

Summary of Scientific Report (SR) (COST-STSM-TD1207-14276)

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Host: Immanuel Bomze, University of Vienna, Vienna(AT), immanuel.bomze@univie.ac.at.

STSM type: Regular (from Italy to Austria).

Purpose of the STSM Establish a cooperation with I. Ljubić and I. Bomze from the Department of Statistics and Operations Research, Wien Universität, for the study of Robust Optimization models applied to Optimization problems arising from Energy Networks.

Description of the work carried out during the STSM (i) Definitive definition of the problem to be addressed: (Generalized) Unit Commitment Problem (UCP) under uncertainty. Uncertainty, modeled by polyhedral sets and discrete scenarios, will be tackled by combining a two-stage robust approach along with the Bertsimas and Sim approach. (ii) Preliminary literature review on (a) the nominal UCP regarding modeling and algorithmic issues and (b) the UCP under uncertainty. (iii) Sketch of the mathematical programming model of the problem to be considered and outline of the (Decomposition) algorithm to be implemented for its resolution.

Description of the main results obtained Modeling and algorithmic outline of a novel application of Recoverable Robustness combined with a classical Robust Optimization model (Bertsimas and Sim) for the UCP when uncertainty is present in different forms and in different parameters.

Future collaboration with the host institution (if applicable) A new visit of the applicant is expected for 1-2 weeks during January-February 2014.

Foreseen publications/articles resulting from the STSM (if applicable) It is expected that 1 published article will be the result of this collaboration.

Confirmation by the host institution of the successful execution of the STSM Sent by I. Bomze.