

Commonwealth Energy Biogas/PV Mini-Grid Renewable Resources Program

Making Renewables Part of an Affordable and Diverse Electric System in California

Contract No. 500-00-036

Obtain Required Permits

Project No. 0 Program Administration

Task 0.2.5b Deliverable

Prepared For:
California Energy Commission
Public Interest Energy Research Renewable Program

Prepared By:

Itron
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February 2006

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Preface

The Public Interest Energy Research (PIER) Program supports public interest energy research and development that will help improve the quality of life in California by bringing environmentally safe, affordable, and reliable energy services and products to the marketplace.

The PIER Program, managed by the California Energy Commission (Commission), annually awards up to \$62 million to conduct the most promising public interest energy research by partnering with research, development, and demonstration (RD&D) organizations, including individuals, businesses, utilities, and public or private research institutions. PIER funding efforts are focused on the following six RD&D program areas:

- Buildings End-Use Energy Efficiency
- Industrial/Agricultural/Water End-Use Energy Efficiency
- Renewable Energy
- Environmentally-Preferred Advanced Generation
- Energy-Related Environmental Research
- Strategic Energy Research

For more information on the PIER Program, please visit the Commission's web site at: <http://www.energy.ca.gov/research/index.html> or contact the Commission's Publications Unit at 916-654-5200. For Commonwealth Program-specific information, please visit the Program web site at: <http://www.pierminigrid.org>.

What follows is a report for the **California Energy Commission Public Interest Energy Research Program, Contract Number 500-00-036**, generated by the **Commonwealth Energy Team**. The report is entitled **Obtain Required Permits**. This programmatic research, development, and demonstration contributes to the **Renewable Energy** component of the PIER program.

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Introduction

In June 2001, the Commonwealth Energy Team was awarded a programmatic contract under the California Energy Commission's Public Interest Energy Research (PIER) Program to conduct research on strategies for making renewable energy more affordable in California. The Commonwealth Energy approach involves assessing the combined potential of biogas and photovoltaic (PV) resources in a defined study area and identifying how these resources could be developed in a complementary and cost-effective manner. The Commonwealth Energy Team conducted this research in a real world setting so that the findings could be applied elsewhere in California and thereby benefit more California ratepayers. The local area Commonwealth Energy selected for its renewable energy research activities is the Chino Basin, located southeast of Los Angeles and referred to in this report as the "mini-grid" or "study area."

1.1 Program Background

The Chino Basin is rich in solar and biogas resources. Moreover, it is a rapidly growing area with substantial and yet increasing electrical loads. The underlying goal of the Commonwealth Energy PIER Renewables Mini-Grid Program is to identify potential Chino Basin Building Integrated PV (BIPV) and biogas energy projects, bring innovative technologies and business practices to these projects, assess the benefit to the local electricity distribution system (the "mini-grid"), and then use the findings to develop a business model for siting cost-effective, renewable energy projects. A description of the Commonwealth Energy PIER Program, including the results of some of the work undertaken to date, is presented on the program Web site at <http://www.pierminigrid.org>.

1.2 Overview of Project 0—Program Administration

The goal of Project 0 is to coordinate and integrate the technical and administrative elements of all of the Commonwealth Program projects. Under Project 0, Itron coordinates R&D efforts to ensure that Commonwealth Program deliverables meet PIER guidelines for technical and economic performance, and to ensure that deliverables are submitted within budget and schedule. Coordination activities include the creation of a Renewable Program and Project Technical Advisory Committees (RPAC/TAC), documentation of match funds committed and received, and identification and receipt of

all required permits for each program element, facilitation of critical project review (CPR) and RPAC meetings, creation and maintenance of a program website, and preparation of monthly and annual program reports. This report identifies all required permits for each Program activity under Task 0.2.5a.

1.3 Task 0.2.5b Obtain Required Permits

The purpose of this deliverable is to provide copies of permits required for the technologies implemented within each Project. Table 1-1 provides a review of the permit requirements for each technology research application and identifies the location and specific permit name and application number where applicable. Copies of the permits obtained can be found in Appendix A of this report.

Table 1-1: Listing of Permits Required Under Commonwealth Energy Programmatic Contract

Technology Application	Site Location	Permit Name	Application Number(s)	Permit Required
Bioreactor	Mid-Valley Landfill San Bernadino CA	Solid Waste Facilities Permit (SWFP)	Not Applicable	Amendment*
Bioreactor	Mid-Valley Landfill San Bernadino CA	Waste Discharge Requirement (WDR)	Not Applicable	Amendment*
Dairy Manure Slurry Holding Tank	IEUA RP-1 Ontario, CA	Permit to Construct and Operate	427533	Yes
sludge holding tank				
Two Blending Tanks				
Digester No.4				
Sludge Dewatering				
Ferric Chloride Storage and Injection				
Microturbines	IEUA RP-1 Ontario, CA	Rule 441 Research Permits	385949, 385950, 385953, 385954, 385960, 385961, 385963, 385985	Extension

Table 1: Listing of Permits Required Under Commonwealth Energy Programmatic Contract (Continued)

Technology Application	Site Location	Permit Name	Application Number(s)	Permit Required
Biogas Cleaning Systems	IEUA RP-1 Ontario, CA	N/A	N/A	No
Ultrasound TWAS Treatment	Riverside	N/A	N/A	No
60 kW BI-PV	Chino, CA IEUA Admin. Bldg.			See building permit/inspection
6 kW BI-PV	Davis, CA (PVUSA)			See building permit/inspection

* The SWFP and WDR permit amendments were not completed because the bioreactor project did not proceed past the planning stages.

Appendix A

Required Permits

Attached find the following required permits under PIER Commonwealth Contract Number 500-00-036:

A.1 Project 2.2 and Project 3.1 Required Permits

RP-1 (Facility ID Number: 009163)

Issuing Entity

South Coast Air Quality Management District

Application/Permit Numbers

- 385949,
- 385950,
- 385953, and
- 427533

Permit Expiration Date

December 31, 2005

RP-5 (Facility ID Number: 128863)

Issuing Entity

South Coast Air Quality Management District

Application/Permit Numbers

- 388289,
- 388290,
- 388291, and
- 388292

Permit Expiration Date

December 31, 2005



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

December 22, 2004

Mr. Jack E. Frazier
Manager of Training & Compliance
Inland Empire Utilities Agency (IEUA)
P.O. Box 9020
Chino Hills, CA 91709

RE: Extension for Rule 441 Research Permits for IEUA Regional Plants,
RP-1 (ID No. 009163) and RP-5 (ID No. 128863).

Dear Mr. Frazier:

The South Coast Air Quality Management District (SCAQMD), Toxics and Waste Management Team has received your letter, dated November 4, 2004, requesting extension for the Rule 441 Research permits granted earlier for the microturbines at the above mentioned IEUA facilities. For the reasons cited in your letter and your attempts to resolve operational problems to achieve stable working conditions, the following research permits have been further extended until December 31, 2005.

<u>Regional Plant Facility</u>	<u>Applications Nos.</u>	<u>Permits Expiration Date</u>
RP-1 (Facility ID No. 009163)	385949, 385950, 385953, 385954, 385960, 385961, 385963 & 385985.	December 31, 2005
RP-5 (Facility ID No. 128863)	388289 through 388292	December 31, 2005

Please be advised that no new permit application is required for the digester gas treatment project, to be undertaken by CH2M Hill, provided the treatment equipment do not vent to the atmosphere. In the mean time, please inform us about the progress being made and the expected source tests dates. Your attention and timely completion of the required source tests and reports are essential in determining future permit requirements for the digester gas fueled microturbines at your multiple facilities.

If you have any questions, please contact Mr. Gaurang Rawal at (909) 396-2543.

Sincerely,

Charles Tupac
A.Q.A.C. Supervisor
Toxics and Waste Management

CT: GCR



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178

AQMD

(909) 396-2000 • www.aqmd.gov

January 6, 2005

A/N 427533

INLAND EMPIRE UTILITIES AGENCY

P. O. Box 9020

Chino Hills, California 91709

Attention: Jack Frazier

Manager, Training and Compliance

Gentlemen:

PERMIT TO OPERATE EXPERIMENTAL RESEARCH OPERATIONS

The system described below is granted a Permit to Construct and Operate (Application Number 427533) as allowed by and under the conditions set forth by Rule 441 of the Rules and Regulations of the South Coast Air Quality Management District and is subject to the special conditions listed.

EQUIPMENT DESCRIPTION:

MODIFICATION TO A PORTION OF RP-1 WASTEWATER TREATMENT FACILITY AS DESCRIBED IN PERMIT TO OPERATE F23621 (A/N 278123) BY RETROFITTING THE FOLLOWING EQUIPMENT TO UTILIZE DAIRY MANURE AND FOOD WASTE IN THE DIGESTION PROCESS IN PLACE OF BIOSOLIDS:

1. DAIRY MANURE SLURRY HOLDING TANK, ENCLOSED.
2. SLUDGE HOLDING TANK, ENCLOSED.
3. TWO (2) BLENDING TANKS, ACID PHASE DIGESTION, EACH APPROX. 82,000 GALLON CAPACITY, EQUIPPED WITH STEAM INJECTION, AND ENCLOSED.
4. DIGESTER NO. 4, ANAEROBIC, FIXED ROOF, 65' DIA. X 30' - 0" H., 110,553 CUBIC FEET VOLUME, ENCLOSED.
5. SLUDGE DEWATERING WITH FILTER BELT PRESS, SLUDGE BELT CONVEYOR, AND A SLUDGE STORAGE HOPPER.
6. FERRIC CHLORIDE STORAGE AND INJECTION FACILITY.

LOCATED AT: 2450 EAST PHILADELPHIA (REGIONAL PLANT NO. 1)
ONTARIO, CA 91761

CONDITIONS:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
4. THIS RESEARCH PERMIT SHALL EXPIRE ON JANUARY 6, 2006. EXTENSION TO THIS PERMIT MAY BE GRANTED UPON WRITTEN REQUEST TO THE AQMD. THE REQUEST SHALL INCLUDE THE REASON FOR THE EXTENSION AND AN UPDATE OF THE PROGRESS FOR THE RESEARCH PROJECT.
5. IF THE OPERATION OF THIS DIGESTION PROCESS RESULTS IN CONSIDERABLE ODOR COMPLAINTS, UPON NOTIFICATION BY THE AQMD THE PROJECT SHALL CEASE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDER TAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
6. DURING EACH THERMOPHILIC OR MESOPHILIC ACID PHASE DIGESTION MODE OF OPERATION, AND THE RESPECTIVE TEST CYCLE (NUMBER OF DAYS), RECORDS FOR THE AMOUNT OF DAIRY MANURE AND WASTE FOOD ADDITION (LBS PER DAY) AND THE AMOUNT OF FERRIC CHLORIDE INJECTED SHALL BE KEPT.
7. FOR EACH THERMOPHILIC OR MESOPHILIC ACID PHASE DIGESTION MODE AND THE RESPECTIVE TEST CYCLE, MONTHLY DIGESTER GAS SAMPLE (DIGESTER TANK NO. 4, FOR THE FIRST 3-MONTHS AND ON A QUARTERLY BASIS THEREAFTER), SHALL BE COLLECTED AND ANALYZED USING AQMD METHOD 307-91 FOR SULFUR COMPOUNDS LISTED BUT NOT LIMITED TO:
 1. HYDROGEN SULFIDE
 2. CARBONYL SULFIDE
 3. CARBON DISULFIDE
 4. METHYL MERCAPTAN
 5. ETHYL MERCAPTAN
 6. DIMETHYL SULFIDE
 7. ISO-PROPYL MERCAPTAN
 8. N-PROPYL MERCAPTAN
 9. DIMETHYL DISULFIDE

IN ADDITION ON A MONTHLY BASIS, DIGESTER GAS SAMPLES SHALL BE ANALYZED FOR METHANE AND CARBON DIOXIDE. THE GAS SAMPLES SHALL BE COLLECTED FROM A POINT IN THE DIGESTER GAS LINE REPRESENTING ONLY THE GAS OF THE DIGESTER UNDER STUDY.

8. FOR EACH THERMOPHILIC OR MESOPHILIC DIGESTION MODE, DIGESTED BIOSOLIDS SHALL BE COLLECTED AND ANALYZED, ON A QUARTERLY BASIS, FOR TOTAL SOLIDS (TS %), TOTAL VOLATILE SOLIDS (TVS %), P_H, ALKALINITY, VOLATILE ACIDS, AMMONIA, AND DISSOLVED SULFATE.
9. THE AQMD SHALL BE NOTIFIED OF THE COMPLETION OR TERMINATION OF THE EXPERIMENTAL RESEARCH PROJECT NO LATER THAN FIVE DAYS AFTER THE COMPLETION OR TERMINATION DATE.

January 6, 2005

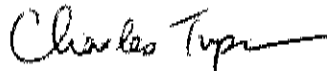
10. OPERATION OF THIS EQUIPMENT SHALL NOT RESULT IN THE RELEASE OF RAW DIGESTER GAS IN TO THE ATMOSPHERE.
11. WITHIN SIXTY DAYS AFTER THE COMPLETION OF THE EXPERIMENTAL RESEARCH PROJECT, A FINAL REPORT OF THE TEST PROGRAM AND RESULTS SHALL BE SUBMITTED TO THE AQMD.
12. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULE 1127.
13. ALL RECORDS SHALL BE KEPT ON FILE FOR OPERATING PARAMETERS AND TEST RESULTS FOR INSPECTION AND REVIEW. THE RECORDS SHALL BE RETAINED FOR AT LEAST TWO YEARS AND MADE AVAILABLE TO THE AQMD PERSONNEL UPON REQUEST.

It is your responsibility to comply with all laws, ordinances and regulations of other government agencies, which are applicable to this equipment.

THIS PERMIT TO OPERATE SHALL EXPIRE ON JANUARY 6, 2006.

If you have any questions, please call Mr. Gaurang Rawal at (909) 396-2543.

Yours truly,



Charles Tupac.
A.Q.A.C. Supervisor
Toxics and Waste Management Unit

CDT: AD: GCR

cc: Compliance, AQMD