SealedGRID

Scalable, trustEd, and interoperAble pLatform for sEcureD smart GRID

PROJECT COORDINATION

Prof. Christos Xenakis
School of Information and Communication Technologies
Department of Digital Systems
University of Piraeus
Karaoli and Dimitriou 80,
PC 18534, Piraeus, Greece
Tel: +30 210 4142776
email: xenakis@unipi.gr

MAIN PROJECT INFORMATION

The SealedGRID is an innovative platform, builds on a realistic architectural image of industrial installations considering the special characteristics of energy infrastructures, their cyber and physical requirements. The SealedGRID is expected to contribute to the fulfilment of the objective of efficient operation of critical infrastructure, while preserving quality of service, for the ultimate benefit of customers. The SealedGRID platform along with its security methodology and mitigation techniques for cyber, physical and potential cyber-physical threats will provide an integrated solution that will be applicable to existing systems as well. It will also provide advanced security features in legacy equipment upgrading their capabilities for operation in modern computing environment.

The SealedGRID concept is expected to limit the security risks for the expansion of remote energy distribution network management, towards the evolution of Smart Grids. SealedGRID will provide a platform that will abide by the existing standardization work and will be directly utilized by the shareholders to provide new tools towards a scalable, highly trusted, and interoperable Smart Grid security platform.

This project has received funding from the European Union’s H2020-MSCA-RISE-2017 programme under grant agreement No 777996.
BUSINESS CASES

The business cases will be focused on specific Smart Grid communication and management scenarios, such as:

- The single domain SealedGRID scenario
  Where all Smart Grid devices will be SealedGRID enabled and be part of a single administrative domain,

- The multi-domain SealedGRID scenario
  Where all Smart Grid devices will be SealedGRID enabled and inter-connections will have to be managed,

- The mixed scenario
  Where only some of the Smart Grid devices will be SealedGRID enabled and interactions between SealedGRID and legacy devices, as well as inter-connections will have to be managed.

The SealedGRID will propose an architecture that will meet the requirements that emerge from the use cases and will support interoperability, scalability and security to the Smart Grid device.

MESSAGE FROM THE COORDINATOR

We are happy to introduce you to the SealedGRID newsletter, a great vehicle for our consortium to communicate our project’s achievements, activities and results. The intention of this newsletter is to open a new communication channel in order to provide news on the project progress and to discuss ongoing topics relevant to SealedGRID for internal and external project partners, stakeholders and all other interested bodies.

For more detailed information about and around the project we warmly invite you to have a look on our project website, which is constantly kept up-to-date with the latest project related news: sgrid.eu

The project has successfully started with the kick-off meeting in January 2018 and since then the project has been progressing towards the definition of the scenarios that analyze the SealedGRID business cases and the determination of SealedGRID architecture that meets all of SealedGRID requirements.

Christos Xenakis
CONTRIBUTION TO ENERGY DISTRIBUTION OPERATORS

The establishment of high information security models is in the top of energy distribution operators’ business priorities. The SealedGRID platform along with its security methodology and mitigation techniques for cyber, physical and potential cyber-physical threats will provide an integrated solution that will be applicable to existing systems as well (like SCADA and telemetering systems). It will also provide advanced security features in legacy equipment upgrading their capabilities for operation in modern computing environment. The SealedGRID concept is expected to limit the security risks for the expansion of remote energy distribution network management, towards the evolution of Smart Grids. This will offer more trouble free management to energy distribution operators and contribute towards an extensive deployment of Smart Grids. Furthermore, the adoption of SealedGRID will provide an efficient mechanism for the mitigation of security risks related to the infusion of Information and Communications Technologies in the energy distribution operators.

CONTRIBUTION TO UTILITY COMPANIES

One of the major concerns of utility companies to actively proceed to the adoption of innovative and state of the art solutions, is the interoperability with old-fashioned/traditional equipment, as well as the high integration costs. Conversely, SealedGRID builds on a realistic architectural image of industrial installations comprising legacy (like SCADA) and emerging (e.g., automated and interconnected) types of energy infrastructures. Subsequently, SealedGRID takes into account the special characteristics of energy infrastructures, their cyber and physical requirements, and proposes solutions that promote systemic prevention with the minimum possible additional cost. Special consideration will be given to the fact that this additional cost should be much less than the benefit gained by the adoption of SealedGRID solutions. Moreover, SealedGRID will endorse interoperability to allow companies to promote better offers and to create a competitive energy infrastructure market. Consequently, SealedGRID is expected to contribute to the fulfillment of the objective of efficient operation of critical infrastructure, while preserving quality of service, for the ultimate benefit of customers.

This project has received funding from the European Union’s H2020-MSCA-RISE-2017 programme under grant agreement No 777996.
WIDER EUROPEAN UNION AND GLOBAL BENEFITS

Currently, much effort is being made at European and global level, to push towards realizing a sustainable development of the Smart Grid, with the minimum vulnerability to external attacks or to malicious Smart Grid nodes. Utility companies globally invest on an efficient, controlled and flexible distribution of the energy to optimize the services that they provide to the end customers. On the other hand, individual clients call for more efficient Smart Grid solutions with guaranteed highly secure Demand Response services that could reduce their electricity bill without sacrificing their privacy or their energy-consuming habits. To this end, SealedGRID will provide an innovative platform that will abide by the existing standardization work and will be directly utilized by the shareholders to provide new tools towards a scalable, highly trusted, and interoperable Smart Grid security platform. The proposed platform will contribute to the ambitious goal posed by European regulations that requires member nations to ensure that 80% of residential households are fitted with a smart meter by 2020. Seconded researchers will create a highly experienced group in this field, to continue working in this highly important research area. In this concept, vital contribution will be provided by the SealedGRID in the current efforts for crewing a European research and development community with expertise in the security systems for the Smart Grid that may combine cross-sectorial (industry and academia) backgrounds.

KICK-OFF MEETING

The SealedGRID consortium met for the kick-off meeting in Brussels, Belgium, at European Union premises. These days were dedicated to get to know each other and to organize the further collaboration of the project partners. Summing up, it was a very interesting and fruitful meeting, providing many inputs that can be used for further research and development within the SealedGRID project.

SealedGRID RESEARCH VISIT

Ruben Rios from University of Malaga visited Athens for 2 months as part of SealedGRID project. On Wednesday, July 4th, Ruben met with Prof. Christos Xenakis from University of Piraeus, Aristeidis Farao and Vaios Bolgouras from Neurosoft, and Ruben Rios from University of Málaga. In the meeting there were representatives from all consortium’s members. The participants had a fruitful discussion that led to new objectives for the upcoming months and new ideas regarding the implementation of SealedGRID.

SealedGRID MEETING IN ATHENS

George Suciu and Alexandru Vulpe from BEIA visited Athens as part of SealedGRID project on July 6, 2018. Also they met with Prof. Christos Xenakis from University of Piraeus, Aristeidis Farao and Vaios Bolgouras from Neurosoft and Ruben Rios from University of Málaga. In the meeting there were representatives from all consortium’s members. The participants had a fruitful discussion that led to new objectives for the upcoming months and new ideas regarding the implementation of SealedGRID.

This project has received funding from the European Union’s H2020-MSCA-RISE-2017 programme under grant agreement No 777996.
SealedGRID MEETING IN ATHENS

Neurosoft team members, Emmanouil Gravriil, Argyris Chrysanthou, Aristeidis Farao and Ruben Rios from University of Malaga, and Christos Xenakis and Nikos Pasas from University of Piraeus had a meeting about the SealedGRID project, on August 8, 2018. The meeting’s goal was the definition of the SealedGRID architecture and the evaluation of the project progress.

In a highly collaborative spirit the partners have agreed on the way the integration of various SealedGRID components should be completed.

SealedGRID AND CYBER SECURITY CHALLENGE 2018


SealedGRID and GDPR PRESENTATION

The seminar “GDPR: the Next Day” took place in 30/5/2018 in University of Piraeus. Prof. Christos Xenakis was responsible to present the SealedGRID project.

CELEBRATING RESEARCHERS’ NIGHT IN ATHENS

On Friday 28th of September researchers from University of Piraeus and Neurosoft demonstrated the SealedGRID project in Researchers’ Night. They disseminated the project aims, and advantages to the public. Moreover, during the presentation they had fruitful discussion with promising students and visitors.

This project has received funding from the European Union’s H2020-MSCA-RISE-2017 programme under grant agreement No 777996.
DISSEMINATION MATERIAL

♦ Project Leaflet

A leaflet and a project poster have been produced by the SealedGRID consortium to support the partners’ communication actions and contribute to build awareness to the SealedGRID project achievements. Feel free to download and share our project’s leaflet (a link to the leaflet).
DOWNLOAD IT HERE: https://www.sgrid.eu/communication/

♦ Project Video

A modern informative video is available through the SealedGRID project YouTube channel that aims to disseminate the project’s idea to the general public.
WATCH VIDEO HERE: https://www.youtube.com/watch?v=U1g8ynTTDo8

FOLLOW US FOR OUR LATEST NEWS

https://www.facebook.com/SealedGRIDH2020/
https://www.linkedin.com/groups/13607573
https://twitter.com/sealedgridh2020?lang=en
https://www.youtube.com/channel/UC7k6Lz_RgV9GDPYyTi8qtTA

VISIT US FOR OUR LATEST NEWS

www.sgrid.eu

OUR PARTNERS

This project has received funding from the European Union’s H2020-MSCA-RISE-2017 programme under grant agreement No 777996.