Electric Sample Form No. 79-1174-03E Sheet 1
Interconnection Application, Attachment E, Wind Turbine Technology

Please Refer to Attached Sample Form

(Continued)

INTERCONNECTION APPLICATION (Form 79-1174-03)
ATTACHMENT E
WIND TURBINE TECHNOLOGY

Please complete the following table for the specific generator technology indicated.

Instructions				
Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
Please indicate the number of each "**type" and quantity** of Generator being installed Be sure all Generators classified as one "type" are identical in all respects. If only one type of Generator is to be used, only one column needs to be completed.	Type: _____ Qty.: _____	Type: _____ Qty.: _____	Type: _____ Qty.: _____	Type: _____ Qty.: _____
A - Generator/Inverter Manufacturer Enter the brand name of the Generator.				
B - Generator/Inverter Model Enter the model name or number assigned by the manufacturer of the Generator.				
C - Generator/Inverter Software Version If this Generator's control and or protective functions are dependent on a software program supplied by the manufacturer of the equipment, please provide the version or release number for the software that will be used.				
D - Is the Inverter certified? Applicant has verified that all major solar system components are on the verified equipment list maintained by the California Energy Commission and other equipment, as determined by PG&E, has been verified by the customer as having safety certification from a nationally recognized testing laboratory. See PG&E's Rule 21, Section L for additional information regarding Generator certification. For Net Billing Customers all major solar system components shall comply with Electric Rule 21 Section L.2-L.4 and Section L.7	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No	____Yes ____ No

WIND TURBINE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
E – Anti-Islanding Detection Method Please select an Anti-Islanding Detection Method				
Group 1 – Frequency Shift with continuous positive frequency feedback	Group 1 ____	Group 1 ____	Group 1 ___	Group 1 ____
Group 2A – Frequency Shift with discontinuous or stepped positive frequency feedback	Group 2A ___	Group 2A ___	Group 2A__	Group 2A ___
Group 2B – Frequency Shift similar to Group 2A except with a dead zone around 60Hz	Group 2B ___	Group 2B ___	Group 2B __	Group 2B ___
Group 2C – Frequency shift with unidirectional frequency feedback	Group 2C ___	Group 2C ___	Group 2C ___	Group 2C ___
Group 3 – Monitors change of impedance	Group 3 ____	Group 3 ____	Group 3 ____	Group 3 ____
Group 4 – Monitors shift at a harmonic frequency (multiple of the fundamental)	Group 4 ____	Group 4 ____	Group 4 ____	Group 4 ____
Group 5 – Passive methods like rate of change of frequency, vector shift	Group 5 ___	Group 5 ___	Group 5 ___	Group 5 ___
Group 6 – Produces negative sequence current and monitor voltage	Group 6 ____	Group 6 ____	Group 6 ____	Group 6 ____
F –Volt-Var Smart Inverter Setting *If proposing non-default inverter settings, please provide:*				
Power Factor Value	V1 _____	V2 _____	V3 _____	V4 _____
Inverter Power Factor	Q1 _____	Q2 _____	Q3 _____	Q4 _____
Volt-Var Voltage Values	V1 _____	V2 _____	V3 _____	V4 _____
Volt-Var Reactive Values	Q1 _____	Q2 _____	Q3 _____	Q4 _____
Volt-Watt Real Power Values	P1 _____	P2 _____	P3 _____	P4 _____

WIND TURBINE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
G - Generator Design Please indicate the design of each Generator. Designate "Inverter" anytime an inverter is used as the interface between the Generator and the electric system regardless of the primary power production/storage device used.	____ Synch ____ Induct. ____ Inverter	____ Synch ____ Induct. ____ Inverter	____ Synch ____ Induct. ____ Inverter	____ Synch ____ Induct. ____ Inverter
H - Gross Nameplate Rating (kVA) This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate. This value is not required where the manufacturer provides only a kW rating. However, where both kVA and kW values are available, please indicate both.				
I - Operating Voltage This value should be the voltage rating designated by the manufacturer and used in this Generating Facility. Please indicate phase-to-phase voltages for 3-phase installations. See PG&E's Rule 21, Section H.2.b. and Table H.1., for additional information.				
J - Power Factor Rating This value should be the nominal power factor rating designated by the manufacturer for the Generator. See PG&E's Rule 21, Section H.2.i. for additional information.				
K - PF Adjustment Range Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values. See PG&E's Rule 21, Section H.2.i.				
L - Wiring Configuration Please indicate whether the Generator is a single-phase or three-phase device. See PG&E's Rule 21, Section H.3.				

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Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
M - (MP) 3-Phase Winding Configuration (Choose One) For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.	__3 Wire Delta __3 Wire Wye __4 Wire Wye	__3 Wire Delta __3 Wire Wye __4 Wire Wye	__3 Wire Delta __3 Wire Wye __4 Wire Wye	__3 Wire Delta __3 Wire Wye __4 Wire Wye
N - (MP) Neutral Grounding System Used (Choose One) Wye connected generating units are often grounded – either through a resistor or directly, depending upon the nature of the electrical system to which the Generator is connected. If the grounding method used at this facility is not listed, please attach additional descriptive information.	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms
O - *Induction Generators Only:* Locked Rotor Current: ***Stator Resistance:*** Stator Leakage Reactance: Rotor Resistance: Rotor Leakage Reactance: If the Generator is of an induction design, please provide the "locked rotor current" value supplied by the manufacturer. If this value is not available, the stator resistance, stator leakage reactance, rotor resistance, rotor leakage reactance values supplied by the manufacturer may be used to determine the locked rotor current. If the Generator's Gross Nameplate Capacity is 10 MW or greater, PG&E may request additional data to better model the nature and behavior of the Generator with relation to its Electric System.	_____ (Amps) _____(%) _____(%) _____(%) _____(%)	_____ (Amps) _____(%) _____(%) _____(%) _____(%)	_____ (Amps) _____(%) _____(%) _____(%) _____(%)	_____ (Amps) _____(%) _____(%) _____(%) _____(%)
P - Short Circuit Current Produced by Generator:	_____ (Amps)	_____ (Amps)	_____ (Amps)	_____ (Amps)
Q - AC Disconnect For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect. See PG&E's Rule 21, Section H.1.d Located within 10 feet of the PG&E meter?	_____ Manufacturer _____ Model # _____ Rating (amps) ____ Yes ____ No	_____ Manufacturer _____ Model # _____ Rating (amps) ____ Yes ____ No	_____ Manufacturer _____ Model # _____ Rating (amps) ____ Yes ____ No	_____ Manufacturer _____ Model # _____ Rating (amps) ____ Yes ____ No

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Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
R - Lineside Tap Where is the point of interconnection in relation to the main breaker? PG&E has special requirements for a lineside tap. Contact PG&E at: Rule21Gen@PGE.com for more information.	____ Customer side ____ PG&E side	____ Customer side ____ PG&E side	____ Customer side ____ PG&E side	____ Customer side ____ PG&E side
S – Warranty or Service Agreement Applicant has verified that (i) a warranty of at least 10 years has been provided on all equipment and on its installation, or (ii) have a 10-year service warranty or executed "agreement" ensuring proper maintenance and continued system performance.	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No
T - Distribution Interconnect Handbook (DIH) and Greenbook Requirements Does this interconnection meet the DIH and Greenbook Requirements	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No
U - Gas Clearance Requirements Certify that this interconnection meets Greenbook Gas Clearance Requirements?	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No
V - Back-up Generator Operation Will the generator be operated as a back-up? If yes, please indicate control device.	____ Yes ____ No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker	____ Yes ____ No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker	____ Yes ____ No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker	____ Yes ____ No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker
W - Limited Export Will the generator export be limited? If yes, please indicate how export will be limited.	____ Yes ____ No ☐ Power Control System (PCS – Option 9) ☐ Relay ☐ Derated Inverter	____ Yes ____ No ☐ Power Control System (PCS – Option 9) ☐ Relay ☐ Derated Inverter	____ Yes ____ No ☐ Power Control System (PCS - Option 9) ☐ Relay ☐ Derated Inverter	____ Yes ____ No ☐ Power Control System (PCS – Option 9) ☐ Relay ☐ Derated Inverter

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Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
X - Telemetry Will the Generating Facility Gross Nameplate Rating exceed 1 MW?	_____ Yes _____ No			
If yes, please select a Telemetry Option.	_____ Customer-owned Telemetry - Gateway _____ Customer-owned Telemetry - Aggregator _____ Mini RTU			
If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.	_____ Customer-side net load metering _____ Replace PG&E meter with a Mark V meter and terminal block _____ Add terminal block to existing PG&E Mark V meter _____ Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter _____ Install customer-owned meter in existing dual socket meter cabinet.			