



Press Release
Valencia, Spain – January 10, 2024

R2D2 Marks Successful Completion of First Year with Key Advances in Energy System Security

Valencia, Spain – January 10, 2025 – The EU-funded R²D² project has successfully completed its first year, laying the technical and scientific foundations for its mission to enhance the reliability, resilience, and cybersecurity of electrical power systems. Over the past twelve months, the project has made significant strides in defining its use cases, requirements, system architecture, and software design, and has officially commenced the development of its four core products.

The project's four pilot sites, including Transmission System Operators (TSOs) and Distribution System Operators (DSOs), have completed a thorough monitoring and survey of available IT and OT infrastructure, as well as an assessment of applicable regulations and legislation governing (cyber) resiliency in electrical systems.

Strengthening European Critical Infrastructure Security

R²D² has become an active member of the European Cluster for Securing Critical Infrastructures (ECSCI), contributing to knowledge sharing and collaboration on enhancing security and resilience in power systems. Ugo Stecchi, R²D² Project Coordinator, stated:

"This engagement provides an opportunity to share our knowledge not only with stakeholders in the energy sector but also with experts from various critical infrastructure domains. By exchanging best practices and procedures, we contribute to the ongoing discourse on critical infrastructure security."

The project's participation in ECSCI will facilitate discussions on preventing and mitigating cascading events, sharing cyber-threat intelligence, and improving the overall resilience of European energy networks.

Innovation in Substation Security: EMMA-SURVEILLANCE

A standout first-year achievement is the development of EMMA-SURVEILLANCE, an AI-

powered visual detection tool designed to enhance security at electrical substations. Using a retrained YOLO (You Only Look Once) algorithm, EMMA-SURVEILLANCE can identify fires, smoke, and the presence of animals near critical substation facilities. By providing timely alerts, it ensures rapid response to emergencies and mitigates potential disruptions to the electrical system.

Advancing Cybersecurity in OT Environments

The R²D² project also addresses cybersecurity challenges in operational technology (OT) environments. The CARMEN platform, developed by S2 Grupo in collaboration with Spain's National Cryptologic Centre, extends threat detection to both IT and OT traffic, enabling early identification of anomalies and vulnerabilities in industrial control systems. This proactive approach improves incident response, minimizes operational disruptions, and enhances overall cyber resilience.

Looking Ahead

As R²D² enters its second year, the consortium will continue developing and validating its four products across pilot sites, ensuring practical implementation of its innovations while reinforcing Europe's energy system security.

Further information:

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Visit R²D²: <https://r2d2project.eu/>



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