

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP (1)

WG* N° B5.63	Name of Convenor : Massimo PETRINI (IT) E-mail address: massimo.petrini@terna.it
Technical Issues # (2): 6	Strategic Directions # (3): 1, 2
The WG applies to distribution networks (4): Yes	
Title of the Group: Protection, Automation and Control System Asset Management	
<p>Scope, deliverables and proposed time schedule of the Group:</p> <p>Background :</p> <p>The introduction of communication based technologies in Protection, Automation and Control System (PACS) and the growing availability of remote access will (and already does) have a huge impact on the asset management approach for PACS.</p> <p>The evolution which is under way is characterised by the following aspects:</p> <ul style="list-style-type: none"> • On-Line availability of setting, firmware- and hardware version, and configuration files for each IED and other components of the PACS. • Local and remote storage of these data and their history and modifications / updates. • Local and remote on-line access enabling real-time up- and downloading of this data. • Growing use of standardised data formats (e.g. based on IEC61850). • Growing variety of deployed hardware, firmware and software versions <p>All stakeholders should adapt their PACS asset management solution to this new context.</p> <p>Along with changing delivery methods, sizes, formats, and expectations, PACS Asset Management needs and requirements are also growing and changing. As the complexity and the demand for real-time PACS configuration and setting data grow, storage needs increase. PACS asset management work flows also become increasingly mobile. The requirements include cyber security, interoperability of tools, reliability and the possibility to store, manage, edit, filter, review, share, request, approve and deliver PACS data and files. It will be necessary to keep large libraries organized, view file and folder sizes, select files across multiple projects, make collections without duplicating files, and create Web portfolios for configuration proofing and review.</p> <p>A company asset management policy should also take into consideration the evolution of PACS during their whole life cycle: configuration tools and PACS themselves should be developed keeping in mind the possibility of future extension, modification and functional upgrading until complete system refurbishment. Moreover, it should define the different roles (what should be done by the utilities and what needs the support of the vendor): this has an impact also on the specification and development phases.</p> <p>Scope:</p> <p>The aim of the WG is to assess and describe the different internal and external drivers having an impact on the Asset Management of PACS as described above. Based on this assessment, the WG shall give recommendations for the implementation, working flow and organisation of the Asset Management of PACS. The aspects to be evaluated include:</p> <ol style="list-style-type: none"> 1. State of the art of PACS Asset Management, 	

2. Guidelines and recommendations for seamless Asset Management workflow,
3. Guidelines and recommendations for the migration from conventional to integrated PACS Asset Management,
4. Asset Management Requirements related to IED and PACS component replacement and maintenance,
5. Asset management Requirements related to upgrading maintenance (e.g.: modification or extension of a substation, addition of new functions),
6. Asset management Strategies related to PACS life cycle management and extension: obsolescence management, when, what and how to modify or refurbish, who does what (manufacturers, system integrators, utilities (in-house)),
7. Recommendations for the specification of configuration tools to be used along the whole system life cycle, with particular reference to the maintenance phase,
8. PACS specification requirements related to the system asset management,
9. PACS life cycle management,
10. Remote access to PACS for asset management: who, how, what, constraints and cyber security issues,
11. Cloud based PACS asset management and services (based on results from WG D2.38),
12. Discussion of secondary system items to be monitored for asset management,
13. PACS Asset Management and dependence from Manufacturers,
14. Impact on staff training and organisation.

Exclusions :

- Cyber Security aspects (covered by D2 or D2/B5 JWG), but the WG will have to consider and investigate the impact (constraints, limitations) of the cyber security issues on the company asset management strategy
- Maintenance of PACS (covered by B5.06 - TB 464), but, being part of the asset management activity, there will be the need for mentioning it from time to time
- Setting Management of protections (covered by B5.31 – TB 539)

References

- TB 307 (2006) WG B5.09 Remote On-line Management for Protection and Automation
- TB 539 (2012) WG B5.31 Life-time Management of Relay Settings
- TB 464 (2011) WG B5.06 Maintenance Strategies for Digital Substation Automation Systems
- B5 Session 2016 PS1 "Protection Automation and Control System (PACS) Optimization and Life Time Asset Management"
- Inputs from new WG "Hardware independent functionalities"

Deliverables:

- Technical Brochure
- Summary in Electra
- Abstract for Electra
- Tutorial Proposal Forms and Power Point slides

Time Schedule : start : spring 2017

Final report : spring 2020

Approval by Technical Committee Chairman :

Date : 17/01/2017





- (1) Joint Working Group (JWG) -
- (2) See attached table 1 –
- (3) See attached table 2
- (4) Delete as appropriate

Table 1: Technical Issues of the TC project “Network of the Future” (cf. Electra 256 June 2011)

1	Active Distribution Networks resulting in bidirectional flows within distribution level and to the upstream network.
2	The application of advanced metering and resulting massive need for exchange of information.
3	The growth in the application of HVDC and power electronics at all voltage levels and its impact on power quality, system control, and system security, and standardisation.
4	The need for the development and massive installation of energy storage systems, and the impact this can have on the power system development and operation.
5	New concepts for system operation and control to take account of active customer interactions and different generation types.
6	New concepts for protection to respond to the developing grid and different characteristics of generation.
7	New concepts in planning to take into account increasing environmental constraints, and new technology solutions for active and reactive power flow control.
8	New tools for system technical performance assessment, because of new Customer, Generator and Network characteristics.
9	Increase of right of way capacity and use of overhead, underground and subsea infrastructure, and its consequence on the technical performance and reliability of the network.
10	An increasing need for keeping Stakeholders aware of the technical and commercial consequences and keeping them engaged during the development of the network of the future.

Table 2: Strategic directions of the TC (cf. Electra 249 April 2010)

1	The electrical power system of the future
2	Making the best use of the existing system
3	Focus on the environment and sustainability
4	Preparation of material readable for non technical audience