

El Paso, Texas



Photo: Downtown El Paso, TX

El Paso

CASE STUDY

SOLAR
OUTREACH



PARTNERSHIP

El Paso, Texas

El Paso, with a population of more than 800,000 and a land area of 248 square miles, is located in West Texas, just across the border from Juarez, Mexico.¹ Home to the University of Texas El Paso (UTEP), the city operates under the council-manager form of government, and has a staff of nearly 6,000 and an annual budget of \$76 million.

City officials are outspoken about their goal of making El Paso the most livable city in the country, and are relying on strategic policy and investment decisions—focused on sustainability—to achieve their goal. These efforts have been recognized by the Natural Resources Defense Council—which, in 2010, awarded El Paso its Smarter Cities designation, in recognition of its commitment and leadership in energy conservation, including the advancement of solar photovoltaic (PV). And in 2011, the U.S. Environmental Protection Agency awarded the city a Smart Growth Achievement Award for [Plan El Paso](#).

Solar PV is central to the city’s sustainability plan. Between 2008 and 2013, the number of solar PV installations in El Paso grew a hundredfold—due, in large part, to a [solar PV rebate program](#) established through a partnership between the City of El Paso and El Paso Electric, a regional utility, as well as to partnerships with local businesses and workforce development organizations. El Paso—whose nickname is Sun City—has also taken advantage of its abundant, year-round sunshine by using solar PV to power public facilities, thereby simultaneously improving the efficiency of operations and demonstrating the viability of solar PV to the public (see text box). The city estimates that these efforts have

Realizing the Sun’s Potential

According to the El Paso Livability City Sustainability Plan, the El Paso area benefits from some of the richest solar resources in the Western Hemisphere: in the city and the surrounding region, the amount of solar energy produced by one acre of land each day is the equivalent of eight hundred barrels of oil.

City Profile

- Form of government: Council-manager
- Population: 800,647
- Geographic size: 248 square miles
- Number of local government employees: 5,872
- Major departments: Police, Fire, Parks & Recreation, Mass Transit, Libraries, Transportation, Community and Human Development, Environmental Services & Code Enforcement, Public Health
- Annual budget (2013): \$756,804,795
- Type of electric utility: Private (El Paso Electric)

yielded more than 1.5 megawatts (MW) of renewable energy on homes, and reduced carbon dioxide emissions by 3,300 metric tons between 2008 and 2013. In addition to its environmental benefits, the more robust solar economy has increased tax revenues and supported local and regional green-collar jobs.

Creating a Framework for Success

In 2007, the city established the Office of Sustainability—thanks, in large part, to the support of the city manager, who advocated establishing the office on the basis of research into national and international best practices. The guiding principle of the office is that sustainability is fundamental to a livable and well-managed community.

One of the office’s first accomplishments was to lead the development of the [Livable City Sustainability Plan](#), which was quickly adopted by the city council. The adoption of the plan was the first in a series of events that led to strong growth in solar PV installations, jobs, community awareness, and environmental benefits.

The plan articulates the ways in which El Paso embraces sustainability as fundamental to a range of endeavors and activities, from municipal operations to

Having a Voice

El Paso recognizes the importance of having a voice in statewide discussions, and with statewide organizations that influence policy. In Texas, the Sustainable Energy Advisory Board is a coalition of experts in solar PV technology and policy, labor representatives, and public agencies that share information, advocate for progressive statewide solar PV policies, and foster the growth of the solar economy. The presence of Marty Howell, sustainability manager for El Paso, on the SEAB, helps to ensure that the city's perspective is accounted for.

economic development and public-private partnerships. The priorities included in the plan were developed by city officials and staff, who investigated best practices from around the country, weighed their applicability for El Paso, and created a tailored approach to reflect the city's unique economic, environmental, and cultural identity.

Recognizing the untapped potential for solar PV, the plan calls for El Paso to meet at least 20 percent of its operational and 10 percent of communitywide energy demand from renewable energy sources by 2020.² As of December 1, 2013, the city was well on its way to meeting those goals: 5 percent of operational and 2 percent of communitywide energy demand were being met through renewable sources, with solar PV contributing approximately 50 percent and 100 percent, respectively.

Growing a Solar Economy

In 2009, El Paso received funding from a federal Energy Efficiency and Conservation Block Grant (EECBG),



Solar rooftop panels on the main library.

which it used to create programs and policies to encourage the growth of renewable energy, including solar PV. Using EECBG resources, the city evaluated current conditions and identified areas for growth. For example, despite an abundance of solar resources, as of 2008 there were only four solar PV installations in the city.

In 2009, to evaluate the capacity to create a solar economy for El Paso and the surrounding region, the city convened a number of stakeholders—including representatives from El Paso Community College, local job-training programs, and UTEP—to conduct a SWOT (strengths, weakness, opportunities, threats) analysis. Among the identified weaknesses were two related issues that participants had known about for a long time: first, there was unmet demand for a solar rebate program; second, such a program had the potential to catalyze the installation of solar PV on residences and businesses.

The Solar Rebate Program

Having committed to promoting solar PV, the city council contacted El Paso Electric (EPE) to discuss creating a rebate program for residential and business customers. EPE gladly agreed to contribute \$125,000 of general revenue to the rebate program, an expenditure that helped the utility satisfy its obligations under the state's Renewables Portfolio Standard (RPS), which require utilities to provide an increasing amount of electricity from renewable sources (including those other than wind energy).³ The city contributed an additional \$100,000 from its EECBG toward the rebate program, which was administered by EPE.

The City of El Paso and EPE promoted the rebate program at community events, by including flyers in utility bills, and through local print and broadcast media. The level of interest generated was remarkable: as soon as the rebates became available, the entire allocation was committed within a matter of minutes. The city and EPE have continued to combine resources to expand the rebate program, which has made it possible to realize a vast increase in solar PV.

As shown in Table 1, during the first three years of the program, the city and EPE greatly increased their financial commitment to solar PV. Even as their commitment increased, however, customers responded swiftly: the allocations for 2011–2012 were quickly taken up. As a result of the program, solar PV installations jumped from four, in 2009, to more than four hundred, in 2013—a 9,900 percent increase.

Table 1: Solar PV incentive summary 2010–2013

YEAR	CITY OF EL PASO	EL PASO ELECTRIC (EPE)	INSTALLATIONS	KILOWATTS	CITY CONTRIBUTION: RESIDENTIAL/ NONRESIDENTIAL (\$/WATT)	EPE CONTRIBUTION: RESIDENTIAL/ NONRESIDENTIAL
2010	\$231,300		18	88.706		\$2.50
2011	\$900,000	\$450,000	91	613.744	\$2.00/\$1.75	\$2.00/\$1.75
2012	\$900,000	\$250,000	87	822.410	\$2.00/\$1.75	\$2.00/\$1.75
2013	\$212,000	\$212,000	47	258.275	\$1.00 (nonresidential)	\$.75/\$.75
2014	To be decided (as of 2/25/14)	\$212,500	Not applicable	Not applicable	To be decided (as of 2/25/14)	\$.75/\$.75

As is also visible in Table 1, the city’s contribution to the rebate program has decreased over time; the reason is the gradual depletion of the EECBG grant funding. As a consequence, the city is now searching for ways to sustain its solar PV rebate program and continue making rooftop solar PV more financially viable; among the options being considered are the following:

- utility rate increases
- supplementing the funds for the rebate program with funds from a legal settlement related to net metering rules in El Paso.
- a bulk-purchasing program, through which commercial and residential customers would obtain common financing (and thereby get better pricing)
- continuing to streamline the permitting system.

Solar Workforce

One of the key opportunities identified during the 2009 SWOT analysis was the potential to create a solar-PV-related workforce. To move forward on this finding, the city and the El Paso [Electricians Joint Apprenticeship and Training Committee](#) worked to expand job-training programs to include solar-PV-

related skills and certification. Through their efforts, three local job-training programs began offering programs that meet the standards set by the [North American Board of Certified Energy Practitioners](#) and [Underwriters’ Laboratories](#). Participants receive between thirty and thirty-five hours of training in solar PV wiring, installation, and maintenance. Since 2010, the programs have collectively certified a regional-scale workforce.

In 2009, there were only four solar-PV-related jobs in El Paso—but, as of 2013, four companies had several crews deployed throughout the region. One local installer, Solar Smart Living, maintains an eight-person staff but has expanded its workforce to as many as thirty people during periods of strong demand.

Nevertheless, according to the owner of one installation company, El Paso’s solar PV economy cannot fully support a viable installation business. Though based in El Paso, at least one installation company must provide services on a regional scale, commonly in Las Cruces, New Mexico. Moreover, despite tremendous growth in demand for local solar PV installations, program graduates must still travel to other parts of the southwestern United States to obtain steady employment.

Finding the Right Fit: North American Board of Certified Energy Practitioners versus Underwriters’ Laboratories Certification

When the job-training programs for solar photovoltaic (PV) started, they initially followed the curriculum that had been developed by the North American Board of Certified Energy Practitioners (NABCEP). Although this curriculum is still offered, several of the programs found that the NABCEP curriculum was more appropriate for those who were engineering solar PV systems, rather than for those who were installing them. As a result, several of the programs now follow the Underwriters’ Laboratories curriculum.

Voluntary Program Encourages Businesses to Install Solar Photovoltaics

The [El Paso Green Business Challenge](#)—an initiative that was inspired by the [ICLEI Green Business Challenge](#) and the Chicago [Green Office Challenge](#)—is a voluntary program that recognizes the efforts of local businesses to improve their environmental performance and provides resources to help them do so. Recognition is based on a point system: businesses set their own goals and assign themselves scores on the basis of their advances in environmental practices. Of the possible one thousand points available on the [scorecard](#), twenty-five are available for installing solar photovoltaics (PV). To date, more than forty-two businesses have participated in the challenge, and four have received points for installing solar PV.

Retrofitting the Permitting Process

Under the city's original permitting system, solar PV was subject to an application, review, and approval system that was not specific to solar, resulting in unnecessary delays and unpredictable fees. The decision to update the permitting process—one result of the city's collaboration with stakeholders—was designed to address financial barriers, and has played a significant role in advancing solar PV. The new permitting process does not specify an official turnaround time for permit reviews; however, the city generally takes no more than three days to review and approve applications and install meters. To make the process even more efficient, inspectors from EPE and the city make their site visits at the same time, cutting down on both the review time and the time that the homeowner and/or contractor is required to be on site. Permit fees—which are generally based on the size of the installation, but have a ceiling of \$150—are also reasonable.

Leading by Example

By integrating solar PV into its own facility expansion and construction, El Paso has helped to demonstrate its feasibility and effectiveness. The city also uses educational opportunities to increase awareness and understanding of the technology. In the main lobby of city hall, for example, a kiosk displays data on all public solar PV installations in the city—four installations on public facilities or in public spaces to date, generating a total of 220 kilowatts.

The Aztec Pavillion, the city's first renewable energy education project, is also one of its most visible and accessible public projects. Partially funded through \$182,000 of EECBG funding and completed in August 2012, the pavilion is a public space and art installation powered by a 5-watt solar PV array on its top. The design was selected through a public solicitation



Fun Fact: An electric guitarist played at the pavilion's opening, powered of course by the sun.

process. Because the city wanted the site to be powered by cost-efficient solar PV, the request for proposals included a requirement to take into consideration the panel sizes of off-the-shelf solar PV.

In addition to educational signage about solar PV, the pavilion features a digital readout of the energy generated on site and how it is used. The solar array powers nighttime lighting for the structure, as well as electricity that is available to the public, free of charge, through four outlets. Any excess energy flows into the grid, and the city is compensated for its contribution.

Another public project that has yielded dramatic results is the solar lighting at the long-term parking lot at the [El Paso International Airport](#). Installed in 2010 and funded through the airport's capital improvement budget, the lighting is 100 percent powered by solar



View from inside the Aztec Pavilion

panels. The project was completed at 60 percent of the estimated cost of a traditional lighting installation—a \$345,280 savings in capital investment—and will result in a 587-ton reduction in carbon dioxide and save more than \$250,000 over ten years.

The Kalahari Research Station at the El Paso Zoo is powered by a wind turbine and a 500 W rooftop solar PV system, both of which were developed in partnership with EPE. In addition to featuring a digital monitor displaying the amount of wind and solar energy being generated in comparison to the amount being used by the facility, the station makes this information available live [online](#).

Lessons Learned

By engaging multiple stakeholders, educating the public, developing strategic partnerships, and securing the

commitment of decision makers, the City of El Paso has built a strong foundation for continued growth in solar PV. El Paso’s experience provides a number of lessons that can inform municipal solar PV strategies across the country.

- *Take the long view.* Efforts to maximize the potential benefits of solar PV should be based on a long-term vision. Despite recent rapid gains, El Paso officials understand that a sustainable future requires continued commitment.
- *Let leadership help you.* Local leadership—from both elected and appointed officials—can provide the guidance needed to guide the local government’s resources in the right direction. In El Paso, it happened to be the city manager who sparked the process.
- *Leverage results from outside advocacy.* In Texas, the Sustainable Energy Advisory Board (SEAB) advocates for renewable energy policy and investment statewide. El Paso’s sustainability manager sits on the SEAB.
- *Tap local knowledge.* No local government accomplishes its solar PV goals alone. El Paso relies on relationships with a wide range of stakeholders, including El Paso Solar Electric Association (EPSEA), UTEP, El Paso Community College, and numerous city departments. Consulting with stakeholders enabled the city to construct an incentive program and to develop job-training programs to strengthen the solar economy.
- *Engage the utility as a partner.* Although some local governments have the advantage of managing a publicly owned electric utility, most do not.

Other City Solar Projects

- Using federal Energy Efficiency and Conservation Block Grant (EECBG) funding, the El Paso Main Library installed 20 megawatts (MW) of solar photovoltaic (PV) capacity on its rooftop.
- Through EECBG funding, the city installed 20 MW of solar PV on the roof of its animal shelter.
- EECBG funds enabled the city to upgrade its fleet maintenance building by installing a 200 MW rooftop solar array.
- To conserve energy, save money, and provide a cleaner environment, the city uses solar hot-water systems to heat seven public swimming pools—saving the city approximately \$350,000 per year.
- The city installed four solar-powered compacting trash cans at strategic locations. Each can holds five times as much trash as a conventional can, and sends a wireless signal to the city when it needs to be emptied—eliminating the need for three daily checks by sanitation crews. Each unit cost approximately \$4,000, but the city is saving approximately \$90,000 a year in diesel fuel.

For El Paso, partnering with EPE was essential to communication and resource development, as well as to net-metering arrangements and the management of the rebate program.

- *Engage in public education and outreach.* Gaining public support for solar PV serves two purposes: First, rebates and other incentive programs work only if the public is aware of their availability, and of the benefits of solar PV. Second, elected officials are more likely to provide political support and to invest directly in solar PV if their constituents are informed about it and advocate for it.
- *Take advantage of statewide renewable portfolio standards.* Although the State of Texas has a Renewable Energy Portfolio Standard (RPS), it does not set specific standards for solar PV; nor does it require that the renewable energy be generated in Texas. As a result, most of the renewable energy generated to satisfy the RPS is wind power originating outside of Texas. An RPS that requires that the renewable energy be produced within the same state, in combination with specific targets for solar PV, would likely yield a more robust solar economy.

Contacts

Marty Howell, City of El Paso Chief Sustainability Officer, 915-541-4925, howellem1@elpasogexas.gov

Larry Perea, Solar Smart Living, 575-621-7217, lperea@solarsmartliving.com

Michael Waldo, El paso electricians JATC, 915-872-9927, mwaldo@epjatc.com

Endnotes

1. Unless otherwise noted, all information in this case study was obtained through interviews with the individuals listed under “Contacts.”
2. City of El Paso Livable City Sustainability Plan; 2012; Page 28;
3. “Substantive Rules Applicable to Electric Service Providers”; 2009; Chapter 25; <http://www.puc.texas.gov/agency/rulesnlaws/subrules/electric/25.173/25.173ei.asp>.

Author

CIII Associates

SunShot Solar Outreach Partnership Case Studies are based upon work supported by the U.S. Department of Energy under Award Number DE-EE0003526. The U.S. Department of Energy (DOE) SunShot Initiative is a collaborative national effort to dramatically reduce the cost of solar energy before the end of the decade. The SunShot Solar Outreach Partnership (SolarOPs) is a U.S. DOE program providing outreach, training, and technical assistance to local governments to help them address key barriers to installing solar energy systems in their communities. The International City/County Management Association (ICMA), American Planning Association (APA), and National Association of Regional Councils (NARC), along with ICLEI-Local Governments for Sustainability and its partners, were competitively selected by the U.S. DOE to conduct outreach to local governments across the United States, enabling them to replicate successful solar practices and quickly expand local adoption of solar energy. For more information visit the SolarOPs website (solaroutreach.org) or contact Emily Dodson (edodson@icma.org).

Disclaimer: This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.



SOLAR
OUTREACH



ICMA