

Case Study:

Independent School Districts in Texas



Pasadena Independent School District

Quick Facts

Location

Pasadena, TX

Schools Participating

South Houston High School

Sam Rayburn High School

Partners

Houston Advanced Research Center

Ignite Solar, LLC

PV Capacity

145 kilowatts (kW) total

Annual Kilowatt-hour (kWh) Production

172,000 kWh

CO₂ Reduction

124 metric tons a year

PV Equipment

Solyndra rooftop panels

Crystalline rooftop/awning panels

Uni-solar Metal rooftop panels

Lumeta rooftop panels

PV Location

Rooftop, wall mounted, awnings

Project Installation

2011

Cost

\$2,000,000 total

Cost Savings

\$15,000 in energy usage a year

PV Funding

Initial funding: Clean Air Act suit brought by Environment Texas & the Sierra Club; Sam Rayburn High School also received funding from SECO

Summary

Pasadena Independent School District (ISD) is a public school district located just outside of Houston in Pasadena, TX. Pasadena ISD has over 60 campuses which serves much of southeast Harris County, including Pasadena, South Houston, a portion of Houston, and a

portion of Pearland. In a partnership with the Houston Advanced Research Center (HARC), Pasadena ISD hosts the East Harris County Solar Initiative project of two solar installations, making up an aggregate 145 kW, that help maximize learning opportunities for students. The program aims to test the effective use of solar technologies in a school environment and provide hands on experience for students to gain a better understanding of renewable energy resources. With at least 75% of the students in Pasadena ISD being low income, the Solar Initiative project has created opportunities for the students to have real life experience with renewable energy, grow in their creativity and innovation, and gain knowledge and skills which will lead to expanded career pathways.



Photo courtesy of Houston Advanced Research Center



Photo courtesy of Houston Advanced Research Center (HARC) and Pasadena ISD

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Solar Energy and Education

When the Solar Initiative project was installed in 2011, it was one of the largest rooftop installations in Texas. The objectives of the project were to create opportunity for renewable energy education; allow students to perform data collection and analysis; develop a real world application for hands-on experiences; and to reduce electricity costs to the district.

The partnership between HARC and the district aimed to install a sustainable solar energy system that would act as a demonstration site of how solar energy

systems can be installed on existing structures in several ways. There are four different types of solar panels in use that are implemented in eight different configurations. Ignite Solar installed the PV at three different angles with minor variations so that the students would be able to compare the data and learn about what type of production is more efficient and potentially develop real-world solutions for other projects. Students learn about the viability of solar energy through data analysis of the output and implementation of energy conservation lessons embedded in the curriculum. The solar installations offer project based learning, allowing for students to find solutions to problems through research, engineering, and collaborative efforts.

Pasadena ISD incorporates the solar array into every class curriculum. For example, chemistry classes are taught about solar panel construction and have lab activities related to solar energy. Each school is equipped with a kiosk in the foyer where students can pull data from the monitoring equipment to measure solar performance and monitor maintenance and servicing needs. Students are able to conduct lessons for the elementary students on what they've learned through their interactions with the different solar energy models, as well as the importance of renewable energy. For more information about the Solar Initiative and to view the real time data monitoring of the PV systems, please visit: <http://pisd.harc.edu/Home/tabid/1362/Default.aspx>.



Why Did Pasadena ISD Adopt Solar?

- ◇ Solar energy systems provide many educational opportunities
- ◇ Solar reduces energy costs
- ◇ Solar reduces the district's carbon footprint
- ◇ Educates students in the area of alternative energy
- ◇ Solar energy production enhances the value of the school district

The North Central Texas Council of Governments recommends to have an energy audit done by the State Energy Conservation Office to establish where solar might fit into overall energy efficiency improvements and energy saving potential. For more information on the SECO Technical Assistance Program, please visit: <http://seco.cpa.state.tx.us/energy-reporting/gov-assist.php/>

The North Central Texas Council of Governments is working under contract with the State Energy Conservation Office (SECO) to expand best management practices for solar photovoltaic systems throughout the State of Texas. For more information about solar in Texas, please visit: www.GoSolarTexas.org.