Press release

Transmission system operators rely on technical innovation for direct current underground cables

Increased acceptance through the use of 525 kV underground cables for direct current connections

3 December 2019, Bayreuth, Berlin, Dortmund, Stuttgart. The four German transmission system operators 50Hertz, Amprion, TenneT and TransnetBW are set to use innovative plastic-insulated direct current underground cables with a voltage level of 525 kilovolts (kV) for the major direct current connections SuedLink, SuedOstLink and A-Nord. Until now, plastic insulated 320 kV cables have been used in Germany for direct current connections of this type, such as when connecting offshore wind farms to the power grid on land. The 525 kV underground cables are being used for the first time anywhere in the world. This underlines the pilot character of the project.

Cables can provide more power at a higher voltage level. This has two possible effects on the planned direct current routes, if permitted by the overall system: Firstly, it is possible to transport more electricity in the available corridor with the same number of cables. Secondly, compared with the 320 kV cable systems, fewer cables are required to transfer the same power. The direct current routes can be narrower and the civil engineering works required in the construction phase are also minimised. This significantly reduces the interventions that need to be made in the environment. This means the transmission system operators are meeting the demands of politicians and citizens to implement the direct current connections that are required for a successful energy transition while keeping the impact on the environment and nature as low as possible. The use of modern technology is a key factor in this regard, and can help to promote acceptance of these power connections. In addition, the direct current connections can be implemented in a way that is comparatively more cost-effective.

The transmission system operators made their decision following an extensive test phase, in which the technical suitability of the 525 kV cables was investigated. The cable systems were constructed under largely realistic conditions and subjected to targeted peak loads. The tests were conducted in testing laboratories in Mannheim and Sweden. These successful pre-qualification tests were conducted in accordance with international standards (CIGRE) and showed that the 525 kV cables are safe and reliable in use.

More information:

50Hertz Transmission GmbH
Volker Kamm, T +49 30 5150 3417, M +49 172 3232759, E volker.kamm@50hertz.com

Amprion GmbH
Solveig Wright, T +49 231 5849 14482, M +49 152208204961, E solveig.wright@amprion.net

TenneT TSO GmbH
Ulrike Hörchens, T +49 921 50740 4045, M +49 151 17131120, E ulrike.hoerchens@tennet.eu

TransnetBW GmbH
Regina König, T +49 711 21858-3155, M +49 173 6507067, E r.koenig@transnetbw.de