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Title : Hydroelectric power plants - Communication for monitoring and control

Introductory note

The French National Committee will not provide a French translation for this project.

<p>ATTENTION VOTE PARALLÈLE CEI – CENELEC</p> <p>L'attention des Comités nationaux de la CEI, membres du CENELEC, est attirée sur le fait que ce projet de comité pour vote (CDV) de Norme internationale est soumis au vote parallèle. Un bulletin de vote séparé pour le vote CENELEC leur sera envoyé par le Secrétariat Central du CENELEC.</p>	<p>ATTENTION IEC – CENELEC PARALLEL VOTING</p> <p>The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) for an International Standard is submitted for parallel voting. A separate form for CENELEC voting will be sent to them by the CENELEC Central Secretariat.</p>
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INTRODUCTION

Editor's notes to this CDV:

This CDV has been preceded by 57/746/CD, published 2005-03-04. Comments are introduced in accordance with 57/782/CC.

The material of this document will be published as addenda to IEC 61850, for later inclusion in the documents. The contents will be divided between the parts of IEC 61850 in basically the following order:

Paragraphs 5 and 6 (informative) – IEC 61850 Part 5

Paragraphs 7 and 8 (normative) – IEC 61850 Part 7-4

Paragraphs 9 and 10 (normative) – IEC 61850 Part 7-3

Appendix A (informative) – IEC 61850 Part 5

Appendix B (normative) – IEC 61850 Part 7-4

For easier understanding and better readability, the present CDV is though for now compiled as one consecutive document.

Compared to the preceding CD (57/746/CD), Paragraph 5 has been expanded into two paragraphs and re-written in order become a self-contained addition to IEC 61850-5. The logical nodes for generator (HGEN) and turbine (HTUR) are now combined into one common logical node HUNT for the complete production unit.

Most of the Logical Nodes defined in this document are not specific for hydropower plants; they can be of use in any type of plant in a power system. This is e.g. the case for all sensor logical nodes.

There have also been some conceptual changes; one such modification relates to the specification of more or less generic logical nodes. Rather than having a number of logical nodes that are named after what they control, the working group decided to name them after the basic algorithm used, or behaviour of the function, and is proposing a prefix naming structure to define what they are controlling. This will make it easier to adopt the logical nodes for automatic control functions to other domains of technology without the need to create new versions of otherwise identical logical nodes.

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HYDROELECTRIC POWER PLANTS

Communication for monitoring and control

1 Scope

This document is based on the IEC 61850 series. The document specifies the additional common data classes, logical nodes and data objects required for a hydropower plant. The final document is expected to be included in the IEC 61850 series.

The Logical Nodes and Data Objects defined in this document do belong to the following fields of use:

- **Electrical functions.** This group includes LN and DO used for various control functions, essentially related to the excitation of the generator. New LN and DO defined within this group are not specific to hydropower plants; they are more or less general for all types of larger power plants.
- **Mechanical functions.** This group includes functions related to the turbine and associated equipment. The specifications of this document are intended for hydropower plants, modifications might be required for application to other types of generating plants. Some more generic functions are though defined under Logical Node group K.
- **Hydrological functions.** This group of functions includes objects related to water flow, control and management of reservoirs and dams. Although specific for hydropower plants, the LN and DO defined here can also be used for other types of utility water management systems.
- **Sensors.** A power plant will need sensors providing measurements of other than electrical data. With a few exceptions, such sensors are of general nature and not specific for hydropower plants.

2 Normative references

This document is intended as an addition to IEC 61850. The following referenced documents are indispensable for the application of this document:

IEC 61850-2, *Communication networks and systems in substations – Part 2: Glossary*

IEC 61850-5, *Communication networks and systems in substations – Part 5: Communication requirements for functions and device models.*

IEC 61850-6, *Communication networks and systems in substations – Part 6: Configuration description language for communication in electrical substations related to IEDs*

IEC 61850-7-2, *Communication networks and systems in substations – Part 7-2: Basic communication structure for substations and feeder equipment – Abstract communication services interface (ACSI)*

IEC 61850-7-3, *Communication networks and systems in substations – Part 7-3: Basic communication structure for substations and feeder equipment – Common data classes*