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Contribution of technical and scientific dissemination activities from all partners on communication aspects of smart grids



NOTICE

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PU	Public
RP	Restricted to other programme participants (including the Commission Services)
RE	Restricted to a group specified by the consortium (including the Commission Services)
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SUNSEED project

SUNSEED proposes an evolutionary approach to utilisation of already present communication networks from both energy and telecom operators. These can be suitably connected to form a converged communication infrastructure for future smart energy grids offering open services. Life cycle of such communication network solutions consists of six steps: overlap, interconnect, interoperate, manage, plan and open. Joint communication networking operations steps start with analysis of regional overlap of energy and telecommunications operator infrastructures. Geographical overlap of energy and communications infrastructures identifies vital DSO energy and support grid locations (e.g. distributed energy generators, transformer substations, cabling, ducts) that are covered by both energy and telecom communication networks. Coverage can be realised with known wireline (e.g. copper, fiber) or wireless and mobile (e.g. WiFi, 4G) technologies. Interconnection assures end-2-end secure communication on the physical layer between energy and telecom, whereas interoperation provides network visibility and reach of smart grid nodes from both operator (utility) sides. Monitoring, control and management gathers measurement data from wide area of sensors and smart meters and assures stable distributed energy grid operation by using novel intelligent real time analytical knowledge discovery methods. For full utilisation of future network planning, we will integrate various public databases (e.g. municipality GIS, weather). Applications build on open standards (W3C) with exposed application programming interfaces (API) to 3rd parties enable creation of new businesses related to energy and communication sectors (e.g. virtual power plant operators, energy services providers for optimizing home energy use) or enable public wireless access points (e.g. WiFi nodes at distributed energy generator locations). SUNSEED life cycle steps promise much lower investments and total cost of ownership for future smart energy grids with dense distributed energy generation and prosumer involvement.

Project Partners

1. TELEKOM SLOVENIJE D.D.; TS; Slovenia
2. AALBORG UNIVERSITET; AAU; Denmark
3. ELEKTRO PRIMORSKA, PODJETJE ZA DISTRIBUCIJO ELEKTRICNE ENERGIJE D.D.; EP; Slovenia
4. ELEKTROSERVISI, ENERGETIKA, MERILNI LABORATORIJ IN NEPREMICE D.D.; ES; Slovenia
5. INSTITUT JOZEF STEFAN; JSI; Slovenia
6. GEMALTO SA; GTOSA; France
7. GEMALTO M2M GMBH; GTOM2M; Germany
8. NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK - TNO; TNO; The Netherlands
9. TOSHIBA RESEARCH EUROPE LIMITED; TREL; United Kingdom

Project webpage

<http://www.sunseed-fp7.eu/>





Executive Summary

This deliverable lists publications on SUNSEED project.

1. List of Sunseed publications for the first reporting period

1. Aleksandra Rashkovska, Jošt Novljan, Miha Smolnikar, Mihael Mohorčič, Carolina Fortuna, "Online Short-term Forecasting of Photovoltaic Energy Production", accepted for presentation, The Sixth IEEE Conference on Innovative Smart Grid Technologies (ISGT2015), February 17-20, 2015, Washington D.C., USA.
2. Ljupčo Jorgušeski, "SUNSEED's overview", Workshop on independent networks, New York University, Polytechnic School of Engineering, 19.1.2015
3. Radovan Sernec, Ljupčo Jorgušeski, Aleš Švigelj, Jurij Jurše, Zhong Fan, "Smart grid communication networks: The case for reusing telco infrastructures", IntSikt 2014, Tuzla, 9.6.2014.
4. Jurij Jurše, Radovan Sernec, "Sustainable and robust communication networks for smart grid support in distribution, project SUNSEED", En.grids 2015, Ljubljana, 10.2.2015.
5. Čedomir Stefanović, Petar Popovski, Ljupčo Jorgušeski, Radovan Sernec, "SUNSEED – an evolutionary path to smart grid comms over converged telco and energy provider networks", Global Wireless Summit 2014, Aalborg, May 2014.
6. German Corrales Madueño, Čedomir Stefanović, Petar Popovski, "Efficient LTE Access with Collision Resolution for Massive M2M Communications", Ultra-Reliable Communications Workshop in Globecom, 2014.
7. Germán Corrales Madueño, Nuno K. Pratas, Čedomir Stefanović, Petar Popovski, "Massive M2M Access with Reliability Guarantees in LTE Systems", accepted by IEEE ICC, 2015.