WAMS Business Cases

Version 1.0

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Short Description	This user specification includes the business cases for the new APG Wide Area Measurement System (WAMS).	
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		US (System Standards)
Confidentiality Level	**High**	**Entitled Recipient Group**
		Tendering Participants

Content

1 Document Information

1.1 Goal of the Document

This document includes the business cases for the new APG Wide Area Measurement System (WAMS). Business cases to be presented by the vendor and presented during are listed below and explained in detail in the next chapter.

Subject and Order	Duration in Minutes (as guidance)
1. General Capabilities	30
2. WAMS GUI and Visualisation Concept	30
3. Real-time and Historical Event Management, Reporting and Signalling	30
4. Real-time Monitoring and Detection Features	30
5. Ex-post Analysis and Replay Mode Features	30
6. Interfacing with MATLAB and Python	30
Total	**180**

Table 1: Business Cases

If necessary, historical PMU measurements representing real grid events (e.g. interarea oscillations) can be requested from APG to support the presentation of the business cases.

2 Business Cases

2.1 General Capabilities *(#UC-001 - #UC009)*

The demonstration shall show the following main issues:

2.1.1 PMU/PDC connection setup

- Capabilities of the dedicated PDC administrator interface for configuring the main aspects of a PDC
  - connection of PMUs and PDCs
  - data streams (inputs and outputs)
  - alarms and warnings
  - data storage management functions
- Level of configurability by the administrator
- Reporting and monitoring capabilities of the PDC
- Error handling capabilities of the PDC
- Automatic export functions of the PDC
  - Export of CSV files with selected PMU measurements (e.g. every 5 minutes)

2.1.2 User roles and rights setup

- Access permissions setup for different users
- User roles and rights configuration capabilities

2.2 WAMS GUI and Visualisation Concept *(#UC-010 - #UC011)*

The demonstration shall show the following main issues:

- Capabilities to configure flexible and easily custom-designable views (presets) for different users
- GUI concept and useability (way of guiding from high-level information to more detailed information)
- Charts and views capabilities

2.3 Real-time and Historical Event Management, Reporting and Signalling *(#UC-012 - #UC-013)*

The demonstration shall show following the main issues:

- Capabilities to configure real-time and historical event management and reporting
- Configurability of alarms and warnings
- Event documentation capabilities
- Configurability of user-defined reports
- Active alarms and warnings displaying
- Generation of user-configurable notifications (e.g. via E-Mail)

2.4 Real-time Monitoring and Detection Features *(#UC-014)*

The demonstration shall show the following main issues:

2.4.1 Basic Features

Capabilities and configurability of:

- Real-time over/under level and range monitoring
- Rate of change monitoring
- Angle difference monitoring

2.4.2 Advanced Features

Capabilities and configurability of:

- Oscillation monitoring
- Voltage stability monitoring
- Islanding detection

2.4.3 User configurable (programmable) functions

Capabilities and configurability of:

- User configurable (programmable) functions
- Script based functions
- Graphical block based functions (optional)

2.4.4 Optional Features

Capabilities and configurability of:

- Power quality monitoring

2.5 Ex-post Analysis and Replay Mode Features *(#UC-015)*

The demonstration shall show the following main issues:

- Tools to perform detailed ex-post analysis
- Study and replay mode capabilities

2.6 Interfacing with MATLAB and Python *(#NFRG-004)*

The demonstration shall show the following main issues:

- Integration of PMU streams in MATLAB and Python
- Integration of new data streams, alarms and warnings, which are generated by MATLAB and Python (only one is required for the demonstration)

3   Glossary

Short	Description
WAMS	Wide Area Measurement System
PMU	Phasor Measurement Unit
PDC	Phasor Data Concentrator
APG	Austrian Power Grid

Table 2: Glossary and terms used

4 Directories

4.1 List of Tables

5 Appendix

5.1 References and Applicable Documents

Number	Description	Filename / Link	State
[1]	Technical Specification	PART C_01_Technical_Specification_WAMS.docx	VALID
[2]	Requirements Catalogue	PART D_Req_Cat_WAMS.xlsx	VALID

Table 3: References and applicable documents