

Accepted Manuscript

Cybersecurity protection for power grid control infrastructures

Jacek Jarmakiewicz, Krzysztof Parobczak, Krzysztof Maślanka

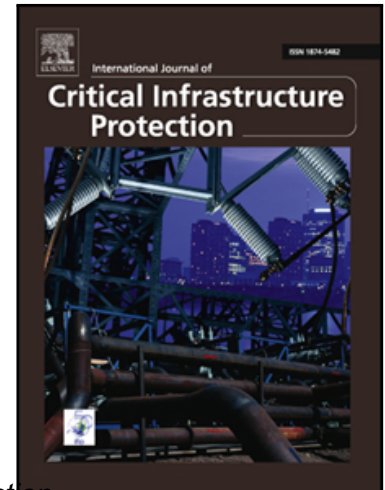
PII: S1874-5482(16)30032-4
DOI: [10.1016/j.ijcip.2017.07.002](https://doi.org/10.1016/j.ijcip.2017.07.002)
Reference: IJCIP 223

To appear in: *International Journal of Critical Infrastructure Protection*

Received date: 3 March 2016
Revised date: 16 January 2017
Accepted date: 30 March 2017

Please cite this article as: Jacek Jarmakiewicz, Krzysztof Parobczak, Krzysztof Maślanka, Cybersecurity protection for power grid control infrastructures, *International Journal of Critical Infrastructure Protection* (2017), doi: [10.1016/j.ijcip.2017.07.002](https://doi.org/10.1016/j.ijcip.2017.07.002)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Cybersecurity protection for power grid control infrastructures

Jacek Jarmakiewicz,¹ Krzysztof Parobczak, Krzysztof Maślanka

*Faculty of Electronics, Military University of Technology, Warsaw, Kaliskiego 2, 01-476
Warsaw, Poland*

Abstract

Modern power grid control systems are not isolated islands – disturbances in one system can cause instabilities or even blackouts in adjacent systems. Cyber attacks on power grids could result in significant economic losses. Indeed, cyber weapons have already targeted power systems in Europe.

This paper describes a cybersecurity protection approach for power grid control systems. It presents an analysis of a domestic power grid control system that emphasizes the identification of key elements of the infrastructure and their importance to power grid security. In addition, it provides a unique perspective based on experience with the system design process – from the identification of requirements to their application in operator control and supervisory substations. The paper also discusses how to verify the functionality provided by an implemented cybersecurity system. This approach is expected to assist in the design and implementation of power grid protection systems. Moreover, the approach can be adjusted to develop security systems for other critical infrastructure assets such as gas and chemical processing facilities, water and wastewater systems.

Keywords

Power Grids; Industrial Control Systems; Power Grid Control; Cybersecurity

Manuscript No.: IJCIP_2016_18

Submitted: March 3, 2016; Revision 1 Received: October 5, 2016;

¹Corresponding author: Jacek Jarmakiewicz (jjarmakiewicz@wat.edu.pl)

Download English Version:

<https://daneshyari.com/en/article/4921684>

Download Persian Version:

<https://daneshyari.com/article/4921684>

[Daneshyari.com](https://daneshyari.com)