Project COCOON
Thessaloniki, 17/09/2026

Mission Complete: Cyber Protection Delivered for Europe's Power Grids

COoperative Cyber prOtectiON for modern power grids – COCOON

After three years of research, development and real-world validation, COCOON concludes on 17 September 2026, delivering a proven cyber-physical protection solution for modern energy systems and a technology foundation that European projects and operators continue to build on.

THREE YEARS, ONE MISSION

COCOON began on 18 September 2023 with a clear objective: protect the point where information technology meets the operational technology that runs Europe's electricity network. Twelve partners across five countries — universities, research centres, transmission and distribution operators, and industry — carried that objective from concept to validated technology.

At the centre of the solution sits the **COCOON Programmable Node (CPN)**, a dedicated, cost-effective hardware device placed in the network path, where it collects and processes data in real time. A suite of services runs on top of it, covering **anomaly detection and diagnosis, vulnerability assessment and risk scoring, verification of the integrity of field measurements, and automated threat response**. Users work with all of them through a **single dashboard**, the point where alerts, risks and responses come together. The core functionalities achieved **Technology Readiness Level 7 (TRL7)** through validation at four pilot sites in Greece, the Netherlands and Spain.

COCOON received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101120221.

THE FINAL EVENT IN NICOSIA

From **7 to 9 September 2026**, the consortium gathered in Cyprus for the **7th and final General Assembly**, hosted by the **University of Cyprus and KIOS Research and Innovation Centre of Excellence** in Nicosia. Two days of technical review across all work packages led into the **COCOON Demo Event on 9 September**, where the four pilots presented their final results to an audience of institutional, academic and industry stakeholders.

The Demo Event opened with welcome addresses from three senior figures in European cybersecurity and energy governance:

- **Mr. Michail Bletsas** — Governor of the National Cybersecurity Authority of Greece
- **Mr. Marios Pieris** — Commissioner of Communications of the Republic of Cyprus
- **Mrs. Vaia Karathodorou** — Chief Executive Officer of the Regional Coordination Centre for Southeast Europe (SEleNe CC)

Their addresses carried a common message: the protection of energy infrastructure holds a central place on the agenda at both national and European level.

FOUR PILOTS, FOUR MILESTONES

Each pilot addressed a different layer of security, and each closed the project with a concrete, demonstrated milestone.

1. Secure Energy Communities — Chalkidiki, Greece

Energy communities feed locally generated solar power directly into the public distribution grid, adding value to the system together with new points of exposure. The pilot brought the Greek partners together on a live distribution network to show how cybersecurity and grid support work side by side in everyday operation.

Milestone: for the first time in Greece, photovoltaic plants were integrated into the distribution operator's SCADA environment with real-time monitoring and remote control. That capability opened the way to test grid support services in practice on a live network. The false data detection functionality met its project KPI and reached **TRL7**.

2. Secure Regional Electricity Data Operations — Thessaloniki, Greece

Coordination activities depend on IT systems and on the secure exchange of operational data between them. The pilot built a dedicated environment that reproduced such a setup in isolation, so that realistic security testing could run at full depth with no effect on live operations.

Milestone: three complete cyberattack scenarios were executed end to end against that environment. The COCOON solution detected every scenario, alerted users in real time, and blocked the malicious traffic automatically, with every action logged and reversible.

3. Digital Substation Security — Delft, Netherlands

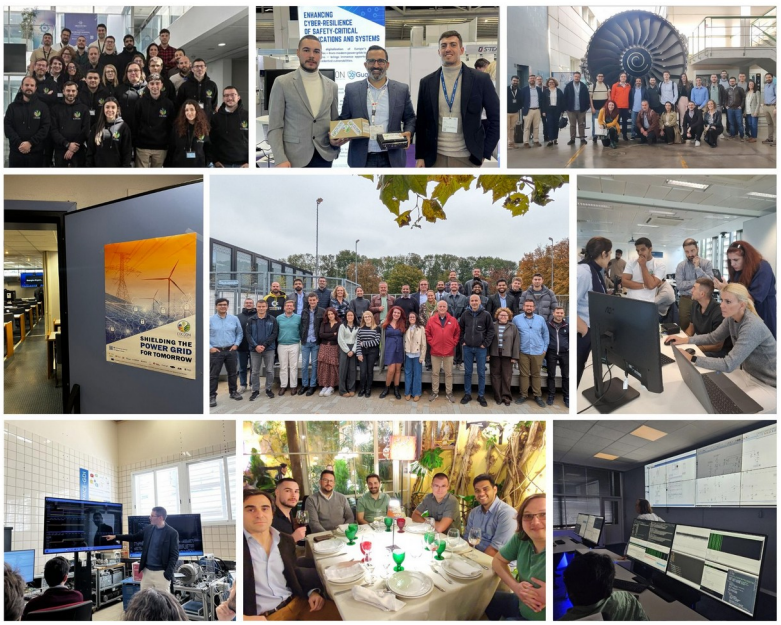
Digital substations sit at one of the most sensitive layers of the modern grid, where protection and control decisions are taken in fractions of a second. The pilot recreated such a substation in a laboratory setting and connected it to a control room environment, creating a realistic space for testing and training.

Milestone: a fully operational cyber range in which red and blue teams ran attack and defence exercises across the real operational roles of a utility, with cryptographic protection applied to time-critical signals. The exercises established a standard attack framework that now serves both training and demonstration.

4. Secure DRES Deployments — Granada, Spain

Renewable generation is expanding rapidly across Europe, and solar plants have become critical assets that depend on digital control and reliable measurements. The pilot took the COCOON solution into a commercially operated photovoltaic plant, bringing the plant operator, technology providers and academic partners together in the field.

Milestone: the COCOON solution completed the full validation journey from simulation, through laboratory testing, to field deployment in a plant under real commercial operating constraints, reaching **TRL7**. A set of representative attack scenarios was executed against the live plant, the false data detection functionality met its project KPI, and the assessment translated its findings into prioritised remediation actions.



Three years of COCOON.

COCOON ENDS AS A PROJECT, ITS IMPACT BEGINS

COCOON closes with its technology validated in real operating environments at **TRL7**. The next level for a solution of this kind is **TRL 8/9**, and the results the project leaves behind form a mature starting point for that step. The architectures, tools and validation methodologies developed in COCOON are ready to be taken further by partners, vendors and investors with an interest in broader adoption and interoperability across the sector.

COCOON also leaves a body of knowledge behind it. The project produced a substantial set of peer-reviewed publications in leading international venues, and its architectures, attack scenarios and validation methodologies are already being reused in new European research and innovation initiatives across cybersecurity, energy and critical infrastructure protection.

As the Project Coordinator, Prof. Angelos Marnerides, put it in his closing remarks: COCOON has created technology to reuse, knowledge to transfer, threats to train against, architectures to extend, markets to explore and research challenges to solve — and, above all, a cross-disciplinary community of engineers and scientists with a shared vision.

FOLLOWING COCOON AFTER THE PROJECT

The COCOON website remains active as the central archive of the project's outcomes, hosting public deliverables, press releases, newsletters and pilot documentation. It also stays open as a channel for news from the wider electricity and cybersecurity field.

For updates, visit: https://www.cyber-cocoon.eu

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