

Low Pressure R.O.

1. Projected Program Budget	\$	334,430
2. Projected Program Impacts		
MWh		1,299
MW (Summer Peak)		0.28
3. Program Cost Effectiveness		
TRC		1.80
PAC		2.44

4. Program Descriptors

Market Sector:	Non-Residential
Program Classification:	Local
Program Status:	New

5. Program Statement

Membrane filtration is widely used in industrial application for purification of water. Applications include pretreatment of boiler feed water, product water such as bottled water, reconstitution of juice concentrates, and in general process water. Although the new membranes can be retrofitted into the existing filtration system, modifications are needed to the pump installation to operate at the lower pressure. Often opportunities are lost when new membrane filters are replaced without considering the needed pump retrofit to achieve the benefit from using the low energy membrane filters.

This program will provide the technical assistance to the customers for the combined retrofit of pump and membrane filters.

Although the potential market is in the thousands across several industries, this program will target a relatively small number of facilities (25) in the food processing industry, a key industrial sector for SCE. These successfully retrofitted systems will provide a commercial proof-of-concept for industrial application in general.

6. Program Rationale

Membrane filtration is a widely used process with strong potential for energy savings. With the emerging technology utilized by this program, there is a potential to greatly decrease the amount of pressure needed for filtration, providing substantial energy and demand savings.

7. Program Outcomes

A potential program outcome is to lay a foundation for widespread commercialization and to open the door for rolling this program out to a much larger target market.

The technology also has broad energy, process, water and environmental benefits to thousands of SCE customers, providing multiple benefits.

8. Program Strategy

The primary drivers for this program are its streamlined retrofit opportunity, short payback and quick investment cycle (e.g., because the total costs are approximately \$11,000 and will therefore not need to follow a plants “normal” budget cycle”). In addition, a major barrier in this market is the lack of incentive for the facilities and water management contractors to upgrade during the life of the systems, because electrical cost for operation is not included in their operation agreement/contract. This program will attempt to decrease the effect of this barrier by implementing a direct-to-plant decision makers marketing approach.

9. Program Objectives

Objectives for the program include the installation of low energy filters in 10 dairy plants and 15 other food industry segments, reducing annual energy consumption by 1,298,892 kWh. They also expect to reduce demand by 276 kW.

10. Program Implementation

Task 1: Build Tracking System

Dantec will create a tracking system that will be available to SCE INDEE program management staff. This tracking system will compile program data information on measurable energy efficiency activities and expenses, and administrative and marketing expenditures.

Task 2: Develop Marketing Materials and Obtain Approval from SCE

The marketing plan and material will be developed together by Dantec and equipment vendors and will address the energy saving potential achievable through application of the low pressure membranes. Performance data for individual membrane filtration modules will be discussed. System modifications required for reducing pump pressure will be explained. Examples of the three possible pump system changes will be addressed including introduction of variable speed drives to lower pump RPM, replacement of electrical motors with lower RPM unit, and modification of impeller configuration in pump.

Task 3: Implement Marketing Campaign

To implement the marketing plan, Dantec will educate the vendor sales team on the program, enabling them to sell the membrane retrofits to customers that qualify for this program. Sales staff will use marketing brochures as well as their own materials. Dantec and equipment vendors will develop a target customer list and a marketing schedule. By working closely with equipment vendors, Dantec will be able to reach and implement retrofits at a larger number of customers. The program will begin with telephone contact with a targeted customer (e.g., plant or engineering manager with a soft drink manufacturer). If the customer expresses interest, they will be sent a brochure and

retrofit savings estimator tool and then followed up with a conference call and/or meeting to help the customer estimate retrofit savings.

Task 4: Enroll Customers

For customers that are interested in applying for an incentive and performing a retrofit, the Dantec-Vendor Team (the Team) will enroll customers by requiring them to sign a work order. They will schedule an appointment with the customer to begin this process, which will involve continuing to sell the benefits of the retrofit service and to inventory existing equipment to further qualify the customer. Vendor equipment inventory will be modified as appropriate based on this step. Finally, the work order issued with customer authorization signature.

As part of this enrollment process, Dantec will ensure that the customers are informed of the variety of services and other opportunities SCE and that energy efficiency other third-party programs, such as business incentives.

Task 5: Install Energy Efficient Hardware, Issue Customer Rebates, and/or Perform Program Services

The rebate application will be approved by SCE after the letter of intent (LOI) is signed by the customer, and before the work order is issued. Based on the work order the vendor will deliver, and in most cases, install the equipment. Dantec will verify the installation and determine if the customer is satisfied with the work. They will also be responsible for taking the lead on resolving quality issues with the vendor and customer and will issue the customer rebates approved by SCE.

Task 6: Inspect Installed Jobs

Dantec will assign staff to inspect installed jobs and will develop an inspection checklist to guide this process. Any deficiencies will be noted and addressed with the vendor and the customer. Customers will sign off on completed jobs.

Task 7: Remedy Installation Issues

Dantec and the vendor team will develop specific procedures for addressing customer problems. The procedures will involve reporting the customer problem through a complaint form and in the tracking database. Dantec and the vendor will consult with the customer to better understand the issue, and identify corrective actions and implement them. Remedied installations will also be re-inspected.

Task 8: Perform Customer Satisfaction Surveys

Dantec will survey customers who have implemented the systems. Typical questions will focus on the quality of information, timeliness, responsiveness, performance of the system, and clarity of the process. The final survey instrument will be sent to customers with a follow-up phone call.

Task 9: Address Customer Satisfaction Issues

The Dantec program manager will review projects every other week to detect and resolve issues early. If an issue arises, we will document it in the tracking system, assign a task

manager to the issue, and contact the customer, vendor or other parties to resolve it. Actions may include follow-up services for warranty concerns.

Task 10: Perform Program Reporting

Dantec will submit monthly progress reports together with the invoice. These reports will include the E3 calculator or workbook, the budget expenditures workbook, and the requisite flat files generated by the contractor's tracking system that validates the reported energy savings. Ad hoc reporting will be providing upon request.

Task 11: Program Ramp Down

The ramp down plan will ensure that the program is shut down by December 31, 2006 and that all projects and related activities under this contract are completed.

Task 12: Shut Down the Program

The program will be completed by December 31, 2006. The shut down plan will specify that the vendors will be responsible for ensuring the continuation of warranty services one year from the date of service.

Task 13: Follow up With Remaining and New Customer Issues

Dantec will work on customer satisfaction issues in coordination with SCE after program shut down. This procedure will be presented in a specific plan to be provided during the course of the contract. Vendors will be solely responsible for hardware warranty issues after the end of the contract with SCE.

Task 14: Submit Final Program Report

Dantec will submit a final program report at the conclusion of this program that will include program achievements and challenges, goals attained, lessons learned, improvement recommendations, "next steps" proposed, mainstreaming of the program, continued development and end program concept.

11. Customer Description

The target customer includes non-residential customers in SCE territory, specifically soft drink and beverage, dairy and food processing plants.

12. Customer Interface

Customer interface will include telephone contact with an eligible customer (e.g., plant or engineering manager with a soft drink manufacturer) either by Dantec or by a vendor. If interested, the customer will receive a brochure and retrofit savings estimator, which is followed up, as appropriate, with a conference call and/or meeting with the purpose of helping the customer estimate retrofit savings. Typically, as part of this meeting, Dantec staff will conduct a technical walkthrough of the plant and process areas to answer questions and help the customer fill in any data needed to run the retrofit savings estimator tool. From here, upon approval, installation and verification is completed.

13. Energy Measures and Program Activities

13.1. Measures Information & Energy Savings and Demand Reduction Level Data

Measure Name	Gross Unit Annual Electricity Savings (kwh/unit)	Summer Peak kW Savings per unit (kW/unit)
Dairy processing plants	102,930	11.75
Bottling plants	23,500	11.75

13.2 Non-energy Activities (Audits, Trainings, etc.)

Not Applicable

13.3 Subcontractor Activities

Not Applicable

13.5. Quality Assurance and Evaluation Activities

Dantec will assign qualified and trained staff to inspect installed jobs. Dantec will develop an inspection checklist to guide this process. Any deficiencies will be noted and addressed with the vendor and customer. Customers will sign off on completed jobs.

13.6. Marketing Activities

See tasks 2 & 3.