

A Survey on Cyber Security for Smart Grid Communications

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Abstract— A smart grid is a new form of electricity network with high fidelity power-flow control, self-healing, and energy reliability and energy security using digital communications and control technology. To upgrade an existing power grid into a smart grid, it requires significant dependence on intelligent and secure communication infrastructures. It requires security frameworks for distributed communications, pervasive computing and sensing technologies in smart grid. However, as many of the communication technologies currently recommended to use by a smart grid is vulnerable in cyber security, it could lead to unreliable system operations, causing unnecessary expenditure, even consequential disaster to both utilities and consumers. In this paper, we summarize the cyber security requirements and the possible vulnerabilities in smart grid communications and survey the current solutions on cyber security for smart grid communications.

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