Experiences of the Belgian and French TSOs using the “Ampacimon” real-time dynamic rating system

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Introduction: Ampacimon for live Ampacity Monitoring

CIGRE defines the current carrying capacity from a thermal viewpoint or ampacity as follows: The ampacity of a conductor is that current which will meet the design, security and safety criteria line on which the conductor is used. Actual ambient conditions are less constraining 98% of the time than those envisaged in the standards. It has been found that on average the increase in thermal rating of lines using real time systems is about 10 to 15 %.

Ampacimon product:
The Ampacimon product is a complete system for real time monitoring of high voltage lines. All aspects are considered:
- Electronics and mechanics of the autonomous units placed on high voltage lines
- Embedded software
- Software on the ground
- Communication
- Integration with dispatching

Ampacimon assets:
- Energetically autonomous
- Real time device based on vibration analysis
- Can be installed everywhere along the span
- No need of calibration in relation with the line to get the sag
- No need of environmental data to get the sag
- Easy installation in roughly 15 minutes
- Provides sag values and ampacity

Installation cases

**Ampacimon unit** (380 kV, Doel-Zandvliet, BE); ELIA, running system from July 2008.

**Ampacimon live line installation** (220kV) RTE network. Running system from June 2009.

**Ampacimon** during heavy rain corona test at “Les Renardières” (France)

Communication System

**AMPACIMON Sensors on lines**: Sensor 1, Sensor 2, Sensor N

**AMPACIMON Application Server**: Data Acquisition, SMP Algorithms, Amacipty Algorithms, Transmission, HTTPS, TASE2, VPN

**TSO’s NCC**: Web Interface, SCADA, TASE2, VPN, NCC: National Control Centre, VPN: Virtual Private Network

**Communication System**: Internet, HTTPS, Weather Stations, GPRS

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