Project: **Sarish Solar**

NEVADOS®

CLIENT	LOCATION	PROJECT SIZE	MODULE	RACKING
Ampliform	Burgettstown, PA	26 MWdc	Canadian Solar, 655 W	Nevados ATT®

KEY STATS

108,469 yd^3	20%	2%	3,059 ft
Avoided soil grading	Max slopes	Reduction in steel pilings	Length of steel saved

First-time solar installer conquers 20% slopes in an ‘unbuildable’ coal mine with Nevados’ All Terrain Tracker,® now confident tackling 25% slopes for future projects.

Customer

Ampliform is a utility-scale solar and storage developer planning to develop 10 GW of solar projects across North America by 2027. Backed by equity investors Jones Family Office and the George Kaiser Family Foundation, Ampliform’s team of energy industry veterans focuses on delivering long-term value to communities, landowners, utilities, renewable energy consumers, and investors.

Challenge

The Sarish Solar Project is on a former waste mine site in Burgettstown, Pennsylvania, which was inactive for nearly 80 years. The strip mine featured highly erosive 30% slopes, rock ledges, and acidic soil that required 80 tons of lime to remediate. The state approved site plan required grass and trees to control erosion for site improvement.

Steep slopes, spoil piles and erosion risks created massive engineering challenges. Moreover, Pennsylvania’s prevailing wage laws added significant cost pressure.

Senior Vice President of Engineering, Procurement, and Construction at Ampliform, Robert Stoever, described the site as “a challenge from a cost and compliance standpoint” and said parts of the site “looked like the moon” due to the soil acidity not allowing ground cover to grow. The extreme terrain made Sarish “economically unbuildable” by conventional standards.

“The site was extremely difficult regarding siting a PV plant and establishing proper ground cover without spending an insane amount of money,” Stoever said.

Terrain-challenged sites are inherently risky. With wet ground and steep slopes, things can start sliding and become dangerous. The primary challenge was to avoid costly grading and erosion risks as much as possible while maintaining project viability.

"On a site like Sarish, it's important to severely reduce the amount of grading and adapt the tech (Nevados) to the site, rather than grade out the site and adapt the site to the tech," Stoever emphasized. "When you cut and fill the soil, you need to establish/reestablish grass. This is problematic given the short spring and fall growing seasons. There's a lot of issues that people don't think about regarding cut and fill."

Remediating erosion can cost millions of dollars and lead to nightmare scenarios.

"The ability to get conservation to close off ponds, reseed grass, and sign off on permits—that's a big deal. Some project buyers would demand that conservation is signed off before the project fully changes ownership."

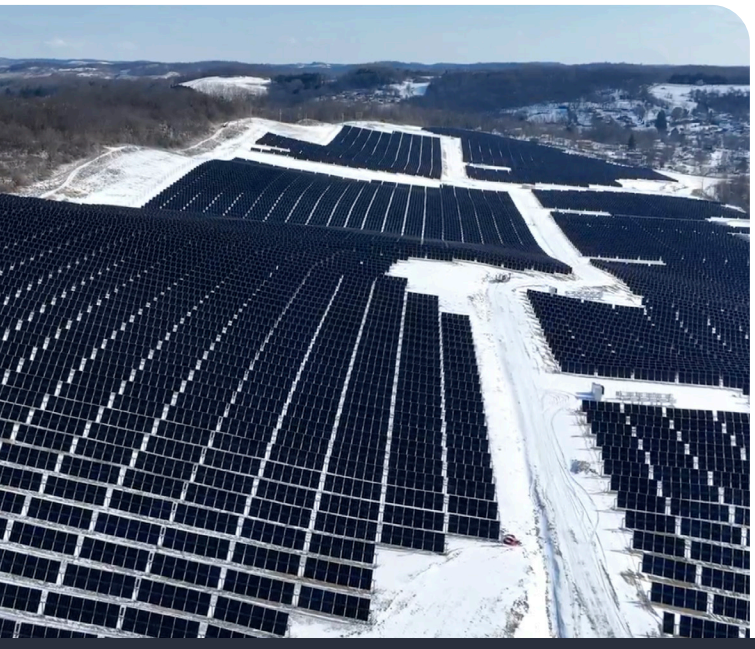
Ampliform needed an innovative approach to avoid costly grading and ensure a viable, safe, and efficient solar installation.

> *Do you know what it's like to try and control erosion for a built project? Very difficult and costly. With a smart civil design, and a great all-terrain tracker, the risk of post construction erosion is severely reduced.*
>
> **Robert Stoever**
>
> Senior Vice President of Engineering, Procurement, and Construction at Ampliform

Solution

Stoever first became acquainted with Nevados in 2019 while working as director of pre-construction at McCarthy, a leading solar EPC firm. After conducting due diligence on Nevados' technology, he recognized its high potential to build on terrain.

Now with Ampliform, Stoever selected Nevados' All Terrain Tracker® (ATT) to take on the aggressive Sarish site and push the limits of performance and efficiency.



Unlike traditional systems that would require extensive grading to achieve 5% to 8% slope tolerances, Nevados' ATT allowed for Ampliform to reduce grading from the existing 30% slopes down to their preference of only 20%. The ATT minimized soil disruption and reduced project costs, while working with the natural landscape to avoid unnecessary risk.

"With Nevados, we could keep the high slopes and undulations on site. That saved a lot of pain and suffering," Stoever remarked. "My mechanical contractor said they are able to go even steeper—up to 25% slope—for the next projects."

Implementation

Ampliform collaborated closely with Nevados, fine-tuning the design layout to reduce costs and maximize efficiency. “We’re delivering what should be a $2 per watt projects for significantly less by reducing grading and optimizing everything,” Stoever said.

Ampliform then partnered with Terra Works, a local civil contractor that was new to solar and mechanical installation work, but an expert in civil construction, water treatment, and conservation projects.

Despite being solar novices, Terra Works’ team of 40 union carpenters quickly adapted to the Nevados system. “The intuitive design and support from Nevados made it much easier,” said Ryan W. Miles Sr., president of Terra Works.

“The information that’s provided, the level of detail and constant shipping communication were all top-notch,” Miles said. “I was able to look at something on a PDF, go out to the field and feel comfortable enough to tell somebody what to do. You rarely find that in anything.”

Terra Works described the ATT installation process as highly systematic and repeatable. The system’s comfortable tolerances, excellent quality control, and precise engineering enabled rapid assembly and installation.

Surpassing expectations, Terra Works was able to install up to 120 piles per day, with only 7% requiring pre-drilling due to rocky conditions. By the end of the project, they were installing over 1,000 modules daily with just two, three-person crews.

> *This site would have been very difficult and costly had we not used the Nevados’ system.*
>
> **Robert Stoever**

Nevados’ pre-assembly features and ability to conform to the landscape streamlined the installation process, reduced the need for heavy equipment, and minimized environmental disruption. “The Nevados system is perfect for pre-assembly of the cassette (torque tube and mods) due to the discontinuous torque tube,” Stoever said. “The ability to pre-assemble is built into the Nevados design. It’s a game changer.”

With the flattest BOM in the industry, Nevados’ ATT simplified the 40,000 module installations, accelerated assembly, and reduced labor hours—crucial given Pennsylvania’s prevailing wage rates of up to $110 an hour for electricians.

By avoiding much of the grading and working with the natural landscape, Terra Works reduced soil disruption and reseeding efforts. Their team was able to close the pond and basin early, fill them in, and build over them to speed up the installation.

“This site would have been very difficult and costly had we not used the Nevados’ system,” Stoever said.

Results

- **Grading reduction**: Minimal slope grading to 20% (compared to 5% to 8% for traditional trackers) saving 108,469 yd3 of graded soil and mitigating erosion risk, over a traditional tracker.
- **Steel savings:** ATT's ability to follow the natural landscape and uniform reveal heights saved over 3,000 feet of steel from a 2% reduction in pilings. "Every six inches of steel could be hundreds of thousands of dollars on big projects," Stoever said.
- **Efficiency gains:** Terra Works was able to install over 1,000 modules per day with only two three-person crews, who were completely new to solar.
- **Labor savings:** The faster and more simplistic installation helped offset high labor costs in a prevailing wage state where estimated labors costs were over $100 an hour
- **Tax incentives:** The site qualified as a brownfield and met the prevailing wage and apprenticeship requirements for the energy community 10% tax adder, bringing the total tax credit to a maximum of 55% for domestic content with ATT.

Next steps

After the success at Sarish, Ampliform and Terra Works are gearing up to tackle even steeper 25% slopes at two upcoming PA projects. Using Nevados' TRACE™ All Terrain Tracker®, these sites will require zero grading—except for the roads and a small timbered area that would need to be dug anyway.

The lean construction will be further improved with pre-assembly off-site, optimal material staging, and additional labor savings using the qualified Milwaukee® Tool's Controlled Torque Impact Wrench with TORQUE-SENSE™. To accommodate the steeper slopes, Terra Works plans on using specialized equipment, GPS-enabled pile drivers, and more efficient material handling.

"We're always trying to push the limits of performance and efficiency to reduce costs and deliver more returns to our investors," Stoever said.

With a deep commitment to customer satisfaction and improvement, Nevados continues to work with Ampliform and Terra Works to optimize their installation productivity and provide the best performance overall, not just for equipment and installation, but across the board.

The estimated commissioning date for Sarish is Q1 2025.

Conclusion

The Sarish Solar Project demonstrates the game-changing potential of Nevados' All Terrain Tracker®, turning previously unbuildable sites into economically viable solar farms. By reducing grading, maximizing labor efficiency, and delivering high performance on difficult terrain, Nevados' technology unleashes new opportunities for solar energy development.

TRACE® BY NEVADOS

Nevados delivers a **comprehensive, next-generation** solar tracking solution—including software, hardware, controls, and maintenance—for the design, construction and operation of solar power plants on challenging terrain.

Since 2014, Nevados has saved customers on average **95,000 cubic yards** of grading per 100MW over conventional trackers.

Built for the most challenging terrain

- Articulating couplers and segmented torque tube designs allow the system to be built on up to 37% slopes
- Eliminates grading, eases permitting and re-vegetation requirements
- Consistent pile reveal heights across the site creates significant steel savings over other trackers

Energy production on terrain

- Zero-Shade Backtracking – can reduce terrain effects of shading by up to 50% and included on every project for free
- Half-Shade Backtracking split module schedules to increase annual yield by up to 0.5%
- Diffuse Boost with up to 0.65% annual yield increase
- 75° Range of Motion

Designed to be built easy

- The same features of the TRACE™ All Terrain Tracker that allow unparalleled terrain capabilities, make it easy to install
- Generous installation tolerances and flat bill of materials lend the tracker to be 38% faster to install than other trackers (3rd party market comparison)

Handle extreme weather like a breeze

- The TRACE™ solution features bi-directional, automatic stow, resulting in up to 50% faster wind stow, avoiding the tracker from having to go through 0°
- 75° Hail Stow reduces project risk by up to 11X compared to 50°
- Other features include flood, rain and system protection stow protocols

TRACE All Terrain Tracker™

Same legendary terrain capabilities—build on up to 37% slopes.

26% articulation at every post