

### The SPARKS Project

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Novel Approaches in Risk and Security Management for Critical Infrastructures Vienna, 19<sup>th</sup> September, 2017







### Cybersecurity Concerns for the Smart Grid



#### **Operational Risks**

#### Analysis confirms coordinated hack attack caused Ukrainian power outage

BlackEnergy was key ingredient used to cause power outage to at least 80k customers.



**Compliance Concerns** 



2. The assessment referred to in paragraph 1 shall contain at least a general description of the envisaged processing operations, an assessment of the risks to the rights and freedoms of data subjects, the measures envisaged to address those risks, safegurads, security measures and mechanisms to ensure the protection of personal data and to demonstrate compliance with this Directive, taking into account the rights and legitimate interests of the data subjects and other persons concerned.



### Analyse Smart Grid Security and Risk



- Smart grid-specific risk assessment guidelines based on the ISO/IEC 27005 ISMS standard
- Tools to support the implementation of the risk assessment process
- Applied to demonstrator site in the SPARKS project







### Consolidate Smart Grid Security Standards





- Consolidation an analysis of existing standards, architectural guidelines and best practices
- Guidance on the application of material to operators
- Recommendations regarding future topics that should be addressed







#### Develop Security Measures and Procedures



- Exploration of the use of PUF technology to secure smart meters and gateways
- Unique testbed to evaluate PUF designs and their robustness to side channel attacks, etc.





- Novel SCADA intrusion detection system that take a "detection in depth" approach
- Security analytics system that leverages operational data to identify anomalous behaviour that could indicate an attack



### Develop Security Measures and Procedures





- A distributed resilient controller that rationalizes and adapts configuration settings for inverters
- Integrated with intrusion detection capability to bridge the cyber-physical gap

 Demonstrated in the AIT SmartEST Lab

# Investigate Financial, Legal and Social Issues



- Examination of the implementation of the NIS Directive for the Smart Grid
  - Which incidents should be reported to the competent authority?
  - What should minimal security requirements be?









# Investigate Financial, Legal and Social Issues



- Unique study to explore the willingness of consumers to pay for smart metering security
  - Over 550 interviews conducted
  - Consumers offered different compensation for security levels when collecting metering data for research
- An analysis of the costs of smart grid security failures in the SWW region
  - Can be used to motivate investment in security technologies, like those developed by SPARKS



How do you feel if the electricity supplier takes your energy consumption data without your explicit permission to make you special tariff offers?



#### Questions





#### Website

https://project-sparks.eu

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