Equinox Installs 331kW Rooftop PV System **for Non-Profit Inspira Health**



A C&I Solar Solution Using the First Batch of Trina Solar's 610W Vertex N TOPCon Modules in the US Market

Project **Background**

Inspira Health is a charitable nonprofit healthcare organization and a regional leader in physician training. It has four medical centers, two comprehensive cancer centers, nine multi-specialty health centers, and locations throughout southern New Jersey. Inspira recently partnered with Rendina, a trusted national leader in healthcare real estate.

Equinox Renewable Energy, LLC, located in Millville, NJ, develops, designs, and builds solar and energy storage projects for the commercial and industrial (C&I) market. Julian Rossini, the principal at Equinox, is a proven solar industry veteran with a long track record of success.

Before joining Equinox, Julian partnered with Inspira to install a rooftop array using Trina Solar Tallmax modules. Atop Inspira's Millville EMS Station, the project garnered a nomination for 2021's "C&I Solar Builder Project of the Year Award."

Building on that success, Julian, now with Equinox, once again partnered with Inspira and Trina Solar C&I Solutions to install a 331 kilowatt (kW) rooftop PV system for Inspira's new health center in Deptford, NJ. The facility formerly housed a national sporting goods chain store and needed significant renovations to accommodate its new healthcare-focused role for Inspira. Part of this renovation included retrofitting the old building for green energy by installing a rooftop PV system.

Project **Overview**

CUSTOMER:	Equinox Renewable Energy, LLC
LOCATION:	Deptford, New Jersey
TYPE:	Commercial rooftop PV system
SIZE:	331 kW
PV Modules:	566 bifacial Vertex N TOPCon modules
Inverters:	SMA
Racking:	Sollega
Completion:	February 2024

Key Drivers

- Sustainability goals
- Energy and operational cost savings
- Retrofit an old building for renewable energy

Equinox and Inspira knew that a properly sized solar array could reduce the non-profit's operational and energy costs and help it achieve its sustainability goals while contributing to cutting carbon emissions for the overall benefit and well-being of the local community.

Rooftop Challenges

Every commercial rooftop typically presents its own challenges due to its distinctive footprint and layout, and this building was no exception. While working on the preliminary design, the team discovered that the roof capacity was extremely tight, significantly limiting roof capacity and potential power generation, and extending the payback period.



During the project's preliminary design stage, the nameplate power output of rooftop PV modules for commercial solar projects had yet to exceed 500W, with PERC solar cells still typically deployed. Modules using n-type TOPCon advanced technology that could achieve 585W and 22.4% efficiency had yet to enter the market. To reach the 331kW system size needed, Equinox would have had to use 807 of the Tallmax 410W modules (the same model installed in the previous project).



The Solution: Vertex N with TOPCon Advanced Technology

That all changed when Trina Solar launched the bifacial Vertex N with n-type TOPCon technology. Familiar with the reliability and bankability of Trina's modules from previous projects, Julian immediately recognized the opportunity at hand: The higher wattage, efficiency, and bifaciality of Trina Solar's Vertex N meant the system required fewer modules to achieve the same power output, allowing for more flexibility in the system design to overcome the roof's space limitations

Inspira's 331kW rooftop system only needed 566 of Trina Solar's 585W Vertex N modules – 241 fewer than the preliminary design using PERC cell pieces.

Julian's quick thinking enabled Equinox to get ahead of the curve. The company ordered and received the first batch of Vertex N modules with TOPCon technology available in the U.S. market.

But that was only one part of the solution. The second part involved solving for the racking's weight. To accomplish this feat, the team designed a hybrid racking system using Sollega's non-steel polymer ballasts and mechanical anchors. This innovative design reduced the ballast blocks by less than 30% and also fully complied with the new UL 3741 Rapid Shutdown standard, which had just been updated in the National Electric Code (NEC).

Total Solar Solutions

Trina Solar's C&I Solutions streamlined the procurement process by supplying 566 Vertex N modules bundled with the SMA inverters. As a total solar solutions provider, Trina Solar's C&I Solutions team helps keep project timelines on schedule and optimizes component interoperability for seamless installations and fewer risks.

Project Success & Forecast

At the time of the system design, bifacial glass panels were uncommon for rooftop PV arrays. Since then, the industry has shifted, and bifacial modules have become popular due to increased power gains. Equinox's forward-thinking decision to use bifacial Vertex N modules is now paying off for Inspira.

Based on Inspira's facility's energy forecast, the 331 kW system is expected to generate approximately 450MWh of sustainable energy annually for 70% of energy offset and a four-year payback period. The 450MWh of renewable power generation will reduce Inspira's carbon dioxide footprint by 314 metric tons annually – equivalent to more than 61 homes' yearly electricity usage. From another perspective, the green energy produced equals the amount of carbon sequestered by 5,198 tree seedlings grown for ten years.

- 70% Annual Energy Offset
- Annual Carbon Dioxide Footprint Reduction of 314 Metric Tons
- Power Generation Equal to more than 61 Homes' Yearly electrical Usage[1]
- Green Energy Equal to 5,198 Tree Seedlings Over Ten Years
- Simple Payback Schedule: 4 years

The success of this project has further strengthened the partnership between Equinox and Trina Solar's C&I Solutions, with more projects using Vertex N TOPCon modules currently in the works.

[1] Results generated using the U.S. Environmental Protection Agency's Greenhouse Gas Equivalencies Calculator. Accessed March 8, 2023. https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results

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C&I Solutions **Partnership**

Interested in the benefits of Vertex N and partnering with Trina Solar C&I Solutions? Reach out to our local team today!

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