Paris Session 2022

Better power systems with digital substations

SC B5 PS2

Question 2.02: What are the expected benefits of using digital substation concepts and how to meet these benefits during industrial application?

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Benefits

Opportunity to build digitally technical solutions
for a digital substation or (group of digital substations) with required (or controlled) degree of reliability. Opportunity to build a digital substation with dynamically adopted architecture.

Opportunity to collect and store data for statistical analysis
of power grid modes and technological equipment operations that can be further used as a base for formulation new algorithms for control and protection.

Digital substations create the prerequisites for spatio-temporal processing
of current and voltage parameters and also give opportunities for formation of new algorithms for control and protection.

Benefits

Digital substations create a fundament to built on it the centralized control, necessary for application of power electronic elements and distributed energy generators.

Only digital substations create prerequisites for implementation new methods for machine learning, mode identification, digital signal processing and etc.

Favorable economic indicators of Digital substation deployment.

Conditions for industrial application

Increase value of R&D in the development of digital technologies
for power protection and automation systems for power systems of the future.

Advanced development of the regulatory and technical documentations
of modern relay protection and automation systems in the context of the use of digital and information technologies.

Positive experience from pilot projects
and formulation requirements for industry.

Legislative and industry support
for the development and implementation of digital substation technologies