Solar in your community

Solar energy powers millions of businesses, schools, and households every day with clean electricity, safely produced on American soil. Utility-scale solar parks have a total capacity of 100 GW nationwide—enough to provide power for 22 million homes or about 55 million people.[1]

SOLAR PANEL SAFETY

Panel composition

Photovoltaic cells

Photovoltaic cells are largely made of silicon, the second-most common element on earth, which is also found in most consumer electronics, from cell phones to computer chips.[2]

By mass, 90% of solar panel is made up of glass and aluminum.

The thin layer of solar cells is sealed on both sides and covered with glass and an aluminum frame. Solar panels are designed and manufactured to withstand extreme weather conditions and events. **Panels use a fully sealed technology that blocks trace metals from entering surrounding soils, even if cracked, similar to phone screens.** Solar panels do not contain any liquid, so nothing is able to leak out.[3]

Modern commercial solar panels do not contain sufficient hazardous materials to pose a danger to the environment and human health when in operation or at their disposal.

What about Cadmium Telluride (CdTe) panels?

Some panels, most commonly the panels manufactured in America, are made from cadmium telluride (CdTe) instead of crystalline silicon. This technology is equally safe and thoroughly tested and has additional traits that make it well-suited for certain projects.

CdTe is a trace component found in some panels and does not pose a risk to groundwater. To affect groundwater, the trace amount of CdTe present would have to first be exposed, which is unlikely due to the way panels are designed — well-sealed with shatter-resistant glass — and then dissolve in water, which CdTe does not do.

Traditional forms of energy generation rely on cadmium, too. For every five megawatts of solar power installed, it is estimated that 157 grams of cadmium are prevented from being released into the environment because of the reduction in traditional energy generation.

Slower degradation rate: on average, the modules are able to retain 89% of their original performance after 30 years.

Better performance in hot and humid climates.

Better performance in shaded conditions. [4]

Panel Resiliency

Solar panels are built to withstand extreme weather and are very resilient against high winds and hail.

EDPR only purchases solar panels designed to withstand 11 strikes of hailstones 2.2 inches in diameter. If an extreme weather event harms the solar park, EDPR will quickly clean up any damaged equipment and the surrounding area, and replace broken components as needed.

Projects are monitored 24/7. The local Operations team is on-site during the day, and our continuously staffed Remote Operations Control Center inside our Houston headquarters monitors at all times including throughout the night, receiving nearly real-time data for the entire operating fleet, allowing them to identify issues and respond appropriately.

Solar panels are nearly silent neighbors. Inverters are typically at least 100 feet from the nearest dwelling, and the sound of inverters from this distance is quieter than a refrigerator hum.[5] As inverters only make sound when they are working, no noise is typically emitted at night.

Solar panels are designed to capture light, not reflect it. Most solar panels have anti-reflective coatings and are less reflective than water or windows.[6] Any reflected light would be wasted potential energy!

The ground beneath and around EDPR NA solar projects is maintained with a vegetative ground cover suitable to the local environment, which helps mitigate the possibility of heat increases.[7] Any heat increases that do occur are very small and dissipate completely as you leave the solar park's immediate area.

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> **"Capturing sunlight, quietly producing electricity and shade, and requiring minimal maintenance while being safe and sustainable — there is no question as to why solar power has become the fastest-growing electricity source in history."**
>
> **Maurizio Dikdan, EDP Renewables**
> **Solar PV Technology Engineer**

PROPERTY VALUES

Solar Energy & Property Values

Research from multiple academic institutions and project-specific assessments **have shown little to no negative property value impacts**.[8]

Property value experts agree upon criteria that **typically correlate decreases in property values with increases in noise, odor, and traffic — none of which result from having a solar park as a neighbor.** Solar parks are very quiet facilities that do not emit odor or pollution, and once construction is complete, they have minimal impact on traffic in the area.[9]

What helps improve property values — quality schools, roads, and local services — are further strengthened by projects' contributions to the local tax base, funding those very services while minimally drawing upon them.

Visual appearance also plays a role. This is one area where solar parks could have an impact depending on neighbors' preferences, as we are visually changing the landscape. However, there are many tools to mitigate visual impact, which a lot of thought and resources go into when designing a project, which are also subject to local regulations, which typically include setbacks and screening.

Timber Road Solar Park | Putnam County, Ohio

HEALTH & SAFETY

Human Health & Safety Benefits

When clean energy sources such as solar power gradually replace fossil fuels in the world's energy mix, health and environmental benefits follow. Based on achieving the Department of Energy's 2030 SunShot Initiative goal: [9]

25,000 lives
can be saved by reducing pollutants that cause unnecessary healthcare costs and early deaths.

$167 billion
in health and environmental damages can be prevented.

1.3 million households'
water demands can be met by the amount of water solar energy saves.

$259 billion
can be saved in global climate change-related damages.

[1] U.S. Department of Energy, "Solar Photovoltaic Cell Basics", 2023.
[2] American Clean Power Association, Solar Panels and Your Community, 2022.
[3] First Solar, Our Technology , 2023.
[4] National Renewable Energy Laboratory. Research and Analysis Demonstrate the Lack of Impacts of Glare from Photovoltaic Modules. July 2018.
[5] American Clean Power Association, Solar as a neighbor, 2021.
[6] Riley, Evan, Olson, Scott, "A Study of the Hazardous Glare Potential to Aviators from Utility-Scale Flat-Plate Photovoltaic Systems", International Scholarly Research Notices, 2011.
[7] V. Fthenakis and Y. Yu, "Analysis of the potential for a heat island effect in large solar farms," 2013 IEEE 39th Photovoltaic Specialists Conference (PVSC), 2013.
[8] Al-Hamoodah, Koppa, , Eugenie, Reeves, Hoen, Seel, Rai, "An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations", LBJ School of Public Affairs, The University of Texas at Austin, 2018.
[9] Gaur, V. and C. Lang, "Property Value Impacts of Commercial-Scale Solar Energy in Massachusetts and Rhode Island", Submitted to University of Rhode Island Cooperative Extension, 2020.
[10] U.S. Department of Energy, "The Environmental and Public Health Benefits of Achieving High Penetrations of Solar Energy in the United States", 2016.