LIFETIME EXTENSION - WG 2020-1

LIFETIME EXTENSION OPTIONS FOR ELECTRICAL EQUIPMENT

Background

Electrical equipment constitute a considerable economic asset value for the DSOs. Many network equipment in distribution networks have long intrinsic lifetimes, most of which exceed 40 years.

However, some components of equipment age faster than others, or become obsolete due to the evolution of the technologies used and induce premature replacement of the complete equipment. Environmental or safety requirements may also be imposed and make the compliance of certain equipment incompatible with the new regulations. The development of smart grids necessary to achieve the energy transition objectives can also lead to functional requirements that certain legacy generations electrical energy distribution assets do not meet.

It is crucial for the economic performance of network operators to make optimal use of the equipment over time. Faced with the constraints mentioned above, solutions for extending the life of equipment and/or modifying/upgrading critical parts and/or implementing monitoring can prove effective in many cases, compared to a complete renewal of equipment. In addition, today's technologies such as ioT, big data and AI offer new possibilities to optimize the lifespan of equipment.

Scope

The scope proposed for the working group is to identify:

- life extension solutions alternative to the renewal of equipment
- lesson learned, good practices of lifetime extension options for electrical equipment
- obstacles and/or limitations of electrical equipment life extension strategies.

The proposed approach would consist of :

- set out the main criteria or constraints that would lead to renewing the equipment,
- identify possible efficient life extension strategies,
- compare these strategies to the renewal of the equipment concerned

As the scope of application of the approach can prove to be very broad, it is suggested to focus within the framework of this work on power equipment for substations and networks, including for example:

- primary substation power equipment,
- medium voltage lines and cables,
- automation, sensoring and protection assets associated with MV networks

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