WATER & POWER
Serving Central California since 1887

TURLOCK IRRIGATION DISTRICT
ANNUAL REPORT 2008

TID at a glance

Established in 1887, the Turlock Irrigation District is the first publicly owned irrigation district in the state and one of only four in California today that also provides electric retail energy directly to homes, farms and businesses. Organized under the Wright Act, the District operates under the provisions of the California Water Code as a special district. TID is also an independent control area and is governed by a five member Board of Directors.

General Manager's Message

Success. The word can mean many things to many people. Whether coaching a baseball team to victory or purchasing your first home, success seldom happens without careful planning and diligent follow through. That same planning and follow through is required to successfully operate and maintain an affordable and reliable irrigation and electric system.

Since 1887, TID has relied upon leadership, innovation, strategic planning and careful follow through to achieve the success we share with our irrigation and electric customers. From establishing some of the oldest water rights in California on the Tuolumne River to building, owning and operating 11 power generation facilities capable of producing 708 Megawatts of energy, we continue to innovatively plan for the future.

California mandates and environmental stewardship require that future planning includes even more sources of clean, renewable energy. I am pleased to report that TID has incorporated environmentally friendly hydroelectric energy into its generation from the very beginning. In 2008 the TID Board of Directors increased the amount of renewable energy in our portfolio and approved the purchase of a wind generation facility, the Tuolumne Wind Project, capable of producing 137 megawatts of renewable energy. Keeping with our long held strategy of owning and operating facilities rather than purchasing the energy on the open market, that ownership will provide long term rate stability for our customers by avoiding market volatility.

Additionally water remains a core part of our plans and is critical to the environment in which we all live. While the State of California works to solve water issues in the Delta, protecting our water rights and keeping Tuolumne River water in the region we serve is another cornerstone of our business strategy. In 2008, work continued on a partnership with local cities to build a surface water drinking plant.

Don Pedro Reservoir, central to both our water and energy businesses, is licensed by the Federal Energy Regulatory Commission (FERC). That FERC license will expire and be renewed in 2016 and the re-licensing process can be both complex and time consuming. As project operator and majority owner of the reservoir and generation facilities, TID began working with other project partners in 2008 to outline the work needed to ensure a smooth methodology for the eight year re-licensing effort.

I am confident that our legacy of careful planning for the future will balance the needs for the growing demand for renewable energy while reducing greenhouse gas emissions and maintaining an affordable, reliable electric system.

The Power of Wind

With the need for renewable energy expected to rise significantly, TID acted swiftly and carefully to protect its customers from inflated costs in the future by securing its own wind generation facility in 2008.

Building on its history and the financial stability of owning generation assets, TID purchased the Tuolumne Wind Project rather than rely on acquiring credits associated from renewable projects owned by others. Located in Klickitat County, Washington along the Columbia River, this site has been recognized as one of the most productive wind resource areas in the Western United States. The project consists of 62 turbines which can generate a total of 136.6 megawatts, enough green energy to power approximately 44,000 households each year. Upon completion, the project will add significantly to TID's renewable energy portfolio, taking it to 28 percent qualified renewable energy, eight years ahead of the Board adopted goal of 20 percent by 2017.

This is TID's first ownership in wind facilities. The project will be completed in 2009. Wind power diversifies TID's Renewable Portfolio Standard (RPS), which currently includes small hydro, solar, geothermal and the largest fuel cell in California.

Utilizing the Sun

Participation in TID's solar photovoltaic (PV) rebate program has increased significantly since its adoption in 2006. In 2008, TID interconnected 941.4 kilowatts to the grid and paid over $2,800,000 in rebates. The systems connected include 30 residential homes, 3 commercial properties and 4 agricultural installations. The solar rebate program provides an incentive to TID customers that purchase and install solar power at their home or business. TID's rebate program is currently one of the highest rebates available in California at $2.80 per watt for non-residential customers and $4.00 per watt for residential customers.

TID customers that install solar are placed on a Net Metering rate schedule. Customers continue to pay the customer and demand charges, but their energy consumption is netted against the amount of energy they generate. If a customer ends the billing cycle generating more energy than they consume, the customer receives a credit for the kilowatt-hours they generated and sent to the TID grid. The amount credited for the kilowatt-hours produced is at the same rate TID would have charged the customer.

Project Highlight:
TID Interconnects the Largest Solar Project in its Service Area

In 2008, TID interconnected the largest solar electric project in its service area, a 518.5 kilowatt array of photovoltaic panels atop the walnut processor at Grower Direct Nut Company located in Hughson, California. The 2,530 solar panels are expected to generate approximately 800,000 kilowatt-hours of renewable energy, enough to provide almost all of the energy needed to operate their business each year. SunPower Corporation, a Silicon Valley-based manufacturer of high efficiency solar systems, designed and constructed the roof mounted solar photovoltaic arrays. This project was made possible in part by a solar rebate from TID.

Grower Direct Nut Company uses a variety of natural resources to operate their business efficiently and will now begin to utilize the sun to supply nearly all of the electricity needed to shell and cool the walnuts they process. “It’s the right thing to do for the environment as well as control our future energy costs,” said Kevin Chiesa of Grower Direct Nut Company.

In addition to installing solar, Grower Direct Nut Company has also evaluated and implemented other energy efficiency options to reduce their overall energy consumption. A lighting retrofit was completed in which metal halide lighting was replaced with fluorescent lighting. Occupancy sensors were also installed for additional energy efficiency savings. They are also continuing to research the cost-effectiveness of retrofitting their dryers for additional energy efficiency savings. “Changing to meet the new challenges of tomorrow is a part of our family farming tradition,” said Ron Martella of Grower Direct Nut Company.

Managing our Water Resources

California is clearly in the midst of a significant drought. In June 2008, the Governor proclaimed an official statewide drought and issued an Executive Order after two consecutive years of below-average rainfall, low reservoir storage and low runoff conditions. Additionally, a state of emergency was declared in Sacramento, San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and Kern Counties due to severe water shortages.

The TID storage in Don Pedro Reservoir was lower at the start of the 2008 season than any other season since 1992, at the end of the last drought. The situation can be attributed to the lack of precipitation in 2007, which was the twelfth driest year on record since 1897. Precipitation and spring runoff have also been well behind historical averages up and down the state for the past three years. TID ended the 2008 season with water levels in Don Pedro Reservoir at approximately 1,053,229 acre-feet or at 59 percent of capacity.

By carefully managing the available resources, TID has developed a reputation of being able to navigate through multiple dry years. Ahead of other water providers, at the beginning of the irrigation season, TID took several precautions and implemented conservation measures including capping the amount of water available to growers, shortening the irrigation season, renting pumps to supplement the surface water supply and working to minimize spills. TID also worked diligently to educate growers on the water situation as well as offer solutions and education for managing their crops with less water.

Promoting Energy Efficiency

The TID Board of Directors adopted an aggressive 10-year plan to promote energy conservation by assisting customers with efficiency projects. For 2008, the goal was to conserve 9.3 megawatt-hours of electricity. TID was able to surpass the annual goal for a second year in a row and achieve a savings of 10.9 megawatt-hours of electricity.

TID continues to help customers achieve energy savings through the implementation and promotion of a variety of programs that provide rebate opportunities for all rate classes to encourage customers to conserve energy. A significant portion of the energy efficiency measures were implemented by industrial and commercial customers.

TID provides a variety of options for businesses that are looking to make changes in their existing systems by making upgrades or retrofitting their existing facility. Rebates are available that address areas such as lighting, compressed air systems, refrigeration systems, motors, gaskets, chillers and many other systems and components.

Project Highlight:
G3 Enterprises Incorporates Energy Efficiency Methods

G3 Enterprises, headquartered in Modesto California, provides a wide variety of packaging and product solutions and services for the wine and beverage industry. The facility is primarily made up of warehouses which provide storage as part of G3's logistics, labeling and bottle-decorating operations.

TID partnered with G3 Enterprises to perform a comprehensive lighting audit to identify potential high-value energy and demand savings in their lighting systems by focusing on energy efficiency and time-of-use management.

Most of G3's buildings and warehouses are accessed 24 hours a day, seven days a week throughout the year, by a wide variety of employees. The warehouses were primarily illuminated with metal halides and T12 fluorescent lights, many of which remained on constantly, while the remaining lights were manually controlled.

The audit identified several lighting measures that, if implemented, would result in a substantial reduction in energy consumption. All of the lights in the facility were replaced with high efficiency T5 or T8 fluorescent lights which consume approximately half the energy as the metal halides. Occupancy and daylight sensors were also incorporated into the systems to further reduce energy consumption by only providing light when needed, which reduced their energy consumption by an additional 85 percent. Lights are now only on in areas where employees are working instead of the entire warehouse, further increasing the efficiency and complementing the round the clock nature of the operation of the facility. G3 estimates they will reduce their overall energy consumption by 90 percent as a result of the project and TID estimates the annual energy saving to be 7,273,294 kilowatt-hours. TID provided over $230,000 in rebates for the projects completed in 2008.

"We are currently researching how we can continue to conserve and seek new opportunities we may have for savings," said Doug Smith, G3 Properties Project Manager. TID and G3 are continuing their energy efficiency efforts and are evaluating additional energy efficiency projects related to their chillers, HVAC units and pumps.

"We are also in the process of installing a 100 kilowatt solar system that will be operational by October 2009. The system will generate about 70 percent (164,000kwh per year) of our annual electrical needs for our corporate headquarters."

Leading the Way

In 2008, TID constructed the largest fuel cell in the state of California. Partnering with the City of Turlock, the fuel cell is located at their Regional Water Quality Control Facility. The 1.2 megawatt fuel cell generates clean, renewable energy from the methane gas produced by the facility.

Prior to the fuel cell, a portion of the methane gas was utilized to operate three boilers at the treatment facility with the remaining portion being burned into the atmosphere. Because fuel cells convert methane gas into electricity electrochemically, there is no combustion or creation of greenhouse gases. They operate hundreds of times cleaner than conventional power generation facilities which significantly reduce nitrogen oxides, particulates and sulfur dioxides emitted into the air, which gives the City the opportunity to reduce its emissions.

The fuel cell project qualifies as a renewable energy project and helps TID surpass its objective of securing 20 percent of its energy from renewable resources by 2017.


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A Legacy of Giving

Throughout the years TID remains rooted in its commitment to customers and the communities it serves. In 2008, TID invested substantial funds in sponsorships, grants, community activities and projects as well as education that reached customers in virtually every neighborhood in its service area.

To educate its customers about the importance of energy efficiency, TID provided free compact fluorescent light (CFL) bulbs throughout the year as well as conducted 138 free home energy audits. TID's full-time Education Specialist continued to be available to all schools within its 662 square-mile service area to teach children concepts such as the water cycle, water and electrical safety, renewable resources and energy conservation.

In addition to the organization's contributions, TID employees have donated thousands of hours of their own time and money to worthy community projects. Some projects include the Salvation Army's Angel Tree Program where employees donated over 300 gifts to children for Christmas, as well as donating over $1,000 to the American Cancer Society's Daffodil Days Campaign. There are many other activities and foundations that TID employees contributed to and at TID all of this is second nature, because partnering with the community is a core value of the organization.

Project Highlight: Alternative Energy Learning Center

TID provided a grant to purchase and install a renewable energy demonstration project at the Alternative Energy Learning Center located at Walnut Elementary School in Turlock. The project will be tied to the TID grid and computer monitored for students to learn about how much electricity is being produced in real time. Along with a solar array, the grant covers a voltage meter for students to view, a display of electrical appliances using energy efficient products and a model of a watershed and dam generating renewable hydroelectric energy. There will also be a small wind generator to accompany the solar array.

The Learning Center was designed and created for the purpose of educating students within TID about alternative energy. The project will enable students, parents and other interested parties to learn about energy production, conservation and future energy needs. It is an ideal opportunity to inform community members of TID's commitment to provide clean, reliable power today and for the future.

"*TID is to be highly commended for its contribution to the education of the children of this area. Our students need to be very familiar with alternative sources of energy. By constructing the solar array and wind generator, we hope to make future generations better informed about energy production and conservation available in our valley.*"

–Bret Sutterley,
Fifth grade teacher at Walnut Elementary School

Investing in Reliability

Since 1923, TID has been providing reliable, affordable power to its customers. TID plans strategically, well in advance, for infrastructure enhancements to ensure reliability and meet the growing demand for energy. Additionally, investments are made in industry advancements that would position it to better serve its customers. In 2008, TID continued its efforts to install "Smart Meters" as well as initiate the expansion of one of its natural gas-fired power plants.

Installing "Smart Meters"

TID has completed the first phase of replacing existing retail electric meters with the new advanced "Smart Meters." The new meters are designed to provide a wide range of benefits to customers while increasing operational efficiencies at TID. The meters will be installed over 4 years. This phased approach allows existing staff to change the meters as well as maintain better control of the critical meter reading and billing processes. The expected cost is $12.6 million, which is projected to be offset through operational savings - which will reduce waste, improve reliability and encourage energy efficiency and demand response.

Almond Power Plant Expansion

In an effort to further reduce the reliance on the wholesale electricity market, TID has purchased three of General Electric's newest gas turbines to expand its existing Almond Power Plant. The purchase will quadruple the plant's current output adding 150 megawatts to its existing 50 megawatts. This important upgrade will allow TID to contribute to California's energy goals of building sufficient generation facilities and ensuring new generation plants can quickly come online when necessary. In addition, it will help TID meet its resource adequacy and reserve needs well into the future. The units are scheduled for commercial operation in the spring of 2011.

2008 Board of Directors

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Steve Boyd – Assistant General Manager, Consumer Services

Casey Hashimoto – Assistant General Manager, Electrical Engineering & Operations

Joe Malaski – Assistant General Manager, Financial Services/CFO

Advisors

Griffith & Masuda – General Counsel

PricewaterhouseCoopers LLP – Independent Accountants

Public Financial Management, Inc. – Financial Advisor

R.W. Beck, Inc. – Consulting Engineers

Revenue Bond Ratings

Moody's A1

Fitch A+

Standard & Poor's A+

Photography

Photographs on pages 4, 5, 6a, 6b, 8, 9, 10, 11, 13a, 15b are courtesy of photographer Daniel Morrissey.

For additional information, contact:

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Electric Service Area:
662 square-miles

Customers per mile of Distribution Line:
45

Number of Electric Accounts at year end:
98,548

Customers per mile of Transmission Line:
275

Irrigation Service Area:
307 square-miles

Miles of Distribution Line:
2,180

Number of Acres Irrigated:
145,559

Employees:
482