

Appendix M: GENERATION INTERCONNECTION DATA SHEET

1. PROJECT NAME: _____ 2. PROJECT NUMBER: _____
 STREET ADDRESS: _____ PHONE: (____)____ - _____
 CITY: _____ STATE: _____ ZIP CODE: _____

3. CONTRACTUAL NAME: _____
 STREET ADDRESS: _____ PHONE: (____)____ - _____
 CITY: _____ STATE: _____ ZIP CODE: _____

4. DEVELOPER NAME: _____

 STREET ADDRESS: _____ PHONE: (____)____ - _____
 CITY: _____ STATE: _____ ZIP CODE: _____

5. SITE OWNER NAME: _____

 STREET ADDRESS: _____ PHONE: (____)____ - _____
 CITY: _____ STATE: _____ ZIP CODE: _____

6. TYPE OF PROJECT:

_____ Cogeneration	_____ Hydro	_____ Steam Turbine
_____ Small Power Producer	_____ Photovoltaic	_____ Wind
_____ Biomass	_____ Recip. Engine	
	_____ Gas Turbine	_____ Other:

7. TYPE OF CONTRACT BEING CONSIDERED: S.O.1 _____ S.O.3 _____

_____ Surplus Energy Output		No Sale With Parallel Agreement
_____ Small Power Output	_____ kW	
_____ Will Negotiate For	_____ kW of Contract Capacity	

8. WILL THERE BE REDUCED GENERATOR OUTPUT? _____ YES _____ NO
 IF YES, _____ kW FROM _____ TO _____

9. a. EXISTING PG&E PREMISES AND ACCOUNT NUMBERS INTERCONNECTED:

PREMISES _____	ACCOUNT: _____ - _____ - _____
_____	_____ - _____ - _____
_____	_____ - _____ - _____
_____	_____ - _____ - _____

10. MAXIMUM GENERATOR POWER DELIVERED TO PG&E AT INTERCONNECTION POINT:

- | | | | |
|---|------------------|---|-------|
| a. Generator rated output: | Rated Output kW | + | _____ |
| b. Less generator auxiliary load: | Auxiliaries kW | - | _____ |
| c. Maximum power delivered to PG&E: | Max Delivered kW | = | _____ |
| d. Load to be served when generator is OFF: | Load kW | | _____ |
| e. Existing load being displaced by this generator: | kW | | _____ |

11. THE ANTICIPATED OPERATION DATE: _____

12. DO YOU PLAN ANY OTHER POWER GENERATION AT THIS SITE? ___ YES ___ NO

13. GENERATOR

- | | | | |
|------------------------|---|-----------------------|---------------------------------------|
| a. Size: | kW: _____ | KVA: _____ | Power Factor (%): _____ |
| b. Type: | Induction: _____ | Synchronous: _____ | D.C. with Inverter: _____ |
| Synchronizing: | Auto _____ | Manual _____ | Relay Supervision: Yes _____ No _____ |
| c. Voltage: | Output _____ | Interconnection _____ | |
| d. Phase: | 1 ϕ _____ | 3 ϕ _____ | |
| e. Connection: | Delta _____ | Grounded WYE _____ | Ungrounded _____ |
| * f. Inertia Constant: | _____ lb-ft ² (when available) | | |

14. PROVIDE PROPOSED GENERATOR OPERATING SCHEDULE (Total kWhrs):

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

PROVIDE PROPOSED AVERAGE PRODUCTION kWhrs AS REQUESTED:

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

Schedule Maintenance Shutdown:

15. ELECTRIC METERING IS TO BE: Primary _____ Secondary _____

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

16. GAS REQUIREMENTS: Volume: _____ MCFH Pressure: _____ PSIG

Operations: Daily Hours: _____ Days Per Week: _____

Scheduled Shutdowns: _____

17. GENERATOR VOLTAGE REGULATION RANGE: _____

GENERATOR POWER FACTOR REGULATION RANGE: _____

GENERATOR SHORT CIRCUIT DATA

(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 +/- 3% accuracy):

Synchronous	(Xd) _____ %	@ _____ MVA	N/A
Transient	(Xd) _____ %	@ _____ MVA	(T'd) _____ SEC
Subtransient	(Xd) _____ %	@ _____ MVA	(T'd) _____ SEC
Negative Sequence	(X ₂) _____ %	@ _____ MVA	N/A
Zero Sequence	(X ₀) _____ %	@ _____ MVA	N/A

18. OUTPUT: If the generator output is greater than 40kW (individually or as an aggregate group), ground protection will be required. If grounding will be required, please indicate type of ground detection below:

_____ WYE GROUNDED/DELTA GROUND BANK WITH OVERCURRENT RELAY
 *WYE GROUNDED/BROKEN DELTA: Ground Bank with Low Pick-up Overvoltage Relay
 _____ * Preferred

_____ CURRENT TRANSFORMER WITH OVERCURRENT RELAY: In Neutral of Dedicated Transformer

_____ *POTENTIAL TRANSFORMER WITH VOLTAGE RELAY: In Neutral of Dedicated Transformer
 _____ * Preferred

_____ OTHER: _____

19. WHO WILL SUPPLY TRANSFORMER: Customer: _____ PG&E: _____
- IF CUSTOMER SUPPLIED: Primary Voltage: _____ Size: _____ KVA
- Secondary Voltage: _____ Z _____ % Impedance

(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 +/- 3% accuracy):

Available Taps: _____

Transformer Fuse: Type: _____ Size _____

20. WHAT TRANSFORMER CONNECTION IS DESIRED:

	Delta	Grounded Wye	Ungrounded Wye
PG&E Side	_____	_____	_____
Generator Side	_____	_____	_____

21. PROVIDE: Two original prints and one reproducible copy (no larger than 36" x 24") of the following:
- a. SITE DRAWING to scale, showing generator location and point of interconnection with PG&E.
 - b. SINGLE LINE DIAGRAM, showing switches/disconnects of the proposed interconnection, including the required protection devices and breakers.
 - c. THREE LINE DIAGRAM, showing the proposed CTs and PTs as they are connected to the relays and meters.
 - d. DESCRIPTION of operation and elementary drawings, showing the synchronization (if appropriate), and tripping of breakers by the required relays are desirable. (If not provided, they may be requested after approval of the single and three line diagrams.)

22. BREAKER(S) EQUIPPED WITH:

Undervoltage Release: _____ Capacitor Trip: _____ D.C. Trip: _____
*(Not acceptable for use)

23. DO YOU WISH RECLOSE BLOCKING FOR INDUCTION GENERATORS? Yes No

We test automatically. Sufficient capacitance may be on the line now, or in the future, and your generator may self-excite unexpectedly.

24. PROVIDE a list of relays, switches and revenue meters (if customer provided), disconnects, etc., specified to meet PG&E requirements.

Please include the following information:

- a. Manufacturer's name and model number, with each device listed.
- b. Range of available settings.
- c. Proposed settings.
- d. Ratio of associated current and potential transformers. If multi-ratio, state the available ratios and which one is proposed.

25. RELAYS REQUIRED: **See Power Producer's Interconnection Handbook**, Section 3.

- ** 26. For generation greater than 1000 kW provide the following:
- a. Substation grounding drawings showing all ground connections.
 - b. A list of the amount and location of the shunt capacitor compensation that will be provided (induction generators only).

NOTE:

Generation customers are required to pay all costs to connect their projects to the PG&E system. Final estimated costs will have an accuracy of +10%. Unless otherwise requested, PG&E's study will include reinforcements, modifications, and additions to PG&E's electrical and/or gas system. It will not include on-site transformers, switchgear, or any other project substation facilities owned by the developer. PG&E's requirements are summarized in greater detail in Electric Rule 21.

Completed By: _____ Date: _____