



Understanding Energy Insecurity Renewable Energy Solutions

NEUAC | June 3, 2019



TODAY'S TOPIC

How can renewable energy contribute to equitable, sustainable, and affordable energy for all low-income households?



Texas Energy Poverty Research Institute (TEPRI) is a collaboration of poverty and energy stakeholders working to advance economic opportunity and build healthier communities for all through energy.

Our mission is to inspire lasting energy solutions for low-income communities.

Energy Poverty

Energy poverty describes a situation in which a low-income household cannot meet its **basic energy needs** to maintain a **healthy** lifestyle.

This situation may be related to problems of **accessibility, affordability, or awareness.**

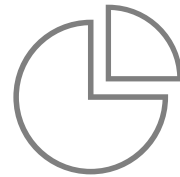
When more than 6% of household income goes towards energy costs, it is an indication of **high energy burden**.

Household Income

Total household income (before taxes) for the same 12 month period



Energy Burden



Energy Expenditures

All household energy expenses over a 12 month period, including electricity, utility gas, and bottled fuel



It does not tell us who is going without basic energy services whether because of affordability, awareness, or accessibility.

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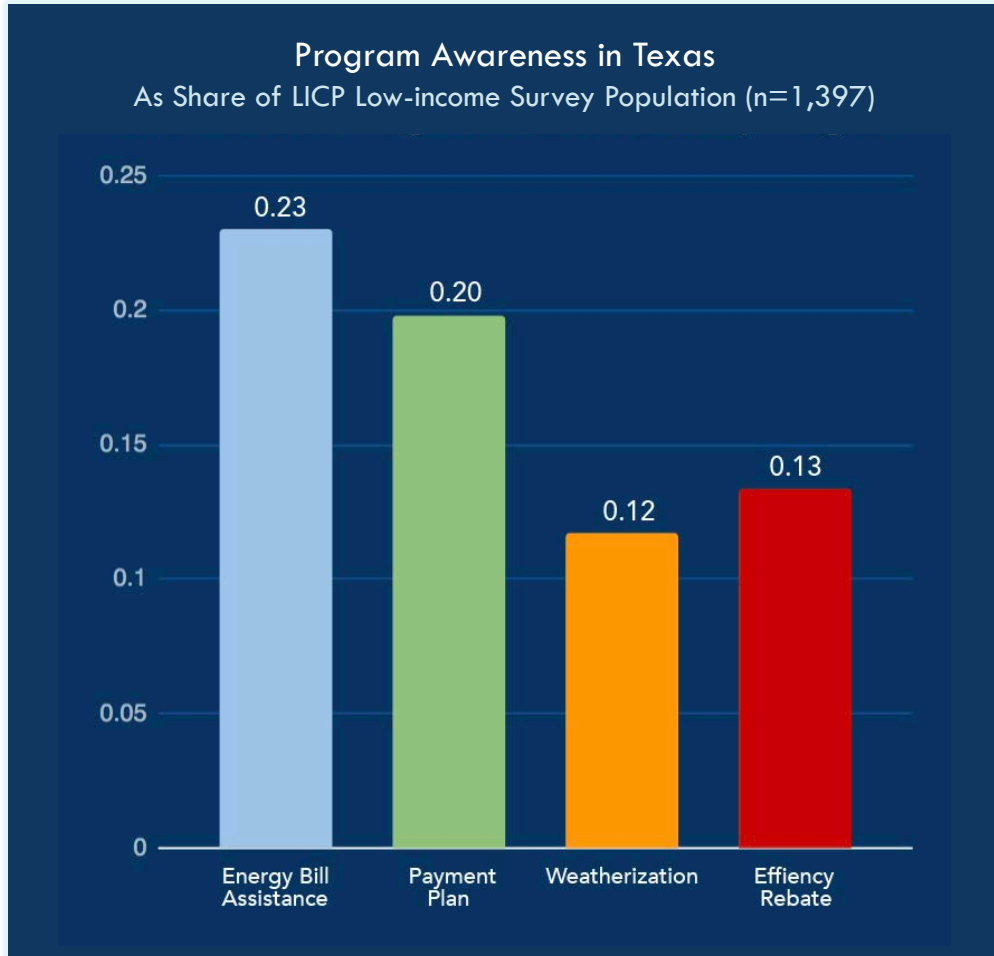
Sometimes, we cut back on certain things so we can have rent and air. If it's not, you know, really too urgent, then we'll just wait until next month or something to pay for it, to make sure that the air is working.” ”

Survey Participant in Waco, Texas



Renewable energy has the potential to ensure affordable energy over the long-term.

Program Awareness



Are you aware of any of the following types of energy efficiency or assistance programs?



Survey Question

Are you aware of any of the following types of energy efficiency or assistance programs?

Emergency Assistance

Only 20% of U.S. households who are eligible for LIHEAP received it in 2017¹

LIHEAP funding was down 32% from 2010-17¹
Funding is up 9% for 2019 compared to 2017²

U.S. electricity prices have increased ~15% in the past ten years,³ while wage growth has been low or flat⁴

Expensive alternatives, such as high-interest short-term loans or using a credit card, compound financial strain



Long-term Solutions

Low-income solar programs tend to guarantee day one savings that will persist or grow over time

Income disparity in solar adoption is receiving widespread attention and converting into action

The declining cost of solar is creating new opportunities to offer affordable options to low-income customers

Renewables have the potential to improve quality of life, reduce stress, and improve air quality

¹ NEUAC, *U.S. Fact Sheet (2017)*

² U.S. HHS, *Administration for Children & Families (2019)*

³ EIA, *Average Retail Price of Electricity, Residential (2008-2018)*

⁴ Economic Policy Institute, *Nominal Wage Tracker (2019)*

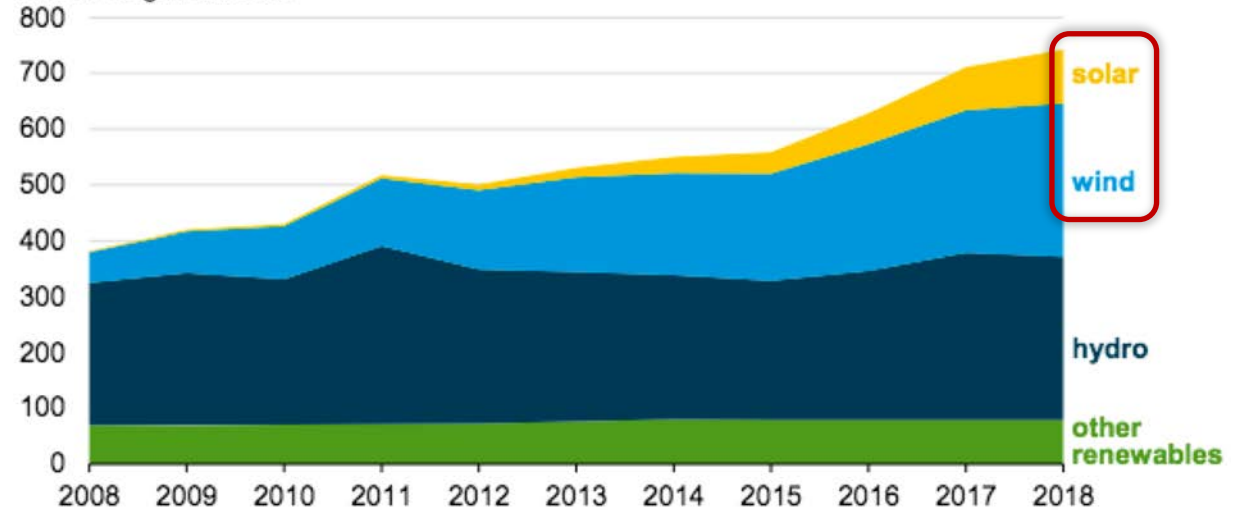
Renewable electricity generation has doubled in U.S. since 2008

Nearly 90% of the increase in U.S. renewable electricity between 2008 and 2018 came from **wind** and **solar** generation

Growth of Renewable Generation, U.S. (2008-18)

U.S. annual renewable generation, by fuel type

million megawatthours



Source: <https://www.eia.gov/todayinenergy/detail.php?id=38752>

Types of Renewable Energy Generation

Utility-Scale

Hydro, Biomass, Wind, Solar, Geothermal



Opportunity for system-wide savings, more certain electricity rates, and social benefits to the environment.

Customer-Sited

Solar, Geothermal heat pumps, Biomass



Ownership involves high upfront costs. Ways around these high costs include: grant funding, low-income utility rebates, and leasing models.

Community

Solar, Wind (rare)



Community projects are sited to achieve optimal productivity. Participation is modeled as ownership, lease, or subscription.



This solar carport at the Indian Pueblo Cultural Center in Albuquerque, New Mexico, delivers 23 MWh/year to the local utility grid.


Source: U.S. Department of Energy

Barriers to Access


- Older housing
- Higher percentage of renters
- Lack of housing stability
- Lack of capital
- No or low credit ratings
- Uncertainty in economic circumstances

La Loma Community Solar ➔


Project information:
 La Loma Community Solar Project installation began in 2017. The system capacity is 3.1 MW dc (2.6 MW ac). The installation consists of 9,054 Jinko modules (345 watt) and 4.3 Sungrow 60 kW ac inverters. The installation is expected to generate over 4500 MWh each year.



How Solar Energy Powers Your Home



For more information, visit austinenergy.com/go/communitysolar



Subscription Model

Renters and others can access local solar without installing on their own roof

No upfront costs, no maintenance responsibilities

If the customer moves and stays with the same utility, they maintain participation

Savings from day one, participants who are CAP-eligible receive a 1.5¢/kWh discounted rate



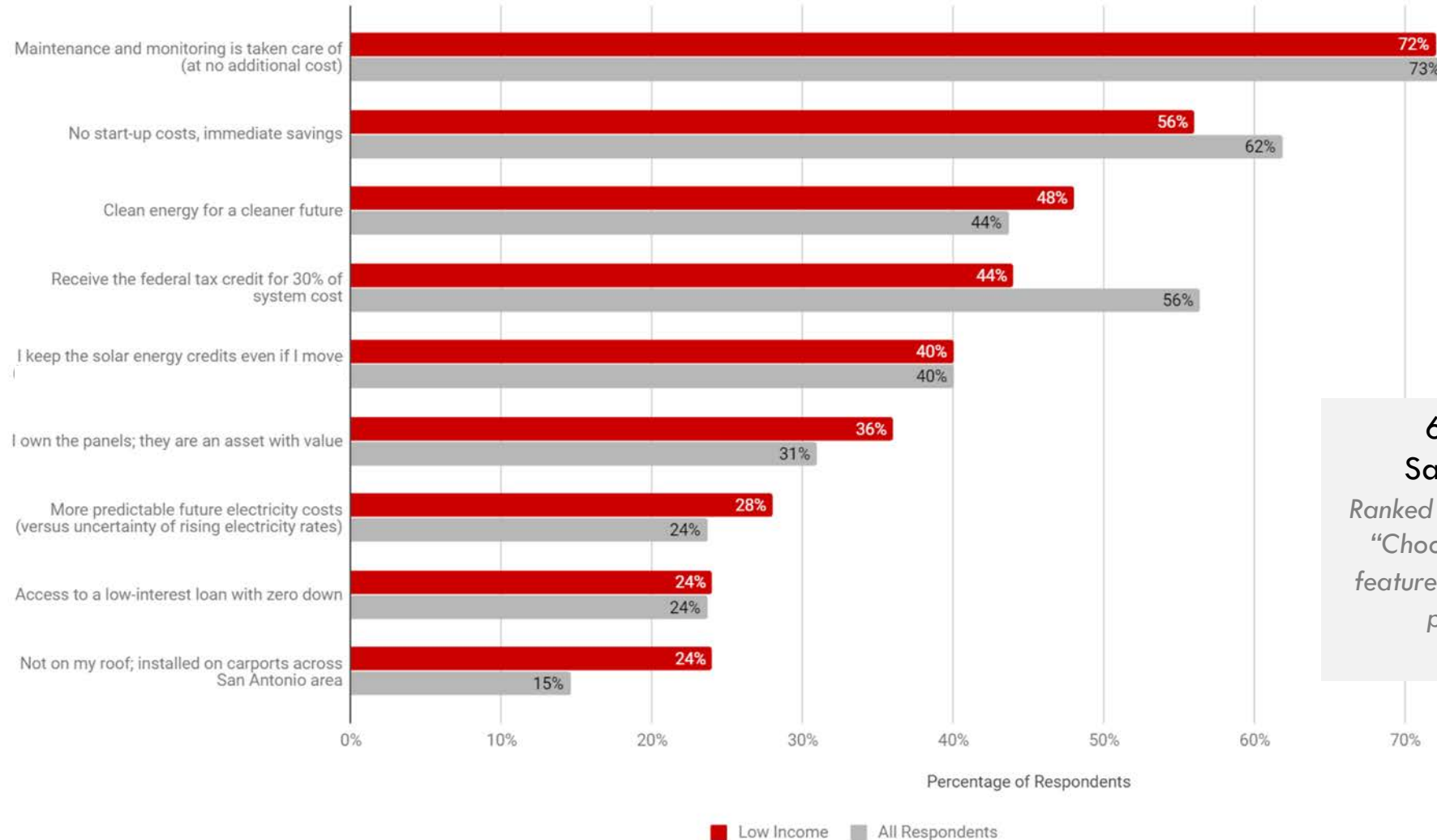
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La Loma Community Solar

Austin Energy reserved half of its 2.6 MW La Loma Community Solar project for customers who are eligible for its Customer Assistance Programs (CAP).

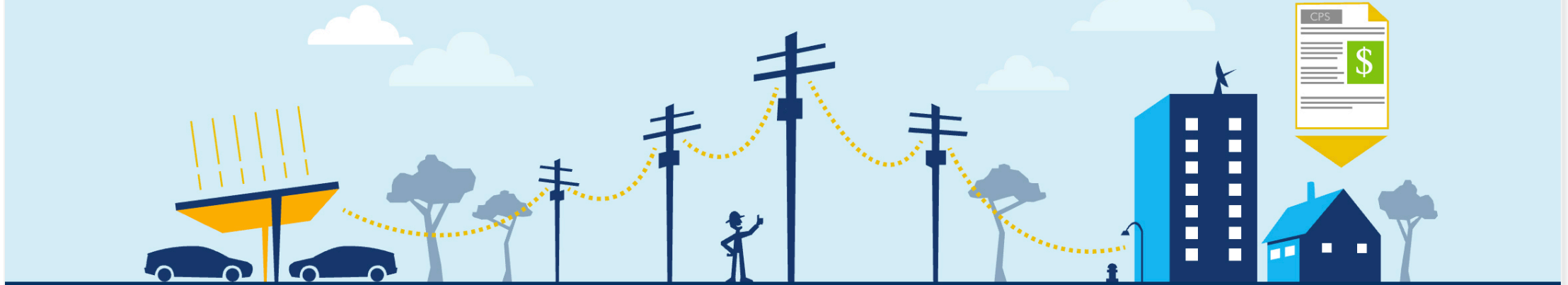
Most Important Features of Community Solar

Low Income Relative to All Respondents (TEPRI, March 2019)



62 Respondents Across San Antonio Metro Area
 Ranked responses to the question:
“Choose THREE to FOUR of the features of this Community Solar program that make it most attractive to you.”

Here's how it works:



1

Energy is captured in sunny locations

Big Sun solar panels are installed on carports in reliably sunny locations. We install, maintain and monitor those panels, so you never have to worry.

2

We manage the energy for you

Energy generated from your Big Sun solar panels goes into the power grid. We monitor the amount of energy your panels produce.

3

Issue credit directly to your bill

Your credit lowers your monthly bill automatically and you can easily see how much energy your panels produced.

Principles of Equitable Program Design



Adapted from: <https://www.ucsusa.org/sites/default/files/attach/2019/05/equitable-policy-storage-principles.pdf>

NEUAC 2019 — TRACK B

Advancing Energy Affordability in Our Communities

Upcoming sessions with case studies related to Renewable Energy:

- **A Tale of Two Federal Partners (2B):** Implementation of an effective solar photovoltaic program through Puerto Rico's Weatherization Assistance Program
- **Navajo Tribal Utility Authority (3B):** How they developed a long-term renewable generation project that has led to specialized training, job creation, and economic and energy benefit for the Navajo Nation
- **Vermont Energy Investment Corporation (3B):** Efforts to develop and build Zero Energy Modular Home factories to create jobs and reduce energy burdens in rural communities.
- **California's transition to Time-Of-Use (TOU) rates (6B):** Efforts to measure and mitigate the impact of these new rates on low-income customers.



Thank you.

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