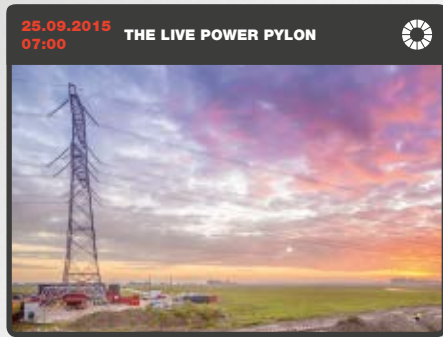


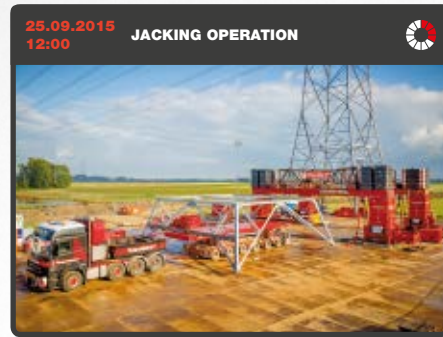
# LIFTING A LIVE POWER PYLON WITHOUT DISRUPTING SUPPLY.

TENNET  
THE NETHERLANDS

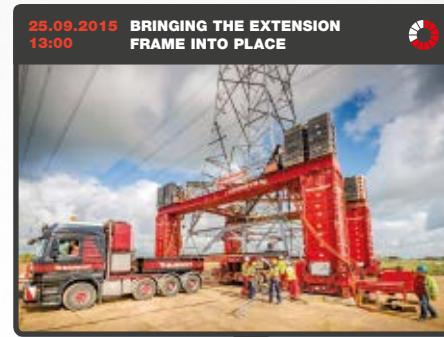




25.09.2015 07:00 THE LIVE POWER PYLON



25.09.2015 12:00 JACKING OPERATION



25.09.2015 13:00 BRINGING THE EXTENSION FRAME INTO PLACE



25.09.2015 14:00 INSTALLATION OF EXTENSION FRAME

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## THE MOST DELICATE OF JACK-UPS, BEFORE WATER LEVELS ARE RAISED HIGH.

With 27% of the country below sea level, working with water is a given in the Netherlands. Over the centuries the Dutch have mastered a sophisticated water management system. Nowadays, this includes a series of controlled flood zones. When the water in the rivers reaches certain heights, these zones are flooded to relieve the pressure on the dikes. In one such zone, a 380Kv electricity pylon needed to be raised four meters to stay above predicted high-water levels. Mammoet had to carry out the job without disrupting power supply to the millions of businesses and homes relying on it.

Operator TenneT manages a network comprising more than 22,000 kilometers of high voltage lines throughout the Netherlands. A few of its pylons were located in an area identified for occasional flooding. At the time of the pylon's construction, this was not foreseen. To keep the required safe distance between power lines and high water levels one of the pylons needed to be raised. TenneT engaged Mammoet to raise the pylon without interrupting the power supply. Something which had never been undertaken before.

While towering with strength when bolted to the ground, pylons are not designed to be lifted in one piece.

Certainly not while under current. Mammoet engineered a safe method to raise the pylon, while keeping the electric current on.

First, the foundations were laid to support the jacking operation and provide the necessary anchor points for the raised pylon. In addition, the tall and delicate structure was reinforced with tailor-made steel inserts to prevent it from buckling, and withstand forces it was not designed to encounter.

Then 60 tons of ballast was added at each corner to provide balance and to counteract the pylon's high center of gravity. With the ballast in place to stabilize the structure and compen-

sate for the loss of compression and tension, the pylon was unbolted from its foundation. Jack-up units, beneath each corner, raised the pylon by four meters in careful synchronicity. The whole operation was remotely controlled, so the team could remain at a safe distance. Finally, the extension frame was installed underneath and the whole structure was anchored to the new foundations.

In the end, one of the most delicate of jack-ups ever undertaken by Mammoet was executed perfectly, 100% safe and without disruption to power supply. As a result, the 'low country' of the Netherlands is now even better positioned deal with high waters.



### RESOURCES

#### CRANES

2 hydraulic cranes

#### TRANSPORT

12 axle lines of conventional trailer  
1 prime mover

#### SPECIAL EQUIPMENT

Mammoet JS 500 push-up system

#### CREW

10 Mammoet professionals