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SALVATION ARMY PUTS IN SOLAR HOT WATER USING **SOUTHWEST GAS REBATE**

ENEREF INSTITUTE REPORTS HOW SOUTHWEST GAS INCENTIVE PROGRAM REDUCED HOT WATER ENERGY COST FOR LAS VEGAS SALVATION ARMY

In times of need the Las Vegas Salvation Army is a place of refuge, with a hot meal, a warm bed and spiritual guidance. Recently, the city they serve had an opportunity to give back.

Because of the *Smarter Greener Better*® Solar Water Heating rebate program offered by local utility Southwest Gas, the Salvation Army was able to install a technology that uses the sun's thermal energy to heat their water. With an abundance of sunshine in

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I WAS TOTALLY SHOCKED AT THE SIZE OF THE REBATE. IT REALLY MADE THE PAYBACK PRETTY DECENT.

Southwest Gas is offering rebates in Nevada for the purchase and installation of solar thermal water heating systems when installed in conjunction with natural gas water heaters.

Las Vegas, this generates quite a savings for the homeless residence that houses and showers 600 people each night.

"In today's environment, where even some of our long-time regular donors are struggling to continue supporting us, we need to look for every way to save a dollar so we don't jeopardize the critical services we're offering," explains Major Bob Lloyd, Salvation Army Clark County Coordinator.

Unlike the more common solar photovoltaic (PV) energy systems, which are designed to generate electricity, solar water heating uses the sun's energy directly to heat water, much like the way a greenhouse heats air to keep plants warm in cool weather. Solar water heating (also called solar thermal), which can have natural gas or electric back-up, is perfect for hot-water-intensive buildings and often provides a majority of a building's hot water needs.

The 45,000 square foot Salvation Army campus in North Las Vegas offers numerous services: a dining facility with an industrial kitchen, a clinic, a chapel and an educational area. But it is the three-story dorm facility that uses the most hot water, and constitutes the largest portion of their natural gas bill each month.

THE FINANCING CAME TOGETHER

Fortunately for the Salvation Army, Las Vegas community leaders got together and decided to place their money on what turned out to be a sure bet — a solar thermal system consisting of four UMA brand Solar Rating & Certification Corporation (SRCC) certified rooftop solar panel collectors and three Rheem solar storage water tanks. SRCC™ provides performance-rating certifications for solar thermal products. Although the solar water heating system didn't completely eliminate their need for natural gas, the new system did greatly reduce the amount of natural gas the facility uses.

The rebate for the approved Salvation Army solar thermal installation offered by Southwest Gas covered half the cost of the installation. The other half was covered in the form of a donation by the Consumer Electronics Association (CEA), who wanted to make a positive impact on the community. CEA hosts the large Consumer Electronics Show (CES) in Las Vegas each year.

Gary Shapiro, president and CEO of CEA, said they were glad to have the opportunity to help.

"CES is a tremendously successful event thanks to the great people and facilities of Las Vegas," said Shapiro. "We're pleased to make this investment in sustainability to demonstrate our commitment to this great city."

To find the right project, CEA reached out to the Las Vegas Convention and Visitors Authority, who in-turn called in Green Chips, a Nevada non-profit organization that fosters specific sustainability projects. Green Chips had a long list of potential green projects, but pinpointed the Salvation Army because their large hot water demand made them an ideal candidate for the Southwest Gas Nevada *Smarter Greener Better* Solar Water

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THE SALVATION ARMY GROUP HOME ENJOYED A SIGNIFICANT SAVINGS IN HOT WATER COSTS.

"Our biggest challenge is maintaining all of our facilities. It was really a big deal when this local organization decided to help us out. The energy savings has been significant," explains Major Bob Lloyd, Salvation Army Clark County Coordinator.

Heating rebate program.

"Southwest Gas offered a rebate that was half of the cost of installation, which kind of made it a no-brainer," declared Gary Wood, a non-trustee volunteer officer of Green Chips, as well as the Renewable Energy Program Manager for the Southern Nevada Water Authority.

Wood assembled a team for the project, pulling from a list of authorized program contractors provided by Southwest Gas. He also took advantage of the expertise of Southwest Gas engineers as well as their help in establishing the value of the incentive early on, which Green Chips built into the scope of the project.

"Southwest Gas was a real help, right at the outset," said Wood.

HOW IT WORKS

When most people think of solar energy, they imagine solar photovoltaic cells, or PV. Solar thermal heating panels are different than PV panels in that solar thermal heating works on the principle of converting sunlight into heat rather than electricity. Solar thermal water heating systems simply circulate liquid through rooftop panels heated by the sun. The circulated liquid transfers the sun's heat to storage tanks that feed heated water into the conventional hot water system. The Salvation Army's solar storage tanks will feed the solar-heated water to three existing 100-gallon, natural gas-fired water heaters, thus reducing the amount of natural gas needed to heat the water.

To guarantee hot showers at all times, natural gas is still used to back up the system. But with more than 300 days of sunshine annually in Las Vegas, the solar energy beaming down on the roof is plentiful. Logically, the system was designed so that the solar panels were located on the roof just above the dormitory's 3rd floor mechanical room. And as with any installed heating system, the contractor needed to be sure the piping was right and the sizing was appropriate for the load—that is, that the number of panels were correct for the amount of hot water needed.

The technology has been around for a long time, and done right, solar thermal is a surefire win. According to Billy Byrom, founder of AET, the oldest and largest American manufacturer of solar thermal systems, Drainback panels installed in the mid '80's are still operating successfully today." Drainback is the clever, time-honored technology designed to avoid potential problems associated with freezing and overheating.

BEST OF BOTH WORLDS

Combining natural gas with solar thermal is the best of both worlds. While the sun is naturally the cleanest, most economical energy source available, US-produced natural gas can be cleaner than coal or oil. Natural gas also costs less and is extraordinarily efficient; more than 90% of the natural gas produced at the source is delivered to your home or business as usable energy.

The Southwest Gas Nevada *Smarter Greener Better* Solar Water Heating rebate program is available to residential, small business, schools, public, religious, non-profit, and civic customers who install a qualifying solar water heating system with pre-approval. The exact rebate amount is based on how much energy the solar water heating

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SIGNIFICANT ENERGY SAVINGS

With an abundance of sunshine in Las Vegas, the solar thermal heating system generates quite a savings for the homeless residence that houses and showers 600 people each night.

system is expected to save, capped at a specific dollar amount or percentage of the installed cost. The Salvation Army's rebate from Southwest Gas amounted to $12,785.

"I was totally shocked at the size of the rebate. But I was happy for it," said Wood. "It really made the payback pretty decent."

And the energy results speak for themselves. The Salvation Army expects an annual energy savings of 841 therms—84 million BTUs of energy will now come from the sun, saving the facility money, year after year.

It's easy to appreciate the Salvation Army. They are there in our communities with kind words and helping hands when we are most in need. They bring disaster relief after tornadoes and floods. They set up camps for our youth, services for our elderly and rehabs for those ready to help themselves. But thanks to the efforts of Green Chips, CEA and Southwest Gas, this is a charity story in reverse; this time the community came together with helping hands for the Salvation Army.

Research and reporting compiled and provided by Eneref Institute. (www.eneref.org)

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