

**INTERCONNECTION APPLICATION FOR ALL BUT UL1741 CERTIFIED INVERTER
BASED SYSTEMS LESS THAN 10 KW**

In addition to the information provided below, a complete Interconnection Application includes:

1) a single-line diagram, 2) relay list, trip scheme and settings of the Generating Facility, 3) Generating Facility Equipment List, and 4) three-line diagram (if needed), which identify the circuit breakers, relays, switches, synchronizing equipment, monitoring equipment, and control and protective devices and schemes, shall, after having obtained prior consent from the Company, be attached to and made a part of the interconnection agreement that is signed between the Facility Parties and the Company at the end of the interconnection process.

The single-line diagram shall include pertinent information regarding operation, protection, synchronizing, control, monitoring and alarm requirements. The single-line diagram and three-line diagram shall expressly identify the point of interconnection of the Generating Facility to the Company's Distribution System. The relay list, trip scheme and settings shall include all protection, synchronizing and auxiliary relays that are required to operate the Generating Facility in a safe and reliable manner. The three-line diagram shall show potential transformer and current transformer ratios, and details of the Generating Facility's configuration, including relays, meters, and test switches.

Section 1, Applicant Information

Customer

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone
Area Code (Daytime): _____ Number _____ Area Code (Evening): _____ Number _____

E-mail: _____ Account Number: _____

Facility Location (if different from above): _____

Facility Location (Tax Map Key Number): _____

Owner (if different from Customer)

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

E-mail: _____

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Telephone (Daytime): Area Code _____ Number _____ Area Code (Evening): _____ Number _____

Operator (if different from Customer)

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

E-mail: _____

Telephone (Daytime): Area Code _____ Number _____ Area Code (Evening): _____ Number _____

Section 2, Generator Qualifications

Is the generator a Qualifying Facility as defined under Subpart B, Section 201 of the Federal Energy Regulatory Commission's regulations per the Public Utility Regulatory Policies Act of 1978, or the PUC's Standards for Small Power Production and Cogeneration (Hawaii Administrative Rules Title 6, Chapter 74)?

Yes No

Is Generator powered from a Nonfossil Fuel Source?

Yes No

Type of Qualifying Facility or Nonfossil Fuel Source (if applicable): Solar Wind Hydro Biomass Geothermal

Other generator energy source: Diesel Other Fuel Oil Other: _____

PV Array DC Rated Output: _____ kW PV Array AC Rated Output: _____ kW
(CEC-CSI)²

Maximum Site Load without Generation: _____ kW Maximum Generating Capability: _____ kW

Minimum Site Load without Generation: _____ kW Maximum Export: _____ kW

² CEC-CSI means the California Energy Commission's ratings under the California Solar Initiative program.
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Section 3. Generator Technical Information

Type of Generator: Synchronous Induction Inverter-Based Generating Facility

Generator (or solar collector) Manufacturer, Model Name & Number: _____
(A copy of Generator Nameplate and Manufacturer's Specification Sheet may be substituted)

_____ Nameplate Rating in kW: _____
Operating Power Factor: _____

Inverter Manufacturer, Model Name & Number (if used): _____
(A copy of Inverter Nameplate and Manufacturer's Specification Sheet may be substituted)

_____ Rating in kW: _____
Operating Power Factor: _____

Number of Starts Per Day: _____ Maximum Starting kVA: _____

UF Trip Setting: _____ UF Time Delay (Secs) _____

Generator Grounding Method:

- | | |
|--|---|
| <input type="checkbox"/> Effectively Grounded | <input type="checkbox"/> Resonant Grounded |
| <input type="checkbox"/> Low-Inductance Grounded | <input type="checkbox"/> High-Resistance Grounded |
| <input type="checkbox"/> Low-Resistance Grounded | <input type="checkbox"/> Ungrounded |

Generator Characteristic Data (for rotating machines):
(Not needed if Generator Nameplate and Manufacturer's Specification Sheet are provided)

Direct Axis Synchronous Reactance, X_d : _____ P.U. Negative Sequence Reactance: _____ P.U.

Direct Axis Transient Reactance, X'_d : _____ P.U. Zero Sequence Reactance: _____ P.U.

Direct Axis Subtransient Reactance, X''_d : _____ P.U. KVA Base: _____

Inertia Constant, H: _____ P.U.

Excitation Response Ratio: _____

Direct Axis Open-Circuit Transient Time Constant, T'_{do} : _____ Seconds

Direct Axis Open-Circuit Subtransient Time Constant, T''_{do} : _____ Seconds

Fault Current Contribution of Generator: _____ Amps

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Section 4, Interconnecting Equipment Technical Data

Will an interposing transformer be used between the generator and the point of interconnection? Yes No

Transformer Data (if applicable, for Facility Parties Owned Transformer):
(A copy of transformer Nameplate and Manufacturer's Test Report may be substituted)

Size: _____ KVA. Transformer Primary: _____ Volts Delta Wye Wye Grounded
Transformer Secondary: _____ Volts Delta Wye Wye Grounded

Transformer Impedance: _____ % on _____ KVA Base

Transformer Fuse Data (if applicable, for Facility Parties Owned Fuse):
(Attach copy of fuse manufacturer's Minimum Melt & Total Clearing Time-Current Curves)

At Primary Voltage Secondary Voltage

Manufacturer: _____ Type: _____ Size: _____ Speed: _____

Transformer Protection (if not fuse):

Please describe: _____

Interconnecting Circuit Breaker (if applicable):
(A copy of circuit breaker's Nameplate and Specification Sheet may be substituted)

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

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Circuit Breaker Protective Relays (if applicable):
(Enclose copy of any proposed Time-Overcurrent Coordination Curves)

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

Current Transformer Data (if applicable):
(Enclose copy of Manufacturer's Excitation & Ratio Correction Curves)

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

Generator Disconnect Switch:

A generator disconnect device (isolation device) must be installed with features as described in the "HECO, HELCO, MECO Distributed Generating Facility Interconnection Standards, Technical Requirements" as set forth in Rule No. 14 (Paragraph H.1) of the Company's tariff, and which is accessible to Company.

Manufacturer: _____ Type: _____ Catalog No.: _____ Rated Volts: _____ Rated Amps: _____
Single or 3 Phase: _____ Mounting Location: _____

Section 5, General Technical Information

Enclose copy of site single-line diagram showing configuration and interconnection of all equipment, current and potential circuits and protection and control schemes.

Is Single-Line Diagram Enclosed? Yes

Enclose copy of site relay list and trip scheme, which shall include all protection, synchronizing and auxiliary relays that are required to operate the Facility in a safe and reliable manner.

Are Relay List and Trip Scheme Enclosed? Yes

Enclose copy of site three-line diagram (if the Facility's capacity is greater than or equal to 30 kW) showing potential transformer and current transformer ratios, and details of the Facility's configuration, including relays, meters, and test switches.

Is Three-Line Diagram Enclosed? Yes

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Section 6, Installation Details

Installing Electrical Contractor: _____ Firm: _____ License No.: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone: Area Code: _____ Number: _____

Installation Date: _____ Interconnection Date: _____

Supply certification that the generating system has been installed and inspected in compliance with the local Building/Electrical code of the county of _____ .

Signed (Inspector): _____ Date: _____
(In lieu of signature of Inspector, a copy of the final inspection certificate may be attached)

Section 7, Generator/Equipment Certification

Generating systems that utilize inverter technology must be compliant with *Institute of Electrical and Electronics Engineers IEEE Std 1547* and *Underwriters Laboratories UL 1741* in effect at the time this Agreement is executed. Generating systems that use a rotating machine must be compliant with applicable National Electrical Code, Underwriters Laboratories, and Institute of Electrical and Electronics Engineers standards and rules and orders of the Hawaii Public Utilities Commission in effect at the time this Agreement is executed. **By signing below, the Applicant certifies that the installed generating equipment meets the appropriate preceding requirement(s) and can supply documentation that confirms compliance.**

Signed (Facility Parties): _____ Date: _____

Section 8, Insurance

Insurance Carrier: _____

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Superseding SHEET NO. 34C-47
Effective May 27, 2010

REVISED SHEET NO. 34C-47
Effective December 3, 2011

IN WITNESS WHEREOF, the Company and the Facility Parties have executed this Agreement as of the day and year first above written.

By _____
Name:
Title:
Date:

By _____
Name:
Title:
Date:

By _____
Name:
Title:
Date:

"Company"

"Customer"

By _____
Name:
Title:
Date:

"Owner"

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