nextracker

NX Horizon™ Extreme Cold Weather Solutions

Equip your solar project for cold climates and winter conditions

Nextracker's tracker solutions can deliver 12-18% more annual energy in winter conditions.

When the Temperature Plummets, Nextracker Rises to the Occasion

As utility-scale solar expands into an increasing number of cold climate regions, the need for reliable tracker systems that can deliver high performance in the dead of winter has never been greater. Trackers can achieve a 12-18% annual energy yield increase over fixed-tilt systems in northern latitude locations, so long as they are designed to operate reliably in low temperatures with heavy snowfall.

As of spring 2024, Nextracker has deployed and contracted more than 100 GW of tracking systems. Of these, over 20 GW across 250 projects are in cold climate regions that can face brutal winter conditions. One such project is the Travers Solar array in Vulcan County, Alberta, which, at 692 MWdc, is Canada's largest operational solar plant.

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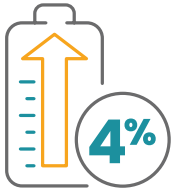
Winning Combination for Cold Weather Environments

The experience gained in cold climate locations has provided Nextracker with unique insights into what is needed for high uptime and performance in subzero temperatures. This includes the need for the rigorous testing of ruggedized cold weather control systems, bifacial smart panels for tracker powering, advanced snow stowing capability, and frost-heave capable foundations. These capabilities deliver value throughout the entire solar project lifecycle. Key benefits include:

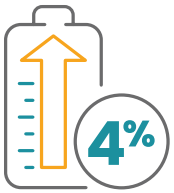


Generate More Energy

Operate More Efficiently

Reduce Project Risk

Better inherent bifacial performance plus TrueCapture delivers 4%+ more energy than traditional tracking systems.



Generate More Energy

- Due to its inherent bifacial optimized design with the industry's lowest rear-side shading, NX Horizon can deliver an increase of more than 1% in annual energy production versus traditional tracking systems when equipped with bifacial panels. This advantage is even more meaningful in winter conditions, due to the high reflectivity of snow, its albedo.
- TrueCapture™, Nextracker's energy yield optimization, delivers IE-validated energy production gains, and has been proven in northern latitudes. As of Spring 2024, Nextracker has provided TrueCapture to more than 50 GW of projects, including over 5.5 GW in cold climates—resulting in gains of up to 4%.
- NX Horizon trackers are engineered for maximum uptime in extreme conditions. Low friction, stainless steel "hanging pivot" bearings prevent fouling by snow and ice, which poses a risk to traditional plastic sleeve-type bearings. "Hanging pivot" bearings are thermal expansion tolerant, designed for seasonal temperature swings from -40°C to 50°C. Unlike linked-row systems, Nextracker's drive components and tracker controllers are elevated from snow exposure.

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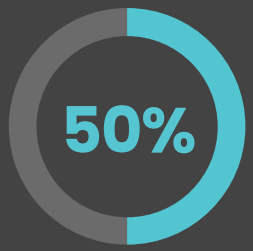
Operate More Efficiently

- To combat snow accumulation, NX Horizon can shed snow in two ways: natural clearing during normal tracking and real-time operator commands. Snow specific features are available in NX Navigator™, helping plant operators easily configure and implement snow shedding strategies. In addition, high angle night stow positioning prevents snow buildup overnight.
- NX Horizon's independent-row architecture is maintenance friendly by design, making it both easier and safer for personnel to move along and between panel rows for mowing, cleaning, snow clearing, and other general maintenance activities. Compared to linked-row trackers that have drivelines that block access and may become hidden under snow drifts, operators of NX Horizon can save up to 50% in personnel and machine time when carrying out most maintenance tasks.
- NX Horizon's self-powered control system comes equipped with bifacial, snow-shedding panels for cold climate sites. Working in concert with an integrated UPS backup battery, rated for temperatures as low as -40°C, the control system ensures reliable operation when temperatures plummet, solar irradiance is low, and heavy snowfall impacts a project site.



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Reduce Project Risk

- NX Horizon's mechanically-balanced design minimizes the torque needed to move the tracker, enabling the rapid transition to safety stow positions in two minutes or less. This is more than four times faster than most traditional trackers. With its innovative offset rotation axis, snow accumulation has less of an impact on the power needed by the drive motor than traditional unbalanced trackers, which may stall. Additionally, each NX Horizon tracker controller includes an integrated UPS backup battery, ensuring that the capability to stow safely is preserved in the event of a grid outage.
- NX Horizon's structural design for heavy snow-load environments uses high-angle stowing for both wind and snow to facilitate snow shedding and complete structural protection in combined wind and snow events. Other tracking systems that use low-tilt angles for wind can be at risk of structural damage during snow events. They can also be subject to instability during wind events.
- Frost heave has damaged or disabled solar projects in cold climates. Properly accounting for frost-heave forces and preventing seasonal pile displacement is a must for the project to remain stable over the long term. NX Horizon is available with the NX Anchor foundation system, a proven solution for frost-heave soils. Nextracker offers a full range of foundation engineering and supply, including geotechnical engineering, piles, and mounting hardware.

The system's mechanically balanced design enables rapid movement to most safety stow positions in two minutes or less.

Nextracker Has the Answer

When asset owner-operators are uncertain about how their PV plants will perform in harsh winter conditions, Nextracker's suite of field-proven engineered solutions and operational protocols deliver peace of mind—and bolster their bottom line.

For more information on how Nextracker's cold climate solutions can help optimize power plant performance in extreme winter conditions, please contact **insidesales@nextracker.com**.

FEATURE	NX HORIZON	NX HORIZON COLD CLIMATE SOLUTIONS	TRADITIONAL TRACKERS
Independent rows	✓	✓	✗
Mechanically-balanced architecture	✓	✓	✗
Row-level control with integrated UPS	✓	✓	✗
Bifacial optimized design	✓	✓	✗
100 GW core technology track record	✓	✓	✗
High tolerance, low friction bearings	✓	✓	✗
Bifacial, snow shedding self-powering panels		✓	✗
-40°C rated UPS backup battery		✓	✗
NX Anchor foundation solutions	Available	Available	✗
NX Navigator snow shed modes		Available	✗
IE-validated TrueCapture yield enhancement	Available	Available	✗
NX Horizon-XTR™ terrain following	Available	Available[1]	✗