

The Agricultural Pumping Efficiency Program - II

Helping California...



Policies and Procedures Manual

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The information in this Policies and Procedures manual is current as of June 21, 2005. The Agricultural Pumping Efficiency Program may be modified or terminated at any time. Please contact the Program for up-to-date information- especially if you are applying for an incentive rebate for a pump retrofit/repair project. The Program can be contacted by calling toll free (800) 845-6038. Or, log on to the Program web site at WWW.PUMPEFFICIENCY.ORG for more information and a knowledge-base for pumping efficiency.

Program Development and Management by:

Center for Irrigation Technology
 California State University, Fresno
 5370 North Chestnut Avenue – M/S OF18
 Fresno, CA 93740-8021
 (559) 278-2066
 Peter Canessa – Program Manager

IMPORTANT!

California consumers are not obligated to purchase any full fee service or other service not funded by this program. This program is funded by California utility ratepayers under the auspices of the California Public Utilities Commission.

Los consumidores en California no estan obligados a comprar servicios completos o adicionales que no esten cubiertos bajo este programa. Este programa esta financiado por los usuarios de servicios públicos en California bajo la jurisdiccion de la Comisión de Servicios Públicos de California.

The Agricultural Pumping Efficiency Program

What is the Agricultural Pumping Efficiency Program?

The Agricultural Pumping Efficiency Program (the “Program”) is an educational and incentive rebate program intended to improve overall pumping plant efficiency and encourage energy conservation in California.

The Program is funded through the Public Goods Charge. This is a fee paid by all accounts of the major investor-owned utilities in California including Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), Southern California Gas Company (SCG), and San Diego Gas and Electric Company (SDG&E). The purpose of this fee is to fund activities that improve energy efficiency and promote energy conservation.

How Long is the Program Active?

The first phase of the Program started October 1, 2002. The Program has received additional funding and will be active through December 31, 2005. However, the Program may be terminated or modified without notice. This program has a limited budget. Requests for pump efficiency tests or applications for an incentive rebate for a pump retrofit/repair are accepted on a first-come, first-served basis until available funds are allocated or December 31, 2005, whichever comes first. Check the Program web site at WWW.PUMPEFFICIENCY.ORG or call the Program toll-free at (800) 845-6038 for up-to-date information.

What Does the Program Do?

The Program has four parts:

1. Education – educational seminars concerning pumping plant specification and maintenance, crop water requirements, and water measurement will be given throughout the state. The educational message has four parts:
 - o Know how to specify an efficient pumping plant
 - o Know how to maintain an efficient pumping plant
 - o Know how much water needs to be pumped
 - o Know how much water has been pumped
2. Technical Assistance – Program personnel are available to help in locating pump efficiency testers, completing a pump retrofit/repair incentive rebate application form, or answer general questions as to pumping plant design and use. Note that site-specific engineering services are not available (for example, we would not be able to specify the exact pump design for a specific location.)
3. Pump Efficiency Tests – rebates are paid directly to participating pump test companies for efficiency tests. Tests are available for working, electric or natural gas-powered, production agriculture or large turf irrigation (see “Who is Eligible to Participate” for full eligibility requirements) water pumps.
4. Incentive Rebates for Pump Retrofits/Repairs – incentive rebates are available to encourage individuals to retrofit/repair working, electric or natural gas-powered water pumps to improve overall pumping plant efficiency. (See “Who is Eligible to Participate” for full eligibility requirements.)

Who is Eligible to Participate?

Program eligibility extends to all owners or users of a non-residential electric or natural gas utility account that is primarily used for pumping water for production agriculture, landscape or turf irrigation, or municipal purposes, including potable and tertiary-treated (reclaimed) water but excluding pumps used for industrial processes, raw sewage, or secondary-treated sewage, and who are paying the Public Goods Charge (normally customers of PG&E, SCE, SCG, or SDG&E).

IMPORTANT! Other factors may apply. Carefully read this Policies and Procedures Manual or contact the Program for full eligibility criteria. Customers of SDG&E should call first to verify their eligibility and available funds. Funding for activities in the SDG&E service area is very limited as of June 1, 2005.

How Can I Participate?

The following summarizes how individuals can participate in the various Program activities:

1. Educational seminars - Anyone is welcome to attend the educational seminars. Notices of upcoming seminar dates and locations will be found in agricultural trade publications, on the Program web site (WWW.PUMPEFFICIENCY.ORG), in local newspapers, and heard on radio and television.
2. Technical Assistance – Available to any eligible participant. Personnel will be available at all educational seminars, at the Regional Program offices (see below), and at various other times and locations.
3. Pump Tests – Subsidized pump efficiency tests are available to any eligible PG&E, SCG, or SDG&E (SDG&E customers should call first to verify eligibility) electric or natural gas account. (SCE offers pump testing through their own program. Please contact your local SCE account representative for more information if you are an SCE customer.) Pump tests must be performed by one of the Program’s participating pump test companies. All you have to do is contact the participating pump test company of your choice. A list of these companies is available from the Program office, or on the Program’s web site at WWW.PUMPEFFICIENCY.ORG. **Please note that the Program provides a subsidy directly to the pump test company. This subsidy may or may not cover the total cost of the test. You should have a clear understanding of the total cost of a pump test, and whether you will be liable for any part of that cost, before you authorize a test.**
4. Incentive Rebates for Pump Retrofit/repair – An incentive rebate is available to any eligible PG&E, SCE, SCG, or SDG&E (SDG&E customers should call first to verify eligibility) electric or natural gas account. You need to fill out an application form and send it to the main Program office. The form may be obtained by contacting a regional Program office or downloading the form from the Program web site at WWW.PUMPEFFICIENCY.ORG. Refer to the section “More About the Pump Retrofit/Repair Incentive Rebate” below.

How Do I Contact the Program?

The Program maintains regional offices in Northern California, the San Joaquin Valley, and the Central Coast. Specific questions regarding the activities of the Program can be answered by contacting one of these offices (all telephone numbers are toll-free):

- Northern California – (866) 333-8938
- Main Office – Central/Southern California – (800) 845-6038
- Central Coast (San Mateo County to Ventura County) – (866) 473-0847

The Program also maintains a web site at WWW.PUMPEFFICIENCY.ORG. Here you will find summaries of all Program components, a calendar of upcoming events, application forms, phone numbers and E-mail addresses of the regional offices, and a knowledge-base to help you conserve energy and water.

More About Pump Efficiency Tests

All you have to do is contact the participating pump test company of your choice. The results of the test are reported to the Program but the information is kept confidential. The results of the pump test will include a calculation of the kilowatt-hours or therms needed to pump an acre-foot of water, the overall pumping plant

Ag Pumping Efficiency Program (800) 845-6038 Pump Test Report			
Plant/Location:	Test 1	HP:	100
	PG & E	Utility:	
GPS Coord.:	Long	N	Lat
Motor Make:	Newman	Type	Turbine
Customer Addr:	Test Ranch	Pump Make:	Peerless
		Meter Number:	99999T
		Serial Number:	
Contact:	Peter Canessa	Voltage:	0
Phone:	(800) 845-6038	State Well #:	
Fax:		Amps:	0
PUC	Acreeage:	321-640	Farm Type:
			Vineyard
Test Date:	12/13/2002	Tester:	Pete Canessa
Run Number:			
1. Standing Water Level (Ft):		1	
2. Pumping Water Level (Ft):		0	
3. Draw Down (Ft):		16	
4. Recovered Water Level (Ft):		16.0	
5. Discharge Pressure at Gauge (PSI):		0	
6. Total Lift (Ft):		75	
7. Flow Velocity (Ft/Sec):		189.3	
8. Measured Flow Rate (GPM):		2.686	
9. Customer Flow Rate (GPM):		986	
		0	
10. Well Specific Capacity (GPM/Ft draw):		61.6	
11. Acre Feet per 24 Hr:		4.4	
12. Cubic Feet per Second (CFS):		2.2	
13. Horsepower Input to		112.03	
14. Percent of Rated Motor Load		102.0	
15. Kilowatt Input to Motor		83.58	
16. Kilowatt Hours per Acre Foot:		460.4	
17. Cost to Pump an Acre Foot		\$74.12	
18. Energy Cost (\$ / Hour)		\$13.46	
19. Base Cost per Kwh:		\$0.161	
20. NamePlate RPM:		0	
21. RPM at GearHead:		0	
22. Overall Plant Efficiency (%):		42.06	

If a Flow Velocity is less than 1 ft/second, the accuracy of the test is suspect.

All results are based on conditions during the time of the test. If these conditions vary from the normal operation of your pump, the results shown may not describe the pump's normal performance.

Figure 1b – Sample results and calculations from a pump efficiency test report.

IMPORTANT! Neither the Program nor the California Public Utilities Commission guarantees the accuracy of the pump test. The performance and results of the pump efficiency tests are the sole responsibility of the pump test company. Any agreement for pump testing that you enter into is a business arrangement solely between the pump testing company and you. Neither the Agricultural Pump Efficiency Program, Center for Irrigation Technology, the California State University, Fresno Foundation, nor any other entity are guarantors of such company.

IMPORTANT! Again, please note that the Program provides a subsidy directly to the pump test company. This subsidy may or may not cover the total cost of the test. You should have a clear

understanding of the total cost of a pump test, and whether you will be liable for any part of that cost, before you authorize a test.

IMPORTANT! Note these important eligibility rules:

- **The test must be for the purpose of determining current overall pumping plant efficiency and normally only one subsidized test is allowed per electric-powered pump in a 24 month period (one per 12 month period for natural gas-powered pumps).**
- **Subsidized pump tests are specifically not available for any purpose related to a real estate transaction (e.g. determine flow, pumping water level, water quality) or to satisfy a mandate of any federal, state, or local government or quasi-political agency (e.g. a requirement to show a minimum pumping or irrigation efficiency for inclusion into a program or as the basis for a payment of some kind).**
- **Subsidized pump tests are not available for a pump which is in our database already and was previously tested at 30% overall pumping plant efficiency or less (20% if a submersible pump, 6% if a natural gas-powered pump) unless that pump was repaired in the interim.**
- **Subsidized pump tests are not available for water wells or any other pump where the true total dynamic head cannot be determined. The overall pumping plant efficiency must be calculable.**

More About the Incentive Rebate for Pump Retrofit/Repair

Incentive rebates are available for pump bowl/impeller repair or replacement and other actions involving the pumping plant to improve pump efficiency. The pumping plant is defined to include:

- The inlet works which can be the water well, storage tank, or suction piping.
- The pump power source and transmission works.
- The pump itself.
- Discharge piping, which can be the column, pump discharge head, and piping within 10 feet of the pump discharge.

IMPORTANT! Only one pumping plant with one discharge point is allowed per rebate application. Note that a well, with a booster pump located at the well site and operating in series with the well, is an eligible pumping plant. Projects involving multiple pumping plants are not eligible for this Program. Contact your local utility as there may be other programs that address those types of projects.

Thus, eligible projects would include

- Well cleaning that reduces draw down.
- Removal/replacement of valves and fittings with high pressure losses, if they are within 10 feet of the pump head discharge.
- Retrofit/repair of the pump itself.
- Actions that reduce air entrainment.

Efficiency improvement work can be contracted or performed wholly or partially in-house if such capability exists. For purposes of incentive calculation, in-house rates cannot exceed typical rates charged by the average of the two closest commercial pump repair contractors.

IMPORTANT! Note these important eligibility factors:

- The retrofit/repair project cannot have started before October 1, 2002 if an agricultural account, before January 1, 2004 if a turf irrigation account, or May 16, 2005 if a potable or tertiary-treated water account.
- The project must be completed within twenty (20) months of an acceptable pump efficiency test before the project (generally one performed by a participating pump test company) and within four (4) months after an application's approval.
- A representative pump test must be performed after project completion and within four months after the application is approved.
- The pumping plant must be operational. The Program will not provide a rebate to repair a broken or inoperable pumping plant.
- Repairs/retrofit intended to change the operating condition or use of the pumping plant are not eligible (e.g. changing a pump from low pressure flood irrigation to high pressure drip irrigation pump).
- No repairs or maintenance activities for electric motors are eligible. (Note that the investor-owned utilities may have energy efficiency programs that provide funds for these projects).
- Installation or maintenance of a Variable Frequency Drive or any other type of motor controller or power modulator are not eligible projects. (Again, check with your utility since they may have funds for these types of projects.)
- No repairs or maintenance activities for an engine or gear drive are eligible.
- No rebates will be provided to construct or finish a new well.
- No rebates will be provided for a pump impeller adjustment.
- Repair or re-development efforts for an existing well may qualify if pump tests taken within one month prior to and after the project are submitted.
- The incentive rebate cannot be combined with any other grant, rebate, or service offered for the project by one of the investor owned utilities or any state or local agency.

IMPORTANT! Any agreement for pump repair work that you enter into is a business arrangement solely between you and the pump repair service provider. Neither the Program, the Center for Irrigation Technology, the California State University, Fresno Foundation, nor any other party is responsible for guaranteeing the services of such pump repair service provider.

Important Time Limits on Applications Approval and Project Completion

There are some important time limitations on how long it takes for an application to be approved and how long you have to complete a project after the application has been approved.

- If an Application is not approved by the Foundation within three(3) months from the date of the application or before the Application cut off date, whichever date is earlier, the application shall be deemed to expire and the Foundation shall have no rebate obligation to the Applicant.

- An approved application shall expire and no incentive rebate paid if; a) the project is not completed, including submittal to the Foundation of the Certificate of Completion and all supporting documentation, within (4) four months from the date of approval, or b) the Program ends, or c) California Public Utility Commission funds for the Program are unavailable or otherwise inaccessible to the Foundation.

The current application cut off date for Phase II of the Program is October 31, 2005. Note that the supporting documentation includes the after-project pump test.

How Are Incentive Rebates Calculated?

Rebates are provided on a cost-sharing basis. There are two important values calculated during the application process:

1. The first is 50% of the project cost since the maximum rebate possible is 50% of the project cost.
2. The second is based on the annual energy savings achieved by the retrofit/repair. There are two standard methodologies used for determining the incentive rebate for a pump repair/retrofit:

Method 1 – This method is used for both natural gas and electric-powered pumps in these situations:

- It is always used for natural gas-powered pumps unless there is no retrofit/repair to the pump bowl or impeller.
- It is always used for an electric-powered pumping plant when the before-project pump efficiency test shows an overall pumping plant efficiency of 50% or less (40% or less if a submersible pump). However, again, the project must include repair/replacement of either or both of the impeller or bowl to be able to use this method.

For electric-powered pumping plants the potential rebate is calculated as:

$$\text{Rebate} = .10 \times .25 * \text{kwh}_{\text{annual}}$$

Where:

$$\text{Kwh}_{\text{annual}} = 12 \text{ months of energy use prior to the project}$$

For natural gas-powered pumping plants the potential rebate is calculated as:

$$\text{Rebate} = .65 \times .25 * \text{therm}_{\text{annual}}$$

Where:

$$\text{therm}_{\text{annual}} = 12 \text{ months of energy use prior to the project}$$

Method 2 – This method is used for pumping plants in the following situations:

- If an electric-powered pump and the before-project pump efficiency test shows an overall pumping plant efficiency greater than 50% (greater than 40% for submersible pumps), or the project does not involve the retrofit or repair of the bowl or impeller.
- If a natural gas-powered pump and the before-project pump efficiency test shows an overall pumping plant efficiency greater than 16%, or the project does not involve retrofit/repair of the pump bowl and/or impeller.

The potential rebate for an electric-powered pump is calculated as:

$$\text{Rebate} = .10 \times (\text{kwh}_{\text{annual}} - (\text{kwh}_{\text{annual}} \times \text{pre-repair OPE} / \text{post-repair OPE}))$$

Where:

$\text{Kwh}_{\text{annual}}$ = 12 months of energy use prior to the project

OPE = Operating Plant Efficiency as tested before and after the project.

The potential rebate for a natural gas-powered pump is calculated as:

$$\text{Rebate} = .65 \times (\text{therm}_{\text{annual}} - (\text{therm}_{\text{annual}} \times \text{pre-repair OPE} / \text{post-repair OPE}))$$

Where:

$\text{Therm}_{\text{annual}}$ = 12 months of energy use prior to the project

OPE = Operating Plant Efficiency as tested before and after the project.

The Program reserves the right to audit the after-project pump test at its discretion using an independent pump tester. The program also reserves the right to use kilowatt-hours, or therms if a natural gas-powered pump, required to pump an acre-foot of water through the system and the normal amount of water pumped per year as the basis for the potential rebate calculation if that measure is a more applicable measure of energy savings as a result of the project.

Examples of Pump Retrofit/Repair Incentive Rebate Calculation

Example A:

- Pre-project pumping plant efficiency is tested at 52%.
- After-project pumping plant efficiency is tested at 62%.
- Billing data indicates 70,000 kilowatt hours were used in the 12 months prior to the repair/retrofit.
- The repair costs \$1,500. 50% of \$1,500 = \$750, which is the maximum rebate for this project.

Method 2 must be used since the pre-project test results show an OPE of 52%. The incentive rebate is initially calculated as:

$$\text{Rebate} = .10 \times (70,000 - (70,000 \times 52 / 62)) = \$1,229$$

However, since \$750 (50% of the project cost) is the maximum allowable payment, the rebate is \$750.

(Note that the calculations in the equation proceed as follows:

1. Divide 52 by 62;
2. Then multiply the result by 70,000
3. Then subtract the result from 70,000
4. Then multiply the result by .10

Depending on how you round the numbers during the calculations you will get an answer of more or less \$1,129.)

Example B:

- Pre-project pumping plant efficiency is tested at 52%.
- After project pumping plant efficiency is tested at 62%.
- Billing data indicates 70,000 kilowatt hours were used in the 12 months prior to the repair/retrofit.
- The repair costs \$4,000. 50% of \$4,000 = \$2,000, which is the absolute maximum rebate for this project.

Method 2 must again be used and the rebate is initially calculated as:

$$\text{Rebate} = .10 \times (70,000 - (70,000 \times 52 / 62)) = \$1,129$$

Since this is less than the maximum rebate permissible, the rebate is \$1,129.

IMPORTANT! Remember, the incentive rebate is the LOWER of either the rebate based on prior energy use or 50% of the project cost.

How Do I Apply for a Pump Retrofit/Repair Incentive Rebate?

1. Obtain an Application. Call one of the Program offices, log on to the Program web site at WWW.PUMPEFFICIENCY.ORG, or use the one at the back of this pamphlet. Many pump repair companies may have some and participating pump test companies will also have them for distribution.
2. Fill out the Contract on the page marked Step 1 completely. Read all statements on this page carefully. By signing this page you are certifying that these statements are true.
3. Complete the Calculation of Potential Rebate on the page marked Step 2. Perform the calculations of both Section A and B and use the lower potential rebate.
4. Fill out the Project Description on the page marked Step 3. This is required.
5. KEEP the Certificate of Completion on the page marked Step 5.
6. Make a copy of the application and supporting documentation for your records and mail the following to the Agricultural Pumping Efficiency Program:
 - The original pages of Step1, Step2, and Step 3 of the Application.
 - Documentation of the last 12 months' energy use. **IMPORTANT! The documentation must be copies of utility bills or a summary of energy use prepared by the utility.**
 - Copy of a pump efficiency test performed within 20 months prior to the (estimated) completion of the repair project. The testing company must be acceptable to the Program.
7. We will notify you of Application acceptance or the need for more information within 5 working days of receiving it.
8. If the Application is accepted, and when the project is complete, paid for, and the after-project pump test completed, mail the following to the Program:
 - The Certificate of Completion.
 - Copies of invoices marked PAID by the repair company, or copies of cancelled checks along with invoices. **IMPORTANT! The invoices must clearly state all work that was performed, including replacement of parts, labor, and diagnostics.**
 - Copy of the representative after-project pump efficiency test performed within 4 months of the application approval date.

All material should be mailed to:

Agricultural Pumping Efficiency Program
 Center for Irrigation Technology
 6014 North Cedar
 Fresno, CA 93710

How Do I Register a Complaint?

Participants in the Agricultural Pumping Efficiency Program who have complaints of any form can submit these complaints in the following manner:

1. The first step is to file the complaint with the Program. Call toll free (800) 845-6038 and tell the Operator that you wish to complain. The Operator will take all information. Program personnel will respond to the complaint in five working days. There is also a feedback form on the web site at WWW.PUMPEFFICIENCY.ORG where an e-mail message can be sent to the Program that is specifically marked as a complaint.
2. If you do not hear from the Program within five working days, or are not satisfied with the Program's response, you may submit your complaint to the Investor Owned Utility that is administrating this Program on behalf of the California Public Utilities Commission. Contact the Pacific Gas & Electric Company Business Customer Center at (800) 468-4743.
3. If you are not satisfied with the response from either or both of the Program or Pacific Gas and Electric Company you can submit your complaint directly to the Public Utilities Commission by contacting Mr. Tim Drew at (415) 703-5618.

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