PRECISIONHAWK Munich RE

CASE STUDY

UAV Pre-Loss Inspection Results in Savings for Global Reinsurer

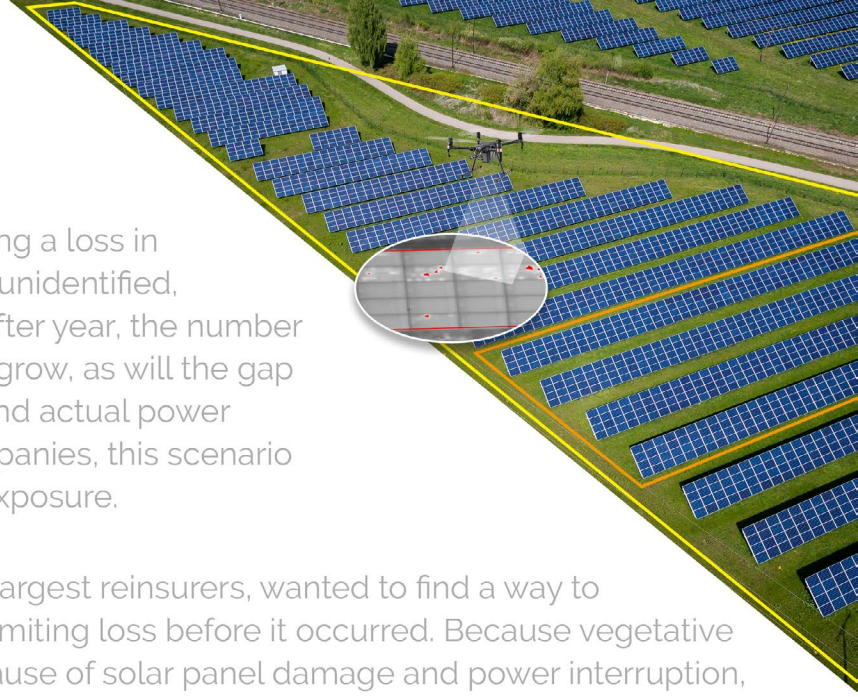
MUNICH RE & PRECISIONHAWK

Protecting Solar Farm Production

Renewable energy is on the rise, and solar farms are part of that growing trend. The financial investment in solar farms is significant, and so is the risk exposure for companies that insure them.

Maximizing a farm's production of electricity depends on the operation of failure-free solar panels. When damaged panels inhibit power generation, insurers are often left to absorb the expense of panel replacement, as well as the related loss of revenue.

Traditionally, solar farm inspections relied on visual inspection supported by thermal and infrared hand-held devices. Because of the laborious nature of manual inspections, it's estimated that a site operator with 100,000 solar panels would inspect only 25,000 panels in a year. Assuming 5% of those panels were defective,



the operator would be absorbing a loss in production as a result of 3,750 unidentified, non-functioning panels. Year after year, the number of damaged panels is likely to grow, as will the gap between solar farm capacity and actual power generation. For insurance companies, this scenario represents an increasing risk exposure.

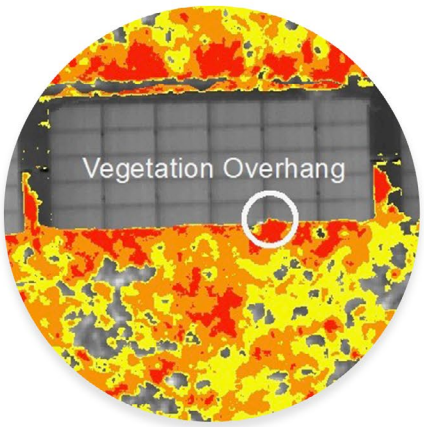
Munich Re, one of the world's largest reinsurers, wanted to find a way to reduce their risk exposure by limiting loss before it occurred. Because vegetative encroachment is a common cause of solar panel damage and power interruption, the reinsurer decided to conduct a baseline assessment that would identify current and future instances of encroachment.

Using UAVs for Pre-loss Inspection

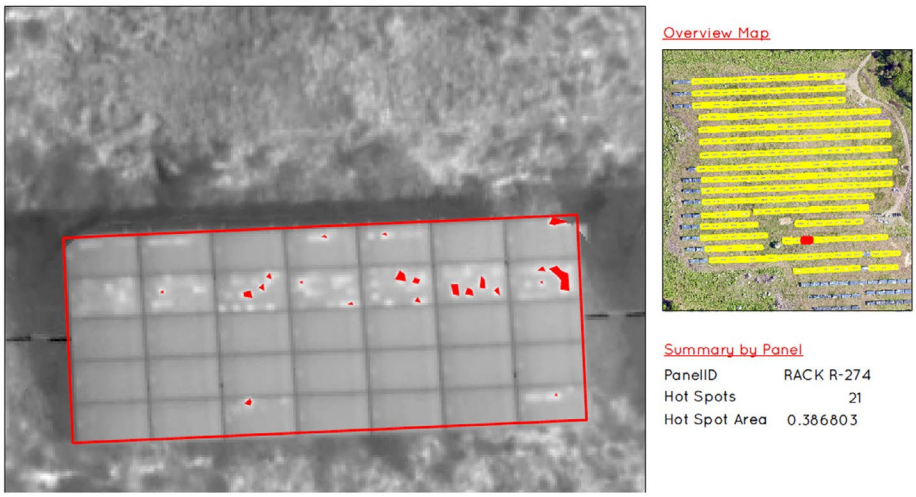
> *In the past, Munich Re worked with PrecisionHawk to run post-disaster assessments using unmanned aerial vehicles (UAVs). They wanted to learn if the technology could do the same for pre-loss inspection.*

Munich Re was specifically interested in conducting a pre-loss UAV inspection of a 105-acre solar farm in Massachusetts. The inspection would map fence lines, right of ways, solar panel structures, and electrical lines that connected the solar array to the grid.

The goal was to use data analysis to enhance insurance policy writing. To accomplish this, PrecisionHawk's sensor technology would need to differentiate natural vegetation from solar panels. This precise imagery would then allow operators to quickly identify and resolve vegetative encroachment before power generation was interrupted.



Outfitted with thermal, multispectral, and visual sensors, PrecisionHawk's UAVs successfully gathered high resolution imagery from the 105-acre solar site; they did so within 45 minutes and during the course of normal business operations.



Thermal sensors revealed changes in intensity caused by panel anomalies, while visual and multispectral sensors identified impediments caused by vegetative encroachment. When vegetative encroachment was identified, service teams were directly dispatched to the affected site based on measures of latitude and longitude. Quick abatement helped prevent further encroachment and damage to solar panels, thereby mitigating risk exposure for the insurer. Additionally, visual imagery helped identify damaged fence lines that could have led to security breaches.

Transforming Inspection

Agriculture, insurance, and energy sectors have been among the first to integrate UAV technology into one or more aspects of their operations. PrecisionHawk's partnership with Munich Re added another layer of possibility by demonstrating that drone technology can efficiently extrapolate data to support operational decision making.

> *Other industries are beginning to follow suit, especially in the area of facility management. By employing drones in the course of normal operations, companies can identify ways to efficiently and economically improve property protection, employee safety, and rapid facility recovery*

Thanks to Munich Re

for sharing their experience with us!

*Speak with us about adding aerial intelligence to your business—**email info@precisionhawk.com**.*
*Learn more about drones and aerial data in insurance at **PrecisionHawk.com/insurance**.*

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