

GENERATOR INTERCONNECTION APPLICATION

FOR BUY-ALL/SELL-ALL PROJECTS WITH AGGREGATE GENERATOR OUTPUT OF
MORE THAN 20 KW BUT LESS THAN OR EQUAL TO 1 MW

Generation System - Manufacturer Information

System Type (Solar, Wind, Biomass, Methane Digester, etc):
Generator Type (Inverter, Induction, Synchronous):
Total Generator(s) Nameplate DC Rating (Solar Only):
Total Generator(s) Nameplate AC Rating:
Expected Annual Output in Kilowatthours
AC Output Operating Voltage:
Generator Wiring Configuration (Single Phase, Three Phase):
Is the Inverter tested to IEEE1547.1?

	kW
	kW
	kWh/year

Yes No Not Applicable

Inverter Based Systems:

Manufacturer
Model (Name / Number)
Inverter Output Power Rating (kW)
No. of Inverter(s)

Induction & Synchronous Based Systems

Manufacturer
Model (Name / Number)

Installation Information

Project Single Point of Contact: (Electric Utility Customer, Developer, or other)

Name:
Company (If Applicable):
Phone Number:
E-Mail Address:

Requested In Service Date:

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Licensed Professional Engineer Name (If applicable)

Licensed Electrical Contractor Name (If applicable)

Electrical Contractor/PE Phone #:

Electrical Contractor/PE E-Mail:

Customer and Contractor Signature and Fees

Attached \$100 Interconnection Application Fee (Check # / Money Order #)

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(Sign and Return complete application with Application Fee to Electric Utility Contact)
To the best of my knowledge, all the information provided in this Application Form is complete and correct.

Customer

Project Developer/Contractor (If Applicable)

Note: Refer to the applicable "Michigan Electric Utility Generator Interconnection Procedures" for a detailed explanation of the Interconnection Process, Fees, Timelines, and

APPENDICES

Appendix A: Technical Information for Synchronous-Type Generators
Appendix B: Technical Information for Induction-Type Generators
Appendix C: Sample Site Plan
Appendix D: Sample One-Line diagram for Inverter Type Project
Appendix E: Sample One-Line diagram for Synchronous Type Project
Appendix F: Sample One-Line diagram for Induction Type Project

Synchronous Generators

Generator Information

- a. Generator Nameplate Voltage
- b. Generator Nameplate Watts or Volt-Amperes
- c. Generator Nameplate Power Factor (pf)
- d. RPM

a.
b.
c.
d.

Technical Information

- e. Minimum and Maximum Acceptable Terminal Voltage
- f. Direct axis reactance (saturated)
- g. Direct axis reactance (unsaturated)
- h. Quadrature axis reactance (unsaturated)
- i. Direct axis transient reactance (saturated)
- j. Direct axis transient reactance (unsaturated)
- k. Quadrature axis transient reactance (unsaturated)
- l. Direct axis sub-transient reactance (saturated)
- m. Direct axis sub-transient reactance (unsaturated)
- n. Leakage Reactance
- o. Direct axis transient open circuit time constant
- p. Quadrature axis transient open circuit time constant
- q. Direct axis subtransient open circuit time constant
- r. Quadrature axis subtransient open circuit time constant
- s. Open Circuit saturation curve
- t. Reactive Capability Curve showing overexcited and underexcited limits (Reactive Information if non-synchronous)
- u. Excitation System Block Diagram with values for gains and time constants (Laplace transforms)
- v. Short Circuit Current contribution from generator at the Point of Common Coupling
- w. Rotating inertia of overall combination generator, prime mover, couplers and gear drives
- x. Station Power load when generator is off-line, Watts, pf
- y. Station Power load during start-up, Watts, pf
- z. Station Power load during operation, Watts, pf

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Generator Information

- a. Generator Nameplate Voltage
- b. Generator Nameplate Watts or Volt-Amperes
- c. Generator Nameplate Power Factor (pf)
- d.RPM

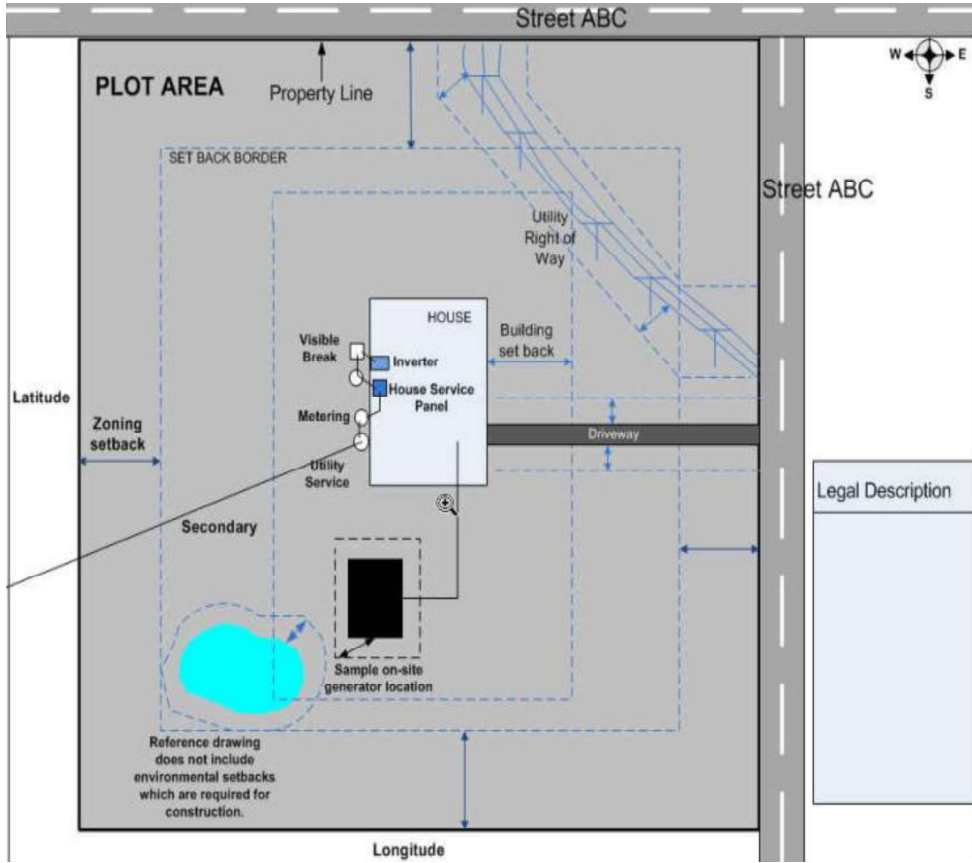
a.
b.
c.
d.

Technical Information

- e. Synchronous Rotational Speed
- f. Rotation Speed at Rated Power
- g. Slip at Rated Power
- h. Minimum and Maximum Acceptable Terminal Voltage
- i. Motoring Power (kW)
- j. Neutral Grounding Resistor (If Applicable)
- k. I_2^2t or K (Heating Time Constant)
- l. Rotor Resistance
- m. Stator Resistance
- n. Stator Reactance
- o. Rotor Reactance
- p. Magnetizing Reactance
- q. Short Circuit Reactance
- r. Exciting Current
- s. Temperature Rise
- t. Frame Size
- u. Design Letter
- v. Reactive Power Required in Vars (No Load)
- w. Reactive Power Required in Vars (Full Load)
- x. Short Circuit Current contribution from generator at the Point of Common Coupling
- y. Rotating inertia, H in Per Unit on kVA Base, of overall combination generator, prime mover, couplers and gear drive
- z. Station Power load when generator is off-line, Watts, pf
- aa. Station Power load during start-up, Watts, pf
- bb. Station Power load during operation, Watts, pf

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Appendix C: Sample Site Plan - Provided for Reference Only



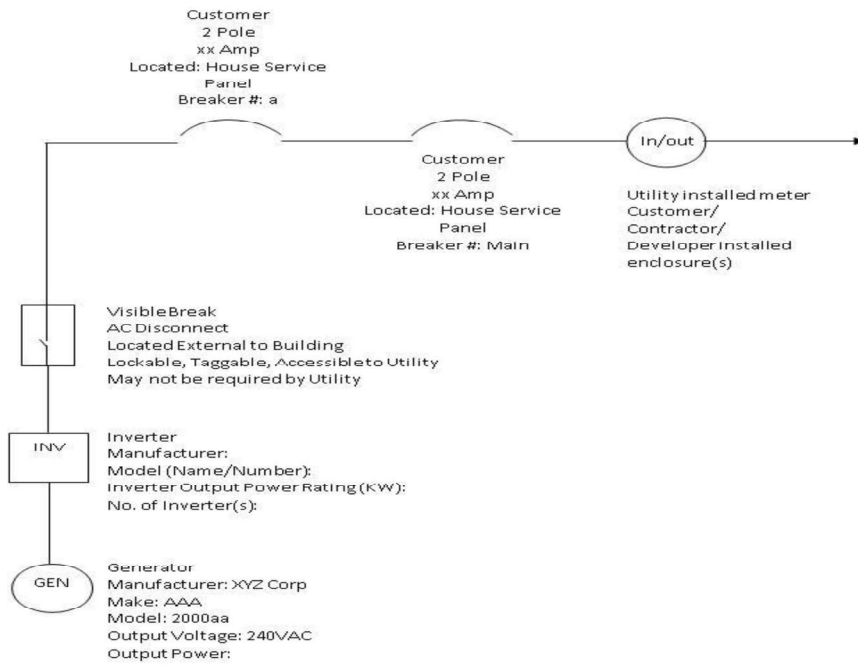
Customer Name: _____

Project Site Address: _____

Site Plan Prepared By: _____

Prepared Date: _____

Appendix D - Sample One Line Drawing for Net Metering Inverter Based Generators



NOTE: One-line diagram must be signed and sealed by a licensed Professional Engineer, licensed in the State of Michigan or by an electrical contractor licensed by the State of Michigan

Customer Name: _____

Project Site Address: _____

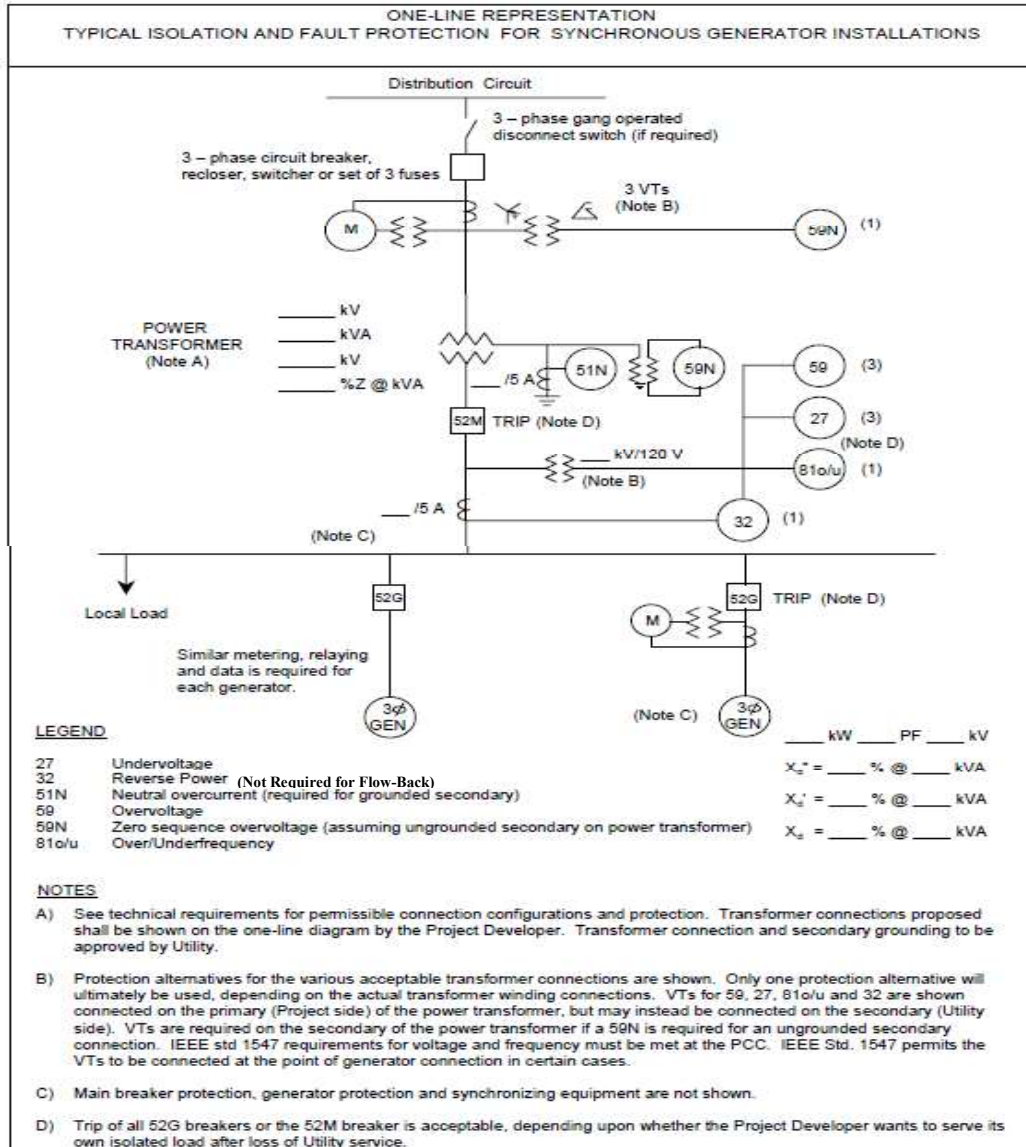
Licensed Professional Engineer Name (If applicable): _____

Licensed Professional Engineer Signature: _____

Electrical Contractor License Number: _____

Date: _____

Appendix E: Sample One-Line Drawing for Synchronous Generators



NOTE: One-line diagram must be signed and sealed by a licensed Professional Engineer, licensed in the State of Michigan or by an electrical contractor licensed by the State of Michigan

Customer Name: _____

Project Site Address: _____

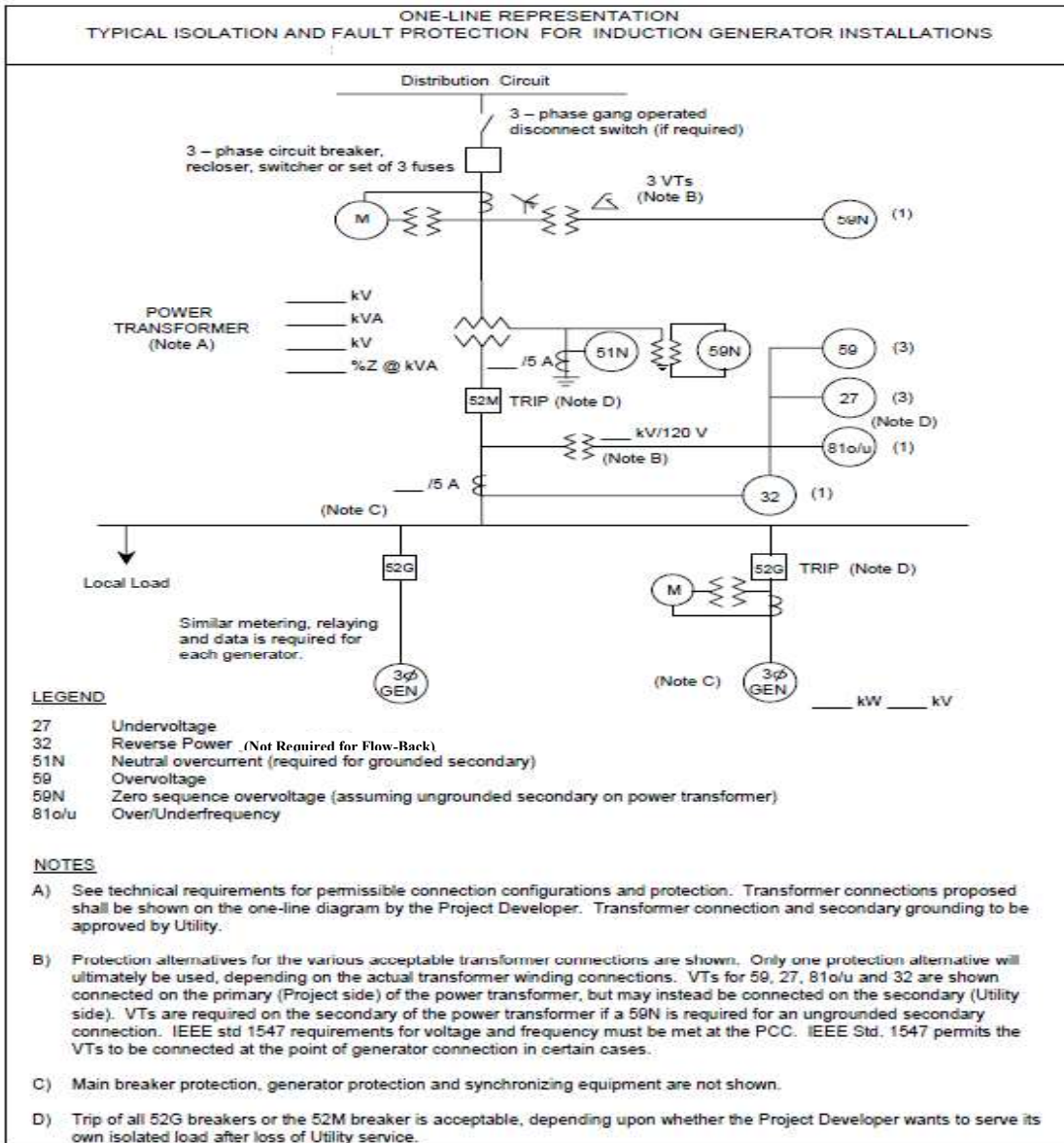
Licensed Professional Engineer Name (If applicable): _____

Licensed Professional Engineer Signature: _____

Electrical Contractor License Number: _____

Date: _____

Appendix F: Sample One-Line Drawing for Induction Generators



NOTE: One-line diagram must be signed and sealed by a licensed Professional Engineer, licensed in the State of Michigan or by an electrical contractor licensed by the State of Michigan

Customer Name: _____

Project Site Address: _____

Licensed Professional Engineer Name (If applicable): _____

Licensed Professional Engineer Signature: _____

Electrical Contractor License Number: _____

Date: _____