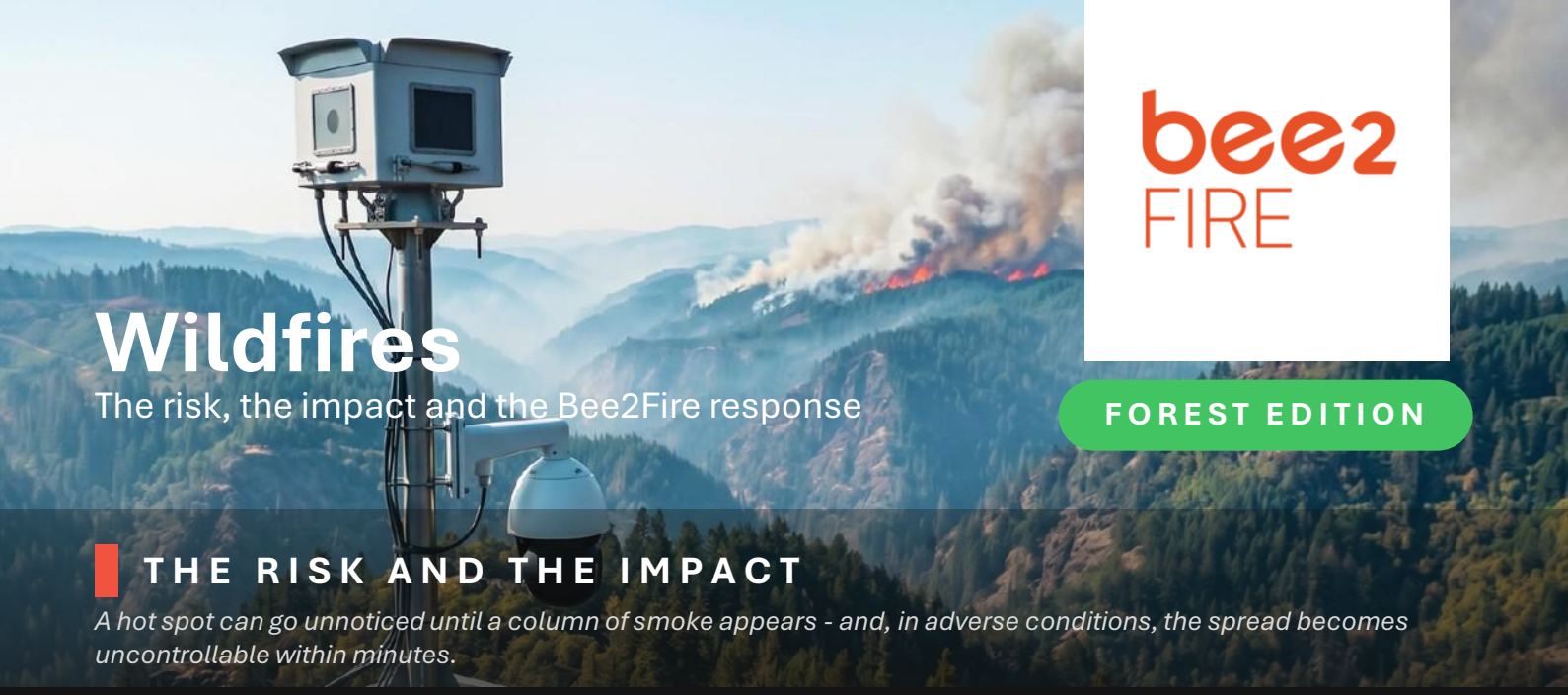


Wildfires

The risk, the impact and the Bee2Fire response

bee2 FIRE

FOREST EDITION

THE RISK AND THE IMPACT

A hot spot can go unnoticed until a column of smoke appears - and, in adverse conditions, the spread becomes uncontrollable within minutes.

Late detection

Traditional means only react once smoke or flames are already visible, missing the critical ignition window.

Rapid spread

Wind, heat and dry fuel spread fire within minutes, hindering firefighting and worsening the burnt area.

Environmental and human loss

Destruction of forest stands and habitat, emissions and risk to populations and emergency services.

Infrastructural damages

Threat to very-high-voltage lines, telecommunications and access routes - high suppression and reforestation costs.

THE BEE2FIRE FOREST RESPONSE

Automatic early detection

360º optical cameras with AI, thermal cameras and a spectrometric sensor (patented) identify hot spots and smoke columns in real time.

Long-range surveillance

Optical and spectrometric coverage of up to 15–20 km and 720 km^2 per system operating at 360º.

Prevention: fire-danger index

Analyses local weather and environmental data and provides a permanent fire probability index.

Firefighting support

Modelling of fire spread on the ground to support firefighting planning and real-time decision-making.

REN · Natureye

Intelligent wildfire detection project (nation-wide) - National Innovation Award 2025 (Portugal)

IN OPERATION

Western Greece - forest protection of 19 municipalities, with the Hellenic civil protection

Quito Fire Department (Ecuador) - forest perimeter of the capital

VALE, S.A. (Brazil) - perimeter of mining operation areas

Municipalities (Portugal) - rural fire detection



Industrial fires

"Fire does not start with the flame.
It starts with an invisible thermal rise."

bee2 FIRE

INDUSTRIAL EDITION

THE RISK AND THE IMPACT

Industrial environments concentrate thermal risks that are invisible to conventional detection - which only acts once the fire is already visible.

Silent overheating
Machinery, electrical panels, batteries, biomass and flammable materials heat up long before there is smoke.

Conventional detection is blind
Traditional systems react to flame or smoke - when the risk has already become an incident.

Unplanned downtime
Thermal failures and incidents interrupt production and reduce operational availability.

Economic impact
Losses from €100,000 to over €1M per event, plus penalties, asset damage and reputational impact.

THE BEE2FIRE INDUSTRIAL RESPONSE

Early hot-spot detection
Thermal and optical vision with AI identifies anomalies long before smoke or flame, reducing false alarms.

Mapping and predictive analysis
Up to 9 areas per thermal camera; alarms by threshold, difference and rise over time, with thermal evolution forecast.

Native integration
Interoperable with SCADA, BMS, PCI, CRA, MQTT/API, GMAO/CMMS and EN54 source, within the existing ecosystem.

Continuous 24/7 supervision
Remote monitoring of critical assets, with predictive maintenance and rapid response.

RETURN AND RISK MITIGATION

–5% to –25%
insurance premium
through active risk mitigation

€100k–>1M
losses avoided
per fire detected in time

–15% to –25%
maintenance OPEX
with predictive maintenance

–10% to –30%
asset damage
through continuous monitoring