



Interconnection Policy for  
Distributed Generation > 100 kw  
in Retail Distribution System

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## 1.0 PURPA IMPLEMENTATION

Sikeston to determine the following as applicable to distribution level generator interconnection facilities output capacity greater than 100 kilowatts.

### 1.1 COSTS TO INTERCONNECT

Interconnection Costs in excess of corresponding costs incurred without interconnection operation shall be borne by the customer.

- Administrative Fees
  - Application Processing
  - Project Management
- Study Fees
  - Technical Screen Hours
  - Impact Study Costs
  - Facility Study Costs
- Equipment Costs
  - Meter
  - Relaying
  - Telemetry
  - T&D Upgrades
  - Power Quality Measurement
- O&M
  - Utility-sided assets deployed solely to support interconnection

### 1.2 PAYMENTS AND REIMBURSEMENTS

Methods of Sikeston BMU reimbursement of costs to interconnect

- Detailed and itemized good faith estimates of any costs should be provided to the customer.
- Any administrative fees and fixed costs should be agreed upon and paid in full by customer prior to execution of costed portion of work.
- A deposit should be collected for variable fees. When actual costs are established, additional costs will be collected, or if initial deposit was in excess, refunded to the customer.
- Interconnection specific costs must be borne by the applicant. Sikeston's priority is to ensure customers who will not receive interconnection benefits are not burdened.
  - Value of Solar Study or other grid services assessment can identify system benefits of interconnections

## 1.3 RIGHTS AND RESPONSIBILITIES

### 1.3.1 CUSTOMER RIGHTS AND RESPONSIBILITIES

1. The Customer has the following rights:
  - (a) To expect prompt and professional engagement with Sikeston BMU during the interconnection process, and to expect that every effort will be made to accommodate customer requirements while maintaining the safety, reliability, and security of the electric power system.
  - (b) To apply to interconnect a Generating Facility with the Sikeston BMU Electric System. Completed applications shall be responded to by Sikeston BMU within ninety (90) days of the completed application.
  - (c) To expect detailed and itemized good faith estimates of costs from Sikeston BMU.
  - (d) To expect justification for proposed work before Sikeston BMU conducts Studies or System Upgrades to accommodate the Generating Facility.
  - (e) To be reimbursed for power export according to a Purchase Power Agreement executed by Customer.
2. The Customer shall ensure that:
  - (a) The Generating Facility shall meet or exceed all requirements of the National Electrical Safety Code, national Electrical Code, Underwriters Laboratories, Institute of Electrical and Electronic Engineers, the Federal Energy Regulatory Commission, and any other federal, state, or local interconnection, safety, and protection requirements.
  - (b) The Generating Facility meets all applicable construction codes, safety codes, electric codes, laws, and requirements of The City of Sikeston or other authority having jurisdiction.
  - (c) The Generating Facility's Certified Equipment is installed and operating in a manner that protects utility personnel, and the public from harm.
  - (d) The Generating Facility design, installation, maintenance, and operation minimize the likelihood of causing a malfunction in, damaging, or otherwise impairing the Sikeston BMU Electric System.
  - (e) The Generating Facility does not adversely affect the quality of service to other Sikeston BMU consumers.
  - (f) The Generating Facility is maintained in accordance with applicable manufacturer maintenance schedules.
  - (g) Sikeston BMU is notified of any emergency or hazardous condition or occurrence involving the Generating Facility that could affect safe operation of Sikeston BMU's Distribution System.
3. The Customer shall pay for; lease or own; and be responsible for designing, installing, and operating all Interconnection Facilities located on the Customer's side of the Point of Interconnection.
4. The Customer shall bear all interconnection costs Sikeston BMU would not have incurred had the interconnection not taken place. This includes application fees, study fees when applicable, transmission and distribution system upgrades to facilitate Generating Facility when applicable, and any Sikeston BMU interconnection equipment including metering, relaying, and telemetry as applicable.
5. The customer shall ensure that Interconnection Facilities:
  - (a) Are located on the Customer's premises.
  - (b) Include all necessary equipment to enable parallel operation between the Generating Facility and Sikeston BMU System including the following equipment:
    - (i) Connection

- (ii) Transformation
  - (iii) Switching
  - (iv) Protective Relaying
  - (v) Metering
  - (vi) Communication and security of communications
  - (vii) Safety Requirements
  - (c) Includes a visible open AC Disconnect Switch
  - (d) Meet any other requirements determined by Sikeston BMU.
  - (e) The facility shall have:
    - (i) Physical security of the site
    - (ii) All weather access to the equipment on site
    - (iii) Proper signage and placards
    - (iv) Met all applicable standards for design, and equipment
    - (v) The proper permits and inspections from the local, state and federal authorities.
6. The Customer shall not interconnect or operate any Generating Facility with the Sikeston BMU System without first executing an Interconnection Agreement with Sikeston BMU.
  7. The Customer must operate within the bounds of the Interconnection Agreement at all times.
  8. The Customer shall notify Sikeston BMU and receive written authorization prior to making any change to the Generating Facility that may impact the safety or reliability of the Sikeston BMU electric system. This includes changes to protective settings of inverters or relays or upgrades that may change the power output of the Generating Facility.

### 1.3.2 UTILITY RIGHTS AND RESPONSIBILITIES

1. Sikeston BMU shall interconnect any Generating Facility which applies for interconnection, and meets all Sikeston BMU interconnection requirements.
2. Sikeston BMU shall be allowed access to the Generating Facility at all times. When practical, advanced notice will be provided.
3. Sikeston BMU will be allowed, at their discretion, to disconnect or isolate the Generating Facility due to emergency, maintenance, outage, and other operational necessity.
4. Sikeston BMU shall purchase power from a Generating Facility according to the terms laid out in the Power Purchase Agreement.
5. The rate determined in the Power Purchase Agreement shall be the flat annual Avoided Cost rate assessed annually by Sikeston BMU.
6. Sikeston BMU shall not be required to purchase energy during any period where, due to operational circumstances, such purchase will result in costs greater than those incurred if Sikeston BMU generated an equivalent amount of energy itself.
  - (a) Sikeston BMU is required to provide the Customer with reasonable notice if such operational circumstances require an affected facility to curtail energy export.
7. Sikeston BMU shall require that an interconnected Generating Facility:
  - (a) Not present any hazards to Sikeston BMU personnel, other Sikeston BMU consumers, or the public.
  - (b) Minimize the possibility of damage to Sikeston BMU and to other Sikeston BMU consumer equipment.
  - (c) Not adversely affect the quality of service to other Sikeston BMU consumers.
  - (d) Not hamper efforts to restore a feeder to service when a Clearance is required.

8. Sikeston BMU shall notify the Customer if there is any indication that the Customer Generating Facility has caused disruption of service or impacted the power quality of other Sikeston BMU consumers or that such operation has caused damage to the Sikeston BMU System.
9. Sikeston BMU shall make the Interconnection Requirements, standard Application, and standard Interconnection Agreement readily available to an applicant.
10. Following the receipt of an Application, Sikeston BMU shall screen the Generating Facility design and proposed Point of Interconnection for negative system impacts.
  - (a) If the Generating Facility fails screening, a System Impact Study may be required.
  - (b) If the results of a System Impact Study necessitate Sikeston BMU System Upgrades, Sikeston BMU shall conduct, at the Customer's request, a Facilities Study and provide a cost estimate to the applicant to procure and install the required equipment.
  - (c) Sikeston BMU system impacts which can be mitigated through additional interconnection facilities, modifications to Generating Facility design, or operational requirements shall be made available to the Customer as optional solutions when reasonable.
11. Sikeston BMU shall process each Application on a nondiscriminatory basis.

## 1.4 INTERCONNECT TECHNICAL REQUIREMENTS

### 1.4.1 POWER QUALITY

The Customer shall ensure that the electrical characteristics of Customer load and generating equipment will maintain normal power quality requirements. Any deviation from sine waveform or unusual short interval changes in power demand or production shall not result in impairment of service to other customers.

- Harmonics shall meet IEEE 519 limits.
- Flicker shall remain compliant with IEEE 1453.
- Three-phase circuit balance shall not exceed 3% phase to phase unbalance as measured at the Point of Interconnection.
- Power factor shall be maintained by the Generating Facility within the range of 0.95 leading to 0.95 lagging as measured at the Point of Interconnection.
- Sikeston BMU may require that a Customer Generating Facility provides or absorbs reactive power.

### 1.4.2 VOLTAGE REQUIREMENTS

Customer Generating facility must be rated at 60 Hertz and be either a single-phase or three-phase system connected at a standard utility primary voltage selected by the Customer subject to utility availability at the premise.

Operation of a Generating Facility shall not adversely affect the voltage regulation of the portion of Sikeston BMU electric system to which it is connected. Voltage of the Sikeston BMU electric system should not rise above or below 5% of the nominal system voltage. Adequate voltage control shall be provided by the Customer to minimize voltage regulation on the Sikeston BMU electric system caused by changing generator loading conditions.

### 1.4.3 ADVANCED GRID SUPPORT

As parallel systems begin to dominate the local area generation, their collective contribution to power quality become more important. The power system industry relies on UL 1741 SA certification and requires equivalent advanced grid support functionality for non-UL 1741 SA certified systems to comply with IEEE 1547-2018. While some functions may not be enabled at commissioning, when area power quality is negatively impacted Sikeston reserves the right to enable or adjust Generating Facility operational control modes to achieve acceptable levels. Advanced grid support functions can include reactive support through power factor control, voltage and frequency ride through, automatic voltage regulating, and frequency response.

### 1.4.4 CONTROL VOLTAGE AND LOSS OF POWER

In any event that there is loss of power from Sikeston BMU, Customer Generating Facility must disconnect from Sikeston BMU by opening the AC disconnect switch. Customer Generating facility must cease to energize the electric grid within 2 seconds of a loss of power from Sikeston BMU. The protective system must be designed to disconnect the generation from the electric grid when control power is lost.

### 1.4.5 CUSTOMER-OWNED AND UTILITY-OWNED EQUIPMENT

The Customer shall be responsible for operating and maintaining the Generating Facility and all associated equipment in accordance with the requirements of all applicable safety codes, electrical codes, laws, and governmental agencies having jurisdiction.

Sikeston BMU may request witnessing of functional trip tests of customer owned equipment on an annual basis. When requested, the Customer shall notify Sikeston BMU when such tests are to be performed at least five working days prior to such tests and shall allow Sikeston BMU personnel to witness the testing. In addition, Sikeston BMU may annually request that all protective devices be field tested and calibrated by qualified personnel, and that written copies of the results be provided to Sikeston BMU.

Sikeston BMU, including its employees, agents, and representatives, shall have the right to enter the customers' premises and the Customer's Generating Facility and associated equipment shall be readily accessible. For it to be readily accessible it must be capable of being reached quickly and conveniently on a 24-hour basis every day of the year without requiring climbing over or removing obstacles, or obtaining special permission, keys, or security clearance. Reasons for Sikeston BMU accessing the premises may include, but are not limited to:

- Inspecting the Customer's Generating Facility, protective devices, and to read or test instrumentation equipment that Sikeston BMU may install.
- Maintain or repair utility-owned equipment.
- Disconnect the Generating Facility without notice if Sikeston BMU suspects a hazardous condition exists and such immediate action is necessary to protect persons, Sikeston BMU facilities or other Customers' or third parties' property and facilities from damage or interference caused by the Customer's Generating Facility, or if Sikeston BMU suspects improperly operating protective devices.

The Customer shall maintain their equipment following the manufacturers guidelines and/or industry accepted practices for the technology type utilized.

### 1.4.6 METERING

Sikeston BMU will own, operate, and maintain the generation metering equipment at the Customer's expense. The generation meter will meter real and reactive

interconnection power flows between Generating Facility and the Sikeston BMU electric system. Where applicable, separate metering of station power may be required to accurately meter storage or facility load when the generator is offline.

The Customer shall always provide authorized employees access to the premise to install, turn on, disconnect, inspect, test, read, repair, or remove the metering equipment. The Customer may, at its option, have a representative witness this work.

The Customer shall provide a mounting surface for the meters, recorders, connection cabinets, a housing for the instrument transformers, a dedicated conduit for the conductors between the instrument transformer secondary windings and the meter connection cabinets, and a conduit for the communication links, if required.

Whenever possible, the output of multiple generators shall be combined before connecting to a dedicated generation meter such that each billing meter is to have only one dedicated generation meter and associated disconnect switch used to isolate the entire Generating Facility.

#### 1.4.7 DISCONNECT SWITCH

The Customer shall install and maintain a single stand alone, manually-operated load-break disconnect switch capable of being locked in a visibly open position by a standard padlock with a 3/8" shank. This switch shall completely open and isolate all ungrounded conductors of the Generating Facility from the Sikeston BMU Electric System. For multi-phase systems, the switch shall be gang-operated.

The disconnect switch shall be clearly labeled and easy to locate. If the disconnect switch is obstructed, for example by other equipment or foliage, clearly visible signage locating the disconnect switch should be displayed and its visibility maintained.



## 2.0 INTERCONNECT APPLICATION PACKAGE

### INTERCONNECT APPLICATION

### Systems Greater than 100 kW

APPLICATION NUMBER \_\_\_\_\_

#### 2.1 CUSTOMER INFORMATION

NAME: \_\_\_\_\_

SERVICE ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP CODE: \_\_\_\_\_

MAILING ADDRESS (IF DIFFERENT FROM ABOVE)

SERVICE ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP CODE: \_\_\_\_\_

DAYTIME PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_ EMAIL: \_\_\_\_\_

BMU ACCOUNT NO. (FROM UTILITY BILL): \_\_\_\_\_

*I have read, understand, and accept the provisions of this application, including the "Customer and Utility Rights and Responsibilities."*

CUSTOMER SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

NAME (PRINT): \_\_\_\_\_

#### 2.2 SITE INFORMATION

EXISTING ELECTRICAL SERVICE CAPACITY:

\_\_\_\_\_ AMPS \_\_\_\_\_ VOLTS

EXISTING ELECTRICAL CHARACTER

SINGLE-PHASE  THREE-PHASE

ANNUAL SITE USAGE WITHOUT GENERATION (KWH) \_\_\_\_\_

PEAK ANNUAL SITE DEMAND WITHOUT GENERATION (KW) \_\_\_\_\_

OTHER THAN ELECTRICALLY ISOLATED BACKUP GENERATORS, ARE THERE ANY EXISTING GENERATING SYSTEMS ON SITE? \_\_\_\_\_

EXISTING GENERATOR TYPE(S) \_\_\_\_\_

EXISTING GENERATOR AGGREGATE NAMEPLATE CAPACITY (KW) \_\_\_\_\_

## 2.3 GENERATING FACILITY INFORMATION

MODE OF OPERATION<sup>1</sup>

DESCRIPTION OF SERVICE

EXPORT  NON-EXPORT

NEW SITE  NEW GENERATOR AT EXISTING

RATE CLASS:

RESIDENTIAL  COMMERCIAL AC OUTPUT VOLTAGE: \_\_\_\_\_

AGGREGATE GENERATOR NAMEPLATE AC POWER RATING (KW): \_\_\_\_\_

EXPECTED ANNUAL OUTPUT (KWH): \_\_\_\_\_

EXPECTED ANNUAL USAGE (KWH): \_\_\_\_\_

THIS SYSTEM WILL INCLUDE AN ENERGY STORAGE SYSTEM<sup>2</sup>

THIS SYSTEM IS INTENDED TO BE ISLANDABLE<sup>3</sup>

SYSTEM TYPE:

SOLAR  WIND  BIOMASS  FUEL CELL  OTHER (DESCRIBE) \_\_\_\_\_

INVERTER/INTERCONNECTION EQUIPMENT MANUFACTURER: \_\_\_\_\_

INVERTER/INTERCONNECTION EQUIPMENT MODEL: \_\_\_\_\_

INVERTER(S) ARE CERTIFIED UL 1741 SA

VERIFY THE FOLLOWING ITEMS ARE ATTACHED TO OUR APPLICATION SUBMISSION

ALL GENERATOR SYSTEM EQUIPMENT DATASHEETS

SYSTEM ONE-LINE DIAGRAM

SITE PLAN DIAGRAM

INVERTER HARMONICS 1-50 (AT POWER LEVELS 33% 66% 100%)

MANUFACTURER INVERTER MODEL FOR ANY INVERTER MODEL IN DESIGN

THE FOLLOWING SECTIONS OF **MODEL INTERCONNECTION PROCEDURES** (*Interstate Renewable Energy Council, Inc., 2019*) ARE ACCEPTABLE FOR GENERATOR TECHNOLOGY SPECIFIC INITIAL APPLICATION INTAKE DATA.

TABLE 1: MODEL INTERCONNECTION PROCEDURES ATTACHMENT 4

SECTION	TECHNOLOGY
<b>2C</b>	Inverter data
<b>2D</b>	Rotating Machines
<b>2E</b>	Synchronous Generators
<b>2F</b>	Induction Generators
<b>3</b>	Transformer and Protective Relays

<sup>1</sup>An **Export** system intending to sell excess power through the grid or **Non-Export** system designed to only provide power to local premise.

<sup>2</sup>If yes, refer to attachment 1: Storage System Information

<sup>3</sup>An **Islandable** system can disconnect from the electric grid during an outage and continue to provide power to local premise (Island).

## 2.4 GENERATOR INSTALLATION INFORMATION

PERSON OR COMPANY INSTALLING: \_\_\_\_\_

CONTACT NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP CODE: \_\_\_\_\_

MAILING ADDRESS (IF DIFFERENT FROM ABOVE): \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP CODE: \_\_\_\_\_

DAYTIME PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_ EMAIL: \_\_\_\_\_

INSPECTION AGENCY/PERSON: \_\_\_\_\_

## 2.5 STORAGE SYSTEM INFORMATION

### 2.5.1 ENERGY STORAGE SYSTEM

ENERGY STORAGE SYSTEM MANUFACTURER: \_\_\_\_\_

ENERGY STORAGE SYSTEM MODEL: \_\_\_\_\_

NUMBER OF ENERGY STORAGE MODULES: \_\_\_\_\_

ENERGY STORAGE SYSTEM AGGREGATE SIZE: \_\_\_\_\_

RATED DISCHARGE CAPACITY (kW): \_\_\_\_\_

TECHNOLOGY: \_\_\_\_\_

DOES THE SYSTEM MEET NFPA-855 REQUIREMENTS:  YES  NO

MAXIMUM DESIGN FAULT CONTRIBUTION CURRENT: \_\_\_\_\_

### 2.5.2 ESS GENERAL DATA

AGGREGATE STORED ENERGY (kWh): \_\_\_\_\_

CHARGE/DISCHARGE CYCLE EFFICIENCY: \_\_\_\_\_

RAMP TIME (kW/SEC): \_\_\_\_\_

CHARGING SOURCE: \_\_\_\_\_

SIKESTON BMU SERVICE  ON-SITE GENERATION

### 2.5.3 STORAGE SYSTEM INVERTER DATA

STORAGE SYSTEM INVERTER MANUFACTURER: \_\_\_\_\_

STORAGE SYSTEM INVERTER MODEL: \_\_\_\_\_

INVERTERS ARE UL 1741 SA LISTED

STORAGE SYSTEM INVERTER QUANTITY: \_\_\_\_\_

STORAGE SYSTEM INVERTER ADDREGATE AC OUTPUT(KW): \_\_\_\_\_

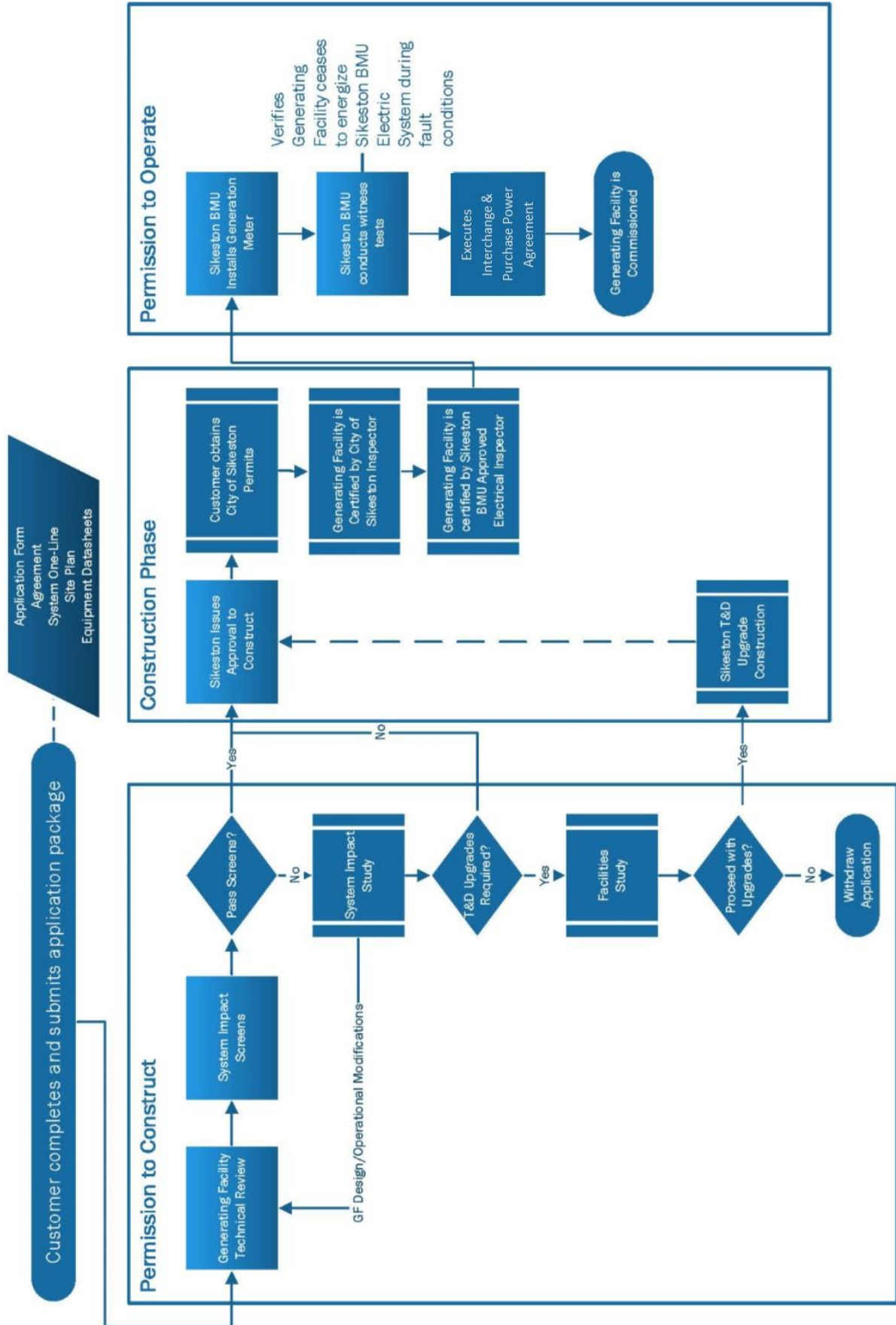
FREQUENCY RESPONSE CAPABILITY

VOLTAGE RESPONSE CAPABILITY

STORAGE SYSTEM NOMINAL AC PUTPUT VOLTAGE: \_\_\_\_\_

STORAGE SYSTEM NOMINAL DC INPUT VOLTAGE: \_\_\_\_\_

### 3.0 INTERCONNECTION BUSINESS PROCESS



#### 4.0 TERMS AND DEFINITIONS

Application: means the Applicant's request to interconnect a new Generating Facility, or to increase the capacity of, or make a modification to the operating characteristics of, an existing Generating Facility that is interconnected with Sikeston BMU Electric System.

Client: Sikeston BMU

Certified: Equipment which has been tested in accordance with the applicable requirements of IEEE Std 1547™ and IEEE Std 1547.1™ by any Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Occupational Safety and Health Administration to test and certify equipment pursuant to the applicable standard and the equipment has been labeled and is publicly listed by such NRTL at the time of the interconnection application. UL 1741 is one such standard that ensures compliance with IEEE Std 1547™ and IEEE Std 1547.1™ and is applicable only to inverters. There may be additional or separate certifications available for specific pieces of equipment.

Customer: an entity that receives or is entitled to receive distribution service through the Sikeston BMU Electric System or is otherwise a retail customer of Sikeston BMU.

Generating Facility: All or part of the Customer's electrical generator(s) or inverter(s) together with all protective, safety, and associated equipment necessary to produce electric power at the Customer's facility. Generating Facility can include transformers, switchyard equipment, and any dedicated distribution and transmission lines or equipment implemented and maintained for interconnection purposes.

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.

Interconnection: The physical connection of the Customer's Distributed Energy Resource to the Utility system.

Interconnection Agreement: The contractual agreement between Sikeston BMI and the customer/generator that defines the terms for the parallel operation of the customer's generator with the Sikeston BMU electric system.

Point of Interconnection (POI): The physical location where the Sikeston BMU electric service conductors are connected to the Customer's service conductors to allow parallel operation of the Customer's Generating Facility with Sikeston BMU Electric System.

System Upgrades: The additions, modifications, and upgrades to the Electric Power 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. System Upgrades do not include Interconnection Facilities

Purchase Power Agreement: The contractual agreement between Sikeston BMU and the customer/generator that defines the terms for the sale and purchase of electricity between the two parties. This agreement will include items such as identifying the parties of the agreement, the length of the agreement, performance standards, pricing, payment terms, and penalties as well as other terms required by Sikeston BMU

Avoided Cost: The cost to the utility if it had generated or otherwise purchased the power. It is a benchmark price for energy services, used to compare resource alternatives