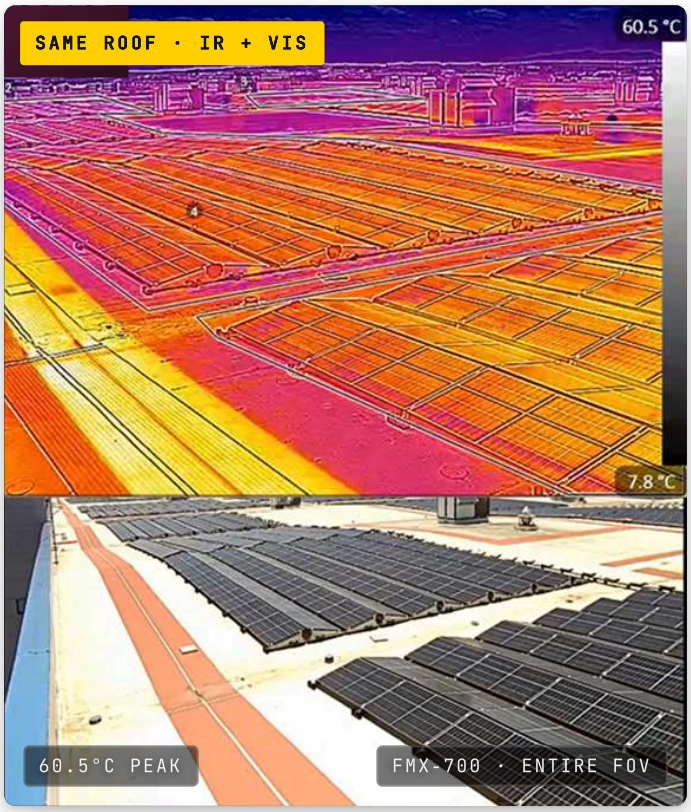
MSAI CONNECT • ROOFTOP SOLAR O&M

Continuous IR for Solar: Catching Failures Before the Roof Does.



THE CUSTOMER

A facilities & energy operations lead at a distribution and warehousing operator, running rooftop solar across multiple sites with a lean team that manages buildings.

24/7
Continuous fixed-mount IR, not inspection-day snapshots

Days not months
Faults caught between drone flights, not after them

1 connector
DC arc risk averted as a routine service call

01 The blind spot between snapshots

The operator's visibility came from two places: **inverter and SCADA production data**, and a **drone inspection once or twice a year**. Both tell you about a problem after it has already happened - or only on the one day someone is flying.

SCADA reports that production dipped *after* it has dipped, and can't say which connection in which combiner is responsible. A drone is a high-resolution photograph of a single morning. The failures that matter most don't happen on inspection day - they develop over weeks, in the gaps between snapshots.

A connector working loose. A combiner running hot. On a roof above a full warehouse, an overheating DC connection that arcs is a fire risk sitting on top of inventory and people.

- **SCADA** — lagging, can't localize
- **Annual drone** — one morning per year
- **The gap** — weeks of silent degradation

FROM THE OPERATOR • ON HEAT AS AN EARLY SIGNAL

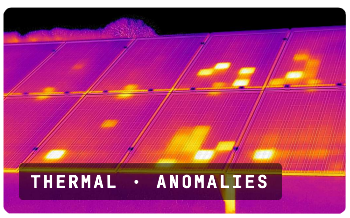
"Heat is the early language of a fire. For years I had no way to hear it day to day."

FACILITIES & ENERGY OPERATIONS LEAD

02 Continuous thermal monitoring, above the systems already in place

MSAI Connect provides continuous fixed-mount IR monitoring of the array - watching 24/7, not waiting for inspection day. It operates *above* the inverter and SCADA data the operator already has, surfacing what those systems can't: the thermal signature of a problem developing.

It doesn't replace the drone. The drone is still the right tool for the full high-resolution once-over and post-storm checks. Continuous IR is the layer that's awake in between - and it can point the drone at the right spot.

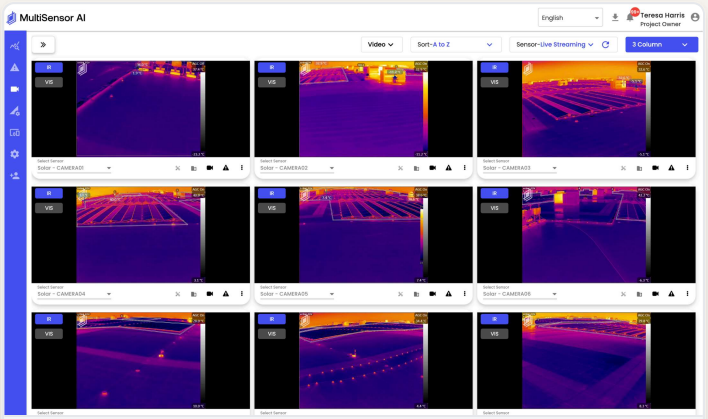


03 What it catches: the slow, dangerous failures

A DC connector at one of the combiner boxes had begun to work loose. As resistance climbed, it started running hot - the classic slow failure. Left alone, it would have continued heating for weeks, with arc and fire potential, before dropping enough production to register on SCADA.

Continuous IR caught the rising temperature early. The operator was alerted while it was still a **maintenance ticket**, dispatched a tech directly to that connector - not a walk of the whole array - and corrected it during ordinary service.

> *"A connector starting to heat up shows up as a thermal signal well before it's dropped enough production to register on SCADA."*



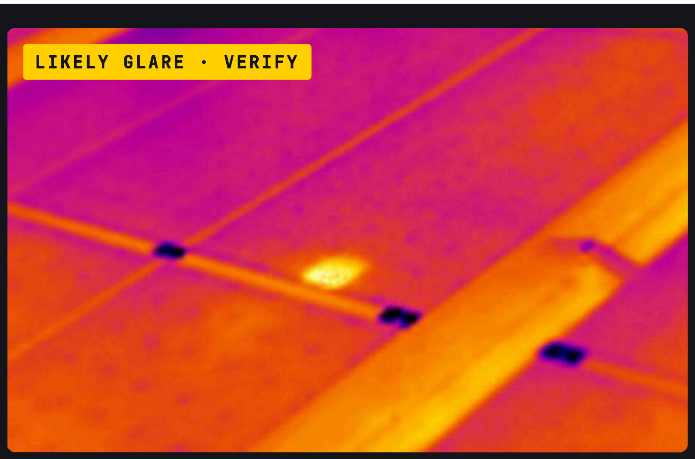
Live thermal + visible feeds from fixed sensors across the array. The operator scans for thermal signatures, not for production dips.

04 Alerts the team actually acts on

GLARE, HANDLED HONESTLY

It advises. It doesn't decide.

Earlier attempts at thermal monitoring on solar drowned operators in phantom hot spots from sun glare - until everyone stopped looking. MSAI doesn't filter glare away. It identifies when glare is *likely*, auto-tunes for seasonality, and surfaces the alert with the visual image and a "likely glare" advisory. A person makes the final call.



05 The change: from investigation to repair

The clearest result isn't a number on a dashboard - it's a change in how the team operates. Service calls used to start as investigation; now they roll up already knowing what they're fixing.

BEFORE · INVESTIGATION

Walk the array, hope to spot it.

Faults run unnoticed until the next drone flight, months later. Wasted trips, hours of hunting, generation quietly bleeding off in between.

→

AFTER · REPAIR

Tech is dispatched to a coordinate.

Faults caught in days, not months. Service calls are fixes, not investigations - and a continuous, documented record of rooftop conditions is always on hand.

THE TAKEAWAY • HOPING VS. KNOWING

The monitoring finally changes what the operator actually does.

"For a roof I used to just cross my fingers about, it's the difference between hoping and knowing."

Talk to MSAI →