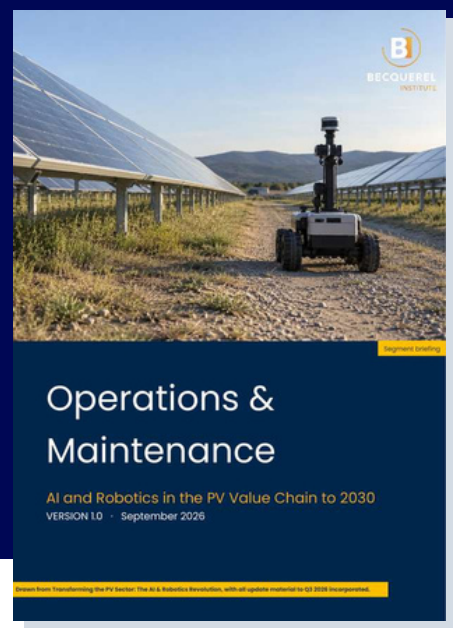


Operations & Maintenance

AI and Robotics in the PV Value Chain to 2030



AI and robotics are rewriting solar operations and maintenance: by 2030, **up to 80% of routine O&M tasks can be automated**. Learn which tasks, how fast and what it takes to capture the gain.

SUMMARY

Operations and maintenance is the longest phase of the PV asset lifecycle and the segment with the highest automation potential in the value chain. This briefing maps where AI and robotics take O&M by 2030, task by task, and separates what has been demonstrated from what vendors claim. It carries the full O&M analysis from *Transforming the PV Sector: The AI & Robotics Revolution*, updated to Q3 2026.

65–80%

of routine O&M tasks automatable by 2030

€2–3k

potential cost cut per MW per year

+3–4%

energy yield improvement

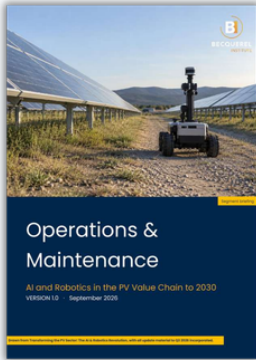
30+

O&M technology providers tracked

KEY POINTS

- The frontier has moved from detection to dispatch. A new task category, automated diagnostic triage and work-order dispatch, is assessed at **60 to 75%**.
- Monitoring and anomaly detection are already near-fully automatable at **95%**.
- The binding constraint through 2027 is measurement, not capability. Nearly half of operators running robotic fleets cannot yet prove the effect on margins.
- Regulation eased. The EU AI Act Digital Omnibus defers the high-risk deadline to December 2027, easing the near-term compliance path for PV field robotics.

WHAT WILL YOU GET?



1 The complete O&M segment briefing

29 pages · English · September 2026.

Eleven sections covering task automation, the transformation pathway, generative AI, the deployment evidence base, workforce, integration economics, regulation, value-chain dependencies and reader takeaways.

2 Access to expert AI agent NOVA

Make sure you get the most out of our analysis for your specific needs.

You have access to the dedicated NOVA AI agent on our Solarintelligence.ai platform. With advanced conversational intelligence, you can ask questions and receive answers tailored to your specific business context.

BUSINESS VALUE

- ✓ Build the business case, separating capital robotics from subscription software.
- ✓ Set procurement requirements: measurement protocol, robotic access, autonomy boundary.
- ✓ Benchmark automation potential task by task, comparing published and revised values.
- ✓ Read market structure and the platform-led consolidation of O&M services.
- ✓ Plan the workforce around the emerging supervision-and-validation role.

WHO THIS IS FOR

Asset owners & IPPs evaluating whether to require or permit robotic maintenance across a portfolio; **O&M providers** assessing competitive exposure; **technology vendors** positioning against the segment's stated automation ceilings; and **investors** underwriting either side of that market.

GET THE FULL REPORT

Full O&M Analysis (Digital format PDF) + Access to expert AI agent

Price: **€999** VAT excluded

[BUY NOW](#)

[CONTACT US](#)



FROM THE FLAGSHIP REPORT

Transforming the PV Sector: The AI & Robotics Revolution

O&M briefing is an extract of our full analysis of AI and robotics across the entire PV value chain to 2030.

[Find out more](#)

WHO IS BECQUEREL INSTITUTE?

Becquerel Institute is an independent strategy consulting and research company specialising in solar photovoltaics and energy transition. For over 20 years, we have offered expert services blending technological, economic and policy insights, across the entire PV value chain.