SecureGas increases the security and resilience of the EU gas network, by taking into account physical and cyber threats.
THE CONTEXT

According to EGIS (European Gas pipeline Incident data Group), a total of 1366 incidents to gas network have been reported from 1970-2016 resulting to an annual primary failure frequency of 3.1x10^-4 per km, for transmission pipelines.

Main causes of incidents have been identified in:

- “external interference” (e.g. digging, piling or ground works by heavy machinery);
- “ground movement” (e.g. dike break, mining), both characterized by potentially severe consequences.

These figures has been improved over the years, leading to, from 2007 to 2016, “external interference” being responsible for 28% of incidents while ground movements for 15%.

Gas network operators and authorities have understood the impact of external interferences, attributed to unauthorised Third Party Interference (TPI), including malicious acts such as sabotage, terrorism.

SECUREGAS EU PROJECT

SECUREGAS is a Research Project in the EU Framework Program H2020 for Research and Innovation, aiming to strengthen the security and resilience of the European Gas Network.

In line with the European Energy Security Strategy, the European Programme for European Critical Infrastructure Protection (ECPNP), the EU’s reliance on gas imports and the EU Regulation 2017/1938 on Security of Gas Supply, the project focuses on the 140,000 km of the European gas network covering the entire value chain from production to distribution, providing methodologies, tools, and guidelines to secure existing and incoming installations and make them resilient to cyber-physical threats.

Over the course of the project, SecureGas will define a blueprint on how critical gas infrastructure should be planned, designed, built, operated, and maintained to cope with cyber-physical security threats. This will serve as baseline for defining a High-Level Reference Architecture (HLRA), that will be used as guideline for adapting, customizing, integrating technological components that will be finally demonstrated in a set of Business Cases. The resulting outcomes will be offered as services for the security and resilience of the EU gas network through a Platform as a Service (PaaS) model, that allows modularity, flexibility, cooperation, and third-party interoperability.

THE PROJECT IN A NUTSHELL

A blue print on how to plan, design, build, operate and maintain the EU gas network to make it secure and resilient against cyber-physical threats.

A set of tools/methods/models/technical solutions that are updated, and incrementally improved (i.e. extended) integrated and federated according to the HLRA.

BC1: Risk-based security asset life-cycle management.
Transportation and Distribution (Midstream up to Downstream) of Gas at strategic (project planning), tactical (project risk assessment) and operational (Distribution Network) level.

BC2: Impact and cascading effect of cyber-physical attack.
Transportation network (midstream) with particular emphasis to vital nodes of the network, that if damaged could cause significant disruptions and cascading effects to interconnected (energy) infra-

BC3: Operationalising cyber-physical resilience for the security and asset integrity of strategic gas installation.
It addresses Production and Transportation (Upstream to Midstream) with particular emphasis on import pipelines and connections with National Grids.

SECUREGAS VALUE CHAIN

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