

Terms of Reference for the trials

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ABSTRACT: The aim of the report “Terms of Reference for the trials” is to carefully present the impact of malicious incidents, or natural ones, on the main layers of an electric system. The single components of the service, physical, communication and cyber layer have been described and a procedure for the estimation of the possible damage of an incident has been reported. Attacks might affect large portions of the European power system, make restoration difficult and cause huge societal impact. In fact, due to the interconnection of the networks, a blackout in one or more countries could derive from an attack directed to neighbouring countries facilities, Thus there is a need for establishing the economic and organisational impact of the implementation of emerging cyber security frameworks in Europe. Cyber security needs first of all to define tests to verify the impact of standard procedure or countermeasures designed to limit the consequences of incidents on each layer. The report presents the test in order to verify: the security criteria and calculate the operative costs; apply the emergency or attach scenario; apply standards and countermeasures and evaluate the standards and countermeasures. The objective of this project is to identify costs and benefits for industrial stakeholders and for the society on an objective basis, and outline organisational processes wherever beneficial. To do so, a general procedure has been designed and applied on two particular cases of cyber-attacks: a SCADA based Control System operated by a TSO; a control room of a thermal Power Plant, operated by a generation utility. Along the text of this report, the aspects related to the physical system are included only to have a global view of potential attacks and the standards and countermeasures that will potentially reduce the vulnerability of the systems or speed up the restoration.

KEYWORDS: cyber security, malicious attack, power control center, hardware breakdown, security standards, power threats, scenarios definition, evaluation criteria

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