacitive circuit elements and generators that is absorbed by inductive circuit elements. The function of reactive power is to establish and sustain the electric and magnetic fields required to perform useful work.

Reasonable Efforts: Efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use for its own interests.

Reclose: To again close a circuit breaker after it has opened by relay action.

Relay: A protective device that monitors an electric circuit and if certain conditions are present (such as a fault) it then initiates the operation of another device (such as a breaker) in the same or in another electric circuit to prevent damage or injury.

Remote Terminal Unit (RTU): Remotely-located equipment used for collecting data and/or for supervisory control via a communication channel.

Residual Current: The current which flows in the neutral or star (wye) connected current transformers when the current in the three phases of a line are unbalanced.

Resistance: A measurement of the resistance to current flow of a conductor or device.

RRO (Regional Reliability Organization): Entity under the authority of NERC responsible for the reliable operation and use of the electric power system within a specific geographic region.

RUS (Rural Utilities Service): A government agency under the United States Department of Agriculture that regulates CIPCO.

S

SCADA (Supervisory Control and Data Acquisition): SCADA is the combination of telemetry and data acquisition and consists of collecting information, transferring it back to a central site, carrying out necessary analysis and control, and then displaying this data on any number of operator screens. SCADA is used to monitor and control a plant, a substation, or other utility installations.

Schematic: A diagram showing the electrical characteristics of a piece of equipment or a system.

Scoping Meeting: The meeting between representatives of the Interconnection Customer and the Transmission Provider to discuss a proposed interconnection, exchange information, and discuss other relevant topics associated with the Interconnection Request.

Secondary Network: A low-voltage alternating current system, which connects the secondaries of distribution transformers to the consumer.

Service Reliability: The time an entity or group of entities has electric service compared to the amount of time the entity or entities are without service over a given time period.

Service Restoration: The switching procedure a system operator directs or executes to restore electric service following an outage.

Site Control shall mean documentation reasonably demonstrating: (1) ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Generating Facility, (2) an option to purchase or acquire a leasehold site for such purpose, or (3) 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.

Spinning Reserve: The amount of running but unloaded generating capability of a participant connected to and synchronized with the interconnected system and ready to provide power. The Spinning Reserve allocation for any generator shall not exceed the amount of generation increase that can be realized in 10 minutes.

Stand Alone Network Upgrades shall mean Network Upgrades that an interconnection customer may construct without affecting day-to-day operations of the Transmission System during their construction. Both the Transmission Provider and the Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in the Interconnection Agreement.

Generator Interconnection Agreement: An agreement applicable to an interconnection request pertaining to a particular Generating Facility.

Generator Interconnection Procedures: The procedures which determine the requirements to interconnect a particular Generating Facility.

Standby Capacity: The lesser of (1) net generation capacity, (2) connected loads to generator, or (3) 80% of main switch rating.

Station Use: Energy used to operate the Generating Facility's auxiliary equipment. (Auxiliary equipment includes, but is not limited to, forced and induced draft fans, cooling towers, boiler feed pumps, lubricating oil systems, power plant lighting, fuel handling systems, control systems, and sum

pumps.)

Step-Down Transformer: A transformer in which the secondary winding has fewer turns than the primary, so that the secondary delivers a lower voltage than is supplied to the primary.

Step-Up Transformer: A transformer in which the secondary winding has more turns than the primary, so that the secondary delivers a lower voltage than is applied to the primary.

Supervisory Control: A system by which equipment is operated by remote control at a distance using some type of protocol transmitted by wire or electronic means.

Switch: A device for making, breaking or changing the connections in an electric circuit.

Switch, Auxiliary: One actuated by some main device such as a circuit breaker for signaling, interlocking, or other purpose.

Synchronism: Expresses the condition across an open circuit wherein the voltage sine wave on one side matches the voltage sine wave on the other side in frequency and phase angle.

System Emergency: Conditions beyond normal control that affect the ability of a Control Area to function normally, including any abnormal system condition which requires immediate manual or automatic action to prevent loss of load, equipment damage, tripping of system elements which might result in cascading outages, or to restore system operation to meet the minimum operating reliability criteria.

System Protection Facilities: The equipment, including necessary protection signal communications equipment, required to protect (1) the CIPCO Power System from faults or other electrical disturbances occurring at the Load or Generating Entities' facility and (2) the Load or Generating Entities' facility from faults or other electrical system disturbances occurring on CIPCO's Power System or on other delivery systems or other generating systems to which the CIPCO's Power System is directly or indirectly connected.

T

Tariff: Defines a Transmission Owner's rates and other requirements for access to the Transmission Owner's system.

Technical Master: A person with relevant technical experience selected to adjudicate disputes between the Parties.

Telemetry: Remote measurement of a physical value or status (i.e. generator kV, status of a switch, etc.) by means of a communication channel.

Term: The duration of an agreement.

Transfer Trip: A form of remote trip in which a communication channel is used to transmit the trip signal from a relay location to a device at a remote location.

Transformer: An electrical device in which electromagnetic induction transforms electric energy from one circuit to another with changes in the values of voltage and current.

Transformer Ratio: The ratio of the voltage delivered from a transformer to the voltage supplied to that transformer.

Transmission Line: A line used for electric power transmission, distinguished from a distribution line by voltage. Lines rated 34.5 kV and above are considered transmission lines.

Transmission Operator: The entity responsible for transmission operations.

Transmission Owner: An entity that owns, leases or otherwise possesses an interest in the portion of the Transmission System.

Transmission Provider: The utility (or its designated agent) that owns, controls, or operates transmission or distribution facilities used for the transmission of electricity in interstate commerce and provides transmission service under a Tariff.

Transmission Service: The service that allows a party to wheel power and energy over a transmission system.

Transmission System: The facilities owned, controlled or operated by a Transmission Owner above a specified voltage that are used to transmit power and provide transmission service under a Tariff.

U

Upgrades: The required additions and modifications to the CIPCO or an Affected System's Transmission System at or beyond the Point of Interconnection.

Undervoltage Protection: Upon failure or a reduction in voltage, this protection system interrupts power to remove the undervoltage condition.

Unity Power Factor: A power factor wherein the voltage and current are in phase.

V

VAR: A unit of measurement of reactive power. It is an expression of the difference between current and voltage sine waves in a given circuit.

Volt: The unit of electrical pressure similar to the pounds per square inch pressure on a steam gauge.

Voltage: Electric potential or potential difference expressed in volts.

Volt-Ampere: A unit of apparent power in an alternating-current circuit. At unity power factor, a volt-ampere equals a watt.

Voltage Loss: The drop of potential in an electric circuit due to the resistance and reactance of the conductor.

W

Watt: The unit of electric power.

Watt-hour Meter: An electrical measuring instrument which records power in watt-hours.

Wheeling: The use of transmission facilities of one utility system to transmit power to another utility system, or between Customer facilities within a single utility system or between systems.

Wye or "Y" Connected Circuit (Star Connected): A three-phase circuit in which windings of all three phases have one common connection.

Appendix 2
Generator Interconnection Procedure Outline



GENERATOR INTERCONNECTION PROCEDURE OUTLINE

Applicability –

- 1) All generators directly connected to the CIPCO transmission system
- 2) All generators directly connected to a CIPCO Member distribution system in which some or all of the power and energy capability of the generator(s) may, from time to time as determined by CIPCO, “come out from behind the meter” and flow into the CIPCO transmission system.

1.0 Generator Interconnection Request Form

- 1) Customer submits an interconnection request form and \$10k deposit to CIPCO
- 2) CIPCO validates the request and assigns a study queue number to the generator
- 3) An initial scoping call will be scheduled to discuss project details and the study process

2.0 Feasibility Study (7-10 Weeks Estimated)

- 1) CIPCO will provide a Feasibility Study Agreement and study cost estimate to the Customer
- 2) Within 30 days, the Customer must provide the following:
 - a) Executed Feasibility Study Agreement
 - b) Study Deposit
 - c) Demonstration of Site Control
 - d) Any additional data requested at scoping call
- 3) CIPCO will arrange a study kickoff meeting before study work starts
- 4) CIPCO (or its agent) will perform a screening analysis, which may include power flow, stability and short circuit analyses.
- 5) A meeting will be arranged to discuss the results of the Feasibility Study.
- 6) Within 30 days of completion of the Feasibility Study, the Customer must notify CIPCO of its desire to proceed with a System Impact Study.

3.0 System Impact Study (12 Weeks Estimated, Not Including Approvals)

- 1) Once the Feasibility Study is complete, or if Customer chooses to forego the Feasibility Study and go directly to the System Impact Study, CIPCO will provide a System Impact Study Agreement and study cost estimate to the Customer
- 2) Within 30 days, Customer must provide the following:
 - a) Executed System Impact Study Agreement
 - b) Study Deposit
 - c) Confirmation of Site Control
 - d) Any additional data requested by CIPCO
- 3) CIPCO will arrange a study kickoff meeting before study work starts.
- 4) CIPCO or its agent will perform the study work which will consist of power flow analysis, short circuit analysis and stability analysis (which may include transient, large and small signal, sub-synchronous, dynamic voltage, and mid-and long-term stability analysis, voltage flicker analysis and excessive neutral current analysis).
- 5) A meeting will be arranged to discuss results of the System Impact Study.
- 6) Any additional study work requested by the Ad Hoc group will be performed at Customer expense.
- 7) A final report with rough cost estimates for facility upgrades will be provided.

4.0 Facility Study (180 Days Estimated)

- 1) Simultaneously to CIPCO providing the System Impact Study Report, CIPCO will provide a Facility Study Agreement and cost estimate to the Customer
- 2) Within 30 days, Customer must provide:
 - a) Executed Facility Study Agreement
 - b) Study Deposit
 - c) Any additional data requested by CIPCO
- 3) CIPCO will arrange a study kickoff meeting before study work starts.

- 4) CIPCO or its agent will perform study work which will consist of specifying and estimating the cost of the required equipment, engineering, procurement and construction work needed to implement the results of the System Impact Study on the CIPCO System. Customer will be required to coordinate with any Affected System regarding any necessary system upgrades on the Affected System. The Facilities Study shall identify the electrical switching configuration of the connection equipment, including, without limitation: the transformer, switchgear, meters, and other station equipment; the nature and estimated cost of any Interconnection Facilities and Network Upgrades, and to the extent known, upgrades on Affected Systems necessary to accomplish the interconnection. An estimate of the time required to complete the construction and installation of such facilities will also be provided.
- 5) A meeting will be arranged to discuss the results of the Facility Study
- 6) A final report will be provided including facility cost estimates.
- 7) If a re-study is necessary due to a change in a prior-queued generator, the study work may need to be rerun to determine the effects, if any, on Customers remaining in the queue.

5.0 Generator Interconnection Agreement

- 1) Customer will provide written notice to CIPCO of its intent to proceed with construction within 15 Calendar Days after issuance of the Facilities Study results
- 2) CIPCO will provide a draft Generator Interconnection Agreement (GIA) within 90 Calendar Days
- 3) The Customer will return a completed draft GIA within 30 Calendar Days of receipt
- 4) CIPCO and the Customer shall have 60 Calendar Days from the date CIPCO issued the draft GIA to the Customer to negotiate any outstanding terms.
- 5) Once negotiations are complete, CIPCO shall provide the Customer with two copies of the final GIA within fifteen (15) Business Days after completion of the negotiation process.
- 6) If the negotiations are at an impasse 60 Calendar Days from CIPCO's issuance of the draft GIA, the Interconnection Request will be deemed withdrawn from the queue and terminated.
- 7) The Customer shall execute the two originals of the final GIA and return both to CIPCO along with a form of security acceptable to CIPCO, equivalent to the costs of the new Interconnection Facilities and Network Upgrades within 15 Calendar Days of receipt.
- 8) If the Customer does not provide the above items within the specified timeframe, the Customer's Interconnection Request shall be deemed withdrawn and terminated.
- 9) Upon execution of the final GIA, CIPCO and the Customer shall perform their respective obligations in accordance with the terms of the GIA.

6.0 Engineering Procurement and Construction

- 1) Once the GIA is executed, the engineering design and construction process can begin for the Interconnection Facilities and the require Network Upgrades as determined by the Interconnection Studies.

Appendix 3
Generator Interconnection Request Form



For CIPCO Use
 Date of receipt: _____
 By: _____

GENERATION INTERCONNECTION REQUEST FORM

INSTRUCTIONS

All Generating Facilities requesting interconnection with the CIPCO Transmission System must submit this interconnection request form, all requested support documents and drawings, along with a \$10,000 deposit, to CIPCO.

Questions?	<p>Contact: Dan Burns, Director Engineering and Transmission Planning and Tariffs Central Iowa Power Cooperative P.O. Box 2517 Cedar Rapids, Iowa 52406 Phone: (319) 734-4312 Email : dan.burns@cipco.net</p>
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Please allow up to 30 business days for processing. Once CIPCO determines that the request is complete and valid, the generator will be assigned a study queue number and CIPCO will contact Interconnection Customer to schedule a scoping meeting. Additional deposits will be required prior to each study phase.

Please note:

- If requested information is not applicable, indicate by using "N/A". Do not leave any lines blank or the request will be rejected.
- If the requested information is not available at the present time, but will be provided at a future date, state the date such information will be provided. CIPCO will determine whether the date will be satisfactory. Do not leave any lines blank or the request will be rejected.
- Requests for interconnection are studied in queue order. The request for interconnection will not be deemed valid and the generator will not be assigned a study queue number until all information has been provided.
- Additional information to evaluate an interconnection request may be requested by CIPCO at any time. The requestor must comply with additional information requests, or the request may be rejected.
- Completion of this interconnection request does not qualify the requesting entity for either interconnection service or transmission service.

SECTION 1. INTERCONNECTION CUSTOMER INFORMATION

Generating Facility Name: _____

Generating Facility Number: _____ Application Date: _____

County: _____ Township: _____ Section: _____

Proposed Interconnection Date: _____ Anticipated Operation Date: _____

CONTACT INFORMATION

1. Representative Company Name: _____

Contact Person: _____

Title: _____

Street Address: _____

City: _____ State: _____ Zip Code: _____

Phone: Daytime: (____) _____ Evening: (____) _____

Fax: _____ E-Mail Address: _____

2. Site Owner Name: _____

Contact Person: _____

Title: _____

Street Address: _____

City: _____ State: _____ Zip Code: _____

Phone: Daytime: (____) _____ Evening: (____) _____

Fax: _____ E-Mail Address: _____

3. Alternative Contact Name: _____

Title: _____

Street Address: _____

City: _____ State: _____ Zip Code: _____

Phone: Daytime: (____) _____ Evening: (____) _____

Fax: _____ E-Mail Address: _____

Application is for:

- Existing Generating Facility
- New Generating Facility
- Capacity addition to Existing Generating Facility

Please describe:

Indicate intention to operate or participate as:

- Network Resource
- Non-Exporting Resource Participating in a Wholesale Market
- Energy-Only Resource
- Other (Describe: _____)

Requested Point of Interconnection (including Section-Township-Range information):

Existing CIPCO Electric Service, if any:

Premises _____ Account: _____

TYPE OF INTERCONNECTION (Mark all that apply):

- | | |
|---|--|
| <input type="checkbox"/> Transmission line tap(s) | <input type="checkbox"/> Substation breaker bay additions |
| <input type="checkbox"/> Delivery point to new end user | <input type="checkbox"/> Additional delivery point(s) to existing end user |
| <input type="checkbox"/> Generation connection(s) | <input type="checkbox"/> Other: _____ |

DESCRIPTION OF REQUESTED INTERCONNECTION (Include as much of the following information as possible on attached sheets; mark all that apply)

- Single-line diagram(s) showing the proposed interconnection
- Description of proposed routing and dimensions and configurations of new structures and facilities
- Single-line diagram(s) showing configuration of all Generating Facility equipment
- Description and ratings of proposed transformers, circuit breakers switches, metering, associated communications, and relaying and other equipment.
- Description of generating resources or loads
- Single-line diagram(s) showing configuration of current and potential circuits
- Single-line diagram(s) of all protection and control schemes
- Documentation describing and detailing the operation of the protection and control schemes
- Schematics drawings for all protection and control circuits, relay current circuits, relay potential circuits, and alarm/monitoring circuits
- Drawing(s) indicating physical arrangements of existing and proposed facilities
- Geographic location of proposed interconnection and structure numbers, if available (e.g. USGS topographic map)
- Proposed transmission path(s) and service arrangements between resources and associated loads, where applicable
- Appropriate revenue metering and telemetering equipment specifications
- Copies of relevant planning or operations studies
- Proposed construction schedule
- Copies of relevant environmental impact assessments, reports, or projections; or descriptions of anticipated scope of environmental review
- Documentation showing Interconnection Customer has Site Control (to be considered a valid Interconnection Request, evidence of Site Control, as defined below, must be attached)

“Site Control” shall mean documentation reasonably demonstrating: (1) ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Generating Facility; (2) an option to purchase or acquire a leasehold site for such purpose; or (3) an exclusivity or other business relationship between Interconnection Customer and the entity having the right to sell, lease or grant Interconnection Customer the right to possess or occupy a site for such purpose.

- PTI Model of governor system in accordance with IEEE Recommended Practice for Excitation System Models for Power System Stability Studies, IEEE Standard 421.5-1992. PTI PSS/E version 26 or higher.
- List of adjustable setpoints for the protective equipment or software
- A completed General Electric Company Power Systems Load Flow (PSLF) data sheet.
- IEEE model block diagram of excitation system, governor system, and power system stabilizer (PSS) in accordance with the regional reliability council criteria. Applicable studies may determine a PSS may be required. A copy of the manufacturer's block diagram may not be substituted.
- Curves:
 - Saturation, Vee, Reactive Capability, Capacity Temperature Correction Curves
 - Designate normal and emergency Hydrogen Pressure Operating Range for multiple curves.
 - Power Quality curves, if applicable, specifying percent total harmonic distortion vertically and percent power output horizontally from 25-100% power output for both current and voltages or specify that the unit is IEEE 519 compliant.

SECTION 2. GENERATING FACILITY – BASIC DATA

TYPE OF PROJECT

<input type="checkbox"/> Cogeneration	<input type="checkbox"/> Hydro	<input type="checkbox"/> Steam Turbine
<input type="checkbox"/> Small Power Producer	<input type="checkbox"/> Photovoltaic (Solar)	<input type="checkbox"/> Wind
<input type="checkbox"/> Biomass	<input type="checkbox"/> Recip. Engine	<input type="checkbox"/> Nuclear
<input type="checkbox"/> Gas Turbine	<input type="checkbox"/> Other: _____	

FACILITY INFORMATION

Generating Facility size: _____

Number of generators: _____ Generator operating hours per year: _____

Wind Generator Elevation: _____ Phase: 1Ø _____ 3Ø _____

Anticipated Customer Load without generator: _____ kVA _____ kW

Anticipated Customer Load with generator: _____ kVA _____ kW

Hourly Load curve for day and week, typical (attach graphs or describe): _____

POWER FACTOR CORRECTION EQUIPMENT DESCRIPTION

LIST COMPONENTS OF THE GENERATING FACILITY THAT ARE PRECERTIFIED

<u>Equipment Type</u>	<u>Precertifying Entity</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

GENERATOR INFORMATION

Manufacturer: _____

Model Name: _____ Model Number: _____

Generator Type: Induction: _____ Synchronous: _____ D.C. with Inverter: _____

Synchronizing: Auto _____ Manual _____ Relay Supervision: Yes _____ No _____

Connection: Delta _____ Grounded WYE _____ Ungrounded _____

Rated output (kVA): _____ summer Rated output (kW): _____ summer

Rated output (kVA): _____ winter Rated output (kW): _____ winter

Rated power factor: _____ leading Rated power factor: _____ lagging

Rated voltage (kV): _____ Rated Speed (RPM): _____

Maximum physical export capability requested (kW): _____ ° F: _____

Harmonic Generating Sources:

Frequencies	Magnitudes
_____	_____
_____	_____
_____	_____

Proposed Generator Operating Schedule (total kWhrs):

_____ January	_____ April	_____ July	_____ October
_____ February	_____ May	_____ August	_____ November
_____ March	_____ June	_____ September	_____ December

Proposed Average Production:

Daily: _____ kWh Monthly: _____ kWh Yearly: _____ kWh

Electric Metering is to be:

Primary _____ Secondary _____ Voltage _____ Pole Top _____
 Switchboard _____ Customer Owned Sup. _____

Gas Requirements: Volume: _____ MCFH Pressure: _____ PSIG

Operations: Daily Hours: _____ Days per Week: _____

Scheduled Shutdowns: _____

APPLICATION SUBMITTER INFORMATION

Signature of Applicant: _____ Date: _____

Applicant Name: _____

Applicant's Title: _____

SECTION 3. GENERATING FACILITY – DETAILED TECHNICAL INFORMATION

(Final transformer and generator data must be based on actual test results for the particular transformer and generator. Typical values, calculated values or type testing are acceptable only if guaranteed in writing by manufacturer to be within $\pm 3\%$ accuracy):

Generator Voltage Regulation Range: _____

Generator Power Factor Regulation Range: _____

kVA Base: _____ kV Base: _____ Frequency, Hz: _____

UNIT RATINGS

kVA _____ °F _____ Voltage _____

Power Factor _____

Speed (RPM) _____ Connection (e.g. Wye) _____

Short Circuit Ratio _____ Frequency, Hertz _____

Stator Amperes at Rated kVA _____ Field Volts _____

Max Turbine MW _____ °F _____

Min Turbine MW _____ °F _____

COMBINED TURBINE-GENERATOR-EXCITER INERTIA DATA

Inertia Constant, H = _____ kW sec/kVA

Moment-of-Inertia, WR^2 = _____ lb. ft.²

REACTANCE DATA (PER UNIT-RATED KVA)

	DIRECT AXIS	QUADRATURE AXIS
Synchronous – saturated	X_{dv} _____	X_{qv} _____
Synchronous – unsaturated	X_{di} _____	X_{qi} _____
Transient – saturated	X'_{dv} _____	X'_{qv} _____
Transient – unsaturated	X'_{di} _____	X'_{qi} _____
Subtransient – saturated	X''_{dv} _____	X''_{qv} _____
Subtransient – unsaturated	X''_{di} _____	X''_{qi} _____
Negative Sequence – saturated	X_{2v} _____	
Negative Sequence – unsaturated	X_{2i} _____	

Zero Sequence – saturated	X_{0v}	_____
Zero Sequence – unsaturated	X_{0i}	_____
Leakage Reactance	X_{lm}	_____

FIELD TIME CONSTANT DATA (SEC)

Open Circuit	T'_{do}	_____	T'_{qo}	_____
Three-Phase Short Circuit Transient	T'_{d3}	_____	T'_q	_____
Line to Line Short Circuit Transient	T'_{d2}	_____		
Line to Neutral Short Circuit Transient	T'_{d1}	_____		
Short Circuit Subtransient	T''_d	_____	T''_q	_____
Open Circuit Subtransient	T''_{do}	_____	T''_{qo}	_____

ARMATURE TIME CONSTANT DATA (SEC)

Three Phase Short Circuit	T_{a3}	_____
Line to Line Short Circuit	T_{a2}	_____
Line to Neutral Short Circuit	T_{a1}	_____

NOTE: If requested information is not applicable, indicate by marking "N/A."

Please attach a plot of generator terminal voltage versus field current that shows the air gap line, the open-circuit saturation curve, and the saturation curve at full load and rated power factor.

ARMATURE WINDING RESISTANCE DATA (PER UNIT)

Positive	R_1	_____
Negative	R_2	_____
Zero	R_0	_____

Rotor Short Time Thermal Capacity $I_2^2t =$ _____

Field Current at Rated kVA, Armature Voltage and PF = _____ amps

Field Current at Rated kVA and Armature Voltage, 0 PF = _____ amps

Three Phase Armature Winding Capacitance = _____ microfarad

Field Winding Resistance = _____ ohms _____ °C

Armature Winding Resistance (Per Phase) = _____ ohms _____ °C

CURVES

Provide Saturation, Vee, Reactive Capability, Capacity Temperature Correction curves. Designate normal and emergency Hydrogen Pressure operating range for multiple curves.

If available, provide power quality curves specifying percent total harmonic distortion vertically, and percent power output horizontally, from 25 – 100% power output for both current and voltages, or, alternatively, specify that the unit is IEEE 519 compliant.

GENERATOR STEP-UP TRANSFORMER DATA RATINGS

Capacity (Self-cooled/Maximum Nameplate)

_____ / _____ kVA

Voltage Ratio (Generator Side/System side/Tertiary)

_____ / _____ / _____ kV

Winding Connections (Low V/High V/Tertiary V (Delta or Wye))

_____ / _____ / _____

Fixed Taps Available _____

Present Tap Setting _____

IMPEDANCE

Positive Z_1 (on self-cooled kVA rating) _____ % _____ X/R

Zero Z_0 (on self-cooled kVA rating) _____ % _____ X/R

EXCITATION SYSTEM DATA

Identify appropriate IEEE model block diagram of excitation system and power system stabilizer (PSS) for computer representation in power system stability simulations and the corresponding excitation system and PSS constants for use in the model.

Manufacturer: _____

Model Name/Number: _____

Type: Brushless _____ Static _____ Other _____

Supply model in accordance with *IEEE Recommended Practice for Excitation System Models for Power System Stability Studies*, IEEE Standard 421.5-1992. It is preferred to have the model compatible with the current version of PTI PSS/E and to have the PTI model description.

GOVERNOR SYSTEM DATA

Identify appropriate IEEE model block diagram of governor system for computer representation in power system stability simulations and the corresponding governor system constants for use in the model.

GENERATOR SPEED-GOVERNOR/TURBINE ENGINE DATA

Manufacturer: _____ Model: _____

Type: _____

WIND GENERATORS

Number of generators to be interconnected pursuant to this Interconnection Request: _____

Elevation: _____ Single Phase _____ Three Phase

Inverter manufacturer, model name, number, and version: _____

List of adjustable setpoints for the protective equipment or software:

Type of wind generator including a generic description, e.g., GE doubly fed induction machine with back-to-back IGBT converters, or Micon induction generator, etc):

Specify wind generator low voltage ride through capability:

Minimum low voltage threshold in percent to enable tripping

Minimum low voltage duration in seconds to enable tripping

Provide voltage flicker data, if available, for the wind generator model to be installed specified in percent of total voltage output. The data may be provided at 25, 50, 75, and 100% of output or in the form of a curve with the Y-axis showing percent of flicker versus total output and the X-axis showing percent load output from at least 25% to 100% of total output.

Provide voltage dropout limits expressed in voltage level versus time

Provide frequency dropout limits expressed in frequency versus time

Note: Completed Power Technology Inc. (PTI) Power Systems Load Flow, generator, exciter, and governor data sheets, or alternative standard format acceptable to CIPCO, must be supplied with the Interconnection Request. If other data sheets are more appropriate to the proposed device then they shall be provided and discussed at a scoping meeting. The Interconnection Customer consisting of many small units shall be required to provide equivalent models of their Generation Facility at the Point of Interconnection with CIPCO.

INDUCTION GENERATORS

Field Volts: _____ Field Amperes: _____

Motoring Power (kW): _____ Neutral Grounding Resistor: _____

$I_2^2 t$ or K (Heating Time Constant): _____

Rotor: Resistance: _____ Reactance: _____

Stator: Resistance: _____ Reactance: _____

Reactance: Magnetizing: _____ Short Circuit: _____

Exciting Current: _____ Temperature Rise: _____
 Frame Size: _____ Design Letter: _____
 Reactive Power Required: No Load _____ VARs Full Load: _____ VARs
 Voltage Rating: High: _____ (kV) Low: _____ (kV)
 Total Rotating Inertia, H: _____ pu on kVA Base (seconds on machine base)
 Or, Inertia Constant, WR^2 : _____ lb-ft.²

SECTION 4. INTERCONNECTING EQUIPMENT - TECHNICAL DATA INFORMATION

INTERCONNECTION

Type of Interconnection: Loop _____ Radial _____
 Source of Loop Connection: _____
 System Equivalent at Point of Loop Connection on requester's side, if looped:
 kVA Base: _____ kV Base: _____
 Reactance: Zero, X_0 : _____ pu Positive, X_1 : _____ pu Negative, X_2 : _____ pu
 Length of tap line to next substation: _____

SYSTEM CONTROL SCHEME: List ANSI standard relay device numbers for:

- Transformer _____
- Tap Line _____
- Bus _____

TRANSFORMER DATA

____ Single phase _____ Three phase
 kVA Base: _____ kV Base: _____ Rated kVA: _____
 Primary Rating (kV): _____ ___ Delta ___ Wye ___ Wye Grounded
 Secondary Rating (kV): _____ ___ Delta ___ Wye ___ Wye Grounded
 Positive Sequence Resistance, R_1 : _____ PU
 Positive Sequence Reactance, X_1 : _____ PU
 Zero Sequence Resistance, R_0 : _____ PU
 Zero Sequence Reactance, X_0 : _____ PU

Available tap settings: High Voltage _____ Low Voltage _____
 Expected tap settings: High Voltage _____ Low Voltage _____
 Winding connection: High Voltage _____ Low Voltage _____
 Fuse Manufacturer: _____
 Type: _____ Size: _____ Speed: _____
 Attach minimum melt and total clearing time-current curves.

INTERCONNECTING CIRCUIT BREAKER (IF APPLICABLE)

Manufacturer: _____
 Type: _____ Load Rating (Amps): _____
 Interrupting Rating (Amps): _____ Trip Speed (Cycles): _____

INTERCONNECTION PROTECTIVE RELAYS (IF APPLICABLE)

Note: Please attach a copy of any proposed time-overcurrent coordination curves

Manufacturer: _____ Type: _____
 Style/Catalog No.: _____ Proposed Setting: _____
 Manufacturer: _____ Type: _____
 Style/Catalog No.: _____ Proposed Setting: _____
 Manufacturer: _____ Type: _____
 Style/Catalog No.: _____ Proposed Setting: _____

CURRENT TRANSFORMER DATA (IF APPLICABLE)

Note: Please attach a copy of manufacturer's excitation & ratio correction curves

Manufacturer: _____
 Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____/5
 Manufacturer: _____
 Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____/5

POTENTIAL TRANSFORMER DATA (IF APPLICABLE)

Manufacturer: _____
 Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____/5
 Manufacturer: _____

Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____/5

SECTION 6. AGREEMENT TO PROVIDE DATA AT A LATER DATE

<u>Data Item</u>	<u>Date to be Provided</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

AGREED TO BY

CIPCO

Date

SECTION 7. SIGNATURES

I hereby certify that, to the best of my knowledge, all the information provided in this interconnection request is true and correct.

For Interconnection Customer (Printed): _____

Signature: _____

Date: _____ Time: _____

I hereby determine that on the date and time specified below, Interconnection Customer has provided or agreed to provide per Section 6 all required information, and the interconnection request is considered complete.

For CIPCO (Printed): _____

Signature: _____

Date: _____ Time: _____

Appendix 4
Interconnection Feasibility Study Agreement



INTERCONNECTION FEASIBILITY STUDY AGREEMENT

This Agreement, dated and made effective as of _____, 20____, is entered into by and between - _____ (the "Customer") and Central Iowa Power Cooperative ("CIPCO") to set forth the terms, conditions and costs for CIPCO's conducting an Interconnection Feasibility Study (the "Study") relative to the _____ Project (the "Project").

RECITALS

WHEREAS, Interconnection Customer is proposing to develop a Generating Facility or generating capacity addition to an existing Generating Facility consistent with the its request submitted by the Interconnection Customer dated _____, 20____; and

WHEREAS, Interconnection Customer desires to interconnect the Generating Facility with CIPCO's transmission system; and

WHEREAS, Interconnection Customer has requested CIPCO to perform an Interconnection Feasibility Study (the "Study") to assess the feasibility of interconnecting the proposed Generating Facility to CIPCO's transmission system, and of any Affected Systems;

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

1. Data Requirements

The Study shall be based on the technical information provided by the Customer. The Customer agrees to provide, in a timely and complete manner, all required information and technical data necessary for CIPCO to conduct the Study. The Customer understands that it must provide all such information and data no later than 30 days prior to CIPCO's announced commencement date for the Study, and to update or provide additional information as the Study progresses. The information and technical data is specified in Exhibit A to this Agreement.

2. Representatives

All work pertaining to the Study that is the subject of this Agreement will be approved and coordinated only through designated and authorized representatives of CIPCO and the Customer. All required notices, requests, or demands must be served upon the designated and authorized representatives at the addresses set out below:

For CIPCO: Dan Burns, PE
Director Engineering and Transmission Planning and Tariffs
Central Iowa Power Cooperative
P.O. Box 2517
Cedar Rapids, IA 52406-2517
Phone: 319-734-4312
Email: dan.burns@cipco.net

For Customer: Name: _____
Title: _____
Company: _____

Address: _____

Phone: _____

Fax: _____

Email: _____

3. Additional Studies

CIPCO will advise the Customer, in writing, of any additional studies as may be deemed necessary by CIPCO or other parties impacted by the Project or parties that have final approval authority over the Study. Any such additional studies shall be conducted at Customer's cost if CIPCO determines they are needed consistent with Good Utility Practice and shall be subject to the Customer's consent to proceed, and such consent shall not to be unreasonably withheld. If the Customer fails to consent to the additional study, CIPCO shall have no further obligation to study and plan for Customer's proposed interconnection.

4. Scope and Timing

The purpose of the Feasibility Study is to determine the magnitude of system upgrades may be required as a result of the proposed interconnection and to provide an indication as to whether the proposed generation project is economically feasible.

The Study is not intended to be an in-depth analysis, but rather it is intended as a "screening" type of analysis. This Study will provide rough, preliminary information regarding the magnitude of the impacts the proposed Generating Facility may have on the CIPCO Transmission System and other Affected Systems and an indication of the magnitude of cost that may be associated with the interconnection. The results from this Study are to be considered "preliminary". More refined results would be determined later during the System Impact Study.

The parties understand that due to the screening nature of this Study, it is highly probable that this Study will not identify all impacts associated with the proposed Generation Interconnection. Since the Study is not a detailed study, it is possible that the infeasibility of the interconnection project may not be revealed until a later point in the study process. There is no guarantee that the economic infeasibility of a project will be identified during the Feasibility Study.

The Study will consider the current and future capability and configuration of CIPCO's transmission system and that of its neighboring utilities, as well as all generating and transmitting facilities that, on the date of the Study is commenced: (i) are directly interconnected to CIPCO's transmission system; (ii) are interconnected to a neighboring transmission or distribution system and may have an impact on the Customer's request; and (iii) are either scheduled to be in-service or queued before the proposed Project.

The Study will consist of a linear power flow analysis along with MISO flowgate impact analysis. The Study will identify and test necessary transmission system additions, modifications or upgrades to allow full output of the proposed Generation Facility. A non-binding good faith cost estimate for the recommended reinforcements will be provided.

Upon completion of the Study by CIPCO (or its designated representative), CIPCO will provide a report to the Customer based on the information provided and developed as a result of this effort.

The scope of work to be included in the Study is outlined in Exhibit B. If, upon review of the Study results, the Customer decides to pursue the Project, CIPCO will, at the Customer's direction, tender a System Impact Study Agreement within 10 Business Days.

The Customer understands and acknowledges that any use of Study results by the Customer or its agents, whether in preliminary or final form, prior to the System Impact Study is completely at the Customer's risk and that CIPCO will not guarantee or warrant the completeness, validity or utility of the Study results.

CIPCO contemplates that it will require 7-10 weeks to complete the Study after all of the necessary data is received. CIPCO will, in writing, advise the Customer of any additional time that may be necessary to complete the Study.

5. Costs and Payment

- a.** The estimated costs contained within this Agreement are CIPCO's good faith estimate of CIPCO's costs to perform the Study contemplated by this Agreement. The actual costs charged to the Customer by CIPCO may change as set forth in this Agreement. Payment will be required for all study, analysis, and review work performed by CIPCO or its designated agent, all of which will be billed by CIPCO to the Customer in accordance with this Paragraph 5 of this Agreement.
- b.** Upon execution of the Agreement, the Customer will prepay all estimated costs for the performance of the Study. The payment required from the Customer to CIPCO for the analysis, coordination, and monitoring of the Study is estimated to be \$_____ (the "Estimated Study Price"). The customer shall pay CIPCO the Estimated Study Price in advance of CIPCO initiating the Study. CIPCO will, in writing, advise the Customer if cost increases for work to be performed are expected to exceed the Estimated Study Price. Any such changes to CIPCO's costs for the Study work shall be subject to the Customer's consent and such consent shall not be unreasonably withheld. The Customer shall authorize such cost increase and make payment at that time in the amount set forth in such notice, in which case CIPCO will resume the Study. To the extent funds remain, CIPCO will continue the Study until such time that the funds cease to be available. If no such consent and payment is given by the Customer, CIPCO will cease work on the Study and this Agreement will terminate immediately. The Customer shall be responsible for any and all additional costs incurred, if any, as a result of Customer's revisions to any technical information provided to CIPCO under Section 1.
- c.** In the event this Agreement is terminated for any reason, CIPCO shall refund to the Customer the portion of the above identified payment or any subsequent payment to CIPCO by the Customer that reflects amounts above those that CIPCO actually expended in performing its obligations under this Agreement. Any additional billings under this Agreement shall be subject to an interest charge computed in accordance with the provisions of CIPCO's appropriate transmission tariff. Interest on delinquent amounts shall be calculated from the due date of payment at a rate to the lesser of (a) the per annum interest rate equal to the prime lending rate as may from time to time be published in The Wall Street Journal under "Money Rates" on such day (or if not published on such day on the most recent preceding day on which published), plus two percent (2%) and (b) the maximum rate permitted by applicable law. When payments are made by mail, bills shall be considered as having been paid on the date of receipt by CIPCO. Payments for work performed shall not be subject to refunding except in accordance with Paragraph 5(d) of this Agreement.

- d. If the actual costs for the work exceed the Estimated Study Price, the Customer shall make a payment to CIPCO for such actual costs within thirty (30) days of the date of CIPCO's invoice for such costs. If the actual costs for the work are less than that of the Estimated Study Price, CIPCO will credit such difference toward CIPCO's costs unbilled, or in the event there will be no additional billed expenses, the amount of the overpayment will be returned within sixty (60) days to the Customer. If such payment is not made to the Customer within sixty (60) days, interest on the overpayment will be computed as stated in Paragraph 5(c) of this Agreement.

6. No Wheeling or Transmission Service Rights Included

Nothing in this Agreement shall be interpreted to give the Customer immediate rights to wheel over or interconnect with the CIPCO Transmission System. Such rights shall be provided for under separate agreement and in accordance with CIPCO's interconnection agreement and/or a transmission services agreement under the CIPCO Open Access Transmission Tariff, and thus, CIPCO's estimated costs contained within this Agreement do not include any estimates for wheeling charges that may be associated with the transmission of facility output to third parties or with rates for station service.

7. Audit of CIPCO Records

Within three (3) months following CIPCO's issuance of a final bill under this Agreement, the Customer shall have the right to audit during normal business hours, CIPCO's accounts and records at the offices where such accounts and records are maintained; provided, however, that written notice shall have been given ten (10) business days prior to any audit and further provided that the audit shall be limited to those portions of such accounts and records that are related to service under this Agreement. CIPCO reserves the right to assess a reasonable fee to compensate for the use of its personnel time and resources in assisting any inspection or audit of its books, records or accounts by the Customer or its designated agent. Any such audit rights shall cease one hundred and twenty (120) days after the issuance by CIPCO of the final bill.

8. Indemnity

Each party agrees to indemnify and hold the other party and its affiliated companies and the trustees, directors, officers, employees, and agents of each of them (collectively "Affiliates") harmless from and against any and all damages, costs (including reasonable attorneys' and consultants' fees), fines, penalties and liabilities, in tort, contract, or otherwise (collectively "Liabilities") resulting from claims of third parties arising, or claimed to have arisen, as a result of any acts or omissions of either party under this Agreement. Each party hereby waives recourse against the other party and its Affiliates from any and all Liabilities arising from damage to its property due to performance under this Agreement by CIPCO, except to the extent of gross negligence or intentional wrongdoing by CIPCO.

9. Breach

If either party materially breaches any of the provisions of this Agreement, following written notice to the breaching party, a thirty (30) day right to cure period shall commence upon receipt of such written notice by the non-breaching party. If the breaching party fails to cure the breach, the non-breaching party may terminate this Agreement by serving a written notice of termination with the other party to this Agreement. This remedy is in addition to any other remedies which may be available to the injured party; provided, however, that upon termination, payment(s) for work performed pursuant to this Agreement shall not be subject to refunding except in accordance with Paragraph 5d of this Agreement.

10. Governing Law

This Agreement shall be construed and governed in accordance with the laws of the State of Iowa without regard to choice of law provisions and with any other legal requirement as may be modified from time to time.

11. Amendments

All amendments to this Agreement shall be in writing executed by both parties.

12. Successors and Assigns

The terms and conditions of this Agreement shall be binding on the successors and permitted assigns of either party hereto.

13. Term

This Agreement will remain in effect for a period of up to one (1) year from its effective date, and is subject to extension by mutual agreement in writing of the parties hereto. Either party may terminate this Agreement by thirty (30) days' written notice except as otherwise provided herein. Upon termination, payment(s) for work performed pursuant to this Agreement shall not be subject to refund except in accordance with Paragraph 5 or 7 of this Agreement.

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.

CENTRAL IOWA POWER COOPERATIVE

Signature: _____

Printed Name: _____

Title: _____

Date: _____

CUSTOMER:

Signature: _____

Printed Name: _____

Title: _____

Date: _____

EXHIBIT A - GENERATING FACILITY DATA

Information to be Provided to CIPCO by the Customer
for the Interconnection Feasibility Study

The Interconnection Feasibility Study will be based upon the information set forth in the interconnection request and agreed upon in the Scoping meeting held on _____, 20____:

1. Designation of Point of Interconnection and configuration to be studied.

2. Designation of alternative Points of Interconnection and configuration.

1 & 2 are to be completed by Interconnection Customer. Other assumptions (listed below) are to be provided by Interconnection Customer and CIPCO.

EXHIBIT B – STUDY SCOPE

Interconnection Feasibility Study

General

The purpose of this Interconnection Feasibility Study (Study) is to identify the magnitude of the preliminary system reinforcements that may be necessary to interconnect the Project to the CIPCO Transmission System.

This Study will identify these reinforcements through steady-state analysis, contingency analysis, flowgate analysis, and any other analysis that may be deemed necessary.

The study methodology to be used in the Feasibility Study is outlined below:

- 1.0 Formation of the Ad Hoc Study Group, Study Kickoff Meeting and Data Gathering** – Once this agreement is executed and returned with the required generator data and Study deposit, an Ad Hoc Study Group will be formed including staff from the Customer, CIPCO, and any neighboring or regional entities that may be impacted by the Project. A meeting will be set up for the Ad Hoc Study Group to kick off the Study. Items to be discussed at this meeting will include items such as:
 - Refining the work scope and schedule
 - Gathering necessary data to proceed with the Study work
 - Clarifying Study methodology, process, assumptions, criteria, and reporting needs

- 2.0 Steady State Model Development** – The appropriate regional power flow models will be used for steady-state analysis. These models will be modified as necessary per input from the Ad Hoc Study Group. Such modifications may consist of model corrections, the addition of system improvements that are scheduled to be in-service ahead of the proposed Generation Facility, the addition of prior queued generator interconnection projects, changes to net interchange between control areas for appropriate transmission service reservations, etc. These models will serve as benchmarks when comparing steady-state performance without and with the Project. The Project will be added to each of the benchmark models and generation levels will be adjusted to accommodate the output from the new generator dispatched according to standards defined in Section 3.4 of CIPCO's Requirements for Generator Interconnection, with input provided by the Ad Hoc Study Group at the kickoff meeting. Any thermal or voltage criteria violations in the benchmark models will be recorded for the monitored facilities.

- 3.0 Steady State Analysis** - A steady state analysis will be performed using the models developed per Section 2.0 above. The steady state analysis will focus on:
 - N-1 Contingency Analysis
 - Flowgate Analysis
 - Mitigation of Steady State Impacts
 - Results Review
 - 3.1 N-1 Contingency Analysis** – A linear (DC) contingency analysis will be performed using PSS/E or PSS/MUST or equivalent software. System thermal loading performance will be compared between models without and with the proposed project to identify project impacts that will require further mitigation. Summary output from the contingency analysis will be forwarded to the Ad Hoc Study Group for review.

 - 3.2 Flowgate Analysis** - Impacts on MISO flowgates will be evaluated using the Monitored Element Impact Analysis function in PSS/MUST or by using an equivalent software.

 - 3.3 Mitigation of Steady State Impacts** – Modifications, additions, or upgrades to the transmission system to allow for the full output of the proposed Project will be identified and tested. A rough estimated cost for the recommended system reinforcements will be provided.

3.4 Steady State Results Review – The results of the steady state analyses, including N-1, system reinforcements and flowgate analyses will be forwarded to the Ad Hoc Study Group for review. If necessary, a telephone conference call will be held to discuss these results.

4.0 Report for Feasibility Study - Upon completion of the steady state and stability analyses, a draft Final Report will be written. The draft Final Report will be submitted to the Ad Hoc Study Group for review. If necessary, a telephone conference will be held to review interim results. For scheduling purposes, the Study Group will have one (1) week to provide comments. Upon receipt of comments from the Study Group, a Final Report will be issued. If necessary, a second telephone conference will be held to discuss the Final Report.

5.0 Decision to Proceed with a System Impact Study - At the completion of the Feasibility Study, a final report will be sent to the Customer along with a System Impact Study Agreement. The Customer must decide whether to continue to pursue the development of the interconnection. If the Customer chooses to proceed with the System Impact Study, the System Impact Study Agreement must be received by CIPCO within 30 days of the date the System Impact Study Agreement was sent to the Customer.

Appendix 5A
Interconnection System Impact Study Agreement
For Transmission Connected Generation



INTERCONNECTION SYSTEM IMPACT STUDY AGREEMENT

This Agreement, dated and made effective as of _____, 20____, is entered into by and between _____ (the "Customer") and Central Iowa Power Cooperative ("CIPCO") to set forth the terms, conditions and costs for CIPCO's conducting an Interconnection System Impact Study (the "Study") relative to the _____ Project (the "Project").

RECITALS

WHEREAS, Interconnection Customer is proposing to develop a Generating Facility or generating capacity addition to an existing Generating Facility consistent with the its request submitted by the Interconnection Customer dated _____, 20____; and

WHEREAS, Interconnection Customer desires to interconnect the Generating Facility with CIPCO's transmission system; and

WHEREAS, CIPCO 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 CIPCO to perform an Interconnection System Impact Study (the "Study") to assess the impact of interconnecting the proposed Generating Facility to CIPCO's transmission system, and of any Affected Systems;

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

1. Data Requirements

The Customer agrees to provide, in a timely and complete manner, all required information and technical data necessary for CIPCO to conduct the Study, including the information and technical data as specified in Exhibit A to this Agreement. The Customer understands that it must provide all such information and data no later than 30 days prior to CIPCO's announced commencement date for the Study, and to update or provide additional information as the Study progresses. . CIPCO reserves the right to request additional technical information from Interconnection Customer as necessary. The Study shall be based on the technical information provided by the Customer. If actual generation installed, or to be installed, is materially different than what was studied, a new study may be required and the approval to interconnect may be postponed or rescinded.

2. Representatives

All work pertaining to the Study that is the subject of this Agreement will be approved and coordinated only through designated and authorized representatives of CIPCO and the Customer. All required notices, requests, or demands must be served upon the designated and authorized representatives at the addresses set out below:

For CIPCO: Dan Burns, PE
Director Engineering and Transmission Planning and Tariffs
Central Iowa Power Cooperative
P.O. Box 2517
Cedar Rapids, IA 52406-2517

Phone: 319-734-4312
Email: dan.burns@cipco.net

For Customer: Name: _____
Title: _____
Company: _____
Address: _____

Phone: _____
Fax: _____
Email: _____

3. Additional Studies

CIPCO will advise the Customer, in writing, of any additional studies as may be deemed necessary by CIPCO or other parties impacted by the Project or parties that have final approval authority over the Study. Any such additional studies shall be conducted at Customer's expense subject to the Customer's consent to proceed, and such consent shall not to be unreasonably withheld. If the Customer fails to consent to the additional study, CIPCO shall have no further obligation to study and plan for Customer's proposed interconnection and the interconnection request shall be terminated.

4. Scope and Timing

The System Impact Study will be based upon the results of the Feasibility Study (if performed), the technical information provided in the Interconnection Request, and the information provided by the Customer as outlined in Exhibit B.

CIPCO contemplates that it will require approximately 12 weeks to complete the Study after all of the necessary data is received. This does not include time to secure any necessary approvals of the Study from the various committees and regional entities listed in Exhibit B. CIPCO will advise the Customer if additional time is required to complete the Study.

The Study will consider the current and future capability and configuration of CIPCO's transmission system and that of its neighboring utilities, as well as all generating and transmitting facilities that, on the date of the Study is commenced: (i) are directly interconnected to CIPCO's transmission system; (ii) are interconnected to a neighboring transmission or distribution system and may have an impact on the Customer's request; and (iii) are either scheduled to be in-service or queued before the proposed Project. CIPCO may utilize existing studies to the extent practicable when it performs the Study.

The scope of work to be included in the Study is outlined in Exhibit B. The Study will consist of a steady state power flow analysis (via a nonlinear contingency analysis), short circuit analysis, and flowgate impact analysis, and stability analysis. The Study will identify and test necessary transmission system additions, modifications or upgrades to allow full output of the proposed Generation Facility. This Study, together with any additional studies contemplated in Section 3, shall form the basis for the Customer's proposed interconnection to the CIPCO Transmission System and shall be furthermore utilized in obtaining necessary third-party approvals of any

facilities and requested transmission services. After any necessary approvals are obtained, and the study work is finalized, a non-binding good faith cost estimate for the recommended reinforcements will be provided. Upon completion of the Study by CIPCO (or its designated representative), CIPCO will provide the final study report to the Customer.

If there are any facility upgrades required on the transmission system, assuming the Customer decides to continue to pursue the Project, CIPCO will at Customer's expense, tender a Facilities Study Agreement, which must be completed by the Customer and returned within 30 Calendar Days of notice of approval of the System Impact Study.

The Customer understands and acknowledges that any use of the Study results by the Customer or its agents, whether in preliminary or final form, prior to any approval needed under the CIPCO/Alliant/ITC Operating and Transmission Agreement or the Midcontinent ISO (MISO) is completely at the Customer's risk and that CIPCO will not guarantee or warrant the completeness, validity or utility to Study results prior to such approvals.

5. Costs and Payment

- a.** The estimated costs contained within this Agreement are CIPCO's good faith estimate of CIPCO's costs to perform the Study contemplated by this Agreement. The actual costs charged to the Customer by CIPCO may change as set forth in this Agreement. Payment will be required for all study, analysis, and review work performed by CIPCO or its designated agent, all of which will be billed by CIPCO to the Customer in accordance with this Section 5 of this Agreement.
- b.** Upon execution of the Agreement, the Customer will prepay all estimated costs for the performance of the Study. The payment required from the Customer to CIPCO for the primary system analysis, coordination, and monitoring of the Study is estimated to be \$_____ (the "Estimated Study Price"). The customer shall pay CIPCO the Estimated Study Price in advance of CIPCO initiating the Study. CIPCO will, in writing, advise the Customer if cost increases for work to be performed are expected to exceed the Estimated Study Price. Any such changes to CIPCO's costs for the Study work shall be subject to the Customer's consent, and such consent shall not be unreasonably withheld. The Customer shall authorize such cost increase and make payment at that time in the amount set forth in such notice, in which case CIPCO will resume the Study. To the extent funds remain, CIPCO will continue the Study until such time that the funds cease to be available. If no such consent and payment is given by the Customer within 30 Calendar Days of notice, CIPCO will cease work on the Study and this Agreement will terminate and the Customer's interconnection request shall be deemed terminated and withdrawn. The Customer shall be responsible for any and all additional costs incurred, if any, as a result of Customer's revisions to any technical information provided to CIPCO under Section 1.
- c.** In the event this Agreement is terminated for any reason, CIPCO shall refund to the Customer the portion of the above identified payment or any subsequent payment to CIPCO by the Customer that reflects amounts above those that CIPCO actually expended in performing its obligations under this Agreement. Any additional billings under this Agreement shall be subject to an interest charge computed in accordance with the provisions of CIPCO's appropriate transmission tariff. Interest on delinquent amounts shall be calculated from the due date of payment at a rate to the lesser of (a) the per annum interest rate equal to the prime lending rate as may from time to time be published in The Wall Street Journal under "Money Rates" on such day (or if not published on such day on the most recent preceding day on which published), plus two percent (2%) and (b) the maximum rate permitted by applicable law. When payments are made by mail, bills shall be considered as having been paid on the date of receipt by CIPCO. Payments for work performed shall not be subject to refunding except in accordance with Paragraph 5(d) of this Agreement.

- d. If the actual costs for the work exceed the Estimated Study Price, the Customer shall make a payment to CIPCO for such actual costs within thirty (30) days of the date of CIPCO's invoice for such costs. If the actual costs for the work are less than that of the Estimated Study Price, CIPCO will credit such difference toward CIPCO's costs unbilled, or in the event there will be no additional billed expenses, the amount of the overpayment will be returned within sixty (60) days to the Customer. If such payment is not made to the Customer within sixty (60) days, interest on the overpayment will be computed as stated in Paragraph 5(c) of this Agreement.

6. No Wheeling or Transmission Service Rights Included

Nothing in this Agreement shall be interpreted to give the Customer immediate rights to wheel over or interconnect with the CIPCO Transmission System. Such rights shall be provided for under separate agreement and in accordance with CIPCO's interconnection agreement and/or a transmission services agreement under the CIPCO Open Access Transmission Tariff, and thus, CIPCO's estimated costs contained within this Agreement do not include any estimates for wheeling charges that may be associated with the transmission of facility output to third parties or with rates for station service.

7. Audit of CIPCO Records

Within three (3) months following CIPCO's issuance of a final bill under this Agreement, the Customer shall have the right to audit during normal business hours, CIPCO's accounts and records at the offices where such accounts and records are maintained; provided, however, that written notice shall have been given ten (10) business days prior to any audit and further provided that the audit shall be limited to those portions of such accounts and records that are related to service under this Agreement. CIPCO reserves the right to assess a reasonable fee to compensate for the use of its personnel time and resources in assisting any inspection or audit of its books, records or accounts by the Customer or its designated agent. Any such audit rights shall cease one hundred and twenty (120) days after the issuance by CIPCO of the final bill or refund.

8. Indemnity

Each party agrees to indemnify and hold the other party and its affiliated companies and the trustees, directors, officers, employees, and agents of each of them (collectively "Affiliates") harmless from and against any and all damages, costs (including reasonable attorneys' and consultants' fees), fines, penalties and liabilities, in tort, contract, or otherwise (collectively "Liabilities") resulting from claims of third parties arising, or claimed to have arisen, as a result of any acts or omissions of either party under this Agreement. Each party hereby waives recourse against the other party and its Affiliates from any and all Liabilities arising from damage to its property due to performance under this Agreement by CIPCO, except to the extent of gross negligence or intentional wrongdoing by CIPCO.

9. Breach

If either party materially breaches any of the provisions of this Agreement, following written notice to the breaching party, a thirty (30) day right to cure period shall commence upon receipt of such written notice by the non-breaching party. If the breaching party fails to cure the breach, the non-breaching party may terminate this Agreement by serving a written notice of termination with the other party to this Agreement. This remedy is in addition to any other remedies which may be available to the injured party; provided, however, that upon termination, payment(s) for work performed pursuant to this Agreement shall not be subject to refunding except in accordance with Paragraph 5d of this Agreement.

10. Governing Law

This Agreement shall be construed and governed in accordance with the laws of the State of Iowa without regard to choice of law provisions and with any other legal requirement as may be modified from time to time.

11. Amendments

All amendments to this Agreement shall be in writing executed by both parties.

12. Successors and Assigns

The terms and conditions of this Agreement shall be binding on the successors and permitted assigns of either party hereto.

13. Term

This Agreement will remain in effect for a period of up to one (1) year from its effective date, and is subject to extension by mutual agreement in writing of the parties hereto. Either party may terminate this Agreement by thirty (30) days' written notice except as otherwise provided herein. Upon termination, payment(s) for work performed pursuant to this Agreement shall not be subject to refund except in accordance with Sections 5 or 7 of this Agreement.

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.

CENTRAL IOWA POWER COOPERATIVE

Signature: _____

Printed Name: _____

Title: _____

Date: _____

CUSTOMER:

Signature: _____

Printed Name: _____

Title: _____

Date: _____

**EXHIBIT A - GENERATING FACILITY DATA
ASSUMPTIONS USED IN CONDUCTING THE
INTERCONNECTION SYSTEM IMPACT STUDY**

The Interconnection System Impact Study will be based upon the results of the Interconnection Feasibility Study (if performed), and the following assumptions:

- Designation of Point of Interconnection and configuration to be studied.
- Designation of alternative Point(s) of Interconnection and configuration.
- Completion of the Interconnection Request data submittal.

The above assumptions are to be completed by the Customer and other assumptions may be provided by the Customer or CIPCO.

EXHIBIT B – STUDY SCOPE

Interconnection System Impact Study

General

The System Impact Study will build upon the prior steady state analysis efforts from the Feasibility Study (if performed). The System Impact Study is an in-depth analysis to identify system reinforcements necessary to interconnect the Project to the CIPCO Transmission System. This includes reinforcements identified through steady-state analysis, contingency analysis, dynamic and transient stability analysis, short circuit and system protection coordination analysis, and any other analysis that may be deemed necessary.

This Study will determine the impacts of the Project on CIPCO's transmission and generation systems, as well as possible impacts of the Project to the systems of neighboring entities in the region. Any reinforcements identified in the Study, which may include modifications and/or upgrades to existing facilities and/or the construction of new facilities, will be the cost responsibility of the Customer. Any necessary reinforcements identified by the Study to non-CIPCO facilities will be the Customer's ultimate responsibility to facilitate the coordination of design, engineering, construction, and cost responsibilities with each impacted facility owner.

Because CIPCO is a joint owner of an Integrated Transmission System, this Study, as well as the necessary improvements and required interconnection facilities should the Project move forward, is subject to approval by the Engineering Planning Subcommittee and the Administrative Committee that exist under the terms of the Alliant/CIPCO/ITC O&T Agreement, as well as the Ad Hoc Study Group, and Midcontinent ISO (MISO). CIPCO is not able to guarantee, nor accept liability for the approval of the results of the Study by the above committees and entities. Any additional study work or follow-up work that is not included in the Estimated Study Price and is requested by, or required for approval by, any of the above committees or entities will be at the cost of the Customer.

The study methodology to be used in the System Impact Study is outlined below:

- 1.0 Formation of the Ad Hoc Study Group, Study Kickoff Meeting and Data Gathering** – Once this agreement is executed and returned with the required generator data and Study deposit, an Ad Hoc Study Group will be formed including staff from the CIPCO and any neighboring or regional entities that may be impacted by the Project. A meeting will be set up for the Ad Hoc Study Group to kick off the Study. Items to be discussed at this meeting will include items such as:
 - Refining the work scope and schedule
 - Gathering necessary data to proceed with the Study work
 - Clarifying Study methodology, process, assumptions, criteria, and reporting needs

- 2.0 Steady State Model Development** – The appropriate regional power flow models will be used for steady-state analysis. These models will be modified as necessary per input from the Ad Hoc Study Group. Such modifications may consist of model corrections, the addition of system improvements that are scheduled to be in-service ahead of the proposed Generation Facility, the addition of prior queued generator interconnection projects, changes to net interchange between control areas for appropriate transmission service reservations, etc. These models will serve as benchmarks when comparing steady-state performance without and with the Project. The Project will be added to each of the benchmark models and generation levels will be adjusted to accommodate the output from the new generator dispatched according to standards defined in Section 3.4 of CIPCO's Requirements for Generator Interconnection, with input provided by the Ad Hoc Study Group at the kickoff meeting. Any thermal or voltage criteria violations in the benchmark models will be recorded for the monitored facilities.

- 3.0 Steady State Analysis** - A steady state analysis will be performed using the models developed per Section 2.0 above. The steady state analysis will focus on:
 - N-1 Contingency Analysis
 - N-2 Contingency Analysis

- Flowgate Analysis
- Mitigation of N-1, N-2 and Flowgate Steady State Impacts
- Results Review

- 3.1 N-1 Contingency Analysis** – Nonlinear N-1 (AC) contingency analysis will be performed using PSS/E or PSS/MUST or equivalent software. System branch loading and bus voltage performance will be compared between models without and with the proposed project to identify project impacts that will require further mitigation. Summary output from the contingency analysis will be forwarded to the Ad Hoc Study Group for review. The Customer is required to fund all upgrades necessary to resolve all N-1 impacts.
- 3.2 N-2 Contingency Analysis** – Nonlinear N-2 (AC) contingency analysis will be performed using PSS/E or PSS/MUST or equivalent software. System branch loading and bus voltage performance will be compared between models without and with the proposed project to identify project impacts that will require further mitigation. Certain multiple contingencies that could have a substantial effect on the CIPCO transmission system will be provided by CIPCO and assessed. The Estimate Study Price assumes these N-2 contingencies will be limited to the immediate region around the proposed generation project, however, at the direction of the Ad Hoc Study Group, this scope may be expanded at additional cost not included in the Estimate Study Price. If additional study work is required per the Ad Hoc study Group, a new cost estimate to expand the scope of the Study to address these items will be determined. CIPCO does not allow system adjustments for N-2 contingencies in Generation Interconnection studies. The Customer is required to fund all upgrades necessary to resolve all N-2 impacts to the CIPCO system.
- 3.3 Flowgate Analysis** - Impacts of the proposed project on the loading of MISO flowgates will be evaluated. Impacts on MISO flowgates will be evaluated using the Monitored Element Impact Analysis function in PSS/MUST or by using an equivalent software. The Customer is required to fund all upgrades necessary to resolve all flowgate impacts.
- 3.4 Mitigation of Steady State Impacts** – Modifications, additions, or upgrades to the transmission system to allow for the full output of the proposed Project will be identified and tested. Since the number of issues that may need to be addressed are unknown at the beginning of the study, the Estimate Study Price includes a modest amount of time for identification and analysis of additional improvements. If the system reinforcements necessary to resolve N-1, N-2 and flowgate impacts are substantial, or if additional study work is required per the Ad Hoc Study Group, a new costs estimate to expand the scope of the Study to address these items will be determined. A rough estimated cost for the recommended system reinforcements will be provided.
- 3.5 Steady State Results Review** – The results of the steady state analyses, including N-1, N-2, system reinforcements and flowgate analyses will be forwarded to the Ad Hoc Study Group for review. If necessary, a telephone conference call will be held to discuss these results.
- 4.0 Short Circuit Analysis and System Protection Coordination** – Information provided by the Customer will be used to add the Project to the appropriate short circuit models. A short circuit analysis will then be performed to determine whether the Project will have an adverse impact on the fault interrupting capability or coordination of existing system equipment. Required upgrades to existing system equipment will be determined by CIPCO and will be the responsibility of the Customer.
- 5.0 Transient Stability Analysis** - The transient stability analysis will be conducted upon completion of the steady state and short circuit analyses.

Exception for Very Small Projects: For very small projects (generally under 5 MW) the Ad Hoc Study Group will make the determination as to whether this study is required, and if required, an

additional deposit may be necessary to perform this study. If the Ad Hoc Study Group determines that the study is not required, but is recommended, then the Customer will be presented with the option to perform the recommended study, or to forego the stability analysis. If the Customer decides to proceed with the recommended stability study, and if the cost of the stability study was not included in the Estimated Study Price, the estimated cost of the stability study must be provided to CIPCO in the form of a deposit before any stability work will begin. If the Customer chooses to do the study, a separate agreement addressing the above must be executed prior to commencement of the Study. The Customer shall provide the deposit within 15 business days after being notified of the Ad Hoc Group's requirement or recommendation regarding the study. If the Customer chooses to forego the stability analysis, the Customer agrees to be responsible for any future adverse stability impacts caused by the Customer's generation facilities. This may include disconnection of the Customer generation while system upgrades to resolve the issue are placed into service at Customer expense.

The stability analysis will include the following sub-tasks:

- Stability Model Setup
- Dynamic Simulation Study
- Resolution of Stability Problems
- Stability Results Review

5.1 Stability Model Setup - The power flow models will be modified, as directed by the Ad Hoc Study Group, such that the models conform to the applicable guidelines for the analysis of interconnection service requests. Modification to the models may consist of the following:

- Model corrections
- Addition of system improvements scheduled to be in-service before the proposed Project
- Addition of prior queued generator interconnection projects
- Adjustments to establish desired transfer levels or reflect stressed conditions

The Project will be added to the benchmark model using the data provided by the customer. The Estimate Study Price assumes that the stability models for the proposed Project can be added using standard dynamic simulation models in the PSS/E dynamics model library and will not require development of new models. The models will be checked for correct initialization and the ability to run in the steady state.

5.2 Dynamic Simulation Study - Dynamic simulations will be performed on the power flow base case models prepared in the previous step. Contingencies will be simulated on the models, with and without the proposed project. The group of contingencies will consist of faults close to the proposed interconnection point as well as key system faults and will include three-phase faults with normal clearing as well as single-line-to-ground faults with delayed clearing. Upon completion of the simulations, the results will be documented for review by the Ad Hoc Study Group.

5.3 Resolution of Stability Problems - Solutions to the stability problems found will be discussed with the Ad Hoc Study Group. If possible, the solutions will be tested to verify their effectiveness in resolving the problems. If the proposed changes involve transmission system additions or substation reconfigurations, the results of the steady state analysis will need to be reviewed and may need to be redone. The Estimate Study Price does not include additional steady state and stability analyses which may need to be repeated, nor does the schedule include this additional analysis to assess measures to improve stability performance.

5.4 Stability Results Review - Summaries of the stability study will be forwarded to the Ad Hoc Study Group for review. This will include graphical presentations of bus voltages, machine rotor angles, protective relay systems and other parameters necessary to evaluate the impact of the proposed generator on system performance. No separate report for the stability analysis will be issued. If necessary, a telephone conference call will be conducted

by the parties involved to discuss the stability analysis results. The results from the stability study will be included in the Final Report.

- 6.0 Report for System Impact Study** - Upon completion of the steady state and stability analyses, a draft Final Report will be written. The report will include a summary of the overall Study, a brief description of the project, the methodology and criteria used in the Study, the Study assumptions, discussion of both steady state and stability results and conclusions. The Final Report will list all the assumptions made in the modeling of the generation as well as provide system conditions such as the transmission system topology.

The draft Final Report will be submitted to the Ad Hoc Study Group for review. If necessary, a telephone conference will be held to review the report. For scheduling purposes, the Study Group will have a minimum of one (1) week to provide comments. Upon receipt of comments from the Ad Hoc Study Group, a Final Report will be issued. If necessary, a second telephone conference will be held to discuss the final report.

Appendix 5B
Interconnection System Impact Study Agreement
For Distribution Connected Generation



**INTERCONNECTION SYSTEM IMPACT STUDY AGREEMENT
for Generators Interconnecting with a CIPCO Member Distribution System**

This Agreement, dated and made effective as of _____, 20____, is entered into by and between - _____ (the "Customer") and Central Iowa Power Cooperative ("CIPCO") to set forth the terms, conditions and costs for CIPCO's conducting an Interconnection System Impact Study (the "Study") relative to the _____ Project (the "Project").

RECITALS

WHEREAS, Interconnection Customer is proposing to develop a Generating Facility or generating capacity addition to an existing Generating Facility consistent with the its request submitted by the Interconnection Customer dated _____, 20____; and

WHEREAS, Interconnection Customer desires to interconnect the Generating Facility with a CIPCO member distribution system; and

WHEREAS, CIPCO 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 CIPCO to perform an Interconnection System Impact Study (the "Study") to assess the transmission system impacts, including any Affected Systems, of interconnecting the proposed Generating Facility to a CIPCO Member's distribution system;

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

1. Data Requirements

The Customer agrees to provide, in a timely and complete manner, all required information and technical data necessary for CIPCO to conduct the Study, including the information and technical data as specified in Exhibit A to this Agreement. The Customer understands that it must provide all such information and data no later than 30 days prior to CIPCO's announced commencement date for the Study, and to update or provide additional information as the Study progresses. CIPCO reserves the right to request additional technical information from Interconnection Customer as necessary. The Study shall be based on the technical information provided by the Customer. If actual generation installed, or to be installed, is materially different than what was studied, a new study may be required and the approval to interconnect may be postponed or rescinded.

2. Representatives

All work pertaining to the Study that is the subject of this Agreement will be approved and coordinated only through designated and authorized representatives of CIPCO and the Customer. All required notices, requests, or demands must be served upon the designated and authorized representatives at the addresses set out below:

For CIPCO: Dan Burns, PE
 Director Engineering and Transmission Planning and Tariffs
 Central Iowa Power Cooperative
 P.O. Box 2517

Cedar Rapids, IA 52406-2517
Phone: 319-734-4312

Email: dan.burns@cipco.net

For Customer: Name: _____
Title: _____
Company: _____
Address: _____

Phone: _____
Fax: _____
Email: _____

3. Additional Studies

CIPCO will advise the Customer, in writing, of any additional studies as may be deemed necessary by CIPCO or other parties impacted by the Project or parties that have final approval authority over the Study. Any such additional studies shall be conducted at Customer's expense, subject to the Customer's consent to proceed, and such consent shall not to be unreasonably withheld. If the Customer fails to consent to the additional study, CIPCO shall have no further obligation to study and plan for Customer's proposed interconnection and the interconnection request shall be terminated.

Customer acknowledges that the studies contemplated under this agreement are transmission related studies only. This agreement does not cover studies of the distribution system with which the Customer plans to interconnect. Customer will be required to work directly with the CIPCO Member Cooperative to arrange for any distribution system impact studies.

4. Scope and Timing

The System Impact Study will be based upon the results of the Feasibility Study (if performed), the technical information provided in the Interconnection Request, and the information provided by the Customer as outlined in Exhibit B.

CIPCO contemplates that it will require approximately 12 weeks to complete the Study after all of the necessary data is received. This does not include time to secure any necessary approvals of the Study from the various committees and regional entities listed in Exhibit B. CIPCO will advise the Customer if additional time is required to complete the Study.

The Study will consider the current and future capability and configuration of CIPCO's transmission system and that of its neighboring utilities, as well as all generating and transmitting facilities that, on the date of the Study is commenced: (i) are directly interconnected to CIPCO's transmission system; (ii) are interconnected to a neighboring transmission or distribution system and may have an impact on the Customer's request; and (iii) are either scheduled to be in-service or queued before the proposed Project. CIPCO may utilize existing studies to the extent practicable when it performs the Study.

The scope of work to be included in the Study is outlined in Exhibit B. The Study will consist of a steady state power flow analysis, short circuit analysis, and flowgate impact analysis. The Study will identify and test necessary transmission system additions, modifications or upgrades to allow full output of the proposed Generation Facility. This Study, together with any additional studies contemplated in Section 3, shall form the basis for the Customer's proposed interconnection to the CIPCO Member Distribution System and shall be furthermore utilized in obtaining necessary third-party approvals of any facilities and requested transmission services. Once any necessary approvals are obtained, and the study work is finalized, a non-binding good faith cost estimate for the recommended reinforcements will be provided. Upon completion of the Study by CIPCO (or its designated representative), CIPCO will provide the final study report to the Customer.

If there are any facility upgrades required on the transmission system, assuming the Customer decides to continue to pursue the Project and at the Customer's request, CIPCO will tender a Facilities Study Agreement, which must be completed by the Customer and returned within 30 Calendar Days of the notice of approval of the System Impact Study.

The Customer understands and acknowledges that any use of the Study results by the Customer or its agents, whether in preliminary or final form, prior to any approval needed under the CIPCO Alliant/ITC Operating and Transmission Agreement or the Midcontinent ISO (MISO) is completely at the Customer's risk and that CIPCO will not guarantee or warrant the completeness, validity or utility to Study results prior to such approvals.

5. Costs and Payment

- e.** The estimated costs contained within this Agreement are CIPCO's good faith estimate of CIPCO's costs to perform the Study contemplated by this Agreement. The actual costs charged to the Customer by CIPCO may change as set forth in this Agreement. Payment will be required for all study, analysis, and review work performed by CIPCO or its designated agent, all of which will be billed by CIPCO to the Customer in accordance with this Section 5 of this Agreement.
- f.** Upon execution of the Agreement, the Customer will prepay all estimated costs for the performance of the Study. The payment required from the Customer to CIPCO for the primary system analysis, coordination, and monitoring of the Study is estimated to be \$_____ (the "Estimated Study Price"). The customer shall pay CIPCO the Estimated Study Price in advance of CIPCO initiating the Study. CIPCO will, in writing, advise the Customer if cost increases for work to be performed are expected to exceed the Estimated Study Price. Any such changes to CIPCO's costs for the Study work shall be subject to the Customer's consent, and such consent shall not be unreasonably withheld. The Customer shall authorize such cost increase and make payment at that time in the amount set forth in such notice, in which case CIPCO will resume the Study. To the extent funds remain, CIPCO will continue the Study until such time that the funds cease to be available. If no such consent and payment is given by the Customer within 30 Calendar Days of notice, CIPCO will cease work on the Study and this Agreement will terminate and the Customer's interconnection request shall be deemed terminated and withdrawn. The Customer shall be responsible for any and all additional costs incurred, if any, as a result of Customer's revisions to any technical information provided to CIPCO under Section 1.
- g.** In the event this Agreement is terminated for any reason, CIPCO shall refund to the Customer the portion of the above identified payment or any subsequent payment to CIPCO by the Customer that reflects amounts above those that CIPCO actually expended in performing its obligations under this Agreement. Any additional billings under this Agreement shall be subject to an interest charge computed in accordance with the provisions of CIPCO's appropriate transmission tariff. Interest on delinquent amounts shall be calculated from the due date of payment at a rate to the lesser of (a) the per annum interest rate equal to the prime lending rate as may from time to time be published in The

Wall Street Journal under "Money Rates" on such day (or if not published on such day on the most recent preceding day on which published), plus two percent (2%) and (b) the maximum rate permitted by applicable law. When payments are made by mail, bills shall be considered as having been paid on the date of receipt by CIPCO. Payments for work performed shall not be subject to refunding except in accordance with Paragraph 5(d) of this Agreement.

- h. If the actual costs for the work exceed the Estimated Study Price, the Customer shall make a payment to CIPCO for such actual costs within thirty (30) days of the date of CIPCO's invoice for such costs. If the actual costs for the work are less than that of the Estimated Study Price, CIPCO will credit such difference toward CIPCO's costs unbilled, or in the event there will be no additional billed expenses, the amount of the overpayment will be returned within sixty (60) days to the Customer. If such payment is not made to the Customer within sixty (60) days, interest on the overpayment will be computed as stated in Paragraph 5(c) of this Agreement.

6. No Wheeling or Transmission Service Rights Included

Nothing in this Agreement shall be interpreted to give the Customer immediate rights to wheel over or interconnect with the CIPCO Transmission System. Such rights shall be provided for under separate agreement and in accordance with CIPCO's interconnection agreement and/or a transmission services agreement under the CIPCO Open Access Transmission Tariff, and thus, CIPCO's estimated costs contained within this Agreement do not include any estimates for wheeling charges that may be associated with the transmission of facility output to third parties or with rates for station service.

7. Audit of CIPCO Records

Within three (3) months following CIPCO's issuance of a final bill under this Agreement, the Customer shall have the right to audit during normal business hours, CIPCO's accounts and records at the offices where such accounts and records are maintained; provided, however, that written notice shall have been given ten (10) business days prior to any audit and further provided that the audit shall be limited to those portions of such accounts and records that are related to service under this Agreement. CIPCO reserves the right to assess a reasonable fee to compensate for the use of its personnel time and resources in assisting any inspection or audit of its books, records or accounts by the Customer or its designated agent. Any such audit rights shall cease one hundred and twenty (120) days after the issuance by CIPCO of the final bill or refund.

8. Indemnity

Each party agrees to indemnify and hold the other party and its affiliated companies and the trustees, directors, officers, employees, and agents of each of them (collectively "Affiliates") harmless from and against any and all damages, costs (including reasonable attorneys' and consultants' fees), fines, penalties and liabilities, in tort, contract, or otherwise (collectively "Liabilities") resulting from claims of third parties arising, or claimed to have arisen, as a result of any acts or omissions of either party under this Agreement. Each party hereby waives recourse against the other party and its Affiliates from any and all Liabilities arising from damage to its property due to performance under this Agreement by CIPCO, except to the extent of gross negligence or intentional wrongdoing by CIPCO.

9. Breach

If either party materially breaches any of the provisions of this Agreement, following written notice to the breaching party, a thirty (30) day right to cure period shall commence upon receipt of such written notice by the non-breaching party. If the breaching party fails to cure the breach, the non-breaching party may terminate this Agreement by serving a written notice of termination with the

other party to this Agreement. This remedy is in addition to any other remedies which may be available to the injured party; provided, however, that upon termination, payment(s) for work performed pursuant to this Agreement shall not be subject to refunding except in accordance with Paragraph 5d of this Agreement.

10. Governing Law

This Agreement shall be construed and governed in accordance with the laws of the State of Iowa without regard to choice of law provisions and with any other legal requirement as may be modified from time to time.

11. Amendments

All amendments to this Agreement shall be in writing executed by both parties.

12. Successors and Assigns

The terms and conditions of this Agreement shall be binding on the successors and permitted assigns of either party hereto.

13. Term

This Agreement will remain in effect for a period of up to one (1) year from its effective date, and is subject to extension by mutual agreement in writing of the parties hereto. Either party may terminate this Agreement by thirty (30) days' written notice except as otherwise provided herein. Upon termination, payment(s) for work performed pursuant to this Agreement shall not be subject to refund except in accordance with Sections 5 or 7 of this Agreement.

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.

CENTRAL IOWA POWER COOPERATIVE

Signature: _____

Printed Name: _____

Title: _____

Date: _____

CUSTOMER:

Signature: _____

Printed Name: _____

Title: _____

Date: _____

**EXHIBIT A - GENERATING FACILITY DATA
ASSUMPTIONS USED IN CONDUCTING THE
INTERCONNECTION SYSTEM IMPACT STUDY**

The Interconnection System Impact Study will be based upon the results of the Interconnection Feasibility Study (if performed), and the following assumptions:

- Designation of Point of Interconnection and configuration to be studied.
- Designation of alternative Point(s) of Interconnection and configuration.
- Completion of the Interconnection Request data submittal.

The above assumptions are to be completed by the Customer and other assumptions may be provided by the Customer or CIPCO.

EXHIBIT B – STUDY SCOPE

Distribution Interconnection System Impact Study

General The System Impact Study will build upon the prior steady state analysis efforts from the Feasibility Study, if performed. The System Impact Study is an in-depth analysis to identify transmission system reinforcements necessary to interconnect the Project to the CIPCO Member Cooperative's Distribution System. This includes reinforcements identified through steady-state analysis, contingency analysis, dynamic and transient stability analysis (if performed), short circuit and system protection coordination analysis, and any other analysis that may be deemed necessary.

This Study will determine the impacts of the Project on CIPCO's transmission and generation systems, as well as possible impacts of the Project to the systems of neighboring entities in the region. Any reinforcements identified in the Study, which may include modifications and/or upgrades to existing facilities and/or the construction of new facilities, will be the cost responsibility of the Customer. Any necessary reinforcements identified by the Study to non-CIPCO facilities will be the Customer's ultimate responsibility to facilitate the coordination of design, engineering, construction, and cost responsibilities with each impacted facility owner.

Customer acknowledges that the studies contemplated under this agreement are transmission related studies only. This agreement does not cover studies of the distribution system with which the Customer plans to interconnect. Customer will be required to work directly with the CIPCO Member Cooperative to arrange for any distribution system impact studies.

Because CIPCO is a joint owner of an Integrated Transmission System, this Study, as well as the necessary improvements and required interconnection facilities should the Project move forward, is subject to approval by the Engineering Planning Subcommittee and the Administrative Committee that exist under the terms of the CIPCO/Alliant/ITC O&T Agreement, as well as the Ad Hoc Study Group, and Midcontinent ISO (MISO). CIPCO is not able to guarantee, nor accept liability for the approval of the results of the Study by the above committees and entities. Any additional study work or follow-up work that is not included in the Estimated Study Price and is requested by, or required for approval by, any of the above committees or entities will be at the cost of the Customer.

The study methodology to be used in the System Impact Study is outlined below:

- 1.0 Formation of the Ad Hoc Study Group, Study Kickoff Meeting and Data Gathering** – Once this agreement is executed and returned with the required generator data and Study deposit, an Ad Hoc Study Group will be formed including staff from CIPCO and any neighboring or regional entities that may be impacted by the Project. A meeting will be set up for the Ad Hoc Study Group to kick off the Study. Items to be discussed at this meeting will include items such as:
 - Refining the work scope and schedule
 - Gathering necessary data to proceed with the Study work
 - Clarifying Study methodology, process, assumptions, criteria, and reporting needs
- 2.0 Steady State Model Development** – The appropriate regional power flow models will be used for steady-state analysis. These models will be modified as necessary per input from the Ad Hoc Study Group. Such modifications may consist of model corrections, the addition of system improvements that are scheduled to be in-service ahead of the proposed Generation Facility, the addition of prior queued generator interconnection projects, changes to net interchange between control areas for appropriate transmission service reservations, etc. These models will serve as benchmarks when comparing steady-state performance without and with the Project. The Project will be added to each of the benchmark models and generation levels will be adjusted to accommodate the output from the new generator, according to input provided by the Ad Hoc Study Group at the kickoff meeting. Any thermal or voltage criteria violations in the benchmark models will be recorded for the monitored facilities.
- 3.0 Steady State Analysis** - A steady state analysis will be performed using the models developed per Section 2.0 above. The steady state analysis will focus on:

- N-1 Contingency Analysis
- N-2 Contingency Analysis
- Flowgate Analysis
- Mitigation of N-1, N-2 and Flowgate Steady State Impacts
- Results Review

- 3.1 N-1 Contingency Analysis** – Nonlinear N-1 (AC) contingency analysis will be performed using PSS/E or PSS/MUST or equivalent software. System branch loading and bus voltage performance will be compared between models without and with the proposed project to identify project impacts that will require further mitigation. Summary output from the contingency analysis will be forwarded to the Ad Hoc Study Group for review. The Customer is required to fund all upgrades necessary to resolve all N-1 impacts.
- 3.2 N-2 Contingency Analysis** – Nonlinear N-2 (AC) contingency analysis will be performed using PSS/E or PSS/MUST or equivalent software. System branch loading and bus voltage performance will be compared between models without and with the proposed project to identify project impacts that will require further mitigation. Certain multiple contingencies that could have a substantial effect on the CIPCO transmission system will be provided by CIPCO and assessed. The Estimate Study Price assumes these N-2 contingencies will be limited to the immediate region around the proposed generation project, however, at the direction of the Ad Hoc Study Group, this scope may be expanded at additional cost not included in the Estimate Study Price. If additional study work is required per the Ad Hoc study Group, a new cost estimate to expand the scope of the Study to address these items will be determined. CIPCO does not allow system adjustments for N-2 contingencies in Generation Interconnection studies. The Customer is required to fund all upgrades necessary to resolve all N-2 impacts to the CIPCO system.
- 3.3 Flowgate Analysis** - Impacts of the proposed project on the loading of MISO flowgates will be evaluated. Impacts on MISO flowgates will be evaluated using the Monitored Element Impact Analysis function in PSS/MUST or by using an equivalent software. The Customer is required to fund all upgrades necessary to resolve all flowgate impacts.
- 3.4 Mitigation of Steady State Impacts** – Modifications, additions, or upgrades to the transmission system to allow for the full output of the proposed Project will be identified and tested. Since the number of issues that may need to be addressed are unknown at the beginning of the study, the Estimate Study Price includes a modest amount of time for identification and analysis of additional improvements. If the system reinforcements necessary to resolve N-1, N-2 and flowgate impacts are substantial, or if additional study work is required per the Ad Hoc Study Group, a new cost estimate to expand the scope of the Study to address these items will be determined. A rough estimated cost for the recommended system reinforcements will be provided.
- 3.5 Steady State Results Review** – The results of the steady state analyses, including N-1, N-2, system reinforcements and flowgate analyses will be forwarded to the Ad Hoc Study Group for review. If necessary, a telephone conference call will be held to discuss these results.
- 4.0 Short Circuit Analysis and System Protection Coordination** – Information provided by the Customer will be used to add the Project to the appropriate short circuit models. A short circuit analysis will then be performed to determine whether the Project will have an adverse impact on the fault interrupting capability or coordination of existing system equipment. Required upgrades to existing system equipment will be determined by CIPCO and will be the responsibility of the Customer.
- 5.0 Transient Stability Analysis** - CIPCO currently does not require a transient stability analysis for modest amounts of generation interconnected with a CIPCO Member Cooperative's distribution system. However, if transient stability analysis is requested by any Ad Hoc Study Group member,

or required by CIPCO due to extenuating circumstances, CIPCO will provide notice to the Customer that additional study is necessary and the Customer will be required to fund the additional study within 15 days of such notice. CIPCO will also provide an addendum to Section 5 of this agreement outlining the transient stability study process.

6.0 Report for System Impact Study - Upon completion of the System Impact Study (and transient stability analyses if required), a draft Final Report will be written. The report will include a summary of the overall Study, a brief description of the project, the methodology and criteria used in the Study, the Study assumptions, discussion of both steady state and stability results and conclusions. The draft Final Report will list all the assumptions made in the modeling of the generation as well as provide system conditions such as the transmission system topology.

The draft Final Report will be submitted to the Ad Hoc Study Group for review. If necessary, a telephone conference will be held to review the report. For scheduling purposes, the Study Group will have a minimum of one (1) week to provide comments. Upon receipt of comments from the Ad Hoc Study Group, a Final Report will be issued. If necessary, a second telephone conference will be held to discuss the final report.

Appendix 6
Interconnection Facility Study Agreement



INTERCONNECTION FACILITIES STUDY AGREEMENT

This Agreement, dated and made effective as of _____, 20____, is entered into by and between _____ (the "Customer") and Central Iowa Power Cooperative ("CIPCO") to set forth the terms, conditions and costs for CIPCO's conducting an Interconnection Facilities Study (the "Study") relative to the _____ Project (the "Project").

RECITALS

WHEREAS, Interconnection Customer is proposing to develop a Generating Facility or generating capacity addition to an existing Generating Facility consistent with the its request submitted by the Interconnection Customer dated _____, 20____; and

WHEREAS, Interconnection Customer desires to interconnect the Generating Facility with CIPCO's transmission system; and

WHEREAS, CIPCO has completed an Interconnection System Impact Study and provided the results of said study to Interconnection Customer; and

WHEREAS, Interconnection Customer has requested CIPCO to perform an Interconnection Facilities Study (the "Study") to specify and estimate the cost of the equipment, engineering, procurement and construction work needed to implement the conclusion of the System Impact Study in accordance with Good Utility Practice to physically, and electrically connect the Generating Facility to CIPCO's Transmission System;

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

1. Data Requirements

The Study shall be based on the results of the prior Feasibility Study and System Impact Study, as well as the technical information provided by the Customer as shown in Exhibit A. Exhibit A will be completed by the Customer at execution of this agreement. The Customer agrees to provide, in a timely and complete manner, any additional required information and technical data as the Study progresses.

1. Representatives

All work pertaining to the Study that is the subject of this Agreement will be coordinated only through designated and authorized representatives of CIPCO and the Customer. All required notices, requests, or demands must be served upon the designated and authorized representatives at the addresses set out below:

For CIPCO: Dan Burns, PE
Director Engineering and Transmission Planning and Tariffs
Central Iowa Power Cooperative
P.O. Box 2517
Cedar Rapids, IA 52406-2517
Phone: 319-734-4312
Email: dan.burns@cipco.net

For Customer: Name: _____

Title: _____
Company: _____
Address: _____

Phone: _____
Fax: _____
Email: _____

3. Additional Studies

CIPCO will advise the Customer, in writing, of any additional studies as may be deemed necessary by CIPCO or other parties impacted by the Project or parties. Any such additional studies shall be conducted at Customer's cost and shall be subject to the Customer's consent to proceed, and such consent shall not to be unreasonably withheld. If the Customer fails to consent to the additional study, CIPCO shall have no further obligation to study and plan for Customer's proposed interconnection and the Customer's interconnection request queue date will be deemed withdrawn and terminated.

4. Scope and Timing

The Customer shall execute this Interconnection Facilities Study Agreement and deliver the executed Interconnection Facilities Study Agreement to CIPCO within thirty (30) Calendar Days after its receipt, together with the technical data in Exhibit A and a deposit equal to the estimated cost to complete this Study.

This Study will specify and estimate the cost of the equipment, engineering, procurement and construction necessary to interconnect the Customer's Generating Facility to the CIPCO Transmission System. CIPCO shall coordinate with any Affected System and use Reasonable Efforts to determine the cost of equipment, engineering, procurement and construction for system upgrades on the Affected Systems necessary to interconnect the Customer's Generation Facility to the CIPCO Transmission System. The Study shall also identify the electrical switching configuration of the connection equipment, including, without limitation: the transformer, switchgear, meters, and other station equipment; the nature and estimated cost of any CIPCO Interconnection Facilities and Network Upgrades necessary to accomplish the interconnection; and an estimate of the time required to complete the construction and installation of such facilities.

CIPCO shall use Reasonable Efforts to complete the study and issue a draft Interconnection Facilities Study report to the Customer within 180 Calendar Days following receipt of an executed copy of this Interconnection Facilities Study Agreement. If CIPCO determines that it will not meet the required time frame for completing the Study, CIPCO shall notify the Customer as to the schedule status of the Study. If CIPCO is unable to complete the Study and issue a draft Study report within the specified timeframe, CIPCO shall notify the Customer and provide an estimated completion date.

Upon completion of the Facilities Study, a draft report will be submitted to the Customer for review. Within approximately 10 Business Days, CIPCO and the Customer will meet to review the draft Final Report. CIPCO will issue the Final Report within 30 Calendar Days after the draft report review meeting.

If Re-Study of the Facilities Study is required due to a higher queued project dropping out of the queue or a modification of a higher queued project, CIPCO shall so notify the Customer in writing. Such Re-Study is anticipated to take no longer than sixty (60) Calendar Days from the date of notice. Any cost of Re-Study shall be borne by the Interconnection Customer being restudied.

Once the final Facilities Study report has been issued, the Customer shall provide written notice to CIPCO of its intent to proceed with the construction of the Generating Facility and expressing its desire to execute a Generator Interconnection Agreement with CIPCO. Such notice shall be provided within 15 Calendar Days of final issuance of the Facilities Study. If such notice is not provided, the Customer's Interconnection Request shall be deemed withdrawn and will be terminated.

5. Costs and Payment

- a. The estimated costs contained within this Agreement are CIPCO's good faith estimate of CIPCO's costs to perform the Study contemplated by this Agreement. The actual costs charged to the Customer by CIPCO may change as set forth in this Agreement. Payment will be required for all study, analysis, and review work performed by CIPCO or its designated agent, all of which will be billed by CIPCO to the Customer in accordance with this Paragraph 5 of this Agreement.
- b. Upon execution of the Agreement, the Customer will prepay all estimated costs for the performance of the Study. The estimated cost to perform the Study is \$_____ (the "Estimated Study Price"). The customer shall pay CIPCO the Estimated Study Price in advance of CIPCO initiating the Study. CIPCO will, in writing, advise the Customer if cost increases for work to be performed are expected to exceed the Estimated Study Price. Any such changes to CIPCO's costs for the Study work shall be subject to the Customer's consent; such consent shall not be unreasonably withheld. The Customer shall authorize such cost increase and make payment at that time in the amount set forth in such notice, in which case CIPCO will resume the Study. To the extent funds remain, CIPCO will continue the Study until such time that the funds cease to be available. If no such consent and payment is given by the Customer within 30 Calendar Days, CIPCO will cease work on the Study and this Agreement will terminate and the Customer's queue shall be deemed terminated and withdrawn. The Customer shall be responsible for any and all additional costs incurred, if any, as a result of Customer's revisions to any technical information provided to CIPCO under Section 1.
- c. In the event this Agreement is terminated for any reason, CIPCO shall refund to the Customer the portion of the above identified payment or any subsequent payment to CIPCO by the Customer that reflects amounts above those that CIPCO actually expended in performing its obligations under this Agreement. Any additional billings under this Agreement shall be subject to an interest charge computed in accordance with the provisions of CIPCO's appropriate transmission tariff. Interest on delinquent amounts shall be calculated from the due date of payment at a rate to the lesser of (a) the per annum interest rate equal to the prime lending rate as may from time to time be published in The Wall Street Journal under "Money Rates" on such day (or if not published on such day on the most recent preceding day on which published), plus two percent (2%) and (b) the maximum rate permitted by applicable law. When payments are made by mail, bills shall be considered as having been paid on the date of receipt by CIPCO. Payments for work performed shall not be subject to refunding except in accordance with Paragraph 5(d) of this Agreement.
- d. If the actual costs for the work exceed the Estimated Study Price, the Customer shall make a payment to CIPCO for such actual costs within thirty (30) days of the date of CIPCO's invoice for such costs. If the actual costs for the work are less than that of the Estimated Study Price, CIPCO will credit such difference toward CIPCO's costs unbilled, or in the event there will be no additional billed expenses, the amount of the overpayment

will be returned within sixty (60) days to the Customer.

6. No Wheeling or Transmission Service Rights Included

Nothing in this Agreement shall be interpreted to give the Customer immediate rights to wheel over or interconnect with the CIPCO Transmission System. Such rights shall be provided for under separate agreement and in accordance with CIPCO's interconnection agreement and/or a transmission services agreement under the CIPCO Open Access Transmission Tariff, and thus, CIPCO's estimated costs contained within this Agreement do not include any estimates for wheeling charges that may be associated with the transmission of facility output to third parties or with rates for station service.

7. Audit of CIPCO Records

Within three (3) months following CIPCO's issuance of a final bill under this Agreement, the Customer shall have the right to audit during normal business hours, CIPCO's accounts and records at the offices where such accounts and records are maintained; provided, however, that written notice shall have been given ten (10) business days prior to any audit and further provided that the audit shall be limited to those portions of such accounts and records that are related to service under this Agreement. CIPCO reserves the right to assess a reasonable fee to compensate for the use of its personnel time and resources in assisting any inspection or audit of its books, records or accounts by the Customer or its designated agent. Any such audit rights shall cease one hundred and twenty (120) days after the issuance by CIPCO of the final bill.

8. Indemnity

Each party agrees to indemnify and hold the other party and its affiliated companies and the trustees, directors, officers, employees, and agents of each of them (collectively "Affiliates") harmless from and against any and all damages, costs (including reasonable attorneys' and consultants' fees), fines, penalties and liabilities, in tort, contract, or otherwise (collectively "Liabilities") resulting from claims of third parties arising, or claimed to have arisen, as a result of any acts or omissions of either party under this Agreement. Each party hereby waives recourse against the other party and its Affiliates from any and all Liabilities arising from damage to its property due to performance under this Agreement by CIPCO, except to the extent of gross negligence or intentional wrongdoing by CIPCO.

9. Breach

If either party materially breaches any of the provisions of this Agreement, following written notice to the breaching party, a thirty (30) day right to cure period shall commence upon receipt of such written notice by the non-breaching party. If the breaching party fails to cure the breach, the non-breaching party may terminate this Agreement by serving a written notice of termination with the other party to this Agreement. This remedy is in addition to any other remedies which may be available to the injured party; provided, however, that upon termination, payment(s) for work performed pursuant to this Agreement shall not be subject to refunding except in accordance with Paragraph 5d of this Agreement.

10. Governing Law

This Agreement shall be construed and governed in accordance with the laws of the State of Iowa without regard to choice of law provisions and with any other legal requirement as may be modified from time to time.

11. Amendments

All amendments to this Agreement shall be in writing executed by both parties.

12. Successors and Assigns

The terms and conditions of this Agreement shall be binding on the successors and permitted assigns of either party hereto.

13. Term

This Agreement will remain in effect for a period of up to one (1) year from its effective date, and is subject to extension by mutual agreement in writing of the parties hereto. Either party may terminate this Agreement by thirty (30) days' written notice except as otherwise provided herein. Upon termination, payment(s) for work performed pursuant to this Agreement shall not be subject to refund except in accordance with Paragraph 5 or 7 of this Agreement.

14. Confidentiality

Information is Confidential Information only if it is clearly designated or marked in writing as confidential on the face of the document, or, if the information is conveyed orally or by inspection, if the Party providing the information orally informs the Party receiving the information that the information is confidential.

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.

CENTRAL IOWA POWER COOPERATIVE

Signature: _____

Printed Name: _____

Title: _____

Date: _____

CUSTOMER:

Signature: _____

Printed Name: _____

Title: _____

Date: _____

EXHIBIT A - GENERATING FACILITY DATA
Information to be Provided to CIPCO by the
Customer for the Interconnection Facilities Study

- 1) Provide location plan and simplified one-line diagram of the plant and station facilities. For staged projects, please indicate future generation, transmission circuits, etc.
- 2) One set of metering is required for each generation connection to the new ring bus or existing CIPCO station. Number of generation connections:
- 3) On the one line diagram indicate the generation capacity attached at each metering location. (Maximum load on CT/PT)
- 4) On the one line diagram indicate the location of auxiliary power. (Minimum load on CT/PT)
Amps
- 5) Will an alternate source of auxiliary power be available during CT/PT maintenance? ___Yes
 ___No
- 6) Will a transfer bus on the generation side of the metering require that each meter set be designed for the total plant generation? ___Yes ___No (Please indicate on one line diagram).
- 7) What type of control system or PLC will be located at Interconnection Customer's Large Generating Facility?
- 8) What protocol does the control system or PLC use?
- 9) Please provide a 7.5-minute quadrangle of the site. Sketch the plant, station, transmission line, and property line.
- 10) Physical dimensions of the proposed interconnection station:
- 11) Bus length from generation to interconnection station:
- 12) Line length from interconnection station to CIPCO's transmission line.
- 13) Tower number observed in the field. (Painted on tower leg)* _____
- 14) Number of third party easements required for transmission lines*: _____
 * To be completed in coordination with CIPCO.

15) Is the Large Generating Facility in the CIPCO's service area?

Yes No Local provider: _____

16) Please provide proposed schedule dates:

Begin Construction Date: _____

Generator step-up transformer Date: _____
receives back feed power

Generation Testing Date: _____

Commercial Operation Date: _____

Appendix 7

Generation Interconnection Agreement



GENERATOR INTERCONNECTION AGREEMENT (GIA)

THIS GENERATOR INTERCONNECTION AGREEMENT (“GIA”) is made and entered into this ____ day of _____ 20__, by and between _____, a _____ organized and existing under the laws of the State/Commonwealth of _____ (“Interconnection Customer” with a Generating Facility), and _____, a cooperative] organized and existing under the laws of the State/Commonwealth of Iowa (“CIPCO,” as “Transmission Provider” and/or “Transmission Owner”). Interconnection Customer and Transmission Provider and/or Owner may be referred to as a “Party,” or collectively as the “Parties.”

RECITALS

WHEREAS, CIPCO, as Transmission Provider has functional control of the operations of the Transmission System, as defined herein, and is responsible for providing Transmission Service and Interconnection Service on the transmission facilities under its control; and

WHEREAS, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Generating Facility in Appendix A to this GIA; and

WHEREAS, CIPCO, as Transmission Owner owns or operates the Transmission System, to which Interconnection Customer desires to connect the Generating Facility, and may therefore be required to construct certain Interconnection Facilities and Network Upgrades, as set forth in this GIA; and

WHEREAS, Interconnection Customer and CIPCO have agreed to enter into this GIA for the purpose of interconnecting the Generating Facility with the Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

ARTICLE 1. DEFINITIONS

When used in this GIA, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used. Those capitalized terms used in this GIA that are not otherwise defined in this GIA have the meaning set forth in the Tariff.

Adverse System Impact shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the electric system.

Affected System shall mean an electric transmission or distribution system or the electric system associated with an existing generating facility or of a higher queued Generating Facility, which is an electric system other than the Transmission Owner's Transmission System that is affected by the Interconnection Request. An Affected System may or may not be subject to FERC jurisdiction.

Affected System Operator shall mean the entity that operates an Affected System.

Affected System Upgrades shall mean the additions, modifications, and upgrades to an Affected System, as set forth in Appendix A to this GIA, required at or beyond the point at which the Interconnection Facilities connect to the Transmission Provider's Transmission System to accommodate the interconnection of the Generating Facility to the Transmission Provider's Transmission System.

Affiliate shall mean, with respect to a corporation, partnership or other entity, each such other corporation, partnership or other entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such corporation, partnership or other entity.

Ancillary Services shall mean those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission System in accordance with Good Utility Practice.

Applicable Laws and Regulations shall mean 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, their respective facilities and/or the respective services they provide.

Applicable Reliability Council shall mean the Regional Entity of NERC applicable to the Local Balancing Authority of the Transmission System to which the Generating Facility is directly interconnected.

Applicable Reliability Standards shall mean Reliability Standards approved by the Federal Energy Regulatory Commission (FERC) under section 215 of the Federal Power Act, as applicable, and the requirements and guidelines of NERC, the Applicable Reliability Council, and the Control Area of the Transmission System to which the Generating Facility is directly interconnected.

Base Case shall mean the base case power flow, short circuit, and stability databases used for the Interconnection Studies by Transmission Provider or Interconnection Customer.

Breach shall mean the failure of a Party to perform or observe any material term or condition of this GIA.

Breaching Party shall mean a Party that is in Breach of this GIA.

Business Day shall mean Monday through Friday, excluding Federal Holidays.

Calendar Day shall mean any day including Saturday, Sunday or a Federal Holiday.

Clustering shall mean the process whereby a group of Interconnection Requests is studied together, instead of serially, for the purpose of conducting the Interconnection System Impact Study.

Commercial Operation shall mean the status of a Generating Facility that has commenced generating electricity for sale, excluding electricity generated during Trial Operation.

Commercial Operation Date (COD) of a unit shall mean the date on which the Generating Facility commences Commercial Operation as agreed to by the Parties pursuant to Appendix E to this GIA.

Common Use Upgrade (CUU) shall mean an Interconnection Facility, Network Upgrade, System Protection Facility, or any other classified addition, alteration, or improvement on the Transmission System or the transmission system of an Affected System that is needed for the interconnection of multiple Interconnection Customers' Generating Facilities and which is the shared responsibility of such Interconnection Customers.

Confidential Information shall mean any proprietary or commercially or competitively sensitive information, trade secret or information regarding a plan, specification, pattern, procedure, design, device, list, concept, policy or compilation relating to the present or planned business of a Party, or any other information as specified in Article 22, which is designated as confidential by the Party supplying the information, whether conveyed orally, electronically, in writing, through inspection, or otherwise, that is received by another Party.

Default shall mean the failure of a Breaching Party to cure its Breach in accordance with Article 17 of this GIA.

Demonstrated Capability shall mean the continuous net real power output that the Generating Facility is required to demonstrate in compliance with Applicable Reliability Standards.

Dispute Resolution shall mean the procedure for resolution of a dispute between or among the Parties in which they will first attempt to resolve the dispute on an informal basis.

Distribution System shall mean the Transmission Owner's facilities and equipment, or the Distribution System of another party that is interconnected with the Transmission Owner's Transmission System, if any, connected to the Transmission System, over which facilities Transmission Service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce and which are used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which distribution systems operate differ among Local Balancing Authorities and other entities owning distribution facilities interconnected to the Transmission System.

Distribution Upgrades shall mean the additions, modifications, and upgrades to the Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the delivery service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce. Distribution Upgrades do not include Interconnection Facilities.

Effective Date shall mean the date on which this GIA becomes effective upon execution by the Parties subject to, if required, acceptance by the Commission, or if filed unexecuted, upon the date specified by the Commission.

Emergency Condition shall mean a condition or situation: (1) that in the reasonable judgment of the Party making the claim is imminently likely to endanger, or is contributing to the

endangerment of, life, property, or public health and safety; or (2) that, in the case of either Transmission Provider or Transmission Owner, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Transmission System, Transmission Owner's Interconnection Facilities or the electric systems of others to which the Transmission System is directly connected; or (3) that, in the case of Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or Interconnection Customer's Interconnection Facilities. System restoration and blackstart shall be considered Emergency Conditions; provided that Interconnection Customer is not obligated by this GIA to possess blackstart capability.

Energy Resource Interconnection Service (ER Interconnection Service) shall mean an Interconnection Service that allows Interconnection Customer to connect its Generating Facility to the Transmission System or Distribution System, as applicable, to be eligible to deliver the Generating Facility's electric output using the existing firm or non-firm capacity of the Transmission System on an as available basis. Energy Resource Interconnection Service does not convey transmission service.

Engineering & Procurement (E&P) Agreement shall mean an agreement that authorizes Transmission Owner to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection in order to advance the implementation of the Interconnection Request.

Environmental Law shall mean Applicable Laws or Regulations relating to pollution or protection of the environment or natural resources.

Federal Holiday shall mean a Federal Reserve Bank holiday for a Party that has its principal place of business in the United States and a Canadian Federal or Provincial banking holiday for a Party that has its principal place of business located in Canada.

Federal Power Act shall mean the Federal Power Act, as amended, 16 U.S.C. §§ 791a *et seq.*

FERC shall mean the Federal Energy Regulatory Commission, also known as Commission, or its successor.

Force Majeure shall mean any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure event does not include an act of negligence or intentional wrongdoing by the Party claiming Force Majeure.

Generating Facility shall mean Interconnection Customer's device(s) for the production and/or storage for later injection of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities.

Generating Facility Capacity shall mean the net capacity of the Generating Facility and the aggregate net capacity of the Generating Facility where it includes multiple energy production devices.

Generator Interconnection Agreement (GIA) shall mean the form of interconnection agreement, set forth herein.

Generator Interconnection Procedures (GIP) shall mean the interconnection procedures set forth in CIPCO's Requirements for Generation Interconnection document.

Generator Upgrades shall mean the additions, modifications, and upgrades to the electric system of an existing generating facility or of a higher queued Generating Facility at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the Transmission Service necessary to affect Interconnection Customer's wholesale sale of electricity in interstate commerce.

Good Utility Practice shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

Governmental Authority shall mean any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or 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 such term does not include Interconnection Customer, Transmission Provider, Transmission Owner, or any Affiliate thereof.

Group Study(ies) shall mean the process whereby more than one Interconnection Request is studied together, instead of serially, for the purpose of conducting one or more of the required Studies.

Hazardous Substances shall mean any chemicals, materials or substances defined as or included in the definition of “hazardous substances,” “hazardous wastes,” “hazardous materials,” “hazardous constituents,” “restricted hazardous materials,” “extremely hazardous substances,” “toxic substances,” “radioactive substances,” “contaminants,” “pollutants,” “toxic pollutants” or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

Initial Synchronization Date shall mean the date upon which the Generating Facility is initially synchronized and upon which Trial Operation begins.

In-Service Date (ISD) shall mean the date upon which Interconnection Customer reasonably expects it will be ready to begin use of the Transmission Owner's Interconnection Facilities to obtain backfeed power.

Interconnection Customer shall mean any entity, including Transmission Provider, Transmission Owner or any of the Affiliates or subsidiaries of either, that proposes to interconnect its Generating Facility with the Transmission System.

Interconnection Customer's Interconnection Facilities (ICIF) shall mean all facilities and equipment, as identified in Appendix A to this GIA, that are located between the Generating Facility and the Point of Change of Ownership, including any modification, addition, or upgrades to such facilities and equipment necessary to physically and electrically interconnect the Generating Facility to the Transmission System or Distribution System, as applicable. Interconnection Customer's Interconnection Facilities are sole use facilities.

Interconnection Facilities shall mean the Transmission Owner's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the Transmission System. Interconnection Facilities shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Interconnection Facilities Study shall mean a study conducted by Transmission Provider, or its agent, for Interconnection Customer to determine a list of facilities (including Transmission Owner's Interconnection Facilities, System Protection Facilities, and if such upgrades have been determined, Network Upgrades, Distribution Upgrades, Generator Upgrades, Common Use Upgrades, and upgrades on Affected Systems, as identified in the Interconnection System Impact

Study), the cost of those facilities, and the time required to interconnect the Generating Facility with the Transmission System.

Interconnection Facilities Study Agreement shall mean the form of agreement contained in Appendix 6 of the Generator Interconnection Procedures for conducting the Interconnection Facilities Study.

Interconnection Request shall mean an Interconnection Customer's request, in the form of Appendix 3 to the Generator Interconnection Procedures, to interconnect a new Generating Facility, or to increase the capacity of, or make a Material Modification to the operating characteristics of, an existing Generating Facility that is interconnected with the Transmission System.

Interconnection Service shall mean the service provided, or caused to be provided, by Transmission Provider, associated with interconnecting the Generating Facility to the Transmission System and enabling it to receive electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of this GIA and, if applicable, the Tariff.

Interconnection Study (or Study) shall mean any of the studies described in the Generator Interconnection Procedures.

Interconnection Study Agreement shall mean the form of agreement contained in Appendix 5A of the Generator Interconnection Procedures for conducting all studies required by the Generator Interconnection Procedures.

Interconnection System Impact Study or ISIS shall mean an engineering study that evaluates the impact of the proposed interconnection on the safety and reliability of Transmission System and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project

modifications or system modifications, or to study potential impacts, including but not limited to those identified in the Scoping Meeting as described in the Generator Interconnection Procedures.

IRS shall mean the Internal Revenue Service.

Joint Operating Committee shall be a group made up of representatives from Interconnection Customers and the Transmission Provider to coordinate operating and technical considerations of Interconnection Service.

Local Balancing Authority shall mean an operational entity or a Joint Registration Organization which is (i) responsible for compliance with the subset of NERC Balancing Authority Reliability Standards defined in the Balancing Authority Agreement for their local area within the MISO Balancing Authority Area, (ii) a Party to Balancing Authority Agreement, excluding MISO, and (iii) provided in the Balancing Authority Agreement.

Loss shall mean any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's performance, or non-performance of its obligations under this GIA on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing, by the indemnified party.

Material Modification shall mean those modifications that have a material impact on the cost or timing of any Interconnection Request with a later queue priority date.

Metering Equipment shall mean all metering equipment installed or to be installed for the Generating Facility pursuant to this GIA at the metering points, including but not limited to instrument transformers, MWh-meters, data acquisition equipment, transducers, remote terminal units, communications equipment, phone lines, and fiber optics.

MISO shall mean the Midcontinent Independent System Operator Regional Transmission Organization or its successor organization.

NERC shall mean the North American Electric Reliability Corporation or its successor organization.

Network Customer shall have that meaning as provided in the Tariff.

Network Resource shall mean any designated generating resource owned, purchased, or leased by a Network Customer under the Network Integration Transmission Service Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

Network Upgrades shall mean the additions, modifications, and upgrades to the Transmission System required at or beyond the point at which the Interconnection Facilities connect to the Transmission System or Distribution System, as applicable, to accommodate the interconnection of the Generating Facility to the Transmission System. Network Upgrade shall not include any HVDC Facility Upgrades.

Notice of Dispute shall mean a written notice of a dispute or claim that arises out of or in connection with this GIA or its performance.

Operating Horizon Study shall mean an Interconnection System Impact Study that includes in service transmission and generation for an identified timeframe to determine either the available injection capacity of an Interconnection Request or Interconnection Facilities and/or Transmission System changes required for the requested Interconnection Service.

Party or Parties shall mean Transmission Provider, Transmission Owner, Interconnection Customer, or any combination of the above.

Planning Horizon Study shall mean an Interconnection System Impact Study that includes a future year study to determine either the available injection capacity of an Interconnection Request or Interconnection Facilities and/or Transmission System changes required for the requested Interconnection Service.

Point of Change of Ownership (PCO) shall mean the point, as set forth in Appendix A to this GIA, where the Interconnection Customer's Interconnection Facilities connect to the Transmission Owner's Interconnection Facilities.

Point of Interconnection (POI) shall mean the point, as set forth in Appendix A to this GIA, where the Interconnection Facilities connect to the Transmission System.

Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests. The Queue Position is established based upon the date and time of receipt of the valid Interconnection Request by Transmission Provider or its agent.

Reasonable Efforts shall mean, with respect to an action required to be attempted or taken by a Party under this GIA, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

Scoping Meeting shall mean the meeting between representatives of Interconnection Customer, Transmission Owner, Affected System Operator(s) and Transmission Provider conducted for the purpose of discussing alternative interconnection options, to exchange information including any transmission data and earlier study evaluations that would be reasonably expected to impact such interconnection options, to analyze such information, and to determine the potential feasible Points of Interconnection.

Shared Network Upgrade shall mean a Network Upgrade or Common Use Upgrade that is funded by an Interconnection Customer(s) and also benefits other Interconnection Customer(s) that are later identified as beneficiaries.

Site Control shall mean documentation reasonably demonstrating: (1) ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Generating Facility and when applicable (i.e. when Interconnection Customer is providing the site for the TOIFs and Network Upgrades at the POI) the Interconnection Facilities, and; (2) an option to purchase or acquire a leasehold site for such purpose; or (3) an exclusivity or other business relationship between Interconnection Customer and the entity having the right to sell, lease or grant Interconnection Customer the right to possess or occupy a site for such purpose. Such documentation must support a reasonable determination of 75% of the sufficient land area to support the size and type of Generating Facility proposed. If an Interconnection Customer cannot demonstrate Site Control for Interconnection Facilities as a result of regulatory requirements or obligations, the Interconnection Customer must demonstrate such regulatory requirements or obligations to the Transmission Provider or its agent and provide cash in-lieu of Site Control until the time that the regulatory requirements allow the Site Control requirement to be met.

Stand Alone Network Upgrades shall mean Network Upgrades that an Interconnection Customer may construct without affecting day-to-day operations of the Transmission System during their construction. Transmission Provider, Transmission Owner and Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in Appendix A to this GIA.

System Protection Facilities shall mean the equipment, including necessary protection signal communications equipment, required to protect (1) the Transmission System or other delivery systems or other generating systems from faults or other electrical disturbances occurring at the Generating Facility and (2) the Generating Facility from faults or other electrical system disturbances occurring on the Transmission System or on other delivery systems or other generating systems to which the Transmission System is directly connected.

Tariff shall mean the Transmission Provider's Tariff through which open access transmission service and Interconnection Service are offered, and as amended or supplemented from time to time, or any successor tariff.

Transmission Control Devices shall mean a generally accepted transmission device that is planned and designed to provide dynamic control of electric system quantities, and are usually employed as solutions to specific system performance issues. Examples of such devices include fast valving, high response exciters, high voltage DC links, active or real power flow control and reactive compensation devices using power electronics (*e.g.*, unified power flow controllers), static var compensators, thyristor controlled series capacitors, braking resistors, and in some cases mechanically-switched capacitors and reactors. In general, such systems are not considered to be Special Protection Systems.

Transmission Operator (TOP) shall mean CIPCO or its designated agent as the entity responsible for the reliability of its transmission system, and that operates or directs the operations of transmission facilities per the applicable NERC standards.

Transmission Owner shall mean Central Iowa Power Cooperative (“CIPCO”) which owns, leases or otherwise possesses an interest in the portion of the Transmission System at which Interconnection Customer proposes to interconnect or otherwise integrate the operation of the Generating Facility. Transmission Owner should be read to include any CIPCO designated agent that manages the transmission facilities of Transmission Owner and shall include, as applicable, the owner and/or operator of distribution facilities interconnected to the Transmission System, over which facilities transmission service or Wholesale Distribution Service under the Tariff is available at the time Interconnection Customer requests Interconnection Service and to which Interconnection Customer has requested interconnection of a Generating Facility for the purpose of either transmitting electric energy in interstate commerce or selling electric energy at wholesale in interstate commerce.

Transmission Provider shall mean Central Iowa Power Cooperative (“CIPCO”) or its designated agent, that controls or operates the transmission facilities used for the transmission of electricity in interstate commerce and provides transmission service under the Tariff. The term Transmission Provider should be read to include the Transmission Owner when the Transmission Owner is separate from the Transmission Provider.

Transmission Owner's Interconnection Facilities (TOIF) shall mean all facilities and equipment owned by Transmission Owner from the Point of Change of Ownership to the Point of Interconnection as identified in Appendix A to this GIA, including any modifications, additions or upgrades to such facilities and equipment. Transmission Owner's Interconnection Facilities shall not include Distribution Upgrades, Generator Upgrades, Stand Alone Network Upgrades or Network Upgrades.

Transmission System shall mean the facilities owned by Transmission Owner and controlled or operated by Transmission Provider or Transmission Owner that are used to provide Transmission Service or Wholesale Distribution Service under the Tariff.

Trial Operation shall mean the period during which Interconnection Customer is engaged in on-site test operations and commissioning of the Generating Facility prior to Commercial Operation.

Variable Energy Resource shall mean a device for the production of electricity that is characterized by an energy source that: (1) is renewable; (2) cannot be stored by the facility owner or operator; and (3) has variability that is beyond the control of the facility owner or operator.

Wholesale Distribution Service shall have that meaning as provided in the Tariff. Wherever the term "transmission delivery service" is used, Wholesale Distribution Service shall also be implied.

ARTICLE 2. EFFECTIVE DATE, TERM AND TERMINATION

2.1 Effective Date. This GIA shall become effective upon execution by the Parties subject to acceptance by any Governmental Authority, if applicable.

2.2 Term of Agreement. Subject to the provisions of Article 2.3, this GIA shall remain in effect for a period of _____ years from the Effective Date and shall be automatically

renewed for each successive one-year period thereafter on the anniversary of the Effective Date.

2.3 Termination Procedures. This GIA may be terminated as follows:

2.3.1 Written Notice. This GIA may be terminated by Interconnection Customer after giving Transmission Provider and Transmission Owner ninety (90) Calendar Days advance written notice or by Transmission Provider if the Generating Facility or a portion of the Generating Facility fails to achieve Commercial Operation for three (3) consecutive years following the Commercial Operation Date, or has ceased Commercial Operation for three (3) consecutive years, beginning with the last date of Commercial Operation for the Generating Facility, after giving Interconnection Customer ninety (90) Calendar Days advance written notice. Where only a portion of the Generating Facility fails to achieve Commercial Operation for three (3) consecutive years following the Commercial Operation Date, Transmission Provider may only terminate that portion of the GIA. The Generating Facility will not be deemed to have ceased Commercial Operation for purposes of this Article 2.3.1 if Interconnection Customer can document that it has taken other significant steps to maintain or restore operational readiness of the Generating Facility for the purpose of returning the Generating Facility to Commercial Operation as soon as possible.

2.3.2 Default. Any Party may terminate this GIA in accordance with Article 17.

2.3.3 Notwithstanding Articles 2.3.1 and 2.3.2, no termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination, including the filing with FERC of a notice of termination of this GIA, if required, which notice has been accepted for filing by FERC.

2.4 Termination Costs. If a Party elects to terminate this GIA pursuant to Article 2.3 above, each Party shall pay all costs incurred for which that Party is responsible (including any cancellation costs relating to orders or contracts for Interconnection Facilities, applicable upgrades, and related equipment) or charges assessed by the other Party, as of the date of the other Party's receipt of such notice of termination, under this GIA. In the event of termination by a Party, the Parties shall use commercially Reasonable Efforts to mitigate the costs, damages and charges arising as a consequence of termination. Upon termination of this GIA:

2.4.1 With respect to any portion of the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, Generator Upgrades, and if so determined and made a part of this GIA, upgrades on Affected Systems, that have not yet been constructed or installed, Transmission Owner shall to the extent possible and to the extent of Interconnection Customer's written notice under Article 2.3.1, cancel any pending orders of, or return, any materials or equipment for, or contracts for construction of, such facilities; provided that in the event Interconnection Customer elects not to authorize such cancellation, Interconnection Customer shall assume all payment obligations with respect to such materials, equipment, and contracts, and Transmission Owner shall deliver such material and equipment, and, if necessary, assign such contracts, to Interconnection Customer as soon as practicable, at Interconnection Customer's expense. To the extent that Interconnection Customer has already paid Transmission Owner for any or all such costs of materials or equipment not taken by Interconnection Customer, Transmission Owner shall promptly refund such amounts to Interconnection Customer, less any costs, including penalties incurred by Transmission Owner to cancel any pending orders of or return such materials, equipment, or contracts. Transmission Owner shall have no obligation to refund any amounts relating to materials or equipment that are not able to be mitigated or refunded to Transmission Owner.

If an Interconnection Customer terminates this GIA, it shall be responsible for all costs incurred in association with that Interconnection Customer's interconnection, including any cancellation costs relating to orders or contracts for Interconnection Facilities and equipment, and other expenses including any upgrades or related equipment for which Transmission Owner has incurred expenses and has not been reimbursed by Interconnection Customer.

2.4.2 Transmission Owner may, at its option, retain any portion of such materials, equipment, or facilities that Interconnection Customer chooses not to accept delivery of, in which case Transmission Owner shall be responsible for all costs associated with procuring such materials, equipment, or facilities. If Transmission Owner does not so elect, then Interconnection Customer shall be responsible for such costs.

2.4.3 With respect to any portion of the Interconnection Facilities, and any other facilities already installed or constructed pursuant to the terms of this GIA, Interconnection Customer shall be responsible for all costs associated with the removal, relocation, reconfiguration or other disposition or retirement of such materials, equipment, or facilities, and such other expenses actually incurred by Transmission Owner necessary to return the Transmission, Distribution or Generator System, as applicable, to safe and reliable operation.

2.5 Disconnection. Upon termination of this GIA, the Parties will take all appropriate steps to disconnect the Generating Facility from the Transmission or Distribution System, as applicable. All costs required to effectuate such disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this GIA or such non-terminating Party otherwise is responsible for these costs under this GIA.

2.6 Survival. This GIA shall continue in effect after termination to the extent necessary to provide for final billings and payments and for costs incurred hereunder, including billings

and payments pursuant to this GIA; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while this GIA was in effect; and to permit each Party to have access to the lands of the other Party pursuant to this GIA or other applicable agreements, to disconnect, remove or salvage its own facilities and equipment.

ARTICLE 3. REGULATORY FILINGS

- 3.1 Filing.** Transmission Provider or its agent shall file this GIA (and any amendment hereto) with the appropriate Governmental Authority, if required. A Party may request that any information so provided be subject to the confidentiality provisions of Article 22. If that Party has executed this GIA, or any amendment thereto, the Party shall reasonably cooperate with Transmission Provider or its agent with respect to such filing and to provide any information reasonably requested by Transmission Provider or its agent needed to comply with applicable regulatory requirements.

ARTICLE 4. SCOPE OF SERVICE

- 4.1 Energy Resource Interconnection Service (ER Interconnection Service).**

- 4.1.1 The Product.** ER Interconnection Service allows Interconnection Customer to connect the Generating Facility to the Transmission or Distribution System, as applicable, and be eligible to deliver the Generating Facility's output using the existing firm or non-firm capacity of the Transmission System on an "as available" basis.

An Interconnection Customer seeking ER Interconnection Service for new or added capacity at a Generating Facility may be granted conditional ER Interconnection Service status to the extent there is such capacity available on the Transmission System to accommodate the Interconnection Customer's Generating Facility. At the request of Interconnection Customer, conditional ER

Interconnection Service status may be granted subject to the system being able to accommodate the interconnection without upgrades, until such time as a higher queued project(s) with a later service date affecting the same common elements is placed into service. The conditional ER Interconnection Service shall be terminated in the event Interconnection Customer fails to fund the necessary studies and the Network Upgrades necessary to grant the Interconnection Customer's ER Interconnection Service upon the completion of higher queued projects involving the same common elements.

4.1.2 Transmission Delivery Service Implications. Under ER Interconnection Service, no transmission or other delivery service from the Generating Facility is assured. In order for Interconnection Customer to obtain the right to deliver or inject energy beyond the Point of Interconnection, transmission delivery service up to the maximum output identified in the stability and steady state studies must be obtained pursuant to the provisions of the Tariff. Transmission delivery service may include Point-To-Point Transmission Service, Network Integration Transmission Service or secondary network transmission service. The Interconnection Customer's ability to inject its Generating Facility output beyond the Point of Interconnection, therefore, will depend on the existing capacity of the Transmission or Distribution System as applicable, at such time as a Transmission Service Request is made that would accommodate such delivery. The provision of any variation of transmission service may require additional studies and the construction of additional Network or Distribution Upgrades in order for the Transmission Provider to grant such request. These variations include but are not limited to:

A. Any Transmission Service Request for delivery from the Generating Facility within the Transmission System.

B. Any Transmission Service Request for long term Transmission Service for deliveries from the Generating Facility to customers other than the studied Network Customers, or for any Point-To-Point Transmission Service

C. A request for the reduction or elimination of congestion or redispatch costs

D. Any Transmission Service Request for deliveries from the Generating Facility to points or customers outside the Transmission System

A Generating Facility receiving ER Interconnection Service may also be used to provide Ancillary Services after technical studies and/or periodic analyses are performed with respect to the Generating Facility's ability to provide any applicable Ancillary Services, provided that such studies and analyses have been or would be required in connection with the provision of such Ancillary Services by any existing Network Resource. However, if the Generating Facility has not been designated as a Network Resource by any Network Customer, it cannot be required to provide Ancillary Services except to the extent such requirements extend to all generating facilities that are similarly situated.

There is no requirement either at the time of study or interconnection, or at any point in the future, that the Generating Facility be designated as a Network Resource by a Network Customer or that Interconnection Customer identify a specific buyer (or sink). To the extent a Network Customer does designate the Generating Facility as a Network Resource, it must do so pursuant to the Tariff.

4.2 Provision of Service. Transmission Provider shall provide the Energy Resource Interconnection Service form of Interconnection Service for the Generating Facility at the Point of Interconnection.

- 4.3 Performance Standards.** Each Party shall perform all of its obligations under this GIA in accordance with Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice. To the extent a Party is required or prevented or limited in taking any action by such regulations and standards, or if the obligations of a Party may become limited by a change in Applicable Laws and Regulations, Applicable Reliability Standards, and Good Utility Practice after the execution of this GIA, that Party shall not be deemed to be in Breach of this GIA for its compliance therewith. If such Party is a Transmission Provider or Transmission Owner, then that Party shall amend and submit the amendment to the Commission for approval, as required.
- 4.4 No Transmission Delivery Service.** The execution of this GIA does not constitute a request for, or the provision of, any transmission delivery service under the Tariff, and does not convey any right to deliver electricity to any specific customer or Point of Delivery.
- 4.5 Interconnection Customer Provided Services.** The services provided by Interconnection Customer under this GIA are set forth in Article 9.6 and Article 13.4.1. Interconnection Customer shall be paid for such services in accordance with Article 11.8.

ARTICLE 5. INTERCONNECTION FACILITIES ENGINEERING, PROCUREMENT, AND CONSTRUCTION

- 5.1 Date Selection.** Interconnection Customer shall select the In-Service Date, Initial Synchronization Date, and Commercial Operation Date based on a reasonable construction schedule that will allow sufficient time for design, construction, equipment procurement, permit acquisition of Transmission System equipment or right-of-way and for completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades, as applicable, as set forth in Appendix A and B to this GIA. The dates shall be subject to the acceptance of Transmission Owner taking into account the type of construction to be employed and the regulatory requirements of Governmental Authority, and does not convey any right to deliver electricity to any specific customer or Point of Delivery, including the need to

obtain permits or other authorizations for construction of the Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, Generator Upgrades, the Generating Facility and Stand-Alone Network Upgrades.

5.2 Performance of Work. Transmission Owner shall design, procure, and construct the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades, and Generator Upgrades using Reasonable Efforts to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades by the dates set forth in Appendix B, Milestones, subject to the receipt of all approvals required from Governmental Authorities and the receipt of all land rights necessary to commence construction of such facilities, and such other permits or authorizations as may be required. Transmission Provider or Transmission Owner shall not be required to undertake any action which is inconsistent with its standard safety practices, its material and equipment specifications, its design criteria and construction procedures, its labor agreements, Applicable Laws and Regulations and Good Utility Practice. In the event Transmission Owner reasonably expects that it will not be able to complete the Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities, Distribution Upgrades and Generator Upgrades by the specified dates, Transmission Owner shall promptly provide written notice to Interconnection Customer and Transmission Provider and shall undertake Reasonable Efforts to meet the earliest dates thereafter.

5.3 Power System Stabilizers. Interconnection Customer shall procure, install, maintain and operate power system stabilizers in accordance with the guidelines and procedures established by the Applicable Reliability Council. Transmission Provider and Transmission Owner reserve the right to reasonably establish minimum acceptable settings for any installed power system stabilizers, subject to the design and operating limitations of the Generating Facility. If the Generating Facility's power system stabilizers are removed from service or are not capable of automatic operation, Interconnection Customer shall immediately notify the Transmission Provider's system operator, or its designated representative. The requirements of this paragraph shall not apply to induction generators.

5.4 Equipment Procurement. Transmission Owner shall commence design of the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades, and procure necessary equipment as soon as practicable after all of the following conditions are satisfied, unless the Parties otherwise agree in writing:

5.4.1 Transmission Provider has completed the Interconnection Facilities Study pursuant to the Interconnection Facilities Study Agreement; and

5.4.2 Where applicable, Interconnection Customer has provided payment to Transmission Owner in accordance with Article 11.7 by the dates specified in Appendix B, Milestones.

5.5 Construction Commencement. Transmission Owner shall commence construction of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, and Generator Upgrades for which it is responsible as soon as practicable after the following additional conditions are satisfied:

5.5.1 Approval of the appropriate Governmental Authority has been obtained for any facilities requiring regulatory approval; and

5.5.2 Necessary real property rights and rights-of-way have been obtained, to the extent required for the construction of a discrete aspect of Transmission Provider's Interconnection Facilities and Network Upgrades;

5.5.3 Transmission Provider has received written authorization to proceed with construction from Interconnection Customer by the date specified in Appendix B, Milestones; and

5.5.4 Interconnection Customer has provided security to Transmission Owner in accordance with Article 11.7 by the dates specified in Appendix B, Milestones.

5.6 Work Progress. Transmission Owner and Interconnection Customer will keep each other and Transmission Provider advised periodically as to the progress of their respective design, procurement and construction efforts. Either Transmission Owner or Interconnection Customer may, at any time, request a progress report from the other. If, at any time, Interconnection Customer determines that the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities will not be required until after the specified In-Service Date, Interconnection Customer will provide written notice to Transmission Provider and Transmission Owner of such later date upon which the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades or Transmission Owner's System Protection Facilities will be required. Transmission Owner may delay the In-Service Date of its facilities accordingly.

5.7 Information Exchange. As soon as reasonably practicable after the Effective Date, the Parties shall exchange information regarding the design and compatibility of the Interconnection Facilities and compatibility of the Interconnection Facilities with the Transmission System or Distribution System, as applicable, and shall work diligently and in good faith to make any necessary design changes.

5.8 Limited Operation. If any of the Transmission Owner's Interconnection Facilities, Network Upgrades, or Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades are not reasonably expected to be completed prior to the Commercial Operation Date of the Generating Facility, Transmission Provider shall, upon the request and at the expense of Interconnection Customer, perform operating studies on a timely basis to determine the extent to which the Generating Facility and the Interconnection Customer's Interconnection Facilities may operate prior to the completion of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades or Generator Upgrades

consistent with Applicable Laws and Regulations, Applicable Reliability Standards, Good Utility Practice, and this GIA. Transmission Provider and Transmission Owner shall permit Interconnection Customer to operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with the results of such studies; provided, however, such studies reveal that such operation may occur without detriment to the Transmission System as then configured and in accordance with the safety requirements of Transmission Owner and any Governmental Authority.

5.9 Interconnection Customer's Interconnection Facilities. Interconnection Customer shall, at its expense, design, procure, construct, own and install the ICIF, as set forth in Appendix A to this GIA.

5.9.1 Interconnection Customer's Interconnection Facility Specifications.

Interconnection Customer shall submit initial design and specifications for the ICIF, including Interconnection Customer's System Protection Facilities, to Transmission Provider and Transmission Owner at least one hundred eighty (180) Calendar Days prior to the Initial Synchronization Date; and final design and specifications for review and comment at least ninety (90) Calendar Days prior to the Initial Synchronization Date. Transmission Provider at Transmission Provider's option, and Transmission Owner shall review such specifications to ensure that the ICIF are compatible with their respective technical specifications, operational control, and safety requirements and comment on such design and specifications within thirty (30) Calendar Days of Interconnection Customer's submission. All specifications provided hereunder shall be deemed confidential.

5.9.2 Transmission Provider's and Transmission Owner's Review. Transmission Provider's and Transmission Owner's review of Interconnection Customer's final specifications shall not be construed as confirming, endorsing, or providing a warranty as to the design, fitness, safety, durability or reliability of the Generating Facility, or the ICIF. Interconnection Customer shall make such changes to the ICIF as may reasonably be required by Transmission Provider and Transmission

Owner, in accordance with Good Utility Practice, to ensure that the ICIF are compatible with the technical specifications, operational control and safety requirements of Transmission Provider and Transmission Owner.

5.9.3 ICIF Construction. The ICIF shall be designed and constructed in accordance with Good Utility Practice. Within one hundred twenty (120) Calendar Days after the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Interconnection Customer shall deliver to Transmission Provider and Transmission Owner “as-built” drawings, information and documents for the ICIF, such as: a one-line diagram, a site plan showing the Generating Facility and the ICIF, plan and elevation drawings showing the layout of the ICIF, a relay functional diagram, relaying AC and DC schematic wiring diagrams and relay settings for all facilities associated with the Interconnection Customer’s step-up transformers, the facilities connecting the Generating Facility to the step-up transformers and the ICIF, and the impedances (determined by factory tests) for the associated step-up transformers and the Generating Facility. Interconnection Customer shall provide Transmission Provider and Transmission Owner with Interconnection Customer’s specifications for the excitation system, automatic voltage regulator, Generating Facility control and protection settings, transformer tap settings, and communications, if applicable.

5.9.4 Insulation Coordination. Interconnection Customer shall coordinate the Basic Insulation Level (BIL) of all interconnection facility equipment with the Transmission Provider and the over-voltage protection shall have Maximum Continuous Operating Voltage (MCOV) ratings consistent with expected system operating voltages. Special attention shall be given to MCOV ratings on systems subject to delta operation.

5.10 Transmission Owner’s Interconnection Facilities Construction. The Transmission Owner’s Interconnection Facilities shall be designed and constructed in accordance with Good Utility Practice. Upon request, within one hundred twenty (120) Calendar Days after

the Commercial Operation Date, unless the Parties agree on another mutually acceptable deadline, Transmission Owner shall deliver to Transmission Provider (if requested) and Interconnection Customer the “as-built” drawings, information and documents for the Transmission Owner’s Interconnection Facilities specified in Appendix C to this GIA. Such drawings, information and documents shall be deemed Confidential Information.

Upon completion, the Transmission Owner’s Interconnection Facilities and Stand Alone Network Upgrades shall be under the control of Transmission Provider or its designated representative.

5.11 Access Rights. Upon reasonable notice by a Party, and subject to any required or necessary regulatory approvals, a Party (“Granting Party”) shall furnish *at no cost* to the other Party (“Access Party”) any rights of use, licenses, rights of way and easements with respect to lands owned or controlled by the Granting Party, its agents (if allowed under the applicable agency agreement), or any Affiliate, that are necessary to enable the Access Party to obtain ingress and egress to construct, operate, maintain, repair, test (or witness testing), inspect, replace or remove facilities and equipment to: (i) interconnect the Generating Facility with the Transmission System; (ii) operate and maintain the Generating Facility, the Interconnection Facilities and the Transmission System; and (iii) disconnect or remove the Access Party’s facilities and equipment upon termination of this GIA. In exercising such licenses, rights of way and easements, the Access Party shall not unreasonably disrupt or interfere with normal operation of the Granting Party’s business and shall adhere to the safety rules and procedures established in advance, as may be changed from time to time, by the Granting Party and provided to the Access Party.

5.12 Lands of Other Property Owners. If any part of the Transmission Owner’s Interconnection Facilities, Network Upgrades, and/or Distribution Upgrades is to be installed on property owned by persons other than Interconnection Customer or Transmission Owner, Transmission Owner shall at Interconnection Customer’s expense use efforts, similar in nature and extent to those that it typically undertakes on its own behalf or on behalf of its Affiliates, including use of its eminent domain authority to the

extent permitted and consistent with Applicable Laws and Regulations and, to the extent consistent with such Applicable Laws and Regulations, to procure from such persons any rights of use, licenses, rights of way and easements that are necessary to construct, operate, maintain, test, inspect, replace or remove the Transmission Owner's Interconnection Facilities, Network Upgrades and/or Distribution Upgrades upon such property.

5.13 Permits. Transmission Provider or Transmission Owner and Interconnection Customer shall cooperate with each other in good faith in obtaining all permits, licenses and authorizations that are necessary to accomplish the interconnection in compliance with Applicable Laws and Regulations. With respect to this paragraph, Transmission Owner shall provide permitting assistance to Interconnection Customer comparable to that provided to the Transmission Owner's own, or an Affiliate's, generation to the extent that Transmission Owner or its Affiliate owns generation.

5.14 Early Construction of Base Case Facilities. (Includes facilities required for all queued projects with interconnection agreements). Interconnection Customer may request Transmission Owner to construct, and Transmission Owner shall construct, using Reasonable Efforts to accommodate Interconnection Customer's In-Service Date, all or any portion of any Network Upgrades, Transmission Owner's System Protection Facilities or Distribution Upgrades required for Interconnection Customer to be interconnected to the Transmission or Distribution System, as applicable, which are included in the Base Case of the Interconnection Facilities Study for Interconnection Customer, and which also are required to be constructed for another Interconnection Customer with a prior GIA, but where such construction is not scheduled to be completed in time to achieve Interconnection Customer's In-Service Date. Any such Network Upgrades, System Protection Facilities or Distribution Upgrades are included in the facilities to be constructed and as set forth in Appendix A to this GIA to the extent they are reasonably known.

5.15 Suspension.

5.15.1 Interconnection Customer's Right to Suspend for Force Majeure Event;

Obligations. Provided that such suspension is permissible under the authorizations, permits or approvals granted for the construction of such Interconnection Facilities, Network Upgrades or Stand Alone Network Upgrades, Interconnection Customer will not suspend unless a Force Majeure event occurs.

Interconnection Customer must provide written notice of its request for suspension to Transmission Provider and Transmission Owner, and provide a description of the Force Majeure event that is acceptable to Transmission Provider. Suspension will only apply to Interconnection Customer milestones and Interconnection Facilities described in the Appendices of this GIA. Prior to suspension, Interconnection Customer must also provide security acceptable to Transmission Owner, equivalent to the total cost of all Network Upgrades, Transmission Owner's System Protection Facilities, and Distribution Upgrades listed in Appendix A to this GIA. Network Upgrades and Transmission Owner's Interconnection Facilities will be constructed on the schedule described in the Appendices of this GIA unless: (1) construction is prevented by the order of a Governmental Authority; (2) the Network Upgrades are not needed by any other project; or (3) Transmission Owner or Transmission Provider determines that a Force Majeure event prevents construction. In the event of (1), (2), or (3) security shall be released upon the determination that the Network Upgrades will no longer be constructed.

If suspension occurs, the Transmission or Distribution System, as applicable, shall be left in a safe and reliable condition in accordance with Good Utility Practice and the Transmission Provider's and Transmission Owner's safety and reliability criteria. In such event, Interconnection Customer shall be responsible for all reasonable and necessary costs which Transmission Provider and Transmission Owner (i) have incurred pursuant to this GIA prior to the suspension and (ii) incur

in suspending such work, including any costs incurred to perform such work as may be necessary to ensure the safety of persons and property and the integrity of the Transmission or Distribution System, as applicable, during such suspension and, if applicable, any costs incurred in connection with the cancellation or suspension of material, equipment and labor contracts which Transmission Provider and Transmission Owner cannot reasonably avoid; provided, however, that prior to canceling or suspending any such material, equipment or labor contract, Transmission Provider and Transmission Owner shall obtain Interconnection Customer's authorization to do so.

Transmission Provider and Transmission Owner shall each invoice Interconnection Customer for such costs pursuant to Article 12 and shall use Reasonable Efforts to minimize its costs. In the event Interconnection Customer suspends work by Transmission Owner required under this GIA pursuant to this Article 5.15, and has not requested Transmission Owner to recommence the work required under this GIA on or before the expiration of three (3) years following commencement of such suspension, this GIA shall be deemed terminated. The three-year period shall begin on the date the suspension is requested, or the date of the written notice to Transmission Provider, if no effective date is specified.

5.15.2 Effect of Missed Interconnection Customer Milestones. If Interconnection Customer fails to provide notice of suspension pursuant to Article 5.15, and Interconnection Customer fails to fulfill or complete any Interconnection Customer Milestone provided in Appendix B ("Milestone"), this constitutes a Breach under this GIA. Depending upon the consequences of the Breach and effectiveness of the cure pursuant to Article 17, the Transmission Owners' Milestones may be revised, following consultation with Interconnection Customer, consistent with Reasonable Efforts, and in consideration of all relevant circumstances. Parties shall employ Reasonable Efforts to maintain their remaining respective Milestones.

5.15.3 Effect of Suspension; Parties Obligations. In the event that Interconnection Customer suspends work pursuant to this Article 5.15, no construction duration, timelines and schedules set forth in Appendix B to this GIA shall be suspended during the period of suspension unless ordered by a Governmental Authority, with such order being the Force Majeure event causing the suspension. Should Interconnection Customer request that work be recommenced, Transmission Owner shall be obligated to proceed with Reasonable Efforts and in consideration of all relevant circumstances including regional outage schedules, construction availability and material procurement in performing the work as described in Appendix A and Appendix B to this GIA. Transmission Owner will provide Interconnection Customer with a revised schedule for the design, procurement, construction, installation and testing of the Transmission Owner's Interconnection Facilities and Network Upgrades. Upon any suspension by Interconnection Customer pursuant to Article 5.15, Interconnection Customer shall be responsible for only those costs specified in this Article 5.15.

5.16 Taxes.

5.16.1 Interconnection Customer Payments Not Taxable. The Parties intend that all payments or property transfers made by Interconnection Customer to Transmission Owner for the installation of the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades and Generator Upgrades shall be non-taxable, either as contributions to capital, or as an advance, in accordance with the Internal Revenue Code and any applicable state income tax laws and shall not be taxable as contributions in aid of construction or otherwise under the Internal Revenue Code and any applicable state income tax laws. Any payment made by Interconnection Customer to Transmission Owner for Network Upgrades is to be treated as an upfront payment in accordance with Rev Proc 2005-35.

5.16.2 Representations and Covenants. In accordance with IRS Notice 2001-82 and IRS Notice 88-129, Interconnection Customer represents and covenants that

(i) ownership of the electricity generated at the Generating Facility will pass to another party prior to the transmission of the electricity on the Transmission System, (ii) for income tax purposes, the amount of any payments and the cost of any property transferred to Transmission Owner for the Transmission Owner's Interconnection Facilities will be capitalized by Interconnection Customer as an intangible asset and recovered using the straight-line method over a useful life of twenty (20) years, and (iii) any portion of the Transmission Owner's Interconnection Facilities that is a "dual-use intertie," within the meaning of IRS Notice 88-129, is reasonably expected to carry only a de minimis amount of electricity in the direction of the Generating Facility. For this purpose, "de minimis amount" means no more than 5 percent of the total power flows in both directions, calculated in accordance with the "5 percent test" set forth in IRS Notice 88-129. This is not intended to be an exclusive list of the relevant conditions that must be met to conform to IRS requirements for non-taxable treatment.

At Transmission Owner's request, Interconnection Customer shall provide Transmission Owner with a report from an independent engineer confirming its representation in clause (iii), above, with a copy to Transmission Provider. Transmission Owner represents and covenants that the cost of the Transmission Owner's Interconnection Facilities paid for by Interconnection Customer will have no net effect on the base upon which rates are determined. In the event that Transmission Owner believes that the interconnection payment from Interconnection Customer will adversely affect Transmission Owner's tax-exempt status, then Transmission Owner shall have the right to collect an appropriate tax gross up payment from Interconnection Customer, pursuant to the procedures in section 5.16.3.

5.16.3 Indemnification for the Cost Consequences of Current Tax Liability Upon Transmission Owner. Notwithstanding Article 5.16.1 and to the extent permitted by law, Interconnection Customer shall protect, indemnify and hold harmless

Transmission Owner from the cost consequences of any tax liability imposed against Transmission Owner as the result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA for Interconnection Facilities, as well as any interest and penalties, other than interest and penalties attributable to any delay caused by Transmission Owner.

In the event that Transmission Owner has required Interconnection Customer to provide security for Interconnection Facilities in accordance with section 5.16.2, such security shall be in a form reasonably acceptable to Transmission Owner (such as a parental guarantee or a letter of credit), in an amount equal to the cost consequences or any current tax liability under this Article 5.16. Interconnection Customer shall reimburse Transmission Owner for such costs on a fully grossed-up basis, in accordance with Article 5.16.4, within thirty (30) Calendar Days of receiving written notification from Transmission Owner of the amount due, including detail about how the amount was calculated.

The indemnification obligation shall terminate at the earlier of (1) the expiration of the ten-year testing period and the applicable statute of limitation, as it may be extended by Transmission Owner upon request of the IRS, to keep these years open for audit or adjustment, or (2) the occurrence of a subsequent taxable event and the payment of any related indemnification obligations as contemplated by this Article 5.16.

5.16.4 Tax Gross-Up Amount. Interconnection Customer's liability for the cost consequences of any current tax liability under this Article 5.16 shall be calculated on a fully grossed-up basis. Except as may otherwise be agreed to by the parties, this means that Interconnection Customer will pay Transmission Owner, in addition to the amount paid for the Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades, an amount equal to (1) the current taxes imposed on Transmission Owner ("Current Taxes") on the excess of (a) the gross income realized by Transmission

Owner as a result of payments or property transfers made by Interconnection Customer to Transmission Owner under this GIA (without regard to any payments under this Article 5.16) (the “Gross Income Amount”) over (b) the present value of future tax deductions for depreciation that will be available as a result of such payments or property transfers (the “Present Value Depreciation Amount”), plus (2) an additional amount sufficient to permit Transmission Owner to receive and retain, after the payment of all Current Taxes, an amount equal to the net amount described in clause (1).

For this purpose, (i) Current Taxes shall be computed based on Transmission Owner’s composite federal and state tax rates at the time the payments or property transfers are received and Transmission Owner will be treated as being subject to tax at the highest marginal rates in effect at that time (the “Current Tax Rate”), and (ii) the Present Value Depreciation Amount shall be computed by discounting Transmission Owner’s anticipated tax depreciation deductions as a result of such payments or property transfers by Transmission Owner’s current weighted average cost of capital. Thus, the formula for calculating Interconnection Customer’s liability to Transmission Owner pursuant to this Article 5.16.4 can be expressed as follows: $(\text{Current Tax Rate} \times (\text{Gross Income Amount} - \text{Present Value of Tax Depreciation})) / (1 - \text{Current Tax Rate})$. Interconnection Customer’s estimated tax liability in the event taxes are imposed shall be stated in Appendix A to this GIA, Interconnection Facilities, Network Upgrades and Distribution Upgrades.

5.16.5 Subsequent Taxable Events. If, within 10 years from the date on which the relevant Transmission Owner’s Interconnection Facilities are placed in service, (i) Interconnection Customer breaches the covenant contained in Article 5.16.2, (ii) a “disqualification event” occurs within the meaning of IRS Notice 88-129, or (iii) this GIA terminates and Transmission Owner retains ownership of the Interconnection Facilities, Network Upgrades, Transmission Owner’s System Protection Facilities, and/or Distribution Upgrades, Interconnection Customer

shall pay a tax gross-up for the cost consequences of any current tax liability imposed on Transmission Owner, calculated using the methodology described in Article 5.16.4 and in accordance with IRS Notice 90-60.

5.16.6 Contests. In the event any Governmental Authority determines that Transmission Owner's receipt of payments or property constitutes income that is subject to taxation, Transmission Owner shall notify Interconnection Customer, in writing, within thirty (30) Calendar Days of receiving notification of such determination by a Governmental Authority. Upon the timely written request by Interconnection Customer and at Interconnection Customer's sole expense, Transmission Owner may appeal, protest, seek abatement of, or otherwise oppose such determination. Upon Interconnection Customer's written request and sole expense, Transmission Owner shall file a claim for refund with respect to any taxes paid under this Article 5.16, whether or not it has received such a determination. Transmission Owner reserves the right to make all decisions with regard to the prosecution of such appeal, protest, abatement or other contest, including the selection of counsel and compromise or settlement of the claim, but Transmission Owner shall keep Interconnection Customer informed, shall consider in good faith suggestions from Interconnection Customer about the conduct of the contest, and shall reasonably permit Interconnection Customer or an Interconnection Customer representative to attend contest proceedings.

Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement or other contest. At any time during the contest, Transmission Owner may agree to a settlement either with Interconnection Customer's consent or after obtaining written advice from nationally-recognized tax counsel, selected by Transmission Owner, but reasonably acceptable to Interconnection Customer, that the proposed settlement represents a reasonable settlement given the hazards of litigation. Interconnection Customer's obligation shall be based on the amount of the settlement agreed to by

Interconnection Customer, or if a higher amount, so much of the settlement that is supported by the written advice from nationally-recognized tax counsel selected under the terms of the preceding sentence. The settlement amount shall be calculated on a fully grossed-up basis to cover any related cost consequences of the current tax liability. Any settlement without Interconnection Customer's consent or such written advice will relieve Interconnection Customer from any obligation to indemnify Transmission Owner for the tax at issue in the contest.

5.16.7 Refund. In the event that (a) a private letter ruling is issued to Transmission Owner which holds that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not subject to federal income taxation, (b) any legislative change or administrative announcement, notice, ruling or other determination makes it reasonably clear to Transmission Owner in good faith that any amount paid or the value of any property transferred by Interconnection Customer to Transmission Owner under the terms of this GIA is not taxable to Transmission Owner, (c) any abatement, appeal, protest, or other contest results in a determination that any payments or transfers made by Interconnection Customer to Transmission Owner are not subject to federal income tax, or (d) if Transmission Owner receives a refund from any taxing authority for any overpayment of tax attributable to any payment or property transfer made by Interconnection Customer to Transmission Owner pursuant to this GIA, Transmission Owner shall promptly refund to Interconnection Customer the following:

(i) any payment made by Interconnection Customer under this Article 5.16 for taxes that is attributable to the amount determined to be non-taxable, together with interest thereon,

(ii) interest on any amounts paid by Interconnection Customer to Transmission Owner for such taxes which Transmission Owner did not submit to the taxing authority, calculated in accordance with the

methodology set forth in 18 C.F.R. Section 35.19a(a)(2)(iii) from the date payment was made by Interconnection Customer to the date Transmission Owner refunds such payment to Interconnection Customer, and

(iii) with respect to any such taxes paid by Transmission Owner, any refund or credit Transmission Owner receives or to which it may be entitled from any Governmental Authority, interest (or that portion thereof attributable to the payment described in clause (i), above) owed to Transmission Owner for such overpayment of taxes (including any reduction in interest otherwise payable by Transmission Owner to any Governmental Authority resulting from an offset or credit); provided, however, that Transmission Owner will remit such amount promptly to Interconnection Customer only after and to the extent that Transmission Owner has received a tax refund, credit or offset from any Governmental Authority for any applicable overpayment of income tax related to the Transmission Owner's Interconnection Facilities.

The intent of this provision is to leave both parties, to the extent practicable, in the event that no taxes are due with respect to any payment for Interconnection Facilities and Network Upgrades hereunder, in the same position they would have been in had no such tax payments been made.

5.16.8 Taxes Other Than Income Taxes. Upon the timely request by Interconnection Customer, and at Interconnection Customer's sole expense, Transmission Owner shall appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against Transmission Owner for which Interconnection Customer may be required to reimburse Transmission Owner under the terms of this GIA. Interconnection Customer shall pay to Transmission Owner on a periodic basis, as invoiced by Transmission Owner, Transmission Owner's documented reasonable costs of prosecuting such appeal,

protest, abatement, or other contest. Interconnection Customer and Transmission Owner shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by Interconnection Customer to Transmission Owner for such taxes until they are assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal, Interconnection Customer will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by Transmission Owner.

5.17 Tax Status. Each Party shall cooperate with the other Parties to maintain each Party's tax status. Nothing in this GIA is intended to adversely affect any Party's tax-exempt status with respect to the issuance of bonds including, but not limited to, Local Furnishing Bonds.

5.18 Modification.

5.18.1 General. Either Party may undertake modifications to its facilities. If a Party plans to undertake a modification that reasonably may be expected to affect the other Party's facilities, that Party shall provide to the other Party sufficient information regarding such modification so that the other Party may evaluate the potential impact of such modification prior to commencement of the work. Such information shall be deemed to be Confidential Information hereunder and shall include information concerning the timing of such modifications and whether such modifications are expected to interrupt the flow of electricity from the Generating Facility. The Party desiring to perform such work shall provide the relevant drawings, plans, and specifications to the other Party at least ninety (90) Calendar Days in advance of the commencement of the work or such shorter period upon which the Parties may agree, which agreement shall not unreasonably be withheld, conditioned or delayed.

In the case of Generating Facility modifications that do not require Interconnection Customer to submit an Interconnection Request, Transmission Provider shall provide, within thirty (30) Calendar Days (or such other time as the Parties may agree), an estimate of any additional modifications to the Transmission or Distribution System as applicable, Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, and/or Distribution Upgrades necessitated by such Interconnection Customer modification and a good faith estimate of the costs thereof which shall be the responsibility of Interconnection Customer.

5.18.2 Standards. Any additions, modifications, or replacements made to a Party's facilities shall be designed, constructed and operated in accordance with this GIA and Good Utility Practice.

5.18.3 Modification Costs. Interconnection Customer shall not be directly assigned the costs of any additions, modifications, or replacements that Transmission Owner makes to the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities, Distribution Upgrades, or the Transmission or Distribution System, as applicable, to facilitate the interconnection of a third party to the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, or to provide transmission service to a third party under the Tariff. Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to the Interconnection Customer's Interconnection Facilities that may be necessary to maintain or upgrade such Interconnection Customer's Interconnection Facilities consistent with Applicable Laws and Regulations, Applicable Reliability Standards or Good Utility Practice.

ARTICLE 6. TESTING AND INSPECTION

- 6.1 Pre-Commercial Operation Date Testing and Modifications.** Prior to the Commercial Operation Date, Transmission Owner shall test the Transmission Owner's Interconnection Facilities, Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades, and Interconnection Customer shall test each electric production device at the Generating Facility, Interconnection Customer's System Protection Facilities and the Interconnection Customer's Interconnection Facilities to ensure their safe and reliable operation. Similar testing may be required after initial operation. Transmission Owner and Interconnection Customer shall make any modifications to their respective facilities that are found to be necessary as a result of such testing. Interconnection Customer shall bear the cost of all such testing and modifications. Interconnection Customer shall generate test energy at the Generating Facility only if it has arranged for the delivery of such test energy.
- 6.2 Post-Commercial Operation Date Testing and Modifications.** Unless stated otherwise in this GIA, each Party shall at its own expense perform routine inspection and testing of its facilities and equipment in accordance with Good Utility Practice as may be necessary to ensure the continued interconnection of the Generating Facility with the Transmission or Distribution System, as applicable, in a safe and reliable manner. Each Party shall have the right, upon advance written notice, to require reasonable additional testing of the Interconnection Facilities, at the requesting Party's expense, as may be in accordance with Good Utility Practice.
- 6.3 Right to Observe Testing.** Each Party shall notify the other Parties in advance of its performance of tests of its Interconnection Facilities. The other Parties shall each have the right, at its own expense, to observe such testing.
- 6.4 Right to Inspect.** Each Party shall have the right, but shall have no obligation to:
- (i) observe the other party's tests and/or inspection of any of its respective System Protection Facilities and other protective equipment, including power system stabilizers;
 - (ii) review the settings of the other Party's System Protection Facilities and other protective equipment; and
 - (iii) review the other Party's maintenance records relative to the

Interconnection Facilities, the System Protection Facilities and other protective equipment. A Party may exercise these rights from time to time as it deems necessary upon reasonable notice to the other Party. The exercise or non-exercise by a Party of any such rights shall not be construed as an endorsement or confirmation of any element or condition of the Interconnection Facilities or the System Protection Facilities or other protective equipment or the operation thereof, or as a warranty as to the fitness, safety, desirability, or reliability of same. Any information that a Party obtains through the exercise of any of its rights under this Article 6.4 shall be deemed to be Confidential Information and treated pursuant to Article 22 of this GIA.

ARTICLE 7. METERING

7.1 General. Each Party shall comply with the Applicable Reliability Council requirements. Unless otherwise agreed by the Parties, Transmission Owner, at its election, or otherwise Interconnection Customer, shall install Metering Equipment (the “Metering Party”) at the Point of Interconnection, or at a more advantageous point and compensated to the Point of Interconnection, prior to any operation of the Generating Facility and Transmission Owner, at its election, or otherwise Interconnection Customer shall own, operate, test and maintain such Metering Equipment. Metering Equipment shall include both a primary meter and associated meter accuracy CTs and PTs and a secondary redundant meter and associated meter accuracy CTs. Power flows to and from the Generating Facility shall be measured at or, at the Metering Party’s option, compensated to, the Point of Interconnection. If Transmission Owner’s Local Balancing Authority Operator requires the metering information for LBA purposes be on a meter owned by the LBA Operator, that meter will be the primary meter as part of the Metering Equipment, with the Transmission Owner owning the secondary meter portion of the Metering Equipment. The Metering Party shall provide metering quantities, in analog and/or digital form, to the other Party upon request. Interconnection Customer shall bear all costs associated with the purchase, installation, operation, testing and maintenance of the Metering Equipment.

7.2 Back-Up Metering. Interconnection Customer, at its option and expense, may install and operate, on its premises and on its side of the Point of Change of Ownership, one or more back-up meters to check the Metering Equipment owned by the Metering Party. Such Back-Up Metering shall be for check purposes only and shall not be used for the measurement of power flows for purposes of this GIA, except as provided in Article 7.4 below. The back-up meters shall be subject at all reasonable times to inspection and examination by Transmission Owner or its designee. The installation, operation and maintenance thereof shall be performed entirely by Interconnection Customer and shall be performed in a manner mutually acceptable to the Parties.

Interconnection Customer, at its own expense, shall inspect and test Back-Up Metering upon installation and at least annually thereafter. Interconnection Customer shall provide the Transmission Owner with reasonable advance notice of, and permit a representative to witness and verify such inspections and tests. Upon request, the Interconnection Customer shall perform additional inspections or tests of Back-Up Metering and shall permit a qualified representative of the Transmission Owner to inspect or witness the testing of the Back-Up Metering. The actual expense of any such requested additional inspection or testing shall be borne by the Party requesting the test, unless, upon such inspection or testing, Back-Up Metering is found to register inaccurately by more than the allowable limits established in this Article, in which event the expense of the requested additional inspection or testing shall be borne by the Interconnection Customer. If requested in writing, the Interconnection Customer shall provide copies of any inspection or testing reports to the Transmission Owner.

All Metering Equipment and Back-Up Metering shall be installed and maintained by Transmission Owner or its agent or Interconnection Customer, as applicable, in accordance with Good Utility Practices. If either Transmission Owner or Interconnection Customer discovers that any Metering Equipment or Back-Up Metering are defective or inaccurate, the Party that installed such Metering Equipment or Back-Up Metering shall be responsible for adjusting, repairing, replacing, and/or recalibrating as near as practicable to a condition of zero error at Interconnection Customer's expense and to the Transmission Owner's

reasonable satisfaction.

7.3 Standards. The Metering Party shall install, calibrate, and test revenue quality Metering Equipment in accordance with applicable ANSI standards.

7.4 Testing of Metering Equipment. The Metering Party shall inspect and test Metering Equipment upon installation and at least once annually thereafter. If requested to do so by a Party, the Metering Party shall, at the requesting Party's expense, inspect or test Metering Equipment more frequently. The Metering Party shall give reasonable notice to the other Party of the time when any inspection or test shall take place, and the other Party may have representatives present at the test or inspection. If at any time Metering Equipment is found to be inaccurate or defective, it shall be adjusted, repaired or replaced at Interconnection Customer's expense, in order to provide accurate metering, unless the inaccuracy or defect is due to the Metering Party's failure to maintain, then the Metering Party shall pay. If primary Metering Equipment fails to register, or if the measurement made during a test varies by more than one half of one percent (0.5%) from the measurement made by the standard meter used in the test, the Metering Party shall adjust the measurements by correcting all measurements for the period during which Metering Equipment was in error by using the secondary Metering Equipment. If both primary and secondary Metering Equipment fails to register, or if the measurement made by both primary and secondary Metering Equipment during a test varies by more than one half of one percent (0.5%) from the measurement made by the standard meter used in the test, the Metering Party shall adjust the measurements by correcting all measurements for the period during which Metering Equipment was in error by using Interconnection Customer's Back-Up Metering, if installed, provided, however, that Back-Up Metering has been tested and maintained in accordance with the provisions of this Article. If Back-Up Metering is installed at a location other than at the Point of Interconnection, Back-Up Metering data shall be adjusted for losses.

If no such Back-Up Metering is installed or if the period cannot be reasonably ascertained, the Parties shall estimate the amount of the necessary adjustment on the basis of deliveries

of Net Output from the Facility and to the Point of Delivery during periods of similar operating conditions when the Metering Equipment was registering accurately. The adjustment shall be made for the period during which inaccurate measurements were made. In the event that the Parties cannot agree on the actual period during which the inaccurate measurements were made, the period during which the measurements are to be adjusted shall be the shorter of (i) the last one-half of the period from the last previous test of the Metering Equipment to the test that found the Metering Equipment to be defective or inaccurate, or (ii) the one hundred eighty (180) Days immediately preceding the test that found the Electric Metering Device to be defective or inaccurate.

7.5 Metering Data. At Interconnection Customer's expense, the metered data shall be telemetered to one or more locations designated by Transmission Provider and Transmission Owner and one or more locations designated by Interconnection Customer. Such telemetered data shall be used, under normal operating conditions, as the official measurement of the amount of energy delivered from the Generating Facility to the Point of Interconnection.

ARTICLE 8. COMMUNICATIONS

8.1 Interconnection Customer Obligations. Interconnection Customer shall maintain satisfactory operating communications with Transmission Provider's, or its agent's, Transmission System dispatcher or representative designated by Transmission Provider. Interconnection Customer shall provide standard voice line, dedicated voice line and facsimile communications at its Generating Facility control room or central dispatch facility through use of either the public telephone system, or a voice communications system that does not rely on the public telephone system. Interconnection Customer shall also provide the dedicated data circuit(s) necessary to provide Interconnection Customer data to Transmission Provider as set forth in Appendix D, Security Arrangements Details. The data circuit(s) shall extend from the Generating Facility to the location(s) specified by Transmission Provider. Any required maintenance of such communications equipment shall be performed by and at the cost of Interconnection Customer. Operational

communications shall be activated and maintained under, but not be limited to, the following events: system paralleling or separation, scheduled and unscheduled shutdowns, equipment clearances, and hourly and daily load data.

Unless the Generating Facility is an Intermittent Resource not relying on wind as a fuel source, Interconnection Customer shall install communication and control equipment such that the Generating Facility can receive and respond to the appropriate dispatch signals from MISO. Where applicable, the requirements of the communication and control equipment will be enumerated in Appendix C to this GIA.

8.2 Remote Terminal Unit (RTU). Prior to the Initial Synchronization Date of the Generating Facility, a remote terminal unit(s), or equivalent data collection and transfer equipment acceptable to both Parties, shall be installed by Transmission Owner at Interconnection Customer's expense, to gather accumulated and instantaneous data to be telemetered to the location(s) designated by Transmission Owner and Transmission Provider through use of a dedicated point-to-point data circuit(s) as indicated in Article 8.1. The communication protocol for the data circuit(s) shall be specified by Transmission Owner and Transmission Provider. Instantaneous bi-directional analog real power and reactive power flow information must be telemetered directly to the location(s) specified by Transmission Provider and Transmission Owner. An additional separate and independent RTU will be installed to meet Transmission Owner's Local Balancing Authority Operator requirements for metering information for LBA purposes.

Each Party will promptly advise the other Party if it detects or otherwise learns of any metering, telemetry or communications equipment errors or malfunctions that require the attention and/or correction by the other Party. The Party owning such equipment shall correct such error or malfunction as soon as reasonably feasible.

8.3 No Annexation. Any and all equipment placed on the premises of a Party shall be and remain the property of the Party providing such equipment regardless of the mode and

manner of annexation or attachment to real property, unless otherwise mutually agreed by the Parties.

8.4 Provision of Data from a Variable Energy Resource. The Interconnection Customer whose Generating Facility is a Variable Energy Resource shall provide meteorological and forced outage data to the Transmission Provider to the extent necessary for the Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. The Interconnection Customer with a Variable Energy Resource having wind as the energy source will, upon request by the Transmission Provider, be required to provide the Transmission Provider with site-specific meteorological data including: temperature, wind speed, wind direction, and atmospheric pressure. The Interconnection Customer with a Variable Energy Resource having solar as the energy source will, upon request by the Transmission Provider, be required to provide the Transmission Provider with site-specific meteorological data including: temperature, atmospheric pressure, and irradiance. The Transmission Provider and Interconnection Customer whose Generating Facility is a Variable Energy Resource shall mutually agree to any additional meteorological data that are required for the development and deployment of a power production forecast. The Interconnection Customer whose Generating Facility is a Variable Energy Resource also shall submit data to the Transmission Provider regarding all forced outages to the extent necessary for the Transmission Provider's development and deployment of power production forecasts for that class of Variable Energy Resources. The exact specifications of the meteorological and forced outage data to be provided by the Interconnection Customer to the Transmission Provider, including the frequency and timing of data submittals, shall be made taking into account the size and configuration of the Variable Energy Resource, its characteristics, location, and its importance in maintaining generation resource adequacy and transmission system reliability in its area. All requirements for meteorological and forced outage data must be commensurate with the power production forecasting employed by the Transmission Provider. Data requirements for meteorological and forced outage data are set forth in Appendix C, Interconnection Details.

ARTICLE 9. OPERATIONS

- 9.1 General.** Each Party shall comply with the Applicable Reliability Council requirements. Each Party shall provide to the other Party all information that may reasonably be required by the other Party to comply with Applicable Laws and Regulations and Applicable Reliability Standards.
- 9.2 Local Balancing Authority Notification.** At least three (3) months before Initial Synchronization Date, Interconnection Customer shall notify Transmission Provider and Transmission Owner in writing of the Local Balancing Authority in which the Generating Facility will be located. If Interconnection Customer elects to locate the Generating Facility through dynamic metering/scheduling in a Local Balancing Authority other than the Local Balancing Authority in which the Generating Facility is physically located, and if permitted to do so by the relevant transmission tariffs, all necessary arrangements, including but not limited to those set forth in Article 7 and Article 8 of this GIA, and remote Local Balancing Authority generator interchange agreements, if applicable, and the appropriate measures under such agreements, shall be executed and implemented prior to the placement of the Generating Facility in the other Local Balancing Authority.
- 9.3 Transmission Provider Obligations.** Transmission Provider shall cause the Transmission System and the Transmission Owner's Interconnection Facilities to be operated, maintained and controlled in a safe and reliable manner in accordance with this GIA. Transmission Provider, or its designee, may provide operating instructions to Interconnection Customer consistent with this GIA and the Tariff and, if applicable, Transmission Owner's operating protocols and procedures as they may change from time to time. Transmission Provider will consider changes to its operating protocols and procedures proposed by Interconnection Customer.
- 9.4 Interconnection Customer Obligations.** Interconnection Customer shall at its own expense operate, maintain and control the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with

this GIA. The Generating Facility must be operated in accordance with the operating limits, if any, in the Interconnection Facilities Study and specified in Appendix C to this GIA. Interconnection Customer shall operate the Generating Facility and the Interconnection Customer's Interconnection Facilities in accordance with all applicable requirements of Transmission Provider or its designated Local Balancing Authority Operator of which the Generating Facility is part, as such requirements are set forth in Appendix C, Interconnection Details. Appendix C, Interconnection Details, will be modified to reflect changes to the requirements as they may change from time to time. Any Party may request that a Party provide copies of the requirements set forth in Appendix C, Interconnection Details.

9.5 Start-Up and Synchronization. Consistent with the Parties' mutually acceptable procedures, Interconnection Customer is responsible for the proper synchronization of the Generating Facility to the Transmission or Distribution System, as applicable.

9.6 Reactive Power.

9.6.1 Power Factor Design Criteria.

9.6.1.1 Synchronous Generation. Interconnection Customer shall design the Generating Facility maintain a composite power delivery at continuous rated power output at the Point of Interconnection at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all synchronous generators in the Local Balancing Authority on a comparable basis.

The Generating Facility shall be capable of continuous dynamic operation throughout the power factor design range as measured at the Point of Interconnection. Such operation shall account for the net effect of all energy production devices on the Interconnection Customer's side of the Point of Interconnection.

9.6.1.2 Non-Synchronous Generation. Interconnection Customer shall design the Generating Facility to maintain a composite power delivery at continuous rated power output at the high-side of the generator substation at all power factors over 0.95 leading to 0.95 lagging, unless the Transmission Provider has established different requirements that apply to all non-synchronous generators in the Local Balancing Authority on a comparable basis. This power factor range standard shall be dynamic and can be met using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors, or a combination of the two. This requirement shall only apply to newly interconnecting non-synchronous generators that have not yet completed an Interconnection System Impact Study as of the effective date of the Final Rule establishing this requirement (Order No. 827). These requirements will be memorialized in Appendix C to this GIA.

9.6.2 Voltage Schedules. Once Interconnection Customer has synchronized the Generating Facility with the Transmission System, Transmission Provider shall require Interconnection Customer to operate the Generating Facility to produce or absorb reactive power within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria), to maintain the output voltage or power factor at the Point of Interconnection as specified by Transmission Provider. Transmission Provider's voltage schedules shall treat all sources of reactive power in the Local Balancing Authority in an equitable and not unduly discriminatory manner. Transmission Provider shall exercise Reasonable Efforts to provide Interconnection Customer with such schedules at least one (1) Calendar Day in advance, and may make changes to such schedules as necessary to maintain the reliability of the Transmission or Distribution System as applicable. Interconnection Customer shall operate the Generating Facility to maintain the specified output voltage or power factor at the Point of

Interconnection within the design limitations of the Generating Facility set forth in Article 9.6.1 (Power Factor Design Criteria). If Interconnection Customer is unable to maintain the specified voltage or power factor, it shall promptly notify Transmission Provider's system operator, or its designated representative.

9.6.2.1 Governors and Regulators. Whenever the Generating Facility is operated in parallel with the Transmission or Distribution System as applicable and the speed governors (if installed on the generating unit pursuant to Good Utility Practice) and voltage regulators are capable of operation, Interconnection Customer shall operate the Generating Facility with its speed governors and voltage regulators in automatic operation. If the Generating Facility's speed governors and voltage regulators are not capable of such automatic operation, Interconnection Customer shall immediately notify Transmission Provider's system operator, or its designated representative, and ensure that such Generating Facility's reactive power production or absorption (measured in MVARs) are within the design capability of the Generating Facility's generating unit(s) and steady state stability limits. Interconnection Customer shall not cause its Generating Facility to disconnect automatically or instantaneously from the Transmission or Distribution System, as applicable, or trip any generating unit comprising the Generating Facility for an under or over frequency condition unless the abnormal frequency condition persists for a time period beyond the limits set forth in ANSI/IEEE Standard C37.106, or such other standard as applied to other generators in the Local Balancing Authority on a comparable basis.

9.6.3 Payment for Reactive Power. Transmission Provider shall only pay for reactive power if Interconnection Customer and Transmission Owner reach agreement on rate. Otherwise, if reactive power is not purchased by the Transmission Owner from the Facilities, Interconnection Customer shall have the right to sell reactive power to MISO or other utility of the Interconnection Customer's choosing.

9.7 Outages and Interruptions.

9.7.1 Outages.

9.7.1.1 Outage Authority and Coordination. Each party may in accordance with Good Utility Practice in coordination with the other Party remove from service any of its respective Interconnection Facilities, System Protection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades that may impact the other Party's facilities as necessary to perform maintenance or testing or to install or replace equipment. Absent an Emergency Condition, the Party scheduling a removal of such facility(ies) from service will use Reasonable Efforts to notify the other party and schedule such removal on a date and time mutually acceptable to the Parties. In all circumstances, any Party planning to remove such facility(ies) from service shall use Reasonable Efforts to minimize the effect on the other Party of such removal.

9.7.1.2 Outage Schedules. Transmission Provider or its agent shall notify Interconnection Customer within a reasonable time prior to any scheduled outages of transmission facilities. Interconnection Customer shall submit its planned maintenance schedules for the Generating Facility to Transmission Provider and Transmission Owner for a minimum of a rolling twenty-four (24) month period in accordance with the Transmission Provider's procedures. Interconnection Customer shall update its planned maintenance schedules as necessary. Transmission Provider may request Interconnection Customer to reschedule its maintenance as necessary to maintain the reliability of the Transmission System; provided, however, adequacy of generation supply shall not be a criterion in determining Transmission System reliability.

9.7.1.3 Outage Restoration. If an outage on either the Interconnection Customer's or Transmission Owner's Interconnection Facilities, Network Upgrades, System Protection Facilities or Distribution Upgrades adversely affects the other Party's operations or facilities, the Party that owns or controls the facility that is out of service shall use Reasonable Efforts to promptly restore such facility(ies) to a normal operating condition consistent with the nature of the outage. The Party that owns or controls the facility that is out of service shall provide the other Party, to the extent such information is known, information on the nature of the Emergency Condition, an estimated time of restoration, and any corrective actions required. Initial verbal notice shall be followed up as soon as practicable with written notice to the other Party explaining the nature of the outage.

9.7.2 Interruption of Service. If required by Good Utility Practice to do so, Transmission Provider may require Interconnection Customer to interrupt or reduce deliveries of electricity if such delivery of electricity could adversely affect Transmission Provider's ability to perform such activities as are necessary to safely and reliably operate and maintain the Transmission System. The following provisions shall apply to any interruption or reduction permitted under this Article 9.7.2:

9.7.2.1 The interruption or reduction shall continue only for so long as reasonably necessary under Good Utility Practice;

9.7.2.2 Any such interruption or reduction shall be made on an equitable, non-discriminatory basis with respect to all generating facilities directly connected to the Transmission or Distribution System, as applicable;

9.7.2.3 When the interruption or reduction must be made under circumstances which do not allow for advance notice, Transmission Provider shall notify Interconnection Customer by telephone as soon as practicable of the

reasons for the curtailment, interruption, or reduction, and, if known, its expected duration. Telephone notification shall be followed by written notification as soon as practicable;

9.7.2.4 Except during the existence of an Emergency Condition, when the interruption or reduction can be scheduled without advance notice, Transmission Provider shall notify Interconnection Customer in advance regarding the timing of such scheduling and further notify Interconnection Customer of the expected duration. Transmission Provider shall coordinate with Interconnection Customer using Good Utility Practice to schedule the interruption or reduction during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider;

9.7.2.5 The Parties shall cooperate and coordinate with each other to the extent necessary in order to restore the Generating Facility, Interconnection Facilities, and the Transmission or Distribution System, as applicable to their normal operating state, consistent with system conditions and Good Utility Practice.

9.7.3 Under-Frequency, Over-Frequency, Under-Voltage, and Over-Voltage Conditions. The Transmission System is designed to automatically activate a load-shed program as required by the Applicable Reliability Council in the event of an under-frequency or under-voltage system disturbance. Interconnection Customer shall implement under-frequency, over-frequency, under-voltage, and over-voltage relay set points for the Generating Facility as required by the Applicable Reliability Council to ensure “ride through” capability of the Transmission System. Generating Facilities that are not required to implement under-frequency, over-frequency, under-voltage, and over-voltage relays as directed by the Applicable Reliability Council shall implement such relays with set points according to guidelines published by the Applicable Reliability Council.

Generating Facility response to frequency and/or voltage deviations of pre-determined magnitudes, including under-frequency, over-frequency, under-voltage, and over-voltage, shall be studied and coordinated with Transmission Provider in accordance with Good Utility Practice. The term “ride through” as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the Transmission System during system disturbances within a range of under-frequency, over-frequency, under-voltage, and over-voltage conditions, in accordance with Good Utility Practice.

9.7.4 System Protection and Other Control Requirements.

9.7.4.1 System Protection Facilities. Interconnection Customer shall, at its expense, install, operate and maintain its System Protection Facilities as a part of the Generating Facility or the Interconnection Customer’s Interconnection Facilities. Transmission Owner shall install at Interconnection Customer’s expense any Transmission Owner’s System Protection Facilities that may be required on the Transmission Owner’s Interconnection Facilities or the Transmission Owner’s transmission or distribution facilities as a result of the interconnection of the Generating Facility and the Interconnection Customer’s Interconnection Facilities.

9.7.4.2 Interconnection Customer’s and Transmission Owner’s System Protection Facilities shall be designed and coordinated with Affected Systems in accordance with Good Utility Practice.

9.7.4.3 Each Party shall be responsible for protection of its facilities consistent with Good Utility Practice.

9.7.4.4 Each Party’s protective relay design shall incorporate the necessary test switches to perform the tests required in Article 6. The required test switches will be placed such that they allow operation of lockout relays

while preventing breaker failure schemes from operating and causing unnecessary breaker operations and/or the tripping of the Generating Facility.

9.7.4.5 Each Party will test, operate and maintain their respective System Protection Facilities in accordance with Good Utility Practice and Applicable Reliability Standards.

9.7.4.6 Prior to the In-Service Date, and again prior to the Commercial Operation Date, Interconnection Customer or Transmission Owner, or their respective agents, shall perform a complete calibration test and functional trip test of the System Protection Facilities. At intervals suggested by Good Utility Practice and following any apparent malfunction of the System Protection Facilities, Interconnection Customer or Transmission Owner shall each perform both calibration and functional trip tests of their respective System Protection Facilities. These tests do not require the tripping of any in-service generating unit. These tests do, however, require that all protective relays and lockout contacts be activated.

9.7.5 Requirements for Protection. In compliance with Good Utility Practice, Interconnection Customer shall provide, install, own, and maintain relays, circuit breakers and all other devices necessary to remove any fault contribution of the Generating Facility to any short circuit occurring on the Transmission or Distribution System, as applicable, not otherwise isolated by Transmission Owner's equipment, such that the removal of the fault contribution shall be coordinated with the protective requirements of the Transmission or Distribution System, as applicable. Such protective equipment shall include, without limitation, a disconnecting device or switch with load-interrupting capability located between the Generating Facility and the Transmission or Distribution System, as applicable, at a site selected upon mutual agreement (not to be unreasonably withheld, conditioned or delayed) of the Parties. Interconnection

Customer shall be responsible for protection of the Generating Facility and Interconnection Customer's other equipment from such conditions as negative sequence currents, over- or under-frequency, sudden load rejection, over- or under-voltage, and generator loss-of-field. Interconnection Customer shall be solely responsible to disconnect the Generating Facility and Interconnection Customer's other equipment if conditions on the Transmission or Distribution System, as applicable, could adversely affect the Generating Facility.

9.7.6 Power Quality. Neither Party's facilities shall cause excessive voltage flicker in accordance with IEEE Standard 1453-2015, or any applicable superseding electric industry standard. Neither Party's facilities shall introduce excessive distortion to the sinusoidal voltage or current waves in accordance with IEEE Standard 519-2014, or any applicable superseding electric industry standard. In the event of a conflict between IEEE Standard 519-2014 or applicable superseding standard, IEEE Standard 1453-2015 or applicable superseding standard, and the CIPCO Generation and Transmission and End Use Interconnection Requirements, the latter shall control.

9.8 Switching and Tagging Rules. Prior to the Initial Synchronization Date, each Party shall provide the other Party a copy of its switching and tagging rules that are applicable to the other Party's activities. Such switching and tagging rules shall be developed on a non-discriminatory basis. The Parties shall comply with applicable switching and tagging rules, as amended from time to time, in obtaining clearances for work or for switching operations on equipment.

9.9 Use of Interconnection Facilities by Other Parties.

9.9.1 Purpose of Interconnection Facilities. Except as may be required by Applicable Laws and Regulations, or as otherwise agreed to among the Parties, the Interconnection Facilities shall be constructed for the sole purpose of interconnecting the Generating Facility to the Transmission or Distribution

System, as applicable, and shall be used for no other purpose. For the avoidance of doubt, the parties recognize that there may be flow of network power through the Transmission Owner's Interconnection Facilities in a manner similar to that which flowed prior to the networked facility being modified to facilitate the interconnection of the Generating Facility, and that such network power flow is not a breach of this GIA in general or this section 9.9.1 specifically.

9.9.2 Third Party Users. If required by Applicable Laws and Regulations or if the Parties mutually agree, such agreement not to be unreasonably withheld or delayed, to allow one or more third parties to use the Transmission Owner's Interconnection Facilities, or any part thereof, Interconnection Customer will be entitled to compensation for the capital expenses it incurred in connection with the Interconnection Facilities based upon the pro rata use of the Interconnection Facilities by all third party users and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually-agreed upon methodology. In addition, cost responsibility for ongoing costs, including operation and maintenance costs associated with the Interconnection Facilities, will be allocated between Interconnection Customer and any non-Party users based upon the pro rata use of the Interconnection Facilities by all non-Party users and Interconnection Customer, in accordance with Applicable Laws and Regulations or upon some other mutually agreed upon methodology. If the issue of such compensation or allocation cannot be resolved through such negotiations, it shall be submitted to Dispute Resolution pursuant to the Tariff.

9.10 Disturbance Analysis Data Exchange. The Parties will cooperate with one another in the analysis of disturbances to either the Generating Facility or the Transmission System by gathering and providing access to any information relating to any disturbance, including information from oscillography, protective relay targets, breaker operations and sequence of events records, and any disturbance information required by Good Utility Practice.

ARTICLE 10. MAINTENANCE

- 10.1 Transmission Owner Obligations.** Transmission Owner shall maintain the Transmission Owner's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.
- 10.2 Interconnection Customer Obligations.** Interconnection Customer shall maintain the Generating Facility and the Interconnection Customer's Interconnection Facilities in a safe and reliable manner and in accordance with this GIA and all Applicable Laws and Regulations.
- 10.3 Coordination.** The Parties shall confer regularly to coordinate the planning, scheduling and performance of preventive and corrective maintenance on the Generating Facility and the Interconnection Facilities.
- 10.4 Secondary Systems.** Each Party shall cooperate with the other in the inspection, maintenance, and testing of control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers that directly affect the operation of a Party's facilities and equipment which may reasonably be expected to impact another Party. Each Party shall provide advance notice to the other Parties before undertaking any work on such circuits, especially on electrical circuits involving circuit breaker trip and close contacts, current transformers, or potential transformers.
- 10.5 Operating and Maintenance Expenses.** Subject to the provisions herein addressing the use of facilities by others, and except for operations and maintenance expenses associated with modifications made for providing Interconnection Service or Transmission Service to a non-Party and such non-Party pays for such expenses, Interconnection Customer shall be responsible for all reasonable expenses including overheads, associated with: (1) owning, operating, maintaining, repairing, replacing and removing Interconnection Customer's

Interconnection Facilities; and (2) owning, operating, maintaining, repairing, replacing and removing Transmission Owner's Interconnection Facilities to the extent required by Transmission Owner on a comparable basis.

ARTICLE 11. PERFORMANCE OBLIGATION

- 11.1 General.** The provisions of this Article 11 shall apply unless other arrangements have been made between the Parties in a separate agreement, or unless otherwise documented in Appendix A to this GIA.
- 11.2 Interconnection Customer's Interconnection Facilities.** Interconnection Customer shall design, procure, construct, install, own, repair, replace, remove and/or control the Interconnection Customer's Interconnection Facilities described in Appendix A to this GIA at its sole expense.
- 11.3 Transmission Owner's Interconnection Facilities.** Transmission Owner shall design, procure, construct, install, own, repair, replace, remove and/or control the Transmission Owner's Interconnection Facilities described in Appendix A to this GIA at the sole expense of Interconnection Customer.
- 11.4 Network Upgrades, System Protection Facilities and Distribution Upgrades.** Transmission Owner shall design, procure, construct, install, and own the Network Upgrades, Transmission Owner's System Protection Facilities and Distribution Upgrades described in Appendix A to this GIA at sole expense of Interconnection Customer. Transmission Owner shall provide Transmission Provider and Interconnection Customer with written notice pursuant to Article 15 that Transmission Owner elects to fund the capital for the Network Upgrades and Transmission Owner's System Protection Facilities, which election shall only be available upon mutual agreement of Interconnection Customer and Transmission Owner; otherwise, such facilities, if any, shall be solely funded by Interconnection Customer.

Transmission Owner is not currently a transmission owning member of MISO, however Transmission Owner is required to coordinate with and honor MISO's interconnection queue and the queues of Affected Systems. Any references in this GIA to the queue positions of higher or lower queued interconnection requests includes those requests in the Transmission Owner's interconnection queue, the MISO interconnection queue and the queues of any Affected System.

11.4.1 Contingencies Affecting Network Upgrades, System Protection Facilities and Distribution Upgrades. Change in status of interconnection requests on Transmission Provider's Transmission System or on Affected Systems are contingent events affecting Network Upgrades, System Protection Facilities and Distribution Upgrades. Network Upgrades, System Protection Facilities, Distribution Upgrades and Affected System Upgrades, as determined by the Affected System that are required to accommodate the Generating Facility may be modified because (1) a higher queued interconnection request withdrew or was deemed to have withdrawn, (2) the interconnection agreement associated with a higher queued interconnection request was terminated prior to the project's In-Service Date, (3) the Commercial Operation Date for a higher queued interconnection request is delayed, or the project itself is delayed (including due to suspension) such that facilities required to accommodate lower queued projects or the project itself may be altered, (4) the queue position is reinstated for a higher-queued interconnection request whose queue position was subject to dispute resolution, (5) changes occur in Transmission Provider or Transmission Owner equipment design standards or reliability criteria giving rise to the need for restudy, (6) the facilities required to accommodate a higher queued Interconnection Request were modified constituting a Material Modification, (7) a GIA with an effective date prior to this GIA is terminated, or (8) a planned or proposed transmission project which was included in the ISIS is not completed or is modified. The higher queued Interconnection Requests and planned or proposed transmission projects that could impact the Network Upgrades, Affected System Upgrades, System Protection Facilities and Distribution Upgrades

required to accommodate the Generating Facility, and possible Modifications that may result from the above listed events affecting the higher queued Interconnection Requests, to the extent such modifications are reasonably known and can be determined, and estimates of the costs associated with such required Network Upgrades, System Protection Facilities and Distribution Upgrades, are provided in Appendix A to this GIA.

11.4.2 Agreement to Restudy and Cost Reallocation. At any time before the Network Upgrades, System Protection Facilities and/or Distribution Upgrades associated with higher queued Interconnection Requests with GIA in effect prior to this GIA are completed, Transmission Provider may determine restudy is required either: (i) in Transmission Provider's discretion or (ii) because one of the contingencies listed in Article 11.4.1 has occurred. If a restudy is required, Transmission Provider will provide notice to Interconnection Customer and Interconnection Customer agrees to enter into an Interconnection Study Agreement for such restudy. Transmission Provider will contact Interconnection Customer in writing if a restudy is declared for reasons other than the contingencies listed in Article 11.4.1. Transmission Provider will reevaluate the need for any Common Use Upgrade(s) and/or Shared Network Upgrade(s), and if still required, reallocate the cost and responsibility for any Common Use Upgrade and/or Shared Network Upgrade, without a restudy when possible, or with a restudy if the Transmission Provider deems it necessary in order to ensure reliability of the Transmission System. The Parties agree to amend Appendix A to this GIA in accordance with Article 30.10 to reflect the results of any cost reallocation required under this Article 11.4.2.

11.4.3 Agreement to Fund Shared Network Upgrades. Interconnection Customer agrees to fund Shared Network Upgrades, as determined by Transmission Provider.

11.5 Cost Responsibility for Affected System Upgrades. Any Affected System Upgrades described in Appendix A to this GIA and Affected System cost responsibilities pursuant to this GIA shall not be the responsibility of Transmission Provider. Interconnection Customer shall make arrangements with and payments to Affected System for completion of Affected System Upgrades.

11.6 Transmission Credits. Neither Transmission Owner nor Transmission Provider shall have any obligation to provide transmission service credits or other credits or reimbursements to the Interconnection Customer for Network Upgrades or any other payments made under this Agreement by Interconnection Customer.

11.7 Payment. Interconnection Customer shall make payments according to the milestones listed in Appendix B to this GIA.

If the parties entered into an Engineering and Procurement Agreement in connection with this Generation Facility prior to executing this GIA, any remaining balances under such Engineering and Procurement Agreement will be credited to the amounts owed under this GIA.

If during the project actual costs are projected to exceed the initial estimates in Appendix B to this GIA, the Interconnection Customer will fund the difference within 10 business days of being given notice by the Transmission Owner. Transmission Owner may stop work until the additional funding has been received and Transmission Owner's obligations to make the milestones will be adjusted accordingly. Delays by the Interconnection Customer in providing additional funding do not relieve the Interconnection Customer of its Milestones obligations in Appendix B to this GIA.

11.8 Interconnection Customer Compensation. Any compensation for reactive power or any other ancillary services would be by separate agreement.

ARTICLE 12. INVOICE

- 12.1 General.** Each Party shall submit to the other Party, on a monthly basis, invoices of amounts due, if any, for the preceding month. Each invoice shall state the month to which the invoice applies and fully describe the services and equipment provided. The Parties may discharge mutual debts and payment obligations due and owing to each other on the same date through netting, in which case all amounts a Party owes to the other Party under this GIA, including interest payments or credits, shall be netted so that only the net amount remaining due shall be paid by the owing Party.
- 12.2 Final Invoice.** Within six (6) months after completion of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades, Transmission Owner shall provide an invoice of the final cost of the construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and the Network Upgrades and shall set forth such costs in sufficient detail to enable Interconnection Customer to compare the actual costs with the estimates and to ascertain deviations, if any, from the cost estimates. Transmission Owner shall refund to Interconnection Customer any amount by which the actual payment by Interconnection Customer for estimated costs exceeds the actual costs of construction within thirty (30) Calendar Days of the issuance of such final construction invoice.
- 12.3 Payment.** Invoices shall be rendered to the paying Party at the address specified in Appendix F to this GIA. The Party receiving the invoice shall pay the invoice within thirty (30) Calendar Days of receipt. All payments shall be made in immediately available funds payable to the other Party, or by wire transfer to a bank named and account designated by the invoicing Party. Payment of invoices by a Party will not constitute a waiver of any rights or claims that Party may have under this GIA.
- 12.4 Disputes.** In the event of a billing dispute among the Parties, Transmission Provider shall continue to provide Interconnection Service under this GIA as long as Interconnection

Customer: (i) continues to make all payments not in dispute; and (ii) pays to Transmission Provider or Transmission Owner or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet these two requirements for continuation of service, then Transmission Provider may or, at Transmission Owner's request upon Interconnection Customer's failure to pay, Transmission Owner, shall provide notice to Interconnection Customer of a Default pursuant to Article 17. Within thirty (30) Calendar Days after the resolution of the dispute, the Party that owes money to another Party shall pay the amount due with interest calculated in accord with the methodology set forth in 18 C.F.R. § 35.19a(a)(2)(iii).

ARTICLE 13. EMERGENCIES

13.1 Obligations. Each Party shall comply with the Emergency Condition procedures of Transmission Provider, NERC, the Applicable Reliability Council, and Applicable Laws and Regulations.

13.2 Notice. Transmission Provider or Transmission Owner shall notify the Interconnection Customer promptly when it becomes aware of an Emergency Condition that affects the Transmission Owner's Interconnection Facilities or the Transmission or Distribution System, as applicable, that may reasonably be expected to affect Interconnection Customer's operation of the Generating Facility or the Interconnection Customer's Interconnection Facilities.

Interconnection Customer shall notify Transmission Provider and Transmission Owner, which includes by definition if applicable, the operator of a Distribution System, promptly when it becomes aware of an Emergency Condition that affects the Generating Facility or the Interconnection Customer's Interconnection Facilities that may reasonably be expected to affect the Transmission or Distribution System, as applicable, or the Transmission Owner's Interconnection Facilities.

To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of Interconnection Customer's or Transmission Provider's or Transmission Owner's facilities and operations, its anticipated duration and the corrective action taken and/or to be taken. The initial notice shall be followed as soon as practicable with written notice.

13.3 Immediate Action. Unless, in a Party's reasonable judgment, immediate action is required, the Party exercising such judgment shall notify and obtain the consent of the other Party, such consent to not be unreasonably withheld, prior to performing any manual switching operations at the Generating Facility or the Interconnection Customer's Interconnection Facilities in response to an Emergency Condition either declared by Transmission Provider or otherwise regarding the Transmission or Distribution System, as applicable.

13.4 Transmission Provider and Transmission Owner Authority.

13.4.1 General. Transmission Provider or Transmission Owner may take whatever actions or inactions with regard to the Transmission System or the Transmission Owner's Interconnection Facilities it deems necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Transmission System or the Transmission Owner's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service.

Transmission Provider or Transmission Owner shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Generating Facility or the Interconnection Customer's Interconnection Facilities. Transmission Provider or Transmission Owner may, on the basis of technical considerations, require the Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing Interconnection Customer to shut-down, start-up, increase

or decrease the real or reactive power output of the Generating Facility; implementing a reduction or disconnection pursuant to Article 13.4.2; directing Interconnection Customer to assist with blackstart (if available) or restoration efforts; or altering the outage schedules of the Generating Facility and the Interconnection Customer's Interconnection Facilities. Interconnection Customer shall comply with all of Transmission Provider's or Transmission Owner's operating instructions concerning Generating Facility real power and reactive power output within the manufacturer's design limitations of the Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

13.4.2 Reduction and Disconnection. Transmission Provider or Transmission Owner may reduce Interconnection Service or disconnect the Generating Facility or the Interconnection Customer's Interconnection Facilities, when such reduction or disconnection is necessary under Good Utility Practice due to Emergency Conditions. These rights are separate and distinct from any right of curtailment of Transmission Provider pursuant to the Tariff. When Transmission Provider can schedule the reduction or disconnection in advance, Transmission Provider shall notify Interconnection Customer of the reasons, timing and expected duration of the reduction or disconnection. Transmission Provider shall coordinate with Interconnection Customer and Transmission Owner using Good Utility Practice to schedule the reduction or disconnection during periods of least impact to Interconnection Customer, Transmission Owner and Transmission Provider. Any reduction or disconnection shall continue only for so long as reasonably necessary pursuant to Good Utility Practice. The Parties shall cooperate with each other to restore the Generating Facility, the Interconnection Facilities, and the Transmission System to their normal operating state as soon as practicable consistent with Good Utility Practice.

13.5 Interconnection Customer Authority. Consistent with Good Utility Practice and this GIA and the GIP, Interconnection Customer may take whatever actions or inactions with

regard to the Generating Facility or the Interconnection Customer's Interconnection Facilities during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the Generating Facility or the Interconnection Customer's Interconnection Facilities, (iii) limit or prevent damage, and (iv) expedite restoration of service. Interconnection Customer shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Transmission System and the Transmission Owner's Interconnection Facilities. Transmission Provider and Transmission Owner shall use Reasonable Efforts to assist Interconnection Customer in such actions.

13.6 Limited Liability. Except as otherwise provided in Article 11.8 of this GIA, neither Party shall be liable to the other for any action it takes in responding to an Emergency Condition so long as such action is made in good faith and is consistent with Good Utility Practice.

13.7 Audit. In accordance with Article 25.3, any Party may audit the performance of another Party when that Party declared an Emergency Condition.

ARTICLE 14. REGULATORY REQUIREMENTS AND GOVERNING LAW

14.1 Regulatory Requirements. Each Party's obligations under this GIA shall be subject to its receipt of any required approval or certificate from one or more Governmental Authorities in the form and substance satisfactory to the applying Party, or the Party making any required filings with, or providing notice to, such Governmental Authorities, and the expiration of any time period associated therewith. Each Party shall in good faith seek, and if necessary assist the other Party and use its Reasonable Efforts to obtain such other approvals. Nothing in this GIA shall require Interconnection Customer to take any action that could result in its inability to obtain, or its loss of, status or exemption under the Federal Power Act, the Public Utility Holding Company Act of 2005, as amended, or the Public Utility Regulatory Policies Act of 1978, or to lose its exemption from federal income tax under Section 501(c)(12) of the United States Tax Code..

14.2 Governing Law.

14.2.1 The validity, interpretation and performance of this GIA and each of its provisions shall be governed by the laws of Iowa.

14.2.2 This GIA is subject to all Applicable Laws and Regulations.

14.2.3 Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, rules, or regulations of a Governmental Authority.

ARTICLE 15. NOTICES

15.1 General. Unless otherwise provided in this GIA, any notice, demand or request required or permitted to be given by any Party to the other and any instrument required or permitted to be tendered or delivered by either Party in writing to the other shall be effective when delivered and may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the United States Postal Service with postage prepaid, for delivery by certified or registered mail, addressed to the Party, or personally delivered to the Party, at the address set out in Appendix F, Addresses for Delivery of Notices and Billings.

Either Party may change the notice information in this GIA by giving five (5) Business Days written notice prior to the effective date of the change.

15.2 Billings and Payments. Billings and payments shall be sent to the addresses set out in Appendix F to this GIA.

15.3 Alternative Forms of Notice. Any notice or request required or permitted to be given by a Party to the other and not required by this GIA to be given in writing may be so given by telephone, facsimile or email to the telephone numbers and email addresses set out in Appendix F to this GIA.

15.4 Operations and Maintenance Notice. Each Party shall notify the other Party in writing of the identity of the person(s) that it designates as the point(s) of contact with respect to the implementation of Articles 9 and 10.

ARTICLE 16. FORCE MAJEURE

16.1 Force Majeure.

16.1.1 Economic hardship is not considered a Force Majeure event.

16.1.2 Neither Party shall be considered to be in Default with respect to any obligation hereunder, (including obligations under Article 4 and 5), other than the obligation to pay money when due, if prevented from fulfilling such obligation by Force Majeure. A Party unable to fulfill any obligation hereunder (other than an obligation to pay money when due) by reason of Force Majeure shall give notice and the full particulars of such Force Majeure to the other Parties in writing or by telephone as soon as reasonably possible after the occurrence of the cause relied upon. Telephone, facsimile or email notices given pursuant to this Article shall be confirmed in writing as soon as reasonably possible and shall specifically state full particulars of the Force Majeure, the time and date when the Force Majeure occurred and when the Force Majeure is reasonably expected to cease. The Party affected shall exercise Reasonable Efforts to remove such disability with reasonable dispatch, but shall not be required to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or other labor disturbance.

ARTICLE 17. DEFAULT

17.1 Default

17.1.1 General. No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of Force Majeure as defined in this GIA or the result of an act or omission of the other Party. Upon a Breach, the non-Breaching Party shall give written notice of such Breach to the Breaching Party. Except as provided in Article 17.1.2, the Breaching Party shall have thirty (30) Calendar Days from receipt of the Default notice within which to cure such Breach; provided however, if such Breach is not capable of cure within thirty (30) Calendar Days, the Breaching Party shall commence such cure within thirty (30) Calendar Days after notice and continuously and diligently complete such cure within ninety (90) Calendar Days from receipt of the Default notice; and, if cured within such time, the Breach specified in such notice shall cease to exist.

17.1.2 Right to Terminate. If a Breach is not cured as provided in this Article, or if a Breach is not capable of being cured within the period provided for herein, the non-Breaching Party shall have the right to declare a Default and terminate this GIA, by written notice at any time until cure occurs, and be relieved of any further obligation hereunder and, whether or not that Party terminates this GIA, to recover from the Breaching Party all amounts due hereunder, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this Article will survive termination of this GIA.

ARTICLE 18. LIMITATION OF LIABILITY, INDEMNITY, CONSEQUENTIAL DAMAGES AND INSURANCE

18.1 Limitation of Liability. A Party shall not be liable to the other Party or to any third party or other person for any damages arising out of actions under this GIA, including, but not limited to, any act or omission that results in an interruption, deficiency or imperfection of

Interconnection Service, except as provided in this Agreement. The provisions set forth in the Tariff shall be additionally applicable to any Party acting in good faith to implement or comply with its obligations under this GIA, regardless of whether the obligation is preceded by a specific directive.

18.2 Indemnity. To the extent permitted by law, an Indemnifying Party shall at all times indemnify, defend and hold the other Party harmless from Loss.

18.2.1 Indemnified Party. If an Indemnified Party is entitled to indemnification under this Article 18 as a result of a claim by a non-Party, and the Indemnifying Party fails, after notice and reasonable opportunity to proceed under Article 18.2, to assume the defense of such claim, such 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, such claim.

18.2.2 Indemnifying Party. If an Indemnifying Party is obligated to indemnify and hold any Indemnified Party harmless under this Article 18, the amount owing to the Indemnified Party shall be the amount of such Indemnified Party's actual Loss, net of any insurance or other recovery.

18.2.3 Indemnity Procedures. Promptly after receipt by an Indemnified Party of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Article 18.2 may apply, the Indemnified Party shall notify the Indemnifying Party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the Indemnifying Party.

The Indemnifying Party shall have the right to assume the defense thereof with counsel designated by such Indemnifying Party and reasonably satisfactory to the Indemnified Party. If the defendants in any such action include one or more

Indemnified Parties and the Indemnifying Party and if the Indemnified Party reasonably concludes that there may be legal defenses available to it and/or other Indemnified Parties which are different from or additional to those available to the Indemnifying Party, the Indemnified Party shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the Indemnifying Party shall only be required to pay the fees and expenses of one additional attorney to represent an Indemnified Party or Indemnified Parties having such differing or additional legal defenses.

The Indemnified Party shall be entitled, at its expense, to participate in any such action, suit or proceeding, the defense of which has been assumed by the Indemnifying Party. Notwithstanding the foregoing, the Indemnifying Party (i) shall not be entitled to assume and control the defense of any such action, suit or proceedings if and to the extent that, in the opinion of the Indemnified Party and its counsel, such action, suit or proceeding involves the potential imposition of criminal liability on the Indemnified Party, or there exists a conflict or adversity of interest between the Indemnified Party and the Indemnifying Party, in such event the Indemnifying Party shall pay the reasonable expenses of the Indemnified Party, and (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the Indemnified Party, which shall not be reasonably withheld, conditioned or delayed.

18.3 Consequential Damages. Other than the Liquidated Damages heretofore described, in no event shall either Party be liable under any provision of this GIA for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided; however, that damages for which a Party may be liable to the other Party under

another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

18.4 Insurance. Transmission Owner and Interconnection Customer shall, at their own expense, maintain in force throughout the period of this GIA pursuant to 18.4.9, and until released by the other Party, the following minimum insurance coverages, with insurers authorized to do business or an approved surplus lines carrier in the state where the Point of Interconnection is located:

18.4.1 Employers' Liability and Workers' Compensation Insurance providing statutory benefits in accordance with the laws and regulations of the state in which the Point of Interconnection is located.

18.4.2 Commercial General Liability Insurance including premises and operations, personal injury, broad form property damage, broad form blanket contractual liability coverage (including coverage for the contractual indemnification) products and completed operations coverage, coverage for explosion, collapse and underground hazards, independent contractors coverage, coverage for pollution to the extent normally available and punitive damages to the extent normally available and a cross liability endorsement, with minimum limits of One Million Dollars (\$1,000,000) per occurrence/One Million Dollars (\$1,000,000) aggregate combined single limit for personal injury, bodily injury, including death and property damage.

18.4.3 Comprehensive Automobile Liability Insurance, for coverage of owned and non-owned and hired vehicles, trailers or semi-trailers licensed for travel on public roads, with a minimum combined single limit of One Million Dollars (\$1,000,000) each occurrence for bodily injury, including death, and property damage.

18.4.4 Excess Public Liability Insurance over and above the Employer's Liability, Commercial General Liability and Comprehensive Automobile Liability Insurance

coverage, with a minimum combined single limit of Forty Million Dollars (\$40,000,000) per occurrence/Forty Million Dollars (\$40,000,000) aggregate.

- 18.4.5** The Commercial General Liability Insurance, Comprehensive Automobile Insurance and Excess Public Liability Insurance policies shall name the other Party, its parent, associated and Affiliate companies and their respective directors, officers, agents, servants and employees (“Other Party Group”) as additional insured. All policies shall contain provisions whereby the insurers waive all rights of subrogation in accordance with the provisions of this GIA against the Other Party Groups and provide thirty (30) Calendar Days’ advance written notice to the Other Party Groups prior to anniversary date of cancellation or any material change in coverage or condition.
- 18.4.6** The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies shall contain provisions that specify that the policies are primary and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer’s liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Party shall be responsible for its respective deductibles or retentions.
- 18.4.7** The Commercial General Liability Insurance, Comprehensive Automobile Liability Insurance and Excess Public Liability Insurance policies, if written on a Claims First Made Basis, shall be maintained in full force and effect for two (2) years after termination of this GIA, which coverage may be in the form of tail coverage or extended reporting period coverage if agreed by Transmission Owner and Interconnection Customer.
- 18.4.8** The requirements contained herein as to the types and limits of all insurance to be maintained by Transmission Owner and Interconnection Customer are not

intended to and shall not in any manner, limit or qualify the liabilities and obligations assumed by Transmission Owner and Interconnection Customer under this GIA.

18.4.9 As of the date set forth in Appendix B, Milestones, and as soon as practicable after the end of each fiscal year or at the renewal of the insurance policy and in any event within ninety (90) Calendar Days thereafter, Interconnection Customer and Transmission Owner shall provide the other Party with certification of all insurance required in this GIA, executed by each insurer or by an authorized representative of each insurer.

18.4.10 Notwithstanding the foregoing, Transmission Owner or Interconnection Customer may self-insure to meet the minimum insurance requirements of Articles 18.4.1 through 18.4.8, to the extent it maintains a self-insurance program; provided that, Transmission Owner's or Interconnection Customer's senior secured debt is rated at investment grade, or better, by Standard & Poor's and that its self-insurance program meets minimum insurance requirements under Articles 18.4.1 through 18.4.8. For any period of time that a Transmission Owner's or Interconnection Customer's senior secured debt is unrated by Standard & Poor's or is rated at less than investment grade by Standard & Poor's, such Party shall comply with the insurance requirements applicable to it under Articles 18.4.1 through 18.4.9. In the event that Transmission Owner or Interconnection Customer is permitted to self-insure pursuant to this article, it shall notify the other Party that it meets the requirements to self-insure and that its self-insurance program meets the minimum insurance requirements in a manner consistent with that specified in Article 18.4.9.

18.4.11 Transmission Owner and Interconnection Customer agree to report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of this GIA.

ARTICLE 19. ASSIGNMENT

19.1 Assignment. This GIA may be assigned by either Party only with the written consent of the other; provided that either Party may assign this GIA without the consent of the other Party to any Affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this GIA; and provided further that Interconnection Customer shall have the right to assign this GIA, without the consent of either Transmission Provider or Transmission Owner, for collateral security purposes to aid in providing financing for the Generating Facility, provided that Interconnection Customer will promptly notify Transmission Provider of any such assignment. Any financing arrangement entered into by Interconnection Customer pursuant to this Article will provide that prior to or upon the exercise of the secured party's, trustee's or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee or mortgagee will notify Transmission Provider of the date and particulars of any such exercise of assignment right(s), including providing Transmission Provider and Transmission Owner with proof that it meets the requirements of Article 11.7 and 18.4. Any attempted assignment that violates this Article is void and ineffective. Any assignment under this GIA shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

ARTICLE 20. SEVERABILITY

20.1 Severability. If any provision in this GIA is finally determined to be invalid, void or unenforceable by any court or other Governmental Authority having jurisdiction, such determination shall not invalidate, void or make unenforceable any other provision, agreement or covenant of this GIA.

ARTICLE 21. COMPARABILITY

21.1 Comparability. The Parties will comply with all applicable comparability and code of conduct laws, rules and regulations including such laws, rules and regulations of Governmental Authorities establishing standards of conduct, as amended from time to time.

ARTICLE 22. CONFIDENTIALITY

22.1 Confidentiality. Confidential Information shall include, without limitation, all information relating to a Party's technology, research and development, business affairs, and pricing, and any information supplied by either of the Parties to the other prior to the execution of this GIA.

Information is Confidential Information only if it is clearly designated or marked in writing as confidential on the face of the document, or, if the information is conveyed orally or by inspection, if the Party providing the information orally informs the Party receiving the information that the information is confidential. The Parties shall maintain as confidential any information that is provided and identified by a Party as Critical Energy Infrastructure Information (CEII), as that term is defined in 18 C.F.R. Section 388.113(c). Such confidentiality will be maintained in accordance with this Article 22.

If requested by either Party, the other Party shall provide in writing, the basis for asserting that the information referred to in this Article warrants confidential treatment, and the requesting Party may disclose such writing to the appropriate Governmental Authority. Each Party shall be responsible for the costs associated with affording confidential treatment to its information.

22.1.1 Term. During the term of this GIA, and for a period of three (3) years after the expiration or termination of this GIA, except as otherwise provided in this Article 22 or with regard to CEII, each Party shall hold in confidence and shall not disclose to any person Confidential Information. CEII shall be treated in accordance with Commission policy and regulations.

22.1.2 Scope. Confidential Information shall not include information that the receiving Party can demonstrate: (1) is generally available to the public other than as a result of a disclosure by the receiving Party; (2) was in the lawful possession of the receiving Party on a non-confidential basis before receiving it from the disclosing Party; (3) was supplied to the receiving Party without restriction by a non-Party, who, to the knowledge of the receiving Party after due inquiry, was under no obligation to the disclosing Party to keep such information confidential; (4) was independently developed by the receiving Party without reference to Confidential Information of the disclosing Party; (5) is, or becomes, publicly known, through no wrongful act or omission of the receiving Party or Breach of this GIA; or (6) is required, in accordance with Article 22.1.7 of this GIA, Order of Disclosure, to be disclosed by any Governmental Authority or is otherwise required to be disclosed by law or subpoena, or is necessary in any legal proceeding establishing rights and obligations under this GIA. Information designated as Confidential Information will no longer be deemed confidential if the Party that designated the information as confidential notifies the receiving Party that it no longer is confidential.

22.1.3 Release of Confidential Information. Neither Party shall release or disclose Confidential Information to any other person, except to its Affiliates (limited by the Standards of Conduct requirements), subcontractors, employees, agents, consultants, or to non-parties who may be or are considering providing financing to or equity participation with Interconnection Customer, or to potential purchasers or assignees of Interconnection Customer, on a need-to-know basis in connection with this GIA, unless such person has first been advised of the confidentiality provisions of this Article 22 and has agreed to comply with such provisions. Notwithstanding the foregoing, a Party providing Confidential Information to any person shall remain primarily responsible for any release of Confidential Information in contravention of this Article 22.

- 22.1.4 Rights.** Each Party retains all rights, title, and interest in the Confidential Information that it discloses to the receiving Party. The disclosure by each Party to the receiving Party of Confidential Information shall not be deemed a waiver by the disclosing Party or any other person or entity of the right to protect the Confidential Information from public disclosure.
- 22.1.5 No Warranties.** By providing Confidential Information, neither Party makes any warranties or representations as to its accuracy or completeness. In addition, by supplying Confidential Information, neither Party obligates itself to provide any particular information or Confidential Information to the other Party nor to enter into any further agreements or proceed with any other relationship or joint venture.
- 22.1.6 Standard of Care.** Each Party shall use at least the same standard of care to protect Confidential Information it receives as it uses to protect its own Confidential Information from unauthorized disclosure, publication or dissemination. Each Party may use Confidential Information solely to fulfill its obligations to the other Party under this GIA or its regulatory requirements.
- 22.1.7 Order of Disclosure.** If a court or a Government Authority or entity with the right, power, and apparent authority to do so requests or requires either Party, by subpoena, oral deposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Party shall provide the disclosing Party with prompt notice of such request(s) or requirement(s) so that the disclosing Party may seek an appropriate protective order or waive compliance with the terms of this GIA. Notwithstanding the absence of a protective order or waiver, the Party may disclose such Confidential Information which, in the opinion of its counsel, the Party is legally compelled to disclose. Each Party will use Reasonable Efforts to obtain reliable assurance that confidential treatment will be accorded any Confidential Information so furnished.

22.1.8 Termination of Agreement. Upon termination of this GIA for any reason, each Party shall, within ten (10) Calendar Days of receipt of a written request from another Party, use Reasonable Efforts to destroy, erase, or delete (with such destruction, erasure, and deletion certified in writing to the requesting Party) or return to the requesting Party, without retaining copies thereof, any and all written or electronic Confidential Information received from the requesting Party, except that each Party may keep one copy for archival purposes, provided that the obligation to treat it as Confidential Information in accordance with this Article 22 shall survive such termination.

22.1.9 Remedies. The Parties agree that monetary damages would be inadequate to compensate a Party for the other Party's Breach of its obligations under this Article 22. Each Party accordingly agrees that the disclosing Party shall be entitled to equitable relief, by way of injunction or otherwise, if the receiving Party Breaches or threatens to Breach its obligations under this Article 22, which equitable relief shall be granted without bond or proof of damages, and the Breaching Party shall not plead in defense that there would be an adequate remedy at law. Such remedy shall not be deemed an exclusive remedy for the Breach of this Article 22, but shall be in addition to all other remedies available at law or in equity. The Parties further acknowledge and agree that the covenants contained herein are necessary for the protection of legitimate business interests and are reasonable in scope. No Party, however, shall be liable for indirect, incidental, or consequential or punitive damages of any nature or kind resulting from or arising in connection with this Article 22.

22.1.10 Disclosure to FERC, its Staff or a State. Notwithstanding anything in this Article 22 to the contrary, and pursuant to 18 CFR § 1b.20, if a Governmental Authority, or its staff, during the course of an investigation or otherwise, requests information from a Party that is otherwise required to be maintained in confidence pursuant to this GIA, the Party shall provide the requested information to Governmental Authority, or its staff, within the time provided for in the request

for information. In providing the information to a Governmental Authority or its staff, the Party must, consistent with 18 CFR § 388.112, request that the information be treated as confidential and non-public by the Governmental Authority and its staff and that the information be withheld from public disclosure. Parties are prohibited from notifying the other Party to this GIA prior to the release of the Confidential Information to a Governmental Authority or its staff. The Party shall notify the other Party to this GIA when it is notified by a Governmental Authority or its staff that a request to release Confidential Information has been received by a Governmental Authority, at which time either of the Parties may respond before such information would be made public, pursuant to 18 CFR § 388.112. Requests from a state regulatory body conducting a confidential investigation shall be treated in a similar manner if consistent with the applicable state rules and regulations.

22.1.11 Confidential Information. Subject to the exception in Article 22.1.10, any information that a disclosing Party claims is competitively sensitive, commercial or financial information under this GIA shall not be disclosed by the receiving Party to any person not employed or retained by the receiving Party, except to the extent disclosure is (i) required by law; (ii) reasonably deemed by the receiving Party to be required to be disclosed in connection with a dispute between or among the Parties, or the defense of litigation or dispute; (iii) otherwise permitted by consent of the disclosing Party, such consent not to be unreasonably withheld; or (iv) necessary to fulfill its obligations under this GIA or as the Regional Transmission Organization or a Local Balancing Authority operator including disclosing the Confidential Information to a regional or national reliability organization. The Party asserting confidentiality shall notify the receiving Party in writing of the information it claims is confidential. Prior to any disclosures of that Party's Confidential Information under this subparagraph, or if any non-Party or Governmental Authority makes any request or demand for any of the information described in this subparagraph, the Party who received the Confidential Information from the disclosing Party agrees to promptly notify the

disclosing Party in writing and agrees to assert confidentiality and cooperate with the disclosing Party in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

ARTICLE 23. ENVIRONMENTAL RELEASES

23.1 Each Party shall notify the other Parties, first orally and then in writing, of the release of any Hazardous Substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall: (i) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than twenty-four hours after such Party becomes aware of the occurrence; and (ii) promptly furnish to the other Party copies of any publicly available reports filed with any Governmental Authorities addressing such events.

ARTICLE 24. INFORMATION REQUIREMENTS

24.1 Information Acquisition. Transmission Provider, Transmission Owner and Interconnection Customer shall submit specific information regarding the electrical characteristics of their respective facilities to each other as described below and in accordance with Applicable Reliability Standards.

24.2 Information Submission by Transmission Provider and Transmission Owner The initial information submission by Transmission Provider to Interconnection Customer, with copy provided to Transmission Owner, shall occur no later than one hundred eighty (180) Calendar Days prior to Trial Operation and shall include Transmission or Distribution System information, as applicable and available, necessary to allow Interconnection Customer to select equipment and meet any system protection and stability requirements, unless otherwise mutually agreed to by the Parties. On a monthly basis, Transmission Owner shall provide Interconnection Customer a status report on the construction and

installation of Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades, including, but not limited to, the following information: (1) progress to date; (2) a description of the activities since the last report (3) a description of the action items for the next period; and (4) the delivery status of equipment ordered.

24.3 Updated Information Submission by Interconnection Customer. The updated information submission by Interconnection Customer to Transmission Provider, with copy to Transmission Owner, including manufacturer information, shall occur no later than one hundred eighty (180) Calendar Days prior to the Trial Operation. Interconnection Customer shall submit to Transmission Provider and Transmission Owner a completed copy of the Generating Facility data requirements contained in Appendix 3 to the GIP. It shall also include any additional information provided to Transmission Provider for the Interconnection Facilities Study. Information in this submission shall be the most current Generating Facility design or expected performance data. Information submitted for stability models shall be compatible with Transmission Provider standard models. If there is no compatible model, Interconnection Customer will work with a consultant mutually agreed to by Transmission Provider and Interconnection Customer to develop and supply a standard model and associated information.

If the Interconnection Customer's data is materially different from what was originally provided to Transmission Provider pursuant to the Interconnection Study Agreement between Transmission Provider and Interconnection Customer, then Transmission Provider will conduct appropriate studies to determine the impact on the Transmission System based on the actual data submitted pursuant to this Article 24.3. Interconnection Customer shall not begin Trial Operation until such studies are completed.

24.4 Information Supplementation. Prior to the Commercial Operation Date, the Parties shall supplement their information submissions described above in this Article 24 with any and all "as-built" Generating Facility information or "as-tested" performance information that differs from the initial submissions or, alternatively, written confirmation that no such

differences exist. Interconnection Customer shall conduct tests on the Generating Facility as required by Good Utility Practice, such as an open circuit “step voltage” test on the Generating Facility to verify proper operation of the Generating Facility’s automatic voltage regulator.

Unless otherwise agreed, the test conditions shall include: (1) Generating Facility at synchronous speed; (2) automatic voltage regulator on and in voltage control mode; and (3) a five percent (5 %) change in Generating Facility terminal voltage initiated by a change in the voltage regulators reference voltage. Interconnection Customer shall provide validated test recordings showing the responses in Generating Facility terminal and field voltages. In the event that direct recordings of these voltages is impractical, recordings of other voltages or currents that mirror the response of the Generating Facility’s terminal or field voltage are acceptable if information necessary to translate these alternate quantities to actual Generating Facility terminal or field voltages is provided. Generating Facility testing shall be conducted and results provided to Transmission Provider and Transmission Owner for each individual generating unit in a station.

Subsequent to the Commercial Operation Date, Interconnection Customer shall provide Transmission Provider and Transmission Owner any information changes due to equipment replacement, repair, or adjustment. Transmission Owner shall provide Interconnection Customer, with copy to Transmission Provider, any information changes due to equipment replacement, repair or adjustment in the directly connected substation or any adjacent Transmission Owner substation that may affect the Interconnection Customer’s Interconnection Facilities equipment ratings, protection or operating requirements. The Parties shall provide such information no later than thirty (30) Calendar Days after the date of the equipment replacement, repair or adjustment.

ARTICLE 25. INFORMATION ACCESS AND AUDIT RIGHTS

25.1 Information Access. Each Party (the “disclosing Party”) shall make available to the other Party information that is in the possession of the disclosing Party and is necessary in order

for the other Party to: (i) verify the costs incurred by the disclosing Party for which the other Party is responsible under this GIA; and (ii) carry out its obligations and responsibilities under this GIA. The Parties shall not use such information for purposes other than those set forth in this Article 25.1 and to enforce their rights under this GIA.

25.2 Reporting of Non-Force Majeure Events. Each Party (the “notifying Party”) shall notify the other Party when the notifying Party becomes aware of its inability to comply with the provisions of this GIA for a reason other than a Force Majeure event. The Parties agree to cooperate with each other and provide necessary information regarding such inability to comply, including the date, duration, reason for the inability to comply, and corrective actions taken or planned to be taken with respect to such inability to comply. Notwithstanding the foregoing, notification, cooperation or information provided under this Article shall not entitle the Party receiving such notification to allege a cause for anticipatory breach of this GIA.

25.3 Audit Rights. Subject to the requirements of confidentiality under Article 22 of this GIA, each Party shall have the right, during normal business hours, and upon prior reasonable notice to the other Party, to audit at its own expense the other Party's accounts and records pertaining to either Party's performance or either Party's satisfaction of obligations under this GIA. Such audit rights shall include audits of the other Party's costs, calculation of invoiced amounts, the Transmission Provider's efforts to allocate responsibility for the provision of reactive support to the Transmission or Distribution System, as applicable, the Transmission Provider's efforts to allocate responsibility for interruption or reduction of generation, and each Party's actions in an Emergency Condition. Any audit authorized by this Article shall be performed at the offices where such accounts and records are maintained and shall be limited to those portions of such accounts and records that relate to each Party's performance and satisfaction of obligations under this GIA. Each Party shall keep such accounts and records for a period equivalent to the audit rights periods described in Article 25.4.

25.4 Audit Rights Periods.

25.4.1 Audit Rights Period for Construction-Related Accounts and Records.

Accounts and records related to the design, engineering, procurement, and construction of the Transmission Owner's Interconnection Facilities, Transmission Owner's System Protection Facilities, Distribution Upgrades and Network Upgrades shall be subject to audit for a period of twenty-four months following Transmission Owner's issuance of a final invoice in accordance with Article 12.2.

25.4.2 Audit Rights Period for All Other Accounts and Records. Accounts and records related to either Party's performance or satisfaction of all obligations under this GIA other than those described in Article 25.4.1 shall be subject to audit as follows: (i) for an audit relating to cost obligations, the applicable audit rights period shall be twenty-four (24) months after the auditing Party's receipt of an invoice giving rise to such cost obligations; and (ii) for an audit relating to all other obligations, the applicable audit rights period shall be twenty-four (24) months after the event for which the audit is sought.

25.5 Audit Results. If an audit by a Party determines that an overpayment or an underpayment has occurred, a notice of such overpayment or underpayment shall be given to the other Party together with those records from the audit which support such determination.

ARTICLE 26. SUBCONTRACTORS

26.1 General. Nothing in this GIA shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this GIA; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this GIA in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

26.2 Responsibility of Principal. The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this GIA. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall Transmission Provider or Transmission Owner be liable for the actions or inactions of Interconnection Customer or its subcontractors with respect to obligations of Interconnection Customer under Article 5 of this GIA. Any applicable obligation imposed by this GIA upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

26.3 No Limitation by Insurance. The obligations under this Article 26 will not be limited in any way by any limitation of subcontractor's insurance.

ARTICLE 27. DISPUTES

27.1 Submission. In the event either Party has a dispute, or asserts a claim, that arises out of or in connection with this GIA or its performance, such Party (the "Disputing Party") shall provide the other Party with written notice of the dispute or claim ("Notice of Dispute"). Such dispute or claim shall be referred to a designated senior representative of each Party for resolution on an informal basis as promptly as practicable after receipt of the Notice of Dispute by the other Party. In the event the designated representatives are unable to resolve the claim or dispute through unassisted or assisted negotiations within thirty (30) Calendar Days of the other Party's receipt of the Notice of Dispute, such claim or dispute may upon mutual agreement of the Parties, be submitted to arbitration and resolved in accordance with the arbitration procedures set forth below. In the event the Parties do not agree to submit such claim or dispute to arbitration, each Party may exercise whatever rights and remedies it may have in equity or at law consistent with the terms of this GIA.

27.2 External Arbitration Procedures. Any arbitration initiated under this GIA shall be conducted before a single neutral arbitrator appointed by the Parties. If the Parties fail to agree upon a single arbitrator within ten (10) Calendar Days of the submission of the

dispute to arbitration, each Party shall choose one arbitrator who shall sit on a three-member arbitration panel. The two arbitrators so chosen shall within twenty (20) Calendar Days select a third arbitrator to chair the arbitration panel. In either case, the arbitrators shall be knowledgeable in electric utility matters, including electric transmission and bulk power issues, and shall not have any current or past substantial business or financial relationships with any party to the arbitration (except prior arbitration). The arbitrator(s) shall provide each of the Parties an opportunity to be heard and, except as otherwise provided herein, shall conduct the arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association ("Arbitration Rules") and any applicable FERC regulations or RTO rules; provided, however, in the event of a conflict between the Arbitration Rules and the terms of this Article 27, the terms of this Article 27 shall prevail.

27.3 Arbitration Decisions. Unless otherwise agreed by the Parties, the arbitrator(s) shall render a decision within ninety (90) Calendar Days of appointment and shall notify the Parties in writing of such decision and the reasons therefor. The arbitrator(s) shall be authorized only to interpret and apply the provisions of this GIA and shall have no power to modify or change any provision of this Agreement in any manner. The decision of the arbitrator(s) shall be final and binding upon the Parties, and judgment on the award may be entered in any court having jurisdiction. The decision of the arbitrator(s) may be appealed solely on the grounds that the conduct of the arbitrator(s), or the decision itself, violated the standards set forth in the Federal Arbitration Act or the Administrative Dispute Resolution Act.

27.4 Costs. Each Party shall be responsible for its own costs incurred during the arbitration process and for the following costs, if applicable: (1) the cost of the arbitrator chosen by the Party to sit on the three member panel and one half of the cost of the third arbitrator chosen; or (2) one half the cost of the single arbitrator jointly chosen by the Parties.

ARTICLE 28. REPRESENTATIONS, WARRANTIES AND COVENANTS

28.1 General. Each Party makes the following representations, warranties and covenants:

28.1.1 Good Standing. Such Party is duly organized, validly existing and in good standing under the laws of the state in which it is organized, formed, or incorporated, as applicable; that it is qualified to do business in the state or states in which the Generating Facility, Interconnection Facilities and Network Upgrades owned by such Party, as applicable, are located; and that it has the corporate power and authority to own its properties, to carry on its business as now being conducted and to enter into this GIA and carry out the transactions contemplated hereby and perform and carry out all covenants and obligations on its part to be performed under and pursuant to this GIA.

28.1.2 Authority. Such Party has the right, power and authority to enter into this GIA, to become a Party hereto and to perform its obligations hereunder. This GIA is a legal, valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

28.1.3 No Conflict. The execution, delivery and performance of this GIA does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of such Party, or any judgment, license, permit, order, material agreement or instrument applicable to or binding upon such Party or any of its assets.

28.1.4 Consent and Approval. Such Party has sought or obtained, or, in accordance with this GIA will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution,

delivery and performance of this GIA, and it will provide to any Governmental Authority notice of any actions under this GIA that are required by Applicable Laws and Regulations.

ARTICLE 29. Joint Operating Committee

29.1 Joint Operating Committee. Transmission Provider may develop a Joint Operating Committee to coordinate: (i) the engineering, design and construction of the Transmission Provider's Interconnection Facilities, Network Upgrades and Affected System Upgrades; and, (ii) operating and technical considerations of Interconnection Service. If applicable, Interconnection Customer and Transmission Provider shall each appoint one representative and one alternate to the Joint Operating Committee. Each Party shall notify the other Party of its appointment in writing. Such appointments may be changed at any time by similar notice.

The Joint Operating Committee shall meet as necessary, but not less than once each calendar year, to carry out the duties set forth herein. The Joint Operating Committee shall hold a meeting at the request of any member, at a time and place agreed upon by the representatives. The Joint Operating Committee shall perform all of its duties consistent with the provisions of this GIA. Each member shall cooperate in providing to the Joint Operating Committee all information required in the performance of the Joint Operating Committee's duties. All decisions and agreements, if any, made by the Joint Operating Committee, shall be made pursuant to Good Utility Practice, Applicable Laws and Regulations, and Applicable Reliability Standards. All decisions and agreements, if any, shall be evidenced in writing.

The duties of the Joint Operating Committee shall include, but are not limited to, the following:

- 29.1.1** Establish data requirements and operating record requirements.
- 29.1.2** Review the requirements, standards, and procedures for data acquisition equipment, protective equipment, and any other equipment or software.

- 29.1.3** Annually review the one (1) year forecast of maintenance and planned outage schedules of Transmission Provider's and Interconnection Customer's facilities at the Point of Interconnection.
- 29.1.4** Coordinate the scheduling of maintenance and planned outages on the Interconnection Facilities, the Generating Facility and other facilities that impact the normal operation of the interconnection of the Generating Facility to the Transmission System.
- 29.1.5** Ensure that information is being provided by each Party regarding equipment availability.
- 29.1.6** Perform such other duties as may be conferred upon it by mutual agreement of the Parties.

ARTICLE 30. MISCELLANEOUS

- 30.1 Binding Effect.** This GIA and the rights and obligations hereof, shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.
- 30.2 Conflicts.** In the event of a conflict between the body of this GIA and any attachment, appendices or exhibits hereto, the terms and provisions of the body of this GIA shall prevail and be deemed the final intent of the Parties.
- 30.3 Rules of Interpretation.** This GIA, unless a clear contrary intention appears, shall be construed and interpreted as follows: (1) the singular number includes the plural number and vice versa; (2) reference to any person includes such person's successors and assigns but, in the case of a Party, only if such successors and assigns are permitted by this GIA, and reference to a person in a particular capacity excludes such person in any other capacity or individually; (3) reference to any agreement (including this GIA), document, instrument or tariff means such agreement, document, instrument, or tariff as amended or modified and in effect from time to time in accordance with the terms thereof and, if applicable, the terms hereof; (4) reference to any Applicable Laws and Regulations means such Applicable Laws and Regulations as amended, modified, codified, or reenacted, in

whole or in part, and in effect from time to time, including, if applicable, rules and regulations promulgated thereunder; (5) unless expressly stated otherwise, reference to any Article, Section or Appendix means such Article of this GIA or such Appendix to this GIA, or such Section to the GIP or such Appendix to the GIP, as the case may be; (6) “hereunder”, “hereof”, “herein”, “hereto” and words of similar import shall be deemed references to this GIA as a whole and not to any particular Article or other provision hereof or thereof; (7) “including” (and with correlative meaning “include”) means including without limiting the generality of any description preceding such term; and (8) relative to the determination of any period of time, “from” means “from and including”, “to” means “to but excluding” and “through” means “through and including.”

30.4 Entire Agreement. This GIA, including all Appendices and attachments hereto, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this GIA. There are no other agreements, representations, warranties, or covenants, which constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this GIA.

30.5 No Third Party Beneficiaries. This GIA 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 herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.

30.6 Waiver. The failure of a Party to this GIA to insist, on any occasion, upon strict performance of any provision of this GIA will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by either Party of its rights with respect to this GIA shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with

any other obligation, right, duty of this GIA. Termination or Default of this GIA for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain Interconnection Service from Transmission Provider. Any waiver of this GIA shall, if requested, be provided in writing.

30.7 Headings. The descriptive headings of the various Articles of this GIA have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this GIA.

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

30.9 Amendment. The Parties may by mutual agreement amend this GIA by a written instrument duly executed by the Parties.

30.10 Modification by the Parties. The Parties may by mutual agreement amend the Appendices to this GIA by a written instrument duly executed by the Parties. Such amendment shall become effective and a part of this GIA upon satisfaction of all Applicable Laws and Regulations.

30.11 Reservation of Rights. Transmission Provider shall have the right to make a unilateral filing with FERC to modify this GIA with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under Section 205 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder, and Transmission Owner and Interconnection Customer shall have the right to make a unilateral filing with FERC to modify this GIA pursuant to Section 206 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this GIA shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the Federal Power Act and FERC's rules and

regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

30.12 No Partnership. This GIA shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership among or 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.

IN WITNESS WHEREOF the Parties have executed this GIA in multiple originals; each of which shall constitute and be an original GIA among the Parties.

CIPCO as Transmission Owner and Transmission Provider
[Insert name of Transmission Owner]

By: _____

Name: _____

Title: _____

Interconnection Customer
[Insert name of Interconnection Customer]

By: _____

Name: _____

Title: _____

APPENDICES TO GIA

- Appendix A** Interconnection Facilities, Network Upgrades, System Protection Facilities, Generator Upgrades and Distribution Upgrades
- Appendix B** Milestones
- Appendix B-1** Pre-Certification Generation Test Notification Form
- Appendix C** Interconnection Details
- Appendix D** Security Arrangements Details
- Appendix E** Commercial Operation Date
- Appendix F** Addresses for Delivery of Notices and Billings
- Appendix G** Interconnection Requirements for a Wind Generating Plant

Appendix A to GIA

Interconnection Facilities, System Protection Facilities, Distribution Upgrades, Generator Upgrades and Network Upgrades

1. Description of Generating Facility

Interconnection Customer shall install a Generating Facility rated at [____] MW net, with all studies performed at or below these outputs. The Generating Facility is composed of [*insert number and description of generating units*] rated at [____] MW each.

Interconnection Service provided under this agreement is [*insert description of interconnection service*] on Transmission Owner's system only.

Interconnection Customer shall install a collector substation with the appropriate protection equipment coordinated per Appendix C to this GIA. The substation shall contain [*number and voltage*] generator step-up transformer(s) (GSU) [*with LTC if necessary*], rated at [____] MVA, [____] circuit breaker(s) connected in [____] fashion, and [*describe any additional installation requirements*]. See Exhibit A____.

2. Interconnection Facilities:

(a) Point of Interconnection. The Point of Interconnection shall be at _____
_____. The Point of Change of Ownership shall be at _____. The Metering Equipment will be located in the Transmission Owner's Interconnection Facilities at the Point of Change of Ownership. See Exhibit A____ for the Interconnection Switching Station System Map.

(b) Interconnection Facilities to be constructed by Interconnection Customer.

Interconnection Customer shall construct the Interconnection Customer Interconnection Facilities (ICIF). These facilities are described below:

1. *Describe ICIF here*

(c) Transmission Owner Interconnection Facilities (TOIF) to be constructed by

Transmission Owner. At Interconnection Customer's expense, Transmission Owner shall construct a _____

as detailed in Exhibit A____. These facilities are estimated to cost \$_____ and are detailed in Exhibit A____.

The scope of work and estimate are based on the following clarifications and assumptions:

1. Interconnection Customer is responsible for the phasing of Interconnection Customer facilities to match the phasing and phase sequence of the Transmission Owner's system.
2. Generating Facility and Interconnection Customer Interconnection Facilities design and construction shall be the responsibility of the Interconnection Customer.
3. Necessary trip and close signal interlocks will be provided by the Transmission Owner for connection to the Interconnection Customer's Generating Facility for the safe operation of the system. Interconnection Customer shall provide breaker status from the Generating Facility to Transmission Owner for system operation and protection. Trip, close and interlock signaling shall be accomplished through the fiber optic cable installed as part of the line between the Transmission Owner's switching station and the Interconnection Customer's Generating Facility. The specific design will be mutually agreed upon by the Parties.
4. The communications, telemetry, and RTU/SCADA located in the Transmission Owner's facilities and necessary for the interconnection of the Interconnection Customer's Generating Facility will be designed, installed, and owned by Transmission Owner. Interconnection Customer will provide plant data including but not limited to MW, MVAR, MWhr, MVARhr, volts, amps, breaker status, and station battery alarm to Transmission Owner's Transmission Operations Center, Transmission Provider, and if required by separate RTU/SCADA to the Local Balancing Authority (Interstate Power and Light). Plant data provided to Transmission Operations Center and Transmission Provider may be transmitted via existing ICCP control center links or by other methods mutually agreed to by the Parties.

5. Interconnection Customer will be responsible for providing necessary data to the Transmission Provider and for providing required data to the purchaser of plant output.
- 3. Network Upgrades:** Any and all Network Upgrades listed in this section are the cost responsibility of the Interconnection Customer and may include additional facilities identified in [*insert ongoing affected system impact studies*], including any restudies. This list of Network Upgrades and the corresponding funding requirement of the Interconnection Customer will be amended to reflect any additional Network Upgrades identified in the studies or restudies listed above.
 - (a) Stand-Alone Network Upgrades to be installed by Transmission Owner.**
 - I. [Describe Stand-Alone Network Upgrades]
 - (b) Network Upgrades to be installed by Transmission Owner.**
 - II. [Describe Transmission Owner Network Upgrades]
 - (c) Shared Network Upgrade(s) to be funded by Interconnection Customer.**
 - III. [Describe Shared Network Upgrades]
- 4. System Protection Facilities:**
 - (a) System Protection Facilities not listed in Section 2 or 3 to be constructed by Interconnection Customer.**
 - I. [Describe Interconnection Customer System Protection Facilities]
 - (b) System Protection Facilities not listed in 2 or 3 to be constructed by Transmission Owner.**
 - II. [Describe Transmission Owner System Protection Facilities]
- 5. Distribution Upgrades:**
 - (a) Distribution Upgrades to be constructed by (Transmission/Distribution) Owner (select one for final version).**
 - I. [Describe Distribution Upgrades]
- 6. Contingency List:** See Exhibit A____.
- 7. Affected System Upgrades List:** Any and all Affected Systems Upgrades listed in this section are the cost responsibility of the Interconnection Customer and may include additional facilities identified at the completion of [*insert ongoing affected system impact studies*], including any restudies. This list of Affected System Upgrades the

Interconnection Customer is responsible for will be amended to reflect any additional Network Upgrades identified in the studies listed above.

Interconnection Customer is responsible for entering into necessary construction agreements with the Affected Systems' owners for the upgrades listed below:

a) [*Describe Affected System Network Upgrades*]

8. Exhibits: The following Exhibits are included:

A1: Interconnection Customer One-Line and Site Map

A1-1: Interconnection Customer One-Line Diagram

A1-2: Interconnection Customer Site Map

A2: Transmission Owner System Map and One-Line

A2-1: [_____] Interconnection Switching Station System Map

A2-2: [_____] Interconnection Switching Station One Line

A2-3: [_____] Interconnection Switching Station General Arrangement

A2-4: [_____] Interconnection Switching Station Conceptual Aerial

A2-5: [_____] Interconnection Switching Station Conceptual Layout

A3: Typical 161 kV Transmission Structures

A4: Estimated Cost of Network Upgrades and TOIF to be Constructed by Transmission Owner

A5: Detailed Costs of Facilities to be Constructed by Transmission Owner

A6: Contingent Facilities

A7: Interconnection Customer Milestones

A8: Construction and Coordination Schedules

A9: Permits, Licenses, Regulatory Approvals and Authorization

A10: Interconnection and Operating Guidelines

A1: Interconnection Customer One-Line and Site Map

A1-1: Interconnection Customer One-Line Diagram

A1-2: Interconnection Customer Site Map

A2: Transmission Owner System Map and One-Line

A2-1: Interconnection Switching Station System Map

A2-2: Interconnection Switching Station One Line

A2-3: Interconnection Switching Station General Arrangement

A2-4: Interconnection Switching Station Conceptual Aerial

A2-5: Interconnection Switching Station Conceptual Layout

A3: Typical Transmission Structures

A4: Estimated Cost of Network Upgrades and TOIF to be Constructed by Transmission Owner

	Type	Facilities to be Constructed by Transmission Owner	Estimated Cost
1	Transmission Owner's Interconnection Facilities	Transmission Owner Interconnection Facilities include <i>[insert description of TOIF]</i>	\$
2	Network Upgrade	<i>[insert description of Network Upgrades]</i>	\$
		Estimated Network Upgrade Total	\$
		Estimated Total TOIF and Network Upgrades	\$

A5: Detailed Costs of Facilities to be Constructed by Transmission Owner

A5-1: Interconnection Substation TOIF Cost Estimate

Description	Estimated Cost
Engineering & Commissioning	\$
Civil	\$
Material & Contingency	\$
Construction	\$
Total	\$

A5-2: Network Upgrade

Description	Estimated Cost
Engineering & Commissioning	\$
Civil	\$
Material & Contingency	\$
Construction	\$
Total	\$

A6: Contingent Facilities

Table 1 describes Transmission Projects that were modeled in the studies which yielded the ERIS described in Section 1 of Appendix A of this GIA and is not related to Article 11.4.1. If the Transmission Projects are not completed or significantly modified, the incremental ERIS allowed will be zero until such time as the Interconnection Customer funds a study to determine the applicable ERIS level that results due to the changes in Table 1.

Higher-queued MISO DPP group study projects which are not yet in service, as well as other generation projects, upgrades and Transmission Projects were included in the interconnection study for the Interconnection Customer. Higher queued MISO DPP projects include projects identified in *[insert ongoing affected system impact studies]*. However, a project's, upgrade's, or Transmission Project's inclusion in the Interconnection System Impact Study does not necessarily mean that these facilities would be contingencies for the Interconnection Customer's Generating Facility. Restudies involving the generation projects in the MISO DPP Queue, will be pursuant to Article 11.4.2 which may affect the Interconnection Customer's upgrade responsibilities under this GIA.

Table 1: Transmission Assumptions

Name of the Transmission Project	Expected ISD

A7: Interconnection Customer Milestones

The Interconnection Customer has indicated that an In Service Date of [_____] is desired.

A8: Construction and Coordination Schedules

Transmission Owner estimates that approximately [___] months will be required to complete the TOIF, and approximately [___] months will be required to complete the associated Network Upgrades. These projects will commence with the provision of necessary security or payment under the executed GIA, or earlier if advance funding provisions are agreed to by the Parties. The project schedule will be contingent upon operating constraints, conflicting project schedules, and resource availability. Coordination and required approval of outages will be subject to further study. A summary of the expected project durations for each of the Network Upgrades and the TOIF are provided below in Table A8. It is not known at this time if all work can occur concurrently.

Table A8

NETWORK UPGRADES and TOIF	ESTIMATED PROJECT DURATION
Transmission Owner Interconnection Facilities	TBD
Network Upgrades	TBD
	TBD

A9: Permits, Licenses, Regulatory Approvals and Authorization

Permits and approvals required for the project may include, but are not limited to the following:

1. States' Dept. of Transportation
2. States' Dept. of Natural Resources
3. States' Historical Society Review and Application
4. States' Utilities Board Review Process
5. Local City Government Approval
6. County Engineer Approval
7. Corps of Engineers Approval
8. US Fish and Wildlife Approval
9. Landowner Easements
10. Foreign Utility Conflicts Approval
11. FAA Approval
12. USDA RUS Approval

It is assumed that any line extensions will be on land that the Interconnection Customer deeds to Transmission Owner for Transmission Owner ownership such that IUB franchising will not be required.

Notes:

1. These permits are applicable to construction of Transmission Owner's switch stations, substations, and transmission lines only. Interconnection Customer shall provide all required permits for the Interconnection Customer Interconnection Facilities and the Generating Facility.
2. These permits are not all inclusive.
3. Transmission Owner will acquire necessary approvals and permits for construction of Transmission Owner's facilities.

A10: Interconnection and Operating Guidelines

Voltage and Reactive Power Guidelines

Reactive power, voltage regulation and operating requirements will be per Transmission Operator (“TOP”) and Transmission Provider directives. Interconnection Customer will operate the Generating Facility to a voltage schedule target of [____] kV within a bandwidth of +/- [____] kV ([____] kV to [____] kV) at the POI utilizing the Generating Facility’s power factor design capability as indicated in Section 1.11, Power Factor Design Criteria, of Appendix C. The Interconnection Customer will regulate the Generating Facility’s voltage to the specified set-point within the defined bandwidth stated above using an automatic voltage controller and the inherent reactive power capability in the generator. The Interconnection Customer may also utilize a combination of, if applicable, generator step-up tap connections, load-tap changing transformers, static capacitor banks, shunt reactors and/or dynamic reactive resources to maintain the schedule. This is the expected voltage schedule for the Generating Facility at this time. This voltage schedule may change from time to time. If a schedule change is needed, appropriate written documentation of the change will be provided to the Interconnection Customer per the terms of the interconnection agreement.

The Interconnection Customer is required to have a generator operator available for 24/7 communication with the TOP. The TOP may, at any time request a variance from the schedule in response to system operating/security requirements.

Appendix B to GIA
Milestones

1. **Project Schedule pursuant to Article 5.1:** Interconnection Customer shall select the In-service Date, Initial Synchronization Date, and Commercial Operation Date as described in Article 5.1.
2. **Milestones:** The description and date entries listed in the following tables are provided solely for the convenience of the Parties in establishing their applicable Milestones consistent with the provisions of this GIA and the GIP.

A. Interconnection Customer Milestones

No.	Description	Date
1.	Provide full payment to Transmission Owner of \$_____.	Within 10 Calendar Days of the execution of the GIA by all Parties.
2a.	Interconnection Customer to submit required powerflow modeling data, pursuant to NERC standard MOD-032, to Transmission Provider's model on demand database and MOD-032 required dynamic modeling data to TAMmodeling@misoenergy.org . Interconnection Customer will coordinate with Transmission Owner to obtain model bus numbers prior to submitting model data.	45 Calendar Days from Effective Date.
2b.	Provide Certificate of Insurance (GIA 18.4.9).	The earlier of the construction work commencement date or the milestone date; thereafter, within 90 Calendar Days of end of fiscal year or insurance renewal date.
3.	i) Provide to Transmission Provider reasonable evidence of continued Site Control. ii) Provide evidence of one or more of the following milestones being achieved: (1) execution of contract for (a) fuel supply or transport; (b) cooling water supply; (c) engineering procurement of major equipment or construction; (d) execution of a contract for the sale of electric energy or capacity from the Generating Facility, or a statement signed by an officer or authorized agent of Interconnection Customer attesting that the Generating Facility is included in an applicable state resource adequacy plan; or other information that Transmission	i) Within 15 Business Days of Effective Date. ii) Within 180 Calendar Days of Effective Date.

	Provider deems to be reasonable evidence that the Generating Facility will qualify as a designated network resource; or (2) documentation of application for state or local air, water, land, or federal nuclear or hydroelectric permits and that the application is proceeding per regulations.	
4.	Provide land deed at no cost to Transmission Owner for suitable site for Interconnection Substation and two line extensions.	xx/xx/xxxx or sooner.
5.	Pre-construction meeting.	As may be agreed to by the Parties.
6.	Provide initial design and specifications for Interconnection Customer's Interconnection Facilities to Transmission Owner and Transmission Provider for comment (GIA 5.9.1).	180 Calendar Days prior to initial synchronization date.
7.	Provide final design and specifications for Interconnection Customer's Interconnection Facilities to Transmission Owner and Transmission Provider for comment (GIA 5.9.1).	90 Calendar Days prior to initial synchronization date.
8.	Deliver to Transmission Owner and Transmission Provider "as-built" drawings, information and documents regarding Interconnection Customer's Interconnection Facilities (GIA 5.9.3).	Within 120 Calendar Days of Commercial Operation Date.
9.	Notify Transmission Provider and Transmission Owner in writing of Local Balancing Authority where Generating Facility is located (GIA 9.2).	Three months prior to Initial Synchronization Date.
10.	Interconnection Customer shall provide notice to the Parties of a test plan in advance of conducting tests for the Generating Facility. The notice shall be in the form below and should be provided under Article 15 of this GIA, and a copy of such notice should be emailed to ResourceIntegration@misoenergy.org with a copy to the Transmission Owner.	5 Business Days prior to testing.
11.	Pre-energization meeting.	As may be agreed to by the Parties.
12.	Initial Synchronization Date.	xx/xx/xxxx
13.	Commercial Operation Date.	xx/xx/xxxx
14.	Interconnection Customer shall provide the Parties with notice on the status of the Generating Facility, including COD, under Article 15 of this GIA and shall also send such notice by email to ResourceIntegration@misoenergy.org with a copy to the Transmission Owner. Notification shall include Interconnection Customer's name, and as applicable Market Participant(s) name(s), and project number/name.	6 months prior to Initial Synchronization Date.
15.	If MOD-032 required modeling data has changed after Generating Facility and Interconnection Facilities have been constructed, updates to modeling data for "as built" facilities shall be submitted to Transmission Provider's model on	Within 120 days of Commercial Operation Date

	demand database (MOD) for powerflow and/or TAMmodeling@misoenergy.org with a copy to the Transmission Owner for dynamic stability modeling data. Interconnection Customer will coordinate with Transmission Owner to prior to submitting model data.	
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B. Transmission Owner Milestones

No.	Description	Date
1.	Transmission Owner to enter Network Upgrade and TOIF information into Transmission Provider's model on demand (MOD) database.	30 Business Days after Effective Date.
2.	Provide Certificate of Insurance (GIA 18.4.9).	The earlier of the construction work commencement date or the milestone date; within 90 Calendar Days of end of fiscal year or insurance renewal date.
3a.	Commence design of Interconnection Facilities, TOIF (GIA 5.4 et seq.), and Network Upgrades.	Within 30 Business Days after Effective Date.
3b.	Commence equipment procurement.	Within 90 Business Days after Effective Date.
3c.	Commence construction of Interconnection Facilities and TOIF (GIA 5.5 et seq.).	xx/xx/xxxx
4.	Comment on Interconnection Customer's final design and specifications.	Within 30 Calendar Days of Interconnection Customer's submission of final design and specifications.
5.	Deliver to Interconnection Customer and Transmission Provider "as-built" drawings, information and documents regarding Transmission Owner's Interconnection Facilities (GIA 5.10).	Within 120 Calendar Days of Commercial Operation Date if requested.
6.	Provide Interconnection Customer final cost invoices (GIA 12.2 et seq.).	Within 6 (six) months of completion.
7.	Refund overpayment of estimated costs (GIA 12.2).	Within 30 days of final invoice in #6 of Transmission Owner Milestones above.
8.	In-Service Date/Backfeed Date.	As agreed to by the Parties.

9.	If MOD-032 required modeling data has changed after Network Upgrade facilities have been constructed, updates to modeling data for “as built” facilities shall be submitted to MISO Model On Demand database.	120 Calendar Days after Commercial Operation Date.
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C. Affected System Owner Milestones

Interconnection Customer must fulfil obligations from Affected System Upgrades List in Appendix A, Item 7.

Appendix C to GIA

Interconnection Details

This Appendix C is a part of this GIA among Interconnection Customer, Transmission Owner and Transmission Provider.

- A. Transmission Owner shall provide the following “as-built” drawings, information and documents regarding the Transmission Owner’s Interconnection Facilities pursuant to Article 5.10 of this GIA.
- B. The unique requirements of each generation interconnection will dictate the establishment of mutually agreeable Interconnection and/or Operating Guidelines that further define the requirements of this GIA. The Interconnection and/or Operating Guidelines applicable to this GIA consist of the following information. Additional detail may be provided through attachment to this Appendix C or through electronic means.

I. GENERAL INTERCONNECTION AND OPERATING GUIDELINES

- 1. Applicable Standards.** In addition to applicable design standards identified in the GIA, Interconnection Customer agrees to comply with the most recent Transmission Owner substation/transmission/protection design guides, standards, and specifications, where applicable, for the design of and procurement for this interconnection. The Transmission Owner design guides, standards, and specifications are available upon request.

In the event that such Transmission Owner design guides, standards or specifications do not address a particular item or issue, Interconnection Customer shall use any other nationally recognized standard, guide or specification. In the event that there is a conflict between any other standard, guide or specification used by Interconnection Customer and Transmission Owner’s design guides, standards and material/construction specifications, Transmission Owner’s design guides, standards and specifications shall apply.

- 2. Communication Requirements.** Interconnection Customer shall provide analog and digital signals including hardened voice communications, as requested by the Transmission Owner and/or the Transmission Provider for RTU/frame relay/or public switched telephone systems, as further defined during detailed engineering and design of the Interconnection Facilities. Interconnection Customer agrees to transmit these signals to Transmission Owner's control building or to such other location as specified by the Transmission Owner during the detailed design of the Interconnection Facilities and Network Upgrades. Transmission Owner shall provide Interconnection Customer with the necessary substation information at the Transmission Owner's signal demarcation points. Interconnection Customer will pay all costs associated with receiving such information from Transmission Owner. The specific location of the demarcation point will be established during the detailed design of the Interconnection Facilities.

- 3. Metering Requirement.** Transmission Owner shall install and maintain interconnection metering for the connection of the Generating Facility, including auxiliary usage, and if necessary, each generating unit, at the Interconnection Customer's cost. The primary instrument devices shall be revenue class, wound-type, extended range current transformers and potential transformers that are acceptable to the Local Balancing Authority and the Transmission Owner. Local Balancing Authority will require separate meter and RTU. Meters shall be placed at the Point of Change of Ownership. The auxiliary usage metering needs shall be in accordance with local service rules/service application requirements.

- 4. Grounding Requirements.** Interconnection Customer shall design, install, and maintain grounding facilities to ground the Interconnection Customer's Interconnection Facilities in accordance Applicable Reliability Standards and Good Utility Practice. If Transmission Owner so chooses, Transmission Owner shall have the right to approve the grounding system design to insure that the grounding system properly protects the Transmission Owner's Interconnection Facilities.

- 5. Transmission Line and Substation Connection Configurations.** The Parties agree that the connections between Interconnection Customer's Interconnection Facilities and Transmission Owner's Interconnection Facilities will be made as described in Exhibit A2. Exact transmission line locations will be developed by Transmission Owner during the detailed design and regulatory process.
- 6. Unit Stability Requirements.** Interconnection Customer agrees to operate the Generating Facility in accordance with the stability requirements identified in the Interconnection System Impact Study and Interconnection Facilities Study reports, or their equivalent, prepared for this interconnection. Interconnection Customer agrees to operate the Generating Facility within the operating requirements of the Transmission System, and the rules of NERC, Reliability Coordinator and Transmission Provider.
- 7. Equipment Ratings.** Transmission Owner will determine the individual equipment ratings for specific Transmission Owner's Interconnection Facilities and Network Upgrades during the detailed design of the facilities. Interconnection Customer shall size the Interconnection Customer's Interconnection Facilities using applicable Reliability Standards, Good Utility Practice and the information provided in the Interconnection Evaluation Study in order that the Interconnection Customer's Interconnection Facilities appropriately coordinate with the Transmission Owner's Interconnection Facilities.
- 8. Short Circuit Requirements.** Transmission Owner will determine the required short circuit ratings for all Transmission Owner's Interconnection Facilities and Network Upgrades during the detailed design of such items. Interconnection Customer agrees to provide appropriately sized or short circuit-rated Interconnection Customer's Interconnection Facilities comparable to those required by Transmission Owner and the existing Interconnection Customer for the

Generating Facility using Applicable Reliability Standards, Good Utility Practice and the information provided in the Interconnection Evaluation Study.

- 9. Synchronizing Requirements.** In addition to requirements defined in Section 2 of this Appendix C and where necessary, Transmission Owner will furnish transmission system bus potentials that may be used by the Interconnection Customer for synchronizing the Generating Facility to Transmission Owner's Transmission System. These potentials will be provided to the Interconnection Customer at the Transmission Owner's signal demarcation point, as necessary.
- 10. Generation Control Requirements.** In addition to the requirements set forth elsewhere in this Appendix C, the Generating Facility shall be designed and installed with voltage and var controls. These controls shall comply with any Applicable Reliability Standards, industry standards or Good Utility Practice. The Interconnection Customer, prior to completion of the Generating Facility, shall contact Transmission Owner for the information required to properly design the Generating Facility. The Interconnection Customer further agrees to comply with any control requirements as specified in the Interconnection Facilities Study and as directed by the Transmission Operator, and shall design and construct each generating unit of the Generating Facility, if more than one unit, to include the capability to install power system stabilizers if later required.
- 11. Power Factor Design Criteria.** Interconnection Customer will design (or redesign if necessary) and operate the Generating Facility within its capabilities to provide or absorb reactive power, as directed by Transmission Provider or Transmission Operator, in accordance with requirements identified in the Interconnection System Impact Studies pursuant to Appendix G of this GIA and in accordance with Transmission Owner's facilities connection requirements. The Interconnection Customer's Generating Facility will maintain a power factor in the range of 0.95 leading to 0.95 lagging at the high side of the Generator substation and operate under the guidelines identified in Exhibit A10.

12. Energization, Inspection and Testing Requirements. Before final approval for interconnection is given per Appendix E, Interconnection Customer shall demonstrate to the Transmission Provider and Transmission Owner, through witnessed tests and/or certified test documentation, that the Generating Facility will not have adverse impact on the operation of the Transmission System. Such tests and inspections shall include pre-energization testing of equipment connected to the transmission bus, protection and control systems and pre-commercial testing of the governor, excitation and/or power system stabilizer controls. Prior to energization, the Interconnection Customer will also demonstrate to the Transmission Owner and Transmission Provider that the Generating Facility is able to comply with applicable operating guides or operating limits. Specific test requirements and documentation need to be arranged with Transmission Owner prior to tests being performed. Protection and control systems include, but are not limited to, AC auxiliary, DC systems, relaying systems, potential and current circuits, and communication systems.

13. Other. Interconnection Customer shall provide all necessary easements over all property owned, leased or otherwise controlled by Interconnection Customer, including easements for ingress/egress to Transmission Owner, for access to all Transmission Owner's Interconnection Facilities and Network Upgrades, which are on the property of Interconnection Customer. Specific real estate requirements will be determined during the detailed design. Interconnection Customer agrees to grant Transmission Owner easements in a form that is acceptable to Transmission Owner. It is expressly understood and agreed that Transmission Owner may, during the term of the Agreement, make changes to its Transmission System. Interconnection Customer agrees to make any modifications, additions or changes to the Interconnection Customer's Interconnection Facilities that are necessary or required as a result of such change, modification or addition to Transmission Owner's Transmission System and at Interconnection Customer's sole cost and expense.

II. SPECIFIC SYSTEM PROTECTION REQUIREMENTS

General. The Transmission Owner will construct a protective relaying scheme to protect the Transmission System at the TOIF from faults occurring on the Interconnection Customer's Interconnection Facilities or the Generating Facility, and from faults occurring on the Transmission Owner's Interconnection Facilities and Transmission System. Interconnection Customer will be responsible for providing protection at the ICIF for the Generating Facility and all associated equipment from faults occurring on its facilities, and from faults occurring on the Transmission Owner's Transmission System. Transmission Owner has identified the following specific requirements to ensure prompt removal of any contribution of the Generating Facility to any short circuit occurring on the Transmission System and not otherwise isolated by the Transmission Owner equipment:

- 1. Frequency Protection (IEEE 81).** Over-frequency protection for the Generating Facility shall be set at the discretion of Interconnection Customer at the agreement of Transmission Owner. Under-frequency protection shall be in accordance with the applicable NERC regional reliability organization, currently the Midwest Reliability Organization ("MRO" or its successor), and as amended from time to time.
- 2. Interconnection Customer Breaker Failure Protection (IEEE 50BF).** Interconnection Customer shall install breaker failure protection as an integral part of the relay protection on its breaker on the high side of the generator step-up transformer. The relay protection shall be coordinated with Transmission Owner in order to trip adjacent substation breakers, in the event the generator breaker fails to successfully open for any reason.
- 3. Synchronism Check Relay (IEEE 25).** Interconnection Customer shall synchronize the Generating Facility to the Transmission System across the Interconnection Customer-owned breakers. Each generating unit of the Generating Facility, if more than one unit, shall include a synchronism check relay provided by

the Interconnection Customer to supervise the automatic or manual synchronization of the unit to Transmission Owner's Transmission System.

- 4. Differential Protection (IEEE 87).** Interconnection Customer shall provide necessary dedicated relaying and input to Transmission Owner differential protection scheme to coordinate differential protection of Transmission Owner transmission bus and overlapping protection of Interconnection Customer bus or step up transformer.
- 5. Protection Redundancy.** In accordance with Good Utility Practice, Interconnection Customer shall design protection schemes such that no single component failure will prevent the isolation of faults and failed equipment. Interconnection Customer acknowledges that meeting this requirement generally means providing redundant or backup protective schemes, with separate sensing sources, separate trip paths, dual trip coils on breakers, separate control power supplies, etc.

III. SPECIFIC TELEMETRY REQUIREMENTS.

General: Telemetry is required for the monitoring and status of Interconnection Customer's and Transmission Owner's equipment. Details of the specific telemetry requirements will be provided during the detailed design of the facilities.

Interconnection Customer shall install and pay the installation cost and monthly communication costs of all required telemetry for the Generating Facility.

Transmission Owner requires continuous telemetry of, but not limited to, the following:

1. Appropriate relaying status of all installed relay equipment.
2. Status of all circuit breaker(s) capable of disconnecting the Generating Facility from the Transmission Owner's Transmission System.
3. Instantaneous MW and MVAR of each generating unit.
4. Instantaneous revenue quality MW and MVAR; and cumulative revenue quality MWhr and MVARhr at all (or possibly corrected to) Points of

Interconnection with Transmission Owner and from each generating unit, if necessary.

5. Status of auxiliary station service circuit breaker(s).
6. Aggregate instantaneous MW and cumulative MWhr of all third-party loads supplied behind Local Balancing Authority metering.
7. Instantaneous generator bus voltage(s).
8. Transfer trip communication and generation site transfer trip communication status.
9. Changes in unit status.
10. Changes in energy production of the Generating Facility.
11. Status of generator automatic voltage control equipment (if applicable).
12. Other telemetry as required by the Interconnection Customer and Transmission Owner.

IV. SPECIFIC OPERATIONAL REQUIREMENTS.

1. System Protection Facilities (Relays As They Relate To Operations).

Interconnection Customer shall report all Interconnection Customer Interconnection Facilities protective relay events to the Transmission Owner system control center, immediately following Interconnection Customer's discovery of the event.

Interconnection Customer shall provide status indication of automatic voltage regulator (if applicable) equipment and any other items that are identified during the detailed design.

- ##### **2. Communication Requirements.**
- Interconnection Customer will provide any communication protocols for proper function between Interconnection Customer's operating systems and Transmission Owner's operating systems. Interconnection Customer shall pay all fees for such communication facilities and associated monthly services.

- ##### **3. Data Reporting Requirements.**
- Interconnection Customer shall supply all information regarding events and status of equipment within the Generating Facility upon request for any event that noticeably affects the operation of the Transmission

System. Interconnection Customer shall provide outage schedules, daily/hourly load profiles, and other data upon request of Transmission Owner.

4. Emergency Operations, Including System Restoration and Black Start

Arrangements. Interconnection Customer is not required to operate as a Black Start Unit as of the effective date of this GIA. However, in accordance with Good Utility Practice, Interconnection Customer agrees to participate (if it is capable) when called upon by Transmission Provider or Transmission Owner, in Transmission Owner's Black Start Plan for the Generating Facility and Transmission Owner's Transmission System, as well as any verification testing.

5. Identified Must-Run Conditions. [*List Must-Run Conditions for interconnection customer*]

6. Specific Transmission Requirements of Nuclear Units to Abide by All NRC Requirements and Regulations. [*Enter requirements if applicable*]

7. Stability Requirements, Including Output. Interconnection Customer agrees to comply with the requirements of the reliability coordinator, Local Balancing Authority, Transmission Provider and/or Transmission Owner in the operation of the Generating Facility.

8. Limitations of Operations in Support of Emergency Response. Interconnection Customer agrees to comply with the requirements of the reliability coordinator, Local Balancing Authority, Transmission Provider and/or the Transmission Owner in the operation of the Generating Facility.

9. Special Protection System ("SPS"). Transmission Owner does not allow the addition of an SPS to the Transmission Owner's system. The Transmission Owner will also not support the addition of an SPS on a system, including the Generating Facility, where the purpose of that SPS is to mitigate a constraint on the Transmission Owner's system.

10. Use of Operating Guide. Installation of an Operating Guide will constitute an interim solution that will permit Interconnection Customer to operate the Generating Facility under conditional Interconnection Service until planned for Network Upgrades are constructed. Any Operating Guide will be subject to the

approval of the Transmission Owner and Transmission Provider. Minimum requirements for an Operating Guide are as indicated below.

- Transmission Operator will have control of Transmission Owner's breaker(s) dedicated to the Generating Facility and will be able to trip the Interconnection Customer's Generating Facility
- Protection schemes must be tested and operative
- Interconnection Customer will provide continuous communication capability with the operator of the Generating Facility
- Interconnection Customer will enter into an operating agreement which designates the responsibilities and authorities of each of the parties with the Transmission Provider and the Transmission Operator
- A termination date consistent with completion of construction of Network Upgrades will be included as part of all Operating Guides accepted by the Transmission Owner and the Transmission Provider.

11. Data from Variable Energy Resource. The Interconnection Customer shall provide any data that the Transmission Owner would need pursuant with Section 8.4.

12. FERC 827 Compliance. This project is required to meet FERC order 827 (GIA 9.6.1.2).

Appendix D to GIA

Security Arrangements Details

Infrastructure security of Transmission or Distribution System equipment and operations, as applicable, and control hardware and software is essential to ensure day-to-day Transmission and Distribution System reliability and operational security. The Commission will expect all Transmission Providers, market participants, and Interconnection Customers interconnected to the Transmission or Distribution System, as applicable, to comply with the recommendations provided by Governmental Authorities regarding Critical Energy Infrastructure Information (“CEII”) as that term is defined in 18 C.F.R. Section 388.113(c) and best practice recommendations from the electric reliability authority. All public utilities will be expected to meet basic standards for system infrastructure and operational security, including physical, operational, and cyber-security practices.

Appendix E to GIA
Commercial Operation Date

This Appendix E is a part of this GIA between Transmission Provider, Transmission Owner and Interconnection Customer.

[Date]

Central Iowa Power Cooperative

Attn: Director Engineering and Transmission Planning & Tariffs

PO Box 2517

Cedar Rapids, IA 52406-2517

RE: *[Interconnection customer]*

Dear Dan Burns:

On **[Date]** **[Interconnection Customer]** has completed Trial Operation of the [*generating facility*]. This letter confirms that **[Interconnection Customer]** commenced commercial operation of the [*generating facility*], effective as of **[Date plus one Calendar Day]**.

Thank you.

[Signature]

[Interconnection Customer Representative]

cc: Transmission Owner

Appendix F to GIA
Addresses for Delivery of Notices and Billings

Notices:

Transmission Provider:

Central Iowa Power Cooperative
Attn: Director Engineering and Transmission Planning & Tariffs
PO Box 2517
Cedar Rapids, IA 52406-2517

Transmission Owner:

Central Iowa Power Cooperative
Attn: Director Engineering and Transmission Planning & Tariffs
PO Box 2517
Cedar Rapids, IA 52406-2517

Interconnection Customer:

[To be supplied.]

Billings and Payments:

Transmission Provider:

Central Iowa Power Cooperative
Attn: Controller
PO Box 2517
Cedar Rapids, IA 52406-2517

Transmission Owner:

Central Iowa Power Cooperative
Attn: Controller
PO Box 2517
Cedar Rapids, IA 52406-2517

Interconnection Customer:

[To be supplied.]

Alternative Forms of Delivery of Notices (telephone, facsimile or email):

Transmission Provider:

Central Iowa Power Cooperative
Phone: Dan Burns 319-734-4312
William Sondermann 319-734-4361
Email: dan.burns@cipco.net,
william.sondermann@cipco.net
PlanningDept@cipco.net

Transmission Owner:

Central Iowa Power Cooperative
Phone: Dan Burns 319-734-4312
William Sondermann 319-734-4361
Email: dan.burns@cipco.net,
william.sondermann@cipco.net
PlanningDept@cipco.net

Interconnection Customer:

[To be supplied.]

Appendix G to GIA

Interconnection Requirements for a Wind Generating Plant

Appendix G sets forth requirements and provisions specific to a wind generating plant. All other requirements of this GIA continue to apply to wind generating plant interconnections.

A. Technical Standards Applicable to a Wind Generating Plant

i. Low Voltage Ride-Through (LVRT) Capability

A wind generating plant shall be able to remain online during voltage disturbances up to the time periods and associated voltage levels set forth in the standard below.

1. Wind generating plants are required to remain in-service during three-phase faults with normal clearing (which is a time period of approximately 4-9 cycles) and single line to ground faults with delayed clearing, and subsequent post-fault voltage recovery to prefault voltage unless clearing the fault effectively disconnects the generator from the system. The clearing time requirement for a three-phase fault will be specific to the wind generating plant substation location, as determined by and documented by the transmission provider. The maximum clearing time the wind generating plant shall be required to withstand for a three-phase fault shall be 9 cycles after which, if the fault remains following the location-specific normal clearing time for three-phase faults, the wind generating plant may disconnect from the transmission system. A wind generating plant shall remain interconnected during such a fault on the transmission system for a voltage level as low as zero volts, as measured at the high voltage side of the wind GSU.
2. This requirement does not apply to faults that would occur between the wind generator terminals and the high side of the GSU.
3. Wind generating plants may be tripped after the fault period if this action is intended as part of a special protection system.
4. Wind generating plants may meet the LVRT requirements of this standard by the performance of the generators or by installing additional equipment (*e.g.* Static VAR Compensator) within the wind generating plant or by a combination of generator performance and additional equipment.

5. Existing individual generator units that are, or have been, interconnected to the network at the same location at the effective date of the Appendix G LVRT Standard are exempt from meeting the Appendix G LVRT Standard for the remaining life of the existing generation equipment. Existing individual generator units that are replaced are required to meet the Appendix G LVRT Standard.

ii. Power Factor Design Criteria (Reactive Power)

The following reactive power requirements apply only to a newly interconnecting wind generating plant that has completed an Interconnection System Impact Study as of the effective date of the Final Rule establishing the reactive power requirements for non-synchronous generators in section 9.6.1 of this GIA (Order No. 827). A wind generating plant to which this provision applies shall maintain a power factor within the range of 0.95 leading to 0.95 lagging, unless Transmission Provider has established different requirements that apply to all Generating Facilities in the Local Balancing Authority on a comparable basis, measured at the Point of Interconnection as defined in this GIA, if the Transmission Provider's Interconnection System Impact Study shows that such a requirement is necessary to ensure safety or reliability. The power factor range standard can be met by using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors if agreed to by Transmission Provider, or a combination of the two. Interconnection Customer shall not disable power factor equipment while the wind plant is in operation. Wind plants shall also be able to provide sufficient dynamic voltage support in lieu of the power system stabilizer and automatic voltage regulation at the generator excitation system if the Interconnection System Impact Study shows this to be required for system safety or reliability.

iii. Supervisory Control and Data Acquisition (SCADA) Capability

The wind plant shall provide SCADA capability to transmit data and receive instructions from Transmission Provider to protect system reliability. Transmission Provider and Interconnection Customer shall determine what SCADA information is essential for the proposed wind plant, taking into account the size of the plant and its

characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.