EU H2020
Electrical Power System's Shield against complex incidents and extensive cyber and privacy attacks

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The PHOENIX project is a European Union funded collaborative project aiming at offering a cyber-shield armour to the European Electrical Power Energy Systems (EPES). It focuses on the protection of the European end-to-end EPES (from energy production to prosumption) via prevention, early detection and fast mitigation of cyber-attacks. PHOENIX will involve real-world scenarios to validate the effectiveness of results across 5 European Large-Scale Pilots (LSP) in Italy, Sweden, Slovenia, Greece and Romania involving the complete end-to-end generation, transmission, distribution and prosumption value chain.

### H2020 PHOENIX: Project At A Glance

| Title: | Electrical Power System’s Shield against complex incidents and extensive cyber and privacy attacks |
| Type of Action: | Innovation Action |
| Grant Number: | 832989 |
| Total Cost: | 11 M Euros |
| EC Contribution: | 8 M Euros |
| Start Date: | September 2019 |
| End Date: | August 2022 |
| Duration: | 36 Months |
| Project Coordinator: | Capgemini |

### Key Challenges, Pillars and Technologies

- **Human Centered**
- **Technology Centered**
- **Legislation Centered**
- **Business Centered**
- **Privacy & Confidentiality**
- **Availability & Resilience**
- **Trust & Integrity**
- **Offline/real-time ML Framework & Secure Federated ML Models**
- **Federated Blockchains & Inter-Distributed Ledgers**
- **SDN & 5G Networks (when available)**

### Large Scale Pilots (LSPs)

- **LSP1 (by ASM, EMOT and BFP) in Italy**: will validate PHOENIX at operator and prosumer level on a regional and cross-site information exchange at national level. It will validate geographical horizontal regional-scale cyber-threats scenarios and privacy/data breaches governance management.

- **LSP2 (by PPC)**: will be provided at distributed renewable energy resources generation level and will feature 3 Hydroelectric Power Plants (HPPs) located in Greece. It will validate cybersecurity attacks on hydropower plant assets and measure subsystems, cybersecurity attacks on ultra-low delay (5G) communications, and energy cascading effects.

- **LSP3 (by ELLJ and BTC)**: will be implemented in the commercial and industrial area of BTC (shopping, entertainment, business, commercial, and logistics centre) in Ljubljana, Slovenia. LSP3 will demonstrate cyber threats mitigation and data privacy management in a decentralized environment.

- **LSP4 (by EON and RWTH) in Sweden**: will use a demand side response platform with more than 20 households connected to validate micro grid flexibility versus cybersecurity and privacy attacks. PHOENIX will analyze logs and events from home assets and the DSR system, along with aggregated energy data at neighborhood section to validate several cybersecurity scenarios.

- **LSP5 (by TELE, TRANS and DECIR)**: in Romania will validate national and cross-border information and incidents exchange and governance hierarchies sharing models as foreseen by NIS Directive. Various governance models and the complete platform will be validated and response in data sharing from 5 countries, national and regional CERTs and CSIRTs will be evaluated.