

## CASE STUDY

# **BORLINK™ LS4201EHV** SUPPORTING POWER TRANSMISSION FOR RELOCATION OF 330KV OVERHEAD LINES TO UNDERGROUND CABLES IN XI'AN, CHINA



The 330kV overhead lines relocated to underground cables in Xi'an, Shaanxi. (Photo courtesy of Qingdao Hanhe Cable Co., Ltd)

## **BACKGROUND**

The 330kV overhead line relocation project in northeast Xi'an is the largest extra high voltage (EHV) cable project in China.

It consists of relocating the 330kV overhead line corridor to underground cables, with a focus on delivering power reliably to the Xi'an Olympic Sports Centre and other facilities for the 14th National Games in 2021. It will also strengthen the city's power grid in serving key areas such as the Exhibition and Conference Centres, International Port Area, Economic and Technological Development Zone and Chanba Ecological Area.

This relocation will improve the urban landscape while enhancing reliability and safety of power supply to drive economic development for Xi'an. The scale of the project also makes it a benchmark reference in the design, construction, operation and maintenance of future long-distance EHV cable projects in China.

## **CHALLENGES**

As a leading international enterprise in the wire and cable industry, Qingdao Hanhe Cable Co., Ltd was appointed to design, manufacture and install 62km of the 330kV cables in this relocation project.

However, the project presented challenges such as:

- No existing reference standards for 330kV cable project design and development within China to use as a guide.
- Short lead time and underground construction difficulties due to cables passing through areas with existing transport networks and natural landscapes.
- Vast project scale and high complexity in building the nation's first EHV cable centralised station for power compensation and overvoltage control.

## SOLUTION

Having worked with Borouge and Borealis on strategic national land projects in China, Qingdao Hanhe selected the cable insulation grade Borlink™ LS4201EHV and semiconductor grade Borlink™ LE0500 from Borouge and Borealis to meet the challenging demands of the project.

Ideal for insulation in complex applications such as long length land and submarine cables, Borlink™ LS4201EHV is specially tailored for extra high voltage applications with rated voltages above 230kV.

Produced with our unique Supercure technology under extremely stringent cleanliness requirements, Borlink™ LS4201EHV offers XLPE cable producers the benefits of design flexibility, superior scorch security and a low degassing burden.

With lower risks of insulation defects and reduced degassing time, Borlink™ LS4201EHV enabled Qingdao Hanhe to optimise production cycle time and achieve timely delivery of the extra high voltage power cables while maintaining high quality standards.

General Manager of Qingdao Hanhe Cable Co., Ltd, Mr. Zhang Linjun commented, “The Xi’an 330kV EHV cable relocation project is the first of its kind nationwide, and thus we rely on valuable partners such as Borouge and Borealis, who have an excellent track record in safe and reliable extra high voltage cable solutions. Our long-standing relationship of strong collaboration and trust enabled us to execute the project requirements efficiently and at optimal quality standards.”



The overhead lines before relocation.



Connecting the double-circuit lines of 750kV Jingwei substation to 330kV Xuanwu substation, as well as the third circuit of 750kV Jingwei substation to 330kV Beijiao substation.

## SUMMARY

<b>Project name</b>	Xi'an 330kV overhead line relocation to underground cables
<b>Project location</b>	Xi'an, Shaanxi province, China
<b>Project owner</b>	State Grid Corporation of China (SGCC)
<b>Installation date</b>	December 2020
<b>Producer</b>	Qingdao Hanhe Cable Co., Ltd
<b>Application</b>	330kV extra high voltage (EHV) cables
<b>Project requirements</b>	Land cable application for EHV power transmission
<b>Solution</b>	Borlink™ LS4201EHV and Borlink™ LE0500
<b>Solution benefits</b>	<ul style="list-style-type: none"> <li>▪ More than 20 years of proven track record in underground EHV cables</li> <li>▪ Full and reliable system supplier</li> <li>▪ Produced under extremely stringent cleanliness requirements to ensure quality consistency</li> <li>▪ Excellent scorch resistance performance</li> <li>▪ Low degassing burden</li> <li>▪ High extrusion output</li> </ul>

**About Borouge and Borealis** Borealis is a leading provider of innovative solutions in the fields of polyolefins, base chemicals and fertilizers. With its head office in Vienna, Austria, the company currently has around 6,900 employees and operates in over 120 countries. Borealis generated EUR 6.8 billion in sales revenue and a net profit of EUR 589 million in 2020. OMV owns 75% of the company and through its holding company, Mubadala owns the remaining 25%. Borealis provides services and products to customers around the world in collaboration with Borouge, a joint venture with the Abu Dhabi National Oil Company (ADNOC). Borealis and Borouge aim to proactively benefit society by taking on real societal challenges and offering real solutions. Both companies are committed to the principles of Responsible Care®, an initiative to improve safety performance within the chemical industry, and work to solve the world's water and sanitation challenges through product innovation and their Water for the World programme.

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### Borouge Pte Ltd

One George Street #18-01 Singapore 049145  
Tel: +65 6275 4100 Fax: +65 6377 1233 Email: info@borouge.com