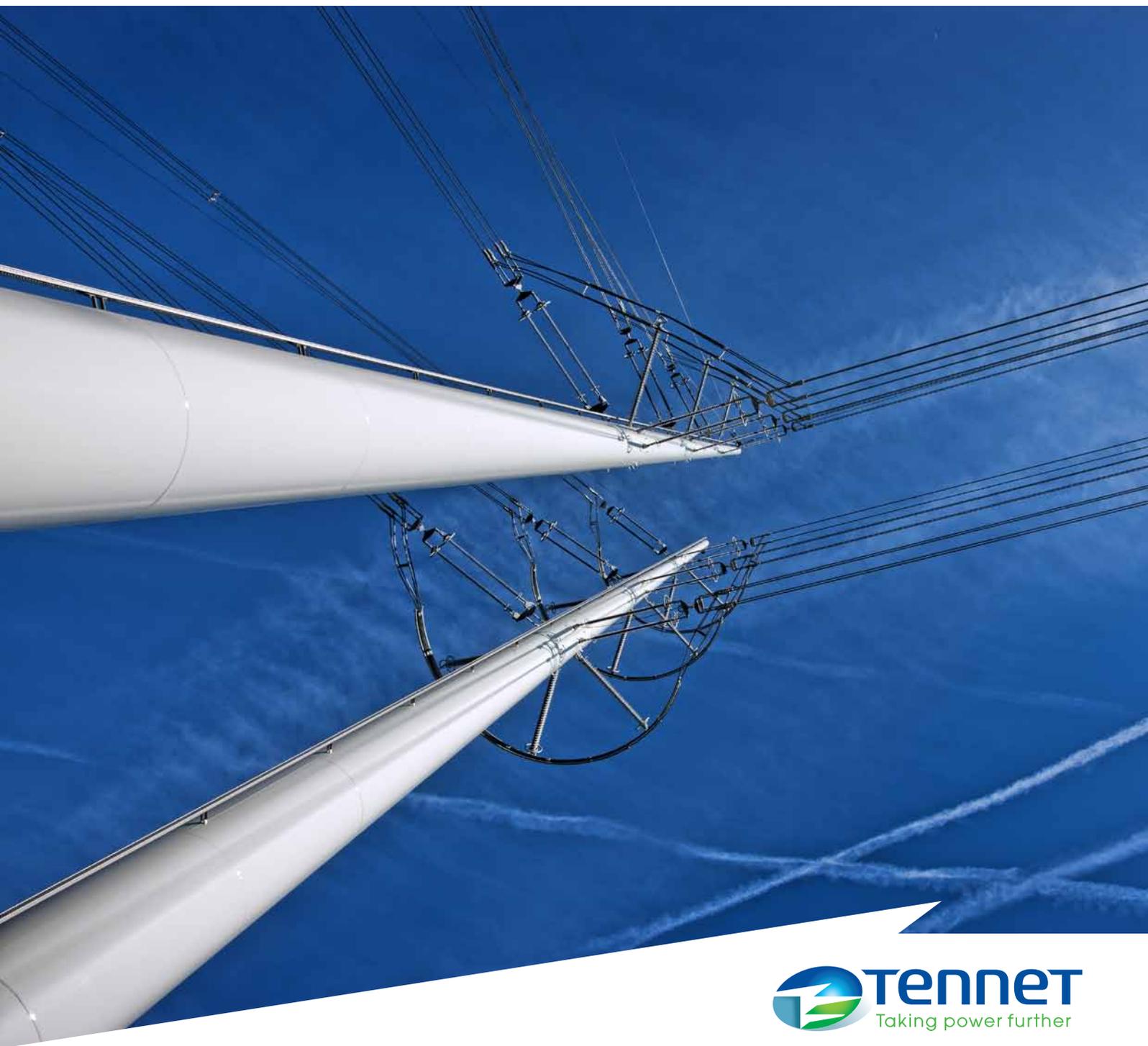


Position Paper

Innovation

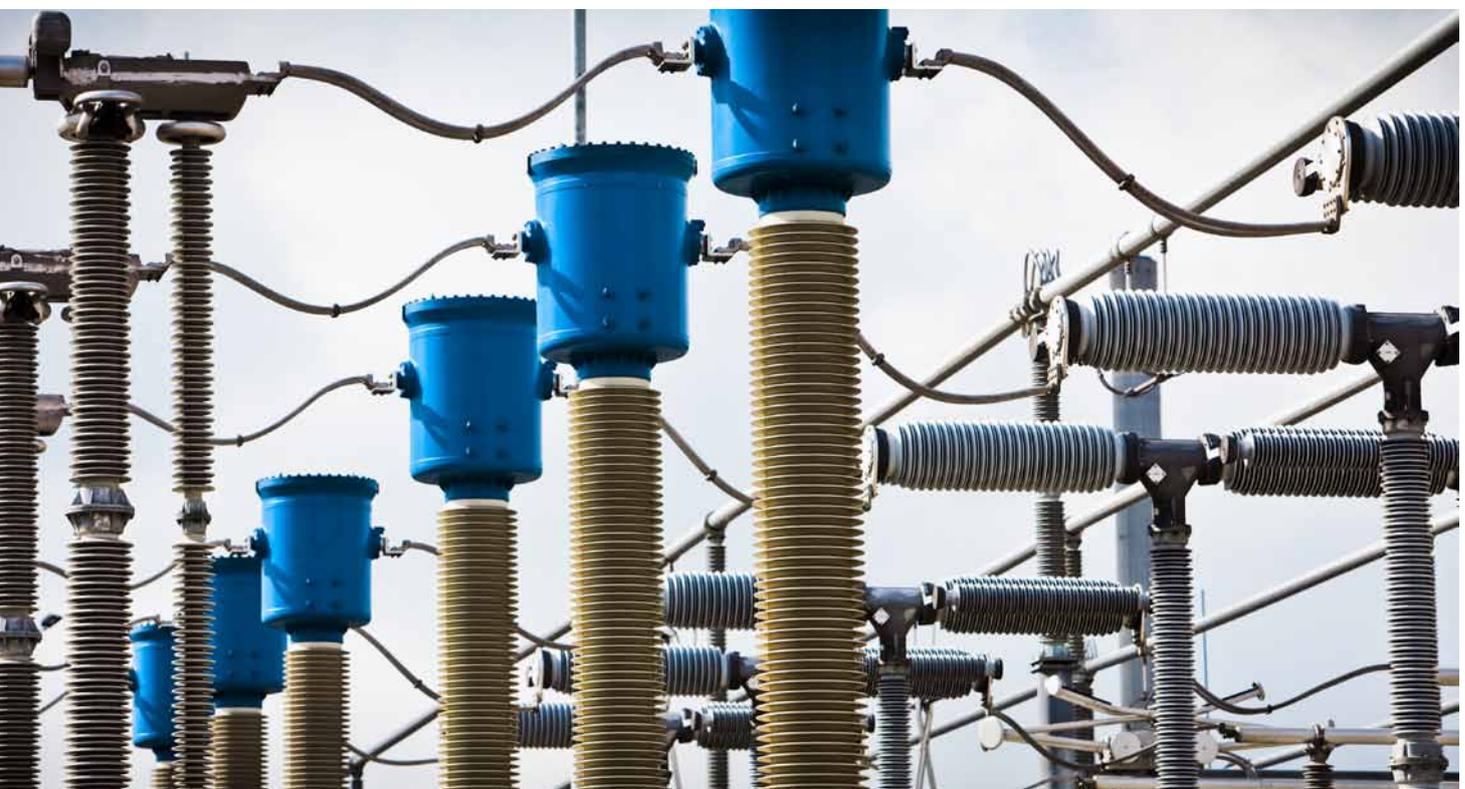


Position Paper

Innovation

TenneT keeps a close watch on developments in society and technology and, wherever possible, tries to anticipate them by developing and implementing improvements in electricity transmission.

TenneT introduced several innovative technical solutions in recent years. Our investment in innovative subsea cable links, for instance, as a direct result of the development of a European energy market. Other examples are the Wintrack pylon with its reduced magnetic field intensity in the Netherlands due to societal demands, the use of meteorological data to monitor transmission capacity in the German grid, and pilot projects involving underground 380 kV cables. It appears that the need for innovative solutions will increase in the coming years. Developments such as electric cars and extensive offshore wind farms require far reaching changes to the electricity system. TenneT wants to be able to deliver the required modernisation in good time and, devotes particular attention to innovation.



The need for innovative solutions will increase

TenneT has established a dedicated innovation team for this exact purpose. The team serves as a catalyst in the innovation process, encouraging the development of new ideas by our business units and departments. So called 'bird flight diverters' are a case in point. Suspending these diverters from high voltage power lines makes the lines more visible for birds passing overhead, thus reducing the number of collisions. A study into 'dynamic grid management' is another interesting idea that has been put forward. This concept is aimed at optimising deployment of the capacity of high voltage lines, for instance by taking account of weather variables like temperature and wind speed.

In almost all cases, new ideas require further study before they can be implemented in practice. TenneT therefore regularly passes on promising proposals to educational institutions such as technical universities and colleges. In order to exchange useful knowledge, we also maintain close contacts with other parties in the energy sector, for instance by participating in leading national and international networks. External feedback on innovation proposals is ensured by the Innovation Advisory Board, a council of experts that advises the TenneT Board of Management on the innovation programme.



The innovation team is beginning to bear more and more fruit. TenneT has now taken centre stage with a range of ground-breaking ideas:

- Wintrack, a slender new pylon design that reduces magnetic field.
- The construction of a 20-kilometre-long stretch of underground 380 kV cable in the Randstad conurbation, a solution regarded as highly innovative even in an international context.
- The construction of partial underground 380 kV cables at four pilot projects in Germany
- A smart new method to create more room on the existing electricity grid through 'congestion management', a system that redistributes capacity if the supply of electricity is too great.
- A special system for monitoring overhead high voltage lines (220 kV or 380 kV), enabling these lines to take up to 50 percent extra load at peak load times.

Q&A

Why is it not always possible to implement innovative solutions?

Our lines, grids and substations have shown a consistently high degree of reliability for many years. That was important, and it remains so today. TenneT is judged in terms of the security of supply, so that must remain a key focus.

How is innovation related to TenneT's policy on Corporate Social Responsibility?

TenneT pursues innovation as an integral part of its Corporate Social Responsibility policy. This includes studies aimed at increasing the electricity grid's flexibility in order to ensure optimal integration of renewable energy sources, like wind and solar.

TenneT is Europe's first cross-border grid operator for electricity. With approximately 20,000 kilometres of (extra) high voltage lines and 36 million end users in the Netherlands and Germany we rank among the top five grid operators in Europe. Our focus is to develop a Northwest European energy market and to integrate renewable energy.

Taking power further

TenneT TSO B.V.

Utrechtseweg 310, Arnhem
P.O. Box 718, 6800 AS Arnhem
The Netherlands

Telephone +31 (0)26 373 17 17

Fax +31 (0)26 373 13 59

E-mail servicecentrum@tennet.eu

Twitter @tennetts0

www.tennet.eu

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