

# Case Study:

## Independent School Districts in Texas



# Carroll Independent School District

### Quick Facts

#### Location

Southlake, TX

#### Schools Participating

Carroll Middle School (M.S.)

Carroll High School (H.S.)

#### Partners

Carroll ISD, Axium Solar

#### PV Capacity

Carroll M.S. – 567 kW

Carroll H.S. – 500 kW

#### Annual Output

Carroll M.S. – 832,569 kWh

Carroll H.S. – 682,500 kWh

#### Panels

Carroll M.S. – 2,460 panels

Carroll H.S. – 1,956 panels

#### Land Use

Carroll M.S. – New

Carroll H.S. – Retrofit

#### Peak Occupancy Output

Carroll M.S. – 67%

Carroll H.S. – 30%

#### Cost

Carroll M.S. – \$2.5 million

Carroll H.S. – \$1.2 million

#### Funding

Bonds

(SECO) Grant - \$2,000,000

Participant in the Oncor  
Electric Delivery PV Incentive

#### Project Installation

Carroll M.S. – 2011

Carroll H.S. – 2014

### Summary

Carroll Independent School District (ISD) is located just outside of Fort Worth in Southlake, TX. Carroll ISD has 11 campuses that serves the majority of Southlake and portions of Grapevine, Colleyville, and Westlake, TX. Carroll ISD first invested in solar power in 2011 with the construction of Carroll Middle School. The campus features a 450 kW array covering 70,000 square feet of the rooftop, one of the largest school solar arrays in Texas. In 2014, Carroll ISD retrofit and upgraded the roof of Carroll High School and added an additional 500 kW solar array to the ISD's portfolio.



Photo courtesy of Axium Solar

### Benefits of Solar Energy

Carroll ISD has a goal to reduce energy costs by as much as 70%. One of the benefits of installing solar for the district was to help offset annual utility costs. Carroll ISD is looking for opportunities to save on operational costs or to generate additional funding outside the current school budgets. The installation at Carroll Middle School is expected to save local tax payers 70-80% on monthly utility costs and the Carroll High School installation will save upwards of \$60,000 a year for the district. Being involved in the rebate program through Oncor Electric creates opportunity for revenue. For both projects, during periods of minimal building use, such as the summer, the solar array generates surplus energy that would be returned to Oncor in exchange for revenue. The 2014 Oncor PV incentive program paid \$1.09 per watt DC, and offset around 30% of the total cost to install the system. Solar installations allow students to have real world experiences with renewable energy and learn about energy efficiency and conservation. At Carroll High School, a web based monitoring application was installed that allows students, parents, and faculty members access to the energy production data to track and learn about how the system produced energy throughout the year. To view the live monitoring of the solar installation at Carroll High School, please visit [http://live.deckmonitoring.com/?id=carroll\\_isd\\_hs](http://live.deckmonitoring.com/?id=carroll_isd_hs).

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## Funding

Carroll ISD received a \$2,000,000 grant from the State Energy Conservation Office (SECO) in 2011 to support the development of the Carroll Middle School solar project. Additionally, both projects engaged in a rebate program through Oncor Electric. With the first installation in 2011, the Oncor program offered more than \$709,000 in rebates to the district. In 2014, Carroll ISD received a rebate valued at \$550,000. For more information about the solar



Photo courtesy of CEC Companies

## Green Features

Carroll Middle School was designed with energy efficient strategies, including natural lighting, geothermal wells for heating and cooling, light-emitting diode (LED) lighting, solar screens, and reflective roof coating material at the facility.

## Did You Know?

The solar installation at Carroll Middle School is capable of producing up to 30% of the schools total power load during peak occupancy.

In total, Carroll ISD has over 1 megawatt (MW) of active solar technology in the 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](http://www.GoSolarTexas.org).