SECURITY LIFECYCLE ASSESSMENT BY DESIGN

Novel concepts for Critical Energy Infrastructures' security lifecycle assessment based on protective and lifecycle Closed Control Loops.

PRIVACY BY DESIGN

Overarching approach to data protection, managing data privacy for prosumers, humans in the loop, and infrastructure installments, with a view to mitigate potential threats.

HUMANS IN THE LOOP

Introduce trusted, traceable bidirectional communication flows between machines and humans in the loop (i.e. Critical Energy Infrastructure owners, operators and citizens).

SURVIVABILITY BY DESIGN

Robustness, resiliency and self-healing as embedded Critical Energy Infrastructure characteristics, based on virtualization, reconfiguration and energy rerouting concepts.

HOLISTIC CYBER-PHYSICAL SECURITY MANAGEMENT

Demonstrate protection of simultaneous physical and cyber security threats, along with threats not associated with attacks (e.g. accidents or physical disaster).

BUILDING A CULTURE OF SECURITY

Maximizes the public outreach, scientific and industrial knowledge via a culture of Critical Energy Infrastructure on security.

DEFENDER validation and trials

DEFENDER will involve a number of real pilots to evaluate, validate and demonstrate how and to what extent the DEFENDER framework will enable an effective holistic cyber-physical security

Pilot #1: Bulk Energy Generation (France)

Pilot #1 will be deployed on the ENGIE plans using as a testing place the COmbigolfe Combined Cycle Gas fired power plant, located in the industrial area of Fos sur Mer, on the Mediterranean sea. Its power rating is 424 MW, it has a high efficiency – ~58% -, as it associates a gas turbine for the high temperature stage with a classical steam turbine for the lower temperature stage.

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Pilot #2: Wind Farm Decentralized RES Generation (Italy)

Pilot #2, located in Erchie (Brindisi) in Southern Italy, will be related to the deployment of the DEFENDER security management framework in a decentralized wind farm with a capacity of 30 MW, comprising 15 wind towers.

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Pilot #3: Transmission System (TSO) power network (Slovenia)

The Pilot #3 will be deployed at ELES, the Slovenian Transmission System Operator for High Voltage power network. Individual parts of its HV transmission network are within the scope of critical infrastructure and thus essential for the continuity of the operation of the electricity Power system on the national and EU level.

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Pilot #4: Distribution System (DSO) power network C&I Prosumer (Italy)

Pilot #4 will be implemented by ASM Terni and will validate DEFENDER at *DSO* and *prosumer* level. The Terni pilot is equipped with several LV power network branches and substations.

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https://defender-project.eu/