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**Special civil engineering company Spie Batignolles uses two SENNEBOGEN 6140 E duty cycle cranes to remove high voltage power lines and put them underground**

**The Réseau de Transport d'Electricité (RTE) operates the French transmission network for electricity and is currently installing 4 underground power lines of 225,000 volts between the communes of Saint-Denis, Île Saint-Denis and Villeneuve la Garenne.**

**By 2024, 15 km of overhead power lines and 27 pylons will be removed, making more than 80 hectares of land available for development and building. Later, the Olympic village for athletes will be built in Saint-Denis.**

For this purpose, a 2.5 km long underground tunnel will be drilled in Saint-Denis in 2021. The first stage of this major project is the construction of boreholes that will allow the tunnel-boring machine to be lowered. With on-site support: Two 140 t SENNEBOGEN duty cycle cranes with XL hydro-milling machine and diaphragm wall grab. Thanks to the high load capacity of 24 t at a working radius of 20 m, heavy attachments can be operated in grab operation - certainly with guaranteed maximum stability thanks to the robust wide-track undercarriage. The maximum load capacity of the machines is 140 t.

**Challenging project circumstances and difficult geographical conditions**

This major project is located in a highly urbanized area, bounded by several railroad and waterway lines, where extensive work will take place until 2024. Also affected are power lines that are essential for the electricity supply of the northeast of Paris, as they supply around 800,000 households, including the train station Gare du Nord and Line 13 of the Paris Metro. To meet all these challenges, RTE has chosen a technical solution that is tailor-made and exceptional for an electricity distribution network operator: the construction of a 40 m deep tunnel to run the new lines.

For the realization of this tunnel, RTE relies on the expertise of Arcadis as deputy project managing company and on the consortium of the companies Spie Batignolles Fondations, SETEC and SPAC and its representative Spie Batignolles Génie Civil.

**In operation with XL hydro-milling machine and diaphragm wall grab:
SENNEBOGEN duty cycle cranes 6140 E**

At the construction site, Spie Batignolles Fondations is using its two SENNEBOGEN 6140HD duty cycle cranes, which were recently delivered by sales and service partner SYGMAT. One of them is equipped with a powerful XL hydro-milling machine developed by Spie Batignolles Fondations itself. The 6140HD's 708 kW engine and generously dimensioned hydraulic pumps drive this impressive attachment. The second SENNEBOGEN duty cyle crane is equipped with a powerful diaphragm wall grab. Its 350 kN free-fall winches are adapted to the size of the grab and the massive cylindrical walls to be built for this shaft.

**The construction site is currently starting and will take place in 3 main stages**

Currently, the construction of the entrance and exit shafts for the tunnel-boring machine is taking place. The entrance shaft is located near Volta street in Saint-Denis. In 2021 the 2.5 km long tunnel will be drilled by the tunnel-boring machine so that in 2022 the new power lines can be installed and connected. This is followed by the dismantling of the pylons and overhead lines from 2023 to the end of 2024. The approximately 80 hectares of land that can be developed by these underground construction works will be used to accommodate new urbanized areas in the North of Paris.

**Captions:**

Image 1 + 2: *The two SENNEBOGEN 6140s from Spie Batignolles Fondations, equipped with XL hydro-milling machine and diaphragm wall grab*

Image 3:
*Currently, the 140 t duty cycle cranes are used to construct the entrance and exit shafts for the tunnel-boring machine.*

Image 4:

*Tight space conditions between the quays of the Seine, the RTE facilities and the A86 freeway determine the work at the construction site*