



05_ENERGY

Åsmulfoss Hydropower Plant

Grid connection upgrade; 66 kV – 145 kV



Cable termination pole 3A | Photo: Stein Øksnes

The grid connection for Åsmulfoss Hydropower Plant have been upgraded from 72.5 kV to 145 kV.

The project included;

- Engineering and construction of 1 km new 145 kV composite transmission line
- Engineering and construction of 1 km 145 kV XLPE underground cable in pulling pipes
- New 24 kV station supply, underground cables and E-house solution
- New outdoor 145 kV switchyard
- Retrofit of existing 72.5 kV switchgear room and transformer room

PROJECT

Grid connection upgrade Åsmulfoss Hydropower Plant

PROJECT TYPE

Detail engineering and construction management

LOCATION

Åsmulfossen, Nord Trøndelag county, Norway

CLIENT

NTE Energi AS

TIME PERIOD

2015 - 2017

KEY NUMBERS

Ca. 1500 hours

SCOPE OF WORK

For this project Multiconsult have produced detailed tender documents for a new 145 kV underground cable and transmission line, as well as for the foundation works in the new outdoor switchyard. Multiconsult have also contributed with detailed engineering of the existing building as well as site management for the construction works.

With Åsmulfoss being a run-of-river HPP, high water-losses demanded detailed planning and close follow-up of contractors. This has been one of the success factors in this project. Throughout the project, we have had close collaboration with our client, NTE Energi.

The existing plant was built for a 72.5 kV indoor AIS solution, with the transition to 145 kV space requirements have been a major issue with regard to safety distances. To ensure accurate execution in the short time span for the plant shut-down Multiconsult have aided in the contracting of laser scanning of the room in question and further modelling of the new high-voltage equipment based on the laser data.

OUR SERVICES

- Transmission line and underground cable engineering
 - Transmission line route planning
 - Line profiles
 - Surveying and pole placement
 - Production of tender documents for composite poles
 - Construction drawings
 - Tender documents for construction and material delivery
 - Assistance with contracting
 - As-built revisions
- Civil works switchyard;
 - Tender documents
 - Production of foundation drawings (bending schedules etc.)
 - Earthing drawings
- Detail engineering 145 kV high-voltage equipment in existing building (limited space)
 - 3D-modelling of equipment
 - Usage of laser scanning data (point clouds)
 - Construction and assembly drawings for equipment.
- Site management;
 - Contract follow-up
 - Planning
 - Interface follow-up for several contractors



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Assembly of underground cable termination pole | Photo: Wiktor Sørgård