



SecureGas

Securing the European Gas Network



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Business Case 1 Scenario: CNG Stations and pipeline simulation

- Use of strategic gas network nodes and assets, close to populated areas and sensitive receptors for Business Case 1 Scenario.
 - Two CNG distribution endpoints that support the transportation sector.
 - Modeling and simulation of threats and hazards from the IGB and EastMed ongoing constructions
- Two (2) Fast Fill Compressed Natural Gas (CNG) Refuelling Stations for Natural Gas Vehicles (NGV)
 - Distribute to transportation sector: Buses, trucks and cars.
- Threat and impact simulation of CNG stations as a potential IGB endpoint.



CNG STATIONS



- Central filling stations of buses and garbage trucks.
- Sufficient flow rate for nearly 30 busses per hour with a refuelling volume of approx. 130 kg.
 - Five (5) dispensers per area and CNG bottling for storage and dispensation.
- Automated operation monitoring systems perform safety procedures (i.e. Emergency Shut Down) as well as fire and gas detection systems.
- In accordance with the European Norms (EN) for NGV Filling Stations.



CNG STATIONS



- ~ 5000 m², 400 m² in front for public use.
 - Connection with Bus depot
- The CNG refueling station main components include:
 - Station inlet system
 - Compressor units
 - Cooling units
 - Station control system.
 - Condensate tank
 - Storage unit
 - Dispensers
 - Dedicated power station
- Storage system volumetric capacity of 12m³ and pressure of ~300 barg.



CNG STATIONS



- Station control system locally monitors process measurements and alarms and will permit station personnel to perform :
 - System start-up and shutdown in normal situations
 - Reaction in the event of disturbances
 - Execution of repairs and scheduled maintenance work for the process equipment
 - Re-commissioning of the station after ESD
 - Compilation of information about process behaviour and recommendation of process modifications

CNG Stations: IT and OT



- Two SCADA used primarily for monitoring.
- Monitoring and some remote control through OT panels – TCB.
 - Monitors everything from pipeline input to dispersion.
 - Multiple sensors: Fire, humidity, pressure, valve status etc.
 - Remote control through separate OT panel.
- Discrete computers used for station management with various software including vehicle monitoring during loading.
- No intermediate dependencies with external IT infrastructures.

Business Case 1 process



- Use of CNG station and input pipeline to simulate threats and on-paper impact.
- Simulate input from larger pipelines, following potential future points-of-interest for the IGB pipeline since the
 - CNG stations compliant with EU norms.
- Integration of SecureGas equipment directly to CNG stations.
- On-the-fly analysis of cascading failures to the transportation sector.