



RESPONDENT

D5.1 Smart Grid Monitoring System Architecture

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Executive Summary

This deliverable describes the outcomes of the activities carried out under the Task 5.1 “Smart Grid Monitoring Systems Architecture and Analysis”, the aim of which is to build a strong theoretical foundation for the development of the smart grid monitoring module of the RESPONDENT Suite and the development of the Galileo-enabled Phasor Measurement Unit (PMU). It provides a comprehensive and detailed analysis of smart grid monitoring systems, focusing on both legacy supervisory control and data acquisition (SCADA) systems and advanced Wide Area Monitoring Systems (WAMS) for large-scale observability, controllability, and protection of power systems. In addition to that, it describes the software implementation of an innovative method to find the optimal placement of PMUs in power systems, applied to a real Spanish sub-transmission grid. Finally, it provides details regarding the practical implementation of the smart monitoring module in the dashboard: these details include the requirements identified in WP2, the main tools included in the module, the evaluation of data exchange protocols, format and storage, and an initial proposal of the graphical user interface.