Juneau Solar Park

Juneau County, Wisconsin

Juneau Solar Park would be located approximately two miles southeast of the city of Mauston, predominantly in the Lemonweir township. The solar park would create locally generated energy, strengthening the region's grid, while also strengthening the local economy of Juneau County through landowner payments, job creation, and payments to the local government.

	Year 1	Total (35 years)
Utility Aid Fund	**$900,000**	**$31,500,000**

The Utility Aid Fund is unrestricted funding allocated by the state in this fashion based on the project location:

Receiving Entity	Year 1	Total (35 years)
Juneau County	**$600,000**	**$21,000,000**
Town of Lemonweir	**$276,000**	**$9,660,000**
Town of Seven Mile Creek	**$24,000**	**$840,000**

225 MW

ESTIMATED COMMERCIAL OPERATION DATE **2027**

Juneau Solar Park's generation would be equivalent to the consumption of more than **60,000 Wisconsin homes**.[1]

Juneau Solar Park would **help strengthen energy security** for the state of Wisconsin and the United States, helping diversify domestic supply and the local grid.

Economic benefits

Data reflects the estimated amount throughout the life of the project.

CAPITAL INVESTMENT[3]
$375 million

$31.5 million
WOULD BE PAID TO LOCAL GOVERNMENTS

$90 million
WOULD BE PAID TO LANDOWNERS

Millions of dollars
WOULD BE SPENT LOCALLY[4]

PERMANENT JOBS[5]
2 jobs would be created

CONSTRUCTION JOBS[5]
100+ jobs would be created

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Juneau Solar Park would consist of **thousands of solar photovoltaic panels**.

Power generated at Juneau Solar Park would **strengthen the Wisconsin electric grid.**

Juneau Solar Park would **help strengthen energy security** for the state of Wisconsin and the United States, helping diversify domestic supply.

In the first three quarters of 2023, solar energy comprised of **48% of all new generating capacity**.[6]

About us

EDP Renewables North America LLC (EDPR NA), its affiliates, and its subsidiaries develop, construct, own, and operate wind farms, solar parks, and energy storage systems throughout North America. Headquartered in Houston, Texas, with 61 wind farms, 15 solar parks, and eight regional offices across North America, EDPR NA has developed more than 10,600 megawatts (MW) and operates more than 9,600 MW of onshore utility-scale renewable energy projects. With more than 1,000 employees, EDPR NA's highly qualified team has a proven capacity to execute projects across the continent.

EDPR NA is a wholly owned subsidiary of EDP Renewables (Euronext: EDPR), a global leader in the renewable energy sector. EDPR is a global leader in renewable energy development with a presence in 28 regions in Europe, North America, South America and Asia-Pacific. With headquarters in Madrid and leading regional offices in Houston, São Paulo and Singapore, EDPR has a sound development portfolio of top-level assets and market-leading operating capacity in renewable energies. Particularly worthy of note are onshore wind, distributed and large-scale solar, offshore wind (OW - through a 50/50 joint venture), and technologies to complement renewables such as storage and green hydrogen.

EDPR's employee-centered policies have received recognition such as Top Workplaces 2023 in the USA, Top Employer 2023 in Europe (Spain, Italy, France, Romania, Greece, Portugal and Poland) Colombia and Brazil, and are also included in the Bloomberg Gender-Equality Index.

EDPR is a division of EDP (Euronext: EDP), a leader in the energy transition with a focus on decarbonization. Besides its strong presence in renewables (with EDPR and hydro operations), EDP has an integrated utility presence in Portugal, Spain and Brazil including electricity networks, client solutions and energy management.

EDP – EDPR's main shareholder – has been listed on the Dow Jones Index for 16 consecutive years, recently being named the most sustainable electricity company on the Index.

For more information, visit **www.edpr.com/north-america**.

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[1] Power generation calculated using a 25% capacity factor. Household consumption based on the 2022 EIA Household Data monthly average consumption by state.

[2] Assumes 0.58 gallons of water consumed per kWh of conventional electricity from Lee, Han, & Elgowainy, 2016.

[3] Assumes the average cost of an installed solar photovoltaic system is $0.90/watt for a utility-scale project. Based on 2019 SEIA U.S. Solar Market Insight.

[4] Includes vendor spending, property taxes, landowner payments and wages from site jobs. These numbers are presented for example purposes only, and actual payments may vary.

[5] Full-time equivalent jobs calculated by dividing number of contractor hours worked during construction by 2080.

[6] Solar Energy Industries Association, Solar Data Cheat Sheet, 2023.

Juneau Solar Park – July 2024 Info Session
Frequently Asked Questions

WHAT IS THE CURRENT PROJECT'S STATUS AND TIMELINE?

Juneau Solar is on track to begin construction in the summer of 2026 and become operational by the end of 2027, so there is still much to be finalized.

Previously, the project was aiming to be operational in 2026; however the interconnection schedule with the transmission owner, American Transmission Company (ATC), has been moved to 2027.

Our next big milestone is submitting our proposal for a Certificate of Public Convenience & Necessity (CPCN) to the Public Service Commission of Wisconsin (PSC), which is required for power generation facilities over 100 megawatts. This is a robust process which requires public meetings, notifications, and environmental reviews. We are aiming to submit our CPCN by the end of this year, which would likely mean a determination late next year.

We aim to select the general contractor who will manage the project's construction in late 2025 as well. We will then host a construction kickoff info session prior to the start of construction, which is anticipated to be in the fall of 2026.

These timelines are our best estimates and may change. There will also be public engagement and educational opportunities throughout the next few years, and you will likely see us at various community events, such as the upcoming Juneau County Fair.

WHY WAS THIS LAND CHOSEN?

The primary factor in deciding where a solar project could be developed is where a developer can put power on the grid. Identifying these spots to add power is a years-long process overseen by the regional grid operator – in this case, Mid-Continent Independent System Operator (MISO). To avoid needing additional transmission line infrastructure and to optimally get the power onto the grid, we begin working with landowners near the closest interconnection point to the project site.

The second biggest factor is finding local landowners who are interested and willing to lease their land to support our project infrastructure. We have been very fortunate to find great **landowner partners in Juneau County who see the solar park as the best long-term choice for their property and family**, and the proximity to transmission lines means Juneau Solar Park will help provide predictable, homegrown energy to the local area's grid.

Adequate sunlight is also a factor of course, and with the advanced technology in modern solar panels, **the areas of the country that have sufficient sunlight to merit a solar park have increased**, meaning solar parks can be a **great energy producer in areas outside of the traditional sunbelt, including Wisconsin**. Solar production is extremely predictable, which makes it possible to have certainty that an area will generate enough power to be worth adding a solar park to harness it and strengthen the local grid with its energy.

WHY ARE YOU USING AG LAND?

Ag land can be a good fit for solar since it is typically relatively flat with minimal clearing requirements, which means less impact on the land. The land has already been disturbed by farming operations, so the impact on the environment and local ecology is lower, and it also

minimizes the need for tree clearing. All the land leased for this project is leased to us from local landowners who are interested in hosting this project on their land.

It comes down to property owners choosing what to do with their private property. Solar parks provide stable, reliable income that landowners can reinvest into their ag operation, expand their business, hedge against the ups and downs of the ag industry, and supplement their personal finances for things like retirement, putting kids through college, or taking a vacation.

The panels are mounted on galvanized steel piles driven into the ground, which makes for relatively simple decommissioning at the end of the project's 35-year operating life. **EDPR, per our legally binding project leases, is required to return the land to its original use, including farming, grazing, or wildlife habitat.** Giving the land a break for a generation allows nutrients to replenish, boosting soil quality and increasing local biodiversity, leaving the land recovered and ready to serve future generations.[1]

WHERE WILL THE PANELS COME FROM?

A panel supplier has not been finalized for Juneau Solar yet.

EDPR North America has committed to using panels entirely made or assembled in the United States for all solar projects that become operational in 2025 onward, which includes Juneau Solar.

New federal incentives are driving solar panel manufacturers to bring new facilities to the U.S. The global supply chain for solar components sources equipment from many different countries. EDPR does not ever use Chinese panels and is prioritizing as much American-made equipment as possible.

WHAT ARE PANELS MADE OF? CAN TOXIC MATERIALS LEACH OUT?

By weight, the panels are 80% glass and aluminum. The remainder are regular household technology materials like copper, and semiconductor materials like silicon, which is the second most common element on earth.[2] Panels do not contain any liquids, so there is nothing to leak out even when cracked.

Solar panels use a fully sealed technology that prevents trace metals from entering surrounding soils. If the panel breaks, it cracks like a windshield or a phone screen. This means that the glass and panel stay roughly intact, even when shattered. Any residual glass that may reach the ground is cleaned up when the panel is replaced by our on-site Construction or Operations team.

EDPR requests TCLP (Toxic Characteristic Leaching Procedure) reports from every panel manufacturer that we work with. A TCLP report essentially takes a solar panel, grinds it up, and exposes it to extreme elements, comparable to those experienced in a landfill over a long period of time. The materials and their surroundings are then tested to ensure there is nothing toxic leaching from the former panel. EDPR procures panels that pass TCLP testing and are thus able to be disposed of in landfills as regular solid waste per the U.S. Environmental Protection

[1] Department of Energy. Office of Energy Efficiency and Renewable Energy. "A Farmer's Guide to Going Solar."
[2] North Carolina State University Clean Energy Technology Center. "Health & Safety Impacts of Solar Photovoltaics." May 2017.

Agency, indicative of the safety of the materials inside, even in the harshest of conditions. However, EDPR's Close the Loop program keeps solar panels out of landfills through strong recycling initiatives.

HOW DO SOLAR PANELS FARE IN SEVERE WEATHER?

Solar projects and the panels themselves are **designed and manufactured to withstand harsh environmental conditions and extreme weather events. Solar projects successfully operate in all different regions of the United States, including the upper Midwest.** The trackers that the solar panels use to pivot with the sun throughout the day also allow the panels to go into **a stow position for extreme weather**. There are different stow settings for different weather events, so the panels will pivot accordingly, given the impending conditions, to minimize damage. For example, in extreme winds, the front row of each array is on a stronger base (pile) than the others. When strong winds are expected, these rows turn on an angle to act as a windbreak while the other rows stow away in a perpendicular position.

When it comes to hail**, all panels are tested to meet a minimum threshold of hail resistance – 11 impacts of 1-inch hailstones. EDPR additionally tests for 11 impacts of hailstones of 2.2 inches without breaking.** EDPR projects are designed not to experience damage from hail less than 2 inches across. Thus far across our operational fleet**, EDPR has identified zero instances of damaged panels in our fleet due to hail.** There simply haven't been any extreme enough hailstorms to do so, as the hailstones need to be even bigger than a golf ball and heavy enough of a storm to have about a dozen of these giant hailstones hit a single panel.

EDPR successfully operates solar projects in places such as Indiana, Ohio, South Carolina, and the desert Southwest, all of which have their own severe weather tendencies. **Like any built structure, sometimes minor damage occurs in extreme weather, but that is why we have dedicated Operations & Maintenance teams coupled with 24/7 remote monitoring to identify issues and handle any required fixes promptly.**

WHAT WILL THE PROJECT LOOK LIKE FROM THE ROAD AND NEIGHBORING PROPERTIES?

The site will consist of dark-colored panels mounted upon metal piles in horizontal rows, tracking with the sun throughout the day. At their highest—sunrise and sunset—they are approximately 8-10 feet tall. The panels will be inside a fence, most likely chain link.

Since solar panels are mounted on top of metal piles driven into the ground, the vast majority of the ground within a solar park is covered in well-maintained vegetation, meaning plenty of green space around and between the panel rows.

HOW FAR AWAY ARE THE PANELS FROM ROADWAYS AND HOUSES?

In compliance with local regulations, the panels will be **at least 83 feet from the centerline of local roads** and **140 feet from the centerline of state or federal highways.**

Panels have been deliberately sited at least 400 feet away from residential structures, doubling the 200-foot distance that is common in the utility-scale solar industry. At a distance of at least 400 feet, view impacts are minimized.

WHAT IMPACTS WILL THE SOLAR PARK HAVE ON PROPERTY VALUE?

Research from multiple academic institutions[3,4] and project-specific assessments have shown little to no negative property value impacts from projects like Juneau Solar Park.

Some studies have shown a slight decrease in value for homes closest to a solar park in suburban areas only**. In rural communities, the same studies showed there was no impact on property values.**[5] Yet other studies have found that solar panels can have a **neutral or even a positive impact on home values.**

Property value experts agree upon criteria that typically correlate with decreases in property value are increased 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.

What helps improve property values – quality schools, roads, and local services – are further strengthened by the project's $31.5 million going into the tax base for Juneau County, Lemonweir, and Seven Mile Creek as unrestricted funds.

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, we have a lot of tools to mitigate visual impact, which a lot of thought and resources go into when designing the project and are also subject to Township regulations around visual impact, which include setbacks and screening.

WILL THE PANELS MAKE THE AIR TEMPERATURE HOTTER?

Solar photovoltaic (PV) "heat island effect" refers to a limited increase in air temperature in and around solar facilities at certain times of the day and/or year, potentially depending on other conditions, such as wind speed and cloud cover. This phenomenon is conceptually like the "urban heat island" effect that has been observed in which heat-absorbing elements of cities, such as concrete, increase the temperature when compared to surrounding areas.[6,7]

Existing studies on the "heat island effect" at solar facilities have found varied results with respect to daytime and nighttime temperature effects.[8] It is important to note that current research has been conducted on sites in the desert that do not have planted vegetation underneath panels, which is not representative of solar PV facilities in many parts of the country and certainly not Juneau County.[9]

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[3] Al-Hamoodah, Leila; Koppa, Kavita; Schieve, Eugenie; Reeves, D. Cale; Hoen, Ben; Seel, Joachim; and Rai, Varun. 2018. An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations. Policy Research Project (PRP), LBJ School of Public Affairs, The University of Texas at Austin, May 2018.

[4] Gaur, V. and C. Lang. (2020). Property Value Impacts of Commercial-Scale Solar Energy in Massachusetts and Rhode Island. Submitted to University of Rhode Island Cooperative Extension on September 29, 2020.

[5] The University of Rhode Island study's conclusion that there may be an impact to non-rural communities is surmised is that "land is abundant in rural areas, so the development of some land into solar does little to impact scarcity, whereas in non-rural areas it makes a noticeable impact.

[6] 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, pp. 3362-3366, doi: 10.1109/PVSC.2013.6745171.

[7] Barron-Gafford, G., Minor, R., Allen, N. et al. The Photovoltaic Heat Island Effect: Larger solar power plants increase local temperatures. Sci Rep 6, 35070 (2016). https://doi.org/10.1038/srep35070.

[8] Broadbent, A. M., E. S. Krayenhoff, M. Georgescu, and D. J. Sailor, 2019: The Observed Effects of Utility-Scale Photovoltaics on Near-Surface Air Temperature and Energy Balance. J. Appl. Meteor. Climatol., 58, 989–1006, https://doi.org/10.1175/JAMC-D-18-0271.1.

[9] Devitt, Dale A., Lorenzo Apodaca, Brian Bird, John P. Dawyot, Jr., Lynn Fenstermaker, and Matthew D. Petrie. 2022. "Assessing the Impact of a Utility Scale Solar Photovoltaic Facility on a Down Gradient Mojave Desert Ecosystem" Land 11, no. 8: 1315. https://doi.org/10.3390/land11081315

Vegetation beneath panels helps cool an area and stabilize temperatures, which will be the case for Juneau Solar. As the Ohio Department of Public Health has found, "Information to date does not indicate a public health burden from heat generated by PV panels or from the heat island effect."[10]

DOES THE PROJECT POSE A RISK FOR STRAY VOLTAGE?

Stray voltage is a low-level electrical current or shock that results primarily from an improperly grounded electrical distribution system. The presence of stray voltage in the solar project's collection system is mitigated through the proper grounding of the panels, collection system, substation and transmission system. These systems are installed and operated to meet electrical code and best engineering practices prior to and during operations.

Given that utility-scale solar plants operate using three-phase DC/AC inverters and produce no current in-balance, it is very unlikely or impossible the solar park could produce the common causes of stray voltage — unbalanced or single-phase loads. The solar park's construction and operation is subject to safety codes, and numerous credentialed professionals are involved at every step to ensure the solar park's compliance. Additionally, all the wiring, collection cables, and junction boxes are sealed to be both waterproof and insulated.

Stray voltage is much more of a concern with older wiring and is especially prevalent in structures that were gradually expanded upon over several years, like farm buildings. Because of that, the State of Wisconsin heavily incentivizes farm owners to rewire barns, outbuildings, and other structures up to electrical code through the "Farm Wiring Program."[11]

WILL THE PANELS CREATE GLARE?

The panels are constructed of dark, light-absorbing materials designed to capture as much sunlight as possible to generate maximum energy, as any glare reflecting off would just be wasted potential energy. Because of that, they are designed to not have much glare. They are made of non-reflective glass which is typically less reflective than windows.

In fact, utility-scale solar parks are installed at dozens of airports in the U.S. and were some of the first locations to site them. The Federal Aviation Administration continues to allow panels to be installed at many airports across the country. If the glare was an issue, they would not continue to do so.

We are required to complete a glint and glare study as part of Juneau Solar Park's Certificate of Public Convenience and Necessity (CPCN) application through the state, which will evaluate the potential for glint/glare impacts to aircraft, air traffic controllers, local residents, and road users.

WHAT IS THE OWNERSHIP STRUCTURE OF EDP RENEWABLES NORTH AMERICA?

EDP Renewables North America (EDPR NA) is a US company based in Houston, TX, and is led by its own executive team based in the US. EDPR NA directly oversees all of U.S., Canadian, and Mexican assets as the long-term owner-operator. EDP is our parent company and is based in Portugal. EDP is a publicly traded global energy company traded on the European stock market.

[10] Ohio Department of Public Health, "Solar Farm and Photovoltaics Summary and Assessment," Updated April 2022, available at: https://odh.ohio.gov/know-our-programs/health-assessment-section/media/summary-solarfarms.
[11] https://www.wisconsinpublicservice.com/partners/agriculture/rewiring/

Just like any publicly traded company, any individual or company can buy stock in it; therefore, there are shareholders from all over the world.

Thousands of other everyday companies in the U.S. have some amount of foreign ownership, including: Samsung – the smartphone in many Americans' pockets is from a South Korean company; Case IH – owned by CNH International (Italian-American multinational), which is owned by Exor N.V., which is Dutch; Syngenta AG – Swiss corporation owned by ChemChina, a Chinese state-owned enterprise; and Nestlé – Swiss; the world's largest food & beverage company.

HOW WILL THE SOLAR PARK BE MONITORED?

All EDPR solar projects have local operations staff responsible for maintaining the site, coordinating with contractors, and communicating with project landowners and neighbors. We also have a 24-hour, 7-days-a-week staffed Remote Operations Control Center in our Houston Headquarters that has constant, real-time data coming in from every wind turbine and solar inverter in our portfolio, ensuring continuous monitoring and the ability to respond appropriately to events at all times.

WHAT COORDINATION OCCURS WITH LOCAL FIRST RESPONDERS?

EDPR has a dedicated Health & Safety Department that works with local first responders to establish and update an Emergency Response Plan during the project's development. They facilitate both written and on-site training and drills for every project. Training is repeated every 6 months during construction, and every year during operations to ensure teams are up-to-date with the most effective protocols and procedures.

IN THE EVENT OF FIRE, HOW WILL FIRE RESPONSE OCCUR?

Before our park begins commercial operations, we will work with local first responders to collaboratively develop and implement a plan on how to safely contain and extinguish any fire that occurs inside the solar facilities. Like all power-generating facilities, these are live electric-producing sites, so some special precautions are needed to ensure first responders remain safe. It is a key part of later-stage project development to ensure everyone is on the same page about emergency response protocol and procedures for contacting one another.

If you have any remaining questions, please contact the project team:

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