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| **Soggetto coordinatore** | ENEA<br>Unita' Tecnica di Modellistica Energetica ed Ambientale |
| **Titolo del progetto** | A Framework for electrical power systems vulnerabilità identification, defense and restoration. |
| **Acronimo** | AFTER |
| **Descrizione del progetto** | AFTER project addresses the challenges posed by the need for vulnerability evaluation and contingency planning of the energy grids and energy plants considering also the relevant ICT systems used in protection and control.<br>Project emphasis is on cascading events that can cause catastrophic outages of the electric power systems.<br>This kind of contingencies and the following cascading effects can be caused by deliberate acts of terrorism, sabotage, criminal activity, malicious behaviour etc. , or they can simply be caused by a combination of accidents, natural disasters, negligence.<br>Both risk analysis and risk mitigation will be pursued. In particular, two major objectives are addressed.<br>The first is to develop a methodology and tool for the integrated, global vulnerability analysis and risk assessment of the interconnected Electrical Power Systems considering their interdependencies.<br>The second objective is to develop algorithms and tools supporting contingency planning in a two-fold approach:<br>• preventing or limiting system disruption;<br>• re-establishing the system after a major disruption. |
| **Riferimento Bando** | FP7 SEC-2010.2.3-2 |
| **Valore del progetto** | **€** 3.473.803,00 |
| **Pubblicazioni** | E. Ciancamerla, M. Minichino, S. Palmieri - On prediction of QoS of SCADA accounting cyber attacks - Probabilistic Safety Assessment and Management Conference (PSAM11) and the Annual European Safety and Reliability Conference (ESREL 2012) - Helsinki, Finland - 25-29 June 2012<br><br>A. Bobbio, A. Bonaventura, E. Ciancamerla, D. Lefevre, M. Minichino, R. Terruggia - Temporal network reliability in perturbed scenarios: Application to a SCADA system. In Proceedings IEEE Annual Reliability and Maintainability Symposium, pages 1–7, Reno, NV, 2012.<br><br>A. De Nicola, G. Vicoli, M. L Villani - A Rule-based Approach for Modeling Behaviour in Crisis and Emergency Scenarios Enterprise Interoperability V Raul Poler, Guy Doumeingts, Bernhard Katzy and Ricardo Chalmeta Springer, 2012 |

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| | E. Ciancamerla, M. Minichino, V. Rosato, G. Vicoli - SCADA systems within CI interdependency analysis: cyberattacks, resilience and quality of service - *Workshop on Experimental Platforms for Interoperable Public Safety Communications* - Joint Research Centre (JRC) – 10, 11 October 2011- Ispra - Italy<br><br>E. Ciancamerla, D. Lefevre, M. Minichino - Service dependability and performance of SCADA systems interconnecting Power grids and Telco networks - ESREL 2011 Annual Conference of the European Safety and Reliability Association (ESRA) - Troyes, France - 18 - 22 September 2011 – ISBN 978-0-415-68379-1 (Hbk) – ISBN 978-0-203-13510-5 (eBook)<br><br>A. Bobbio, E. Ciancamerla, M. Minichino, R. Terruggia - Reliability Analysis of Multi-source Multi-sink Critical Interacting Systems - 3rd International Workshop on Dependable Control of Discrete Systems (DCDS) - Saarbrücken, Germany - Jun. 15-17, 2011<br><br>A. De Nicola, A. Tofani, G. Vicoli, M. L. Villani - Modeling Collaboration for Crisis and Emergency Management - The First International Conference on Advanced Collaborative Networks, Systems and Applications - COLLA 2011 Luxembourg June 19-24, 2011 isbn:978-1-61208-008-6<br><br>E. Ciancamerla, M. Minichino, V. Rosato, G. Vicoli - SCADA systems within CI interdependency analysis: cyberattacks, resilience and quality of service Workshop on Experimental Platforms for Interoperable Public Safety Communications Joint Research Centre (JRC) - Ispra - Italy 10, 11 October 2011<br><br>A. Bobbio, G. Bonanni , E. Ciancamerla, R. Clemente, A. Iacomini, M. Minichino, A. Scarlatti, R. Terruggia, E. Zendri - Unavailability of critical SCADA communication links interconnecting a power grid and a Telco network - Reliability Engineering and System Safety Journal – Elsevier editor , Vol 95, ISS.12, December 2010<br><br>P. Capodieci, M. Minichino, S. Panzieri, M. Castrucci, A. Neri, L. Lev, P. Simões - MICIE: An Alerting Framework for Interdependent Critical Infrastructures - ICT 2010 Conference, Brussels Expo 27-29 September 2010<br><br>E. Ciancamerla, C. Foglietta, D. Lefevre, M. Minichino, L. Lev and Y. Shneck - Discrete event simulation of QoS of a SCADA system interconnecting a Power grid and a Telco network - 1st IFIP TC11 International Conference on Critical Information Infrastructure Protection 2010 World Computer Congress 2010 proceedings - Springer - Brisbane 2010 – ISSN 1868-4238<br><br>E. Ciancamerla, S. Di Blasi, C. Foglietta, D. Lefevre, M. Minichino, L. Lev and Y. Shneck - QoS of a SCADA system versus QoS of a Power distribution grid - 10th International Probabilistic Safety Assessment & Management (PSAM) Conference PSAM 10 - Seattle, WA June 7-11, 2010<br><br>E. Marchei, V. Fioriti, S. Ruzzante, E. Castorini, V. Rosato, 2010 Stability of |

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| | a model of power microgeneration network using the Kuramoto model International Journal of System of Systems Engineering 2 doi:10.1504/IJSSE.2010.035382 non ISI |