

**SMALL RENEWABLE GENERATOR  
POWER PURCHASE AGREEMENT  
BETWEEN  
ORTIGALITA POWER COMPANY, LLC AND  
PACIFIC GAS AND ELECTRIC COMPANY**

PACIFIC GAS AND ELECTRIC COMPANY, a California Corporation (“PG&E” or “Buyer”), and ORTIGALITA POWER COMPANY, LLC (“Seller”) hereby enter into this Power Purchase Agreement (“Agreement”). Seller and PG&E are sometimes referred to in this Agreement jointly as “Parties” or individually as “Party.” In consideration of the mutual promises and obligations stated in this Agreement and its appendices, the Parties agree as follows:

1. DOCUMENTS INCLUDED; DEFINED TERMS

This Agreement includes the following appendices, which are specifically incorporated herein and made a part of this Agreement.

Appendix A- Definitions

Appendix B- Initial Energy Delivery Date Confirmation Letter

Appendix C- Time of Delivery (“TOD”) Periods and Factors

Appendix D- Counterparty Notification Requirements for Outage and Generation Schedule Changes

2. SELLER’S GENERATING FACILITY, PURCHASE PRICES AND PAYMENT

2.1 Facility. This Agreement governs PG&E’s purchase of energy and capacity from the electrical generating facility (hereinafter referred to as the “Facility” or “Unit”) as described in this Section.

2.1.1 The Facility is located at 21490 S. Ortigalita Road, Los Banos in Merced County, California.

2.1.2 The Facility is described as a biomass conversion system.

2.1.3 The Facility’s primary fuel is biomass.

2.1.4 The Facility has a nameplate rating of 750 kilowatts (“kW”), at unity power factor at 60 degrees Fahrenheit at sea level and has a primary voltage level of 480 kilovolts (“kV”). Seller shall not modify the Facility to increase the nameplate rating without the prior written consent of PG&E.

2.1.5 The Facility is connected to the PG&E electric system at 480 ~~kV~~.

2.1.6 If not already capable of delivering energy on the Execution Date, the Facility's scheduled Commercial Operation Date is 1 February 2010.

2.1.7 A description of the Facility, including a summary of its significant components, a drawing showing the general arrangements of the Facility, and a single line diagram illustrating the interconnection of the Facility and loads with PG&E's electric distribution system, is attached and incorporated herein as Appendix E.

2.1.8 The name and address PG&E uses to locate the electric service account(s) and premises used to interconnect the Facility with PG&E's distribution systems is:

Parreira Almond Processing Co.

21490 S. Ortigalita Road

Los Banos, CA 93635

2.2 Transaction. During the Delivery Term of this Agreement, as provided in Section 2.3, Seller shall sell and deliver, or cause to be delivered, and PG&E shall purchase and receive, or cause to be received, energy produced by and capacity provided from the Facility, up to 1500 kW, at the Delivery Point, as defined pursuant to Section 5.1, pursuant to Seller's election of a (check one)  full buy/sell or  excess sale arrangement as described in paragraphs 2.2.1 and 2.2.2 below. PG&E shall pay Seller the Contract Price, set forth in Section 2.4, in accordance with the terms hereof. In no event shall Seller have the right to procure the energy or capacity from sources other than the Facility for sale or delivery to PG&E under this Agreement or substitute such energy or capacity. PG&E shall have no obligation to receive or purchase energy or capacity from Seller prior to the Initial Energy Delivery Date, as defined in Section 2.3, or after the end of the Delivery Term, as defined in Section 2.3. The Parties agree that the execution and performance of the Parties under this Agreement shall satisfy PG&E's obligations, if any, under the Public Utility Regulatory Policies Act and its implementing regulations, i.e., 18 C.F.R. §§ 292.303.

~~2.2.1 Full Buy/Sell. Seller agrees to sell to PG&E the Facility's gross output in kilowatt-hours, net of Station Use and transformation and transmission losses to the Delivery Point into the PG&E system, together with all Green Attributes and Resource Adequacy Benefits. Seller shall purchase all energy required to serve the Facility's on-site load, net of station use, from PG&E pursuant to PG&E's applicable retail rate schedule.~~

2.2.2 Excess Sale. Seller agrees to sell to PG&E the Facility's gross output in kilowatt-hours, net of Station Use and any on-site use by Seller and transformation and transmission losses to the Delivery Point into the PG&E system. Seller agrees to convey to PG&E all Green Attributes and Resource Adequacy Benefits associated with the energy sold to PG&E.

2.3 Delivery Term. The Seller shall deliver the energy and capacity from the Facility to PG&E for a period of (check one)  ten (10),  fifteen (15), or  twenty (20) Contract Years (“Delivery Term”), which shall commence on the first date on which energy is delivered from the Facility to PG&E (“Initial Energy Delivery Date”) under this Agreement and continue until the end of the last Contract Year unless terminated by the terms of this Agreement. The Initial Energy Delivery Date shall occur only when all of the following conditions have been satisfied:

(i) the Commercial Operation Date has occurred, if the Facility was not in operation prior to the Execution Date of this Agreement;

(ii) the Facility’s status as an Eligible Renewable Energy Resource, is demonstrated by Seller’s receipt of certification from the CEC and is registered in WREGIS; and

(iii) as evidence of the Initial Energy Delivery Date, the Parties shall execute and exchange the “Initial Energy Delivery Date Confirmation Letter” attached hereto as Appendix B on the Initial Energy Delivery Date.

2.4 Contract Price. Once both Parties have executed this Agreement PG&E shall pay Seller for each megawatt-hour (“MWh”) of energy and associated capacity delivered to PG&E during each Contract Year for the Delivery Term at the applicable Market Price Referent specified below for the Facility’s actual Commercial Operation Date. Payment shall be adjusted by the appropriate Time of Delivery (“TOD”) factor listed in Appendix C.

<b>Adopted 2008 Market Price Referents<sup>1</sup></b> (Nominal - dollars/kWh)			
<b>Resource Type</b>	<b>10-Year</b>	<b>15-Year</b>	<b>20-Year</b>
2009 Baseload MPR	0.10043	0.10537	0.11126
2010 Baseload MPR	0.10175	0.10748	0.11390
2011 Baseload MPR	0.10400	0.11046	0.11730
2012 Baseload MPR	0.10698	0.11405	0.12126
2013 Baseload MPR	0.10998	0.11776	0.12527
2014 Baseload MPR	0.11278	0.12122	0.12897
2015 Baseload MPR	0.11605	0.12503	0.13290
2016 Baseload MPR	0.11971	0.12915	0.13706
2017 Baseload MPR	0.12367	0.13352	0.14144
2018 Baseload MPR	0.12802	0.13814	0.14603
2019 Baseload MPR	0.13271	0.14298	0.15080
2020 Baseload MPR	0.13776	0.14797	0.15578

<sup>1</sup> Note: Using 2009 as the base year, Staff calculates MPRs for 2009-2020 that reflect different project online dates. Link to 2008 MPR Model: <http://www.ethree.com/MPR.html>

2.5 Billing. PG&E shall pay Seller by check or Automated Clearing House transfer within approximately 30 days of the meter reading date if the value of the purchased energy in a month is at least fifty dollars (\$50); if less, PG&E may pay Seller quarterly. PG&E shall have the right, but not the obligation, to read the Facility's meter on a daily basis.

2.6 Title and Risk of Loss. Title to and risk of loss related to the energy produced from and capacity provided by the Facility shall transfer from Seller to PG&E at the Delivery Point. Seller warrants that it will deliver to PG&E all energy and capacity from the Facility free and clear of all liens, security interests, claims and encumbrances or any interest therein or thereto by any person arising prior to the Delivery Point.

2.7 No Additional Incentives. Seller agrees that during the Term of this Agreement, Seller shall not seek additional compensation or other benefits pursuant to the Self-Generation Incentive Program, as defined in CPUC Decision ("D.") 01-03-073, the California Solar Initiative, as defined in CPUC D.06-01-024, PG&E's net energy metering tariff, or other similar California ratepayer subsidized program relating to energy production with respect to the Facility.

2.8 Private Energy Producer. Seller agrees to provide to Buyer copies of each of the documents identified in PUC Section 2821(d)(1), if applicable, as may be amended from time to time, as evidence of Seller's compliance with such PUC section. Such documentation shall be provided to Buyer within thirty (30) days of Seller's receipt of written request therefor.

### 3. GREEN ATTRIBUTES; RESOURCE ADEQUACY BENEFITS

3.1 Conveyance of Green Attributes. Seller provides and conveys all Green Attributes from the Facility to Buyer as part of the Product (energy and capacity) delivered to Buyer for the duration of the Delivery Term. Seller represents and warrants that Seller holds the rights to all Green Attributes from the Facility, and Seller agrees to convey and hereby conveys all such Green Attributes to Buyer as included in the delivery of the Product from the Facility. Further, "Green Attributes" also means any and all credits that satisfy the requirement to procure electricity from ERRs, pursuant to the California Renewables Portfolio Standard, that are directly attributable to electric production from the Facility. Seller represents that the energy, capacity, ancillary services and Green Attributes from the Facility have not been, nor will be, sold or used to satisfy any obligation other than PG&E's California Renewables Portfolio Standard obligation.

3.2 WREGIS. Prior to the Initial Energy Delivery Date, Seller shall register the Facility in WREGIS and take all other actions necessary to ensure that the energy produced from the Facility is tracked for purposes of satisfying the California Renewables Portfolio Standard requirements, as may be amended or supplemented by the CPUC or CEC from time to time. Seller warrants that all it shall take all necessary steps to ensure the Renewable Energy Credits transferred to Buyer under this Agreement are tracked in WREGIS and



transferred in a timely manner to Buyer through WREGIS for purposes of satisfying Buyer's California Renewables Portfolio Standard Requirements, as may be amended or supplemented by the CPUC or CEC from time to time.

3.3 Resource Adequacy Benefits. In accordance with PUC Section 399.20(g), Seller conveys to PG&E all Resource Adequacy Benefits attributable to the physical generating capacity of Seller's Facility to enable PG&E to count such capacity towards PG&E's resource adequacy requirement for purposes of PUC Section 380. Seller shall take all reasonable actions and execute documents and instructions necessary to enable Buyer to secure Resource Adequacy Benefits; Seller shall comply with all applicable reporting requirements.

#### 4. REPRESENTATION AND WARRANTIES; COVENANTS

4.1 Representations and Warranties. On the Execution Date, each Party represents and warrants to the other Party that:

4.1.1 it is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation;

4.1.2 the execution, delivery and performance of this Agreement is within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, any contracts to which it is a party or any law, rule, regulation, order or the like applicable to it;

4.1.3 this Agreement and each other document executed and delivered in accordance with this Agreement constitutes its legally valid and binding obligation enforceable against it in accordance with its terms;

4.1.4 it is not bankrupt and there are no proceedings pending or being contemplated by it or, to its knowledge, threatened against it which would result in it being or becoming bankrupt;

4.1.5 there is not pending or, to its knowledge, threatened against it or any of its affiliates any legal proceedings that could materially adversely affect its ability to perform its obligations under this Agreement; and

4.1.6 it is acting for its own account, has made its own independent decision to enter into this Agreement and as to whether this Agreement is appropriate or proper for it based upon its own judgment, is not relying upon the advice or recommendations of the other Party in so doing, and is capable of assessing the merits of, and understands and accepts, the terms, conditions and risks of this Agreement.

4.2 General Covenants. Each Party covenants that throughout the Term of this Agreement:

4.2.1 it shall continue to be duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation;

4.2.2 it shall maintain (or obtain from time to time as required, including through renewal, as applicable) all regulatory authorizations necessary for it to legally perform its obligations under this Agreement; and

4.2.3 it shall perform its obligations under this Agreement in a manner that does not violate any of the terms and conditions in its governing documents, any contracts to which it is a party or any law, rule, regulation, order or the like applicable to it.

4.3 Seller Representation and Warranty and Covenant.

4.3.1 Representation and Warranty. In addition to the representations and warranties specified in Section 4.1, Seller makes the following additional representations and warranties as of the Execution Date:

(a) Seller has not received an incentive under the Self-Generation Incentive Program, as defined in CPUC D.01-03-073, or the California Solar Initiative, as defined in CPUC D.06-01-024.

(b) Seller's execution of this Agreement will not violate PUC Section 2821(d)(1) if applicable.

4.3.2 Covenant. Seller hereby covenants that throughout the Term of the Agreement, the Facility is, or will qualify prior to the Initial Energy Delivery Date, as an ERR, specifically, Seller and, if applicable, its successors, represents and warrants throughout the term of the Delivery Term of each Transaction entered into under this Agreement that: (a) the Unit(s) qualifies and is certified by the CEC as an Eligible Renewable Energy Resource; and (b) the Unit(s) output delivered to Buyer qualifies under the requirements of the California Renewables Portfolio Standard. To the extent a change in law occurs after execution of this Agreement that causes this representation and warranty to be materially false or misleading, it shall not be an Event of Default if Seller has used commercially reasonable efforts to comply with such change in law.

5. GENERAL CONDITIONS

5.1 Facility Care, Interconnection and Transmission Service. If PG&E does not deem Seller's existing interconnection service, equipment and agreement satisfactory for the delivery of energy under this Agreement, Seller shall execute a Small Generator Interconnection Agreement with PG&E's Generation Interconnection Services Department and pay and be responsible for designing, installing, operating, and maintaining the Facility in accordance with all applicable laws and regulations and shall comply with all applicable PG&E, CAISO, CPUC and FERC tariff provisions, including

applicable interconnection and metering requirements. Seller shall also comply with any modifications, amendments or additions to the applicable tariff and protocols. During the Delivery Term, Seller shall arrange and pay independently for any and all necessary costs under any interconnection agreement with PG&E. To make deliveries to PG&E, Seller must maintain an interconnection agreement with PG&E in full force and effect.

5.2 Metering Requirements. Seller shall comply with all applicable rules in installing a meter appropriate for deliveries pursuant to the Full Buy/Sell or Excess Sale arrangement selected in paragraph 2.2, above, which can be electronically read daily by: (a) a telephone and modem; (b) an analog or digital phone connection; or (c) an internet portal address for PG&E's Energy Data Services ("EDS"). Seller shall be responsible for procuring and maintaining the communication link to electronically retrieve this metering data.

5.3 Standard of Care. Seller shall: (a) maintain and operate the Facility and Interconnection Facilities, except facilities installed by PG&E, in conformance with all applicable laws and regulations and in accordance with Good Utility Practices, as defined by PG&E's Wholesale Distribution Tariff and the CAISO Tariff, as they may be amended, supplemented or replaced (in whole or in part) from time to time; (b) obtain any governmental authorizations and permits required for the construction and operation thereof; and (c) generate, schedule and perform transmission services in compliance with all applicable operating policies, criteria, rules, guidelines and tariffs and Good Utility Practices, as provided in clause (a) above. Seller shall reimburse PG&E for any and all losses, damages, claims, penalties, or liability PG&E incurs as a result of Seller's failure to obtain or maintain any governmental authorizations and permits required for construction and operation of the Facility throughout the Term of this Agreement.

5.4 Access Rights. PG&E, its authorized agents, employees and inspectors shall have the right to inspect the Facility on reasonable advance notice during normal business hours and for any purposes reasonably connected with this Agreement or the exercise of any and all rights secured to PG&E by law, or its tariff schedules, PG&E Interconnection Handbook and rules on file with the CPUC. PG&E shall make reasonable efforts to coordinate its emergency activities with the Safety and Security Departments, if any, of the Facility operator. Seller shall keep PG&E advised of current procedures for communicating with the Facility operator's Safety and Security Departments.

5.5 Protection of Property. Each Party shall be responsible for protecting its own facilities from possible damage resulting from electrical disturbances or faults caused by the operation, faulty operation, or non-operation of the other Party's facilities and such other Party shall not be liable for any such damages so caused.

5.6 PG&E Performance Excuse; Seller Curtailment.

5.6.1 PG&E Performance Excuse. PG&E shall not be obligated to accept or pay for energy produced by or capacity provided from the Facility during a Dispatch Down Period, or Force Majeure, as defined in Appendix A.

5.6.2 Seller Curtailment. PG&E may require Seller to interrupt or reduce deliveries of energy: (a) when necessary to construct, install, maintain, repair, replace, remove, or investigate any of its equipment or part of PG&E's transmission system or distribution system or facilities; or (b) if PG&E or the CAISO determines that curtailment, interruption, or reduction is necessary because of a System Emergency, as defined in the CAISO Tariff, Forced Outage, Force Majeure as defined in Appendix A, or compliance with Good Utility Practice, as such term is defined in the CAISO Tariff.

5.7 Notices of Outages. Whenever possible, PG&E shall give Seller reasonable notice of the possibility that interruption or reduction of deliveries may be required.

5.8 Greenhouse Gas Emissions: During the Term, Seller acknowledges that a Governmental Authority may require Buyer to take certain actions with respect to greenhouse gas emissions *attributable to the generation of Energy*, including, but not limited to, reporting, registering, tracking, allocating for or accounting for such emissions. Promptly following Buyer's written request, Seller agrees to take all commercially reasonable actions and execute or provide any and all documents, information or instruments *with respect to generation by the Project* reasonably necessary to permit Buyer to comply with such requirements, if any.

## 6. 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 damages, including property of either Party, resulting from or arising out of: (a) the engineering, design, construction, maintenance, or operation of; or (b) the installation 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.

## 7. LIMITATION OF DAMAGES

EXCEPT AS OTHERWISE PROVIDED IN THIS AGREEMENT THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ANY AND ALL IMPLIED WARRANTIES ARE DISCLAIMED. LIABILITY SHALL BE LIMITED TO DIRECT ACTUAL DAMAGES ONLY, SUCH DIRECT ACTUAL DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY

AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED UNLESS EXPRESSLY HEREIN PROVIDED. NEITHER PARTY SHALL BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, PUNITIVE, EXEMPLARY OR INDIRECT DAMAGES, LOST PROFITS OR OTHER BUSINESS INTERRUPTION DAMAGES, BY STATUTE, IN TORT OR CONTRACT, UNDER ANY INDEMNITY PROVISION OR OTHERWISE. UNLESS EXPRESSLY HEREIN PROVIDED, AND SUBJECT TO THE PROVISIONS OF SECTION 6 (INDEMNITY), IT IS THE INTENT OF THE PARTIES THAT THE LIMITATIONS HEREIN IMPOSED ON REMEDIES AND THE MEASURE OF DAMAGES BE WITHOUT REGARD TO THE CAUSE OR CAUSES RELATED THERETO, INCLUDING THE NEGLIGENCE OF ANY PARTY, WHETHER SUCH NEGLIGENCE BE SOLE, JOINT OR CONCURRENT, OR ACTIVE OR PASSIVE.

8. NOTICES

Notices shall, unless otherwise specified herein, be in writing and may be delivered by hand delivery, United States mail, overnight courier service, facsimile or electronic messaging (e-mail). Whenever this Agreement requires or permits delivery of a "notice" (or requires a Party to "notify"), the Party with such right or obligation shall provide a written communication in the manner specified below. A notice sent by facsimile transmission or e-mail will be recognized and shall be deemed received on the Business Day on which such notice was transmitted if received before 5 p.m. Pacific prevailing time (and if received after 5 p.m., on the next Business Day) and a notice by overnight mail or courier shall be deemed to have been received two (2) Business Days after it was sent or such earlier time as is confirmed by the receiving Party unless it confirms a prior oral communication, in which case any such notice shall be deemed received on the day sent. A Party may change its addresses by providing notice of same in accordance with this provision. All written notices shall be directed as follows:

**TO PG&E:** Pacific Gas and Electric Company  
Attention: Manager, Contract Management  
245 Market Street, Mail Code N12E  
San Francisco, CA 94177-0001

**TO SELLER:** Ortigalita Power Company  
Attn: Gregory Stangl  
1800 Scott Street  
San Francisco, CA 94115

9. INSURANCE

9.1 General Liability Coverage.



9.1.1 Seller shall maintain during the performance hereof, General Liability Insurance<sup>2</sup> of not less than \$1,000,000 if the Facility's nameplate is over 100 kW, \$500,000 if the nameplate rating of the Facility is over 20 kW to 100kW or \$100,000 if the nameplate rate of the Facility is 20 kW or below of combined single limit or equivalent for bodily injury, personal injury, and property damage as the result of any one occurrence.

9.1.2 General Liability Insurance 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.

9.1.3 Such insurance shall provide for thirty (30) days written notice to PG&E prior to cancellation, termination, alteration, or material change of such insurance.

9.2 Additional Insurance Provisions.

9.2.1 Evidence of coverage described above in Paragraph 9.1 shall state that coverage provided in primary and is not excess to or contributing with any insurance or self-insurance maintained by PG&E.

9.2.2 PG&E shall have the right to inspect or obtain a copy of the original policy(ies) of insurance.

9.2.3 Seller shall furnish the required certificates and endorsements to PG&E prior to commencing operation.

9.2.4 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, Room E280  
San Francisco, CA 94105

10. TERM, DEFAULT, TERMINATION EVENT AND TERMINATION

10.1 Term. The term of this Agreement shall commence upon the later of: (i) execution by the duly authorized representatives of each of PG&E and Seller; or (ii) when PG&E notifies Seller that PG&E can accommodate Seller's Facility in PG&E's

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<sup>2</sup> Governmental agencies which have an established record of self-insurance may provide the required coverage through self-insurance.

proportionate share of the statewide cumulative total of 250 MW as specified in PUC Section 399.20(e), and shall remain in effect until the conclusion of the Delivery Term or unless terminated sooner pursuant to Section 10.3 of this Agreement (the "Term"). All indemnity rights shall survive the termination of this Agreement for twelve (12) months.

10.2 Termination Event. Buyer shall be entitled to terminate the Agreement upon the occurrence of any of the following, each of which is a "Termination Event":

(a) The Facility has not achieved Commercial Operation within eighteen (18) months of the Execution Date of this Agreement;

(b) Seller has not sold or delivered energy from the Facility to PG&E for a period of twelve (12) consecutive months;

(c) Seller breaches its covenant to maintain its status as an ERR as set forth in Section 4.3.2. of the Agreement.

### 10.3 Termination.

10.3.1 Declaration of a Termination Event. If a Termination Event has occurred and is continuing, Buyer shall have the right to: (a) send notice, designating a day, no earlier than five days after such notice is deemed to be received (as provided in Section 8) and no later than 20 days after such notice is deemed to be received (as provided in Section 8), as an early termination date of this Agreement ("Early Termination Date") unless Seller has timely communicated with Buyer and the Parties have agreed to resolve the circumstances giving rise to the termination Event; (b) accelerate all amounts owing between the Parties; and (c) terminate this Agreement and end the Delivery Term effective as of the Early Termination Date.

10.3.2 Release of Liability for Termination Event. Upon termination of this Agreement pursuant to Section 10.3.1, neither Party shall be under any further obligation or subject to liability hereunder, except with respect to the indemnity provision in Section 6 hereof, which shall remain in effect for a period of 12 months following the Early Termination Date.

## 11. SCHEDULING

11.1 Scheduling Obligations. PG&E shall be Seller's designated Scheduling Coordinator (as defined by CAISO tariff). PG&E will schedule Seller's project using Prudent Utility Practices and Seller shall employ Prudent Utility Practices and exercise reasonable efforts to operate and maintain its project. All generation interconnection and scheduling services shall be performed in accordance with all applicable operating policies, criteria, guidelines and tariffs of the CAISO or its successor, and any other generally accepted operational requirements. Seller, at its own expense, shall be responsible for complying with all applicable contractual, metering and interconnection requirements. Seller shall promptly notify PG&E of significant (i.e., greater than 100 kW) changes to its energy schedules using

PG&E's web site (see Appendix D). Seller will exercise reasonable efforts to comply with conditions that might arise if the CAISO modifies or amends its tariffs, standards, requirements, and/or protocols in the future.

## 11.2 CAISO Charges.

11.2.1 CAISO Charge Obligations. PG&E and Seller shall cooperate to minimize CAISO delivery imbalances and any resulting fees, liabilities, assessments or similar charges assessed by the CAISO ("CAISO Charges") to the extent possible, and shall each promptly notify the other as soon as possible of any material loss of system capability, deviation or imbalance that is occurring or has occurred. Seller shall reimburse PG&E for any CAISO Charges PG&E incurs as a result of Seller's loss of system capability, deviation or imbalance. Any such CAISO Charges reimbursable to PG&E shall be limited to the period until the commencement of the next settlement period following Seller's notification for which the delivery schedule can be adjusted. Notwithstanding anything to the contrary herein, in the event Seller makes a change to its schedule on the actual date and time of delivery for any reason (other than an adjustment imposed by CAISO) which results in differences between the project's actual generation and the scheduled generation (whether in part or in whole), Seller shall use reasonable efforts to notify PG&E. PG&E will make commercially reasonable efforts to accommodate Seller's changes and mitigate any imbalance penalties or charges levied for such changes.

11.2.2 CAISO Penalties. Seller shall be responsible for any "non-Performance Penalties" assessed to PG&E by the CAISO ("CAISO Penalties"), under the CAISO Tariff Enforcement Protocol, and not due to any fault of PG&E, which shall include, without limitation, any deviation, imbalance or uninstructed energy charges or penalties payable to the CAISO that are due to the fault of Seller. To the extent that Seller materially deviates from its energy schedules (other than an adjustment imposed by the CAISO, a deviation due to any fault of PG&E, or an excused Seller failure to deliver, whether for reasons of Force Majeure or otherwise), and such departure results in CAISO Penalties being assessed to PG&E, such CAISO Penalties shall be passed on to Seller. Any such CAISO Penalties passed on to Seller shall be limited to the period until the commencement of the next settlement period following Seller's notification (as described above) for which the delivery schedule can be adjusted.

## 12. CONFIDENTIALITY

Seller authorizes PG&E to release to the California Energy Commission ("CEC") and/or the CPUC information regarding the Facility, including the Seller's name and location, and the size, location and operational characteristics of the Facility, the Term, the ERR type, the Initial Energy Delivery Date and the net power rating of the Facility, as requested from time to time pursuant to the CEC's or CPUC's rules and regulations.

## 13. ASSIGNMENT

Neither Party shall assign this Agreement or its rights hereunder without the prior written consent of the other Party, which consent shall not be unreasonably withheld; provided, however, either Party may, without the consent of the other Party (and without relieving itself from liability hereunder), transfer, sell, pledge, encumber or assign this

Agreement or the accounts, revenues or proceeds hereof to its financing providers and the financing provider(s) shall assume the payment and performance obligations provided under this Agreement with respect to the transferring Party provided, however, that in each such case, any such assignee shall agree in writing to be bound by the terms and conditions hereof and so long as the transferring Party delivers such tax and enforceability assurance as the non-transferring Party may reasonably request.

14. APPLICABLE LAW

THIS AGREEMENT AND THE RIGHTS AND DUTIES OF THE PARTIES HEREUNDER SHALL BE GOVERNED BY AND CONSTRUED, ENFORCED AND PERFORMED IN ACCORDANCE WITH THE LAWS OF THE STATE OF CALIFORNIA, WITHOUT REGARD TO PRINCIPLES OF CONFLICTS OF LAW. TO THE EXTENT ENFORCEABLE AT SUCH TIME, EACH PARTY WAIVES ITS RESPECTIVE RIGHT TO ANY JURY TRIAL WITH RESPECT TO ANY LITIGATION ARISING UNDER OR IN CONNECTION WITH THIS AGREEMENT.

15. SEVERABILITY

If any provision in this Agreement is determined to be invalid, void or unenforceable by the CPUC or any court having jurisdiction, such determination shall not invalidate, void, or make unenforceable any other provision, agreement or covenant of this Agreement and the Parties shall use their best efforts to modify this Agreement to give effect to the original intention of the Parties.

16. COUNTERPARTS

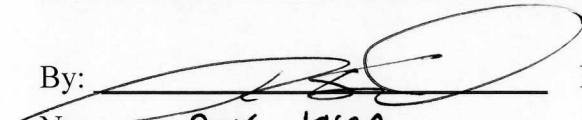
This Agreement may be executed in one or more counterparts each of which shall be deemed an original and all of which shall be deemed one and the same Agreement. Delivery of an executed counterpart of this Agreement by facsimile or PDF transmission will be deemed as effective as delivery of an originally executed counterpart. Each Party delivering an executed counterpart of this Agreement by facsimile or PDF transmission will also deliver an originally executed counterpart, but the failure of any Party to deliver an originally executed counterpart of this Agreement will not affect the validity or effectiveness of this Agreement.

17. GENERAL


The CPUC has reviewed and approved this Agreement. No amendment to or modification of this Agreement shall be enforceable unless reduced to writing and executed by both parties. This Agreement shall not impart any rights enforceable by any third party other than a permitted successor or assignee bound to this Agreement. Waiver by a Party of any default by the other Party shall not be construed as a waiver of any other default. The term "including" when used in this Agreement shall be by way of example only and shall not be considered in any way to be in limitation. The headings used herein are for convenience and reference purposes only.

IN WITNESS WHEREOF, each Party has caused this Agreement to be duly executed by its authorized representative as of the date of last signature provided below.

**PACIFIC GAS AND ELECTRIC COMPANY**

By:  Date: May 27, 2009  
Name: ROY KUGA  
Title: VP, ENERGY SUPPLY

**SELLER**

By:  Date: 15 May 2009  
Name: Gregory John Stangl  
Title: Managing Member



**Appendix A**  
**DEFINITIONS**

“Business Day” means any day except a Saturday, Sunday, or a Federal Reserve Bank holiday during the hours of 8:00 a.m. and 5:00 p.m. local time for the relevant Party’s principal place of business where the relevant Party in each instance shall be the Party from whom the notice, payment or delivery is being sent.

“CAISO” means the California Independent System Operator Corporation or any successor entity performing similar functions.

“CAISO Tariff” means the CAISO FERC Electric Tariff, Third Replacement Volume No. 1, as amended from time to time.

“California Renewables Portfolio Standard” means the renewable energy program and policies established by Senate Bill 1038 and 1078, codified in California Public Utilities Code Sections 399.11 through 399.20 and California Public Resources Code Sections 25740 through 25751, as such provisions may be amended or supplemented from time to time.

“CEC” means the California Energy Commission or its successor agency.

“Commercial Operation Date” means the date on which the Facility is operating and is in compliance with applicable interconnection and system protection requirements, and able to produce and deliver energy to PG&E pursuant to the terms of this Agreement.

“Contract Year” means a period of twelve (12) consecutive months with the first Contract Year commencing on the first day of the month immediately following the Initial Energy Delivery Date and each subsequent Contract Year commencing on the anniversary of the Initial Energy Delivery Date.

“CPUC” means the California Public Utilities Commission, or successor entity.

“Delivery Point” means the point of interconnection to the PG&E distribution system.

“Dispatch Down Period” means: (a) curtailments ordered by the CAISO or PG&E as a result of a System Emergency, as defined in the CAISO Tariff; or (b) scheduled or unscheduled maintenance on PG&E’s transmission, distribution or interconnection facilities that prevents Buyer from receiving Delivered Energy at the Delivery Point. Notwithstanding the foregoing sentence, Buyer shall have the option in its sole discretion to curtail Seller’s energy deliveries up to 50 (fifty) hours each calendar year.

“Eligible Renewable Energy Resource” or “ERR” has the meaning set forth in Public Utilities Code Sections 399.12 and California Public Resources Code Section 25741, as either code provision may be amended or supplemented from time to time.

“Execution Date” means the latest signature date found at the end of the Agreement.

“FERC” means the Federal Energy Regulatory Commission or any successor

government agency.

“Forced Outage” means any unplanned reduction or suspension of the electrical output from the Facility resulting in the unavailability of the Facility, in whole or in part, in response to a mechanical, electrical, or hydraulic control system trip or operator-initiated trip in response to an alarm or equipment malfunction and any other unavailability of the Facility for operation, in whole or in part, for maintenance or repair that is not a scheduled maintenance outage and not the result of Force Majeure.

“Force Majeure” means any event or circumstance which wholly or partly prevents or delays the performance of any material obligation arising under this Agreement, but only if and to the extent (i) such event is not within the reasonable control, directly or indirectly, of the Party seeking to have its performance obligation(s) excused thereby, (ii) the Party seeking to have its performance obligation(s) excused thereby has taken all reasonable precautions and measures to prevent or avoid such event or mitigate the effect of such event on such Party’s ability to perform its obligations under this Agreement and which by the exercise of due diligence such Party could not reasonably have been expected to avoid and which by the exercise of due diligence it has been unable to overcome, and (iii) such event is not the direct or indirect result of the negligence or the failure of, or caused by, the Party seeking to have its performance obligations excused thereby. Force Majeure shall not be based on: (i) PG&E’s inability economically to use or resell the energy or capacity purchased hereunder; (ii) Seller’s ability to sell the energy, capacity or other benefits produced by or associated with the Facility at a price greater than the price set forth in this Agreement, (iii) Seller’s inability to obtain approvals of any type for the construction, operation, or maintenance of the Facility; (iv) Seller’s inability to obtain sufficient fuel to operate the Facility, except if Seller’s inability to obtain sufficient fuel is caused by an event of Force Majeure of the specific type described in any of subsections (i) through (iv) of this definition of Force Majeure; (v) a Forced Outage except where such Forced Outage is caused by an event of Force Majeure of the specific type described in any of subsections (i) through (iv) of this definition of Force Majeure; (vi) a strike or labor dispute limited only to Seller, Seller’s affiliates, the Engineering, Procurement, and Construction Contractor or subcontractors thereof; or (vii) any equipment failure not caused by an event of Force Majeure of the specific type described in any of subsections (i) through (iv) of this definition of Force Majeure.

“Green Attributes” means any and all credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, attributable to the generation from the Facility, and its displacement of conventional energy generation. Green Attributes include but are not limited to Renewable Energy Credits, as well as: (1) any avoided emissions of pollutants to the air, soil or water such as sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO) and other pollutants; (2) any avoided emissions of carbon dioxide (CO2), methane (CH4) nitrous oxide, hydrofluoro carbons, perfluoro carbons, sulfur hexafluoride and other greenhouse gases (GHGs) that have been determined by the United Nations Intergovernmental Panel on Climate Change, or otherwise by law, to contribute to the actual or potential threat of altering the Earth’s climate by trapping heat in the atmosphere; (3) the reporting rights to these avoided emissions such as Green Tag Reporting Rights. Green Tag Reporting Rights are the right of a Green Tag Purchaser to report the ownership of accumulated Green Tags in

compliance with federal or state law, if applicable, and to a federal or state agency or any other party at the Green Tag Purchaser's discretion, and include without limitation those Green Tag Reporting Rights accruing under Section 1605(b) of The Energy Policy Act of 1992 and any present or future federal, state, or local law, regulation or bill, and international or foreign emissions trading program. Green Tags are accumulated on MWh basis and one Green Tag represents the Green Attributes associated with one (1) MWh of energy. Green Attributes do not include: (i) any energy, capacity, reliability or other power attributes from the Facility; (ii) production tax credits associated with the construction or operation of the energy projects and other financial incentives in the form of credits, reductions, or allowances associated with the project that are applicable to a state or federal income taxation obligation; (iii) fuel-related subsidies or "tipping fees" that may be paid to Seller to accept certain fuels, or local subsidies received by the generator for the destruction of particular pre-existing pollutants or the promotion of local environmental benefits; or (iv) emission reduction credits encumbered or used by the Facility for compliance with local, state, or federal operating and/or air quality permits. If Seller's Facility is a biomass or landfill gas facility and Seller receives any tradable Green Attributes based on the greenhouse gas reduction benefits or other emission offsets attributed to its fuel usage, it shall provide Buyer with sufficient Green Attributes to ensure that there are zero net emissions associated with the production of electricity from such facility.

"Law" means any statute, law, treaty, rule, regulation, ordinance, code, permit, enactment, injunction, order, writ, decision, authorization, judgment, decree or other legal or regulatory determination or restriction by a court or Governmental Authority of competent jurisdiction, including any of the foregoing that are enacted, amended, or issued after the Execution Date, and which becomes effective during the Delivery Term; or any binding interpretation of the foregoing.

"Market Price Referent" means the market price referent applicable to this Agreement, as determined by the CPUC in accordance with Public Utilities Code Section 399.15(c), as may be amended or modified from time to time.

"Renewable Energy Credit" has the meaning set forth in Public Utilities Code Section 399.12(g), as may be amended from time to time or as further defined or supplemented by Law.

"Resource Adequacy Benefits" means the rights and privileges attached to the Facility that satisfy any entity's resource adequacy obligations, as those obligations are set forth in any Resource Adequacy Rulings and shall include any local, zonal or otherwise locational attributes associated with the Facility.

"Resource Adequacy Rulings" means CPUC Decisions 04-01-050, 04-10-035, 05-10-042, 06-06-064, 06-07-031 and any subsequent CPUC ruling or decision, or any other resource adequacy laws, rules or regulations enacted, adopted or promulgated by any applicable governmental authority, as such decisions, rulings, laws, rules or regulations may be amended or modified from time-to-time during the Delivery Term.

"Station use" means energy consumed within the Facility's electric energy



distribution system as losses, as well as energy used to operate the Facility's auxiliary equipment. The auxiliary equipment may include, but is not limited to, forced and induced draft fans, cooling towers, boiler feeds pumps, lubricating oil systems, plant lighting, fuel handling systems, control systems, and sump pumps.

"WREGIS" means the Western Renewable Energy Generating Information System or any successor renewable energy tracking program.

A handwritten signature or set of initials, possibly 'YS', located in the bottom right corner of the page.

**Appendix B**

**INITIAL ENERGY DELIVERY DATE CONFIRMATION LETTER**

In accordance with the terms of that certain Small Renewable Generator Power Purchase Agreement dated \_\_\_\_\_ (“Agreement”) by and between Pacific Gas and Electric Company (“PG&E”) and Ortigalita Power Company, LLC (“Seller”), this letter serves to document the parties further agreement that (i) the conditions precedent to the occurrence of the Initial Energy Delivery Date have been satisfied, and (ii) Seller has scheduled and PG&E has received the energy, as specified in the Agreement, as of this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_. This letter shall confirm the Initial Energy Delivery Date, as defined in the Agreement, as the date referenced in the preceding sentence.

IN WITNESS WHEREOF, each Party has caused this Agreement to be duly executed by its authorized representative as of the date of last signature provided below:

By:

By: Pacific Gas and Electric Company

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_



**Appendix C**  
**Time of Delivery (TOD) Periods & Factors**

<b>Monthly Period</b>	<b>Super-Peak<sup>1</sup></b>	<b>Shoulder<sup>2</sup></b>	<b>Night<sup>3</sup></b>
Jun – Sep	2.01	1.14	0.72
Oct.- Dec., Jan. & Feb.	1.09	.96	0.78
Mar. – May	1.13	0.86	0.63

Definitions:

1. Super-Peak (5x8) = HE (Hours Ending) 13 – 20 (Pacific Prevailing Time (PPT)), Monday - Friday (*except* NERC holidays) in the applicable Monthly Period.
2. Shoulder = HE 7 - 12, 21 and 22 PPT Monday - Friday (*except* NERC holidays); and HE 7 - 22 PPT Saturday, Sunday and *all* NERC holidays in the applicable Monthly Period.
3. Night (7x8) = HE 1 - 6, 23 and 24 PPT all days (*including* NERC holidays) in the applicable Monthly Period.

“NERC Holidays” mean the following holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. Three of these days, Memorial Day, Labor Day, and Thanksgiving Day occur on the same day each year. Memorial Day is the last Monday in May; Labor Day is the first Monday in September; and Thanksgiving Day is the 4<sup>th</sup> Thursday in November. New Year’s Day, Independence Day, and Christmas Day, by definition, are predetermined dates each year. However, in the event they occur on a Sunday, the “NERC Holiday” is celebrated on the Monday immediately following that Sunday. However, if any of these days occur on a Saturday, the “NERC Holiday” remains on that Saturday.

## Appendix D

### COUNTERPARTY NOTIFICATION AND FORECASTING REQUIREMENTS

#### A. NOTIFICATION REQUIREMENTS FOR START-UP AND SHUTDOWN

Prior to paralleling to or after disconnecting from the electric system, ALWAYS notify your designated Distribution Operator as follows:

1. Call your Distribution Operator for permission to parallel before any start-up.
2. Call your Distribution Operator again after start-up with parallel time.
3. Call your Distribution Operator after any separation and report separation time as well as date and time estimate for return to service.

#### B. FORECASTING REQUIREMENTS

1. Seller shall abide with all established requirements and procedures described below:

(a) Generating Facilities 1000 kW and greater must comply with the CAISO Tariff and Protocols while generating facilities under 1000 kW must comply with all applicable interconnection, communication and metering rules; and

(b) Generating Facilities 100 kW and greater must provide a weekly forecast of their expected generation output.

2. Weekly Energy Forecasting Procedures.

Seller must meet all of the following requirements specified below:

Beginning the Wednesday prior to the planned Initial Operation of the Generating Facility, Seller will electronically provide PG&E with an Energy Forecast for the next calendar week, by no later than 5 PM Wednesday of the week preceding the week covered by the Energy Forecast.

The Weekly Energy Forecast submitted to PG&E shall:

- a) Not include any anticipated or expected electric energy losses;
- b) Be using PG&E's website at <https://www.pge.com/qic> with Login and password information to be provided, or as otherwise instructed by PG&E;
- c) Include Seller's contact information;
- d) Limit Day Ahead forecast changes to no less than 100 kW.

2. Outage and Scheduled Maintenance Reporting Procedures.

Send notices of extended outages and proposed scheduled maintenances to PG&E's Internet site (QFSchedules@pge.com). Access and your password to this web site will be provided upon execution of the power purchase agreement.

A handwritten signature or set of initials, possibly "GS", located in the bottom right corner of the page.

# APPENDIX E

## Executive Summary

Ortigalita Power Company is a California LLC (“OPC”), established as a joint venture in March 2009 between Parreira Almond Processing Co, a California General Partnership (“PAPC”) and Phoenix Biomass Energy, Inc. (“Phoenix Energy”) a Delaware corporation, registered to do business in California. PAPC, a third generation family owned business, is one of the leading almond hulling and packing plants in the San Joaquin Valley. Phoenix Energy and its Parent Company, Kosciuszko Partners, LLC, have been manufacturing and installing biomass conversion systems in Europe since 2000 and have been active in the US since 2007. The Phoenix Energy solution provides industrial customers with clean, renewable and carbon negative power at rates that are superior to present providers of electricity and gas.

OPC will own and operate a 500 KW biomass conversion plant and provide primary power to PAPC, at an estimated total cost of \$1,500,000. In addition, OPC will sell excess power to PG&E under a 15 year, fixed price contract. The business also generates several other revenue streams such as federal tax credits for the production of renewable energy, Renewable Energy Certificates, the sale of biochar, which has value due to its carbon sequestration properties and as a soil amendment, and potentially carbon credits.

In addition to producing valuable electricity and heat, OPC will reduce open-field burning of an estimated 3,900 tons of agricultural residues, as well as diverting pallet waste from local landfills or less environmentally sound combustion in burn plants. Finally and potentially most importantly, the unit will produce biochar as a by product of the gasification process which has the potential, when used as Alternative Daily Cover, or as a soil amendment to sequester carbon in solid form for thousands of years<sup>1</sup>

Using a biomass gasification system, these waste products will be converted into a syngas which will be used to power a modified Caterpillar 3516 genset. This process will produce an estimated 3.9 million kilowatt hours of electricity and over 15 billion BTUs of useful heat for drying, displacing current propane use. PAPC will pay OPC the current PG&E retail rates for power consumed and will take all its power from OPC first, importing power from PG&E only when OPC cannot supply enough to meet demand. Since PAPC’s plant operates at full electrical load only 4 months out of the year, the majority of the time OPC will export power under contract with PG&E. In the first year alone, based on today’s contract rates, OPC will sell \$132,000 worth of power to the co-located almond processing plant and \$273,000 in electricity to PGE under a renewable power purchase agreement.

The project has received an authority to construct permit from the San Joaquin Valley APCD and has been certified RPS eligible by the California Energy Commission.

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<sup>1</sup> “Significant Climate Change Mitigation is Available from Biochar,” IGSD, 24 July 2008

# APPENDIX E

## The Technology

The Phoenix system converts biomass into a hydrogen-rich synthesis gas (“syngas”) through the process of gasification. This syngas is then used to fuel a specially modified natural gas genset that provides renewable electricity and heat.

The gasification process is a thermo-chemical one that ‘cooks’ biomass in an oxygen starved environment. By depriving the fuel of sufficient oxygen the biomass does not burn, but rather gives off a hydrogen-rich syngas. As the biomass gives off the syngas, it is transformed into charcoal and ash of approximately 1-5% of the weight of biomass fuel. The syngas is then captured, cleaned and cooled before being sent as fuel to the genset. The genset will be the Caterpillar 3516 and equipped with a Miratech 3-way catalyst. This ensures that there are readily available spare parts and maintenance technicians available locally.

### Fuel Preparation

Fuel storage will be provided in a hopper adjacent to the system which will automatically feed the gasifier by way of a bucket elevator. When using Almond Shell as fuel this will be diverted from the facility’s existing waste processing system and fed directly into the fuel hopper, either via a front end loader or mechanically, utilizing the existing shell auger system. Once in the Phoenix hopper, our system uses a robust agricultural platform and fuel metering sensors, to continuously feed the gasification unit in small batches as needed.

### Gasification

The downdraft gasifier is essentially a chemical reactor where various complex physical and chemical processes take place. Biomass gets dried, heated, gasified, partially oxidized and reduced in this reactor as it flows through it. Four distinct processes take place in a gasifier: fuel drying; gasification; oxidation; and reduction.

Although there is a considerable overlap, each process can be considered to be occupying a separate zone, in which fundamentally different chemical and thermal reactions take place. The fuel must pass through all of these zones to be completely converted.

The downdraft gasifier is under vacuum drawn by a high-pressure blower (“negative air”). The essential characteristic of the downdraft gasifier design is that the tars given off in the gasification zone are drawn through the oxidation zone, where they will be broken down. When this happens, the energy they contain is usefully recovered and the mixture of gases in the exit stream is relatively clean. Expected total gas contaminant concentration prior to filtration is up to 100 times less than in is seen in updraft and fluid-bed gasification.

### Gas Cleansing

After the syngas has been extracted from the gasifier it is cooled and cleaned by a series of scrubbers and filters. First the gas passes through a venturi scrubber, which is known to remove particulate in the submicrometer range. The gas is then passed through a series of four filters.



## APPENDIX E

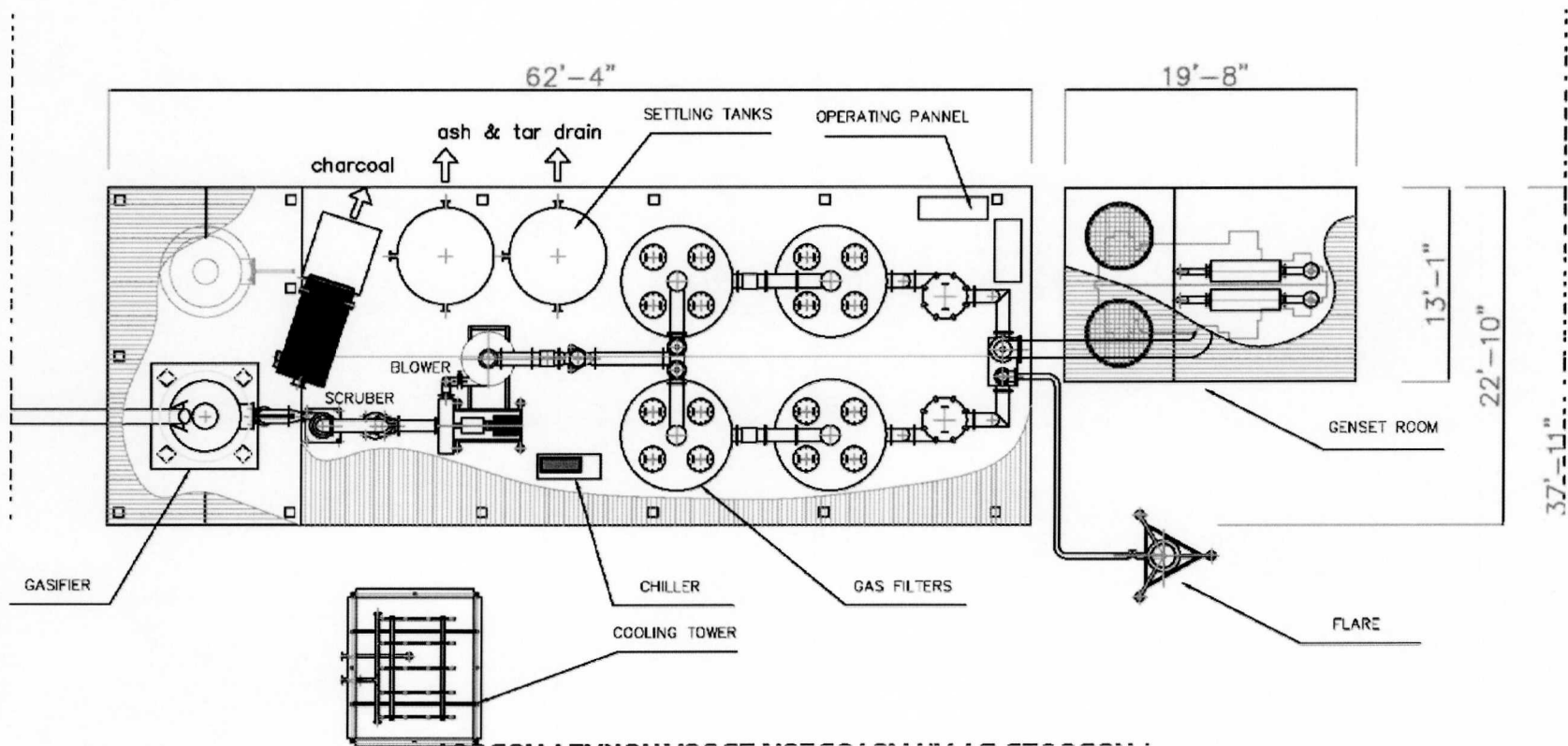
The first is a coarse filter to coalesce residual liquids. The second is a rejuvenating active sawdust filter, the third is a similar passive filter, and the fourth is a fabric bag filter. The filter media are sawdust and biomass chips so instead of using expensive synthetic filters that need to be thrown away, the used filter media are simply placed into the fuel hopper and consumed.

### **Power Generation**

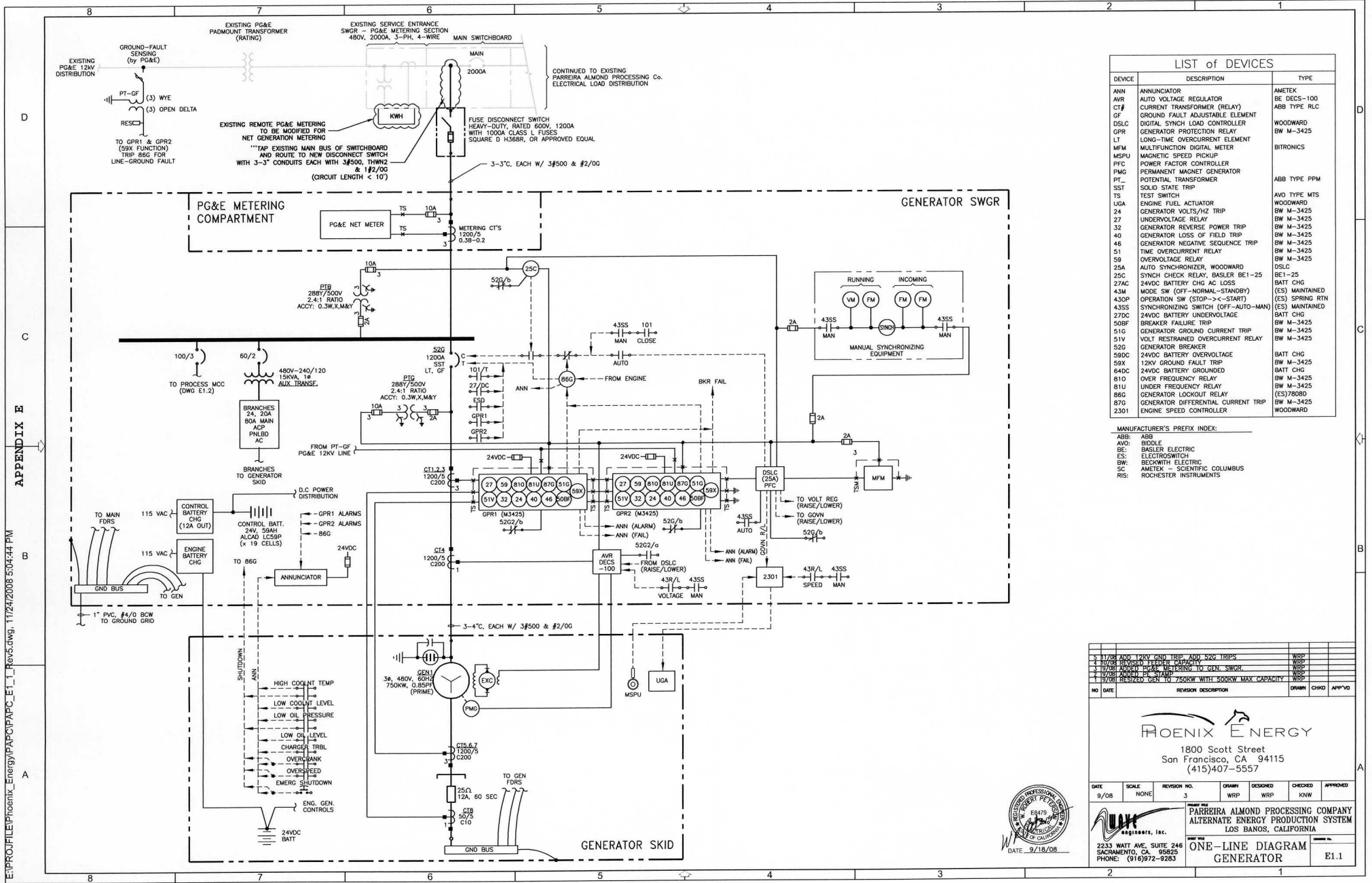
Power generation is based on a spark-ignited engine genset. We have selected and permitted a Caterpillar 3516. Phoenix Energy will customize the engine to allow syngas carburetion and derate to 700 hp, providing approximate 522 KW gross output. Paralleling switchgear will be provided as determined in consultation with PGE.

We believe the CAT 3516 offers the most attractive engine options for the project. First and foremost there is a large secondary market for CAT engines and the service coverage in the region is excellent. As is local inventory of wear items. These engines also have unique features of better fuel economy, better emissions, durability, extended oil and filter change period. They run on variety of gaseous fuels like natural gas, bio-gas, sewage gas, LPG etc. The CAT engines have been designed to combine compact size, low emission levels and excellent performance characteristics of high-speed technology with the medium speed benefits of water-cooled exhaust valve seats, steel-crown pistons & combustion control.

APPENDIX E



88



LIST OF DEVICES		
DEVICE	DESCRIPTION	TYPE
ANN	ANNUNCIATOR	AMETEK
AVR	AUTO VOLTAGE REGULATOR	BE DECS-100
CT#	CURRENT TRANSFORMER (RELAY)	ABB TYPE RLC
GF	GROUND FAULT ADJUSTABLE ELEMENT	
DSLCL	DIGITAL SYNCH LOAD CONTROLLER	WOODWARD
GPR	GENERATOR PROTECTION RELAY	BW M-3425
LT	LONG-TIME OVERCURRENT ELEMENT	
MFM	MULTIFUNCTION DIGITAL METER	BITRONICS
MSPU	MAGNETIC SPEED PICKUP	
PFC	POWER FACTOR CONTROLLER	
PMG	PERMANENT MAGNET GENERATOR	
PT	POTENTIAL TRANSFORMER	ABB TYPE PPM
SST	SOLID STATE TRIP	AVO TYPE MTS
TS	TEST SWITCH	WOODWARD
UGA	ENGINE FUEL ACTUATOR	
24	GENERATOR VOLTS/Hz TRIP	BW M-3425
27	UNDERVOLTAGE RELAY	BW M-3425
32	GENERATOR REVERSE POWER TRIP	BW M-3425
40	GENERATOR LOSS OF FIELD TRIP	BW M-3425
46	GENERATOR NEGATIVE SEQUENCE TRIP	BW M-3425
51	TIME OVERCURRENT RELAY	BW M-3425
59	OVERVOLTAGE RELAY	BW M-3425
25A	AUTO SYNCHRONIZER, WOODWARD	DSLCL
25C	SYNCH CHECK RELAY, BASLER BE1-25	BE1-25
27AC	24VDC BATTERY CHG AC LOSS	BATT CHG
43M	MODE SW (OFF-NORMAL-STANDBY)	(ES) MAINTAINED
43OP	OPERATION SW (STOP->START)	(ES) SPRING RTN
43SS	SYNCHRONIZING SWITCH (OFF-AUTO-MAN)	(ES) MAINTAINED
27DC	24VDC BATTERY UNDERVOLTAGE	BATT CHG
50BF	BREAKER FAILURE TRIP	BW M-3425
51G	GENERATOR GROUND CURRENT TRIP	BW M-3425
51V	VOLT RESTRAINED OVERCURRENT RELAY	BW M-3425
52G	GENERATOR BREAKER	
59DC	24VDC BATTERY OVERVOLTAGE	BATT CHG
59X	12KV GROUND FAULT TRIP	BATT CHG
64DC	24VDC BATTERY GROUNDED	BATT CHG
810	OVER FREQUENCY RELAY	BW M-3425
81U	UNDER FREQUENCY RELAY	BW M-3425
86G	GENERATOR LOOKOUT RELAY	(ES) 78080
87G	GENERATOR DIFFERENTIAL CURRENT TRIP	BW M-3425
2301	ENGINE SPEED CONTROLLER	WOODWARD

MANUFACTURER'S PREFIX INDEX:

ABB:	ABB
AVO:	BIDDLE
BE:	BASLER ELECTRIC
ES:	ELECTROSWITCH
BW:	BECKWITH ELECTRIC
AM:	AMETEK - SCIENTIFIC COLUMBUS
RS:	ROCHESTER INSTRUMENTS

NO	DATE	REVISION DESCRIPTION	DRWN	CHKD	APP'VD
3	1/08	ADD 12KV GND TRIP, ADD 52G TRIPS			WRP
4	1/08	REVISED TRIP SETTING TO GEN SWGR			WRP
5	1/08	ADD 12KV GND TRIP TO GEN SWGR			WRP
6	1/08	REVISED TRIP SETTING TO GEN SWGR			WRP
7	1/08	REVISED TRIP SETTING TO GEN SWGR			WRP
8	1/08	REVISED TRIP SETTING TO GEN SWGR			WRP
9	1/08	REVISED TRIP SETTING TO GEN SWGR			WRP
10	1/08	REVISED TRIP SETTING TO GEN SWGR			WRP

**PHOENIX ENERGY**
  
 1800 Scott Street
   
 San Francisco, CA 94115
   
 (415)407-5557

DATE	SCALE	REVISION NO.	DRWN	DESIGNED	CHECKED	APPROVED
9/08	NONE	3	WRP	WRP	KNW	

**PHOENIX ENGINEERS, INC.**
  
 2233 WATT AVE, SUITE 246
   
 SACRAMENTO, CA 95825
   
 PHONE: (916)972-9283

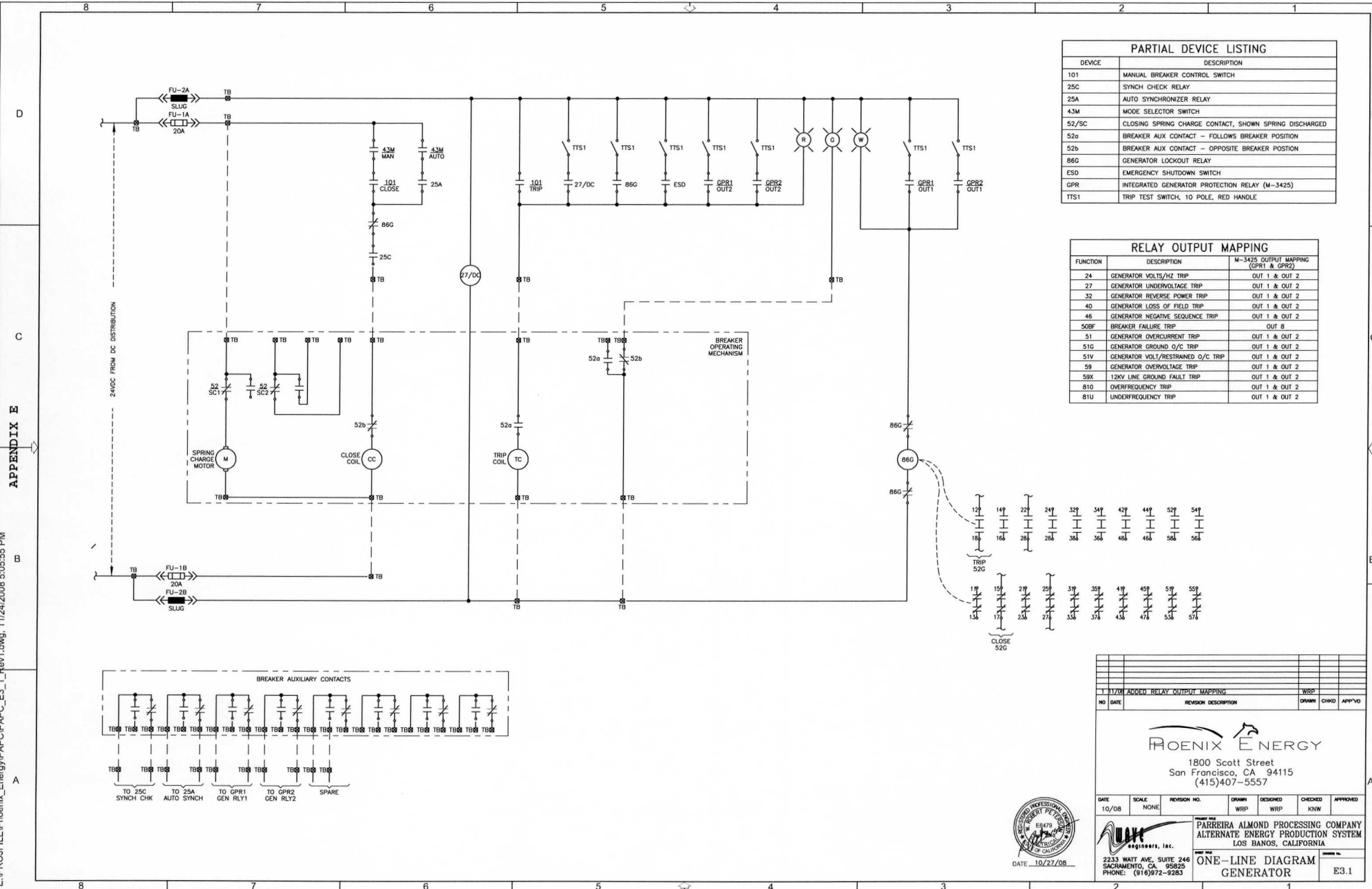
**ONE-LINE DIAGRAM**
  
**GENERATOR**
  
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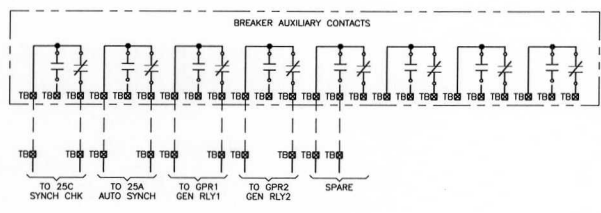
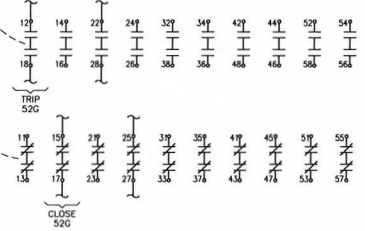
APPENDIX B

48



PARTIAL DEVICE LISTING	
DEVICE	DESCRIPTION
101	MANUAL BREAKER CONTROL SWITCH
25C	SYNCH CHECK RELAY
25A	AUTO SYNCHRONIZER RELAY
43M	MODE SELECTOR SWITCH
52/SC	CLOSING SPRING CHARGE CONTACT, SHOWN SPRING DISCHARGED
52a	BREAKER AUX CONTACT - FOLLOWS SPRING POSITION
52b	BREAKER AUX CONTACT - OPPOSITE BREAKER POSITION
86G	GENERATOR LOCKOUT RELAY
ESD	EMERGENCY SHUTDOWN SWITCH
GPR	INTEGRATED GENERATOR PROTECTION RELAY (M-3425)
TTS1	TRIP TEST SWITCH, 10 POLE, RED HANDLE

RELAY OUTPUT MAPPING		
FUNCTION	DESCRIPTION	M-3425 OUTPUT MAPPING (GPR1 & GPR2)
24	GENERATOR VOLTS/HZ TRIP	OUT 1 & OUT 2
27	GENERATOR UNDERVOLTAGE TRIP	OUT 1 & OUT 2
32	GENERATOR REVERSE POWER TRIP	OUT 1 & OUT 2
40	GENERATOR LOSS OF FIELD TRIP	OUT 1 & OUT 2
46	GENERATOR NEGATIVE SEQUENCE TRIP	OUT 1 & OUT 2
50BF	BREAKER FAILURE TRIP	OUT 8
51	GENERATOR OVERCURRENT TRIP	OUT 1 & OUT 2
51G	GENERATOR GROUND O/C TRIP	OUT 1 & OUT 2
51V	GENERATOR VOLT/RESTRAINED O/C TRIP	OUT 1 & OUT 2
59	GENERATOR OVERVOLTAGE TRIP	OUT 1 & OUT 2
59X	12KV LINE GROUND FAULT TRIP	OUT 1 & OUT 2
810	OVERFREQUENCY TRIP	OUT 1 & OUT 2
81U	UNDERFREQUENCY TRIP	OUT 1 & OUT 2



NO		DATE		REVISION DESCRIPTION		WRP	
						DRAWN	
						CHKD	
						APP'D	

**PHOENIX ENERGY**  
1800 Scott Street  
San Francisco, CA 94115  
(415)407-5557

DATE	SCALE	REVISION NO.	DRAWN	DESIGNED	CHECKED	APPROVED
10/08	NONE		WRP	WRP	KVW	

**PARREIRA ALMOND PROCESSING COMPANY  
ALTERNATE ENERGY PRODUCTION SYSTEM  
LOS BANOS, CALIFORNIA**

**ONE-LINE DIAGRAM  
GENERATOR**

E3.1



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APPENDIX E