

# Paris Session 2022



## High depth MI cables future applications

SC B1 Insulated cables – PS1 – Q3

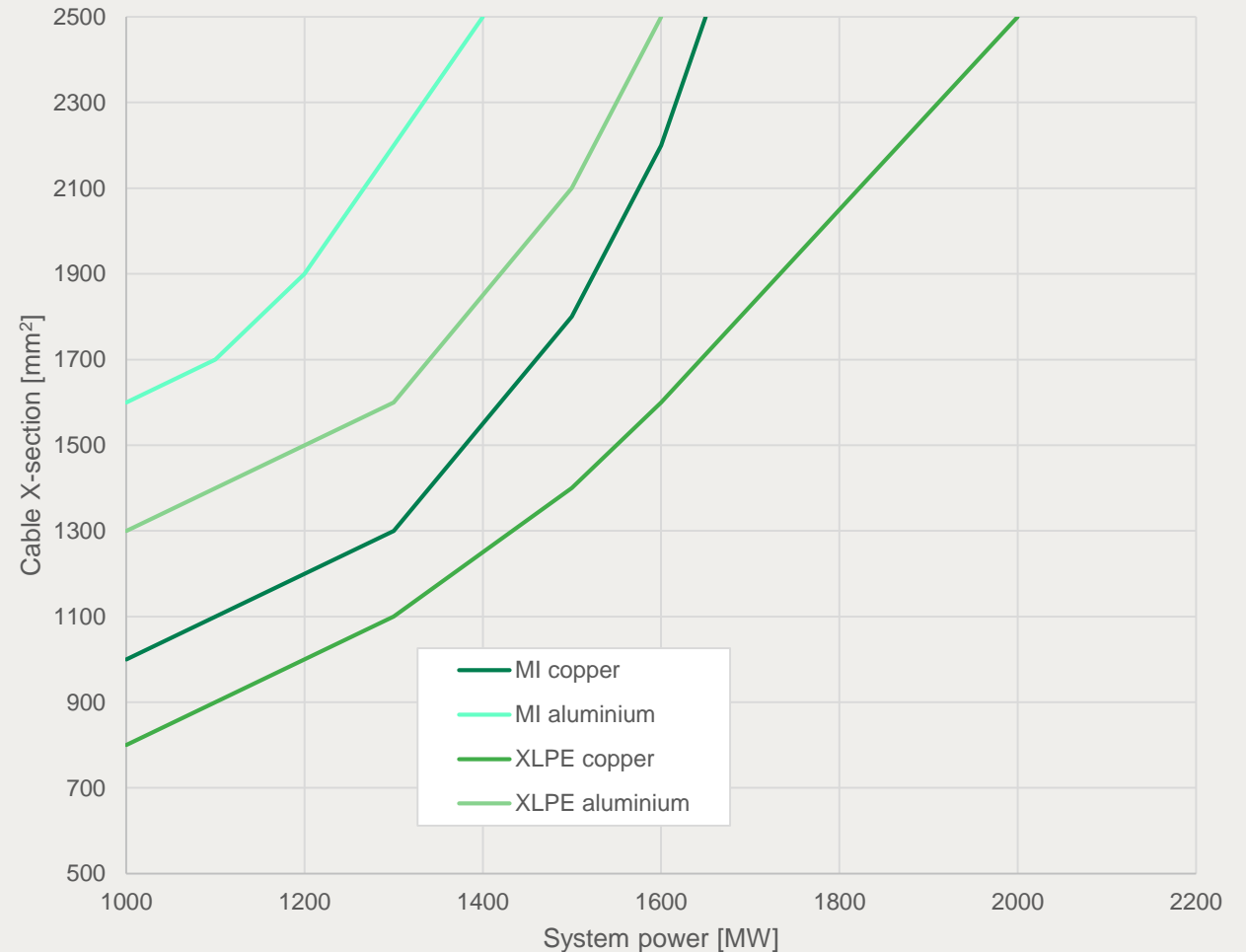
What can make MI technology preferable to extruded cable solutions in the future?

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**Prysmian**  
Group

# Advantages of XLPE vs. MI cables: simplicity and power rating

- XLPE cables have a simpler design and manufacturing process.
- Power rating is also higher: combined with VSC converters, it makes them the preferred DC cable technology for offshore windfarms and for some interconnectors.
- However, in case of high depths cable conductor design is significantly driven by mechanical stresses.



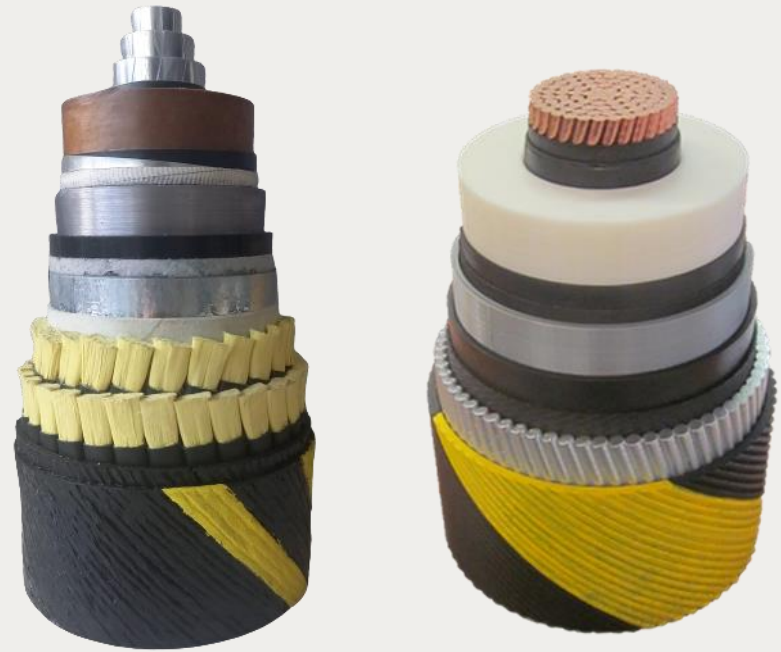
## Advantages of MI vs. XLPE cables: experience and compactness

- Even though the average density of an MI cable is higher than XLPE, the thinner insulation package typically used in MI cable is beneficial in reducing the cable weight and pulling tensions during installation.
- Both cable designs shall then withstand similar forces and thus it won't be possible to reduce the XLPE cross section.
- Thermal conditions at high depths are also more favorable because of lower temperature and large distance between pole cables.

Cable technology	Power rating	Cross section	Weight	Max. mechanical load
MI	1000 MW	1600mm <sup>2</sup> Al	100%	100%
XLPE	1000 MW	1200mm <sup>2</sup> Al	95%	70%

# Conclusions

- MI cables at rated voltages  $\geq 500$  kV are reliably in operation since more than 10 years at the highest record water depths of 1650 m.
- MI cables are therefore a proven and reliable solution for high depth projects at voltages  $\geq 500$  kV, whereas XLPE cables still have to build up the operational experience at these depths.



Thank you!



**cigre**

For power system expertise