

Innovative devices for electric and cyber security in distribution grids

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In recent years, many cyber attacks carried out against strategic and critical infrastructures. In the current geopolitical context, the cyber threat has become a real attack weapon that can have considerable impacts on the continuity of services and the functionality of companies, schools and offices. Many meters, sensors and controllers of the equipment connected to the distribution grid make use of the public data network to transmit information, data, measurements and commands necessary for monitoring, control and coordination operations.

In this context, the definition of innovative protection devices, not only capable of protecting a system, an apparatus or an installation from overvoltages/overcurrents and temperatures beyond the limits, but also capable of detecting and mitigating threats cyber, represents a fundamental objective to guarantee the defense of current and future electric networks from electric faults and cyber attacks. ENEA researchers involved in Accordo di Programma 2022–2024 between ENEA and Ministry of the Environment and Energetic Safety – Project 2.1 "Cyber Security of energy systems" are designing, prototyping and testing a new generation of protection devices taking advantage of solid state technologies and Quantum Key Distribution systems for secure data encryption.