

THE RESILIENCY OF THE CITY OF IRVING

Where Innovation Meets Sustainability



The city of Irving has been very progressive in their commitment to sustainability and use of renewable energy, said Melissa Baker, the city's Transportation Project Manager. For many years, city leadership has been incorporating resiliency and sustainability into their planning efforts and have seen benefits from doing so. The West Irving Library is just one of many examples.

The West Irving Library is a Gold Leadership in Energy and Environmental Design certified building, which means it is an efficient and cost-saving green building, according to the US Green Building Council. Any time they can make their buildings energy efficient and protect natural resources, they see it as a massive benefit, said Patrick Lamers, Director of the Capital Improvement Program.

The 25,000 square foot library has 29,000 square feet of solar panels to power the building. They have a tracker array that follows the sun, as well as two inverters

that convert solar energy into AC power that can be used in the library. "The whole system is 339 kilowatts," said Lamers.

The city of Irving did not initially plan for the building to be solar powered. They took advantage of a \$1.1 million economic stimulus grant from the State Energy Conservation Office and, while designing the library, they decided to design a solar system as well, he said. The building and solar system were completed in 2011.

They experienced huge financial benefits using solar energy. During the library's first five years, the library was a net zero energy building, which meant the building produced as much energy from the sun as it needed to power the building, he said. When they generated more electricity than the building needed, they received a credit for putting that power back on the

Solar panel outside the West Irving Library.
Source: City of Irving, 2022



FAST FACTS

- 29,000 SQ FT OF SOLAR PANELS
- 339 KILOWATT SYSTEM
- MEETING 70% OF THE LIBRARY'S POWER NEEDS
- INCLUDES 2 EV CHARGING STATIONS FOR PUBLIC USE

utility grid. Though the library is no longer net zero, due to the technology aging over time, the solar panels still generate 70 percent of the library's energy.

They also save money on maintenance. For the past 10 years, maintenance for the panels has been minor, as they are only replaced on an as-needed basis due to any external damage that may occur due to rocks or hail, said Lamers.

Senior Program Manager David Golembeski works with SolSmart, a national program within the Interstate Renewable Energy Council that works with local governments to advance solar in their community. He said solar energy has lots of benefits, the first being its sustainability since it is a renewable energy source.

"You can guarantee the sun is always going to come out," said Golembeski.

Another benefit is that solar is environmentally friendly. It has no harmful emissions like methane and carbon dioxide which can cause health issues and contribute to climate change, he said.

Another clean technology the library uses is a geothermal heat pump heating ventilation and air conditioning (HVAC) system. The system includes 140 wells that go 250 feet deep. The system works by taking advantage of the Earth's temperature, said Lamers.

According to the Department of Energy, a geothermal heat pump uses exchangers to draw the hot or cold energy from the Earth and use it to help heat or cool a building. Currently geothermal heat pumps are the most energy-efficient, environmentally clean, and cost-effective systems for heating and cooling buildings.

In addition, the city of Irving has 10 charging stations, 2 of which are located at the West Irving Library, said Melissa Bakers Transportation Project Manager. There are also four at City Hall and four at the Irving Convention Center.

The chargers, which are all level two, were installed in 2012 after the city received funding from the

Department of Energy. The chargers were upgraded in 2018 to newer level two chargers, said Baker.

They were awarded the Electric Vehicle Charging Stations grant through the North Central Texas Council of Governments and plan to install a DC fast charger at the South Irving Library, said Lauren Patterson, Environmental Programs Coordinator. They are hoping that with future funding, they will be able to get more.

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The city of Irving currently receives 50 percent of their energy from renewable resources and plans to receive 100 percent in 2023. They also have an Environmental Protection Agency (EPA) Green Powered Partnership designation, said Baker.

"That's a partnership with the EPA basically showing our commitment to both renewable energy, as well as environmentally friendly initiatives and programs," she said. "It's a very prestigious designation."

Though the city does not have a separate sustainability plan, environmental efforts are included in both their comprehensive and strategic plans for the city goals and initiatives. They also have a Green Advisory Board that actively engages in environmental initiatives, said Baker.

They create programs that promote sustainability in the city of Irving, one of which is the Green Neighbor Program, which encourages residents to evaluate their current practices and determine new ways they can live a greener lifestyle, according to the city of Irving website.

Patterson, who oversees environmental programs and practices, also hosts events and classes to promote sustainability and encourage residents to practice living greener lifestyles. The monthly classes, which have been ongoing for over 15 years, include topics like gardening, composting, drip irrigation, and water conservation, she said.

"It's always been something they want to provide to the residents," said Baker. "That's always been important to the city."

CURRENTLY,

*geothermal heat pumps are the most **ENERGY EFFICIENT, ENVIRONMENTALLY CLEAN, and COST EFFECTIVE** systems for heating and cooling buildings.*