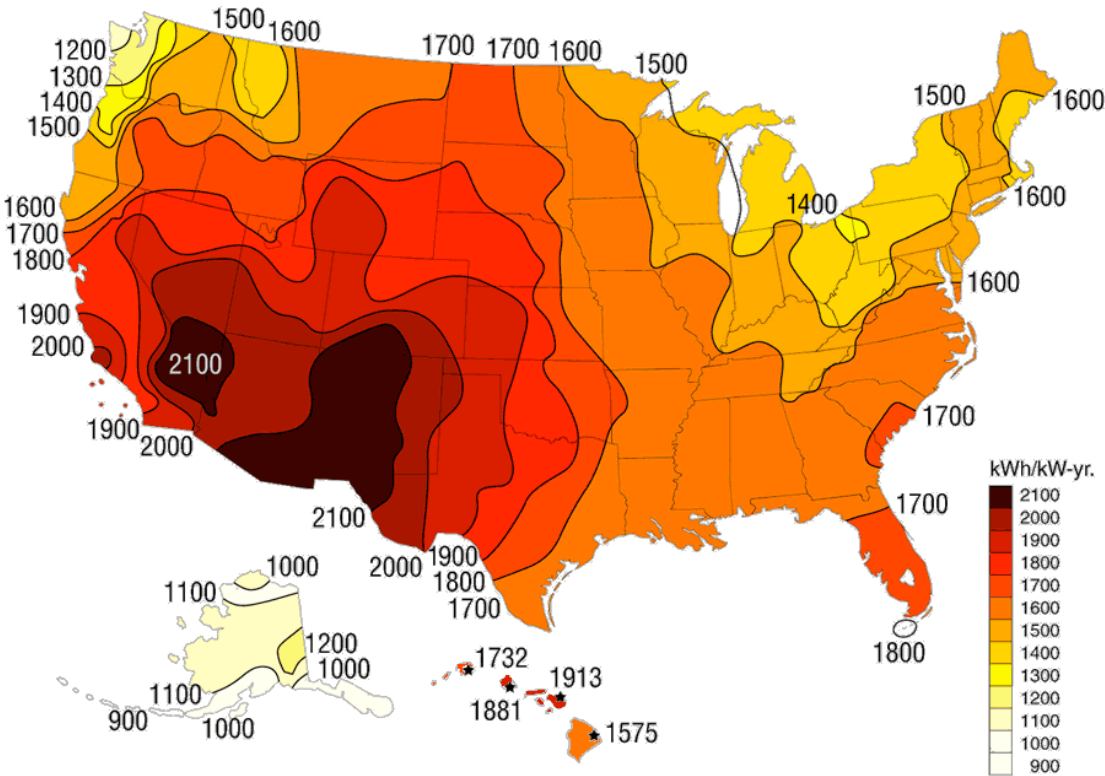


Solar: A Bright Future for El Paso



El Paso’s geographic location – A gold mine for solar

A White Paper,
Prepared by the Solar City Task Force
May 6, 2010

“The City must direct a dialog with utility providers to reach alignment with our pursuit of sustainable energy.”

- Livable City Sustainability Plan, City of El Paso Sustainability Program, 5.2 Key Issues

“Representatives of local governments who understand and prepare for policy and market changes will be able to optimally position their communities in the emerging renewable energy economy.”

- Solar Powering Your Community: A Guide for Local Governments, U.S. Department of Energy

Industry – By the Numbers:

- **\$1,045 billion in revenue from renewable energy & energy efficiency industries in U.S.**
 - ASES, 2007
- **\$160 billion in tax revenue generated in U.S. (federal, state, local) by renewable energy & energy efficiency industries**
 - ASES, 2007
- **9 million jobs from renewable energy & energy efficiency industries in U.S.**
 - ASES, 2007
- **259 megawatt photovoltaic market in U.S. in 2007; estimated to grow to 1,590 megawatts by 2010; was only 17 megawatts in 2000**
 - Prometheus Institute for Sustainable Development
- **60% of the world’s energy to be from renewable sources by 2060**
 - Shell International
 - American Solar Energy Society (ASES)

“Photovoltaic (PV) solar electric technology is growing worldwide at an amazing pace, more than doubling every two years. The value of sales in 2002 of about US\$35 billion is projected to grow to more than US\$27.5 billion by 2012.”

- Transitioning to a Renewable Energy Future, International Solar Energy Society (ISES)

Table of Contents

Introduction.....	p. 4
1.0 Planning and leveraging.....	p. 6
1.1 El Paso’s Solar Plan	
1.2 Example of an aggressive Renewable Portfolio Standards Plan	
1.3 Leverage: Federal Tax Credit	
1.4 Leverage: Texas Property Tax Incentive	
2.0 Policies.....	p. 9
2.1 Lead by Example	
2.2 Permit Fee Waivers or Discounts	
2.3 Update rules and regulations	
2.4 2.4 Promote third party funding	
2.5 Feed-in Tariffs (FIT)	
2.6 Example of Feed-in Tariff	
3.0 Incentives.....	p. 12
3.1 Upfront rebate	
3.2 Examples of upfront rebate	
3.3 Renewable Energy Credits (REC) Payments	
3.4 Incentives comparison	
3.5 Tax incentives	
3.6 Example of Tax Incentives.	
3.7 PACE Loan	
4.0 Engaging with the utility.....	p. 15
4.1 Streamline and Improve interconnection standards	
4.2 Improve Net-Metering rules	
4.3 Example of Sound Net-Metering Rules	
4.4 Encourage Solar in Green Pricing Programs	
4.5 Example of Green Pricing Program	
4.6 Optimize Rate Structure	
5.0 Accelerating the Impact of the Solar Industry in El Paso	p. 18
5.1 Supporting Economic Development Through Education, Training, and Outreach	
Solar City Task Force Participants.....	p. 19

Introduction

This white paper is modeled after the Department of Energy's publication "Solar Powering Your Community: A Guide for Local Governments." This comprehensive guide is available online at:
http://www.solaramericacities.energy.gov/resources/guide_for_local_governments.

This white paper presents a set of reasons for supporting a solar energy policy in the City of El Paso. Renewable energy alternatives, rather than the burn and churn technologies of the present, point to solar energy as a significant power source of the future. However, the implementation of a solar future relies on the leadership decisions of today. This paper hypothesizes that El Paso's solar energy future can be accomplished by providing information on programs and policies that have proven successful in other communities in Texas and in other cities across the nation. It is argued that creating a policy environment in the City of El Paso, aligned with national, state, and local solar initiatives, can significantly and positively affect economic development in the "Sun City."

The burning of fossil fuels, a finite resource, is an unsustainable model for providing energy generation in the future. Even nuclear energy relies on a finite resource for energy generation and one in which the issues of waste management have yet to be completely resolved after decades of being in the US energy generation portfolio. According to the International Solar Energy Society "it is critical for governments to view what remains of the fossil fuel era as a transition;" Further, "the window of time in which convenient and affordable fossil energy resources are available to build new technologies and devices to power a sustained and orderly final great world energy transition is short" (ISES, 2003).

This paper highlights models and policies in existence that can accelerate El Paso's significant entry into the solar industry for the present and for the future. The wheel does not have to be reinvented for solar power to work in El Paso. This paper outlines national models for solar powering our community and also provides solutions, in the form of successful policies and programs in other forward looking regions and cities from Texas and the Nation. Considering that El Paso is in a geographic "gold mine" of solar irradiation, the need for a policy and incentive environment that can take advantage of El Paso's greatest natural resource is sorely needed.

Around the country, cities have played an important role in creating solar markets, especially when they work with utility companies. ***The upcoming El Paso Electric Rate Case is our city's chance to ask El Paso Electric for incentives that are competitive.*** At the Rate Case, El Paso Electric will ask the city's permission to raise its rates, which are already the second highest in the state. In this context, there must be room to discuss solar incentives.

The Rate Case is a prime opportunity to negotiate the incentives that will make El Paso's solar future bright and hot. If we miss this window, we may have to live with the company's sub-par incentives for another decade and watch other cities, as close as Las Cruces, pass us by. It is in the best interest of El Paso homeowners, its businesses and its

workers that the City Council show leadership on this issue and turn El Paso *from the “Sun City” to the “Sun Capital of the Southwest.”*

1.0 Planning and Leveraging Federal and State Incentives

Some federal incentives to promote solar energy already exist at the federal and state levels. However, they are insufficient and a solar market has failed to take a hold in El Paso with these programs alone. The local government can act to fill the gaps through sound policy making. In addition, local action can leverage the existing federal and state programs to make the most of what they offer. The first step is having a plan.

1.1 El Paso's Solar Tracking

There are solar installations in the region but there is currently no City-wide effort to document the solar installed base, making it hard to plan for growth.

- **Recommendation: The City should document and keep track of the solar installed base.**

1.2 El Paso's Solar Plan

The City of El Paso does have a sustainability plan that outlines the potential for solar in the region. However, *sustainability plan goals for alternative energy use lag behind commonly cited targets for renewable energy portfolios across the U.S.* In addition, there is not currently a formalized incentive or policy environment in the City for reaching those goals. The goals set by the City, from the sustainability plan, are provided below. A copy of the sustainability plan is available at: <http://www.ci.el-paso.tx.us/sustainability/default.asp>.

Key Issues (Section 5.2)

The strategic planning process identified the following key energy issues that must be addressed for us to be successful:

- *The City should take advantage of its own renewable resources to generate clean cost-effective energy.*
- *El Paso must become an internationally recognized center for clean energy research, development, manufacturing and generation.*
- *The City must direct a dialog with utility providers to reach alignment with our pursuit of sustainable energy.*
- *The City must develop a comprehensive energy plan, both internal to City operations and external for community use.*

Improvement goals (Section 5.3)

To use our energy more efficiently and find cleaner energy sources and enable our citizens those same opportunities, we have adopted the following goals:

- *Reduce City of El Paso total energy consumption by 30% by 2014.*
- ***Implement 20 City of El Paso renewable energy projects by 2015.***
- ***Transition 20% of City of El Paso energy use to renewable sources by 2020.***
- ***Transition 10% of Community energy use to renewable sources by 2020.***

- ***Aggressively use partnerships and incentives to create a clean energy core business sector in El Paso.***

The City recognizes that public/private partnerships with education, workforce and economic development stakeholders are the building blocks for quality, clean energy employment opportunities for El Pasoans.

- **Recommendation: The City should outline a plan for accounting and measuring their stated goals, more in step with solar goals in other cities across the nation.**

1.3 Example of an aggressive Renewable Portfolio Standards Plan

Austin Energy's Renewable Portfolio Standards (RPS) includes a Solar Set-Aside. In Texas, municipal utilities and cooperatives aren't subject to the state's RPS but were given the choice of opting in. Austin chose to develop its own RPS policy instead of opting into the state standard. The Austin City Council approved a resolution in September 2003 directing Austin Energy, the municipal utility, to enter into a memorandum of understanding (MOU) with the World Wildlife Fund that includes, among other objectives, a goal to achieve a 20% renewable energy component in the utility's energy mix. In December of that same year, the city council approved Austin Energy's 10-year strategic plan, which included a 20% RPS by 2020. The plan also contains a commitment to develop 15 megawatts of solar generating capacity by 2007, increasing to 100 megawatts by 2020. To help achieve the solar generation requirement, the utility established a rebate program for photovoltaic (PV) systems. In February 2007, the city increased the overall RPS requirement to 30% by 2020 as part of the mayor's climate protection plan; the solar requirement remained unchanged at 100 megawatts by 2020.

- **Recommendation: The City should consider a solar set-aside program to mandate that a portion of the city's renewable energy goals be met by solar.**

1.4 Leverage: Federal Tax Credit

On solar-electric systems placed in service after 12/31/2008, a taxpayer may claim a credit of 30% of qualified expenditures for a system that serves a dwelling unit located in the United States and used as a residence by the taxpayer. Expenditures with respect to the equipment are treated as made when the installation is completed. If the installation is on a new home, the "placed in service" date is the date of occupancy by the homeowner. Expenditures include labor costs for onsite preparation, assembly or original system installation, and for piping or wiring to interconnect a system to the home.

If the federal tax credit exceeds tax liability, the excess amount may be carried forward to the succeeding taxable year. The excess credit can be carried forward until 2016, but it is unclear whether the unused tax credit can be carried forward after then. The maximum allowable credit, equipment requirements and other details vary by technology, as outlined below.

- **Recommendation: The City should develop a plan to leverage federal solar incentives**

1.5 Leverage: Texas Property Tax Incentive

Texas currently lags behind other states, such as New Mexico, New Jersey, California, New York and Colorado in their adoption of state-wide policies that provide an environment conducive to significant investment in solar energy initiatives. However, the state does have a property tax exemption of the amount of the appraised property value that arises from the installation or construction of a solar or wind-powered energy device that is primarily for the production and distribution of thermal, mechanical, or electrical energy for on-site use, or devices used to store that energy.

- **Recommendation: The City should educate the public about this program.**

2.0 Policies

Sound policies are needed to lay the groundwork for the incentives that will spur a solar wave in El Paso. Local governments can address high up-front costs through many means such as rebates, loans, and tax incentives. Although the private sector has developed innovative business models to reduce the up-front cost of solar, such as power purchase agreements and leasing arrangements, *these models generally still require state or local incentives to make the economics work*. New policies around renewable energy would help the City meet the goals on its sustainability plan: *Implement 20 City of El Paso renewable energy projects by 2015; Transition 20% of City of El Paso energy use to renewable sources by 2020; Transition 10% of Community energy use to renewable sources by 2020.*

- **Recommendation: The City should create a policy environment for incentives that match others around the state (e.g. San Antonio, Bryan, Austin) and the nation (e.g. New Mexico, New Jersey, California, New York and Colorado.**

2.1 Lead by Example

From the City's Sustainability Plan, 5.2: "The City should take advantage of its own renewable resources to generate clean cost-effective energy."

Local governments can show leadership by integrating solar energy technologies into government facilities and properties. Leading by example is an excellent way to ignite a local solar energy industry and encourage area residents and business owners to adopt solar energy systems.

- **Recommendation: The City should install solar panels on its property.**

2.2 Permit Fee Waivers or Discounts

Permitting incentives reduce or waive local building permit fees, plan-checking fees, design review fees, or other such charges that residents and businesses normally incur when installing a solar energy system.

- **Recommendation: The City should study the fee process involved in solar installation and identify streamlining possibilities, discounts and waivers. The City should then publicize new policies.**

2.3 Update rules and regulations

Green building standards for new construction and renovations are gaining popularity at the state and local level. Local governments can encourage or require homebuilders and

developers to design and build solar-ready homes and commercial buildings so architects and builders can ensure viable sites for solar technologies.

Tucson, for instance, is requiring all new residences to be solar-ready. In June 2008, the Mayor and City Council unanimously voted to require all new residences in Tucson be solar-ready for PV and solar hot water heater (SWH) systems. The new rules for SWH went into effect March 1, 2009. Builders and developers of single-family homes and duplexes must include in the plans an SWH system or a stub-out for a later installation to receive a building permit. Arizona tax code allows developers to take a state tax rebate of \$75 or the actual cost of the stub-out. Code changes to reflect the new rules for PV-ready homes will go into effect later in 2009 (Solar Powering Your Communities, DOE).

- **Recommendations: The City should consider the following options: Integrating one or more green building rating systems into local building policies; adopting residential energy conservation ordinances (RECOs) or commercial energy conservation ordinances (CECOs) to require residents and commercial building owners to implement energy and resource conservation measures; requiring builders and developers to design solar-ready homes and buildings; and improve building energy standards and policies for local government facilities (Solar Powering Your Communities, DOE).**

2.4 Promote third party funding

There are a variety of options available for installing solar panels in residential and commercial environments that allow “third parties” or companies with the financial resources to install solar systems with little to no up-front capital costs. *Third party financing paves the way for Solar Power Purchase Agreements (SPPA)* that work as follows.

A host customer agrees to have solar panels installed on his property, typically his roof, and signs a long-term contract with the solar services provider (the “third party”) to purchase the generated power. *An SPPA is a performance-based arrangement in which the host customer pays only for what the system produces, not the costs of installing the system.* The host property can be either owned or leased (note that for leased properties, solar financing works best for customers that have a long-term lease). The purchase price of the generated electricity is typically at or slightly below the retail electric rate the host customer would pay its utility service provider. SPPA rates can be fixed, but they often contain an annual price escalator in the range of one to five percent to account for system efficiency decreases as the system ages and inflation-related costs increases for system operation, monitoring, maintenance, and anticipated increases in the price of grid-delivered electricity. The term length of most SPPAs can range from six years (i.e., the time by which available tax benefits are fully realized) to as long as 25 years (Green Power Partnership, US Environmental Protection Agency, <http://www.epa.gov/greenpower/buygp/solarpower.htm>).

- **Recommendation: City should allow residential, commercial and industrial customers to enter into third party agreements through solar policies, incentives and rate structures that promote SPPA's.**

2.5 Feed-in Tariffs (FIT)

A **feed-in tariff** (FIT) is a policy mechanism designed to encourage the adoption of [renewable energy](#) sources and accelerates the move the adoption of renewable energy sources such as solar. FIT policies are in place in 40 countries around the world and are often cited as the main driver of the renewable energy markets in Spain and Germany. You can implement a FIT as a stand-alone policy or as a means of meeting a Renewable Portfolio Standard (Solar Powering Your Communities, DOE).

The barriers to FITs in the United States are often related to the state and local control over electric utilities and the widely decentralized structure of the electrical generation and distribution system. The U.S. is a labyrinth of 3,100 public utilities, 2,100 non-utility power producers and a not-so-smart transmission system. Despite the complexity, *movement is underway to use FITs as an instrument of state, local and national energy policy.* (Renewable Energy World, <http://www.renewableenergyworld.com/rea/news/article/2009/08/feed-in-tariffs-have-earned-a-role-in-us-energy-policy>).

"The feed-in tariff has proven to be the best way to get quick movement in renewable energy development and create a lot of jobs," said state Rep. Matt Pierce (D), who has introduced a feed-in tariff proposal in Indiana (New York Times, August 3, 2009).

- **Recommendation: The City should explore the possibility of implementing a FIT.**

2.6 Example of Feed-in Tariff

Since March 2009, Gainesville, Fla., residents have been eligible for a 32 cents per kWh of solar electricity produced by their PV systems. The FIT approved by City Commissioners was the nation's first solar feed-in tariff ordinance, and replaced the Gainesville Regional Utilities' rebate program. The many proponents of the renewable energy incentive - from local residents hoping to install systems to international photovoltaic manufacturers - were projecting the policy would stimulate millions of dollars in private investment in solar energy. Additionally, the ordinance included a reduction in the amount paid per kilowatt hour to those whose install solar equipment beginning in the third year, which took into account that by then technology should be less costly. Murray Cameron, vice president of the European Photovoltaic Industry Association, was one of eight delegates who visited Washington, D.C., Tallahassee and Gainesville this week to learn about the potential for launching North American branches of their corporations."This is a little bit of a feeling of déjà vu for us," Cameron said.

"Because in Germany it was not the federal level that introduced feed-in tariffs, it was local." (The Gainesville Sun, February 6, 2009).

3.0 Incentives

The primary barrier that prevents homeowners from going solar is cost. The technology is still quite expensive and homeowners are facing an initial expense of \$20,000 to \$50,000 to install a PV system on their roof. Many homeowners who believe in the soundness of renewable energy, want energy independence and know they will make up their investment in the long-term still balk at the expense.

Under these circumstances, incentives are needed. In fact, incentives are what drive successful solar markets everywhere, from Germany to California. Currently, the level of incentives available for the solar industry and for solar installations represents less than 0.1% of the energy that is produced in the City of El Paso.

Incentives won't always be needed as panel prices will come down eventually. In fact, many incentives are designed to fade away as costs decline. There will be a time when we reach parity between the cost of solar electricity and the cost of electricity produced by the burning of fossil fuel. But by that time, it will be too late for El Paso. Other cities will have claimed first-mover advantage, among them our neighbor, Las Cruces, N.M. We need incentives to jump start the solar industry in El Paso and make up for lost time.

3.1 Upfront rebate

Upfront rebates are the most straight-forward incentives for solar and the preferred choice of solar homeowners who see their initial investment cut by 30% in most cases. In addition to reducing upfront costs, an upfront rebate works well with any kind of loan program, since it reduces the amount that needs to be borrowed.

Across the nation, upfront rebates offer \$2 to \$3 per Watt of a system installed, with a limit of \$15,000 to \$25,000. The savings can be \$12,500 on a 5000W system (if the rebate is \$2.50 per Watt), a sizable rebate. This year, El Paso Electric started an upfront rebate pilot program of \$2.50 per Watt for up to \$25,000, a comparable value to similar rebates elsewhere. *However, El Paso Electric is only funding the rebate with \$141,300, and it sold out in two minutes and will only benefit 12 projects.* For example, the Austin equivalent is funded with \$4 million. Based on that amount, El Paso Electric could have funded more than 340 projects ($141,300/12 = 11,775$ avg. cost per project; $4M/11,775$ per project = approximately 340).

The El Paso Electric pilot is to be repeated, with the same funding, next year. But insufficient funding can have a negative effect on the willingness of homeowners to go solar. Homeowners who missed the rebate this year may very well decide to hold out until next year to see if they get in, delaying installation.

- **Recommendation: The City should insure that upfront rebates are properly funded (local experts recommended \$2.5 million the first year, to be reviewed and increased as necessary).**

3.2 Examples of upfront rebate

For solar power systems less than 100kW in size, *San Antonio's utility*, CPSenergy, is offering a \$3.00/AC watt subsidy, which is well over 50% of the cost of the solar panels fully installed. Coupled with the Federal 30% tax credit, it is a very financially attractive investment in solar power for a home (<http://solarpowerrocks.com/texas/san-antonio>).

Bryan Texas Utilities announced it will offer a Green Plus PV rebate of \$4.00 per watt that easily covers between 30% and 60% of the cost of installing a system. In addition to a Distributed Generation contract this can substantially improve the Return on Investment in the majority of cases. For a typical residence, the cost of installing a one kilowatt (1,000 watts) solar photovoltaic system—the smallest considered practical—is between \$6,000 and \$10,000. BTU will rebate up to \$4,000 (\$4.00 x 1,000 watts) of that amount. Installation costs can vary and only a BTU authorized installer will be able to perform the work in order to receive the rebate (http://www.btutilities.com/New_Ventures/Rebates/Solar/Default.aspx).

3.3 Renewable Energy Credits (REC) Payments

With REC payments, a utility pays homeowners for every Kilowatt-hour (kWh) of solar electricity they generate, at an attractive rate locked in for several years. REC payments are common practice in Albuquerque, Carlsbad and even in Las Cruces. It helps homeowners recoup their investment in a shorter period of time. In Las Cruces, El Paso Electric pays RECs of 12 cents per kWh.

- **Recommendation: The City should ask El Paso Electric to match or exceed Las cruces REC payments with REC payment for El Paso of 13 cents per kWh.**

3.4 Incentives comparison

The chart below outlines several incentives and the amounts budgeted for the programs. New Mexico is included in the table below due to the fact that El Paso Electric is the energy provider in parts of New Mexico, just as it is in El Paso.

Utility	Location	Upfront Solar Rebate	REC payments for Solar
El Paso Electric	El Paso	Pilot: \$2.50 per watt, up to \$25,000. Budget: ONLY \$141,300 per year.	none
El Paso Electric	Las Cruces, NM		12 cents per kWh for 12 years, after \$30 of credits.
Austin	Austin	\$2.50 per watt, up to	

Energy		\$15,000. <i>Budget:</i> \$4 million.	
CPS	San Antonio	\$3 per watt, up to \$30,000 or 50% of cost. <i>Budget:</i> \$2.5 million per year.	
Oncor	West Texas	\$2.46 per watt, up to \$24,600. <i>Budget:</i> \$2.4 million (2010).	
PNM	Albuquerque, Deming, NM		13 cents per kWh for 12 years.
Xcel Energy	Carlsbad, NM		20 cents per kWh for 14 years, after \$50 of credits.
<i>Source: U.S. Department of Energy, www.dsireusa.org.</i>			

3.5 Tax incentives

Property tax incentives for solar energy systems include exemptions, tax abatements, and tax credits. *Local governments can provide an additional incentive for solar installations by offering a significant property tax abatement or credit.* Most property tax incentives follow a simple model that excludes the added value of solar energy equipment in the tax valuation of the property (Solar Powering Your Communities, DOE).

- **Recommendation: The City should consider tax incentives for solar homeowners.**

3.6 Example of Tax Incentives.

New York City is offering a property tax abatement for PV Systems that allows property owners to deduct 8.75% of PV installation expenditures from their total real property taxes. Property owners who install solar energy systems can take the deduction annually for four years with a total tax benefit of up to 35% of the installed system cost. The maximum abatement is \$62,500 or the amount of real property taxes owed during the year. In effect, this incentive is similar to an ITC; it differs because the tax benefits are recouped through reduced property taxes on the host property instead of through reduced income taxes (Solar Powering Your Communities, DOE).

3.7 PACE Loan

El Paso has a still-unfunded Property Assessed Clean Energy (PACE) loan project, meant to help homeowners outfit their residences with solar panels.

- **Recommendation: The City should prioritize funding its PACE loan program.**

4.0 Engaging with utility

Utilities are obviously important partners for advancing solar adoption in a local community. Municipalities that have jurisdiction over a utility are positioned to significantly affect the ease with which local residents and businesses can purchase and install solar energy systems. (Solar Powering Your Communities, DOE).

4.1 Streamline and Improve interconnection standards

Simplifying permitting requirements and processes can increase the likelihood of successful solar installations and save a significant time and money. Creating consistent permitting processes across a state or region benefits solar installers by providing a standard set of operating procedures, reducing uncertainty, and allowing them to produce more accurate estimates. (Solar Powering Your Communities, DOE). Both utilities and customers can benefit from the availability of shared rules creating clear expectations on both sides. Creating forums for peer-to-peer continuing education can encourage information and experience sharing for interconnection and net metering rules. Finally, formally developing and adopting renewable, distributed generation principles and standards for interconnection can be used as a guide for facilitating the implementation of solar energy.

The following is an example of a project study done by CSG Services and published the Final Report of the Texas RE-Connect Project for Million Solar Roofs Project U.S.Department of Energy Under Contract #DE-FG48-03R801723.

<http://files.harc.edu/Sites/GulfcoastCHP/Publications/InterconnectionGeneratorsTexas.pdf>

- **Recommendations: 1).** Documents and model tariffs could be developed into an easy-to-use “implementation kit” that spells out the critical decisions to be made and provides model tariff documents and customer agreements.
- **2).** City or utility can create a forum for interconnection and net metering standards.
- 3) City should consider requiring utility to adopt the “Principles for Interconnection and Net Metering of Small Renewable Energy Systems in Texas” when offering to interconnect small renewable generators (less than 10 kW-ac).
- 3) City should implement guidelines that offer clear, fair rules and efficient procedures that protect the interests of both utilities and their customers (e.g. City Public Services in San Antonio and the City of Denton).
- 5) El Paso Electric should form a Distributed Generation Interconnection and Net Metering Collaborative Work Group to formally develop and adopt renewable distributed generation principals and standards for interconnection. The group should create a companion document to the existing technical DG interconnection guidelines to reflect the financial rights and responsibilities involved in net metered renewable generating resources. The goal should be to adopt general standards and guidelines by the end of 2011.

4.2 Improve Net-Metering rules

Net metering encourages customer investment in solar energy by allowing customers who install PV systems to receive credit for excess electricity generation, which improves their return on investment. Utilities benefit from net metering if customer-sited generation is located in an area that allows a utility to avoid distribution and transmission system upgrades. Utilities also benefit when they own RECs associated with net-metered generation and can use those RECs to meet federal or state renewable energy requirements. El Paso Electric offers net metering to its customers but the terms under which the credits are paid off could be made more attractive to the homeowner.

- **Recommendations: Examples of improving net-metering rules include allowing customers to carry net excess generation credits forward to the next billing period at the full retail value of 1 kilowatt-hour for at least a 12-month period; as well as not requiring an application fee for net metering and not charging extra charges or fees for net metering.**

4.3 Example of Sound Net-Metering Rules

New Orleans enacted citywide net-metering rules in May 2007. The city council's rules require jurisdictional utilities—particularly Entergy New Orleans, an investor-owned utility regulated by the city—to offer net metering to customers with systems that generate electricity using solar, wind, hydropower, geothermal, or biomass resources. The New Orleans City Council's rules apply to residential facilities with a maximum capacity of 25 kilowatts and commercial and agricultural systems with a maximum capacity of 300 kilowatts. These capacity limits and certain other conditions are specified in Louisiana's net-metering statute, which applies to all utilities in the state. New Orleans requires utilities to provide customer generators with a meter capable of measuring the flow of electricity in both directions but may charge customers a one-time fee for installing the meter. *Net excess generation is credited at the utility's retail rate and carried over to the customer's next bill indefinitely.*

4.4 Encourage Solar in Green Pricing Programs

Utility customers, including renters, property owners with considerable site-shading issues, or occupants of multi-unit buildings, can be offered the option to purchase solar electricity by paying a premium to support their utility's investment in solar electricity. Utilities should be encouraged to offer such an option and to aggressively market the program to customers.

4.5 Example of Green Pricing Program

Orlando, Fla., is offering solar in a green pricing program. Through its green pricing program, the Orlando Utilities Commission (OUC) sells RECs from renewable energy projects to its customers. OUC customers have a choice between two green pricing

products, a blended landfill gas, solar, and wind product and a 100% solar product. The blended green power product costs \$5 per 200-kilowatt-hour block and contains RECs from a mixture of landfill gas (75%), solar (20%), and wind (5%) projects. Local PV, SWH, and landfill gas projects generate RECs for the blended product. Wind developers outside the Orlando region furnish OUC with RECs from wind projects. The 100% solar product costs \$10 per 200-kilowatt-hour block of electricity and includes a mix of PV and SWH RECs from OUC customers who own PV and SWH systems. Each month, OUC purchases energy generated by 55 SWH systems and 13 PV systems owned by OUC customers. As of spring 2009, the program sells approximately 8,600 kilowatt-hours of the blended product and 1,200 kilowatt-hours of the 100% solar product (Solar Powering Your Communities, DOE).

- **Recommendation: The City should encourage the utility to offer a green pricing program.**

4.6 Optimize Rate Structure

Electricity rates include fixed charges and variable charges, and vary by location and customer class (i.e., residential, commercial, and industrial). Rates always include a charge per kilowatt-hour of electricity consumed and sometimes include demand charges for the amount of electric capacity needed by a facility over a given period. Electricity rate structures determine the value of the power produced by a PV system and the cost of additional electricity purchased from the utility. Rate structures affect the overall economics of a PV system, sometimes significantly. Because electricity produced by PV systems always offsets variable charges and sometimes offsets fixed demand charges, rates with high variable charges (per kilowatt-hour) and low fixed charges (demand) enhance the economic benefit of solar electricity generation.

Many proponents of solar energy note that conventional utility rate structures fail to compensate PV system owners for the full value of the electricity they generate. *Conventional rate structures don't account for the benefits to the electricity grid realized by generating electricity from solar energy technologies.* For example, in many regions of the United States, solar electricity production is optimized during sunny afternoons when the electricity grid strains to meet peak electricity demand. Most rate structures fail to recognize the value of PV in lessening the strain on the electricity grid during peak demand times. Most rate structures also don't take into consideration the value of avoided transmission and distribution losses by producing electricity at the point of consumption (Solar Powering Your Communities, DOE).

- **Recommendation: The City should encourage the utility to offer a rate structure that optimizes the economics of solar energy.**

5.0 Accelerating the Impact of the Solar Industry in El Paso

5.1 Supporting Economic Development Through Education, Training, and Outreach

Opportunities for creating green jobs exist all along the solar industry supply chain from solar component manufacturing through to sales, installation and maintenance. Other opportunities exist in fields such as solar training and system financing. *Local governments can contribute to the growth of a domestic renewable energy industry and boost their local economies by partnering with solar market participants and supporting education and training programs.*

- **Recommendation: The City should support and promote solar education and training programs.**

Prepared by: Louie Gilot, HL Schulte

Solar City Task Force Contributors:

Ray Aduato, El Paso Association of Builders

Sabrina Campbell, Upper Rio Grande Workforce Development and URGREEN

Fred Dalbin, Wright and Dalbin

El Paso Electric (Invited)

Louie Gilot, Columnist

Marty Howell, City of El Paso

Vanessa Loughheed, University of Texas at El Paso

Oscar Martinez, Certified Solar Sales Professional

Dan Olivas, El Paso Association of Realtors

Javier Ruiz, Border Solar

HL Schulte, El Paso Solar Energy Association

Luz Taboada, El Paso Community College

Charles Turner, University of Texas at El Paso