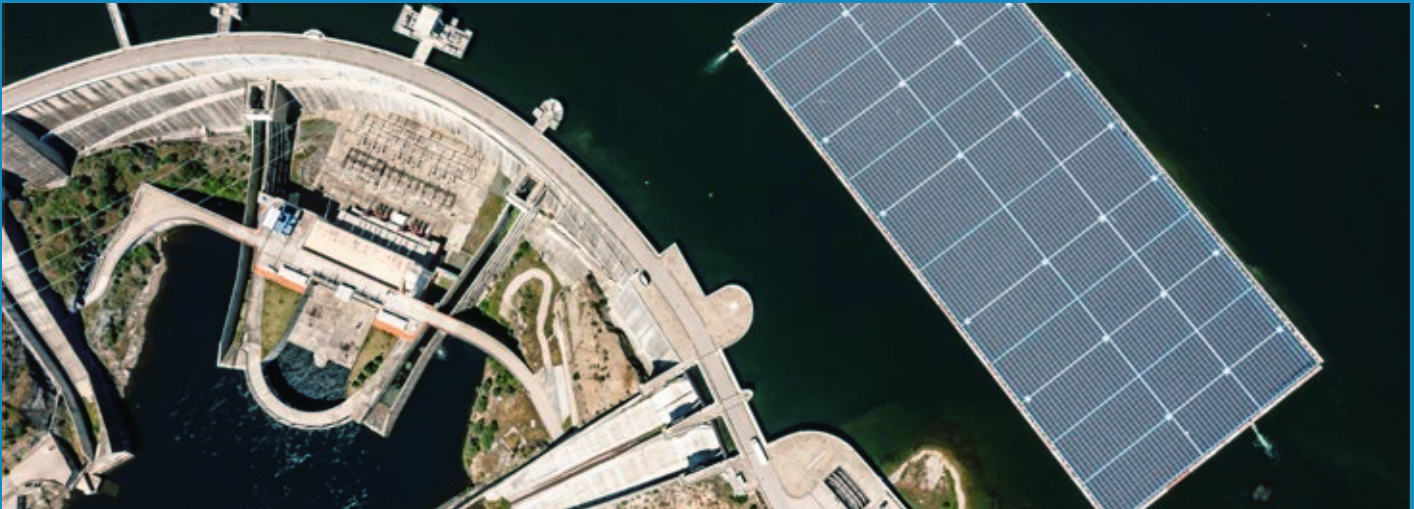


Floating PV



The TALOS Platform for a Solar Plant on Water

A single, easy-to-use platform that lets a plant team monitor a floating solar plant and guide autonomous robots — from shore, without going out on the water.



On the Alqueva reservoir near Portel, Portugal, home to what was, in 2022, the largest floating solar plant on an artificial lake in Europe (5 MW), TALOS shows how a floating PV plant can be looked after with the help of autonomous robots, all supervised through a single online platform.

Floating plants are harder to maintain than plants on land: reaching them means going out by boat, dirt and bird-droppings build up on the panels, and the **weather on open water sets tight limits on when work can be done safely.** The TALOS Platform brings the plant's live data, practical maintenance suggestions, and a team of robots together in one place, so the plant team can decide and act from shore.

Normally, a floating plant is inspected and cleaned by sending people out on the water, with little live visibility once they are back on shore.

With TALOS, the plant is continuously visible and controllable from one screen: issues are flagged and ranked automatically, and cleaning or inspection is carried out by robots that the plant manager simply approves and supervises. Three things change for the team: **the process becomes more straightforward** (suggestions arrive as clear actions, not raw data); **human control stays explicit** (people validate, adapt or reschedule every mission); and **evidence is captured by default** (each job leaves a structured record). The project targets a reduction of up to 90% in human risk exposure, maintenance periods shortened by over 70%, and around 5% lower O&M costs.

This brief is about the platform the plant team sees and uses. The robots and the intelligence behind them are described in the companion brief, Technical Brief 4 / 6.

The TALOS Platform is one online workspace, built by the project consortium. It takes a maintenance need from diagnosis all the way to a completed, documented robot mission.

Because the floating plant cannot be watched directly from the office, the **platform's live map** matters even more: it **shows where each robot and the support boat are, their battery and progress, and camera streams as far as the on-water signal allows**. A stop control halts any robot at any time, and a short feedback form after each job helps the system keep improving. A training programme (an online introduction, an on-site session during the first field demo, and a follow-up) prepares the team to use the platform and work safely alongside the robots.

**MONITOR**

watches the plant's production, weather and conditions on the water.

**DETECT**

It identifies and locates the issues that are dragging performance down.

**RECOMMEND**

It proposes a robot mission, or an alert for the team, ranked by the value it brings.

**VALIDATE**

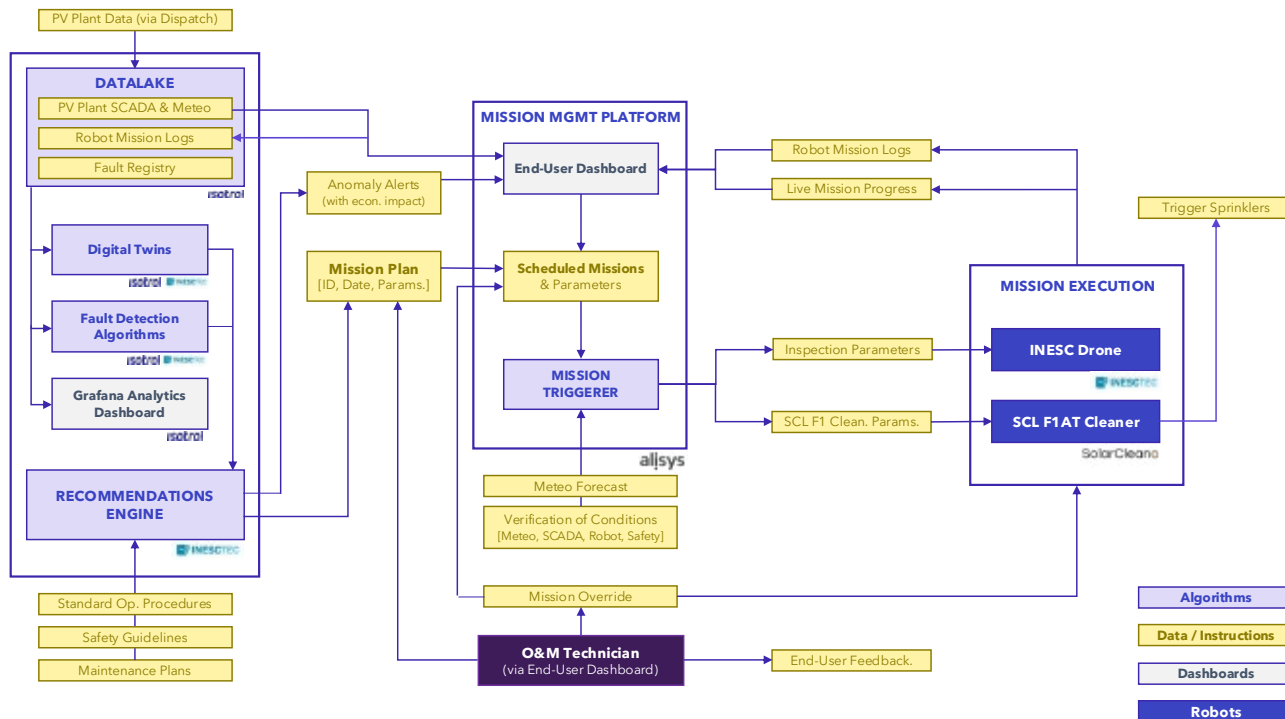
The plant manager reviews and can adjust the mission (date, location, robot) or set it aside.

**EXECUTE**

The robot carries out the job under supervision, followed live from shore.

**REPORT**

Images, logs and results are stored automatically for follow-up.



Source: TALOS project.

The plant team starts on shore by checking the morning weather: wind and waves are within safe limits until early afternoon.

The platform has lined up a cleaning run and an inspection of a section flagged as under-performing; the plant manager approves both. The support boat sets off carrying the inspection drone, and the team follows it on the live map. The floating cleaning robot works its way along the rows, drawing water from the platform's own supply. When the forecast worsens for the afternoon, the platform flags it and the team brings the boat back early. At the end of the day, quick feedback is logged and every record is stored automatically.

[Illustrative example. Real timings and the sequence of a typical demo day to be confirmed with the pilot team.]

Autonomous O&M works best when it is introduced as a supervised, scalable ecosystem, with people central to building trust and improving the system over time.

The platform delivers value to three groups:

FOR OPERATORS

Mission visibility and control from shore, and much less time spent out on the water.

FOR ASSET MANAGERS

Traceable records and evidence for follow-up, and data-driven identification of problems and O&M planning.

FOR PLANT OWNERS

More scalable maintenance of a hard-to-reach asset, with potential to lower long-term costs and improve return on investment.

Recommendations from the TALOS Floating-PV experience

- **Supervise autonomy, especially during early roll-out:** keep the team validating scheduling and execution to reduce risk, spot improvements and build confidence.
- **Plan the logistics that make autonomy work:** more frequent robotic jobs need the right support (robot upkeep, water availability, charging infrastructure).
- **Adapt roles, procedures and training:** teams need updated safety rules and new skills to supervise autonomous work effectively.
- **Treat the platform as a future-proof layer,** being robot-agnostic, it can take on additional robots and O&M tasks as trust grows.

GLOSSARY

O&M	Operations & maintenance: the day-to-day running and upkeep of the plant.
Soiling	Dust, dirt or droppings on the panels that reduce their output.
SCADA	The plant's existing monitoring system that reports production and equipment data.
Drone (UAV)	A small uncrewed aircraft used to inspect the panels from the air.
Support boat (USV)	An uncrewed surface vessel that carries the drone from shore to the floating plant.

PROJECT PARTNERS BEHIND THE PLATFORM



User interface and mission management of the platform.



Central store of plant data (feeding the platform's live views and analytics).



Maintenance suggestions and fault alerts shown on the platform.



Training programme and feedback tools.



Plant owner and O&M team: requirements, on-site training and validation.



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