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Cogeneration and Small Power Production Quarterly Report

Donated By:
Herbert Rogers Jr.
Rogers Engineering Co.

First Quarter — March 1983

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PACIFIC GAS AND ELECTRIC COMPANY

COGENERATION

and

SMALL POWER PRODUCTION

QUARTERLY REPORT

to the

CALIFORNIA PUBLIC UTILITIES COMMISSION

FIRST QUARTER - MARCH 1983

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SUMMARY OF ACTIVITY

In the First Quarter of 1983, the number of signed contracts and committed projects rose from 204 to 224, with a total estimated nominal capacity of these projects of 1,246 MW. Of this nominal capacity, about 259 MW is operational, and the balance is under contract for development.

Of the 224 signed contracts and committed projects, 70 were cogeneration and solid waste/biomass projects with a potential of 687 MW. PGandE also had under active discussion 30 cogeneration projects that could generate a total of 744 MW to 821 MW, and 12 solid waste/biomass projects with a potential of 118 MW to 126 MW.

Two contracts have been signed with geothermal projects, capable of producing 83 MW.

There are 6 solar projects with signed contracts and a potential of 36 MW, as well as another solar project under active discussion for 30 MW.

Wind farm projects under contract number 17, with a generating capability of 330 MW. Also, discussions are being conducted with 9 wind farm projects, totaling 184 to 189 MW. There are 89 wind projects of 100 kW or less with signed contracts and a potential of almost 1 MW, as well as 9 other projects under active discussion.

There are 38 hydroelectric projects with signed contracts and a potential of 103 MW, as well as 65 projects under active discussion for 183 MW. In addition, there are 29 hydroelectric projects, with a nominal capacity of 291 MW, that PGandE is constructing or planning to construct.

Table A displays the above information. In tabular form, in Appendix A, are status reports of the projects as of March 31, 1983.

TABLE A

SUMMARY OF PROJECTS
FIRST QUARTER - MARCH 1983

<u>Signed Contracts and Committed Projects</u>	<u>kW</u>
Cogeneration and Solid Waste/Biomass Projects	686,520
Geothermal Projects	82,500
Solar Projects Greater than 100 kW	36,000
Solar Projects 100 kW or Less	13
Wind Projects Greater than 100 kW	330,075
Wind Projects 100 kW or Less	777
Hydroelectric Projects Greater than 100 kW	101,900
Hydroelectric Projects 100 kW or Less	965
Other Projects	7,300
TOTAL	<u>1,246,050 kW</u>

<u>Under Active Discussion</u>	<u>kW Range</u>
Cogeneration Projects	743,800 - 820,800
Solid Waste/Biomass Projects	117,800 - 125,800
Federally Funded R&D and Cogeneration Projects	12,000
Solar Projects	30,000
Wind Projects Greater than 100 kW	183,600 - 188,600
Wind Projects 100 kW or Less	246
Hydroelectric Projects Greater than 100 kW	182,580
Hydroelectric Projects 100 kW or Less	25
Hydroelectric Projects Planned to be Constructed by PGandE	291,300
Other Projects	500
TOTAL	<u>1,561,851 - 1,651,851 kW</u>

ENERGY PURCHASE PRICES

PGandE has published the prices that it will pay for electric energy received from qualified cogeneration and small power production facilities, from May 1983 through July 1983, in the Company's Special Announcement for Cogenerators and Small Power Producers, May 1983.

PGandE updates these prices every three months. The prices depend on the costs PGandE avoids by purchasing energy from these facilities. An explanation of PGandE's energy purchase prices is provided in the document entitled "Purchase Price for Energy from Qualifying Facilities for May, June, and July 1983" (Appendix B).

Table B shows PGandE's energy purchase prices from February 1980 through July 1983.

AS-DELIVERED CAPACITY PRICE

The annual as-delivered capacity price that will form the basis of as-delivered capacity prices under Standard Offers 1 and 3 for deliveries between January 1, 1983 and December 31, 1983 is \$70 per kW-year. This figure is based upon the economic assumptions ordered by the California Public Utilities Commission in Decision 82-12-120 (dated December 30, 1982).

A revised copy of the document entitled "Purchase Price For As-Delivered Capacity From Qualifying Facilities for 1983", incorporating this change and explaining the methodology for computing as-delivered capacity payments is provided as Appendix C.

Table D indicates the prices in cents per kilowatt hour for as-delivered capacity, using the 1983 rate of \$70/kW-year, adjusted for losses at the transmission and distribution level.

TABLE B

PACIFIC GAS AND ELECTRIC COMPANY

PURCHASE PRICES (¢/kWh) FOR ENERGY FROM QUALIFYING FACILITIES
FEBRUARY 1980 THROUGH JULY 1983

Seasonal Period*	Time of Delivery Basis**			Average Basis
	On-Peak	Partial-Peak	Off-Peak	All kWh
<u>Period B</u>				
February '80 thru April '80	4.496	4.250	3.794	4.121
<u>Period A</u>				
May '80 thru July '80	5.675	5.459	4.700	4.994
August '80 thru September '80	6.100	5.868	5.052	5.368
<u>Period B</u>				
October '80	5.858	5.536	4.943	5.368
November '80 thru January '81	6.226	5.884	5.254	5.706
February '81 thru April '81	6.580	6.219	5.553	6.030
<u>Period A</u>				
May '81 thru July '81	7.783	7.487	6.446	6.850
August '81 thru September '81	8.072	7.765	6.685	7.104
<u>Period B</u>				
October '81	7.752	7.326	6.542	7.104
November '81 thru January '82	7.725	7.302	6.519	7.080
February '82 thru April '82	7.759	7.334	6.548	7.111
<u>Period A</u>				
May '82 thru July '82	6.397	6.102	5.895	6.178
August '82 thru September '82	5.967	5.692	5.499	5.641
<u>Period B</u>				
October '82	6.049	5.912	5.769	5.854
November '82 thru January '83	6.049	5.912	5.769	5.854
February '83 thru April '83	6.209	6.068	5.922	6.009
<u>Period A</u>				
May '83 thru July '83	6.108	5.826	5.629	5.774

* Period A comprises May through September, and Period B, October through April.

** Time periods are defined in Table C.

TABLE C¹

PACIFIC GAS AND ELECTRIC COMPANY

TIME PERIODS

	<u>Monday through Friday²</u>	<u>Saturdays²</u>	<u>Sundays and Holidays</u>
<u>Seasonal Period A</u> (May 1 through September 30)			
On-Peak	12:30 p.m. to 6:30 p.m.		
Partial-Peak	8:30 a.m. to 12:30 p.m. 6:30 p.m. to 10:30 p.m.	8:30 a.m. to 10:30 p.m.	
Off-Peak	10:30 p.m. to 8:30 a.m.	10:30 p.m. to 8:30 a.m.	All Day
<u>Seasonal Period B</u> (October 1 through April 30)			
On-Peak	4:30 p.m. to 8:30 p.m.		
Partial-Peak	8:30 p.m. to 10:30 p.m. 8:30 a.m. to 4:30 p.m.	8:30 a.m. to 10:30 p.m.	
Off-Peak	10:30 p.m. to 8:30 a.m.	10:30 p.m. to 8:30 a.m.	All Day

¹ This table is subject to change to accord with the on-peak, partial-peak, and off-peak period as defined in PGandE's own rate schedules for the sale of electricity to its large industrial customers.

² Except the following holidays: New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving and Christmas Day, as said days are specified in Public Law 90-363 [5 U.S.C.A. Section 6103(a)].

TABLE D

PACIFIC GAS AND ELECTRIC COMPANY

PAYMENT (¢/kWh) FOR AS-DELIVERED CAPACITY
FROM NON-REMOTE* QUALIFYING FACILITIES

JANUARY 1, 1983 THROUGH DECEMBER 31, 1983

<u>With Time-of-Delivery Metering</u>	<u>Transmission Voltage</u>		<u>Distribution Voltage</u>	
	<u>Seasonal Period A**</u>	<u>Seasonal Period B</u>	<u>Seasonal Period A</u>	<u>Seasonal Period B</u>
Time of Delivery***				
On-Peak	6.911	1.401	6.925	1.403
Partial Peak	1.132	0.212	1.134	0.212
Off-Peak	0.0	0.001	0.0	0.001
Without Time-of-Delivery Metering				
Weighted Average	0.777	0.120	0.779	0.120

* As defined by the CPUC.

** Period A comprises May through September, and Period B, October through April.

*** Time periods are defined in Table C.

STANDARD POWER PURCHASE OFFERS

PGandE filed three Standard Offers for the purchase of power from qualifying facilities with the California Public Utilities Commission on February 14, 1983. These three Standard Offers; namely those for:

As-Delivered Capacity and Energy (Standard Offer #1);

Firm Capacity and Energy (Standard Offer #2); and

As-Delivered Capacity and Energy from Facilities of 100 Kilowatts or Less (Standard Offer #3);

are set out in Appendices D, E, and F, respectively. They were filed pursuant to the order in CPUC Decision 82-12-120 (dated December 30, 1982).

FINANCIAL ANALYSIS PROGRAM

PGandE has developed a cogeneration financial analysis computer program that performs a confidential economic analysis of a cogeneration investment with user-supplied data. The program computes useful measures of investment performance, including internal rate of return, net present value, and capital repayment.

Accessible in the PGandE service area through Control Data Corporation Cybernet offices, this program is designed to be user-oriented, with little or no outside assistance necessary. The cost to the user for running the program will vary depending on the complexity of the cogeneration analysis and the number of investment sensitivities performed.

A guide was developed to assist the cogeneration entity in using the program. It is a complete workbook and shows the user how to run the program with a step-by-step procedure. In addition, the guide includes all necessary worksheets, examples, and documentation.

If you wish more information about this program, please contact Mr. Joseph G. Meyer/77 Beale Street/San Francisco, CA 94106.

ENVIRONMENTAL REGULATIONS ASSISTANCE GUIDE

PGandE has available the Environmental Regulations Assistance Guide for Cogenerators and Small Power Producers.

The guide explains environmental regulations and helps the individual, through flow charts and checklists, determine the permits and approvals required. The guide also provides details on agency contacts and sources of additional information.

If you wish more information about the guide, please contact Mr. Joseph G. Meyer/77 Beale Street/San Francisco, CA 94106.

CEC FUNDING ASSISTANCE FOR FEASIBILITY STUDIES

The California Energy Commission (CEC) called attention during the quarter to the availability of funds to help finance feasibility studies of alternative energy projects. A copy of its opportunity notice appears as Appendix G to this report. This Industry Energy Assistance Program is administered by the California Manufacturers Association (CMA) under a contract with the CEC. The CMA, which issued a "Guidelines and Procedures Manual" in April 1982, may be addressed at P.O. Box 1138/923 12th Street/Sacramento, CA 95805/(916) 441-5420. A copy of the Manual appears as Appendix H of this report.

The program began in June 1981. At that time, the CEC appropriated funds and entered into a contract with the CMA for the purpose of granting loans to industrial firms interested in exploring the potential savings they could incur through the use of alternative energy. A feasibility study is a necessary first step in the development of an alternative energy project. In order to share the risk of conducting feasibility studies, loans are forgiven for studies which indicate that a project would not be feasible. After May 1983, loans will only be made after previously loaned funds are repaid by applicants with feasible projects. The program will end when no more loans are repaid.

APPENDIX A

STATUS REPORT OF PROJECTS

TABLES I THROUGH XXII

Table 1

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

COGENERATION AND SOLID WASTE/BIOMASS

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Contract Signed	Type	MW	Projected Date of Operation
1.	Pyro Sol, Inc. - Redwood City	Electric power/steam project fueled by solid waste converted by a pyrolysis process to produce a low Btu gas	June 12, 1979 superceded by December 24, 1981	Energy Purchase	3.5	Operational*
2.	Georgia Pacific Corporation - Fort Bragg	Electric power project fueled by woodwaste	June 1, 1980	Energy Purchase	10.0	Operational
3.	Optimum Energy Partners - Kern River Oil Field	Electric power/steam projects; thermally enhanced oil recovery	July 18, 1980	Capacity and Energy Purchase	66.0	Operational (7.4 MW)
4.	Dow Chemical USA - Pittsburg	Electric power/steam project using a gas turbine topping cycle	July 22, 1980	Energy Purchase	35.0	Operational
5.	Louisiana-Pacific Corporation - Samoa	Electric power/steam project fueled by woodwaste	July 22, 1980	Capacity and Energy Purchase	11.0	Operational
6.	California Power and Light Corporation - Madera	Electric power project fueled by biomass	October 20, 1981	Capacity and Energy Purchase	49.9	September 1984
7.	PGandE Gerber Compressor Station (Line 400 Canada to California) - Gerber	Electric power project fueled by waste heat from a gas compressor	N/A	N/A	3.7	Operational
8.	Stauffer Chemical Company - Martinez	Electric power project fueled by waste heat	August 28, 1980	Energy Purchase	2.0	Operational
9.	Paul Bunyan Lumber Company - Anderson	Electric power/steam project fueled by woodwaste	September 8, 1980	Energy Purchase	3.0	Operational
10.	Roseburg Lumber - Anderson	Electric power/steam project fueled by woodwaste	September 23, 1980	Energy Purchase	3.0	Operational
11.	City of Santa Clara - Santa Clara	Electric power project using a gas turbine topping cycle with waste heat boilers	September 30, 1980	Standby Service	5.8	Operational

* Currently not operating; facility undergoing modification.

Table 1 (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

COGENERATION AND SOLID WASTE/BIOMASS

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>MW</u>	<u>Projected Date of Operation</u>
12.	Louisiana-Pacific Corporation - Standard	Electric power/steam project fueled by woodwaste	April 7, 1982	Energy Purchase	3.0	Operational
13.	Diamond Walnut Growers Inc. - Stockton	Electric power/steam project fueled by walnut shells	October 30, 1980	Capacity and Energy Purchase	4.5	Operational
14.	University of California - Davis	Electric power/steam project using a distillate-fueled combustion turbine topping cycle	March 11, 1982	Capacity and Energy Purchase	3.5	Operational
15.	Hudson Lumber Company - Anderson	Electric power/steam project fueled by woodwaste	September 29, 1981	Capacity and Energy Purchase	6.0	Operational
16.	Redwood Food Packing Company - Modesto	Electric power/steam project fueled by biomass	March 16, 1981	Energy Purchase	4.5	Operational
17.	Vichy Hills Power Co. - Ukiah	Electric power project fueled by solid waste	October 22, 1981	Capacity and Energy Purchase	1.4	September 1983
18.	Superior Farming Co. - Bakersfield	Electric power/steam project fueled by biomass	May 5, 1982	Capacity and Energy Purchase	5.7	Operational
19.	Red Crown Burner Systems, Inc. - Oroville	Electric power/steam project fueled by agricultural waste	May 28, 1981	Capacity and Energy Purchase	11.0	Not yet determined
20.	Red Crown Burner Systems, Inc. - Blue Lake	Electric power project fueled by woodwaste	June 1, 1981	Capacity and Energy Purchase	11.0	Not yet determined
21.	Farmers Cooperative Gins, Inc. - Buttonwillow	Electric power project fueled by agricultural waste	February 25, 1982	Energy Purchase	1.7	Operational
22.	Paul Masson Vineyards - Saratoga	Electric power/hot water project using a reciprocating natural gas engine topping cycle	July 28, 1981	Standby Service	0.3	Operational

Table 1 (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

COGENERATION AND SOLID WASTE/BIOMASS

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Contract Signed	Type	MW	Projected Date of Operation
23.	City of Turlock - Turlock	Electric power project fueled by digester gas from a waste treatment plant	September 8, 1981	Energy Purchase	0.5	Operational
24.	American Chemurgic Industries-Fields Landing	Electric power/steam project fueled by woodwaste	September 18, 1981	Capacity and Energy Purchase	3.5	Not yet determined
25.	University Energy/ Lockheed-Sunnyvale	Electric power/steam project using a gas/steam turbine topping cycle	March 19, 1982	Capacity and Energy Purchase	49.9	Not yet determined
26.	Sierra Pacific Industries - Susanville	Electric power/steam project fueled by woodwaste/solid waste	September 30, 1981	Capacity and Energy Purchase	5.5	Operational
27.	RMR Associates/HARP Energy - Madera	Electric power project fueled by biomass	November 4, 1981	Capacity and Energy Purchase	4.4	September 1985
28.	Imotek, Inc. - Sacramento	Electric power/steam project fueled by biomass	November 9, 1981	Capacity and Energy Purchase	8.5	Operational
29.	Crown Zellerbach - Antioch	Electric power/steam project using a gas turbine topping cycle	December 29, 1982	Capacity and Energy Purchase	49.7	Operational
30.	Central Valley Bio-Energy Company - Fresno	Electric power/steam project fueled by municipal solid waste or woodwaste	November 19, 1981	Capacity and Energy Purchase	13.1	January 1984
31.	Grass Valley Group - Grass Valley	Electric power/hot water project using a diesel-fueled internal combustion engine topping cycle	December 31, 1981	Energy Purchase	1.6	Operational
32.	Marindale Dairy - Novato	Electric power project fueled by digester gas	December 3, 1981	Capacity and Energy Purchase	0.04	Operational
33.	Red Crown Burner Systems, Inc. - San Joaquin	Electric power project fueled by agricultural waste	December 9, 1981	Capacity and Energy Purchase	11.0	Not yet determined
34.	Diamond H Ranch-Covelo	Electric power project fueled by biomass	December 18, 1981	Capacity and Energy Purchase	15.0	Not yet determined

Table 1 (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

COGENERATION AND SOLID WASTE/BIOMASS

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Contract Signed	Type	MW	Projected Date of Operation
35.	Contra Costa County Sanitation District No. 7A - Antioch	Electric power project fueled by digester gas	January 2, 1982	Capacity and Energy Purchase	0.96	Operational
36.	Community Linen Rental Service, Inc. - Stockton	Electric power/steam project using a gas turbine topping cycle	March 4, 1982	Capacity and Energy Purchase	0.5	Operational
37.	Simpson Paper Co. - Anderson	Electric power/steam project using a gas turbine topping cycle	February 8, 1982	Capacity and Energy Purchase	35.0	July 1983
38.	Union Oil Company - Contra Costa County	Electric power project fueled by waste heat	February 12, 1982	Capacity and Energy Purchase	27.3	January 1984
39.	California Pacific Forest Products - Dinuba	Electric power/steam project fueled by woodwaste	February 18, 1982	Capacity and Energy Purchase	10.0	Not yet determined
40.	Turbo Resources/TOSCO Refinery - Bakersfield	Electric power/steam project using gas turbines and a back pressure steam turbine	March 11, 1982	Capacity and Energy Purchase	48.0	Not yet determined
41.	Turbo Resources/Witco Refinery - Oildale	Electric power/steam project using a gas turbine topping cycle	March 11, 1982	Capacity and Energy Purchase	35.0	December 1983
42.	Continental White Cap, Inc. - Hayward	Electric power project using a toluene rankine bottoming cycle	March 30, 1982	Capacity and Energy Purchase	0.6	Operational
43.	Agro-Energy - Delano	Electric power project fueled by biomass	April 6, 1982	Capacity and Energy Purchase	12.0	December 1984
44.	American Mobile Power Corporation - Santa Barbara County	Electric power/hot water project using a gas turbine topping cycle	April 15, 1982	Capacity and Energy Purchase	1.04	June 1983
45.	Gas Recovery Systems, Inc. - Menlo Park	Electric power project fueled by methane gas recovered from a landfill	April 15, 1982	Capacity and Energy Purchase	1.0	Operational

Table I (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

COGENERATION AND SOLID WASTE/BIOMASS

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Contract Signed	Type	MW	Projected Date of Operation
46.	Gas Recovery Systems, Inc. - Newby Island	Electric power project fueled by methane gas recovered from a landfill	April 15, 1982	Capacity and Energy Purchase	1.0	September 1983
47.	Pacific Carbons, Inc. - Blue Lake	Electric power/steam project using a gas turbine topping cycle	April 30, 1982	Energy Purchase	1.0	Not yet determined
48.	Sierra Pacific Industries - Quincy	Electric power/steam project fueled by woodwaste	May 6, 1982	Capacity and Energy Purchase	3.0	Operational
49.	Monterey Regional Water Pollution Control Agency - Monterey	Electric power project fueled by digester gas	May 24, 1982	Energy Purchase	1.0	April 1985
50.	<u>1/</u>	Electric power project fueled by methane gas recovered from a landfill	June 17, 1982	Capacity and Energy Purchase	1.0	September 1983
51.	<u>1/</u>	Electric power project fueled by landfill gas	June 17, 1982	Capacity and Energy Purchase	1.0	September 1983
52.	American Mobile Power Corporation - Marina	Electric power project fueled by landfill gas	June 22, 1982	Capacity and Energy Purchase	1.2	June 1983
53.	Caterpillar Tractor Co. - San Leandro	Electric power/steam project using a gas turbine topping cycle	July 12, 1982	Energy Purchase	2.5	Operational
54.	Chevron USA - Taft Maricopa	Electric power/steam project using a gas turbine topping cycle; enhanced oil recovery	July 22, 1982	As-delivered Capacity and Energy Purchase	10.0	Operational

1/ Project name and location not authorized for release.

Table 1 (continued)
 SUMMARY OF SIGNED CONTRACTS
 AND COMMITTED PROJECTS
 COGENERATION AND SOLID WASTE/BIOMASS
 FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Contract Signed	Type	MW	Projected Date of Operation
55.	Chevron USA - Cymric	Electric power/steam project using a gas turbine topping cycle; enhanced oil recovery	July 22, 1982	As-delivered Capacity and Energy Purchase	10.0	Operational
56.	Dauvergne Brothers, Inc. - Pleasanton	Electric power project fueled by solid waste	July 29, 1982	Capacity and Energy Purchase	1.0	Not yet determined
57.	Simpson Paper Co. - Fairhaven	Electric power/steam project fueled by biomass	August 24, 1982	As-delivered Capacity and Energy Purchase	4.0	Operational
58.	Ultrapower I - Burney	Electric power project fueled by woodwaste	September 15, 1982	Capacity and Energy Purchase	9.75	September 1984
59.	American Lignite Products Co. - Ione	Electric power/steam project fueled by lignite	September 20, 1982	Capacity and Energy Purchase	14.0	January 1985
60.	_____ 1/	Electric power/steam project fueled by woodwaste	October 14, 1982	Capacity and Energy Purchase	5.5	January 1984
61.	_____ 1/	Electric power project fueled by digester gas	October 29, 1982	As-delivered Capacity and Energy Purchase	1.05	Operational
62.	Meadow Glen Farms - Orland	Electric power project fueled by digester gas	November 3, 1982	As-delivered Capacity and Energy Purchase	0.1	Operational
63.	Langerwerf Dairy, Inc. - Durham	Electric power project fueled by digester gas	November 4, 1982	As-delivered Capacity and Energy Purchase	0.09	Operational
64.	Tenney Construction Co. - Hayfork	Electric power project fueled by woodwaste	November 18, 1982	Capacity and Energy Purchase	20.0	Not yet determined
65.	City of Fairfield-Fairfield	Electric power/steam project using a gas turbine topping cycle	November 19, 1982	As-delivered Capacity and Energy Purchase	0.8	January 1984

1/ Project name and location not authorized for release.

Table I (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

COGENERATION AND SOLID WASTE/BIOMASS

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>MW</u>	<u>Projected Date of Operation</u>
66.	City of San Luis Obispo - San Luis Obispo	Electric power project fueled by methane gas	December 29, 1982	As-delivered Capacity and Energy Purchase	0.09	October 1983
67.	OPC Bio-Energy Corp - Williams	Electric power/steam project fueled by agricultural waste	January 26, 1983	As-delivered Capacity and Energy Purchase	14.0	December 1983
68.	Sutter Gas Processing Corp. - Robbins	Electric power/steam project using a gas turbine topping cycle	January 28, 1983	As-delivered Capacity and Energy Purchase	0.3	Operational
69.	Renewable Power Corp. - Davis	Photovoltaic cogeneration facility	January 28, 1983	As-delivered Capacity and Energy Purchase	0.5	May 1983
70.	Chevron USA - Kern River	Electric power/steam project using a steam turbine topping cycle	February 2, 1983	As-delivered Capacity and Energy Purchase	4.0	April 1983
TOTAL					<u>686.52 MW</u>	
OPERATIONAL TOTAL					<u>213.54 MW</u>	

Table 11
 SUMMARY OF SIGNED CONTRACTS
 AND COMMITTED PROJECTS
 GEOTHERMAL PROJECTS
 FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>MW</u>	<u>Projected Date of Operation</u>
1.	Geothermal Power Co., Inc. - The Geysers, Lake County	Geothermal generation facility	March 10, 1982	Capacity and Energy Purchase	2.5	Not yet determined
2.	Occidental Geothermal Inc. - The Geysers, Lake County	Geothermal generation facility	March 18, 1982	Capacity and Energy Purchase	80.0	June 1984
TOTAL					<u>82.5 MW</u>	
OPERATIONAL TOTAL					<u>0.0 MW</u>	

Table I (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

COGENERATION AND SOLID WASTE/BIOMASS

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>MW</u>	<u>Projected Date of Operation</u>
66.	City of San Luis Obispo - San Luis Obispo	Electric power project fueled by methane gas	December 29, 1982	As-delivered Capacity and Energy Purchase	0.09	October 1983
67.	OPC Bio-Energy Corp - Williams	Electric power/steam project fueled by agricultural waste	January 26, 1983	As-delivered Capacity and Energy Purchase	14.0	December 1983
68.	Sutter Gas Processing Corp. - Robbins	Electric power/steam project using a gas turbine topping cycle	January 28, 1983	As-delivered Capacity and Energy Purchase	0.3	Operational
69.	Renewable Power Corp. - Davis	Photovoltaic cogeneration facility	January 28, 1983	As-delivered Capacity and Energy Purchase	0.5	May 1983
70.	Chevron USA - Kern River	Electric power/steam project using a steam turbine topping cycle	February 2, 1983	As-delivered Capacity and Energy Purchase	4.0	April 1983
TOTAL					<u>686.52 MW</u>	
OPERATIONAL TOTAL					<u>213.54 MW</u>	

Table II
SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS
GEOHERMAL PROJECTS
FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>MW</u>	<u>Projected Date of Operation</u>
1.	Geothermal Power Co., Inc. - The Geysers, Lake County	Geothermal generation facility	March 10, 1982	Capacity and Energy Purchase	2.5	Not yet determined
2.	Occidental Geothermal Inc. - The Geysers, Lake County	Geothermal generation facility	March 18, 1982	Capacity and Energy Purchase	80.0	June 1984
TOTAL					<u>82.5 MW</u>	
OPERATIONAL TOTAL					<u>0.0 MW</u>	

Table III

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

SOLAR PROJECTS GREATER THAN 100 kW

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>MW</u>	<u>Projected Date of Operation</u>
1.	Roan Corporation - Carrizo Plain	Solar Thermal	December 21, 1982	15.0	1983-1984
2.	ARCO Solar Power Production - Carrizo Plain	Photovoltaic	February 10, 1983	16.0	1983-1984
3.	K. Reilly & Associates - Kern County	Solar Thermal	March 4, 1983	5.0	January 1985
TOTAL				<u>36.0 MW</u>	
OPERATIONAL TOTAL				<u>0.0 MW</u>	

Table IV

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

SOLAR PROJECTS 100 kW OR LESS

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>kW</u>	<u>Projected Date of Operation</u>
1.	POCO Power Corporation - San Luis Obispo	Photovoltaic generation facility	June 28, 1982	Energy Purchase	4	Operational
2.	Renewable Power Corp. - Davis	Photovoltaic generation facility	December 20, 1982	As-delivered Capacity and Energy Purchase	6	Operational
3.	PGandE Dept. of Engineering Research - San Ramon	Photovoltaic generation facility	N/A	N/A	3	Operational
TOTAL					<u>13 kW</u>	
OPERATIONAL TOTAL					<u>13 kW</u>	

Table V

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

WIND PROJECTS GREATER THAN 100 kW

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>MW</u>	<u>Projected Date of Operation</u>
1.	U.S. Windpower - Altamont Pass	Wind farm	April 30, 1981	30.0	Operational (10 MW) 1983 (20 MW)
2.	Farrell-O'Keefe Properties - Altamont Pass	Wind farm	December 22, 1981 amended August 2, 1982 and March 16, 1983	16.8	Operational (2.8 MW) 1983 (14.0 MW)
3.	Aero Turbine - Solano County	Wind farm	December 3, 1982	126.0	1985
4.	Wind Master, Inc. - Altamont Pass	Wind farm	June 3, 1982	0.25	Operational
5.	California Wind Energy Systems - Altamont Pass	Wind farm	September 20, 1982	1.5	Operational
6.	CWES Ltd. - Altamont Pass	Wind farm	September 20, 1982	1.5	1983
7.	Turbo Wind - Altamont Pass	Wind farm	September 20, 1982	4.0	1983
8.	GE ₃ - Pacheco Pass	Wind farm	October 11, 1982	11.2	1983
9.	American Windpower - Altamont Pass	Wind farm	October 11, 1982	0.6	1983
10.	Fayette Manufacturing Corp. - Altamont Pass	Wind farm	November 4, 1982	30.0	1983-1984
11.	Coastal Wind Farms - Bodega Bay	Wind farm	November 11, 1982	3.0	1983
12.	Unique Wind Investments - Altamont Pass	Wind farm	December 2, 1982	30.0	1983-1984
13.	Alternate Energy Development International - Soledad	Wind farm	December 26, 1982	0.9	1983
14.	West Coast Wind Power - Altamont Pass	Wind farm	December 30, 1982	13.0	1983-1984
15.	Casas del Sol - King City	Wind farm	January 12, 1983	0.95	1983

Table V (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

WIND PROJECTS GREATER THAN 100 kW

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>MW</u>	<u>Projected Date of Operation</u>
16.	Powell Brothers, Inc. - Solano County	Wind farm	January 19, 1983	0.375	1983
17.	U.S. Windpower - Altamont Pass	Wind farm	March 4, 1983 ^{1/}	60.0	1983-1984
TOTAL				<u>330.075 MW</u>	
OPERATIONAL TOTAL				<u>14.55 MW</u>	

^{1/} Supercedes contract signed on November 24, 1982 for 30 MW.

Table VI

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

WIND PROJECTS 100 kW OR LESS

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>kW</u>	<u>Projected Date of Operation</u>
1.	Bloom Dairy - Petaluma	Wind-powered generator	July 15, 1980	Energy Purchase	18.0	Operational
2.	Robert P. Scheibach - Mill Valley	Wind-powered generator	September 19, 1980	Energy Purchase	1.5	Operational
3.	Slater Associates/McDonalds - Daly City	Wind-powered generator	October 17, 1980	Paralleling Agreement	10.0	Operational
4.	RIMAR/McDonalds - Daly City	Wind-powered generator	November 6, 1980	Paralleling Agreement	10.0	Operational
5.	Jens Dybdahl - Arroyo Grande	Wind-powered generator	December 1, 1980	Energy Purchase	20.0	Operational
6.	Joseph P. Richardson - Soquel	Wind-powered generator	January 5, 1981	Energy Purchase	1.5	Operational
7.	Billy C. Maher - Suisun	Wind-powered generator	February 18, 1981	Energy Purchase	10.0	Operational
8.	Harvey M. Harris - Watsonville	Wind-powered generator	April 1, 1981	Energy Purchase	1.5	Operational
9.	A. Dalton James - Orinda	Wind-powered generator	April 20, 1981	Energy Purchase	2.9	Operational
10.	Paul Dennett - Lakeport	Wind-powered generator	May 6, 1981	Energy Purchase	10.0	Operational
11.	Lee Swanson - Paso Robles	Wind-powered generator	May 7, 1981	Energy Purchase	10.0	Operational
12.	City of Fairfield - Fairfield	Wind-powered generator	May 14, 1981	Energy Purchase	25.0	Operational
13.	Joe J. Jess - Livermore	Wind-powered generator	June 18, 1981	Energy Purchase	20.0	Operational
14.	Robert S. Landing - Pleasant Hill	Wind-powered generator	June 19, 1981	Energy Purchase	10.0	Operational
15.	Donald R. Telford - Sausalito	Wind-powered generator	July 7, 1981	Energy Purchase	25.0	Operational
16.	Robert & Joyce Vieux - Livermore	Wind-powered generator	July 8, 1981	Energy Purchase	10.0	Operational
17.	Roger D. Wood - Vacaville	Wind-powered generator	July 14, 1981	Energy Purchase	1.8	Operational

Table VI (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

WIND PROJECTS 100 kW OR LESS

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>kW</u>	<u>Projected Date of Operation</u>
18.	Peter Lemos - San Pablo	Wind-powered generator	July 15, 1981	Energy Purchase	1.8	Operational
19.	Dr. Harold N. Fogel - Concord	Wind-powered generator	July 16, 1981	Energy Purchase	10.0	Operational
20.	L. P. Reinhard - Hayward	Wind-powered generator	July 16, 1981	Energy Purchase	10.0	Operational
21.	Helen L. Trotter Gass - Cambria	Wind-powered generator	August 4, 1981	Energy Purchase	1.8	Operational
22.	L. E. Webb - Nipomo	Wind-powered generator	June 1, 1982	Energy Purchase	20.0	Operational
23.	William Denneen - Nipomo	Wind-powered generator	August 16, 1981	Energy Purchase	5.0	Operational
24.	Miller Pump Company - Templeton	Wind-powered generator	September 3, 1981	Energy Purchase	20.0	Operational
25.	Peter G. Pardini - Vacaville	Wind-powered generator	September 13, 1981	Energy Purchase	10.0	Operational
26.	Marvin Schrock - Point Arena	Wind-powered generator	September 15, 1981	Energy Purchase	1.5	Operational
27.	Robert & Renate Johnson - Benecia	Wind-powered generator	September 18, 1981	Energy Purchase	1.5	Operational
28.	Harold & Donna Wells - Soquel	Wind-powered generator	September 23, 1981	Energy Purchase	1.5	Operational
29.	John R. Rinaudo - Pittsburg	Wind-powered generator	September 30, 1981	Energy Purchase	1.8	Operational
30.	Bertha Noll - Woodacre	Wind-powered generator	October 3, 1981	Energy Purchase	10.0	Operational
31.	Coastal Mountain Power - Arcata	Wind-powered generator	October 8, 1981	Energy Purchase	1.8	Operational
32.	Eleanor T. Harder - Carmel Valley	Wind-powered generator	October 19, 1981	Energy Purchase	1.5	Operational
33.	David L. Lafferty - Vacaville	Wind-powered generator	October 22, 1981	Energy Purchase	10.0	Operational
34.	Enerspec - Bangor	Wind-powered generator	October 29, 1981	Energy Purchase	1.5	Operational

Table VI (continued)
SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS
WIND PROJECTS 100 kW OR LESS
FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>kW</u>	<u>Projected Date of Operation</u>
35.	Ray Ratzlaff - Eureka	Wind-powered generator	November 6, 1981	Energy Purchase	1.0	Operational
36.	Myra J. Wise - Elk	Wind-powered generator	November 11, 1981	Energy Purchase	1.0	Operational
37.	Daniel W. Schuette - Antioch	Wind-powered generator	November 16, 1981	Energy Purchase	1.8	Operational
38.	Melburn Swafford - Oakley	Wind-powered generator	November 20, 1981	Energy Purchase	4.0	Operational
39.	Scott Dagenhart - Pinole	Wind-powered generator	November 23, 1981	Energy Purchase	1.8	Operational
40.	Thomas A. Frisbie, Sr. - El Sobrante	Wind-powered generator	December 3, 1981	Energy Purchase	10.0	Operational
41.	Richard L. LaFon - Templeton	Wind-powered generator	December 6, 1981	Energy Purchase	10.0	Operational
42.	Wallace H. Butler-Salinas	Wind-powered generator	December 14, 1981	Energy Purchase	4.0	Operational
43.	Ronald L. Burrow - El Sobrante	Wind-powered generator	December 18, 1981	Energy Purchase	1.8	Operational
44.	Evelyn Wanek - Pacifica	Wind-powered generator	December 24, 1981	Energy Purchase	1.8	Operational
45.	Orin S. Lambert & Lloyd Langdon - Clearlake Park	Wind-powered generator	December 28, 1981	Energy Purchase	10.0	Operational
46.	J. S. Byers - Tomales	Wind-powered generator	December 28, 1981	Energy Purchase	4.0	Operational
47.	Great Falls Wind Energy, Inc. - Altamont Pass	Wind-powered generator	January 8, 1982	Energy Purchase	20.0	Operational
48.	Insta-Tune - Fairfield	Wind-powered generator	January 8, 1982	Energy Purchase	10.0	Operational
49.	Louis & Yvonne Greer - Tracy	Wind-powered generator	January 13, 1982	Energy Purchase	1.5	Operational
50.	California Polytechnic State University - San Luis Obispo	Wind-powered generator	January 18, 1982	Paralleling Agreement	1.5	Operational
51.	G. W. & G. L. Womack - Tracy	Wind-powered generator	February 18, 1982	Energy Purchase	4.0	Operational

Table VI (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

WIND PROJECTS 100 kW OR LESS

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>kW</u>	<u>Projected Date of Operation</u>
52.	Vassa Wysinger, Jr. - Berkeley	Wind-powered generator	March 6, 1982	Energy Purchase	1.5	Operational
53.	James Towery - Gilroy	Wind-powered generator	March 9, 1982	Energy Purchase	1.5	Operational
54.	Dahle and Lord Associates, Inc. - Kneeland	Wind-powered generator	March 12, 1982	Energy Purchase	100.0	January 1984
55.	Dennis and Cindy Amen - Eureka	Wind-powered generator	March 31, 1982	Energy Purchase	1.0	Operational
56.	Malcolm and Betty Minahen - Vallejo	Wind-powered generator	April 20, 1982	Energy Purchase	10.0	Operational
57.	<u>1/</u>	Wind-powered generator	April 21, 1982	Energy Purchase	4.0	Operational
58.	Everett and Bernice Hart - Banta	Wind-powered generator	April 21, 1982	Energy Purchase	4.0	Operational
59.	The Frank Chounet Ranch - Firebaugh	Wind-powered generator	April 28, 1982	Energy Purchase	12.5	Operational
60.	<u>1/</u>	Wind-powered generator	June 17, 1982	Energy Purchase	10.0	November 1983
61.	Vivian Engle - Nipomo	Wind-powered generator	June 19, 1982	Energy Purchase	10.0	Operational
62.	Lewis Nixon Co. - Ryer Island	Wind-powered generator	June 26, 1982	Energy Purchase	4.0	Operational
63.	Joseph A. Heidrick, Sr. - Woodland	Wind-powered generator	June 30, 1982	Energy Purchase	10.0	Operational
64.	Michael or Karen Rippey - Vallejo	Wind-powered generator	June 30, 1982	Energy Purchase	4.0	April 1983
65.	J. R. Nighswonger - San Luis Obispo	Wind-powered generator	July 6, 1982	Energy Purchase	1.8	Operational
66.	Michael A. Stenson - Nipomo	Wind-powered generator	July 7, 1982	Energy Purchase	5.0	Operational
67.	Charles Alldrin - Chico	Wind-powered generator	July 9, 1982	Energy Purchase	3.0	Operational

1/ Project name and location not authorized for release.

Table VI (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

WIND PROJECTS 100 kW OR LESS

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Contract Signed	Type	kW	Projected Date of Operation
68.	Marshall Hendren - Bodega Bay	Wind-powered generator	July 9, 1982	Energy Purchase	10.0	Operational
69.	Alternate Energy Development International - Buellton	Wind-powered generator	August 6, 1982	As-delivered Capacity and Energy Purchase	40.0	Operational
70.	Joe T. Hernandez - Davis	Wind-powered generator	August 6, 1982	As-delivered Capacity and Energy Purchase	1.8	Operational
71.	Marion Acquistapace - Suisun	Wind-powered generator	August 30, 1982	Energy Purchase	10.0	Operational
72.	Gregory Merwin - Sacramento Ship Channel	Wind-powered generator	August 31, 1982	As-delivered Capacity and Energy Purchase	1.8	June 1983
73.	Ian Anderson - Birds Landing	Wind-powered generator	August 31, 1982	Energy Purchase	10.0	Operational
74.	<u>1/</u>	Wind-powered generator	September 9, 1982	Energy Purchase	10.0	Operational
75.	<u>1/</u>	Wind-powered generator	September 9, 1982	Energy Purchase	10.0	Operational
76.	Mr. & Mrs. Clarence Shaffer - Oakdale	Wind-powered generator	November 5, 1982	As-delivered Capacity and Energy Purchase	20.0	Operational
77.	<u>1/</u>	Wind-powered generator	November 5, 1982	As-delivered Capacity and Energy Purchase	10.0	Operational
78.	Coastal Windfarms, Ltd. - Bodega Bay	Wind-powered generator	November 5, 1982	As-delivered Capacity and Energy Purchase	30.0	Operational
79.	<u>1/</u>	Wind-powered generator	November 5, 1982	Energy Purchase	1.8	Operational
80.	Mendocino Unified School District - Elk	Wind-powered generator	November 8, 1982	As-delivered Capacity and Energy Purchase	10.0	Operational

1/ Project name and location not authorized for release.

Table VI (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

WIND PROJECTS 100 kW OR LESS

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>kW</u>	<u>Projected Date of Operation</u>
81.	Anthony & Frances Merlonghi - Suisun	Wind-powered generator	December 10, 1982	Energy Purchase	1.5	Operational
82.	<u>1/</u>	Wind-powered generator	December 29, 1982	As-delivered Capacity and Energy Purchase	10.0	Operational
83.	Michael W. Stephens - Dixon	Wind-powered generator	December 29, 1982	As-delivered Capacity and Energy Purchase	10.0	June 1983
84.	Donald Herzog - Vacaville	Wind-powered generator	December 29, 1982	As-delivered Capacity and Energy Purchase	10.0	June 1983
85.	Donald Homan - Livermore	Wind-powered generator	January 27, 1983	As-delivered Capacity and Energy Purchase	4.0	Operational
86.	Kenneth R. Enos - Union City	Wind-powered generator	January 28, 1983	As-delivered Capacity and Energy Purchase	1.5	Operational
87.	Louis A. Huebsch - San Bruno	Wind-powered generator	January 28, 1983	As-delivered Capacity and Energy Purchase	2.2	Operational
88.	Real Gas & Electric Co., Inc. - Santa Rosa	Wind-powered generator	February 15, 1983	As-delivered Capacity and Energy Purchase	1.0	Operational
89.	Sally White - Arroyo Grande	Wind-powered generator	March 9, 1983	As-delivered Capacity and Energy Purchase	4.0	Operational
TOTAL					<u>777.0 kW</u>	
OPERATIONAL TOTAL					<u>641.2 kW</u>	

1/ Project name and location not authorized for release.

Table VII

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

HYDROELECTRIC PROJECTS GREATER THAN 100 kW

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Owner</u>	<u>Date Contract Signed</u>	<u>MW</u>	<u>Projected Date of Operation</u>
1.	Rollins - below Rollins Dam on Bear River near Colfax, California	Nevada Irrigation District	June 30, 1978	11.0	Operational
2.	Pardee - below Pardee Dam on Mokelumne River near Ione, California	East Bay Municipal Utility District	February 10, 1981	29.0 ^{1/}	1983
3.	Camanche - below Camanche Dam on Mokelumne River near Ione, California	East Bay Municipal Utility District	February 10, 1981	11.0	1983
4.	Sly Creek - below Sly Creek Dam on Lost Creek near Forbestown, California	Oroville - Wyandotte Irrigation District	March 26, 1981	13.0	1983
5.	Hell Hole - below Hell Hole Dam on the Rubicon River near Foresthill, California	Placer County Water Agency	June 3, 1981	0.5	1983
6.	Iron Mountain Mines - 12 miles northeast of Redding, California	T. W. Arman/ Iron Mountain Mines, Inc.	July 20, 1981	6.2	Not yet determined
7.	Monticello - below Monticello Dam on Putah Creek near Winters, California	Solano Irrigation District	September 1, 1981	11.5	1983
8.	Matthews - below Matthews Dam on Mad River near Ruth, California (Trinity County)	Humboldt Bay Municipal Utility District	October 13, 1981	1.2	1983

^{1/} Total plant capacity after adding a new unit of approximately 10 MW.

Table VII (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

HYDROELECTRIC PROJECTS GREATER THAN 100 kW

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Owner</u>	<u>Date Contract Signed</u>	<u>MW</u>	<u>Projected Date of Operation</u>
9.	Lake Amador - below Lake Amador Dam near Ione, California	Jackson Valley Irrigation District and Hydro Electric Constructors	December 4, 1981	0.5	1983
10.	Trinity Alps Creek - Trinity County near Trinity Creek	George F. and Barbara Jo Mallett	January 4, 1982	0.3	Operational
11.	Bailey Creek Ranch - Battle Creek near Shingletown, California	Consolidated Hydroelectric, Inc.	January 28, 1982	0.8	Operational
12.	American Enertech Flotation Generator - Sacramento River near Colusa	American Enertech	February 3, 1982	0.2	1983
13.	Woodward - Woodward Dam, Stanislaus County	South San Joaquin Irrigation District	February 23, 1982	2.8	Operational
14.	Parker - Snelling Road, Merced County	Merced Irrigation District	March 9, 1982	2.7	Operational
15.	City of San Luis Obispo - San Luis Obispo (Salinas Reservoir)	City of San Luis Obispo	June 1, 1982	0.8	1984
16.	Indian Valley Plant - near Clear Lake	Indian Valley Hydro- Electric Partnership	September 13, 1982	2.9	1983

Table VII (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

HYDROELECTRIC PROJECTS GREATER THAN 100 kW

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Owner</u>	<u>Date Contract Signed</u>	<u>MW</u>	<u>Projected Date of Operation</u>
17.	Fairfield - MID Canal System	Merced Irrigation District	October 28, 1982	0.9	1983
18.	Canal Creek - MID Canal System	Merced Irrigation District	October 28, 1982	0.9	1983
19.	Frankenheimer - SSJID Canal System	South San Joaquin Irrigation District	November 16, 1982	5.0	Operational
20.	Mud Creek - Butte County near Richardson Spring	Perry Logging Company	December 27, 1982	0.3	Operational
21.	Pond & Dardanelles Creek - Placer County South of Foresthill	Sierra Energy Co.	January 12, 1983	0.2	April 1983
22.	Goose Valley - Shasta County near Burney	Mega Hydro, Inc.	March 30, 1983	0.2	1983
TOTAL				<u>101.9 MW</u>	
OPERATIONAL TOTAL				<u>22.9 MW</u>	

Table VIII

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

HYDROELECTRIC PROJECTS 100 kW OR LESS

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>kW</u>	<u>Projected Date of Operation</u>
1.	Schneider Corp. - Richvale	Low-head hydroelectric facility	August 6, 1980	Energy Purchase	96	July 1983
2.	North Valley Baptist Church - Viola	Low-head hydroelectric facility	February 20, 1981	Paralleling Agreement	10	Operational
3.	Old Bell Powerhouse - Auburn	Low-head hydroelectric facility	October 27, 1981	Energy Purchase	100	1983
4.	North Valley Baptist Church - Viola	Low-head hydroelectric facility	March 25, 1982	Energy Purchase	50	Operational
5.	Edward F. Burgess - Zenia	Low-head hydroelectric facility	April 9, 1982	Energy Purchase	25	November 1983
6.	Robert W. Lee - Manton	Low-head hydroelectric facility	April 29, 1982	Energy Purchase	30	Operational
7.	Adrian B. Haemmig - Grass Valley	Low-head hydroelectric facility	May 3, 1982	Energy Purchase	15	Operational
8.	William R. Poulton - Shasta County	Low-head hydroelectric facility	June 25, 1982	Energy Purchase	100	June 1983
9.	Redwood Trails, Inc. - Stone Lagoon	Low-head hydroelectric facility	July 11, 1982	Energy Purchase	37	May 1983
10.	Whale Rock Commission - San Luis Obispo	Low-head hydroelectric facility	November 3, 1982	As-delivered Capacity and Energy Purchase	54	Operational
11.	Richard E. Akin - Placerville	Low-head hydroelectric facility	November 4, 1982	As-delivered Capacity and Energy Purchase	100	Operational
12.	Fred & Janice Sutter - Mill Seat Creek, Shasta County	Low-head hydroelectric facility	November 4, 1982	As-delivered Capacity and Energy Purchase	100	August 1983
13.	Hat Creek Hereford Ranch - Hat Creek	Low-head hydroelectric facility	December 3, 1982	As-delivered Capacity and Energy Purchase	100	Operational

Table VIII (continued)

SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

HYDROELECTRIC PROJECTS 100 kW OR LESS

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>kW</u>	<u>Projected Date of Operation</u>
14.	Sterling Beckwith - Paradise	Low-head hydroelectric facility	January 3, 1983	Energy Purchase	20	Operational
15.	F. Biber & S. Spellenberg - Bidden Creek near Eureka	Low-head hydroelectric facility	February 1, 1983	As-delivered Capacity and Energy Purchase	28	October 1983
16.	General Plastics Mfg. Co. - Maple Creek near Eureka	Low-head hydroelectric facility	March 3, 1983	As-delivered Capacity and Energy Purchase	100	November 1983
				TOTAL	<u>965 kW</u>	
				OPERATIONAL TOTAL	<u>379 kW</u>	

Table IX
SUMMARY OF SIGNED CONTRACTS
AND COMMITTED PROJECTS

OTHER PROJECTS

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>MW</u>	<u>Projected Date of Operation</u>
1.	Transamerica DeLaval Turbine - Oakland	Electric power from a diesel test engine	February 12, 1982	Energy Purchase	7.3	Operational
TOTAL					<u>7.3 MW</u>	
OPERATIONAL TOTAL					<u>7.3 MW</u>	

Table X
COGENERATION PROJECTS UNDER ACTIVE DISCUSSION

STATUS REPORT

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Discussions Began	Maximum Estimated Project Size MW	Electric Demand MW	Status	Projected Date of Operation ^{1/}
1.	Louisiana-Pacific Corporation - Antioch	Electric power/steam project fueled by woodwaste	May 1977	18 - 20	14.0	L-P has installed a new boiler to provide steam to plant and to existing generators. L-P currently using all its generation. L-P is considering selling power to PGandE; interconnection requirements under review.	Not yet determined
2.	Getty Oil Company - Bakersfield	Electric power/steam project using gas turbine topping cycle; enhanced oil recovery	August 1971	280.0	50.8	Getty involved in AFC process.	Not yet determined
3.	Louisiana-Pacific Corporation - Oroville	Electric power/steam project fueled by woodwaste	March 1977	5 - 10	6.5	Power purchase agreement sent to L-P in February 1980. L-P considering developing project.	Not yet determined
4.	TOSCO Refinery - Avon	Electric power/steam project using a topping cycle fueled by refinery fuel-gas	March 1977	85.0	50.0	TOSCO's consultant is proceeding with the detailed plant design. PGandE is performing interconnection studies. Power purchase negotiations initiated.	September 1985
5.	California and Hawaiian Sugar Company - Crockett	Electric power/steam project using a gas turbine topping cycle	January 1979	100.0	3.8	Thermonetics, Inc. is conducting feasibility study. Power purchase negotiations initiated.	September 1985
6.	Oakland City Center - Oakland	Electric power/steam project using a gas turbine topping cycle	March 1979	6 - 30	21.4 (est.)	The City of Oakland has selected Kaiser Engineers to do an assessment of the project.	Not yet determined
7.	Napa State Hospital - Napa	Electric power/steam project using a combustion gas turbine topping cycle with waste heat boilers	September 1979	1.3	1.7	Project under construction. Power Purchase agreement being reviewed by the State.	June 1983
8.	Big Valley Lumber Co. (formerly Main Industries Lumber) - Bieber	Electric power/steam project fueled by woodwaste	July 1977	3.0	1.6	Discussions ongoing for purchase of power. Big Valley reviewing interconnection requirements.	July 1983

Table X (continued)
COGENERATION PROJECTS UNDER ACTIVE DISCUSSION

STATUS REPORT-

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Discussions Began	Maximum Estimated Project Size MW	Electric Demand MW	Status	Projected Date of Operation ^{1/}
9.	Atascadero State Hospital - Atascadero	Electric power/steam project using a reciprocating engine topping cycle	January 1983	25.0	1.5	G.E. will install and maintain cogeneration system. Preliminary interconnection discussions conducted.	Not yet determined
10.	International Power Technology, Inc. - Sunnyvale	Electric power/steam project fueled by natural gas	November 1981	1.0	N/A	Discussions ongoing for purchase of power.	1983
11.	Getty Oil Company - McKittrick	Electric power/steam project using gas turbines with heat recovery steam generators; enhanced oil recovery	June 1981	8-12	Not yet determined	Project feasibility study completed. Discussions ongoing for purchase of power. Electrical interconnection study in progress.	1983
12.	PGandE Moss 6 and 7 Gas Expander - Moss Landing	Electric power from a natural gas expander turbine	June 1980	9.8	N/A	Third party development and alternative financing under study.	1985
13.	^{2/}	Electric power/steam project using a gas turbine topping cycle	January 1982	24-48	31.6	Letter agreement prepared for signature.	October 1985
14.	City of San Jose - San Jose	Electric power/steam project using a gas turbine	September 1981	4.8	Not yet determined	PGandE advanced the funds for a feasibility study of a cogeneration project in the downtown area. The City of San Jose is currently evaluating the results of the feasibility study.	Not yet determined
15.	Lassen College - Susanville	Electric power/steam project fueled by woodwaste	March 1982	1.5	N/A	Letter agreement prepared for signature. Negotiations ongoing for purchase of power.	January 1984
16.	City of Oakland and County of Alameda - Oakland	Electric power/steam project using a natural gas reciprocating engine	December 1981	1.0	Not yet determined	PGandE advanced the funds for a feasibility study of a cogeneration project for the city and county court and jail buildings.	December 1983

^{2/} Project name and location not authorized for release.

Table X (continued)
COGENERATION PROJECTS UNDER ACTIVE DISCUSSION

STATUS REPORT

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Discussions Began	Maximum Estimated Project Size MW	Electric Demand MW	Status	Projected Date of Operation ^{1/}
17.	Stanford University - Palo Alto	Electric power/steam project using a gas turbine topping cycle	October 1981	45.0	15.8	Preliminary design stage. Negotiations ongoing for purchase of power.	January 1985
18.	Veteran's Hospital - Yountville	Electric power/steam project using a gas turbine topping cycle	April 1982	2.8	1.1	Preliminary design stage. Negotiations ongoing for purchase of power.	December 1984
19.	Procter and Gamble Co. - Sacramento	Electric power/steam project using a gas turbine topping cycle	March 1981	23.0	N/A	Project engineering underway. Contract negotiations ongoing.	November 1983
20.	City of Santa Clara/ International Power Technology, Inc. - Santa Clara	Electric power/steam project using a gas turbine topping cycle	June 1981	10.0	N/A	City of Santa Clara and International Power Technology have signed a Letter of Intent which will lead to an agreement to construct a cogeneration project.	Fall 1983
21.	PGandE, Station "T" - San Francisco	Electric power/steam project using a gas turbine topping cycle	March 1979	22.0	N/A	Engineering possibilities and economics under review.	Not yet determined
22.	Industrial Agrico, Inc. - San Joaquin	Electric power/steam project fueled by feedlot waste	September 1982	7.5-11.5	N/A	Preliminary discussions underway.	Not yet determined
23.	^{2/}	Electric power/steam project using a gas turbine topping cycle	December 1981	1.0	N/A	Standard Offer #1 prepared for signature.	May 1983
24.	^{2/}	Electric power/steam project fueled by woodwaste	March 1980	3.0	1.8	Discussions ongoing for the purchase of power.	October 1983
25.	Petro Lewis Corp. - South Belridge Oil Field	Electric power/steam project fueled by field produced gas; enhanced oil recovery	March 1981	9.6	N/A	Consultant feasibility study and contract negotiations ongoing. Electrical interconnection study in progress.	December 1983

^{2/} Project name and location not authorized for release.

Table X (continued)
COGENERATION PROJECTS UNDER ACTIVE DISCUSSION

STATUS REPORT

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Discussions Began	Maximum Estimated Project Size MW	Electric Demand MW	Status	Projected Date of Operation ^{1/}
26.	Applied Power Technology - Hayfork	Electric power/steam project fueled by woodwaste	December 1982	8 - 15	1.9	Discussions ongoing for the purchase of power.	March 1985
27.	Applied Power Technology - Oroville	Electric power/steam project fueled by woodwaste	February 1983	8 - 15	1.9	Discussions ongoing for the purchase of power.	June 1985
28.	San Jose State University - San Jose	Electric power/steam project using a gas-fired Cheng cycle system	January 1983	5.0	N/A	Discussions ongoing for the purchase of power.	September 1984
29.	California Polytechnic Institute - San Luis Obispo	Electric power/steam project using a gas-fired combined cycle system	January 1983	25.0	N/A	Discussions ongoing for the purchase of power.	July 1985
30.	Wellhead Energy Partnership I/Onsite Energy - Woodland	Electric power/steam project fueled by wellhead natural gas	July 1982	0.5	0.0	As-delivered Capacity and Energy power purchase agreement prepared for signature.	June 1983
			TOTAL	<u>743.8 - 820.8 MW</u>			

^{1/} Subject to change and final contract agreement.

Table XI
SOLID WASTE/BIOMASS PROJECTS UNDER ACTIVE DISCUSSION
STATUS REPORT
FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Discussions Began	Maximum Estimated Project Size MW	Electric Demand MW	Status	Projected Date of Operation ^{1/}
1.	Humboldt Bay Power Company - Eureka	Electric power project fueled by solid waste and woodwaste	1975	40.0	N/A	Discussions ongoing for purchase of power.	March 1985
2.	San Francisco Resource Recovery Project - location not yet determined	Electric power project fueled by solid waste	1967	34 - 39	N/A	Discussions between City and County of San Francisco, Sanitary Fill Company (SFC), and PGandE on-going; PGandE has offered to purchase the electric output. Brisbane voters rejected rezoning for project on November 2, 1982. City of San Francisco now seeking a new site.	July 1986
3.	North San Mateo County Sanitation District - Daly City	Electric power project fueled by methane gas	1980	0.4	0.9	Feasibility study completed. Interconnection approved. Bids are out.	June 1983
4.	West County Waste-to-Energy - Richmond	Electric power project fueled by solid waste	1978	20.0	N/A	Discussions ongoing for purchase of power. Feasibility study completed. A site has been selected, and the EIR has been approved.	Late 1984
5.	Dublin/San Ramon Service District - Dublin	Electric power project using a topping cycle fueled by methane gas	April 1981	0.6	1.0	Negotiations ongoing for purchase of power. Construction underway.	September 1983
6.	City of Hayward - Hayward	Electric power project using a topping cycle fueled by methane gas	April 1981	0.7	1.0	Project feasibility study in progress.	August 1983
7.	California Agricultural Power Co. (formerly Chowchilla Power Co.) - Chowchilla	Electric power project fueled by biomass	October 1980	5.0	N/A	Preliminary power purchase discussions underway.	February 1985
8.	EBC Company - Willits	Electric power project fueled by woodwaste	May 1980	0.3	0.1	Negotiations ongoing for purchase of power.	Not yet determined

Table XI (continued)

SOLID WASTE/BIOMASS PROJECTS UNDER ACTIVE DISCUSSION

STATUS REPORT

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Discussions Began	Maximum Estimated Project Size MW	Electric Demand MW	Status	Projected Date of Operation ^{1/}
9.	Ultrapower II - Westwood	Electric power project fueled by woodwaste	November 1982	10.0	N/A	Negotiations ongoing for purchase of power.	January 1985
10.	Tri-Cities Solid Waste-Fremont	Electric power project fueled by solid waste	February 1981	6 - 9	N/A	Final EIR certified by Fremont Planning Commission on August 27, 1982. Use permit approved by Planning Commission and sent to City Council on March 24, 1983. Oakland Scavengers now negotiating with a vendor.	1986
11.	City of Sunnyvale - Sunnyvale	Electric power project fueled by methane gas	March 1982	0.75	N/A	Project under construction. Paralleling agreement under discussion.	December 1983
12.	^{2/}	Electric power project fueled by digester gas	December 1981	0.05	N/A	Construction underway. No parallel operation anticipated.	Not yet determined
TOTAL				<u>117.8 - 125.8 MW</u>			

^{1/} Subject to change and final contract agreement.^{2/} Project name and location not authorized for release.

Table XII

FEDERALLY FUNDED R&D AND COGENERATION DEMONSTRATION PROJECTS

STATUS REPORT

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Discussions Began</u>	<u>Maximum Estimated Project Size MW</u>	<u>Electric Demand MW</u>	<u>Status</u>	<u>Projected Date of Operation</u> ^{1/}
1.	McClellan Air Force Base Energy Showcase - Sacramento	Electric power/steam project using coal - fired fluidized bed boilers	August 1980	12.0	N/A	Project feasibility under review by USAF.	Not yet determined
		TOTAL		<u>12.0 MW</u>			

^{1/} Subject to change and final contract agreement.

Table XIII
SOLAR PROJECTS UNDER ACTIVE DISCUSSION
STATUS REPORT
FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Discussions Began</u>	<u>Maximum Estimated Project Size MW</u>	<u>Status</u>	<u>Projected Date of Operation^{1/}</u>
1.	Rockwell/ARCO - Carrizo Plain	Solar thermal	August 1982	30.0	Negotiations ongoing.	1986
				TOTAL 30.0 MW		

^{1/} Subject to change and final contract agreement.

Table XIV

WIND PROJECTS GREATER THAN 100 kW UNDER ACTIVE DISCUSSION

STATUS REPORT

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Discussions Began</u>	<u>Maximum Estimated Project Size MW</u>	<u>Status</u>	<u>Projected Date of Operation^{1/}</u>
1.	Wind Master, Inc. - Altamont Pass	Wind farm	February 1982	30.0	Discussions ongoing.	1983-1984
2.	The Wind Alliance - Altamont Pass	Wind farm	February 1982	13.3	Discussions ongoing.	1983
3.	City of Santa Clara - Altamont Pass	Wind farm	May 1982	20 - 25	Discussions ongoing.	1983-1984
4.	North American Wind Power - Altamont Pass	Wind farm	February 1982	5.0	Discussions ongoing.	1983
5.	Wind Energy Co. - Altamont Pass	Wind farm	April 1981	40.0	Discussions ongoing.	1984-1986
6.	Powell Brothers, Inc. - Solano County	Wind farm	January 1982	0.5	Discussions ongoing.	1983-1984
7.	California Wind Energy Systems - Altamont Pass	Wind farm	February 1983	9.4	Discussions ongoing.	1983-1984
8.	American Windpower - Altamont Pass	Wind farm	February 1983	5.4	Discussions ongoing.	1984
9.	U.S. Windpower - Altamont Pass	Wind farm	February 1983	60.0	Discussions ongoing.	1984-1985
TOTAL				<u>183.6-188.6 MW</u>		

^{1/} Subject to change and final contract agreement.

Table XV

WIND PROJECTS 100 kW OR LESS UNDER ACTIVE DISCUSSION

STATUS REPORT

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Discussions Began	Maximum Estimated Project Size kW	Status	Projected Date of Operation ^{1/}
1.	<u>2/</u>	Wind-powered generator	April 1981	100	Preliminary negotiations underway. Wind data collection ongoing.	Not yet determined
2.	Angel Island - Angel Island	Wind-powered generator	April 1981	40	Standard Offer #3 prepared for signature.	April 1983
3.	<u>2/</u>	Wind-powered generator	October 1981	20	Standard Offer #3 prepared for signature. Awaiting funding.	June 1983
4.	Half Moon Bay Airport - Half Moon Bay	Wind-powered generator	January 1982	20	Preliminary negotiations underway. Contract awarded.	August 1983
5.	<u>2/</u>	Wind-powered generator	May 1982	38	Preliminary negotiations underway. Machine undergoing mechanical testing. Interconnection being designed.	May 1983
6.	<u>2/</u>	Wind-powered generator	June 1982	4	Standard Offer #3 prepared for signature.	May 1983
7.	<u>2/</u>	Wind-powered generator	August 1982	10	Standard Offer #3 prepared for signature.	May 1983
8.	<u>2/</u>	Wind-powered generator	October 1982	10	Standard Offer #3 prepared for signature.	May 1983
9.	<u>2/</u>	Wind-powered generator	October 1982	4	Standard Offer #3 prepared for signature.	May 1983
				TOTAL	<u>246 kW</u>	

^{1/} Subject to change and final contract agreement.^{2/} Project name and location not authorized for release.

Table XVI
HYDROELECTRIC PROJECTS GREATER THAN 100 kW UNDER ACTIVE DISCUSSION
STATUS REPORT
FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Owner</u>	<u>Approximate Installed Capacity - MW</u>	<u>Status</u>	<u>Projected Date of Operation</u> ^{1/}
1.	Sand Bar - Middle Fork Stanislaus River	Oakdale and South San Joaquin Irrigation District	15.0	Districts filed FERC license application and will prepare amendment to license application for transmission. Memorandum of Understanding signed November 29, 1982.	1986
2.	McFadden Farms - Potter Valley, California	E. J. McFadden	0.4	Power purchase agreement transmitted to developer for signature.	1983
3.	Friant - below Friant Dam on San Joaquin River near Madera, California	Friant Power Authority ^{2/}	25.0	Memorandum of Understanding signed December 23, 1981. Power purchase negotiations ongoing.	1985
4.	Bowman Power Project - Bowman Reservoir	Nevada Irrigation District	3.0	Memorandum of Understanding signed October 25, 1982. Partnership contract being negotiated.	1986
5.	Rock Creek #2 - North Fork Feather River at Rock Creek	Oroville-Wyandotte Irrigation District	15.0	Negotiations underway.	1987
6.	Buckeye Development on Georgetown Conduit - near Georgetown, California	J. Lawrence (Georgetown Divide Public Utility District)	0.4	Interconnection study underway. Developer proceeding with construction of project facilities.	1983
7.	Pyramid - South Fork American River at Pyramid Creek (Medley Lake)	Joseph M. Keating	0.8	Preliminary interconnection information given to developer.	1985
8.	Rock Creek - South Fork American River at Rock Creek	Joseph M. Keating	3.0	Preliminary interconnection information given to developer.	1985

^{2/} Friant Power Authority is made up of Delano-Earlimart I.D., Lindmore I.D., Lindsay-Stratmore I.D., Terra Bella I.D., South San Joaquin Municipal Utility District, Orange Cove I.D., and Madera I.D.

Table XVI (continued)
 HYDROELECTRIC PROJECTS GREATER THAN 100 kW UNDER ACTIVE DISCUSSION
 STATUS REPORT
 FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Owner	Approximate Installed Capacity - MW	Status	Projected Date of Operation ^{1/}
9.	Sayles Flat - South Fork American River, near Strawberry, California	Joseph M. Keating	2.0	Preliminary interconnection information given to developer.	1985
10.	Ross Burgess - Bluford Creek, east of Fort Seward, Trinity County	Ross Burgess	1.3	Developer has requested non-standard contract. Being studied.	1984
11.	Auburn Ravine - South Canal, Placer County	Placer County Water Agency	1.8	Under study.	1985
12.	Madera Canal Drop - Madera Canal near Madera, California	Madera Irrigation District	1.8	Negotiations underway.	January 1985
13.	Kelly Ridge II - adjacent to existing Kelly Ridge P.H., South Fork Feather River	Oroville-Wyandotte Irrigation District	2.3	Negotiations underway.	January 1985
14.	Rio Bravo - Kern River, near Bakersfield, California	Olcese Water District	7.0	Negotiations underway.	1984
15.	Foottrail-Silver Fork American River, northwest of Silver Lake	Joseph M. Keating	3.2	Preliminary interconnection information given to developer.	1986
16.	Browns Valley Ditch - Yuba County	Browns Valley Irrigation District	0.25	Negotiations ongoing for purchase of power. Final interconnection study underway.	1984
17.	Pumpline Canal - Yuba County	Browns Valley Irrigation District	0.13	Feasibility study stage.	Not yet determined
18.	Old Powerhouse - Yuba County	Browns Valley Irrigation District	0.3	Feasibility study stage.	Not yet determined

Table XVI (continued)

HYDROELECTRIC PROJECTS GREATER THAN 100 kW UNDER ACTIVE DISCUSSION

STATUS REPORT

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Owner</u>	<u>Approximate Installed Capacity - MW</u>	<u>Status</u>	<u>Projected Date of Operation ^{1/}</u>
19.	Harding Canal - Yuba County	Browns Valley Irrigation District	1.7	Feasibility study stage.	Not yet determined
20.	Virginia Ranch Dam - Yuba County	Browns Valley Irrigation District	1.0	Negotiations ongoing for purchase of power. Interconnection study completed.	April 1984
21.	Baker - Kosk Creek near Big Bend, Shasta County	Dr. & Mrs. Pfeiffer	0.2	Preliminary negotiations ongoing for purchase of power.	Not yet determined
22.	Montgomery Creek - near PGandE Pit 7 Plant, Shasta County	Consolidated Hydroelectric, Inc.	2.1	Preliminary interconnection information given to developer.	Not yet determined
23.	Salmon Creek - Sierra County near Sierra City	Henwood Associates	0.7	Developer has been given proposal for the use of currently limited capability of PGandE system in project area.	Not yet determined
24.	Swift Creek - Trinity County near Trinity Center	Southern Pacific Land Company	4.6	Interconnection study needed. Awaiting action from developer.	Not yet determined
25.	Horseshoe Bar - Middle Fork American River in Placer County	Horseshoe Bar Associates	4.0	Power purchase negotiations underway.	1984
26.	Ponderosa I - Ponderosa Reservoir, South Fork Feather River	Oroville - Wyandotte Irrigation District	7.7	Negotiations underway.	1986
27.	French Creek - North Fork Feather River near Lake Oroville	Oroville- Wyandotte Irrigation District	8.5	Negotiations underway.	1986

Table XVI (continued)

HYDROELECTRIC PROJECTS GREATER THAN 100 kW UNDER ACTIVE DISCUSSION

STATUS REPORT

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Owner</u>	<u>Approximate Installed Capacity - MW</u>	<u>Status</u>	<u>Projected Date of Operation^{1/}</u>
28.	Fleming Hill Conduit - Vallejo Water Treatment Plant	City of Vallejo	0.3	Negotiations underway. Letter agreement prepared for signature.	October 1983
29.	Scotts Flat - Deer Creek in Nevada County	Nevada Irrigation District	0.8	Nevada Irrigation District considering private developer.	1985
30.	Calaveras Reservoir - near Milpitas on Alameda Creek	City and County of San Francisco	1.0	Preliminary discussions held. Awaiting action from developer.	Not yet determined
31.	Mill & Sulphur Creeks - Dinsmore	David De Mera	0.9	Permits obtained. Interconnection being designed. Power purchase agreement expected to be signed by June 1983.	November 1983
32.	Bluff Springs - Shasta County near Manton	Donald Lee	0.1	Contract for use of PGandE land and water being drafted.	1984
33.	Canyon Creek - El Dorado County	Robert T. Suter	0.65	Interconnection study defined. Awaiting action by developer.	Not yet determined
34.	North Yuba - Sierra County near Sierra City	Sierra County	7.5	Interconnection study defined. Awaiting action by developer.	February 1986
35.	Cedar Flat - near Burnt Ranch	Mega Hydro, Inc.	0.3	Negotiations ongoing.	October 1983
36.	AC Hydro at Roaring Creek - Shasta County near Montgomery Creek	Fred Adams	3.5	Interconnection study defined. Awaiting action by developer.	1984
37.	Battle Creek - Trinity County near Carrville	Cecil E. Bell	0.55	Preliminary interconnection study completed.	Not yet determined
38.	Boyd's Hat Creek - Shasta County near Old Station	James Boyd	1.9	Preliminary interconnection study completed. Other interconnection alternatives that could be studied have been defined. Awaiting action by developer.	Not yet determined

Table XVI (continued)
HYDROELECTRIC PROJECTS GREATER THAN 100 kW UNDER ACTIVE DISCUSSION

STATUS REPORT

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Owner</u>	<u>Approximate Installed Capacity - MW</u>	<u>Status</u>	<u>Projected Date of Operation^{1/}</u>
39.	Clover Creek - East of Oak Run	Mega Hydro, Inc.	1.0	Preliminary interconnection study completed.	Not yet determined
40.	Deerlick Springs Resort - Trinity County near Hayfork	Deerlick Springs Resort	4.5	Preliminary discussions held. Interconnection study defined. Awaiting action by developer.	October 1984
41.	Digger Creek - Tehama County on Digger Creek	Forward Power & Energy Co., Inc.	0.6	Power purchase agreement prepared for signature.	April 1983
42.	Kerlin Creek - Trinity County near Hyampon	VG Enterprises	0.6	Preliminary discussions held. Interconnection study defined. Awaiting action by developer.	1983
43.	Little Boulder Creek - Trinity County near Trinity Center	D.W. & L.M. Saulsberry	0.5	Interconnection study defined.	October 1983
44.	Pelletreau Creek - Trinity County near Hyampon	Hyampon Valley Ranch	1.0	Preliminary discussions held. Interconnection study defined. Awaiting action by developer.	October 1983
45.	Big Creek - Trinity County near Hyampon	Xenophone Enterprises	4.6	Preliminary discussions held. Interconnection study defined. Awaiting action by developer.	October 1983
46.	Lower Haypress - Sierra County near Sierra City	Southern Pacific Land Company	4.0	Preliminary discussions held. SP seeking private developer.	October 1985
47.	Middle Haypress - Sierra County near Sierra City	Southern Pacific Land Company	4.9	Preliminary discussions held. SP seeking private developer.	October 1985
48.	Upper Haypress - Sierra County near Sierra City	Mac Hydro-Power Company, Inc.	1.4	Preliminary discussions held.	1985
49.	Ladies Canyon - Sierra County near Sierra City	Mac Hydro-Power Company, Inc.	2.5	Preliminary discussions held.	1985

Table XVI (continued)
HYDROELECTRIC PROJECTS GREATER THAN 100 kW UNDER ACTIVE DISCUSSION

STATUS REPORT

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Owner</u>	<u>Approximate Installed Capacity - MW</u>	<u>Status</u>	<u>Projected Date of Operation^{1/}</u>
50.	Warm Springs Dam - near Cloverdale	Sonoma County Water Agency	3.7	Interconnection study underway.	April 1986
51.	Digger/Battle Creeks - near Manton, Tehama County	David Scott	2.8	Preliminary discussions held. Interconnection study defined. Awaiting action by developer.	Not yet determined
52.	Stovall #2 - Colusa County near Williams	Glenn - Colusa Irrigation District	0.2	Standard Offer #2 prepared for signature.	April 1983
53.	Whiskey Creek 1 & 2 - Madera County near North Fork	West Slope Power Co.	4.2	Interconnection study requested.	December 1984
54.	Whiskey Creek 3 - Madera County near Northfork	West Slope Power Co.	4.0	Interconnection study requested.	December 1985
55.	Sand & Browns Creek - Madera County near Northfork	West Slope Power Co.	5.0	Interconnection study requested.	June 1985
56.	Weber Flat - Trinity County near Eagle Lake	Pan-Pacific Hydro, Inc.	1.0	Interconnection study underway.	1983
57.	Stoney Creek - Trinity County near Eagle Lake	Pan-Pacific Hydro, Inc.	0.4	Interconnection study underway.	1984
58.	Concow - Butte County near Paradise	Thermalito Irrigation District	1.1	Interconnection study requested.	1985
59.	Clear Lake Powerhouse - below Clear Lake	Yolo County	1.7	Interconnection study requested.	1984
60.	Combie North - Lake Combie near Auburn	Nevada Irrigation District	0.3	Interconnection study requested.	1984
61.	Combie South - Lake Combie near Auburn	Nevada Irrigation District	1.0	Interconnection study requested.	1984

Table XVI (continued)

HYDROELECTRIC PROJECTS GREATER THAN 100 kW UNDER ACTIVE DISCUSSION

STATUS REPORT

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Owner</u>	<u>Approximate Installed Capacity - MW</u>	<u>Status</u>	<u>Projected Date of Operation</u> ^{1/}
62.	Lateral 6.2 - near Fresno	Madera Irrigation District	0.9	Preliminary discussions held. Interconnection study requested.	August 1983
		TOTAL	182.58 MW		

^{1/} Subject to change and final contract agreement.

Table XVII
HYDROELECTRIC PROJECTS 100 kW OR LESS UNDER ACTIVE DISCUSSION
STATUS REPORT
FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Owner</u>	<u>Approximate Installed Capacity - kW</u>	<u>Status</u>	<u>Projected Date of Operation^{1/}</u>
1.	<u>2/</u>	<u>2/</u>	14	Negotiations ongoing for purchase of power. Interconnection design approved.	June 1983
2.	<u>2/</u>	<u>2/</u>	10	Under construction.	May 1983
3.	<u>2/</u>	<u>2/</u>	1	Under construction.	July 1983
		TOTAL	<u>25 kW</u>		

^{1/} Subject to change and final contract agreement.

^{2/} Project name, location, and owner not authorized for release.

Table XVIII
HYDROELECTRIC PROJECTS PLANNED TO BE CONSTRUCTED BY PGandE
STATUS REPORT
FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Owner	Approximate Installed Capacity - MW	Status	Projected Date of Operation ^{1/}
1.	Kerckhoff 2 - on San Joaquin River above Friant Dam near Auberry, California	PGandE	140.0	Under construction.	1983
2.	Newcastle - on the west shore of the North Fork American River arm of Folsom Lake in Placer County	PGandE	10.8	Awaiting FERC license (application filed August 1981).	1985
3.	Oak Flat Powerhouse - powerhouse at Belden Forebay Dam near Belden, California	PGandE	1.3	Awaiting FERC license (application filed December 1981).	1984
4.	Project C ^{2/}	PGandE	3.4	Application for FERC license to be filed in 1984.	1985
5.	Emigrant Gap Powerhouse - on Drum Canal using flows from Lake Valley Canal	PGandE	1.7	Awaiting FERC license (application filed July 1982).	1985
6.	Christian Valley Powerhouse - on Bear River Canal; drop into Halsey Forebay	PGandE	0.9	Awaiting FERC license (application filed July 1982).	1984
7.	Fiddler Green Powerhouse - on Wise Canal; drop into Rock Creek Reservoir	PGandE	1.0	Awaiting FERC license (application filed July 1982).	1984
8.	Mokelumne River Project Additions				
	a. Doaks Ridge Powerhouse - power- house at release from Tiger Creek Regulator near Pioneer, California	PGandE	0.7	Awaiting FERC license (application filed April 1981).	1987
	b. Mokelumne Powerhouse - Electra Afterbay on Mokelumne River near Jackson, California	PGandE	1.4	Awaiting FERC license (application filed April 1981).	1987
	c. West Point Powerhouse Unit 2 - near West Point, California	PGandE	7.0	Awaiting FERC license (application filed April 1981).	1987

Table XVIII (continued)

HYDROELECTRIC PROJECTS PLANNED TO BE CONSTRUCTED BY PGandE

STATUS REPORT

FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Owner</u>	<u>Approximate Installed Capacity - MW</u>	<u>Status</u>	<u>Projected Date of Operation^{1/}</u>
8.	Mokelumne River Project Additions				
	d. Salt Springs Powerhouse Unit 3 - near Pioneer, California	PGandE	7.6	Awaiting FERC license (application filed April 1981).	1987
	e. Mokelumne River Project Energy Improvements	PGandE	0.0 ^{3/}	Awaiting FERC license (application filed April 1981).	1987
9.	Scott Powerhouse - powerhouse at Scott Dam near Potter Valley, California	PGandE	3.0	Awaiting FERC license (application filed May 1981).	1984
10.	Rock Creek-Cresta Additions				
	a. Powerhouse at Rock Creek Dam - near Pulga, California	PGandE	0.8	Awaiting FERC license (application filed May 1981).	1987
	b. Powerhouse at Cresta Dam - near Pulga, California	PGandE	0.4	Awaiting FERC license (application filed May 1981).	1987
	c. Rock Creek Powerhouse Unit 3 - near Pulga, California	PGandE	37.0	Awaiting FERC license (application filed May 1981).	1988
	d. Cresta Powerhouse Unit 3 - near Pulga, California	PGandE	17.5	Awaiting FERC license (application filed May 1981).	1988
11.	Wise Powerhouse Unit 2 - near Auburn, California	PGandE	2.7	Awaiting FERC license (application filed December 1982).	1985
12.	Project L ^{2/}	PGandE	15.3	Application for FERC license to be filed in 1983.	1987
13.	Yellow Creek Diversion Project - new diversion to Belden Tunnel and Powerhouse near Belden, California	PGandE	0.0 ^{3/}	Awaiting FERC license (application filed October 1981).	1986
14.	Project N ^{2/}	PGandE	2.3	Application for FERC license to be filed in 1984.	1986

Table XVIII (continued)

HYDROELECTRIC PROJECTS PLANNED TO BE CONSTRUCTED BY PGandE

STATUS REPORT

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Owner	Approximate Installed Capacity - MW	Status	Projected Date of Operation ^{1/}
15.	Bucks Creek Project Additions - Maidu Powerhouse at Bucks Dam and Grizzly Powerhouse at Grizzly Forebay near Storrie, California	PGandE	19.5	Awaiting FERC license (application filed December 1981).	1986
16.	Chambers and Jackass Diversion Project - new diversions to Rock Creek Tunnel and Powerhouse near Storrie, California	PGandE	0.0 ^{3/}	Awaiting FERC license (application filed December 1981).	1984
17.	DeSabra-Centerville Project Additions				
	a. Toadtown Powerhouse - on Hendricks Canal	PGandE	1.7	Awaiting FERC license (application filed October 1982).	1985
	b. DeSabra Powerhouse Unit 2	PGandE	4.4	Application for FERC license to be filed in 1984.	1988
	c. New Centerville Powerhouse - replacement of Centerville Powerhouse	PGandE	8.3	Application for FERC license to be filed in 1984.	1988
18.	Haas-Kings River Project Additions				
	a. Kings River Powerhouse Improvements	PGandE	0.0	Awaiting FERC license (application filed March 1982).	1986
	b. New diversions and tunnels above Courtright Lake	PGandE	0.0	Awaiting FERC license (application filed March 1982).	1991
	c. New diversions into Haas Tunnel	PGandE	2.6	Awaiting FERC license (application filed March 1982).	1987
		TOTAL	291.3 MW		

^{1/} Subject to change and FERC approval.^{2/} Project name and location will not be identified until regulatory applications are submitted.^{3/} Energy only project.

Table XIX
OTHER PROJECTS UNDER ACTIVE DISCUSSION
STATUS REPORT
FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Discussions Began</u>	<u>Maximum Estimated Project Size MW</u>	<u>Electric Demand MW</u>	<u>Status</u>	<u>Projected Date of Operation^{1/}</u>
1.	Henwood Associates, Inc. - Stockton	Electric power project fueled by low Btu gas	June 1982	0.5	N/A	Standard Offer #1 prepared for signature.	Not yet determined
			TOTAL	0.5 MW			

^{1/} Subject to change and final contract agreement.

Table XX

SUMMARY OF
INDUSTRY-OWNED COGENERATION IN PGandE SERVICE AREA
AND
AUXILIARY POWER SOURCES PROGRAM-CAPACITY UNDER CONTRACT TO PGandE
STATUS REPORT
FIRST QUARTER - MARCH 1983

Total Amount of Industry-Owned Cogeneration in PGandE Service Area	409,960 kW
Auxiliary Power Sources Program - Capacity Under Contract to PGandE	53,471 kW

Table XXI
INACTIVE PROJECTS
STATUS REPORT
FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Discussions Began	Estimated Project Size MW	Date Project Became Inactive	Status
1.	Louisiana-Pacific Corporation - Rocklin	Electric power/steam project fueled by wood-waste	May 1977	5.0	August 15, 1978	Project withdrawn at L-P's request.
2.	Worthington Industries - Fresno	Electric power project fueled by solid waste	February 1978	2.9	August 11, 1978	Project withdrawn at Worthington Industries' request.
3.	<u>1/</u>	Electric power project fueled by waste heat	November 1977	11.0	March 1, 1979	Project withdrawn at request of proponent.
4.	Mobil Chemical Company - Woodland	Electric power/steam project	August 1977	4.0	September 18, 1979	Project withdrawn at request of proponent.
5.	Husky Oil Company - Cat Canyon Oil Fields near Santa Maria	Electric power/steam project using gasification process returning steam for secondary recovery of oil; or a combined cycle project	September 1976	200.0 (assumed minimum)	February 1, 1980	Husky investigating alternatives.
6.	PGandE, 77 Beale Street - San Francisco	Electric power/steam project using a gas turbine topping cycle	January 1979	0.4 - 0.7	April 1980	Project uneconomical compared with alternatives. Not currently under active consideration.
7.	California Products Company - Fresno	Electric power plant fueled by solid waste	September 1978	5.0	April 1980	Project withdrawn at request of proponent.
8.	U.S. Steel Corporation - Pittsburg	Electric power/steam project fueled by solid waste	October 1977	Not yet determined	March 1980	State Solid Waste Management Board canceled its allocated funds for the feasibility study. U.S. Steel is considering other alternatives.
9.	Harwood Products - Willits	Electric power/steam project fueled by woodwaste	October 1980	3 - 5	March 1981	Harwood does not wish to pursue the project at this time.

1/ Project name and location not authorized for release.

Table XXI (continued)

INACTIVE PROJECTS

STATUS REPORT

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Discussions Began	Estimated Project Size MW	Date Project Became Inactive	Status
10.	E. I. Dupont DeNemours and Company, Inc. - Antioch	Electric power/steam project using a gas turbine topping cycle	March 1979	9.1	December 1981	Dupont does not plan to consider cogeneration further at this time.
11.	Southern California Gas Company and PGandE Underground Natural Gas Storage Reservoir - Ten Section Field, Kern County	Electric power project fueled by waste heat from gas compressor	January 1980	7.7	January 1982	Project suspended. Further field development questionable.
12.	E. Bruce & Elna B. Barron - Manton, California	Low-head hydroelectric facility	January 1981	0.01	March 1982	Project proponent will not be pursuing the project at this time.
13.	Exxon/PGandE/Martin Marietta/Badger Energy, Inc. - Edison	Industrial Process Heat/Solar Thermal (Central Receiver Cogeneration)	Early 1980	15.0	March 1982	Parties involved decided not to proceed with project.
14.	Foster Farms - Livingston	Electric power/steam project fueled by agricultural waste	July 1979	8.4	March 1982	Foster Farms has postponed the project indefinitely.
15.	Pacific Lumber Company - Scotia	Electric power/steam project fueled by woodwaste	September 1978	Not yet determined	March 1982	Project withdrawn at request of proponent.
16.	Spreckels Sugar - Woodland	Electric power/steam project using a gas turbine topping cycle	December 1979	5.0	May 1982	Spreckels does not wish to pursue the project at this time.
17.	San Francisco General Hospital - San Francisco	Electric power/steam project using a gas turbine topping cycle	March 1979	2.5	May 1982	Project undergoing lengthy review by the City and County of San Francisco.
18.	Texaco, Inc. - San Ardo Oil Field	Electric power/steam project fueled by natural gas; enhanced oil recovery	Spring 1973	210 - 290	May 1982	Project suspended. Resumption of work possible pending Texaco management decision.
19.	Windfarms, Ltd. - Solano County	Wind farm	March 1981	350.0	September 1982	Windfarms, Ltd. has postponed the project indefinitely.

Table XXI (continued)

INACTIVE PROJECTS

STATUS REPORT

FIRST QUARTER - MARCH 1983

No.	Project Name and Location	Project Description	Date Discussions Began	Estimated Project Size MW	Date Project Became Inactive	Status
20.	Stauffer Chemical Company - San Jose	Electric power/steam project using a gas turbine topping cycle	October 1978	12.7	December 1982	Stauffer is not considering cogeneration at this time.
21.	<u>1/</u>	Electric power/steam project using a gas turbine topping cycle	September 1980	3.0	December 1982	Management disapproved proposed installation. Currently consider- ing smaller facility.
22.	Francine Mathers - Union City	Wind-powered generator	October 1981	1.5 kW	December 1982	Project postponed due to local government action.
23.	Brett Wakefield - Vallejo	Wind-powered generator	December 1981	1.8 kW	December 1982	Project postponed due to local government action.
24.	<u>1/</u>	Wind-powered generator	November 1981	1.8 kW	December 1982	Project postponed due to local government action.
25.	Biomass Corp. - Marysville	Electric power/steam project fueled by biomass	January 1981	0.4	March 1983	Project proponent will not be pursuing the project at this time.
26.	First Chowchilla, Inc. - Chowchilla	Electric power project fueled by low Btu natural gas	January 1981	10.0	March 1983	Project proponent will not be pursuing the project at this time.
27.	Frontier Industries - Santa Maria	Electric power/steam project using a steam turbine topping cycle fueled by bunker fuel oil	April 1982	5.4	March 1983	Project proponent will not be pursuing the project at this time.

1/ Project name and location not authorized for release.

TABLE XXII
 TERMINATED CONTRACTS
 STATUS REPORT
 FIRST QUARTER - MARCH 1983

<u>No.</u>	<u>Project Name and Location</u>	<u>Project Description</u>	<u>Date Contract Signed</u>	<u>Type</u>	<u>MW</u>	<u>Date Contract Terminated</u>	<u>Status</u>
1.	Warm Springs Dam - Warm Springs	Regenerative braking of downhill earth conveyor	July 29, 1980	Energy Purchase	2.0	September 25, 1981	Contract terminated at request of proponent.
2.	<u>1/</u>	Wind-powered generator	August 4, 1981	Energy Purchase	20 kW	May 7, 1982	Owner removed wind-powered generator from property. Contract terminated.
3.	Rupert B. Adam - Nipomo Mesa	Wind-powered generator	August 1, 1981	Energy Purchase	5 kW	June 15, 1982	Owner removed wind-powered generator from property. Contract terminated.
4.	<u>1/</u>	Wind-powered generator	August 7, 1981	Energy Purchase	10 kW	June 15, 1982	Owner removed wind-powered generator from property. Contract terminated.
5.	Diamond O Ranch - Soledad	Wind-powered generator	May 11, 1981	Energy Purchase	20 kW	August 13, 1982	Owner removed wind-powered generator from property. Contract terminated.

1/ Project name and location not authorized for release.

APPENDIX B

PURCHASE PRICE
for
ENERGY
from
QUALIFYING FACILITIES
for
MAY, JUNE, AND JULY 1983

PACIFIC GAS AND ELECTRIC COMPANY

PURCHASE PRICE

FOR

ENERGY

FROM

QUALIFYING FACILITIES

FOR

MAY, JUNE, AND JULY 1983

PURCHASE PRICE FOR ENERGY
FROM
QUALIFYING FACILITIES
FOR
MAY, JUNE, AND JULY 1983

Pacific Gas and Electric Company (PGandE) shall pay Seller for energy delivered by Seller and accepted by PGandE at prices equal to PGandE's full short run avoided operating costs as approved by the California Public Utilities Commission (CPUC). The energy prices reflect PGandE's average quarterly cost of incremental fuel and will be adjusted to account for the effect of energy deliveries on PGandE's avoided transmission and distribution losses¹.

The energy prices calculated for this quarterly period are based upon PGandE's use of natural gas as its incremental fuel. They are the product of the rate for natural gas, \$0.53360/therm, effective April 6, 1983, from PGandE's Gas Schedule No. G-55, applicable to steam electric plants, and the system incremental heat rates. The heat rates are implicit in the marginal energy costs adopted by the CPUC in Decision No. 93887 (issued December 30, 1981) which include variable operating and maintenance expenses. Consistent with Decision No. 82-12-120 (issued December 30, 1982), they are average year incremental heat rates. They have also been adjusted for the use of natural gas as the incremental fuel. The calculation of the seasonal average energy purchase price is based upon the weighted prices for the on-peak, partial-peak, and off-peak hours using the number of hours in each seasonal period.²

The new energy purchase price calculations which will apply to energy deliveries determined from meter readings taken during May, June, and July 1983 are set forth in Table A as follows:

TABLE A
ENERGY PURCHASE PRICE CALCULATIONS
BEFORE ENERGY LOSS ADJUSTMENT FACTOR¹

	(a)	(b)	(c)
	Incremental	Cost	Energy
	Heat Rate ³	of Energy ⁴	Purchase Price
Time Period	(Btu/kWh)	(\$/10 ⁶ Btu)	(Before Energy Loss Adjustment Factor ¹)
Time of Delivery:			(c)=(a)x(b) (¢/kWh)
On-Peak	11,447	5.3360	6.108
Partial-Peak	10,919	5.3360	5.826
Off-Peak	10,549	5.3360	5.629
Seasonal Average:	10,821	5.3360	5.774

¹ The applicable energy loss adjustment factors for non-remote Facilities (as defined by the CPUC) are displayed in Table C. Loss adjustment factors for remote Facilities are presently 1.0, but may be calculated individually in the future as prescribed by the CPUC.

² Time periods are defined in Table B.

³ Incremental heat rates derived from marginal energy costs (including variable operating and maintenance expense) adopted by CPUC Decision No. 93887. They are adjusted for the use of natural gas as the incremental fuel.

⁴ Cost of natural gas under PGandE Gas Schedule No. G-55 per CPUC Decision No. 82-12-111, effective April 6, 1983.

TABLE B¹

	<u>Monday through Friday²</u>	<u>Saturdays²</u>	<u>Sundays and Holidays</u>
<u>Seasonal Period A</u> (May 1 through September 30)			
On-Peak	12:30 p.m. to 6:30 p.m.		
Partial-Peak	8:30 a.m. to 12:30 p.m. 6:30 p.m. to 10:30 p.m.	8:30 a.m. to 10:30 p.m.	
Off-Peak	10:30 p.m. to 8:30 a.m.	10:30 p.m. to 8:30 a.m.	All Day
<u>Seasonal Period B</u> (October 1 through April 30)			
On-Peak	4:30 p.m. to 8:30 p.m.		
Partial-Peak	8:30 p.m. to 10:30 p.m. 8:30 a.m. to 4:30 p.m.	8:30 a.m. to 10:30 p.m.	
Off-Peak	10:30 p.m. to 8:30 a.m.	10:30 p.m. to 8:30 a.m.	All Day

TABLE C

ENERGY LOSS ADJUSTMENT FACTORS³
FOR NON-REMOTE FACILITIES

	<u>Transmission</u>	<u>Distribution</u>
<u>Seasonal Period A</u> (May 1 through September 30)		
On-Peak	1.0	1.0
Partial-Peak	1.0	1.0
Off-Peak	1.0	1.0
<u>Seasonal Period B</u> (October 1 through April 30)		
On-Peak	1.0	1.0
Partial-Peak	1.0	1.0
Off-Peak	1.0	1.0

¹ This table is subject to change to accord with the on-peak, partial-peak, and off-peak period as defined in PGandE's own rate schedules for the sale of electricity to its large industrial customers.

² Except the following holidays: New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving and Christmas Day, as said days are specified in Public Law 90-363 (5 U.S.C.A. Section 6103(a)).

³ The applicable energy loss adjustment factors for non-remote Facilities may be revised pursuant to orders of the CPUC.

APPENDIX C

PURCHASE PRICE
for
AS-DELIVERED CAPACITY
from
QUALIFYING FACILITIES
for
1983

PACIFIC GAS AND ELECTRIC COMPANY

PURCHASE PRICE .

FOR

AS-DELIVERED CAPACITY

FROM

QUALIFYING FACILITIES

FOR

1983

PURCHASE PRICE
FOR
AS-DELIVERED CAPACITY
FROM
QUALIFYING FACILITIES
FOR 1983

For Facilities with time-of-delivery metering and from which PGandE does not have a commitment for firm capacity of a specific amount, the as-delivered capacity payment for power delivered by the Facility to PGandE and accepted by PGandE is based on 100% of the shortage value of such power. The payment will be made in cents per kWh, will vary by time of delivery, and will cover each kWh delivered by the Facility. The payment is shown on Table C as a function of the interconnection voltage, and is the product of three factors:

- (a) The current shortage cost in each year the Facility is operating. Currently, this shortage cost, \$70 per kW-year, is estimated to be the annual capacity cost of a gas turbine, as prescribed by the California Public Utilities Commission (CPUC) in OIR-2 Decision No. 82-12-120 (December 30, 1982). The basis for the shortage cost estimates may be revised by the CPUC from time to time.
- (b) A capacity loss adjustment factor. The current shortage cost is adjusted for the effect of the deliveries on PGandE's transmission and distribution losses based on the Seller's interconnection voltage level. The applicable capacity loss adjustment factors for non-remote¹ Facilities are presented in Table A. Capacity loss adjustment factors for remote Facilities shall be calculated individually.
- (c) An allocation factor, which accounts for the different values of as-delivered capacity in different time periods, and converts dollars per kW-year to cents per kWh. The allocation factors are presented in Table B. The time periods to which they apply are shown in Table D.

For Facilities without time-of-delivery metering, the price paid for as-delivered capacity shall be 50% of the current shortage cost (a) multiplied by a capacity loss adjustment factor (b) and multiplied by a weighted average allocation factor (c).

TABLE A

CAPACITY LOSS ADJUSTMENT FACTORS²
FOR NON-REMOTE¹ FACILITIES

<u>Voltage Level</u>	<u>Loss Adjustment Factor</u>
Transmission	.989
Distribution	.991

TABLE B

ALLOCATION FACTORS FOR
AS-DELIVERED CAPACITY³

<u>With Time-of-Delivery Metering</u>	<u>Peak</u> (¢-yr/\$-hr)	<u>Partial Peak</u> (¢-yr/\$-hr)	<u>Off-Peak</u> (¢-yr/\$-hr)
Seasonal Period A	.09982	.01635	.00000
Seasonal Period B	.02023	.00306	.00001
<u>Without Time-of-Delivery Metering</u>	<u>Weighted Average</u> (¢-yr/\$-hr)		
Seasonal Period A	0.02244		
Seasonal Period B	0.00346		

¹ As defined by the CPUC.

² The capacity loss adjustment factors for non-remote Facilities are subject to change pursuant to orders of the CPUC. The capacity loss adjustment factors for remote Facilities are determined individually.

³ The units for the allocation factor, ¢-yr/\$-hr, are derived from the conversion of \$/kW-yr into ¢/kWh as follows:

$$\frac{\text{¢/kWh}}{\text{\$/kW-yr}} = \frac{\text{¢/kW-hr}}{\text{\$/kW-yr}} = \frac{\text{¢-yr}}{\text{\$-hr}}$$

TABLE C

PAYMENT FOR AS-DELIVERED CAPACITY
FROM NON-REMOTE¹ QUALIFYING FACILITIES

(The product of the current shortage
cost (a), the capacity loss adjustment
factor (b), and the allocation factor (c))

	<u>Transmission Voltage</u>		<u>Distribution Voltage</u>	
	<u>Seasonal Period A</u> (¢/kWh)	<u>Seasonal Period B</u> (¢/kWh)	<u>Seasonal Period A</u> (¢/kWh)	<u>Seasonal Period B</u> (¢/kWh)
<u>With Time-of Delivery Metering</u>				
Time of Delivery				
On-Peak	6.911	1.401	6.925	1.403
Partial-Peak	1.132	0.212	1.134	0.212
Off-Peak	0	0.001	0	0.001
<u>Without Time-of Delivery Metering</u>				
Weighted Average	0.777	0.120	0.779	0.120

¹ As defined by the CPUC.

TABLE D¹

	<u>Monday through Friday²</u>	<u>Saturdays²</u>	<u>Sundays and Holidays</u>
<u>Seasonal Period A</u> (May 1 through September 30)			
On-Peak	12:30 p.m. to 6:30 p.m.		
Partial-Peak	8:30 a.m. to 12:30 p.m.	8:30 a.m. to 10:30 p.m.	
	6:30 p.m. to 10:30 p.m.		
Off-Peak	10:30 p.m. to 8:30 a.m.	10:30 p.m. to 8:30 a.m.	All Day
<u>Seasonal Period B</u> (October 1 through April 30)			
On-Peak	4:30 p.m. to 8:30 p.m.		
Partial-Peak	8:30 p.m. to 10:30 p.m.	8:30 a.m. to 10:30 p.m.	
	8:30 a.m. to 4:30 p.m.		
Off-Peak	10:30 p.m. to 8:30 a.m.	10:30 p.m. to 8:30 a.m.	All Day

¹ This table is subject to change to accord with the on-peak, partial-peak, and off-peak period as defined in PGandE's own rate schedules for the sale of electricity to its large industrial customers.

² Except the following holidays: New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving and Christmas Day, as said days are specified in Public Law 90-363 (5 U.S.C.A. Section 6103(a)).

APPENDIX D

STANDARD OFFER #1
POWER PURCHASE AGREEMENT
FOR
AS-DELIVERED CAPACITY AND ENERGY

PACIFIC GAS AND ELECTRIC COMPANY

STANDARD OFFER #1

POWER PURCHASE AGREEMENT

FOR

AS-DELIVERED CAPACITY AND ENERGY

FEBRUARY 1983

STANDARD OFFER #1:
AS-DELIVERED CAPACITY AND ENERGY
POWER PURCHASE AGREEMENT

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AS-DELIVERED CAPACITY AND ENERGY
POWER PURCHASE AGREEMENT
BETWEEN

AND
PACIFIC GAS AND ELECTRIC COMPANY

____ ("Seller"), and PACIFIC GAS AND ELECTRIC COMPANY ("PGandE"),
referred to collectively as "Parties" and individually as "Party", agree as follows:

ARTICLE 1 QUALIFYING STATUS

Seller warrants that, at the date of first power deliveries from Seller's Facility¹ and during the term of agreement, its Facility shall meet the qualifying facility requirements established as of the effective date of this Agreement by the Federal Energy Regulatory Commission's rules (18 Code of Federal Regulations 292) implementing the Public Utility Regulatory Policies Act of 1978 (16 U.S.C.A. 796, et seq.).

ARTICLE 2 PURCHASE OF POWER

- (a) Seller shall sell and deliver and PGandE shall purchase and accept from the Facility having a nameplate rating of _____ kW located at _____

the as-delivered capacity and energy at the voltage level of _____ kV. Seller has chosen _____² as its energy sale option. Seller may convert its energy sale option as provided in Section A-3 of Appendix A.
- (b) The scheduled operation date when Seller estimates first delivery of electric energy from the Facility to PGandE is _____. At the end of each calendar quarter Seller shall
(Date)
give to PGandE written notice of any change in the scheduled operation date.
- (c) Seller shall limit the Facility's actual rate of delivery into the PGandE system to _____ kW.
- (d) The primary energy source for the Facility is _____.

ARTICLE 3 PURCHASE PRICE

PGandE shall pay Seller for as-delivered capacity at prices authorized from time to time by the CPUC and for energy at prices equal to PGandE's full short run avoided operating costs as approved by the CPUC.

¹ Underlining identifies those terms which are defined in Section A-1 of Appendix A.

² Insert either "net energy output" or "surplus energy output" to show the energy sale option selected by Seller.

ARTICLE 4 NOTICES

All written notices shall be directed as follows:

to PGandE: Pacific Gas and Electric Company
Attention: Vice President -
Electric Operations
77 Beale Street
San Francisco, CA 94106

to Seller: _____

ARTICLE 5 DESIGNATED SWITCHING CENTER

The designated PGandE switching center shall be unless changed by PGandE:

(Name)

(Location)

(Phone number)

ARTICLE 6 TERMS AND CONDITIONS

This Agreement includes the following appendices which are attached and incorporated by reference:

Appendix A - GENERAL TERMS AND CONDITIONS
Appendix B - INSURANCE

ARTICLE 7 TERM OF AGREEMENT

This Agreement shall be binding upon execution and remain in effect for _____ years from the date of execution; provided, however, that it shall terminate if Seller does not commence deliveries of as-available capacity and energy within five years of this Agreement's effective date.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives and effective as of the last date set forth below.

(SELLER)

PACIFIC GAS AND ELECTRIC COMPANY

BY: _____

BY: _____

(Type Name)

(Type Name)

TITLE: _____

TITLE: _____

DATE SIGNED: _____

DATE SIGNED: _____

APPENDIX A
GENERAL TERMS AND CONDITIONS

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APPENDIX A
GENERAL TERMS AND CONDITIONS

A-1. DEFINITIONS

Whenever used in this Agreement, appendices, and attachments hereto, the following terms shall have the following meanings:

CPUC - The Public Utilities Commission of the State of California.

Designated PGandE switching center - That switching center or other PGandE installation identified in Article 5.

Facility - That generation apparatus described in Article 2 and all associated equipment owned, maintained, and operated by Seller.

Interconnection facilities - All means required and apparatus installed to interconnect and deliver power from the Facility to the PGandE system including, but not limited to, connection, transformation, switching, metering, communications, and safety equipment, such as equipment required to protect (1) the PGandE system and its customers from faults occurring at the Facility, and (2) the Facility from faults occurring on the PGandE system or on the systems of others to which the PGandE system is directly or indirectly connected. Interconnection facilities also include any necessary additions and reinforcements by PGandE to the PGandE system required as a result of the interconnection of the Facility to the PGandE system.

Net energy output - The Facility's gross output in kilowatt-hours less station use and transformation and transmission losses to the point of delivery into the PGandE system.

Prudent electrical practices - Those practices, methods, and equipment, as changed from time to time, that are commonly used in prudent electrical engineering and operations to design and operate electric equipment lawfully and with safety, dependability, efficiency, and economy.

Special facilities - Those parts of the interconnection facilities furnished by PGandE at Seller's request, metering and data processing equipment, and those additions and reinforcements to the PGandE system which are needed to accommodate the maximum delivery of energy and capacity from the Facility as provided in this Agreement. All special facilities shall be furnished at Seller's expense pursuant to PGandE's electric Rule No. 21 by a separate agreement.

Station use - Energy used to operate the Facility's auxiliary equipment. The auxiliary equipment includes, but is not limited to, forced and induced draft fans, cooling towers, boiler feed pumps, lubricating oil systems, plant lighting, fuel handling systems, control systems, and sump pumps.

Surplus energy output - The Facility's gross output, in kilowatt-hours, less station use, and any other use by the Seller, and transformation and transmission losses to the point of delivery into the PGandE system.

Term of agreement - The period of time during which this Agreement will be in effect, as provided in Article 7.

Voltage level - The voltage at which the Facility interconnects with the PGandE system, measured at the point of delivery.

A-2. CONSTRUCTION

A-2.1 Land Rights

Seller hereby grants to PGandE all necessary rights of way and easements to install, operate, maintain, replace, and remove the special facilities, including adequate and continuing access rights on property of Seller. Seller agrees to execute such other grants, deeds, or documents as PGandE may require to enable it to record such rights of way and easements. If any part of PGandE's equipment is to be installed on property owned by other than Seller, Seller shall, at its own cost and expense, obtain from the owners thereof all necessary rights of way and easements, in a form satisfactory to PGandE, for the construction, operation, maintenance, and replacement of PGandE's equipment upon such property. If Seller is unable to obtain these rights of way and easements, Seller shall reimburse PGandE for all costs incurred by PGandE in obtaining them. PGandE shall at all times have the right of ingress to and egress from the Facility at all reasonable hours for any purposes reasonably connected with this Agreement or the exercise of any and all rights secured to PGandE by law or its tariff schedules.

A-2.2 Design, Construction, Ownership, and Maintenance

- (a) Seller shall design, construct, install, own, operate, and maintain all interconnection facilities,

except special facilities, to the point of interconnection with the PGandE system as required for PGandE to receive as-delivered capacity and energy from the Facility. The Facility and interconnection facilities shall meet all requirements of applicable codes and all standards of prudent electrical practices and shall be managed in a safe and prudent manner.

- (b) Seller shall submit all specifications necessary for the design of the interconnection facilities to PGandE for review and written acceptance prior to their release for construction purposes. PGandE's review and acceptance of these specifications shall not be construed as confirming or endorsing the design or as warranting their safety, durability, or reliability. PGandE shall not, by reason of such review or lack of review, be responsible for strength, details of design, adequacy, or capacity of equipment built pursuant to such specifications, nor shall PGandE's acceptance be deemed to be an endorsement of any of such equipment. Seller shall change the interconnection facilities as may be reasonably required by PGandE to meet changing requirements of the PGandE system.
- (c) In the event it is necessary for PGandE to install interconnection facilities for the purposes of this Agreement, they shall be installed as special facilities.

A-2.3 Meter Installation

- (a) PGandE shall specify, provide, install, own, operate, and maintain as special facilities all metering and data processing equipment for the registration and recording of energy and other related parameters which are required for the reporting of data to PGandE and for computing the payment due Seller from PGandE.
- (b) Seller shall provide, construct, install, own, and maintain at Seller's expense all that is required to accommodate the metering and data processing equipment, such as, but not limited to, metal-clad switchgear, switchboards, cubicles, metering panels, enclosures, conduits, rack structures, and equipment mounting pads.

A-3. ENERGY SALE OPTIONS

A-3.1 General

Seller has two energy sale options, net energy output or surplus energy output. Seller has made its initial selection in Article 2(a).

A-3.2 Energy Sale Conversion

- (a) Seller is entitled to convert from one option to the other 12 months after execution of this Agreement, and thereafter at least 12 months after the effective date of the most recent conversion, subject to the following conditions:
 - (1) Seller shall provide PGandE with a written request to convert its energy sale option.
 - (2) Seller shall comply with all applicable tariffs on file with the CPUC and contracts in effect between the Parties at the time of conversion covering the existing and proposed (i) facilities used to serve Seller's premises and (ii) interconnection facilities.
 - (3) Seller shall install and operate equipment required by PGandE to prevent PGandE from serving any part of Seller's load which is served by the Facility and not under contract for PGandE standby service. At Seller's request, PGandE shall provide this equipment as special facilities.
- (b) PGandE shall not be required to remove or reserve capacity of facilities made idle by Seller's energy sale conversion and may dedicate such facilities at any time to serve other customers or to interconnect with other electric power sources.
- (c) PGandE shall process requests for conversion in the order received. The effective date of conversion shall depend on the completion of the changes required to accommodate Seller's energy sale conversion.

A-4. OPERATION

A-4.1 Inspection and Approval

Seller shall not operate the Facility in parallel with PGandE's system until an authorized PGandE representative has inspected the interconnection facilities, and PGandE has given written approval to begin parallel operation.

A-4.2 Facility Operation and Maintenance

Seller shall operate and maintain its Facility according to prudent electrical practices, applicable laws, orders, rules, and tariffs and shall provide such reactive power support as may be reasonably required by PGandE to maintain system voltage level and power factor. Seller shall operate the Facility at the power factors or voltage levels prescribed by PGandE's system dispatcher or designated representative. If Seller fails to provide reactive power support, PGandE may do so at Seller's expense.

A-4.3 Point of Delivery

Seller shall deliver the energy at the point where Seller's electrical conductors contact PGandE's existing system or at such other point as the Parties may agree in writing.

A-4.4 Operating Communications

- (a) Seller shall maintain operating communications with the designated PGandE switching center. The operating communications shall include, but not be limited to, system paralleling or separation, scheduled and unscheduled shutdowns, equipment clearances, levels of operating voltage or power factors, and daily capacity and generation reports.
- (b) Seller shall keep a daily operations log for each generating unit which shall include information on unit availability, maintenance outages, circuit breaker trip operations requiring a manual reset, and any significant events related to the operation of the Facility.
- (c) If Seller makes deliveries greater than one megawatt, Seller shall measure and register on a graphic recording device power in kW and voltage in kV at a location within the Facility agreed to by both Parties.
- (d) If Seller makes deliveries greater than one and up to and including ten megawatts, Seller shall report to the designated PGandE switching center, twice a day at agreed upon times for the current day's operation, the hourly readings in kW of capacity delivered and the energy in kWh delivered since the last report.
- (e) If Seller makes deliveries of greater than ten megawatts, Seller shall telemeter the delivered capacity and energy information, including real power in kW, reactive power in kVAR, and energy in kWh to a switching center selected by PGandE. PGandE may also require Seller to telemeter transmission kW, kVAR, and kV data depending on the number of generators and transmission configuration. Seller shall provide and maintain the data circuits required for telemetering. When telemetering is inoperative, Seller shall report daily the capacity delivered each hour and the energy delivered each day to the designated PGandE switching center.

A-4.5 Meter Testing and Inspection

- (a) All meters used to provide data for the computation of the payments due Seller from PGandE shall be sealed, and the seals shall be broken only by PGandE when the meters are to be inspected, tested, or adjusted.
- (b) PGandE shall inspect and test all meters upon their installation and annually thereafter. At Seller's request and expense, PGandE shall inspect or test a meter more frequently. PGandE shall give reasonable notice to Seller of the time when any inspection or test shall take place, and Seller may have representatives present at the test or inspection. If a meter is found to be inaccurate or defective, PGandE shall adjust, repair, or replace it at its expense in order to provide accurate metering.

A-4.6 Adjustments to Meter Measurements

If a meter fails to register, or if the measurement made by a meter during a test varies by more than two percent from the measurement made by the standard meter used in the test, an adjustment shall be made correcting all measurements made by the inaccurate meter for (1) the actual period during which inaccurate measurements were made, if the period can be determined, or if not, (2) the period immediately preceding the test of the meter equal to one-half the time from the date of the last previous test of the meter, provided that the period covered by the correction shall not exceed six months.

A-5. PAYMENT

PGandE shall mail to Seller not later than 30 days after the end of each monthly billing period (1) a statement showing the kilowatt-hours delivered to PGandE during on-peak, partial-peak, and off-peak periods during the monthly billing period, (2) PGandE's computation of the payment due Seller, and (3) PGandE's check in payment of said amount. If within 30 days of receipt of the statement Seller does not make a report in writing to PGandE of an error, Seller shall be deemed to have waived any error in PGandE's statement, computation, and payment, and they shall be considered correct and complete.

A-6. ADJUSTMENTS OF PAYMENTS

- (a) In the event adjustments to payments are required as a result of inaccurate meters, PGandE shall use the corrected measurements described in Section A-4.6 to recompute the amount due from PGandE to Seller for the as-delivered capacity and energy delivered under this Agreement during the period of inaccuracy.
- (b) The additional payment to Seller or refund to PGandE shall be made within 30 days of notification of the owing Party of the amount due.

A-7 ACCESS TO RECORDS

Each Party, after reasonable written notice to the other Party, shall have the right of access to all metering and related records including the operations logs of the Facility.

A-8. CURTAILMENT OF DELIVERIES AND HYDRO SPILL CONDITIONS

- (a) PGandE shall not be obligated to accept or pay for and may require Seller to interrupt or reduce deliveries of as-delivered capacity and energy (1) when necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any of its equipment or any part of its system, or (2) if it determines that interruption or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with prudent electrical practices.
- (b) In anticipation of a period of hydro spill conditions, as defined by the CPUC, PGandE may notify Seller that any purchases of energy from Seller during such period shall be at hydro savings prices quoted by PGandE. If Seller delivers energy to PGandE during any such period, Seller shall be paid hydro savings prices for those deliveries in lieu of prices which would otherwise be applicable. The hydro savings prices shall be calculated by PGandE using the following formula:

$$\frac{AQF - S}{AQF} \times PP$$

where: AQF = Energy, in kWh, projected to be available during hydro spill conditions from all qualifying facilities under agreements containing hydro savings price provisions.

S = Potential energy, in kWh, from PGandE hydro facilities which will be spilled if all AQF is delivered to PGandE.

PP = Prices published by PGandE for purchases during other than hydro spill conditions.

- (c) PGandE shall not be obligated to accept or pay for and may require Seller with a Facility with a nameplate rating of one megawatt or greater to interrupt or reduce deliveries of as-delivered capacity and energy during periods when purchases under this Agreement would result in costs greater than those which PGandE would incur if it did not make such purchases but instead generated an equivalent amount of energy itself.
- (d) Whenever possible, PGandE shall give Seller reasonable notice of the possibility that interruption or reduction of deliveries under subsections (a) or (c), above, may be required. PGandE shall give Seller notice of general periods when hydro spill conditions are anticipated, and shall give Seller as much advance notice as practical of any specific hydro spill period and the hydro savings price which will be applicable during such period. Before interrupting or reducing deliveries under subsection (c), above, and before invoking hydro savings prices under subsection (b) above, PGandE shall take reasonable steps to make economy sales of the surplus energy giving rise to the condition. If such economy sales are made, while the surplus energy condition exists Seller shall be paid at the economy sales price obtained by PGandE in lieu of the otherwise applicable prices.
- (e) If Seller is selling net energy output to PGandE and simultaneously purchasing its electrical needs from PGandE, energy curtailed pursuant to subsections (b) or (c) above shall not be used by Seller to meet its electrical needs. When Seller elects not to sell energy to PGandE at the hydro savings price pursuant to subsection (b) or when PGandE curtails deliveries of energy pursuant to subsection (c), Seller shall continue to purchase all its electrical needs from PGandE. If Seller is selling surplus energy output to PGandE, subsections (b) or (c) shall only apply to the surplus energy output being delivered to PGandE, and Seller can continue to internally use that generation it has retained for its own use.

A-9. FORCE MAJEURE

- (a) The term force majeure as used herein means unforeseeable causes beyond the reasonable control of and without the fault or negligence of the Party claiming force majeure, including but not limited

to, acts of God, labor disputes, sudden actions of the elements, and actions by federal, state, municipal, or any other government agency.

- (b) If either Party because of force majeure is rendered wholly or partly unable to perform its obligations under this Agreement, that Party shall be excused from whatever performance is affected by the force majeure to the extent so affected provided that:
 - (1) The non-performing Party, within two weeks after the occurrence of the force majeure, gives the other Party written notice describing the particulars of the occurrence,
 - (2) the suspension of performance is of no greater scope and of no longer duration than is required by the force majeure,
 - (3) the non-performing Party uses its best efforts to remedy its inability to perform (this subsection shall not require the settlement of any strike, walkout, lockout, or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to its interest. It is understood and agreed that the settlement of strikes, walkouts, lockouts, or other labor disputes shall be at the sole discretion of the Party having the difficulty), and
 - (4) when the non-performing Party is able to resume performance of its obligations under this Agreement, that Party shall give other Party written notice to that effect.

A-10. INDEMNITY

Each Party as indemnitor shall save harmless and indemnify the other Party and the directors, officers, and employees of such other Party against and from any and all loss and liability for injuries to persons including employees of either Party, and property damages, including property of either Party, resulting from or arising out of (1) the engineering, design, construction, maintenance, or operation of or (2) the making of replacements, additions, or betterments to, the indemnitor's facilities. This indemnity and save harmless provision shall apply notwithstanding the active or passive negligence of the indemnitee. Neither Party shall be indemnified hereunder for liability or loss resulting from its sole negligence or willful misconduct. The indemnitor shall, on the other Party's request, defend any suit asserting a claim covered by this indemnity and shall pay all costs, including reasonable attorney fees, that may be incurred by the other Party in enforcing this indemnity.

A-11. LIABILITY; DEDICATION

- (a) Nothing in this Agreement shall create any duty to, any standard of care with reference to, or any liability to any person not a Party to it. Neither Party shall be liable to the other Party for consequential damages.
- (b) Each Party shall be responsible for protecting its facilities from possible damage by reason of electrical disturbances or faults caused by the operation, faulty operation, or nonoperation of the other Party's facilities, and such other Party shall not be liable for any such damages so caused.
- (c) No undertaking by one Party to the other under any provision of this Agreement shall constitute the dedication of that Party's system or any portion thereof to the other Party or to the public nor affect the status of PGandE as an independent public utility corporation or Seller as an independent individual or entity and not a public utility.

A-12. SEVERAL OBLIGATIONS

Except where specifically stated in this Agreement to be otherwise, the duties, obligations, and liabilities of the Parties are intended to be several and not joint or collective. Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership, or joint venture or impose a trust or partnership duty, obligation, or liability on or with regard to either Party. Each Party shall be liable individually and severally for its own obligations under this Agreement.

A-13. NON-WAIVER

Failure to enforce any right or obligation by either Party with respect to any matter arising in connection with this Agreement shall not constitute a waiver as to that matter or any other matter.

A-14. ASSIGNMENT

Neither Party shall voluntarily assign its rights nor delegate its duties under this Agreement, or any part of such rights or duties, without the written consent of the other Party, except in connection with the sale or merger of a substantial portion of its properties. Any such assignment or delegation made without such written consent shall be null and void. Consent for assignment will not be withheld unreasonably. Such assignment shall include, unless otherwise specified therein, all of Seller's rights to any refunds which might become due under this Agreement.

A-15. CAPTIONS

All indexes, titles, subject headings, section titles, and similar items are provided for the purpose of reference and convenience and are not intended to affect the meaning of the contents or scope of this Agreement.

A-16. CHOICE OF LAWS

This Agreement shall be interpreted in accordance with the laws of the State of California, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

A-17. GOVERNMENTAL JURISDICTION AND AUTHORIZATION

Seller warrants that the Facility and interconnection facilities, except special facilities, shall at all times conform to all applicable laws and regulations, and Seller shall obtain any governmental authorizations and permits required for the construction and operation thereof. If at any time Seller does not hold such authorizations and permits, PGandE may refuse to accept deliveries of power hereunder.

A-18. NOTICES

Any notice, demand, or request required or permitted to be given by either Party to the other, and any instrument required or permitted to be tendered or delivered by either Party to the other, shall be in writing and so given, tendered, or delivered, as the case may be, by depositing the same in any United States Post Office with postage prepaid for transmission by certified mail, return receipt requested, addressed to the Party, or personally delivered to the Party, at the address in Article 4 of this Agreement. Changes in such designation may be made by notice similarly given.

APPENDIX B

INSURANCE

B-1. WORKERS' COMPENSATION

Seller shall furnish PGandE a certificate of workers' compensation or self-insurance indicating compliance with the Labor Code of California, including Employer's Liability insurance, with a minimum of \$2,000,000 for injury or death of any one person. This certificate shall provide for 30-day's written notice to PGandE prior to cancellation, termination, alteration, or material change of such insurance.

B-2. COMPREHENSIVE GENERAL AND COMPREHENSIVE AUTOMOBILE LIABILITY COVERAGE

- (a) Seller shall maintain during the performance hereof, Comprehensive General Liability and Comprehensive Automobile Liability of not less than \$3,000,000 combined single limit or equivalent for bodily injury, personal injury, and property damage as the result of any one occurrence.
- (b) Comprehensive General Liability shall include coverage for Premises-Operations, Owners and Contractors Protective, Products/Completed Operations Hazard, Explosion, Collapse, Underground, Contractual Liability, and Broad Form Property Damage including Completed Operations. Comprehensive Automobile Liability shall include coverage for Owned, Hired, and Non-Owned automobiles.
- (c) Such insurance, by endorsement to the policy(ies), shall include PGandE as an additional insured insofar as work performed by Seller for PGandE is concerned, shall contain a severability of interest clause, shall provide that PGandE shall not by reason of its inclusion as an additional insured incur liability to the insurance carrier for payment of premium for such insurance, and shall provide for 30-day's written notice to PGandE prior to cancellation, termination, alteration, or material change of such insurance.

B-3. ADDITIONAL INSURANCE PROVISIONS

- (a) Evidence of coverage described above in Sections B-1 and B-2 shall state that coverage provided is primary and is not excess to or contributing with any insurance or self-insurance maintained by PGandE.
- (b) PGandE shall have the right to inspect or obtain a copy of the original policy(ies) of insurance.
- (c) Seller shall furnish the required certificates and endorsements to PGandE prior to the date construction of the Facility begins or the effective date of this Agreement, whichever is later.
- (d) All insurance certificates, endorsements, cancellations, terminations, alterations, and material changes of such insurance shall be issued and submitted to the following:

PACIFIC GAS AND ELECTRIC COMPANY
Attention: Manager - Insurance Department
77 Beale Street
San Francisco, CA 94106

APPENDIX E

STANDARD OFFER #2
POWER PURCHASE AGREEMENT
FOR
FIRM CAPACITY AND ENERGY

PACIFIC GAS AND ELECTRIC COMPANY

STANDARD OFFER #2

POWER PURCHASE AGREEMENT

FOR

FIRM CAPACITY AND ENERGY

FEBRUARY 1983

STANDARD OFFER #2:
FIRM CAPACITY AND ENERGY
POWER PURCHASE AGREEMENT

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FIRM CAPACITY AND ENERGY
POWER PURCHASE AGREEMENT
BETWEEN

AND
PACIFIC GAS AND ELECTRIC COMPANY

("Seller"), and PACIFIC GAS AND ELECTRIC COMPANY ("PGandE"),
referred to collectively as "Parties" and individually as "Party", agree as follows:

ARTICLE 1 QUALIFYING STATUS

Seller warrants that, at the date of first power deliveries from Seller's Facility¹ and during the term of agreement, its Facility shall meet the qualifying facility requirements established as of the effective date of this Agreement by the Federal Energy Regulatory Commission's rules (18 Code of Federal Regulations 292) implementing the Public Utility Regulatory Policies Act of 1978 (16 U.S.C.A. 796, et seq.).

ARTICLE 2 PURCHASE OF POWER

(a) Seller shall sell and deliver and PGandE shall purchase and accept delivery of firm capacity and energy at the voltage level of _____ kV as indicated below--

1. Contract capacity - _____ kW; and
2. Energy - _____.²

Seller may convert its energy sale option as provided in Section A-3 of Appendix A.

(b) Seller shall provide the firm capacity and energy set forth above from its _____ kW
[Nameplate rating of
generators(s)]

Facility located at _____

(c) The scheduled operation date of the Facility is _____. At the end of each calendar quarter
[Date]
Seller shall give written notice to PGandE of any change in the scheduled operation date.

(d) Seller shall limit the Facility's actual rate of delivery into the PGandE system to _____ kW.

(e) The primary energy source for the Facility is _____.

ARTICLE 3 PURCHASE PRICE

(a) PGandE shall pay Seller for firm capacity at the contract capacity price under Option _____ set forth in Section C-5 of Appendix C and for energy at prices equal to PGandE's full short run avoided operating costs as approved by the CPUC. PGandE's obligation to pay for the contract capacity shall begin on the actual operation date. The contract capacity price shall be subject to adjustment as provided for in Appendix D.

(b) The contract capacity prices in Table C of Appendix C are applicable for deliveries of capacity beginning after December 30, 1982.

¹ Underlining identifies those terms which are defined in Section A-1 of Appendix A.

² Insert either "net energy output" or "surplus energy output" to show the energy sale option selected by Seller.

ARTICLE 4 NOTICES

All written notices shall be directed as follows:

to PGandE: Pacific Gas and Electric Company
Attention: Vice President -
Electric Operations
77 Beale Street
San Francisco, CA 94106

to Seller: _____

ARTICLE 5 DESIGNATED SWITCHING CENTER

The designated PGandE switching center shall be unless changed by PGandE:

(Name)

(Location)

(Phone number)

ARTICLE 6 TERMS AND CONDITIONS

This Agreement includes the following appendices which are attached and incorporated by reference:

- Appendix A - GENERAL TERMS AND CONDITIONS
- Appendix B - INSURANCE
- Appendix C - FIRM CAPACITY PRICE SCHEDULE
- Appendix D - ADJUSTMENT OF CAPACITY PAYMENTS IN THE EVENT OF TERMINATION OR REDUCTION

ARTICLE 7 TERM OF AGREEMENT

This Agreement shall be binding upon execution and remain in effect for _____ years from the actual operation date; provided, however, that it shall terminate if the actual operation date does not occur within five years of the effective date.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives and effective as of the last date set forth below.

(SELLER)

PACIFIC GAS AND ELECTRIC COMPANY

BY: _____

BY: _____

(Type Name)

(Type Name)

TITLE: _____

TITLE: _____

DATE SIGNED: _____

DATE SIGNED: _____

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GENERAL TERMS AND CONDITIONS
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APPENDIX A
GENERAL TERMS AND CONDITIONS

A-1. DEFINITIONS

Whenever used in this Agreement, appendices, and attachments hereto, the following terms shall have the following meanings:

Actual operation date - The day following the day during which all features and equipment of the Facility are demonstrated to PGandE's satisfaction to be capable of operating simultaneously to deliver power continuously into PGandE's system as provided in this Agreement.

Adjusted capacity price - The \$/kW-year purchase price from Table C, Appendix C for the period of Seller's actual performance.

Capacity sale reduction - A reduction in the amount of capacity provided or to be provided under this Agreement, other than a temporary reduction during probationary periods under Section C-5.

Contract capacity - That capacity identified in Article 2(a) except as otherwise changed as provided herein.

Contract capacity price - The capacity price applicable for the period from the actual operation date through the term of agreement from either the firm capacity price schedule, Table C of Appendix C, or the successor to Table C in effect on the actual operation date, whichever is higher.

Contract termination - The early termination of this Agreement.

CPUC - The Public Utilities Commission of the State of California.

Current firm capacity price - The \$/kW-year capacity price from the firm capacity price schedule published by PGandE at the time notice of termination or reduction of contract capacity is given, for a term equal to the period from the date of termination or reduction to the end of of the term of agreement.

Designated PGandE switching center - That switching center or other PGandE installation identified in Article 5.

Dispatchable - The Facility is operable and can be called upon at any time to increase its deliveries of capacity to any level up to the contract capacity.

Facility - That generation apparatus described in Article 2 and all associated equipment owned, maintained, and operated by Seller.

Firm capacity price schedule - The periodically published schedule of the \$/kW-year prices that PGandE offers to pay for capacity. See Table C, Appendix C.

Forced outage - Any outage resulting from a design defect, inadequate construction, operator error or a breakdown of the mechanical or electrical equipment that fully or partially curtails the electrical output of the Facility.

Interconnection facilities - All means required and apparatus installed to interconnect and deliver power from the Facility to the PGandE system including, but not limited to, connection, transformation, switching, metering, communications, and safety equipment, such as equipment required to protect (1) the PGandE system and its customers from faults occurring at the Facility, and (2) the Facility from faults occurring on the PGandE system or on the systems of others to which the PGandE system is directly or indirectly connected. Interconnection facilities also include any necessary additions and reinforcements by PGandE to the PGandE system required as a result of the interconnection of the Facility to the PGandE system.

Net energy output - The Facility's gross output in kilowatt-hours less station use and transformation and transmission losses to the point of delivery into the PGandE system.

Prudent electrical practices - Those practices, methods, and equipment, as changed from time to time, that are commonly used in prudent electrical engineering and operations to design and operate electric equipment lawfully and with safety, dependability, efficiency, and economy.

Scheduled operation date - The day specified in Article 2(c) when the Facility is, by Seller's estimate, expected to produce energy and capacity that will be available for delivery to PGandE.

Special facilities - Those parts of the interconnection facilities furnished by PGandE at Seller's request, metering and data processing equipment, and those additions and reinforcements to the

PGandE system which are needed to accommodate the maximum delivery of energy and capacity from the Facility as provided in this Agreement. All special facilities shall be furnished at Seller's expense pursuant to PGandE's electric Rule No. 21 by a separate agreement.

Station use - Energy used to operate the Facility's auxiliary equipment. The auxiliary equipment includes, but is not limited to, forced and induced draft fans, cooling towers, boiler feed pumps, lubricating oil systems, plant lighting, fuel handling systems, control systems, and sump pumps.

Surplus energy output - The Facility's gross output, in kilowatt-hours, less station use, and any other use by Seller, and transformation and transmission losses to the point of delivery into the PGandE system.

Term of agreement - The period of time during which this Agreement will be in effect, as provided in Article 7.

Voltage level - The voltage at which the Facility interconnects with the PGandE system, measured at the point of delivery.

A-2. CONSTRUCTION

A-2.1 Land Rights

Seller hereby grants to PGandE all necessary rights of way and easements, including adequate and continuing access rights on property of Seller, to install, operate, maintain, replace, and remove the special facilities. Seller agrees to execute such other grants, deeds, or documents as PGandE may require to enable it to record such rights of way and easements. If any part of PGandE's equipment is to be installed on property owned by other than Seller, Seller shall, at its own cost and expense, obtain from the owners thereof all necessary rights of way and easements, in a form satisfactory to PGandE, for the construction, operation, maintenance, and replacement of PGandE's equipment upon such property. If Seller is unable to obtain such rights of way and easements, Seller shall reimburse PGandE for all costs incurred by PGandE in obtaining them. PGandE shall at all times have the right of ingress to and egress from the Facility at all reasonable hours for any purposes reasonably connected with this Agreement or the exercise of any and all rights secured to PGandE by law or its tariff schedules.

A-2.2 Design, Construction, Ownership, and Maintenance

- (a) Seller shall design, construct, install, own, operate, and maintain all interconnection facilities, except special facilities, to the point of interconnection with the PGandE system as required for PGandE to receive firm capacity and energy from the Facility. The Facility and interconnection facilities shall meet all requirements of applicable codes and all standards of prudent electrical practices and shall be managed in a safe and prudent manner.
- (b) Seller shall submit to PGandE all specifications for the interconnection facilities and, at PGandE's option, the Facility, for review and written acceptance prior to their release for construction purposes. PGandE's review and acceptance of these specifications shall not be construed as confirming or endorsing the design or as warranting their safety, durability, or reliability. PGandE shall not, by reason of such review or lack of review, be responsible for strength, details of design, adequacy, or capacity of equipment built pursuant to such specifications, nor shall PGandE's acceptance be deemed to be an endorsement of any of such equipment. Seller shall change the interconnection facilities as may be reasonably required by PGandE to meet changing requirements of the PGandE system.
- (c) In the event it is necessary for PGandE to install interconnection facilities for the purposes of this Agreement, they shall be installed as special facilities.

A-2.3 Meter Installation

- (a) PGandE shall specify, provide, install, own, operate, and maintain as special facilities all metering and data processing equipment for the registration and recording of energy and other related parameters which are required for the reporting of data to PGandE and for computing the payment due Seller from PGandE.
- (b) Seller shall provide, construct, install, own, and maintain at Seller's expense all that is required to accommodate the metering and data processing equipment, such as, but not limited to, metal-clad switchgear, switchboards, cubicles, metering panels, enclosures, conduits, rack structures, and equipment mounting pads.

A-3. ENERGY SALE OPTIONS

A-3.1 General

Seller has two energy sale options, net energy output or surplus energy output. Seller has made its initial selection in Article 2(a).

A-3.2 Energy Sale Conversion

- (a) Seller is entitled to convert from one option to the other 12 months after execution of this Agreement, and thereafter at least 12 months after the effective date of the most recent conversion, subject to the following conditions:
- (1) Seller shall provide PGandE with a written request to convert its energy sale option.
 - (2) Seller shall comply with all applicable tariffs on file with the CPUC and contracts in effect between the Parties at the time of conversion covering the existing and proposed (i) facilities used to serve Seller's premises and (ii) interconnection facilities.
 - (3) Seller shall install and operate equipment required by PGandE to prevent PGandE from serving any part of Seller's load which is served by the Facility and not under contract for PGandE standby service. At Seller's request PGandE shall provide this equipment as special facilities.
 - (4) If the energy sale conversion results in a capacity sale reduction, the provisions in Appendix D shall apply.
- (b) PGandE shall not be required to remove or reserve capacity of facilities made idle by Seller's energy sale conversion and may dedicate such facilities at any time to serve other customers or to interconnect with other electric power sources.
- (c) PGandE shall process requests for conversion in the order received. The effective date of conversion shall depend on the completion of the changes required to accommodate Seller's energy sale conversion.

A-4. OPERATION

A-4.1 Inspection and Approval

Seller shall not operate the Facility in parallel with PGandE's system until an authorized PGandE representative has inspected the interconnection facilities, and PGandE has given written approval to begin parallel operation.

A-4.2 Facility Operation and Maintenance

Seller shall operate and maintain its Facility according to prudent electrical practices, applicable laws, orders, rules, and tariffs and shall provide such reactive power support as may be reasonably required by PGandE to maintain system voltage level and power factor. Seller shall operate the Facility at the power factors or voltage levels prescribed by PGandE's system dispatcher or designated representative. If Seller fails to provide reactive power support, PGandE may do so at Seller's expense.

A-4.3 Point of Delivery

Seller shall deliver the energy at the point where Seller's electrical conductors contact PGandE's existing system or at such other point as the Parties may agree in writing.

A-4.4 Operating Communications

- (a) Seller shall maintain operating communications with the designated PGandE switching center. The operating communications shall include, but not be limited to, system paralleling or separation, scheduled and unscheduled shutdowns, equipment clearances, levels of operating voltage or power factors and daily capacity and generation reports.
- (b) Seller shall keep a daily operations log for each generating unit which shall include information on unit availability, maintenance outages, circuit breaker trip operations requiring a manual reset, and any significant events related to the operation of the Facility.
- (c) If Seller makes deliveries greater than one megawatt, Seller shall measure and register on a graphic recording device power in kW and voltage in kV at a location within the Facility agreed to by both Parties.
- (d) If Seller makes deliveries greater than one and up to and including ten megawatts, Seller shall report to the designated PGandE switching center, twice a day at agreed upon times for the current day's operation, the hourly readings in kW of capacity delivered and the energy in kWh delivered since the last report.
- (e) If Seller makes deliveries of greater than ten megawatts, Seller shall telemeter the delivered capacity and energy information, including real power in kW, reactive power in kVAR, and energy in kWh to a switching center selected by PGandE. PGandE may also require Seller to telemeter transmission kW, kVAR, and kV data depending on the number of generators and transmission

configuration. Seller shall provide and maintain the data circuits required for telemetering. When telemetering is inoperative, Seller shall report daily the capacity delivered each hour and the energy delivered each day to the designated PGandE switching center.

- (f) If Seller provides dispatchable capacity greater than ten megawatts pursuant to Option 1 in Section C-5 of Appendix C, Seller may be required by PGandE to provide telemetering and control equipment to allow the Facility to respond to system load frequency requirements on digital control from PGandE.

A-4.5 Meter Testing and Inspection

- (a) All meters used to provide data for the computation of the payments due Seller from PGandE shall be sealed, and the seals shall be broken only by PGandE when the meters are to be inspected, tested, or adjusted.
- (b) PGandE shall inspect and test all meters upon their installation and annually thereafter. At Seller's request and expense, PGandE shall inspect or test a meter more frequently. PGandE shall give reasonable notice to Seller of the time when any inspection or test shall take place, and Seller may have representatives present at the test or inspection. If a meter is found to be inaccurate or defective, PGandE shall adjust, repair, or replace it at its expense in order to provide accurate metering.

A-4.6 Adjustments to Meter Measurements

If a meter fails to register, or if the measurement made by a meter during a test varies by more than two percent from the measurement made by the standard meter used in the test, an adjustment shall be made correcting all measurements made by the inaccurate meter for -- (1) the actual period during which inaccurate measurements were made, if the period can be determined, or if not, (2) the period immediately preceding the test of the meter equal to one-half the time from the date of the last previous test of the meter, provided that the period covered by the correction shall not exceed six months.

A-5. PAYMENT

PGandE shall mail to Seller not later than 30 days after the end of each monthly billing period (1) a statement showing the capacity and energy delivered to PGandE during on-peak, partial-peak, and off-peak periods during the monthly billing period, (2) PGandE's computation of the amount due Seller, and (3) PGandE's check in payment of said amount. If within 30 days of receipt of the statement Seller does not make a report in writing to PGandE of an error, Seller shall be deemed to have waived any error in PGandE's statement, computation, and payment, and they shall be considered correct and complete.

A-6. ADJUSTMENTS OF PAYMENTS

- (a) In the event adjustments to payments are required as a result of inaccurate meters, PGandE shall use the corrected measurements described in Section A-4.6 to recompute the amount due from PGandE to Seller for the firm capacity and energy delivered under this Agreement during the period of inaccuracy.
- (b) The additional payment to Seller or refund to PGandE shall be made within 30 days of notification of the owing Party of the amount due.

A-7. ACCESS TO RECORDS

Each Party, after giving reasonable written notice to the other Party, shall have the right of access to all metering and related records including operations logs of the Facility.

A-8. CURTAILMENT OF DELIVERIES AND HYDRO SPILL CONDITIONS

- (a) PGandE shall not be obligated to accept or pay for and may require Seller to interrupt or reduce deliveries of energy (1) when necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any of its equipment or any part of its system, or (2) if it determines that interruption or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with prudent electrical practices.
- (b) In anticipation of a period of hydro spill conditions, as defined by the CPUC, PGandE may notify Seller that any purchases of energy from Seller during such period shall be at hydro savings prices quoted by PGandE. If Seller delivers energy to PGandE during any such period, Seller shall be paid hydro savings prices for those deliveries in lieu of prices which would otherwise be applicable. The hydro savings prices shall be calculated by PGandE using the following formula:

$$\frac{AQF - S}{AQF} \times PP$$

where: AQF = Energy, in kWh, projected to be available during hydro spill conditions from all qualifying facilities under agreements containing hydro savings price provisions.

S = Potential energy, in kWh, from PGandE hydro facilities which will be spilled if all AQF is delivered to PGandE.

PP = Prices published by PGandE for purchases during other than hydro spill conditions.

- (c) PGandE shall not be obligated to accept or pay for and may require Seller with a Facility with a nameplate rating of one megawatt or greater to interrupt or reduce deliveries of energy during periods when purchases under this Agreement would result in costs greater than those which PGandE would incur if it did not make such purchases but instead generated an equivalent amount of energy itself.
- (d) Whenever possible, PGandE shall give Seller reasonable notice of the possibility that interruption or reduction of deliveries under subsections (a) or (c), above, may be required. PGandE shall give Seller notice of general periods when hydro spill conditions are anticipated, and shall give Seller as much advance notice as practical of any specific hydro spill period and the hydro savings price which will be applicable during such period. Before interrupting or reducing deliveries under subsection (c), above, and before invoking hydro savings prices under subsection (b), above, PGandE shall take reasonable steps to make economy sales of the surplus energy giving rise to the condition. If such economy sales are made, while the surplus energy condition exists Seller shall be paid at the economy sales price obtained by PGandE in lieu of the otherwise applicable prices.
- (e) If Seller is selling net energy output to PGandE and simultaneously purchasing its electrical needs from PGandE, energy curtailed pursuant to subsections (b) or (c) above shall not be used by Seller to meet its electrical needs. When Seller elects not to sell energy to PGandE at the hydro savings price pursuant to subsection (b) or when PGandE curtails deliveries of energy pursuant to subsection (c), Seller shall continue to purchase all its electrical needs from PGandE. If Seller is selling surplus energy output to PGandE, subsections (b) or (c) shall only apply to the surplus energy output being delivered to PGandE, and Seller can continue to internally use that generation it has retained for its own use.

A-9. FORCE MAJEURE

- (a) The term force majeure as used herein means unforeseeable causes, other than forced outages, beyond the reasonable control of and without the fault or negligence of the Party claiming force majeure, including but not limited to, acts of God, labor disputes, sudden actions of the elements, and actions by federal, state, municipal, or any other government agency.
- (b) If either Party because of force majeure is rendered wholly or partly unable to perform its obligations under this Agreement, that Party shall be excused from whatever performance is affected by the force majeure to the extent so affected provided that:
 - (1) the non-performing Party, within two weeks after the occurrence of the force majeure, gives the other Party written notice describing the particulars of the occurrence,
 - (2) the suspension of performance is of no greater scope and of no longer duration than is required by the force majeure,
 - (3) the non-performing Party uses its best efforts to remedy its inability to perform (this subsection shall not require the settlement of any strike, walkout, lockout or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to its interest. It is understood and agreed that the settlement of strikes, walkouts, lockouts or other labor disputes shall be at the sole discretion of the Party having the difficulty),
 - (4) when the non-performing Party is able to resume performance of its obligations under this Agreement, that Party shall give the other Party written notice to that effect, and
 - (5) capacity payments during such periods of force majeure on Seller's part shall be governed by Section C-2(c) of Appendix C.

A-10. INDEMNITY

Each Party as indemnitor shall save harmless and indemnify the other Party and the directors, officers, and employees of such other Party against and from any and all loss and liability for injuries to persons including employees of either Party, and property damages including property of either Party resulting from or arising out of (1) the engineering, design, construction, maintenance, or operation of, or (2) the making of replacements, additions, or betterments to, the indemnitor's facilities. This indemnity and save

harmless provision shall apply notwithstanding the active or passive negligence of the indemnitee. Neither Party shall be indemnified hereunder for its liability or loss resulting from its sole negligence or willful misconduct. The indemnitor shall, on the other Party's request, defend any suit asserting a claim covered by this indemnity and shall pay all costs, including reasonable attorney fees, that may be incurred by the other Party in enforcing this indemnity.

A-11. LIABILITY; DEDICATION

- (a) Nothing in this Agreement shall create any duty to, any standard of care with reference to, or any liability to any person not a Party to it. Neither Party shall be liable to the other Party for consequential damages.
- (b) Each Party shall be responsible for protecting its facilities from possible damage by reason of electrical disturbances or faults caused by the operation, faulty operation, or nonoperation of the other Party's facilities, and such other Party shall not be liable for any such damages so caused.
- (c) No undertaking by one Party to the other under any provision of this Agreement shall constitute the dedication of that Party's system or any portion thereof to the other Party or to the public or affect the status of PGandE as an independent public utility corporation or Seller as an independent individual or entity and not a public utility.

A-12. SEVERAL OBLIGATIONS

Except where specifically stated in this Agreement to be otherwise, the duties, obligations, and liabilities of the Parties are intended to be several and not joint or collective. Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership, or joint venture or impose a trust or partnership duty, obligation, or liability on or with regard to either Party. Each Party shall be liable individually and severally for its own obligations under this Agreement.

A-13. NON-WAIVER

Failure to enforce any right or obligation by either Party with respect to any matter arising in connection with this Agreement shall not constitute a waiver as to that matter or any other matter.

A-14. ASSIGNMENT

Neither Party shall voluntarily assign its rights nor delegate its duties under this Agreement, or any part of such rights or duties, without the written consent of the other Party, except in connection with the sale or merger of a substantial portion of its properties. Any such assignment or delegation made without such written consent shall be null and void. Consent for assignment shall not be withheld unreasonably. Such assignment shall include, unless otherwise specified therein, all of Seller's rights to any refunds which might become due under this Agreement.

A-15. CAPTIONS

All indexes, titles, subject headings, section titles, and similar items are provided for the purpose of reference and convenience and are not intended to affect the meaning of the contents or scope of this Agreement.

A-16. CHOICE OF LAWS

This Agreement shall be interpreted in accordance with the laws of the State of California, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

A-17. GOVERNMENTAL JURISDICTION AND AUTHORIZATION

Seller warrants that the Facility and interconnection facilities, except special facilities, shall at all times conform to all applicable laws and regulations, and Seller shall obtain any governmental authorizations and permits required for the construction and operation thereof. If at any time Seller does not hold such authorizations and permits PGandE may refuse to accept deliveries of power hereunder.

A-18. NOTICES

Any notice, demand, or request required or permitted to be given by either Party to the other, and any instrument required or permitted to be tendered or delivered by either Party to the other, shall be in writing and so given, tendered, or delivered, as the case may be, by depositing the same in any United States Post Office with postage prepaid for transmission by certified mail, return receipt requested, addressed to the Party, or personally delivered to the Party, at the address in Article 4 of this Agreement. Changes in such designation may be made by notice similarly given.

APPENDIX B

INSURANCE

B-1. WORKERS' COMPENSATION

Seller shall furnish PGandE a certificate of workers' compensation or self-insurance indicating compliance with the Labor Code of California, including Employer's Liability insurance with a minimum of \$2,000,000 for injury or death of any one person. This certificate shall provide for 30-day's written notice to PGandE prior to cancellation, termination, alteration, or material change of such insurance.

B-2. COMPREHENSIVE GENERAL AND COMPREHENSIVE AUTOMOBILE LIABILITY COVERAGE

- (a) Seller shall maintain during the performance hereof, Comprehensive General Liability and Comprehensive Automobile Liability of not less than \$3,000,000 combined single limit or equivalent for bodily injury, personal injury, and property damage as the result of any one occurrence.
- (b) Comprehensive General Liability shall include coverage for Premises-Operations, Owners and Contractors Protective, Products/Completed Operations Hazard, Explosion, Collapse, Underground, Contractual Liability, and Broad Form Property Damage including Completed Operations. Comprehensive Automobile Liability shall include coverage for Owned, Hired, and Non-Owned automobiles.
- (c) Such insurance, by endorsement to the policy(ies), shall include PGandE as an additional insured insofar as work performed by Seller for PGandE is concerned, shall contain a severability of interest clause, shall provide that PGandE shall not by reason of its inclusion as an additional insured incur liability to the insurance carrier for payment of premium for such insurance, and shall provide for 30-day's written notice to PGandE prior to cancellation, termination, alteration, or material change of such insurance.

B-3. ADDITIONAL INSURANCE PROVISIONS

- (a) Evidence of coverage described above in Sections B-1 and B-2 shall state that coverage provided is primary and is not excess to or contributing with any insurance or self-insurance maintained by PGandE.
- (b) PGandE shall have the right to inspect or obtain a copy of the original policy(ies) of insurance.
- (c) Seller shall furnish the required certificates and endorsements to PGandE prior to the date construction of the Facility begins or the effective date of this Agreement, whichever is later.
- (d) All insurance certificates, endorsements, cancellations, terminations, alterations, and material changes of such insurance shall be issued and submitted to the following:

PACIFIC GAS AND ELECTRIC COMPANY
Attention: Manager - Insurance Department
77 Beale Street
San Francisco, CA 94106

APPENDIX C
FIRM CAPACITY PRICE SCHEDULE

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APPENDIX C

FIRM CAPACITY PRICE SCHEDULE

C-1 GENERAL

This Appendix C establishes conditions and prices under which PGandE shall pay for firm capacity.

C-2 MINIMUM PERFORMANCE REQUIREMENTS

- (a) To receive full capacity payments the Facility must meet the following requirements:
- (1) The contract capacity shall be available¹ for all of the on-peak hours² in the peak months on the PGandE system, which are presently the months of June, July, and August, subject to a 20 percent allowance for forced outages in any month. Compliance with this provision shall be based on the Facility's total on-peak availability¹ for each of the peak months and shall exclude any energy associated with generation levels greater than the contract capacity.
 - (2) If Seller selects Option 1, the contract capacity shall be dispatchable throughout the year, subject to (i) a monthly allowance for forced outages of 20% of the hours Seller is called upon to deliver power to PGandE and (ii) the allowances for scheduled maintenance outages. Except during the peak months on the PGandE system, Seller may accumulate and apply the 20 percent allowance for forced outages for any consecutive three month period. Seller shall demonstrate that the Facility is fueled by a reliable fuel supply and adequate fuel storage is available to deliver power as requested by PGandE's system dispatcher.
- (b) If Seller is prevented from meeting the minimum performance requirements because of a forced outage on the PGandE system or a condition set forth in Section A-8, PGandE shall continue capacity payments. Under Option 2, capacity payments will be calculated in the same manner used for scheduled maintenance outages.
- (c) If Seller is prevented from meeting the minimum performance requirements because of force majeure, PGandE shall continue capacity payments for ninety days from the occurrence of the force majeure. Thereafter, Seller shall be deemed to have failed to have met the minimum performance requirements. Under Option 2, capacity payments will be calculated in the same manner used for scheduled maintenance outages.
- (d) If Seller is prevented from meeting the minimum performance requirements because of extreme dry year conditions, PGandE shall continue capacity payments. Extreme dry year conditions are drier than those used to establish contract capacity pursuant to Section C-8. Seller shall warrant to PGandE that the Facility is a hydroelectric facility and that such conditions are the sole cause of Seller's inability to meet its contract capacity obligations. Under Option 1, starting with the month in which Seller cannot provide its contract capacity, payments shall be made under Option 2 for a one-year period, and if at the end of this one-year period Seller is not able to resume the contract capacity due solely to continued extreme dry year conditions, Seller shall continue to receive payments under Option 2 for additional one-year periods as long as such conditions continue to exist.
- (e) If Seller is prevented from meeting the minimum performance requirements for reasons other than those described above in Sections C-2(b), (c), or (d):
- (1) Seller shall receive the reduced capacity payments as provided in Section C-5 for a probationary period not to exceed 15 months, or as otherwise agreed to by the Parties.
 - (2) If, at the end of the probationary period Seller has not demonstrated that the Facility can meet the minimum performance requirements, PGandE may derate the contract capacity pursuant to Section C-4(b).

¹ For purposes of Option 1, "available" means either dispatchable by PGandE or actually delivered to PGandE. For purposes of Option 2, "available" means actually delivered to PGandE.

² On-peak, partial-peak, and off-peak hours are defined in Table A.

C-3 SCHEDULED MAINTENANCE

Outage periods for scheduled maintenance shall not exceed 840 hours (35 days) in any 12-month period. This allowance may be used in increments of an hour or longer on a consecutive or nonconsecutive basis. Seller may accumulate unused maintenance hours from one 12-month period to another up to a maximum of 1,080 hours (45 days). This accrued time must be used consecutively and only for major overhauls. Seller shall provide PGandE with the following advance notices: 24 hours for scheduled outages less than one day, one week for a scheduled outage of one day or more (except for major overhauls), and six months for a major overhaul. Seller shall not schedule major overhauls during the peak months (presently June, July and August). Seller shall make reasonable efforts to schedule or reschedule routine maintenance outside the peak months, and in no event shall outages for scheduled maintenance exceed 30 peak hours during the peak months. Seller shall confirm in writing to PGandE pursuant to Article 4, within 24 hours of the original notice, all notices Seller gives for scheduled maintenance.

C-4 ADJUSTMENTS TO CONTRACT CAPACITY

- (a) Seller may increase the contract capacity with the approval of PGandE and receive payment for the additional capacity thereafter in accordance with the applicable capacity purchase price published by PGandE at the time the increase is first delivered to PGandE.
- (b) Seller may reduce the contract capacity at any time by giving notice thereof to PGandE, subject to the provisions of Appendix D if the reduction occurs after the actual operation date. PGandE may reduce the contract capacity as a result of appropriate tests, studies, or prior performance. The amount by which the contract capacity is reduced by PGandE shall be deemed a capacity sale reduction without notice as provided in Section D-3 of Appendix D.
- (c) Either Party may request, when it reasonably appears that the capacity of the Facility may have changed for any reason, that a new contract capacity be determined.

C-5 PAYMENT OPTIONS

Seller has two options for calculation of capacity payments and Seller has made its selection in Article 3(a). As used below in this section, month refers to a calendar month. The two options are as follows:

Option 1

When Seller meets the requirements of Section C-2 the monthly payment for capacity will be one-twelfth of the product of the contract capacity price, the contract capacity, the appropriate capacity loss adjustment factor from Table B based on the Facility's interconnection voltage, and the appropriate performance bonus factor, if any, from Table D. Capacity payments will continue during scheduled maintenance outages provided that the provisions of Section C-3 are met.

During a probationary period Seller's monthly payment for capacity shall be determined by substituting for the contract capacity, the capacity at which Seller would have met the minimum performance requirements. In any month during the probationary period that Seller does not meet the minimum performance requirements at whatever capacity was determined for the previous month, Seller's monthly payment for capacity shall be determined by substituting the capacity at which Seller would have met the minimum performance requirements. The performance bonus factor shall not be applied during a probationary period.

Option 2

The monthly payment for capacity will be the product of the Period Price Factor (PPF), the Monthly Delivered Capacity (MDC), the appropriate capacity loss adjustment factor from Table B based on the Facility's interconnection voltage, and the appropriate performance bonus factor, if any, from Table D, plus any allowable payment for outages due to scheduled maintenance. Firm capacity prices shall be applied to meter readings taken during the separate times and periods as illustrated in Table A of this Appendix.

The PPF is determined by multiplying the contract capacity price by the following Option 2 Allocation Factors¹:

	Option 2 Allocation Factor	x	<u>Contract Capacity Price</u>	=	PPF (\$/kW-month)
Seasonal Period A	.16479		_____		_____
Seasonal Period B	.02515		_____		_____

The MDC is determined in the following manner:

- (1) Determine the Performance Factor (P), which is defined as the lesser of 1.0 or the following quantity:

$$P = \frac{A}{C \times (B-S) \times (0.8^2)} \quad (\leq 1.0)$$

Where:

A = Total kilowatt-hours delivered during all on-peak and partial-peak hours excluding any energy associated with generation levels greater than the contract capacity.

C = Contract capacity in kilowatts.

B = Total on-peak and partial-peak hours during the month.

S = Total on-peak and partial-peak hours during the month Facility is out of service on scheduled maintenance.

- (2) Determine the Monthly Capacity Factor (MCF), which is computed using the following expression:

$$MCF = P \times (1.0 - \frac{M}{D})$$

Where:

M = The number of hours during the month Facility is out of service on scheduled maintenance.

D = The number of hours in the month.

- (3) Determine the MDC by multiplying the MCF by C:

$$MDC \text{ (kilowatts)} = MCF \times C$$

The monthly payment for capacity is then determined by multiplying the PPF by the MDC, by the appropriate capacity loss adjustment factor presented from Table B, and by the appropriate performance bonus factor, if any, from Table D.

$$\text{monthly payment for capacity} = PPF \times MDC \times \text{capacity loss adjustment factor} \times \text{performance bonus factor}$$

Furthermore, the payment for a month in which there is an outage for scheduled maintenance shall also include an amount equal to the product of the average hourly capacity payment³ for the most recent month in the same type of Seasonal Period (i.e., Seasonal Period A or Seasonal Period B) during which deliveries were made times the number of hours of outage for scheduled maintenance in the current month. Capacity payments will continue during the outage periods for scheduled maintenance provided that the provisions of Section C-3 are met.

During a probationary period Seller's monthly payment for capacity shall be determined by substituting for the contract capacity, the capacity at which Seller would have met the minimum performance requirements. In the event that during the probationary period Seller does not meet the minimum performance requirements at whatever capacity was established for the previous month, Seller's monthly payment for capacity shall be determined by substituting the capacity at which Seller would have met the minimum performance requirements. The performance bonus factor shall not be applied during probationary periods.

¹ All allocation factors are subject to change by PGandE based on PGandE's marginal capacity cost allocation, as determined in general rate case proceedings before the CPUC. Seasonal Periods A and B are defined in Table A of this Appendix.

² 0.8 reflects a 20% allowance for forced outage.

³ Total monthly payment divided by the total number of hours in the monthly billing period.

TABLE A¹

	<u>Monday through Friday²</u>	<u>Saturdays²</u>	<u>Sundays and Holidays</u>
Seasonal Period A (May 1 through September 30)			
On-Peak	12:30 p.m. to 6:30 p.m.		
Partial-Peak	8:30 a.m. to 12:30 p.m. 6:30 p.m. to 10:30 p.m.	8:30 a.m. to 10:30 p.m.	
Off-Peak	10:30 p.m. to 8:30 a.m.	10:30 p.m. to 8:30 a.m.	All Day
Seasonal Period B (October 1 through April 30)			
On-Peak	4:30 p.m. to 8:30 p.m.		
Partial-Peak	8:30 p.m. to 10:30 p.m. 8:30 a.m. to 4:30 p.m.	8:30 a.m. to 10:30 p.m.	
Off-Peak	10:30 p.m. to 8:30 a.m.	10:30 p.m. to 8:30 a.m.	All Day

TABLE B

If the Facility is non-remote³ the capacity loss adjustment factors are as follows:

<u>Interconnection Voltage</u>	<u>Capacity Loss Adjustment Factor</u>
Transmission	.989
Distribution	.991

If the Facility is remote the capacity loss adjustment factor is _____⁴.

¹ This table is subject to change to accord with the on-peak, partial-peak, and off-peak periods as defined in PGandE's own rate schedules for the sale of electricity to its large industrial customers.

² Except the following holidays: New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving, and Christmas, as said days are specified in Public Law 90-363 (5 U.S.C.A. Section 6103(a)).

³ As defined by the CPUC.

⁴ Determined individually.

TABLE C
Firm Capacity Price Schedule
(Levelized \$/kW-year)

<u>Actual Operation Date</u>	<u>Life of Contract</u>																	
<u>(Year)</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>
1982	65	68	70	72	75	77	79	81	84	86	88	90	91	93	95	103	109	113
1983	70	73	75	78	80	83	85	88	90	92	94	96	98	100	102	110	117	122
1984	76	78	81	84	86	89	92	94	97	99	101	103	106	108	110	118	125	130
1985	81	84	87	90	93	96	99	101	104	106	109	111	113	115	118	127	134	140
1986	88	91	94	97	100	103	106	109	112	114	117	119	122	124	126	136	144	150
1987	95	98	101	105	108	111	114	117	120	123	125	128	130	133	135	146	154	160

TABLE D
Performance Bonus Factor

The following shall be the performance bonus factors applicable to the calculation of the monthly payments for capacity delivered by the Facility after it has demonstrated a capacity factor in excess of 85%.

<u>DEMONSTRATED CAPACITY FACTOR (%)</u>	<u>PERFORMANCE BONUS FACTOR</u>
85	1.000
90	1.059
95	1.118
100	1.176

After the Facility has delivered power during the span of all of the peak months on the PGandE system (presently June, July, and August) in any year (span),

- (i) the capacity factor for each such month shall be calculated in the following manner:

$$\text{CAPACITY FACTOR (\%)} = \frac{A}{B \times C} \times 100$$

Where:

- A = Total kilowatt-hours delivered by Seller in any peak month during all on-peak hours excluding any energy associated with generation levels greater than the contract capacity.
- C = Contract capacity in kilowatts.
- B = Total on-peak hours during the month.

- (ii) the arithmetic average of the above capacity factors shall be determined for that span,
- (iii) the average of the above arithmetic average capacity factors for the most recent span(s), not to exceed 5, shall be calculated and shall become the Demonstrated Capacity Factor.

To calculate the performance bonus factor for a Demonstrated Capacity Factor not shown in Table D use the following formula:

$$\text{Performance Bonus Factor} = \frac{\text{Demonstrated Capacity Factor (\%)}}{85\%}$$

THE FOLLOWING SECTIONS SHALL APPLY ONLY TO HYDROELECTRIC PROJECTS

C-6 DETERMINATION OF NATURAL FLOW DATA

Natural flow data shall be based on a period of record of at least 50 years and which includes historic critically dry periods. In the event Seller demonstrates that a natural flow data base of at least 50 years would be unreasonably burdensome, PGandE shall accept a shorter period of record with a corresponding reduction in the averaging basis set forth in Section C-8. Seller shall determine the natural flow data by month by using one of the following methods:

Method 1

If stream flow records are available from a recognized gauging station on the water course being developed in the general vicinity of the project, Seller may use the data from them directly.

Method 2

If directly applicable flow records are not available, Seller may develop theoretical natural flows based on correlation with available flow data for the closest adjacent and similar area which has a recognized gauging station using generally accepted hydrologic estimating methods.

C-7 THEORETICAL OPERATION STUDY

Based on the monthly natural flow data developed under Section C-6 a theoretical operation study shall be prepared by Seller. Such a study shall identify the monthly capacity rating in kW and the monthly energy production in kWh for each month of each year. The study shall take into account all relevant operating constraints, limitations, and requirements including but not limited to --

- (1) Release requirements for support of fish life and any other operating constraints imposed on the project;
- (2) Operating characteristics of the proposed equipment of the Facility such as efficiencies, minimum and maximum operating levels, project control procedures, etc.;
- (3) The design characteristics of project facilities such as head losses in penstocks, valves, tailwater elevation levels, etc.; and
- (4) Release requirements for purposes other than power generation such as irrigation, domestic water supply, etc.

The theoretical operation study for each month shall assume an even distribution of generation throughout the month unless Seller can demonstrate that the Facility has water storage characteristics. For the study to show monthly capacity ratings, the Facility shall be capable of operating during all on-peak hours in the peak months on the PGandE system, which are presently the months of June, July, and August. If the project does not have this capability throughout each such month, the capacity rating in that month of that year shall be set at zero for purposes of this theoretical operation study.

C-8 DETERMINATION OF AVERAGE DRY YEAR CAPACITY RATINGS

Based on the results of the theoretical operation study developed under Section C-7, the average dry year capacity rating shall be established for each month. The average dry year shall be based on the average of the five years of the lowest annual generation as shown in the theoretical operation study. Once such years of lowest annual generation are identified, the monthly capacity rating is determined for each month by averaging the capacity ratings from each month of those years. The contract capacity shown in Article 2(a) shall not exceed the lowest average dry year monthly capacity ratings for the peak months on the PGandE system, which are presently the months of June, July, and August.

C-9 INFORMATION REQUIREMENTS

Seller shall provide the following information to PGandE for its review:

- (1) A summary of the average dry year capacity ratings based on the theoretical operation study as provided in Table E;
- (2) A topographic project map which shows the location of all aspects of the Facility and locations of stream gauging stations used to determine natural flow data;
- (3) A discussion of all major factors relevant to project operation;

- (4) A discussion of the methods and procedures used to establish the natural flow data. This discussion shall be in sufficient detail for PGandE to determine that the methods are consistent with those outlined in Section C-6 and are consistent with generally accepted engineering practices; and
- (5) Upon specific written request by PGandE, Seller's theoretical operation study.

C-10 ILLUSTRATIVE EXAMPLE

- (1) Determine natural flows - These flows are developed based on historic stream gauging records and are compiled by month, for a long-term period (normally at least 50 years or more) which covers dry periods which historically occurred in the 1920's and 30's and more recently in 1976 and 77. In all but unusual situations this will require application of hydrological engineering methods to records that are available, primarily from the USGS publication "Water Resources Data for California".
- (2) Perform Theoretical Operation Study - Using the natural flow data compiled under (1) above a theoretical operation study is prepared which determines, for each month of each year, energy generation (kWh) and capacity rating (kW). This study is performed based on the Facility's design, operating capabilities, constraints, etc., and should take into account all factors relevant to project operation. Generally such a study is done by computer which routes the natural flows through project features, considering additions and withdrawals from storage, spill past the project, releases for support of fish life, etc., to determine flow available for generation. Then the generation and capacity amounts are computed based on equipment performance, efficiencies, etc.
- (3) Determine Average Dry Year Capacity Ratings - After the theoretical project operation study is complete the five years in which the annual generation (kWh) would have been the lowest are identified. Then for each month, the capacity rating (kW) is averaged for the five years to arrive at a monthly average capacity rating. The contract capacity is then set by the Seller based on the monthly average dry year capacity ratings and the minimum performance requirements of Appendix C. An example project is shown in the attached completed Table E.

TABLE E

Project: New Creek 1 Dispatchable: Yes No X

Water Source: West Fork New Creek

Mode of Operation: Run of the river

Type of Turbine: Francis Design Flow: 100 cfs Design Head: 150 feet

Operating Characteristics:¹

Average Dry Year Operation - Based on the average of the following lowest generation years: 1930, 1932, 1934, 1949, 1977.

Maximum Contract Capacity: 410 kW

² For this to be less than 100%, Facility must be dispatchable.

APPENDIX D

ADJUSTMENT OF CAPACITY PAYMENTS
IN THE EVENT OF TERMINATION OR REDUCTION

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APPENDIX D

ADJUSTMENT OF CAPACITY PAYMENTS IN THE EVENT OF TERMINATION OR REDUCTION

D-1 GENERAL PROVISIONS

- (a) This Appendix shall be applicable in the event there is a contract termination or a capacity sale reduction (each sometimes referred to as "termination" in this Appendix D).
- (b) The Parties agree that the amount which PGandE pays Seller for the capacity which Seller makes available to PGandE is based on the agreed value to PGandE of Seller's performance of capacity obligations during the full period of the term of agreement. The Parties further agree that in the event PGandE does not receive such full performance by reason of a termination:
- (1) PGandE shall be deemed damaged by reason thereof,
 - (2) it would be impracticable or extremely difficult to fix the actual damages to PGandE resulting therefrom,
 - (3) the refunds and payments as provided in Sections D-2 and D-3, as applicable, are in the nature of adjustments in capacity prices and liquidated damages, and not a penalty, and are fair and reasonable, and
 - (4) such refunds and payments represent a reasonable endeavor by the Parties to estimate a fair compensation for the reasonable losses that would result from such termination or reduction.
- (c) In the event of a capacity sale reduction, the quantity by which the contract capacity is reduced shall be used to calculate the payments due PGandE in accordance with Sections D-2 and D-3, as applicable.
- (d) Seller shall be invoiced by PGandE for all refunds and payments due under this Appendix D and the special facilities agreement. From the date of the notice of termination or the date of termination, whichever is earlier, Seller shall pay interest, compounded monthly, on all overdue amounts, at the published Federal Reserve Board three months Prime Commercial Paper rate.
- (e) If Seller does not make payments pursuant to Section D-1(d), PGandE shall have the right to offset any amounts due it against any present or future payments due Seller.
- (f) Notices of termination shall be made in accordance with Section A-18 of Appendix A.

D-2 TERMINATION WITH PRESCRIBED NOTICE

In the event Seller terminates this entire Agreement, or all or part of the contract capacity thereof, with the following prescribed written notice:

<u>Amount of Contract Capacity Terminated</u>	<u>Length of Notice Required</u>
1,000 kW or under	3 months
over 1,000 kW through 10,000 kW	9 months
over 10,000 kW through 25,000 kW	12 months
over 25,000 kW through 50,000 kW	36 months
over 50,000 kW through 100,000 kW	48 months
over 100,000 kW	60 months

Then the following provisions shall apply:

- (1) With respect to the amount by which the contract capacity is reduced, Seller shall refund to PGandE an amount equal to the difference between (a) the capacity payments already paid by PGandE, based on the original term of agreement and (b) the total capacity payments which PGandE would have paid based on the period of Seller's actual performance using the adjusted capacity price. Additionally, Seller shall pay interest, compounded monthly, on all overpayments, at the published Federal Reserve Board three months' Prime Commercial Paper rate.
- (2) From the date PGandE receives the termination notice to the date of actual termination, PGandE shall make capacity payments based on the adjusted capacity price for the amount of contract capacity being terminated.

- (3) From the date PGandE receives the termination notice, PGandE shall continue to pay for the amount of contract capacity not being terminated, if any, at the original contract capacity price.

D-3 TERMINATION WITHOUT PRESCRIBED NOTICE

- (a) If Seller terminates this Agreement, or all or a part of the contract capacity thereof, without the notice prescribed in Section D-2, the provisions prescribed in Section D-2 will all apply. Additionally:
- (b) Seller shall pay PGandE a sum equal to the amount by which the contract capacity is being terminated times the difference between the current firm capacity price on the date of termination for a term equal to the balance of the term of agreement and the contract capacity price, pro-rated for the length of notice given by multiplying by the difference between the prescribed length of notice and the actual notice given, with the difference divided by 12. In the event that the current firm capacity price is less than the contract capacity price, no payment under this Section D-3 shall be due either Party.

This additional payment shall be computed using the following formula:

$$G = CC \times (T - CCP) \times \frac{J - H}{12}$$

where $G \geq 0$

and where:

- G = additional payment.
- CC = the amount by which the contract capacity is being terminated.
- T = the current firm capacity price.
- CCP = the contract capacity price.
- H = the actual number of months notice given.
- J = the prescribed length of notice.

D-4. TERMINATION EXAMPLES

These examples demonstrate how to calculate capacity payment adjustments when capacity sales are terminated.

(a) Termination with Prescribed Notice

(1) Example Based on Option 1

Assumptions

- i. Term of agreement is 15 years;
- ii. Actual operation date is July 1, 1984;
- iii. Prescribed notice is given on July 1, 1985;
- iv. Contract capacity to be reduced by 10,000 kW on July 1, 1986; actual performance to be from July 1, 1984 through July 1, 1986¹; and
- v. The applicable capacity loss adjustment factor is .989.
- vi. No performance bonus for capacity has been earned.

¹ The capacity payment is adjusted upon receiving notice, so no refund is necessary for the last month of the first twelve months of operation and all of the second twelve months (June 1, 1985 to July 1, 1986). Seller performed for eleven months prior to payment adjustment. (Note that due to the 30-day interval between delivery and payment, performance in the twelfth month (June 1985) can be paid for at the adjusted capacity price.)

The amount of overpayment (E) made by PGandE to Seller during each monthly billing period is calculated as follows:

$$E = (A - B) \times C \times L \times U$$

Where:

- A = contract capacity price per month for the actual operation date (July 1, 1984) and the term of agreement which is 15 years = \$110/kW-yr ÷ 12 mo/yr = \$9.17/kW-mo.
- B = adjusted capacity price per month for the actual operation date (July 1, 1984) and a two-year agreement term = \$78/kW-yr ÷ 12 mo/yr = \$6.50/kW-mo.
- C = amount by which the contract capacity is being reduced = 10,000 kW
- L = capacity loss adjustment factor = .989
- U = performance bonus factor; when seller does not qualify for a performance bonus factor, as in this example, U is removed from the above calculation of E.

Therefore:

$$E = (\$9.17/\text{kW-mo} - \$6.50/\text{kW-mo}) \times 10,000 \text{ kW} \times .989 = \$26,406 \text{ per month}$$

Table A shows a step-by-step derivation of the refund Seller owes PGandE for the early termination outlined above. The \$305,963 that Seller owes PGandE appears at the lower right-hand corner of the table. All other figures of this table represent intermediate calculation steps.

TABLE A

(a)	(b)	(c)	(d)	(e)	(f)	(g)
Monthly Billing Period ¹	Date of Payment ²	Amount of Overpayment ³	Accumulated Overpayment ⁴	Interest Rate ⁵	Interest Charge ⁶ on Accumulated Overpayment (f)=(d)x(e)	Balance ⁷ (g)=(c)+(d)+(f)
		\$	\$	%	\$	\$
7/84	8/30/84	26,406	0	1.2	0	26,406
8/84	9/30/84	26,406	26,406	1.0	264	53,076
9/84	10/30/84	26,406	53,076	0.9	478	79,960
10/84	11/30/84	26,406	79,960	0.8	640	107,006
11/84	12/30/84	26,406	107,006	0.7	749	134,161
12/84	1/30/85	26,406	134,161	0.8	1,073	161,640
1/85	3/2/85	26,406	161,640	0.9	1,455	189,501
2/85	3/30/85	26,406	189,501	1.0	1,895	217,802
3/85	4/30/85	26,406	217,802	1.1	2,396	246,604
4/85	5/30/85	26,406	246,604	1.2	2,959	275,969
5/85	6/30/85	26,406	275,969	1.3	3,588	305,963

¹ The month in which power deliveries were made. For purposes of simplification, the monthly billing period will coincide exactly with each calendar month.

² The date on which payment for the monthly billing period stated in column (a) is made.

³ The amount of overpayment made by PGandE to Seller during each monthly billing period.

⁴ The amount of overpayment accumulated up through last month's date of payment.

⁵ The interest rate for the period between the date of payment for the previous monthly billing period and the date of payment for this monthly billing period. These interest rates are arbitrarily chosen for use in this example.

⁶ The amount of interest charge accrued between the date of payment for the previous monthly billing period and the date of payment for this monthly billing period on the accumulated overpayment balance existing as of the previous monthly billing period's date of payment.

⁷ The amount Seller owes PGandE at this stage of the calculation. The balance (g) for a given monthly billing period equals the accumulated overpayment (d) for the monthly billing period immediately following.

(a) Termination with Prescribed Notice (cont'd)

(2) Example Based on Option 2

Assumptions:

- i. Term of agreement is 15 years;
- ii. Actual operation date is July 1, 1984;
- iii. Prescribed notice is given on July 1, 1985;
- iv. Contract capacity is reduced by 10,000 kW on July 1, 1986; actual performance is from July 1, 1984 through July 1, 1986¹;
- v. Scheduled outage for maintenance: 18 days in November = 432 hours;
- vi. The applicable capacity loss adjustment factor is .989.
- vii. Listed below is Seller's Performance Factor (P) and where applicable, the performance bonus factor (U) earned for each of the monthly billing periods² prior to the time capacity payment is adjusted. Also listed below are the number of hours the Facility was out of service for scheduled maintenance (M) and the number of hours in the month (D) for each of these months.

<u>Monthly Billing Period</u>		<u>P</u>	<u>U</u>	<u>M</u>	<u>D</u>
July	1984	1.00	-	0	744
August	1984	0.90	-	0	744
September	1984	1.00	-	0	720
October	1984	0.96	-	0	744
November	1984	0.98	-	432	720
December	1984	1.00	-	0	744
January	1985	1.00	1.117	0	744
February	1985	0.92	-	0	672
March	1985	0.85	-	0	744
April	1985	0.78	-	0	720
May	1985	1.00	1.059	0	744

The amount of overpayment (E) made by PGandE to Seller during each monthly billing period is calculated as follows:

$$E = [P \times (1 - \frac{M}{D}) \times K \times L \times U \times (A - B) \times C] + [\frac{M}{D} \times R]$$

Where:

- P = performance factor.
- M = number of hours of scheduled maintenance for that monthly billing period.
- D = number of hours in that monthly billing period.
- K = allocation factor from Section C-5.
- L = capacity loss adjustment factor = .989.
- U = performance bonus factor; when seller does not qualify for a performance bonus factor, U is removed from the above calculation of E.
- A = contract capacity price for the actual operation date (July 1, 1984) and term of agreement which is 15 years = \$110/kW-yr.

¹ The capacity payment is adjusted upon receiving notice, so no refund is necessary for the last month of the first twelve months of operation and all of the second twelve months (June 1, 1985 to July 1, 1986). Seller performed for eleven months prior to payment adjustment. [Note that due to the 30-day interval between delivery and payment, performance in the twelfth month (June 1985) can be paid for at the adjusted capacity purchase price.]

² For purposes of simplification, the monthly billing period will coincide exactly with each calendar month.

- B = adjusted capacity price for the actual operation date and a two-year agreement term = \$78/kW-yr.
- C = amount by which the contract capacity is being reduced = 10,000 kW.
- R = amount of overpayment for the most recent monthly billing period in the same Seasonal Period (i.e., Seasonal Period A or Seasonal Period B).

The results of the calculations are:

<u>Monthly Billing Period</u>		<u>Amount of Overpayment (E)</u>
July	1984	\$52,153
August	1984	46,937
September	1984	52,153
October	1984	7,641
November	1984	7,705
December	1984	7,959
January	1985	8,891
February	1985	7,323
March	1985	6,766
April	1985	6,208
May	1985	55,230

Table B shows a step-by-step derivation of the refund Seller owes PGandE for the early termination outlined above. The \$275,136 that Seller owes PGandE appears at the lower right-hand corner of the table. All other figures of this table represent intermediate calculation steps.

TABLE B

(a)	(b)	(c)	(d)	(e)	(f)	(g)
Monthly Billing Period ¹	Date of Payment ²	Amount of Overpayment ³	Accumulated Overpayment ⁴	Interest Rate ⁵	Interest Charge ⁶ on Accumulated Overpayment (f)=(d)x(e)	Balance ⁷ (g)=(c)+(d)+(f)
		\$	\$	%	\$	\$
7/84	8/30/84	52,153	0	1.2	0	52,153
8/84	9/30/84	46,937	52,153	1.0	522	99,612
9/84	10/30/84	52,153	99,612	0.9	897	152,662
10/84	11/30/84	7,641	152,662	0.8	1,221	161,524
11/84	12/30/84	7,705	161,524	0.7	1,131	170,360
12/84	1/30/85	7,959	170,360	0.8	1,363	179,682
1/85	3/2/85	8,891	179,682	0.9	1,617	190,190
2/85	3/30/85	7,323	190,190	1.0	1,902	199,415
3/85	4/30/85	6,766	199,415	1.1	2,194	208,375
4/85	5/30/85	6,208	208,375	1.2	2,501	217,084
5/85	6/30/85	55,230	217,084	1.3	2,822	<u>275,136</u>

¹ The month in which power deliveries were made. For purposes of simplification, the monthly billing period will coincide exactly with each calendar month.

² The date on which payment for the monthly billing period stated in column (a) is made.

³ The amount of overpayment made by PGandE to Seller during each monthly billing period.

⁴ The amount of overpayment accumulated up through last month's date of payment.

⁵ The interest rate for the period between the date of payment for the previous monthly billing period and the date of payment for this monthly billing period. These interest rates are arbitrarily chosen for use in this example.

⁶ The amount of interest charge accrued between the date of payment for the previous monthly billing period and the date of payment for this monthly billing period on the accumulated overpayment balance existing as of the previous monthly billing period's date of payment.

⁷ The amount Seller owes PGandE at this stage of the calculation. The balance (g) for a given monthly billing period equals the accumulated overpayment (d) for the monthly billing period immediately following.

(b) Termination without Prescribed Notice

If Seller terminates without prescribed notice, Seller will owe PGandE a refund [the calculation of which is described in Sections D-4(a)(1) and D-4(a)(2) of this example] and payment (G). This example demonstrates how the payment (G) is calculated.

Assumptions

- i. Term of agreement is 15 years;
- ii. Actual operation date is July 1, 1984;
- iii. Notice is given on January 1, 1989; and
- iv. Contract capacity is to be reduced by 10,000 kW on July 1, 1989; actual performance is from July 1, 1984 through July 1, 1989.

The payment (G) is calculated as follows:

$$G = CC \times (T - CCP) \times \left(\frac{J-H}{12}\right) \qquad G \geq 0$$

Where:

- CC = the amount of contract capacity being terminated = 10,000 kW.
- T = the current firm capacity price \$140/kW-yr is arbitrarily chosen for use in this example for a July 1, 1989 Operation Date and 10-year agreement term.
- CCP = the contract capacity price = \$110/kW-yr
- H = the actual number of months given = six months
- J = the prescribed notice = twelve months

The sample calculation is:

$$G = CC \times (T - CCP) \times \left(\frac{J-H}{12}\right)$$

$$G = 10,000 \text{ kW} \times (\$140/\text{kW-yr} - \$110/\text{kW-yr}) \times \left(\frac{12 \text{ mos.} - 6 \text{ mos.}}{12 \text{ mos./yr}}\right)$$

$$G = \underline{\underline{\$150,000}}$$

APPENDIX F

STANDARD OFFER #3

POWER PURCHASE AGREEMENT

FOR

AS-DELIVERED CAPACITY AND ENERGY

FROM

FACILITIES OF 100 KILOWATTS OR LESS

PACIFIC GAS AND ELECTRIC COMPANY

STANDARD OFFER #3

POWER PURCHASE AGREEMENT

FOR

AS-DELIVERED CAPACITY AND ENERGY

FROM

FACILITIES OF 100 KILOWATTS OR LESS

FEBRUARY 1983

AS-DELIVERED CAPACITY AND ENERGY
FROM
FACILITIES OF 100 KILOWATTS OR LESS

POWER PURCHASE AGREEMENT
BETWEEN

AND
PACIFIC GAS AND ELECTRIC COMPANY

_____, ("Seller"), and PACIFIC GAS AND ELECTRIC COMPANY ("PGandE"), referred to collectively as "Parties" and individually as "Party", agree as follows:

1. Seller states that its facility located at _____

and described as Make _____, Model _____, Serial No. _____,
fuel or energy source _____, and having a nameplate output rating of _____ kW,
_____ volts, _____ phase, 60 hertz will be ready to deliver power for sale on or about _____.
Seller has chosen to sell PGandE _____.*
2. Seller has two options for payment for as-delivered capacity and energy delivered to PGandE. They are:

Option No. 1: Seller elects to have the value of the purchased power credited to its monthly bill from PGandE for electric service in the next billing period (assumes electric service account).

Option No. 2: Seller elects to receive payment check within approximately 30 days of the meter reading date if the value of the purchased power is at least \$50, and if less, to have the value of the purchased power credited to its monthly bill from PGandE for electric service in the next billing period.

Seller has selected Option No. _____.
3. On and after the date PGandE gives its written approval for parallel operation, PGandE shall pay Seller for as-delivered capacity at prices authorized from time to time by the California Public Utilities Commission (CPUC) and for energy at prices equal to PGandE's full short run avoided operating costs as approved by the CPUC.
4. Seller shall pay for designing, installing, operating, and maintaining the facility in accordance with all applicable laws and regulations and shall comply with PGandE's electric Rule No. 21.
5. Seller shall deliver the as-delivered capacity and energy at the agreed point of interconnection with PGandE's system as shown in Appendix A.
6. PGandE shall, at its expense, furnish and install a standard watt-hour meter (and current transformers if required) in a meter socket and enclosure equipment provided and installed by Seller at or near the point of interconnection. At Seller's option and expense, PGandE shall furnish and install a time-of-delivery meter pursuant to a separate special facilities agreement referred to in PGandE's electric Rule No. 21.
7. Seller shall (a) maintain the facility and interconnection facilities, except facilities installed by PGandE, in conformance with all applicable laws and regulations, (b) obtain any governmental authorization and permits required for the construction and operation thereof, and (c) manage the facility and interconnection facilities in a safe and prudent manner. If at any time Seller does not hold such authorizations and permits, PGandE may refuse to accept deliveries of power hereunder.

* Insert either "net energy output" or "surplus energy output" to show the energy sale option selected by Seller.

8. (a) PGandE may enter Seller's premises (1) to inspect at any reasonable times Seller's protective devices and read or test meters, and (2) to disconnect, without notice, the interconnection facilities if, in PGandE's opinion, a hazardous condition exists and such immediate action is necessary to protect persons, or PGandE's facilities, or other customers' facilities from damage or interference caused by Seller's facility, or lack of properly operating protective devices.
(b) PGandE shall not be obligated to accept or pay for and may require Seller to interrupt or reduce deliveries of as-delivered capacity and energy (1) when necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any of its equipment or part of its system, or (2) if it determines that curtailment, interruption, or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with prudent electrical practices.
(c) Whenever possible, PGandE shall give Seller reasonable notice of the possibility that interruption or reduction of deliveries may be required.
9. Each Party as indemnitor shall save harmless and indemnify the other Party and the directors, officers, and employees of such other Party against and from any and all loss and liability for injuries to persons including employees of either Party, and damages, including property of either Party, resulting from or arising out of (a) the engineering, design, construction, maintenance, or operation of or (b) the making of replacements, additions, or betterments to the indemnitor's facilities. This indemnity and save harmless provision shall apply notwithstanding the active or passive negligence of the indemnitee. Neither Party shall be indemnified for liability or loss resulting from its sole negligence or willful misconduct. The indemnitor shall, on the other Party's request, defend any suit asserting a claim covered by this indemnity and shall pay all costs, including reasonable attorney fees, that may be incurred by the other Party in enforcing this indemnity.
10. Nothing in this Agreement shall create any duty to, any standard of care with reference to, or any liability to any person not a Party to it. Neither Party shall be liable to the other Party for consequential damages.
11. Each Party shall be responsible for protecting its facilities from possible damage by reason of the electrical disturbances or faults caused by the operation, faulty operation, or nonoperation of the other Party's facilities, and such other Party shall not be liable for any such damages so caused.
12. This Agreement shall be in effect when signed by the Seller and PGandE for an initial term of one year and shall remain in effect thereafter month to month unless terminated by either Party on 30 (thirty) days advance written notice to the other.
13. Any notice required under this Agreement shall be in writing and mailed at any United States Post Office with postage prepaid for transmission by certified mail, return receipt requested, addressed to the Party, or personally delivered to the Party, at the address below. Changes in such designation may be made by notice similarly given.

All written notice shall be directed as follows:

to PGandE: Pacific Gas and Electric Company
Attention: Manager, Commercial Department
77 Beale Street
San Francisco, CA 94106

to Seller: _____

14. This Agreement includes the following appendix which is attached and incorporated by reference:

Appendix A - POINT OF INTERCONNECTION LOCATION SKETCH

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the last date set forth below.

(SELLER)

PACIFIC GAS AND ELECTRIC COMPANY

BY: _____

BY: _____

(Type Name)

(Type Name)

TITLE: _____

TITLE: _____

DATE SIGNED: _____

DATE SIGNED: _____

Mailing Address:

APPENDIX A

POINT OF INTERCONNECTION LOCATION SKETCH

APPENDIX G

CALIFORNIA ENERGY COMMISSION

OPPORTUNITY NOTICE

FUNDING AVAILABLE FOR INDUSTRIAL

USE OF ALTERNATIVE ENERGY

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET

SACRAMENTO, CALIFORNIA 95814

FUNDING AVAILABLE FOR
INDUSTRIAL USE OF ALTERNATIVE ENERGY

The California Manufacturers Association, under contract to the California Energy Commission, is offering funding assistance for feasibility studies of alternative energy projects. With the use of Energy Commission funds designated for the development of alternative energy resources, the California Manufacturers Association will enter into co-funding agreements with industrial firms interested in determining the feasibility of installing alternative energy systems at their industrial sites.

Participation in the Energy Assistance Program is open to all manufacturing, food processing, and other industrial firms in California; applicants need not be members of the California Manufacturers Association. Projects involving any of the following energy technologies are eligible.

o cogeneration	o wind energy conversion
o solar energy	o geothermal direct use
o fuel cells	o small-scale hydroelectric power

Program funds available for any one project are limited to one-half of the study costs or a maximum of \$20,000. The balance of funds may come from the project sponsor alone or from the sponsor in conjunction with any other interested parties. If the project is determined to be technically, economically, and environmentally feasible, the project sponsors are to repay the funds to the California Manufacturers Association where they will be made available for subsequent studies.

Proposals will be funded on a first come basis; therefore, applications for proposed feasibility studies should be submitted as soon as possible. If you are interested in obtaining funding assistance, please call or write Linda Greule, Biomass/Cogeneration Office, California Energy Commission, 1516 Ninth Street, MS-42, Sacramento, California 95814 (916) 324-3479.

APPENDIX H

CALIFORNIA MANUFACTURERS ASSOCIATION/

CALIFORNIA ENERGY COMMISSION

INDUSTRY ENERGY ASSISTANCE PROGRAM

GUIDELINES AND PROCEDURES MANUAL

CALIFORNIA MANUFACTURERS ASSOCIATION

**Industry Energy Assistance Program
Guidelines
and
Procedures Manual
April 1982**

CALIFORNIA ENERGY COMMISSION

Industry Energy Assistance Program

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- VII. Administration
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PREFACE

This application manual describes the kinds of projects eligible for the Industry Energy Assistance Program, who may apply and how to apply. It also describes the criteria and procedures that will be used in selecting projects for funding.

The Industry Energy Assistance Program is administered by the California Manufacturers Association (CMA) under a contract with the California Energy Commission (CEC).

We welcome comments and suggestions for improving this manual. If you have any questions about the materials in this manual, contact:

Robert E. Burt
California Manufacturers Association
P.O. Box 1138
923 12th Street
Sacramento, CA 95805
(916) 441-5420

- 3 copies of the application package should be submitted to the above address.

Industry Energy Assistance Program

I. THE INDUSTRY ENERGY ASSISTANCE PROGRAM

The California Manufacturers Association (CMA) has contracted with the California Energy Commission (CEC) to conduct an Industry Energy Assistance Program for alternative energy projects. Both the CMA and the CEC have a strong interest in the industrial development of efficient, innovative, on-site energy resources as alternatives to oil and natural gas.

A necessary first step in such development is a formal study to determine whether the project is economical and practicable. This formal study, or feasibility study, can in itself be a barrier to project development, since the substantial cost of the study is undertaken at high risk. This Industry Energy Assistance Program will help potential projects developers by sharing the costs or risks of feasibility studies.

A general outline of the entire *program* process from application to finished project is as follows:

- A. Applicant does a preliminary evaluation of the project, including a cost estimate and time estimate for the feasibility study.
- B. The applicant prepares a package including these estimates and other supporting information.
- C. The CMA and CEC evaluate the application.
 1. If the project is selected, funds are advanced (up to 50 percent or a maximum of \$20,000 towards the cost of the feasibility study) and applicant begins study.
 2. If the project is not selected, applicant may reapply at a later solicitation.
- D. Applicant completes feasibility study.
 1. If the project is feasible, applicant must refund the award within 120 days.
 2. If the project is not feasible, applicant need not refund the award.
- E. Applicant with positive feasibility study begins project.

II. ELIGIBILITY REQUIREMENTS FOR APPLICANTS AND PROJECTS

Eligible Applicants: Any industrial or manufacturing firm in California may apply. Joint applications are also eligible.

Eligible Projects: Applicants may propose feasibility studies for any of the following energy technologies:

1. Cogeneration - the simultaneous production of electrical or mechanical and thermal energy. Typical installations involve the application of heat exhausted from electricity - generating turbines to an industrial process, or the use of waste industrial process heat to produce electrical energy. Eligible projects include conventionally fueled systems and those employing advanced combustion techniques (fluidized bed, gasification) to burn coal or petroleum coke.
2. Wind Energy Conversion - the use of wind turbines to provide mechanical energy (to pump water, for example) or to produce electricity.
3. Geothermal Energy - the direct use of geothermal hot water for space and water heating, or to provide process heat, or the use of geothermal steam for small-scale electricity production. Examples of the latter are small-scale wellhead generators such as Organic Rankine or Binary Cycle systems.
4. Small-scale Hydroelectric Power - the installation of hydroelectric generating equipment at small dams or at pressure reduction stations in water delivery systems.
5. Fuel Cells - conversion of chemical energy into electricity.
6. Solar Energy - the use of solar heat for space and water heating or to produce electricity through advanced technologies such as photovoltaic cells or solar ponds.
7. Combination of the above or other projects that substantially reduce conventional fuel through the employment of innovative energy systems.

Industry Energy Assistance Program

III. THE FEASIBILITY STUDY

The application for this award should address the information that will be needed in the proposed feasibility study, the cost of developing this information, and the time required to complete the study. A successful applicant needs to be thorough and thoughtful in deciding what will be required in the feasibility study for the proposed project. The content of a feasibility study is dependent on the particular type of project being studied. Listed below are most of the points which should be addressed in an energy project feasibility study. As will be noted, the items listed are those which would be included in fully developed, final feasibility studies. As this program involves preliminary feasibility studies, the level of detail required is less than that of final studies. A study proposed for co-funding through this program should address the items which apply to the type of energy projects under consideration in the level of detail necessary for preliminary decision-making.

1. A preliminary feasibility study should address first those elements which, in the judgment of the consultant preparing the study, are most likely to be critical. This avoids unnecessary cost. For example, a cogeneration project using wood chips as fuel might first evaluate the likely cost and reliability of the fuel supply and the likelihood of receiving the necessary air permits next.

The feasibility study should answer the major questions concerning a proposed project:

1. Will the project function as intended?
2. Is the project economically attractive?
3. Is it possible to construct the project?
4. What are the risks and how can they affect the first three questions?

Any construction project in California will have to satisfy the requirements of a number of federal and state regulatory agencies, as well as local authorities. The probability of obtaining all the necessary permits must be addressed by any feasibility study, and one of the results from the feasibility study should be a decision on whether an Environmental Impact Report is necessary.

Other parts of the feasibility study will define the technical and the financial aspects of the proposed project. Some feasibility studies may not require all the listed parts, while others could require information not included in the following outline:

TYPICAL CONTENTS OF A FEASIBILITY STUDY

A. Technical Design of Project

1. Verbal description of process.
2. Process flow sheet, indicating major equipment and material flows.
3. Mass balance, showing material flows and specifications.
4. Energy balance, showing required steam, electricity and other fuels.
5. Major equipment specifications.
6. Process layout on site map relative to existing buildings, equipment and major geographic features. Map should show roads and neighboring businesses, residences and public facilities.
7. Water requirements and disposition of waste water.
8. Raw material storage facility layout (tank, drum storage).
9. Availability of raw materials and power.
10. Estimated time for completion of physical projects, including equipment delivery, construction and startup.

Industry Energy Assistance Program

11. Manpower requirements for operating the facility.
12. The technical design should include any required pollution control equipment as well as required health and safety equipment.

B. Economic Analysis

1. Estimated cost of installed project.
 2. Estimated operating and maintenance costs.
 3. Estimated life of project and salvage value.
 4. Compare costs of project product (energy in this case) with product available from other sources (conventionally produced energy). Are there other considerations?
 5. Investment analysis, including projected income (or reduced expense), cash flows, return on investment and tax status. Make preliminary decision to continue based on return on investment.
 6. Financing availability and options.
 7. Economic sensitivity analysis: the effect on project economics resulting from change in project size, key cost assumptions or other variables of importance. This is a kind of risk analysis.
2. Identification of air, water, solid waste and noise pollution likely to result from the proposed project.
 3. Assessment of baseline environmental quality for proposed site, to include estimates of potential effects of the environment from the proposed project. Air and water quality, noise levels, water tables and stream flows, existing fault lines or substrate problems, endangered wildlife or disturbance of aesthetic or historic values are potential environmental concerns.
 4. Identification of any sociological problem likely to result from the proposed project, such as changes in traffic patterns.
 5. Decision on necessity for an Environmental Impact Report (EIR) based on items 2, 3 and 4. If an EIR is necessary, the added cost to the project is significant. A negative declaration report will have to be done even if the EIR is not required, but this is not nearly as detailed as the EIR.
 6. Identification of health and safety standards that will apply to the proposed project, including federal, state and local regulations.

IV. APPLICATION REQUIREMENTS

Applicant must submit information which will be used to evaluate the proposed feasibility study. This *application package* must contain the following sections:

C. Environmental, Health and Safety Assessment

1. Identification of all environmental standards and necessary permits.
 - a. Federal regulations: Environmental Protection Agency, Federal Energy Regulatory Commission.
 - b. State regulations: Air Resources Board, California Environmental Quality Act, State Water Resources Control Board
 - c. Local regulations: Local air pollution control districts, fire departments, water quality boards, planning departments.

- Cover Letter
- Applicant Background and Qualifications
- Project Description
- Outline of Proposed Feasibility Study
- Time Estimate for Completion of Study
- Qualifications of Consultants Proposed to Conduct Studies
- Proposed Budget for Study
- Identification of Proprietary Information Contained in Application

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Cover Letter: This should document the applicant's commitment to the project and intention to proceed with the project.

Applicant Background and Qualifications: Applicant should provide general information about the industrial or manufacturing operation. Include any history of energy conservation by the operation.

Project Description: This verbal description of the proposed project should include the basic elements of the process flow sheet. The description should summarize the intent of and benefit from the completed project for which the feasibility study is proposed. Included an estimate of energy savings or displacement of conventional fuel use.

Outline of Proposed Feasibility Study: Each section of the feasibility study should be listed, with a brief summary of any existing work, information or plans. This outline should generally follow the Section III outline, although specific items may differ. This part of the application should indicate the applicant's understanding of the feasibility study and ability to successfully conclude such a study. The outline should reflect the current understanding of the proposed project. The work necessary for the feasibility study will determine the cost of the study, and the cost estimate and budget should be consistent with the feasibility study outline.

The technical section should include all the important steps involved in designing the proposed process. If there are estimates available on the heat or mass flows or if specific problems and questions are recognized, these should be mentioned. If a radically new process or innovative equipment is being considered, this should be noted. Any known siting problems should be listed. Special conditions affecting the need for special pollution or safety related equipment should be noted.

The economic analysis section of the outline should state the acceptable rate of return for the applicant. It may be helpful to break down certain elements such as the cost estimate into specific items. Again, any existing information should be included. Possible financing sources should be mentioned in this section.

The environmental section should identify the known regulatory agencies (although at this time the list need not be complete). If there are known site-specific problems, these should be mentioned as well. If

environmental baseline data is available (published or unpublished sources) the sources and kinds of data should be listed. Although the decision on an EIR is made during the actual feasibility study, it may be possible to predict the decision in the outline.

The Estimate for Completion of Study: Each step of the feasibility study should be considered and assigned some estimated time for starting and completion. The time for writing, typing, assembling and approving the final feasibility study document should be included in the overall estimate. The elapsed time from the earliest starting step to the finish of the final document is the time estimate for the completion of the study. It would be helpful to summarize the major step estimates in this part of the application.

Qualifications of Consultants Proposed to Conduct the Study: The individuals or contractors who will do the actual work of the feasibility study should be named, and the specific work each will perform should be listed. A summary of qualifications of the proposed consultants will help in evaluating the application. An estimate, by the proposed consultant, of the approximate cost of each major phase of the study should be included. If more than one consultant is involved, the precise duties and cost estimates of each should be included, and the lead consultant should be clearly designated.

Proposed Budget for Study: The cost for each step of the proposed feasibility study should be estimated, including overhead cost for staff, secretarial time, travel cost and the estimated cost for each consultant. Any phone, xerox, postage and miscellaneous expense charged to the feasibility study should be included.

Cost should be listed according to category; for example, salaries, overhead, office expense, consultant expenses and travel should be separate.

The cost of the feasibility study may be shared by a number of participants. Up to 50 percent of the cost may be requested from the CMA (up to a \$20,000 limit). The amounts supplied by or required from different sources should be shown. If a separate grant application (different from this application) is under consideration, the amount supplied by the different grant should be noted, along with the status of this other grant. If there are plans to back up this separate grant request with another source of funds, this should be noted.

Industry Energy Assistance Program

Identification of Proprietary Information Contained in Application: Any trade secrets or other information that is considered proprietary should be carefully identified since the results of program feasibility studies are to be published. Since the intent of this program is to promote the use of any technologies developed with program assistance, such proprietary information should be carefully selected. If the protection of proprietary information will make the feasibility study unusable by others in industry, this will affect the evaluation of the proposal.

Evaluation Procedures: *Application packages* will be evaluated by a selection committee that includes industry representatives with experience in engineering, finance and project development, CMA representatives and CEC staff. This committee will select projects for funding. The evaluation will be a two-phase process:

Phase I: Applications will be screened and a group of project finalists will be identified. Proposals that are eliminated in this phase or in Phase II may be revised by the applicant and resubmitted during a subsequent solicitation.

Phase II: Project finalists will be interviewed and site visits may be scheduled. Final selection of the award recipients will be made by the committee subject to approval by the CEC.

Contract Negotiations: Award recipients will negotiate a contract with CMA which will define positive feasibility as accepted by the applicant, CMA and CEC.

V. REVIEW PROCEDURES AND EVALUATION CRITERIA

Evaluation Criteria: Each *application package* will be carefully evaluated using the criteria below:

1. Extent to which the Feasibility Study Outline adequately addresses the project.
2. Commercialization Potential - Can the proposed technology be applied throughout California? Since an important purpose of the Industry Energy Assistance Program is to promote the use of alternative energy, projects with commercialization potential will be given priority.
3. Energy Savings - Will the proposed project reduce the use of oil or gas?
4. Innovation - How creative or unique is the project?
5. Qualifications of Project Staff, Consultants, and Background of Company - Are the participants qualified to prepare the feasibility study?
6. Co-funding - To what extent is the applicant willing to commit funds to the feasibility study?

VI. CO-FUNDING, PAYBACK PROCEDURES AND DETERMINATION OF FEASIBILITY

Each successful applicant must enter into a contractual agreement with CMA through which the CMA funds up to 50 percent of the cost of the study (limited to \$20,000). The rest of the funds may come from a single project sponsor alone or from the primary sponsor in concert with other interested parties. Any combination of funding may be used. Some possibilities include assistance from similar industries or joint proposals from two or more sponsors. Potential sources of follow-on project funding may be public agencies such as the California Pollution Control Financing Authority (CPCFA), the State Assistance Fund for Energy, California Business and Industrial Corporation (SAFE-BIDCO) and the California Alternative Energy Sources Financing Authority (CAESFA).

Industry Energy Assistance Program

The applicant is responsible for completion of the feasibility study as specified in the application or contract. Final determination of the feasibility of a proposed project is made by the CMA and the CEC according to guidelines established during final contract negotiations with the applicant. If the project is technically, economically and environmentally feasible, the project applicant is obligated to repay all of the award to CMA within 120 days from completion of the study. If the project is not feasible, the funds do not have to be repaid. All funds returned to the program will be used to fund additional studies.

The California Energy Commission responsibilities are as follows:

1. Providing the CMA with program management assistance.
2. Final approval of all project selections.
3. Publishing final reports of feasibility studies for use by others considering similar projects.

VII. ADMINISTRATION

VIII. APPLICATION COVER SHEET

(OVER)

The California Manufacturers Association responsibilities are as follows:

1. Announcing the Industry Energy Assistance Program to potential applicants.
2. Chairing the project selection committee.
3. Contracting with the successful applicants.
4. Monitoring the progress of projects.
5. Distributing final reports on projects.
6. General Management of the program.

CALIFORNIA MANUFACTURERS ASSOCIATION

**ALTERNATIVE ENERGY PROJECTS
INDUSTRY ASSISTANCE PROGRAM**

APPLICATION COVER SHEET

PROJECT TITLE:

APPLICANT'S NAME, MAILING ADDRESS AND ZIP CODE:

APPLICANT'S STREET ADDRESS/LOCATION IF DIFFERENT
FROM MAILING ADDRESS:

COUNTY OF PROJECT

NAME AND TITLE OF PERSON WITH PRIMARY RESPONSIBILITY
FOR PROJECT STUDY:

PHONE NUMBER ()

PROJECT DESCRIPTION:

SIGNATURE OF AUTHORIZED PERSON _____

TITLE: _____ DATE: _____

FOR CMA USE

Date application received: _____

Date of initial review: _____

Date of panel interview: _____