Study Committee D2

Information Systems and Telecommunication

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SECURITY OF COMMUNICATIONS IN VOLTAGE CONTROL FOR GRIDS CONNECTING DER: IMPACT ANALYSIS AND ANOMALOUS BEHAVIOURS

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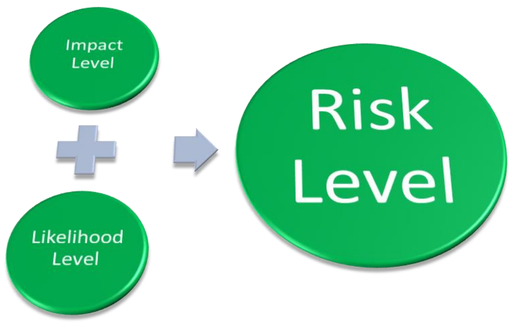
Motivation

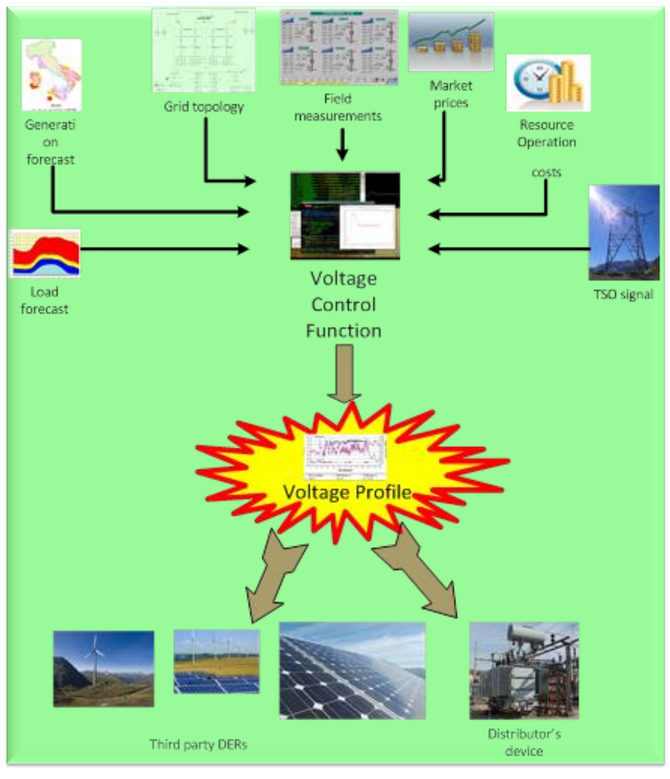
- How to identify Cyber Risks of Smart Grid architectures
- European Mandate E/490 on Smart Grid Standardization
- CEN/CENELEC/ETSI Smart Grid Coordination Group SG-CG
    - WG Smart Grid Information Security - SGIS
- Apply and evaluate the SGIS approach to the Risk Analysis of Smart Grid Use Cases

Method/Approach

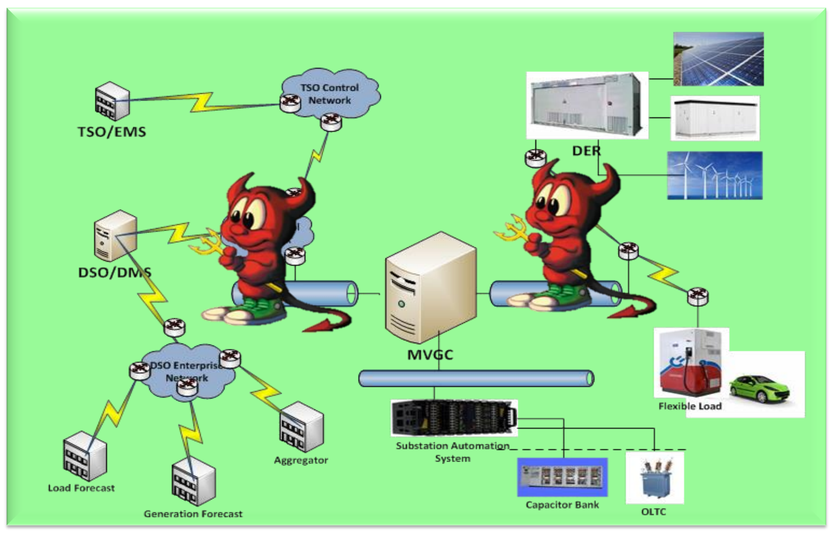
Voltage Control in MV Grids with DERs Use Case	• Actors • Information Flows
Risk Assessment	• Impact Levels, Likelihood Levels • Risk Levels
Security Standards	• Security Requirements • Security Solutions
Policies	• Logical Interfaces



Objects of investigation

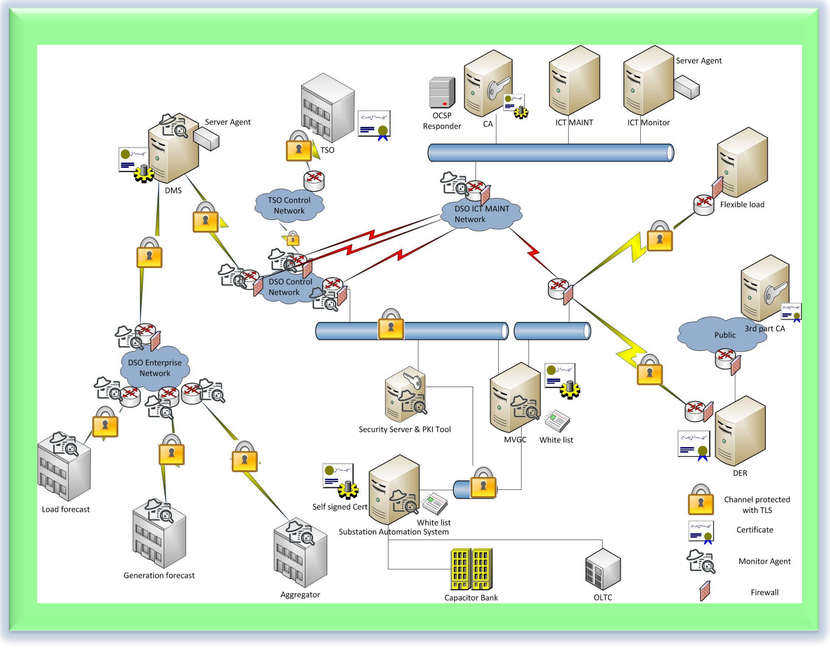


Experimental setup & analysis results



Discussion

- By applying the SGIS matrix to the Voltage Control security analysis, High and Critial Risk Levels are associated to the use case information assets
- Resulting Risk Levels may support the selection of adequate protections from ongoing security standards



Conclusion

- Risk analysis of Smart Grid use cases requires modeling their detailed architecture, message sequencing and attack scenarios, and instantiate them over benchmark grid data and control network topologies
- Qualitative methods allow deriving rough risk levels of information assets providing indications of the required security measures
- Quantified risk levels, possible only with the support of modeling tools, would allow evaluating security measures

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