

TrueCapture

Unlock your potential

TrueCapture™ is an intelligent, self-adjusting tracker control system that increases typical PV power plant energy by up to **6%**. TrueCapture boosts solar power plant production by continuously optimizing the tracking algorithm of each individual row in response to site features and changing weather conditions.

Get the most out of your system

Now operating on gigawatts worldwide, TrueCapture combines advanced sensor, weather forecasting and machine-learning technologies to maximize energy yield, helping customers extract the maximum value out of their independent row and high accuracy Nextracker systems.

Standard backtracking moves all tracker rows identically regardless of terrain undulation and construction variance among row heights. These factors introduce shading from one row to another, reducing the power output of the plant. In addition, standard tracking schemes follow the sun's position even under cloudy skies, when in fact more energy can be generated by moving to a flatter orientation to capture more diffuse light. TrueCapture combines detailed knowledge of the as-built plant and evolving weather conditions to maximize energy harvest.

TrueCapture production estimates are currently offered by the following independent engineers:



TrueCapture™ is an adaptive tracking solution that can increase energy production for a PV plant that enables improved ROI for the lifetime of the project; especially for high terrain and high diffuse regions. DNV has developed an independent model that predicts diffuse and R2R energy gains, and the NX team has been open and engaging with DNV to validate modeled energy gains using approximately 1 year of field data from 1 site. Based on the data that DNV has reviewed, TrueCapture offers improved plant performance.

– Rounak Kharait,
Director of Solar Energy Assessment, DNV



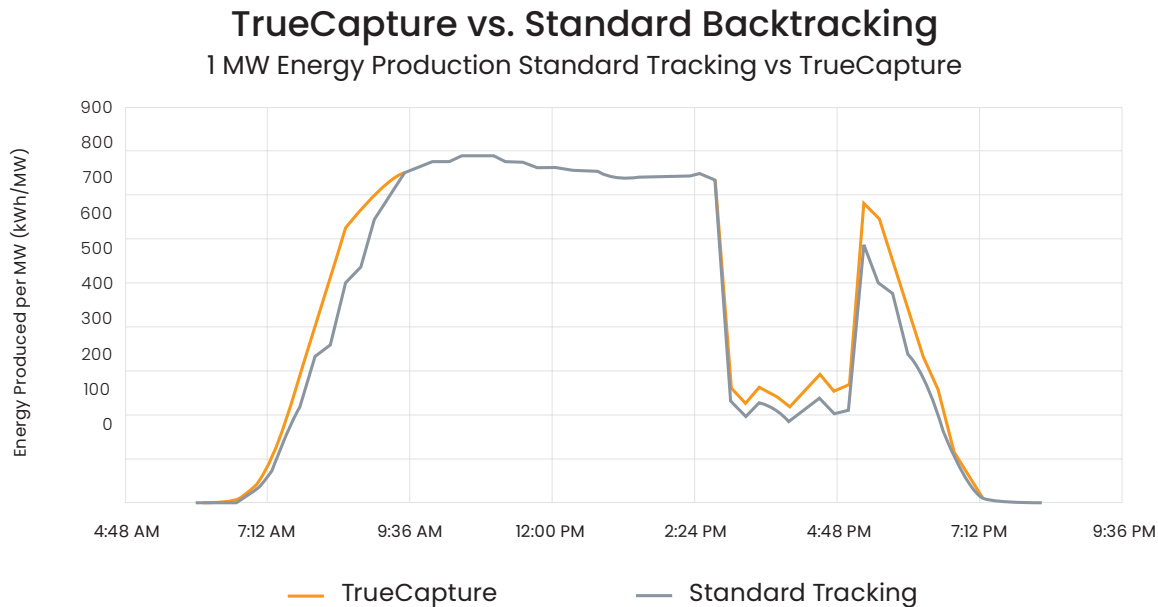
Independent engineers are now able to say, 'your production is x percent higher if you apply the TrueCapture technology.' Now, we can take our 30 or 35 years of cash flow, bring that extra spread forward and actually create current net present value. For an owner like us, that is super valuable.

– Bryan Martin,
CEO, DEShaw & Co



Optimize with Smart Control

TrueCapture solves both challenges with a unique, integrated approach. Over the course of the day, TrueCapture continuously dispatches optimal tracking algorithms to each tracker row, correcting for shading anomalies caused by uneven ground and changing weather conditions. As shown in the accompanying chart, the increase in power production widens the “shoulders” of the power production curve for any given day, resulting in better performance and lower LCOE.



Innovation at Work

Proprietary smart panel sensors provide real-time shading information on each tracker row. The data is then processed by machine-learning software to build a virtual 3D model of the solar project. From dawn to dusk, TrueCapture’s intelligent control engine integrates the virtual model with measured irradiance data collected from on-site weather stations and predictive analytics data to calculate and send updated and optimized tracking commands to every independent row. As a result, energy production gets a boost.

Technology Compatible

Available for NX Horizon TM 1P, Nx Gemini TM 2P, and NX Horizon-XTR, TrueCapture is compatible with most project sites — contact your NX sales representative to learn more about how to take your performance to the next level.

TrueCapture algorithms are specialized for and compatible with all module technologies, including full cell, split-cell, and thin film PV modules from top tier suppliers.



Standard Tracking



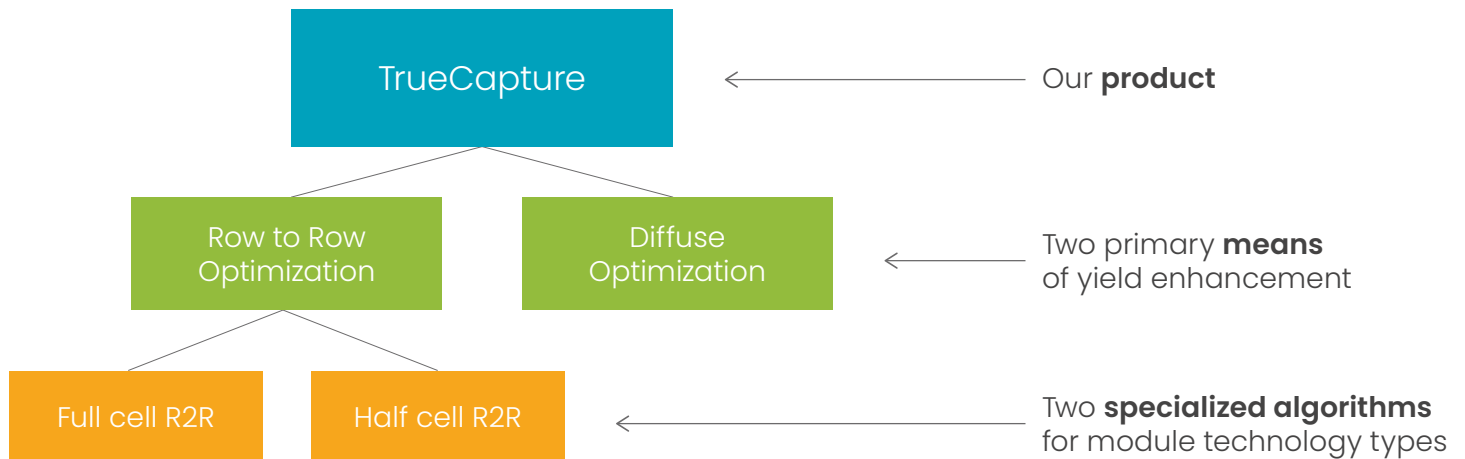
TrueCapture: row-to-row Shade Avoid at work



TrueCapture: optimized angles for diffuse light conditions

Enhancing Yield with a Suite of Advanced Modes

TrueCapture™ offers a suite of advanced algorithms to maximize the energy harvest from Nextracker systems. There are two primary means of yield enhancement: Row-to-row optimization, and diffuse light optimization. Within row-to-row, there are two specialized algorithms that take advantage of the unique characteristics of different silicon module cell configurations. For any utility-scale PV system, the appropriate suite of algorithms will be enabled, together with smartly sensed as-built tracker pier height data to drive maximum power production throughout the day.



Optimized for Varying Module Technologies

TrueCapture is automatically configured to maximize yield boost for the PV module technology employed at your site. Whether for standard full-cell or split-cell silicon modules, the correct row-to-row tracking algorithm is automatically selected to avoid shade all together, or balance higher irradiance from better incidence angles with some shading. Thin film modules default to true tracking the sun due to their highly linear response to shading. Diffuse light tracking optimization applies in the same way to all module types.

ALGO/MOD	FULL CELL	SPLIT CELL	THIN FILM
R2R	Shade-avoid	Split Boost	Linear
Diffuse	✓	✓	✓

Introducing TrueCapture's Split Boost Technology

TrueCapture's latest advancement, the Split Boost algorithm optimizes energy yield for half-cut, or split-cell, silicon PV modules which are more shade tolerant due to their electrical architecture. By pointing half-cut PV modules more directly at the sun, Split Boost increases irradiance on the unshaded top half of the module, while allowing some shade on the bottom half. Carefully balancing these effects yields a power boost in the early or late part of the day.

Even on a theoretically perfectly flat site with no row-to-row shading, Split Boost can increase energy production beyond standard backtracking due to the optimization of incidence angle vs shade loss, providing a boost of up to 0.5%.

