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Solar vs. the storm: Protecting utility-scale projects with Hail XP

4 August 2025

9:00 am – 10:00 am | PDT, Los Angeles
12:00 pm – 1:00 pm | EDT, New York City
6:00 pm - 7:00 pm | CEST, Berlin

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Welcome!

pv magazine webinars

Do you have any questions? ❓ 🙋

Send them in via the Q&A tab. 👉 We aim to answer as many as we can today!

You can also let us know of any tech problems there.

We are recording this webinar today. 📹

We‘ll let you know by email where to find it and the slide deck, so you can re-watch it at your convenience. 👀 💡

Enhance resilience and reliability by partnering with us

FM helps clients mitigate climate risk in utility-scale PV solar

Developing resilient renewable energy assets

"Resilience in renewable energy isn't just about bouncing back—it's about building assets strong enough to withstand shocks."

— FM 2025 Renewable Energy Report

KEY FINDINGS

- **66%** of financiers prioritize resilience when investing, and **69%** say it affects valuation and deal terms.
- **59%** of energy providers are confident in their infrastructure, though claims data shows rising risks.
- **73%** plan to invest more in resilient infrastructure.
- Embedding resilience during design reduces downtime and costs.
- Collaboration between developers, engineers, financiers, and risk advisors is critical.

SURVEY INFO

Findings are based on a 2025 survey of 650 professionals in North America, Europe, and APAC, including energy providers and investors.

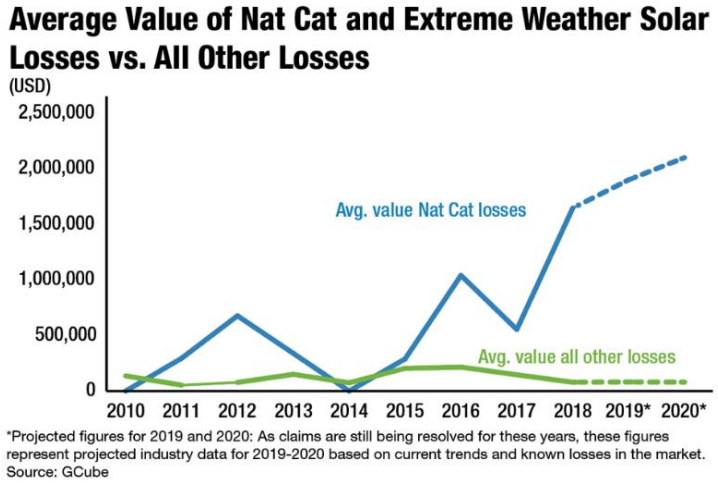
Building Resilience into the Energy Transition

EXAMPLES OF LARGE RENEWABLE ENERGY LOSSES

Year	Location	Event	Insured Amount Paid
2016	Texas Solar project under construction	Hail	$80m (est'd)
2019	Midway Solar	Hail	$75m
2020	Various Wildfires – California & Pacific Northwest (mainly solar)	Wildland Fire	Several multi-million-dollar losses, some of which exceeded $10 million
2022	3 Texas Solar projects	Hail	$110m (Est'd)
2023	Various California Wildfire & Wind losses (mainly solar)	Wildland fire / wind	Up to $100m
2024	3 Texas Solar projects (others >$10m but below deductibles not counted)	Hail	$120m (Est'd)
2024	San Diego BESS fire (SDG&E)	BESS fire – inside building	$100m (Est'd)
2024	Iowa Wind projects	Tornado	$50m (Est'd)
2024	CSP facility – Noor Energy1 (Construction) Dubai UAE	Flooding destroyed heliostats	>$300m (Est'd)
2025	Moss Landing (Vistra) - California	BESS fire – inside building	$400-$500m (Est'd)

EXAMPLES OF LARGE RENEWABLE ENERGY LOSSES

Hail losses dominate the solar insurance marketplace



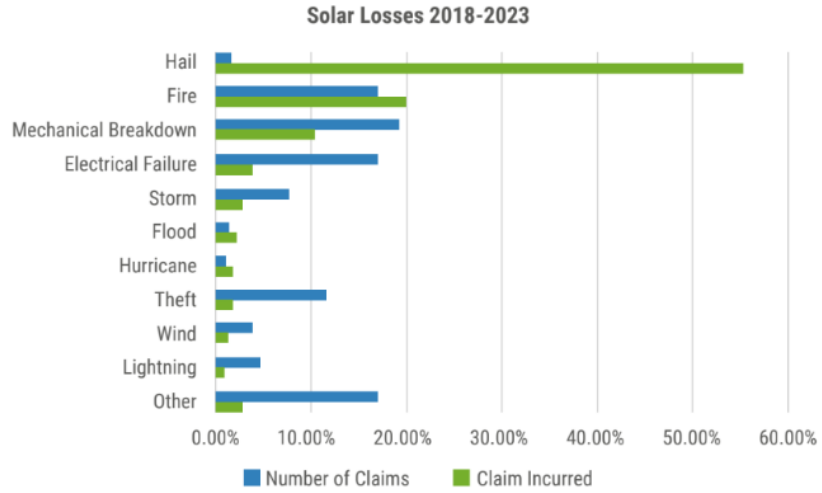


Image: Gcube Insurance

- GCube noted that hail events represented 2% of events, but 54.2% of solar losses in 2023 [1]
- Swiss RE advised that hail events represent 3% of events but 60% of solar losses in 2024 [2]
- kWh Analytics reports that 73% of solar loss dollars are from hail events in their loss database (March 2025)
- AXIS' claims data notes 55% of losses are from hail, with wildfire and tornado being 23% and 18% respectively (July 2025) [3]

[1] https://www.pv-magazine.com/2023/12/07/hail-damage-accounts-for-about-half-of-all-solar-facility-loss-claims-says-gcube/

[2] https://www.swissre.com/institute/research/topics-and-risk-dialogues/climate-and-natural-catastrophe-risk/climate-change-solar-power.html

[3] https://axiscapital.foleon.com/thought-leadership/solarvshail/what-the-claims-data-is-telling-us

Hail is a **global and growing** threat—not just a regional anomaly.

"Hail damage risk is undermining the security of solar power as a prominent clean energy solution," **said Fraser McLachlan, chief executive officer of GCube Insurance.**

"We therefore have an overriding imperative to develop solutions to this challenge and restore our ability as insurers to provide the sector with long term risk underwriting."

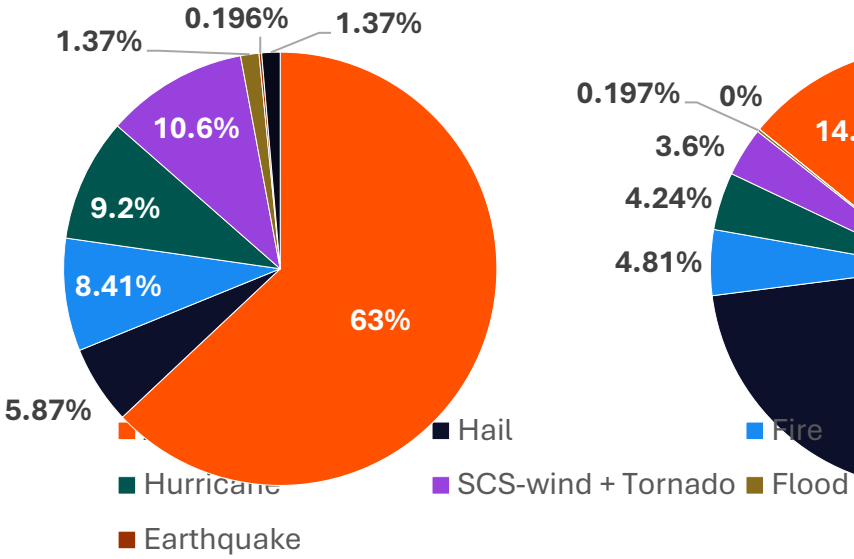
EXAMPLES OF LARGE RENEWABLE ENERGY LOSSES

kWh analytics data

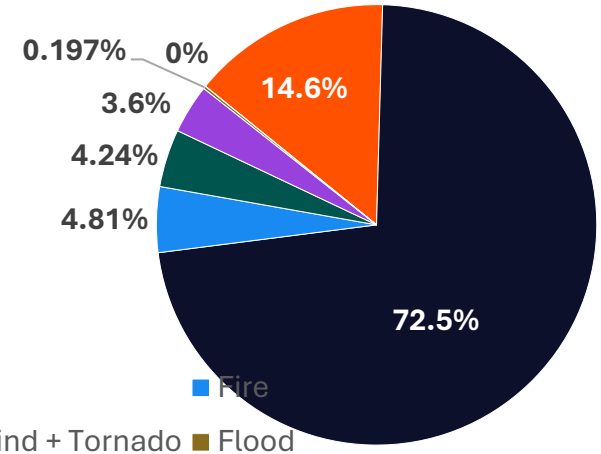
Losses in the PV industry

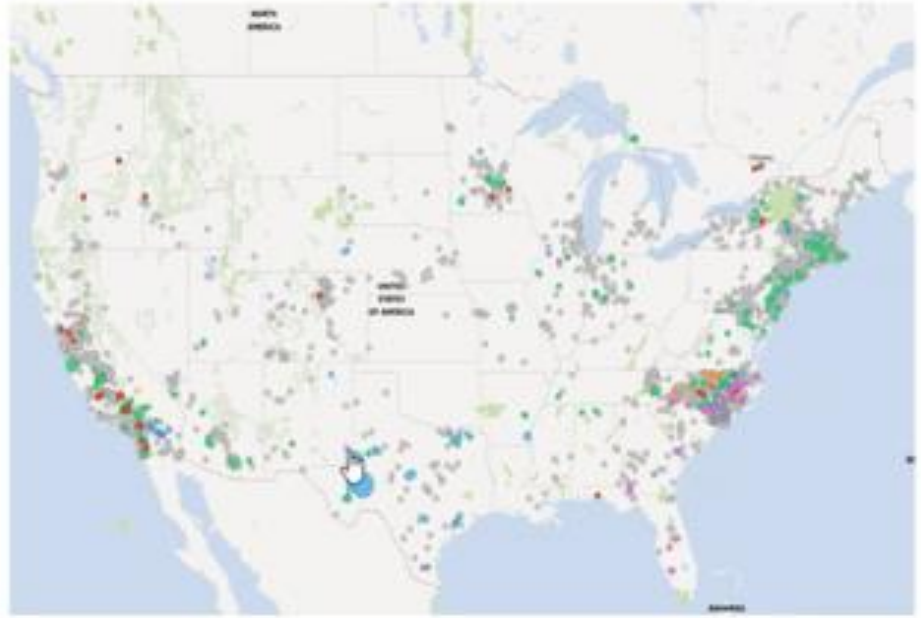
Hail accounts for 73% of PV losses by damage amount ($), but only 6% of losses by count.

Losses by count



Losses by damage amount ($)





Loss data characterization	
Number of asset years	13k+
Total insured values – Years	$100B
Total ground up losses	$1.5B
DC Capacity	92 GW
Number of states	All 50
Years range	2012-2025

Source: kWh Webinar 5/15/25 "Hail Season Survival Strategies for Tracker-Mounted Solar Projects (Nicole Thompson)

EXAMPLES OF LARGE RENEWABLE ENERGY LOSSES

Early solar losses – Microcracking

Causes of microcracking

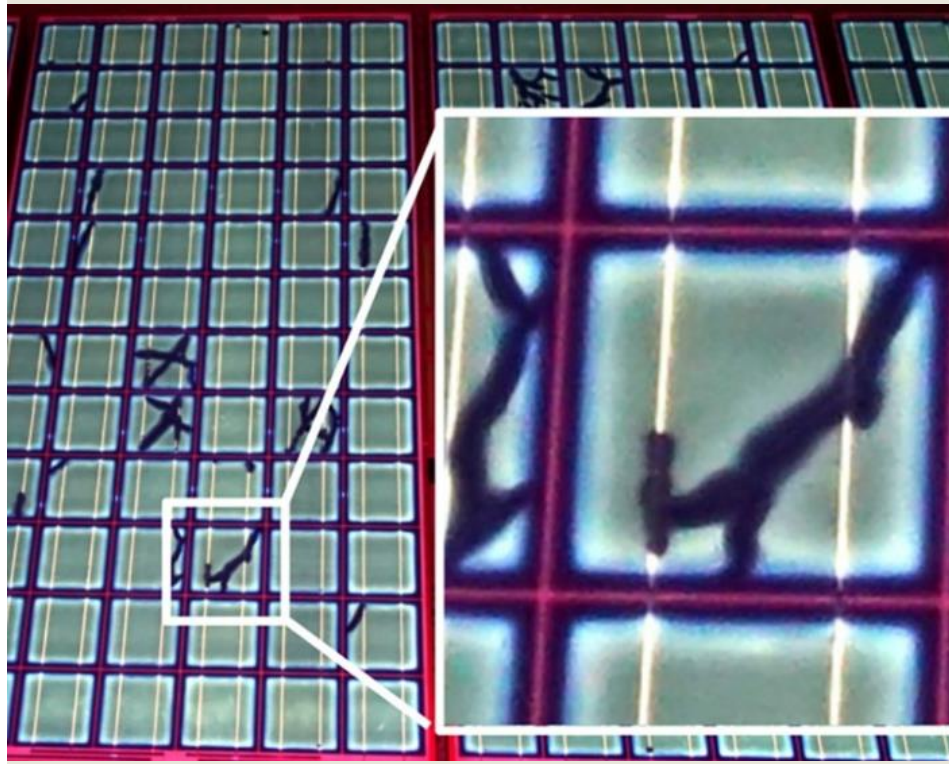
- Thermal cycling
- Mechanical and chemical environmental factors causing stress to the panel operating in the field, such as hail, snow, sun, wind, and severe coldness
- Manufacturing defects
- Mechanical stress – Vibration during transport and installation

Impact of microcracking

- Reduced power output
- Performance degradation
- Increased risk of failure

Notes

1. Newer panels are flimsier, lighter and have thinner glass; **but the impact of microcracking is significantly smaller for various reasons**
2. Without insurance, clients with microcracked panels would not replace the panels



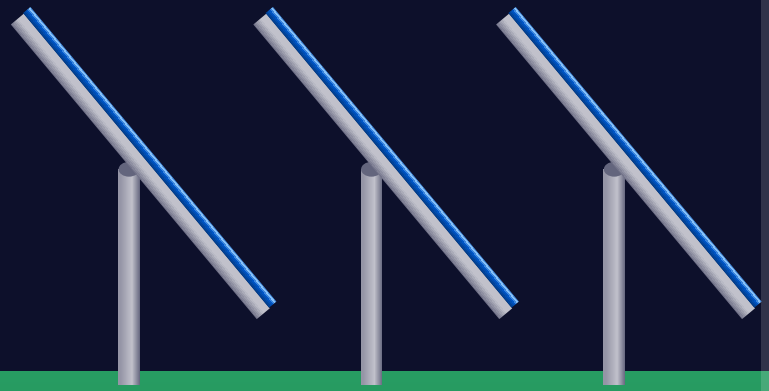
Solar Module Microfractures (Microcracking)
Example of UV Fluorescence Image with Microfracture Example Highlighted (Source: Brightsource Automation)

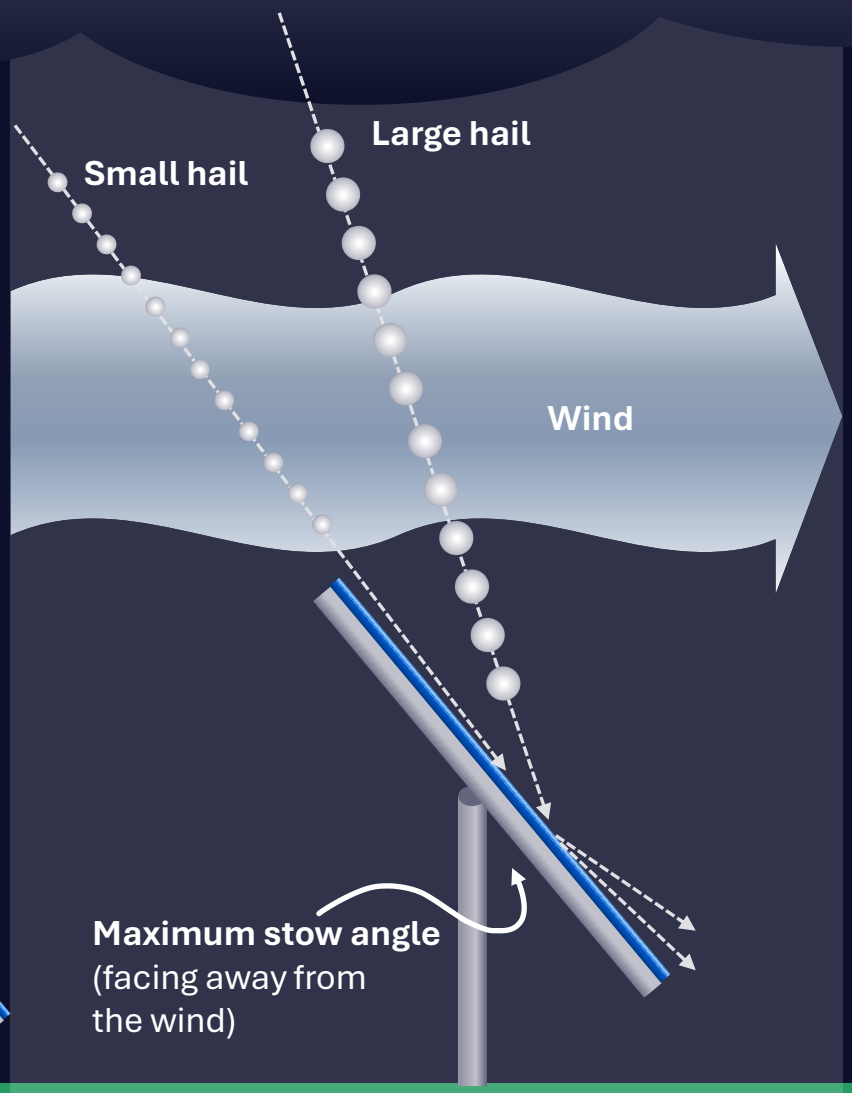
PV SOLAR HAIL LOSS PROBLEMS: MICROCRACKING AND UNSTOWED PANELS

1

Addressing problem 1

- Insurers added microcracking limitations in their policies
- New panels are far less subject to microcracking damage
- Without insurance, most clients would continue to utilize microcracked panels at modest production decrease



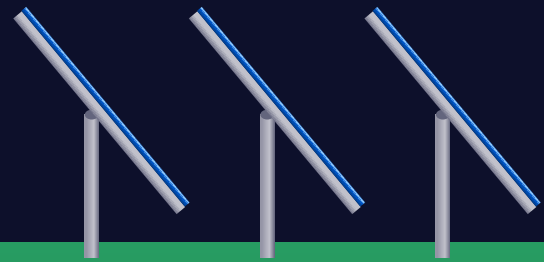


Defensive Stow Position
Reduced exposed area and shallow impact angles

2

Addressing problem 2

- Utilize solar trackers (used to follow the sun to maximize production) to "stow" panels at a high angle in advance of hailstorms
- Need to be able to predict when hailstorms might approach, and stow in advance
- The higher the angle stowed, the more likely falling hail will be deflected, protecting the panel
- Stowing "against" the wind preferred to stowing "into" the wind



HAIL EVENTS DATA

2022 Hail events in Texas damage solar projects

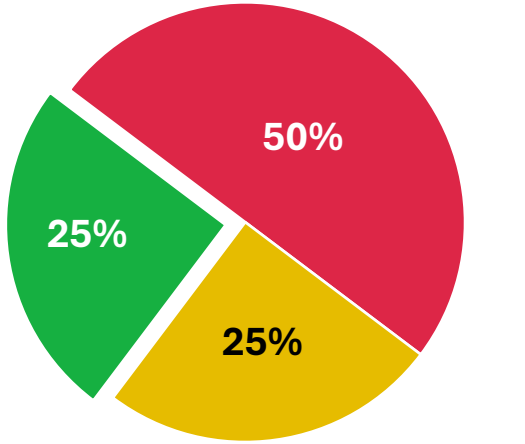
Date	Location	Panel Thickness	Hail Size	Damage	Insured Amount Paid	Contributing factors
May	Pecos County, TX	3.2mm (C-Si)	3.5 inches	$150-$200m	≈$50m (est'd)	• Client Stowed for wind, not hail
May	Brown County, TX	2.5mm (CdTe)	2.75 in.	$48m (est'd)	≈$29m (est'd)	• Construction phase (lower angle stow) • increased cost to replace panels (sold out) • Costs to recycle panels • Panels on pallets exposed to hail
June	Andrews County	3.2 and 2.5mm (CdTe)	2.5-3 in.	$40m (Est'd)	≈$34m (est'd)	• Software issues prevented some arrays from stowing • Some rows stowed at a lower angle, creating higher damage

Bottom line

1. Industry realized that microcracking wasn't the biggest problem; **breaking the glass** was the biggest problem.
2. The glass was getting thinner, and the panels getting larger (coined "big floppy modules")
3. Getting stowing right is really, really important; effective when done right, but often not done right
4. Testing to failure is becoming more prominent instead of meeting IEC61215 requirements, including FM, VDE & others
5. Modeling is imprecise, and physics-based models may overestimate hail stow benefit by up to 48% for 3" hail — suggests need for more nuanced modeling. (kWh + GroundWork)

Data from 12 large hail events 2016–2024 impacting PV solar projects

Events and average insured loss



Front glass thickness (mm)	Number of events	Insured damage ($)	Hail size (inches)	Insured damage/mw x 10 ($)
3.2	9	36.39	2.69	3.2
2.8	2	20.5	2.75	0.5
2.5	1	46.0	2.75	1.8

Takeaways:

1. Many projects with large losses didn’t stow
2. Though glass thickness and composition is really important, stowing is perhaps as important

HAIL EVENTS DATA

Reasons for failure to stow for hail mitigation (Actual and testing scenarios)

Software-related issues: *Errors, timeouts, password delays*

- **Software errors:** Various errors preventing stow.
- **System timeout:** Computer system timed out before stow protocols were sent to the entire solar farm.
- **Password protection:** Tracker system instruction to stow panels was password protected, causing delays.

Operational missteps: *Wind vs. hail stow confusion, default flat settings*

- **Wind stow vs. hail stow:** System stowed for wind, requiring a 15-minute wait to change to hail stow.
- **Default stow position:** Default stow position set to "flat" unless otherwise requested.
- **Partial stow:** Some trackers not tracking; portions of the site failed to stow.

AXIS Claims Data: Average Gross Claim Amount by Stow Scenario

Stow Scenario	Average Gross Claim Amount
Failed Stow	$380,000 per MW
Fixed-Tilt System	$340,000 per MW
Successful Hail Stow	$150,000 per MW

Table data from *AXIS Global Energy Report*
Solar vs. Hail: Pivoting Away from Danger June 2025
https://axiscapital.foleon.com/thought-leadership/solarvshail/

HAIL EVENTS DATA

Reasons for failure to stow for hail mitigation (Actual and testing scenarios)

Configuration gaps: ***Incomplete setup, improper installation***

- **Incomplete configuration:** Part of the site operational but stowing not configured.
- **Improper installation:** System not fully stowed at the time of hail impact.
- **Hail plates location:** Hail plates at site perimeter didn't provide sufficient warning time to stow panels.

Power and mode issues: ***Power loss, construction mode stow***

- **Power loss:** Project lost power prior to hail reaching site, preventing stow.
- Grid power Loss without backup
- Tracker system **not yet commissioned** or stowed in Construction mode (lower angle) instead of Hail Mode (higher angle)
- **Mechanical faults** (e.g., rodent damage)
- **Signal congestion** in wireless protocols

Bottom line

Without consistent, tested stow protocols, insurers lack confidence that systems will respond when it matters most. This is critical for all sites—but especially urgent for legacy assets that lack newer panel resilience or higher stow angles and are more likely to sustain severe damage.

SOLUTIONS

What is the solution?

Set the bar for resilience: Insurers need to ensure projects are built to withstand extreme weather

- **Focus on risk control**: Sites must be "fit for purpose" with resilient glass and reliable tracker systems. Embed risk expertise early—resilience is most effective when designed in from the start.
- **Operator awareness**: Ensure operators understand system modes—manual, cleaning, or O&M modes may override hail stow unintentionally.
- **System glitches:** Address risks from NCU (Network Control Unit) failures—ensure operators are alerted if stow commands fail or time out.
- **Hail resiliency**: Differentiate solar risk based on resilient panels and reliable stow protocols. Max tilt angles (50–75°) reduce hail impact energy; stowing away from wind is ideal when feasible.

What is the solution (Continued)?

Hail stow protocols

- **Emphasis on testing**: Ensure projects stow every time with robust protocols.
- **Autostow & higher stow angles**: Important but need consistent implementation.
- **Stow execution scope:** Enable site-wide stow functionality to reduce response time—avoid block-by-block stow delays.
- **Stow design differentiation**: Insurers will differentiate rates based on effective stow protocols.
- **Stow testing standards**: Similar to sprinkler acceptance tests in buildings.
- **Tracker control reliability**: Some systems ensure Network Control Units (NCUs) reliably initiate and complete hail stow within 30 minutes of alert—aligned with best practice response windows. Others verify equivalent master or centralized control systems are robust and include timeout-based autostow features.
- **Forecasting & alert radius**: Use a 30–60 mile hail alert radius and enable site-wide stow (not block-by-block) for faster response.
- **Preemptive stow guidance**: “Stow early and stow often” is a best practice—0.1% energy loss is a small tradeoff for major damage prevention.
- **Overnight stow strategy:** Consider defaulting to hail stow position between dusk and dawn in high-risk regions to reduce overnight exposure.

SOLUTIONS

What is the solution? (Continued)

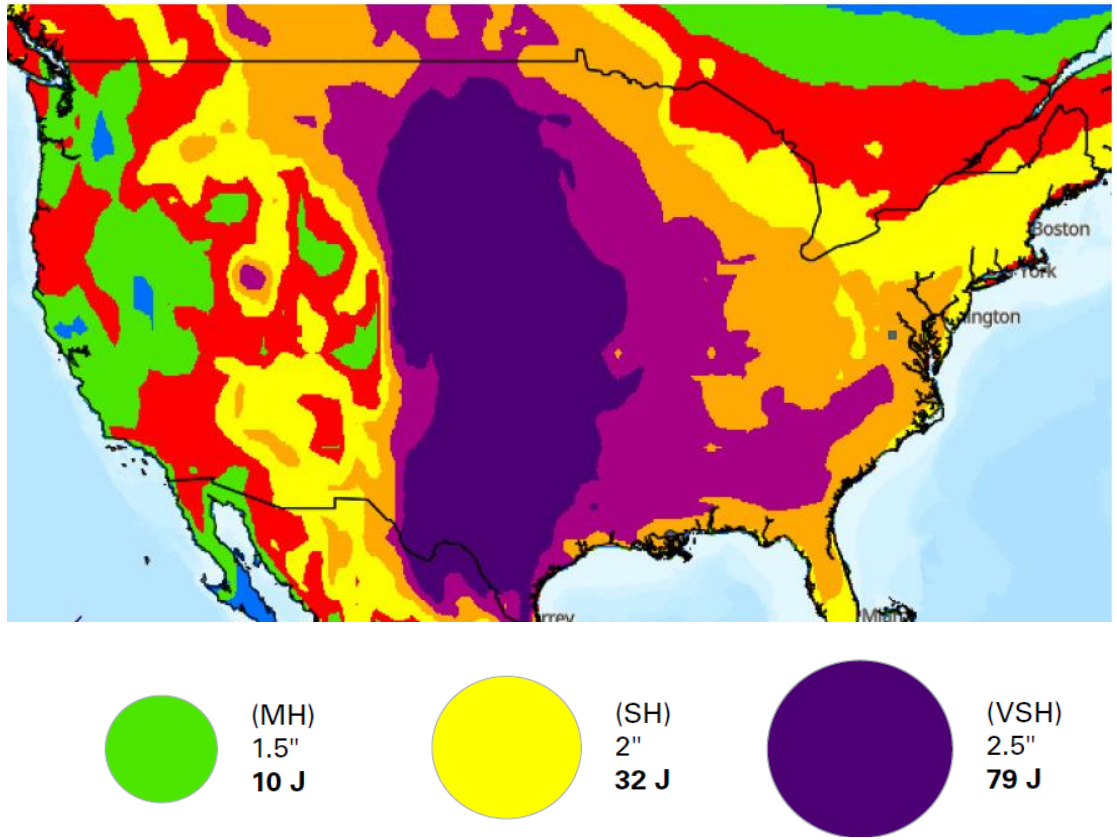
Collaboration & expertise

- **Fundamental expertise**: Experience of insureds, developers, contractors, and insurers is crucial.
- **Stakeholder collaboration**: Owners, developers, EPCs, operators, banks, and insurers must work together.
- **Industry standards**: Push for more standards to enhance resilience.
- **Joint protocol development**: Gather Industry stakeholders to collaborate on unified hail stow procedures.
- **Protocol testing & readiness**: Conduct biannual hail stow tests and review protocols ahead of hail season.

FM's role

- **Developing standards**: Collaborating with OEMs and others to set resilience standards.
- **Risk control focus**: Implementing strong hail stow programs with regular testing.
- **Sustainable market**: Writing each risk individually offering stable terms and pricing.

Find out which technology solutions are right for clients based on FM's detailed hail data analysis



Glass type and tracker angle matter — A lot

- **2mm heat-strengthened glass** has an 89% breakage rate vs. **3.2mm fully tempered glass** at 40% (PVEL data).
- **75° stow angle** dramatically reduces breakage risk, especially for large hailstones (3+ inches).
- **Horizontal stow = 100% cumulative loss over 40 years (!)** in high-risk zones (VDE modeling).
- **CMU Study: 99.27% of PV plants** have a **10% annual chance** of hail >2" nearby — supports broader geographic risk (per kWh report)
- **Standard CAT models underestimate solar losses by 300%+** — PV-specific modeling is essential. (kWh data)

In addition to choosing the most hail-resilient panels, also work with clients to develop reliable and effective hail stow strategies and test such systems regularly

KEY TAKEAWAYS

Building resilient PV solar assets

- Hail is the #1 driver of solar losses – Over 50% of claims stem from hail.
- Microcracking is manageable – Broken glass is the real threat.
- Risk management has limited impact after construction. Bring risk expertise in at or before design
- Stowing works – Reliable, site-wide stow protocols are essential. (*Real-world data shows <0.1% energy loss and >99% stow success when protocols are followed* [1].)
- Test stow protocols like sprinklers –
  - Annual tests should be witnessed and documented to ensure readiness and identify issues before hail season
  - Monthly stow testing is recommended
- Software & operational gaps – Undermine resilience if not addressed.
- Collaboration is key – Align stakeholders on standards and testing.

[1] https://axiscapital.foleon.com/thought-leadership/solarvshail/what-the-claims-data-is-telling-us

KEY TAKEAWAYS

What insurers want: Hail risk mitigation that drives premium reductions

Insurers are increasingly rewarding projects that demonstrate:

1 Proven Hail Stow Protocols

- Documented and tested stow procedures
- Monthly or quarterly hail stow testing
- Clear prioritization logic (e.g., hail vs. wind vs. night stow)
- Site-wide stow capability with autostow and remote override

2 Resilient Equipment

- Use of **3.2mm tempered glass** or **dual-glass modules**
- Tracker systems capable of **≥50° tilt** (ideally 75°)
- Fast stow response time (e.g., <15 minutes to full tilt)

3 Operational Readiness

- 24/7 remote operations center or on-site staff
- Hail alert system with **30–60 mile radius** and lead time
- Participation in **NREL DuraMAT Hail Forensics Database**

4 Documentation & Transparency

- Detailed information on project specifics, such as kWh Analytics' **Hail Risk Evaluation Form** https://staging.kwhanalytics.com/wp-content/uploads/2025/02/kWh-Analytics-Hail-Risk-Evaluation-Form-2025.pdf
- Stow history logs and test reports
- Permission to contact racking OEM or 3rd-party evaluator
- Projects embracing circular economy principles (e.g., recycling, reuse) and ESG transparency are viewed more favorably by insurers.

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ARRAY DuraTrack Hail XP™

High Reliability and Extreme Protection for Hail Mitigation

Priorities for Mitigating Hail Risk

Industry feedback, along with third-party analysis in coordination with VDE Americas, has identified the following order of priority for hail risk mitigation:

PRIORITY	WHY?
1 **Did the tracker stow?** ▶ **Confidence of stow reliability is paramount**	Depending on system design, there is potential for mechanical, electrical, or communications failures.
2 **Did the tracker stow away from the wind?**	Stowing into the direction of the wind for a hailstorm results in significantly higher damage potential.
3 **At how high of an angle did the tracker stow?**	Depending on the size of hail and the wind speed, higher stow angles may result in lower module impact force.

Images captured by Fox affiliate FOX 26 Houston KRIV show extensive damage to Fighting Jays Solar in Fort Bend County, Texas (Credit: FOX26 Houston KRIV)

Did the Tracker Stow?

Why Do Trackers NOT Stow?

There are many failure modes. Not all are tracker driven, but minimizing potential failure points is critical.

TRACKER
- Hail vs wind stow prioritization?
- Stow direction?
- Active vs. passive?

HUMAN ELEMENT
- Human in the decision loop?
- Night stow protocol?

COMMUNICATION
- Communication from outside the site?
- Wireless networks and nodes?

EQUIPMENT READINESS
- Commissioning status?
- Failed parts?
- Areas down for maintenance?

O&M READINESS
- Hail protocols in place?
- Crews trained?
- Equipment maintained?

FAILURE AT ANY NODE

STOW MAY NOT BE ACHIEVED

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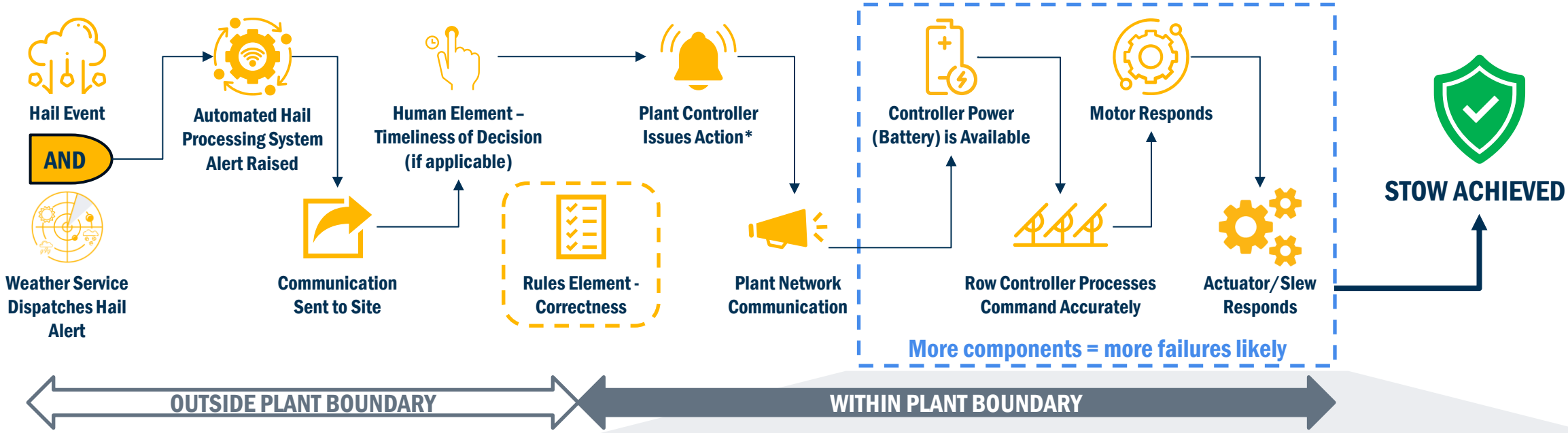
Effective Stowing Involves a Complex Series of Steps

Overall system reliability improves with fewer components and fewer process steps in series, reducing the risk of cascading failure propagation.



- **Single Row Trackers** also feature Zone Controllers between the plant and row controllers (~One Zone Controller per 100 Row Controllers)
- There are also weather stations & weather sensors that tie to these Zone Controllers

These additional components increase both complexity and the number of potential points of failure

Component Reliability and Performance are Critical Considerations

AC-powered multi-row trackers have higher reliability over DC-powered, single-row trackers

Tracker Electrical & Electromechanical Components	Array DuraTrack Hail XP™ UNITS PER 100 MW AC	Decentralized Row UNITS PER 100 MW AC
Motors	90	2207
Inclinometers	0	2707
Control Electronics	15	2707
Ancillary Solar Modules	0	2707
Wireless Radios	0	2707
Battery Charge Controllers	0	2707
Batteries	0	2707
	105 TOTAL COMPONENTS	18,949 TOTAL COMPONENTS

Assumes 570W modules, 1.25 AC:DC Ratio, and 81 modules/row

FEWER COMPONENTS, GREATER RELIABILITY

Critical to move trackers to stow when needed

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ARRAY DuraTrack® Weathers the Storm

VDE Americas Hail Event Forensic Analysis of Fort Bend County, TX

Effectiveness of Hail Stow Protocols in Mitigating Damage to Solar Projects:
Lessons from Fort Bend County, TX, March 2024 Hailstorms

Key Points:

- Two 500+ year hailstorms occurred at three ARRAY sites in Texas in March of 2024
- Each of the three sites saw 50 – 75 mm (2-3 in) hail
- One of the sites also saw 75 – 100 mm (3-4 in) hail
- All ARRAY sites followed their hail stow protocols
- No direct hail damage occurred on rows that stowed

ARRAY DuraTrack, even at 52° stow angle, was able to provide effective protection because the trackers first and foremost reliably moved to full stow when needed.

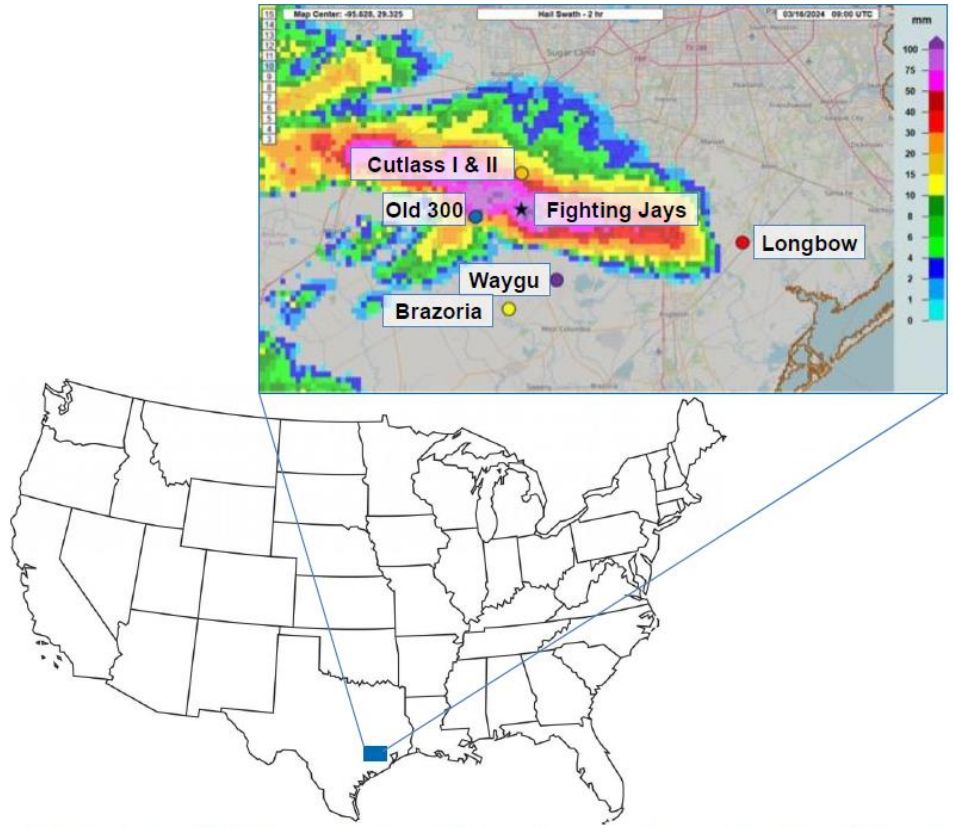
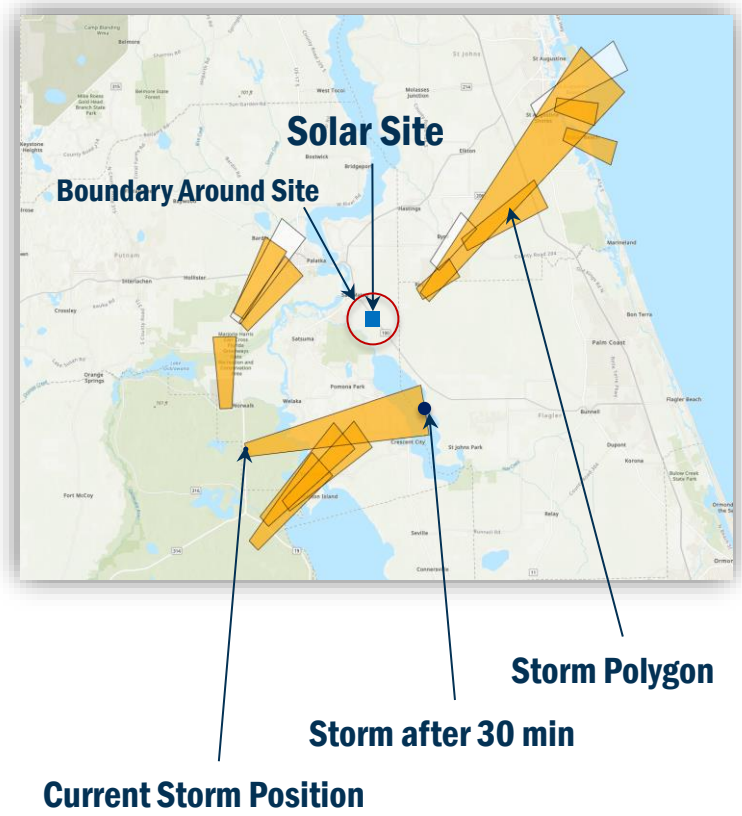
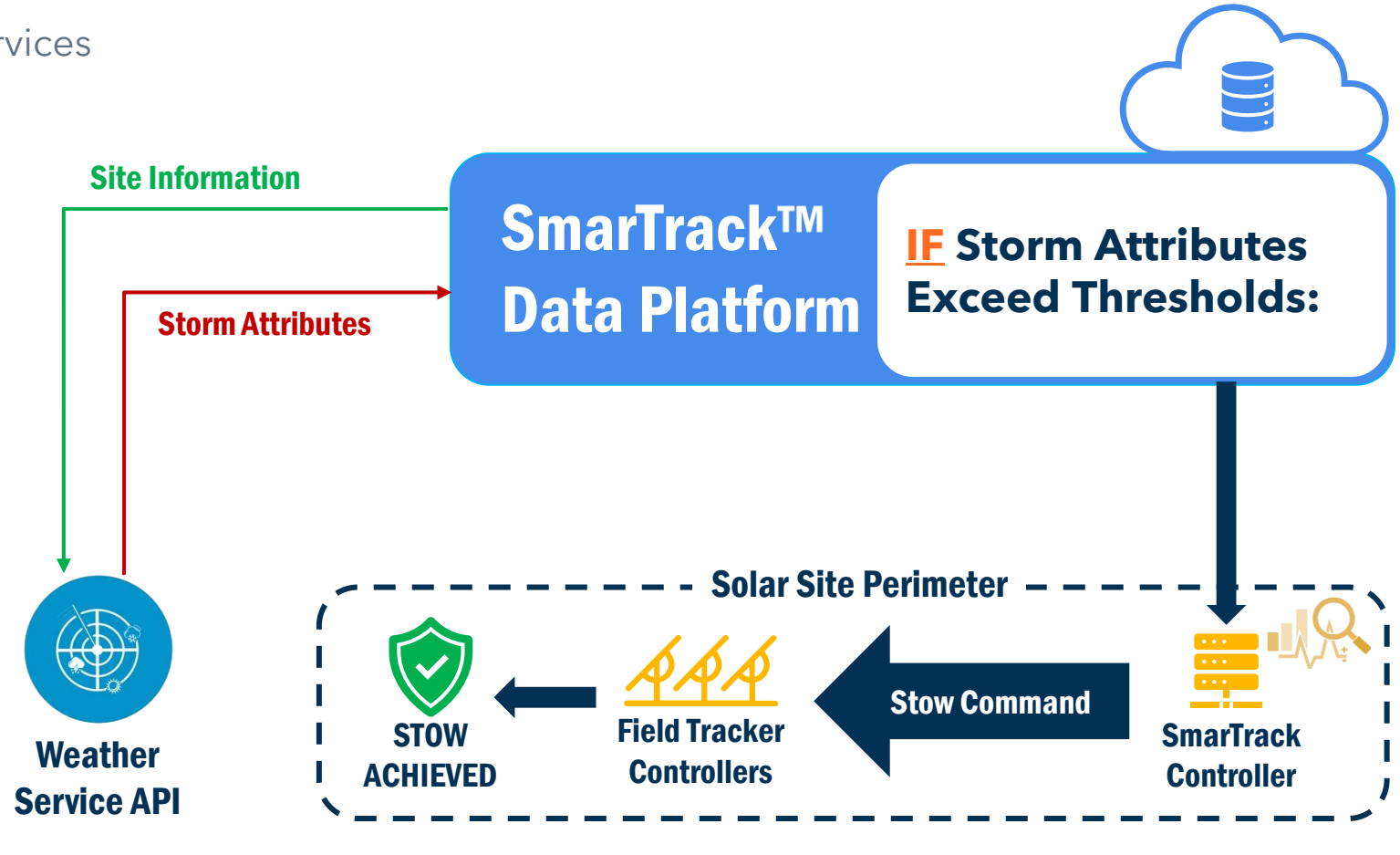


Figure 1. Storm area southeast of Houston, TX (Fort Bend County) with solar power projects and maximum estimated size of hail (MESH) over a 2-hour window on 3/16/2024

Stow Automation with SmarTrack Hail Alert Response

Incorporating 3rd Party Weather Alert Services





Mitigating the Risk of Power Outage to the Tracker System

Addressing grid power outage concerns and co-probability of thunderstorms with hail.

80% of all major U.S. power outages from 2000 to 2023 were due to weather.[1]

58% of weather-related outages were caused by severe weather.[1]

- High winds, heavy rain, lightning, etc.

- **Severe thunderstorms in the Central U.S. can move at speeds up to 60 mph (average speed is around 20 mph).**
- **Power outages due to lightning can occur within a 10–15-mile radius of a storm.[2]**

- Initiating the stowing process when a severe thunderstorm is within 20-25 miles of a plant offers a prudent balance between providing sufficient lead time and avoiding unnecessary stowing events.
- **This approach allows completion of the stow process before potential power loss or hail impact.**
  - ~5 minutes to move from flat position to full stow

SmarTrack Hail Alert Response recommends automated stowing when a storm is within a 30-mile radius of a PV site.

1) *Source: Climate Central, "Weather-related Power Outages Rising," April 24, 2024*
2) *Source: USDoE-OSTI, "Impact Study of Thunderstorms on the U.S. Power Grid," Oak Ridge National Laboratory, December 25, 2023*

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Did the Tracker Stow Away From the Wind?

The Stowing Paradox with Active Stow Trackers

The trackers have been put into stow for wind, and now a hailstorm is approaching. What do you do?

Active Wind Stow
DILEMMA

https://www.westernstandard.news/news/watch-texas-hailstorms-destroy-thousands-of-solar-panels/53375

Stow for Wind → **GREATLY INCREASED** Risk of Hail Damage

OR

Go to High Tilt for Hail → **GREATLY INCREASED** Risk of Wind Damage

Courtesy: PV Magazine

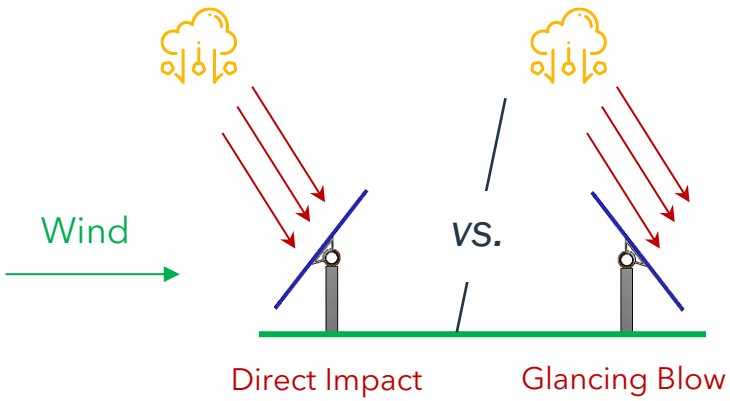
Trackers stow at high tilt angles to avoid instability. During a windstorm, most trackers cannot move across the unstable flat position without risking severe failure due to dynamic instability.

Stowing Away from the Wind Direction Increases Protection

Hail impact energy is reduced most by stowing away from the direction of the storm. This is even more important than stow angle.

To achieve this, trackers and PV modules must be designed to:

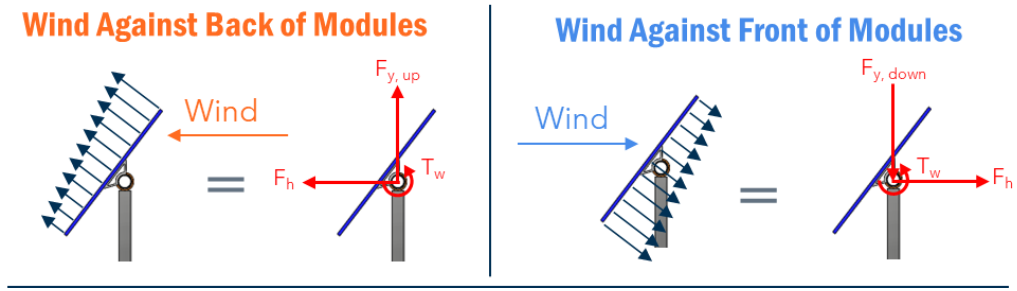
- Stow in either direction
- Withstand the wind load on the front and back of the module
- Move to stow in either direction during a windstorm that may exceed the tracker's stow initiation threshold



- Hail XP has the power and reliability to stow trackers **away** from the direction of the approaching storm to provide the best attainable levels of protection from damage.
  - Reliable, wired 480V AC motors
  - Automated response
  - Zero dependence on batteries or state of charge (SoC) of batteries.
  - Ability to cross through the flat position (0°) to stow away from the storm direction, even in high winds.

Hail XP is Engineered to Handle High Wind Loads at Full Stow

- **ARRAY, since inception, has engineered its products to withstand full wind forces from 360°, even at full tilt angles in either direction.**



The Combination of Hail & Wind Presents Unique Challenges

- Other trackers choose to not engineer for stow at high tilt angles to **avoid increasing steel** and hence must choose to stow at lower angles or only stow at a single, determined direction.
- Single-row trackers would need additional capabilities beyond their standard design to handle wind loads at higher stow angles, such as:
  - **Longer piles to achieve deeper embedment depth**
  - **Increase in pile strength/thickness**
  - Increase the number of piles or foundations

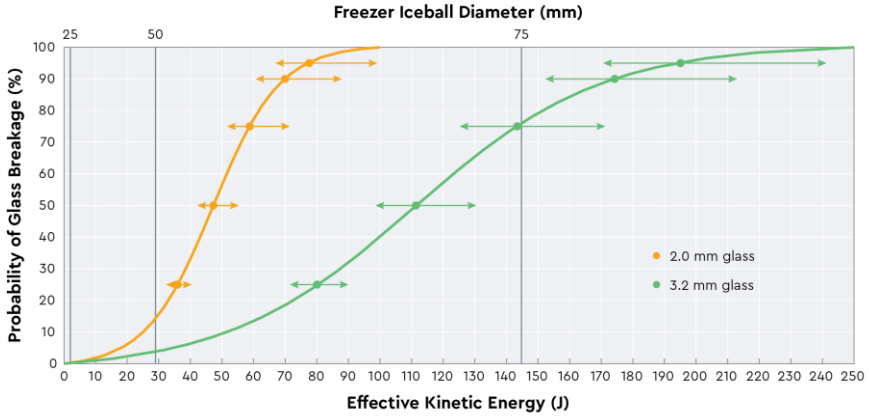
With Hail XP, site owners and operators do not need to decide between hail stow OR wind stow – Hail XP does both, providing protection from both risks simultaneously

At How High of an Angle Did the Tracker Stow?

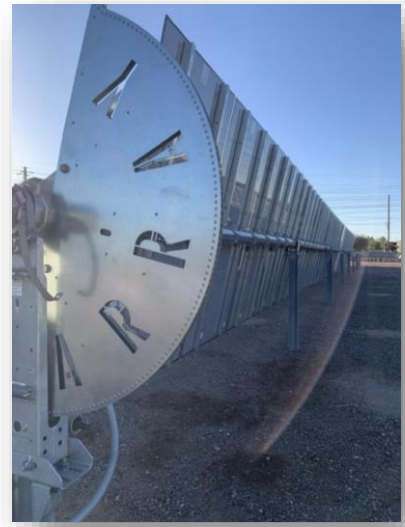
Why 77° is a Highly Effective Angle for Hail Stow

Energy Impact Consideration[1]

- **50 joules** of kinetic energy is sufficient to fracture conventional PV module glass, both 3.2mm modules and 2mm bifacial modules.
- Reducing impact energy less than 50 joules reduces breakage probability significantly based on published module resiliency curves.



- **20 joules** of kinetic energy can crack cells of crystalline silicon, resulting in up to **3% power performance degradation[2]** and cell hot spots, which can pose a fire risk.



A 77° STOW ANGLE CAN REDUCE KINETIC ENERGY TO <20 JOULES FOR NEARLY ALL POSSIBLE HAIL SCENARIOS.

1. VDE Americas, "Technical Memorandum – Hail Damage Risk and Mitigation Considerations," March 2021
2. kWh analytics 2024 Solar Risk Assessment

Chart: Module Glass Impacts Hail Resiliency – RETC, LLC

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Hail XP

Extreme Protection & Reliability at 77° Stow Angle

The Value Hail XP Brings to the Solar Industry

High reliability and extreme protection for hail mitigation

GREATER SYSTEM RELIABILITY

- Hard wired, grid powered AC motors and control systems reliably stow trackers when needed to protect assets when a storm approaches.

FAILURE-FREE WIND MANAGEMENT

- No need to make a risky decision to stow for hail OR wind. Hail XP can do both simultaneously–designed to withstand high wind and hail forces at full tilt in either direction.

PREMIER HAIL PROTECTION

- Designed to help protect PV modules from glass breakage and cell cracking, even when facing hail greater than 3" in diameter.

AUTOMATED RESPONSE

- Automated process can move trackers to a defensive position 30 minutes[1] prior to a high probability hail event with SmarTrack Hail Alert Response.

INSURANCE BENEFITS

- Mitigate risk to potentially drive lower insurance premiums or better coverage options.

[1]Other timing configuration available in SmarTrack

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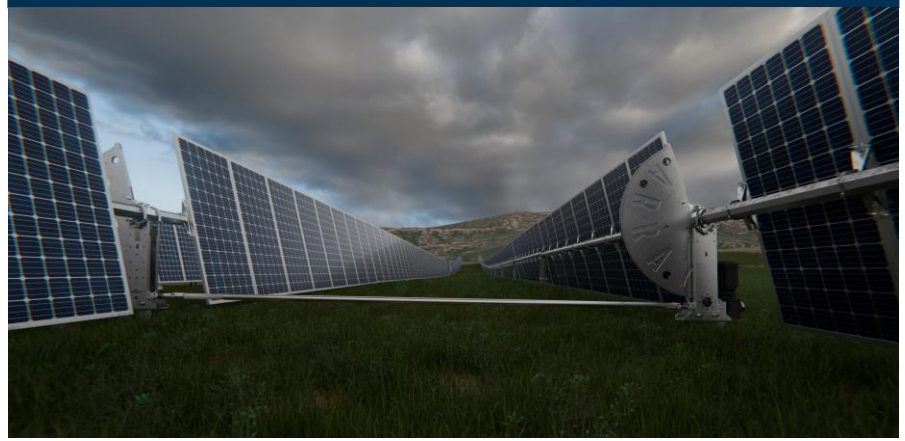
What Hail XP Provides

All the Existing Benefits of DuraTrack and OmniTrack

- Passive Wind Mitigation
- High Power Density – Up to 120 modules per row
- ARRAY SmarTrack™ advantages for backtracking, diffuse response, and extreme weather protection
- Large format module capability
- Each motor powers more than 1 MW of generation
- **Designed for wind AND hail protection at maximum angle (77°) in either direction**

Plus, New Features to Combat Extreme Weather & Hail



Built off Proven DuraTrack and SmarTrack Hail Alert Response Designs

Qualified Components & Suppliers

Passive Wind Mitigation
~2-4% energy gain compared to active stow trackers

Designed for Wind & Hail
No risky stow decision needed – Hail XP does both

Stowing Automation
Integrates seamlessly with SmarTrack Hail Alert Response

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Q&A

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Solar vs. the storm: Protecting utility-scale projects with Hail XP

Q&A

4 August 2025

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12:00 pm – 1:00 pm | EDT, New York City
6:00 pm - 7:00 pm | CEST, Berlin

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Industry experts will discuss the impact of the OBBB Act on residential, C&I, and utility-scale projects and the scaling-up of domestic manufacturing.

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Thank you for joining today!