

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

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.
- 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.