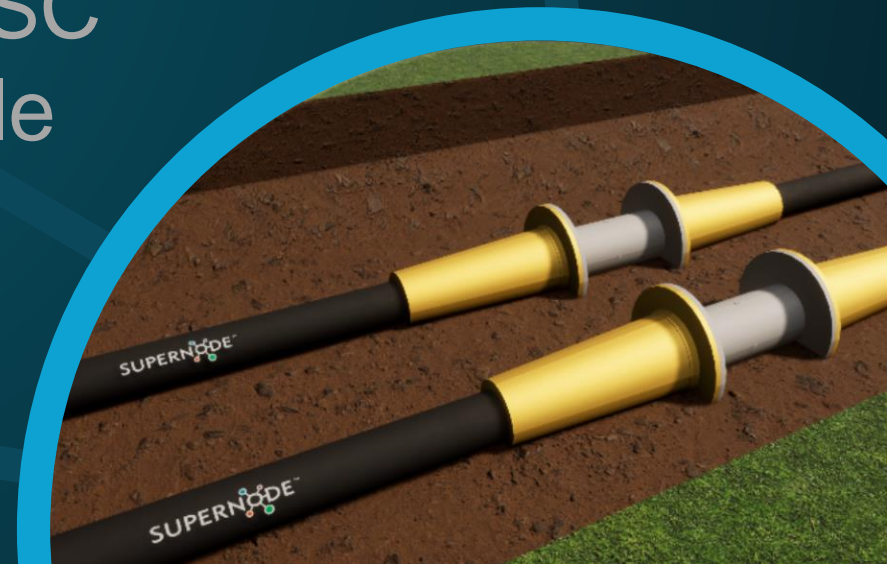


# SUPERNODE™

## IVAC-RED

Insulation Vacuum of SC  
Cables for Renewable  
Energy Distribution



# WHO ARE WE?



**EDDIE O'CONNOR**  
Founder, Chairman and  
Owner



**KJELL INGE RØKKE**  
Director  
  
(Owner  
of Aker ASA)



**JOHN FITZGERALD**  
CEO  
  
(Ex director of Grid Dev  
and Interconnection  
EirGrid)



**PAT COX**  
Director  
  
(Former President of  
EU Parliament)



**KARL-PETTER LØKEN**  
Director  
  
(Investment Director,  
Aker Horizons)



**AKER HORIZONS**  
  
(50% ownership)

# VISION AND MISSION

## OUR VISION

People should have access to **secure**, **affordable** and **renewable** energy.

## OUR MISSION

To develop and market innovative transmission technology based on **superconductors**, carrying vast amounts of energy over long distances in interconnected grids, requiring less infrastructure, materials and space.

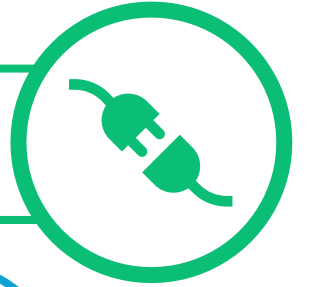


# WHY IS NEW TRANSMISSION TECHNOLOGY NEEDED?



**GLOBAL DECARBONISATION BY 2050**

**ELECTRIFICATION IS THE KEY VECTOR FOR DECARBONISATION**



**DECARBONISATION REQUIRES THE ADOPTION OF INTEGRATED INFRASTRUCTURE DEVELOPMENT PLANS GLOBALLY**

Electrical energy demand will **TRIPLE BY 2050** compared to today's demand

More than **450 GW** of offshore wind power will be needed

More than **800 GW** of new solar power will be required

The best renewable resources are found at the **PERIPHERIES** of Europe

Transmission is a **MAJOR CONSTRAINT** on the level of renewables required for deep decarbonisation

No clarity on **TRANSMISSION CAPACITY** for future past 2030

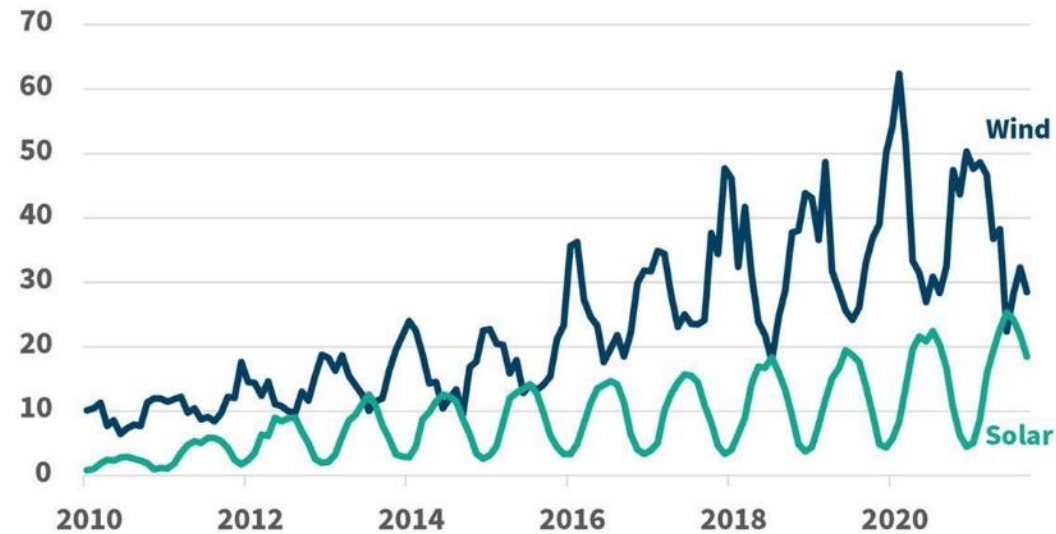


# EUROPE NEEDS A SUPERGRID

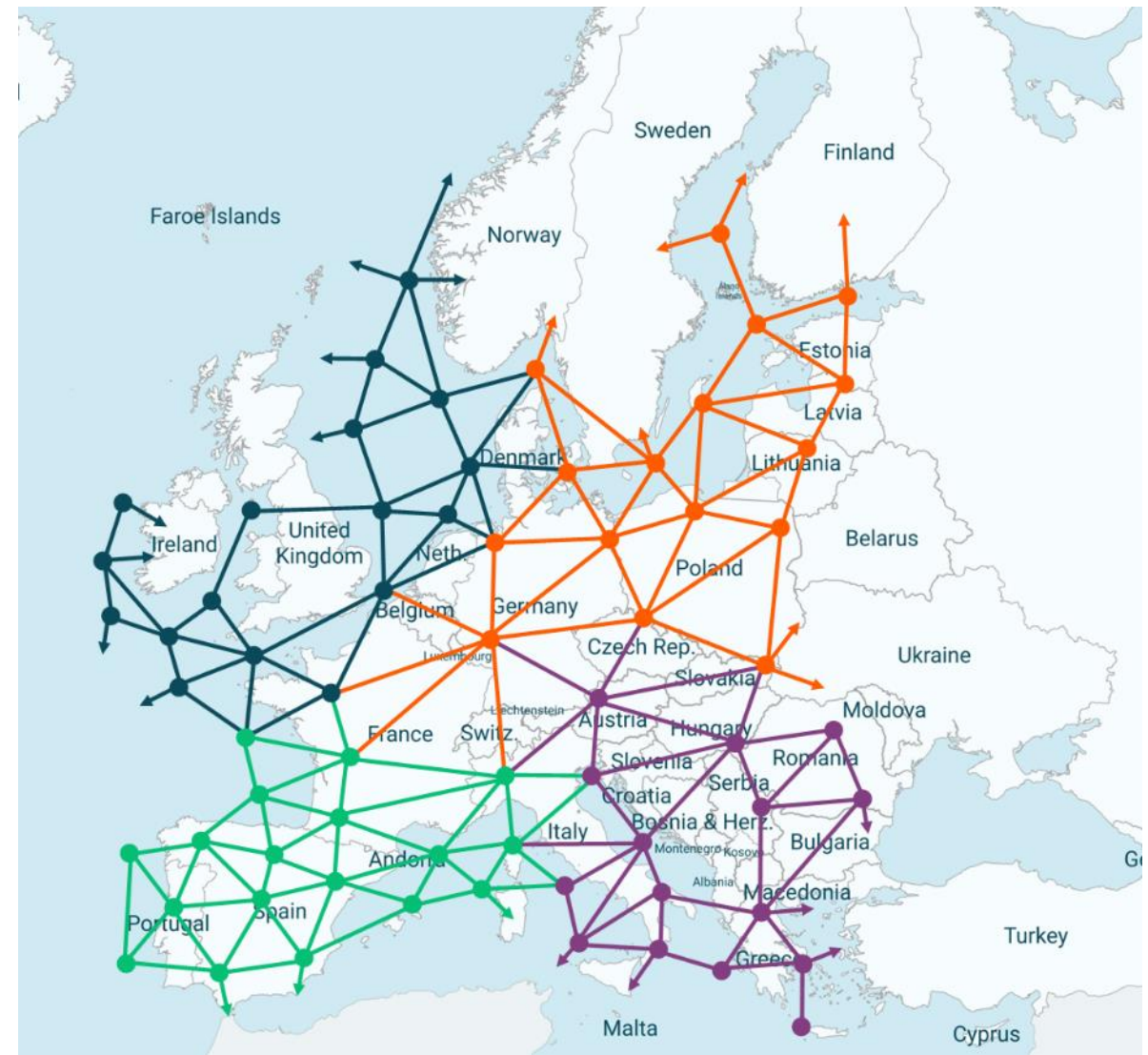
- Europe needs to connect **2,000 GW** of renewable resources **by 2050**
- SuperNode's transmission technology can be applied to **offshore** and **terrestrial** applications

## Wind and Solar Generation in Europe

terawatt hours (monthly)



Source: International Energy Agency, Monthly Electricity Statistics, December 2021. Data for OECD Europe, updated to September 2021.

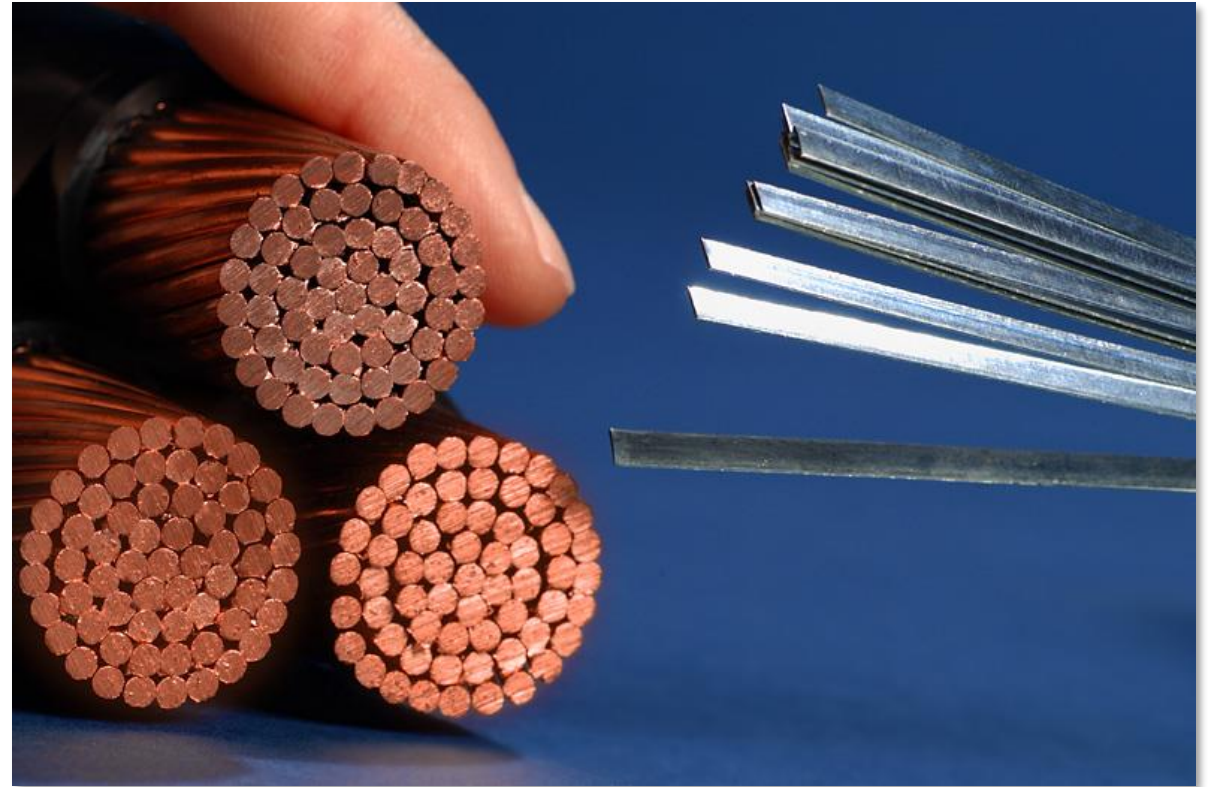


## COMPARISON OF CONDUCTORS: HTS TAPE TO COPPER

**1g** HTS Tape = **150+g** Copper  
*[for 1 kilo-amp-meter (kA.m)]*

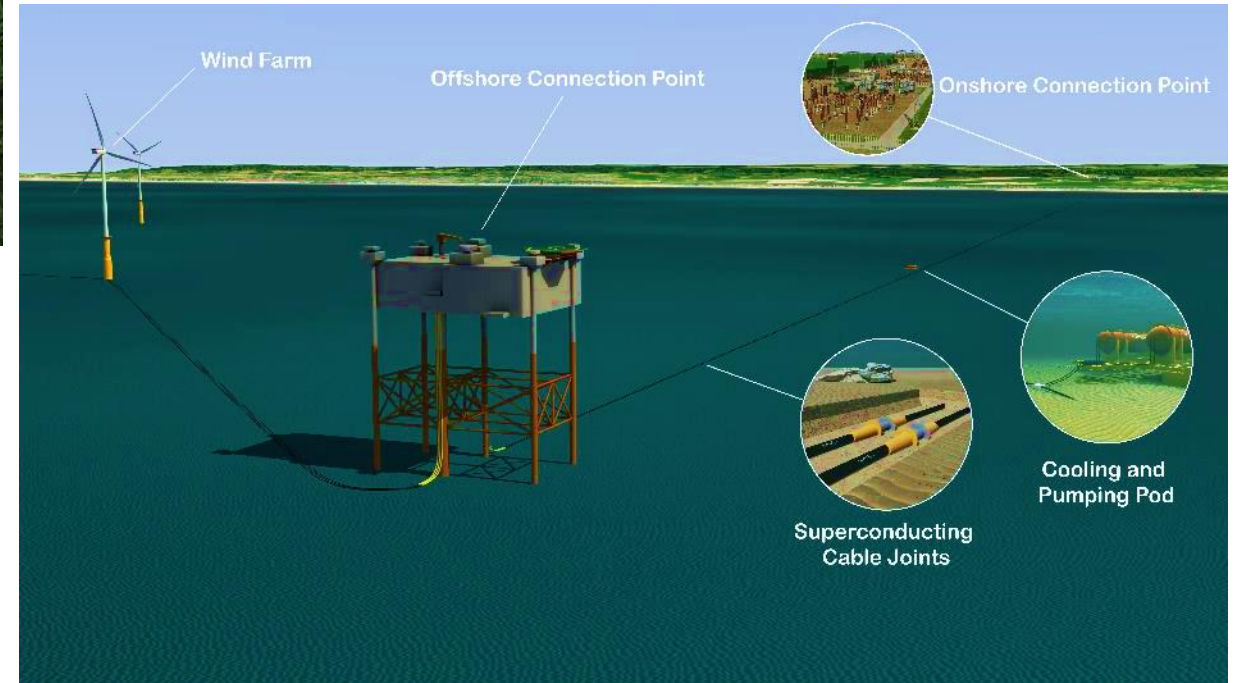
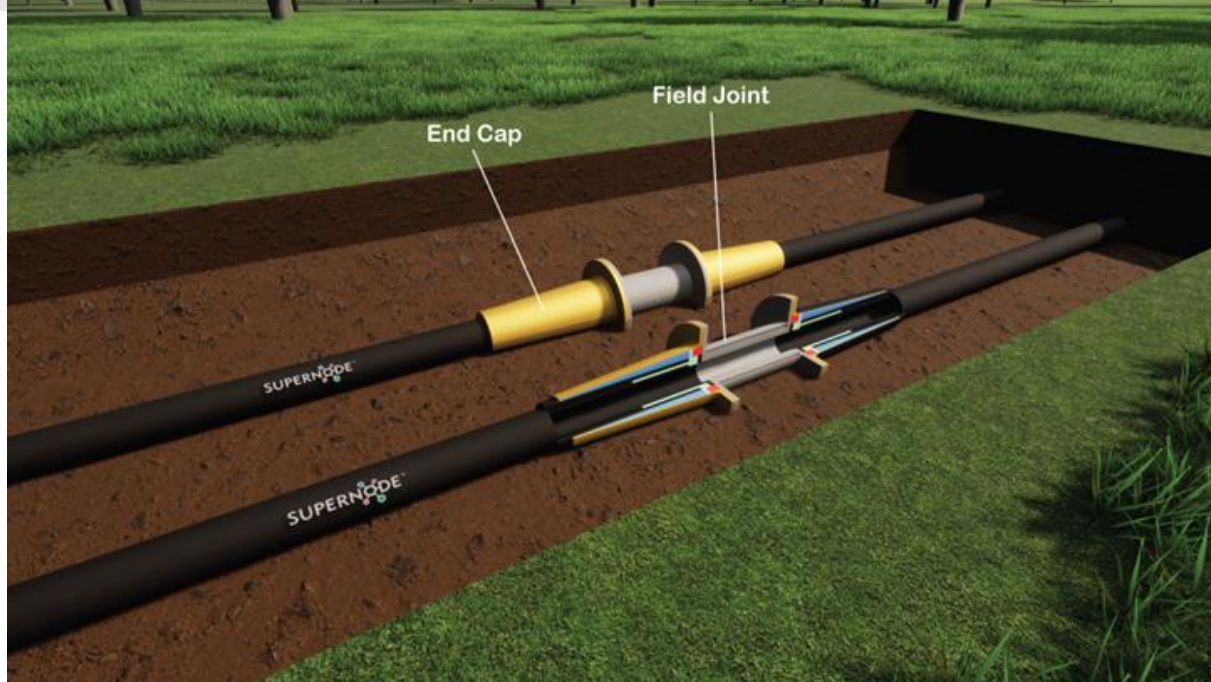
Therefore, the HTS tape requires **~150 times less** raw material by weight to carry 1 kA in a metre

This electrical performance is primarily due to ReBCO

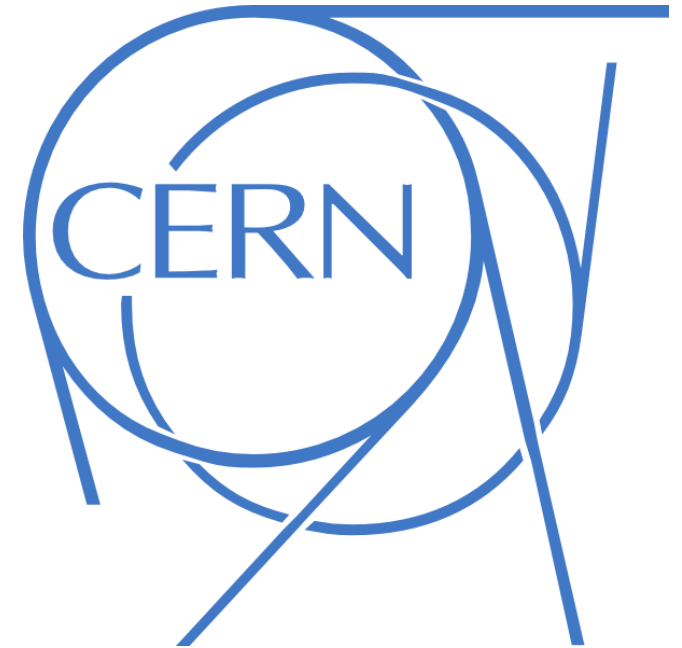
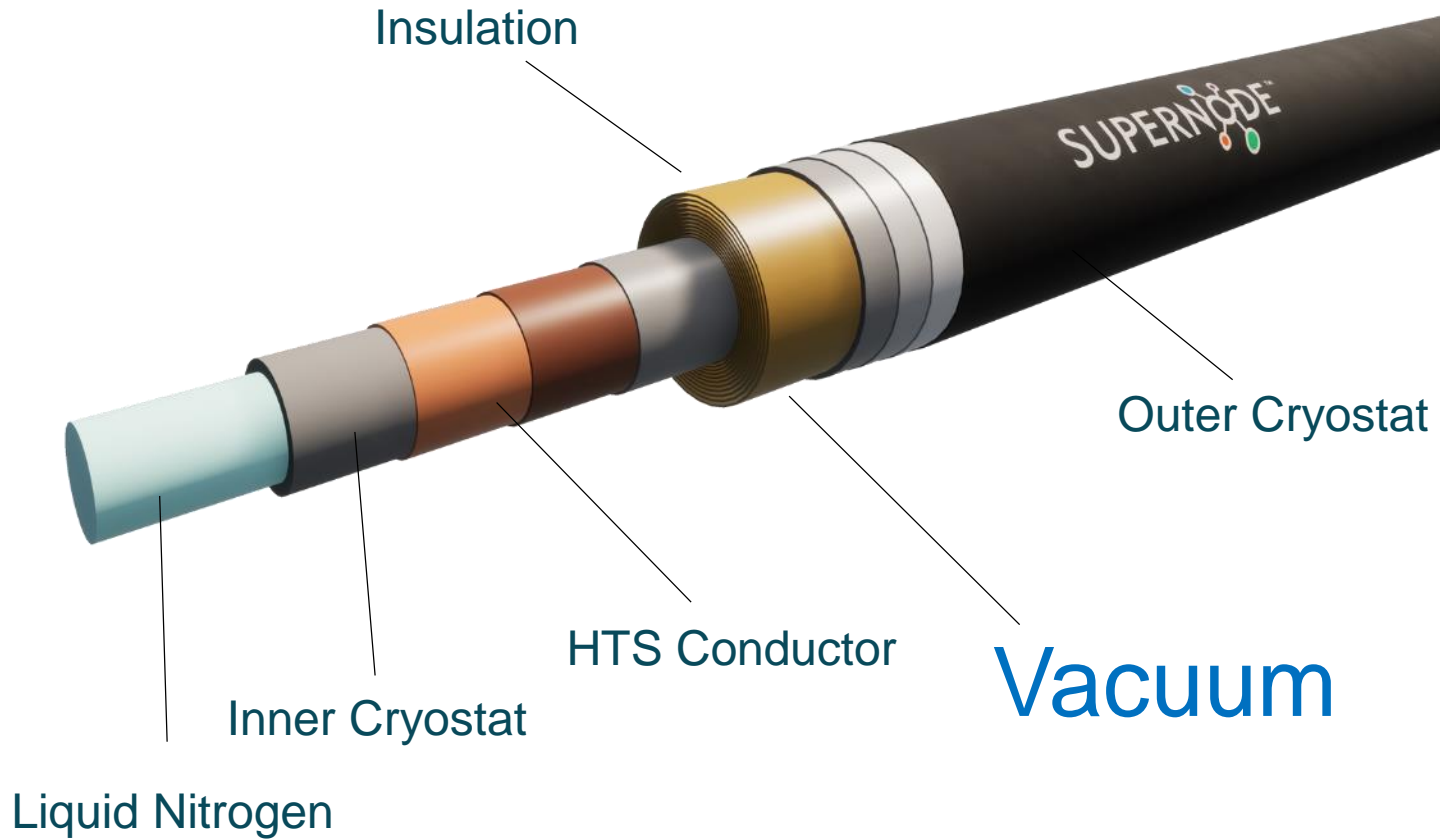




# ONSHORE AND OFFSHORE APPLICATION



# CRYOSTAT DESIGN AND IMPORTANCE OF VACUUM



Characterizing the cryostat vacuum is essential to ensure performance durability.



# UNIQUE CERN COMPETENCIES AND CAPABILITIES

