

## Host Utilities



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## ORGANIZER



# India SMART UTILITY Week 2024

## Supporting Ministries



# Session : SUPER GRIDS FOR ENERGY TRANSITION AND ENERGY SECURITY

**Bruno MEYER, Secretary General GO15**

GO15, the association of the **Very Large Power Grid Operators**, serves **more than half of the world's electricity demand**.

Created in 2004 after several blackouts, this unique organization is dedicated to **high level exchanges**. It offers industry leaders the opportunity to address major strategic and technical challenges affecting **the safety, the reliability and the sustainability of power systems**.

Convinced that **the transmission grid and a resilient power system are key to energy transition**, GO15 aims to favor bilateral and multilateral international collaboration to **prepare a sustainable future**.



14 power grid operators serving **more than half** of the world's electricity demand and **3 billion consumers**



- Interconnections are strategic infrastructures for the energy transition.
  - Enhance **security of supply** in case of disturbances.
    - And allow reduction of spare capacity because reserves can be shared.
  - Strengthen the **stability** and **reliability** of the power system.
    - Access to a larger pool of resources that can help balance fluctuations in variable energy sources.
  - Allow **resource sharing** of renewables.
    - Regions with abundant renewable resources (solar, wind) can export surplus electricity to regions where demand is higher.
  - Lead to **economic benefits**.
    - Enable market between countries and the reduction of reserves by sharing of reserves between regions.

GO15 celebrates its 20th anniversary.

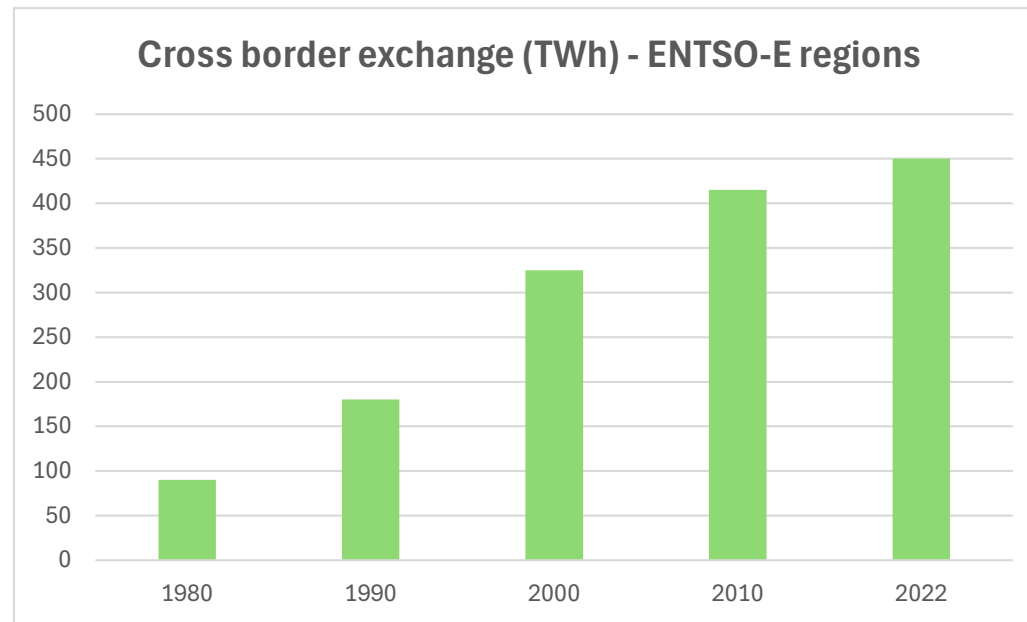
GO15 2024 President: SR Narasimhan, CMD Grid-India



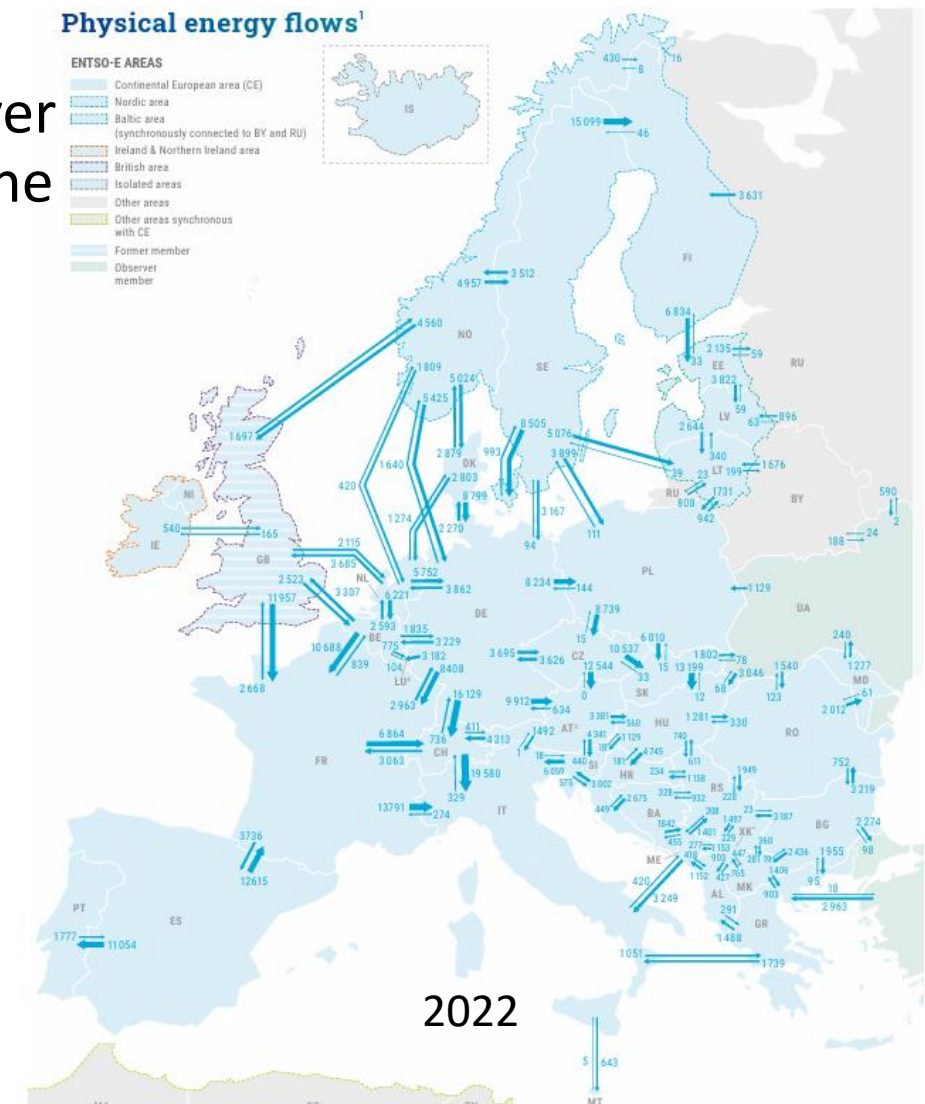


## • Europe

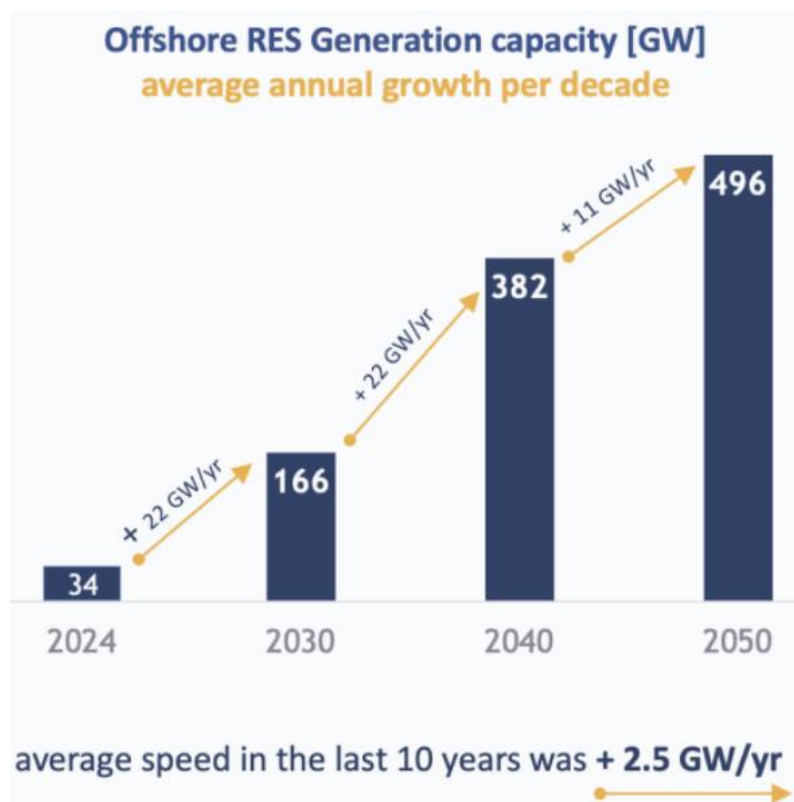
- The intensive development of **interconnections** over the last few decades with the implementation of the European market and the development of renewable energies.



In 2022: exchange/installed capacities = 16%



- Europe
  - Continued development of **interconnections**, in particular with **offshore links**.

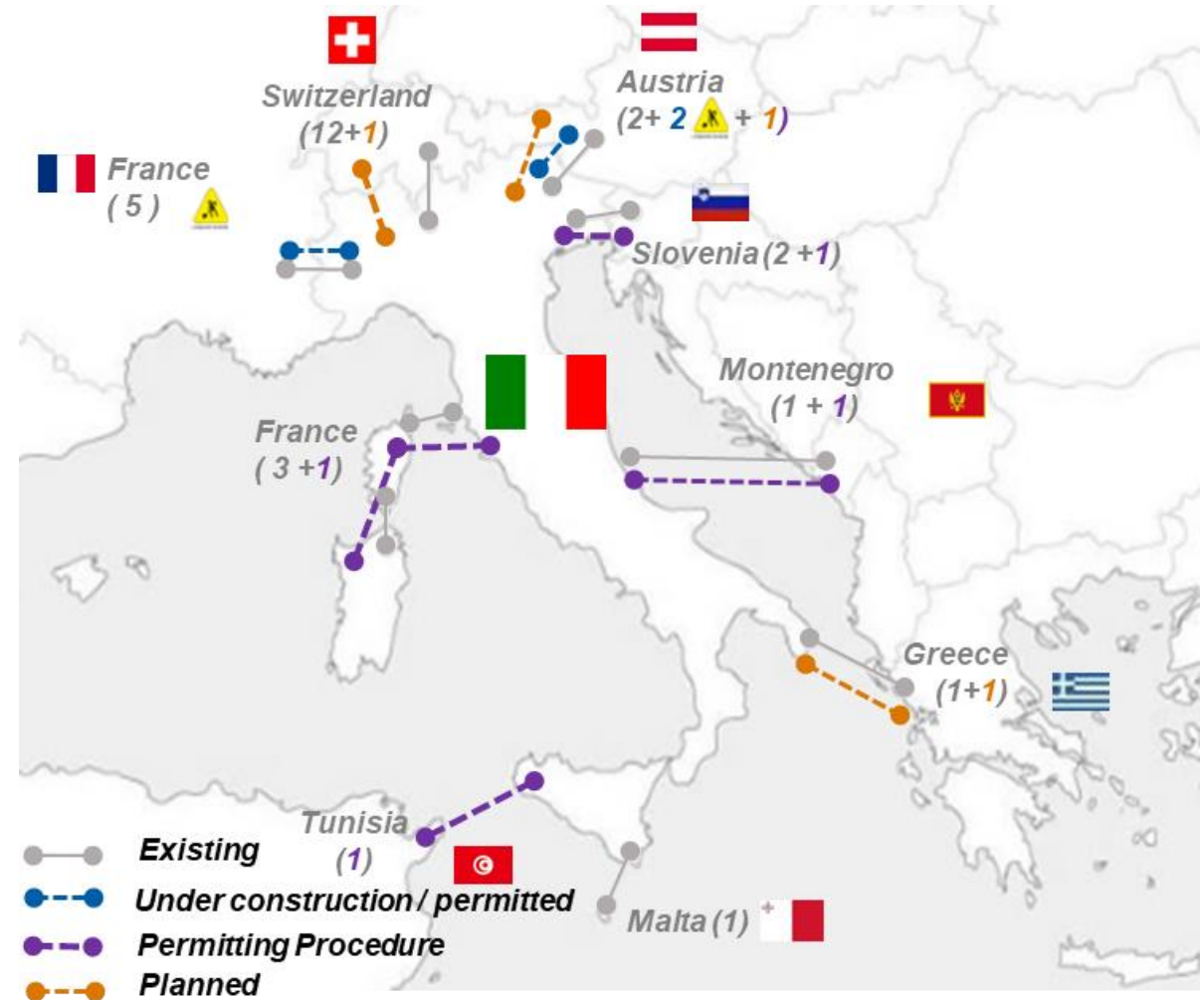


- Italy

- Today  $\Sigma_{inter}$  = 16 GW
- Project = + 6 GW.

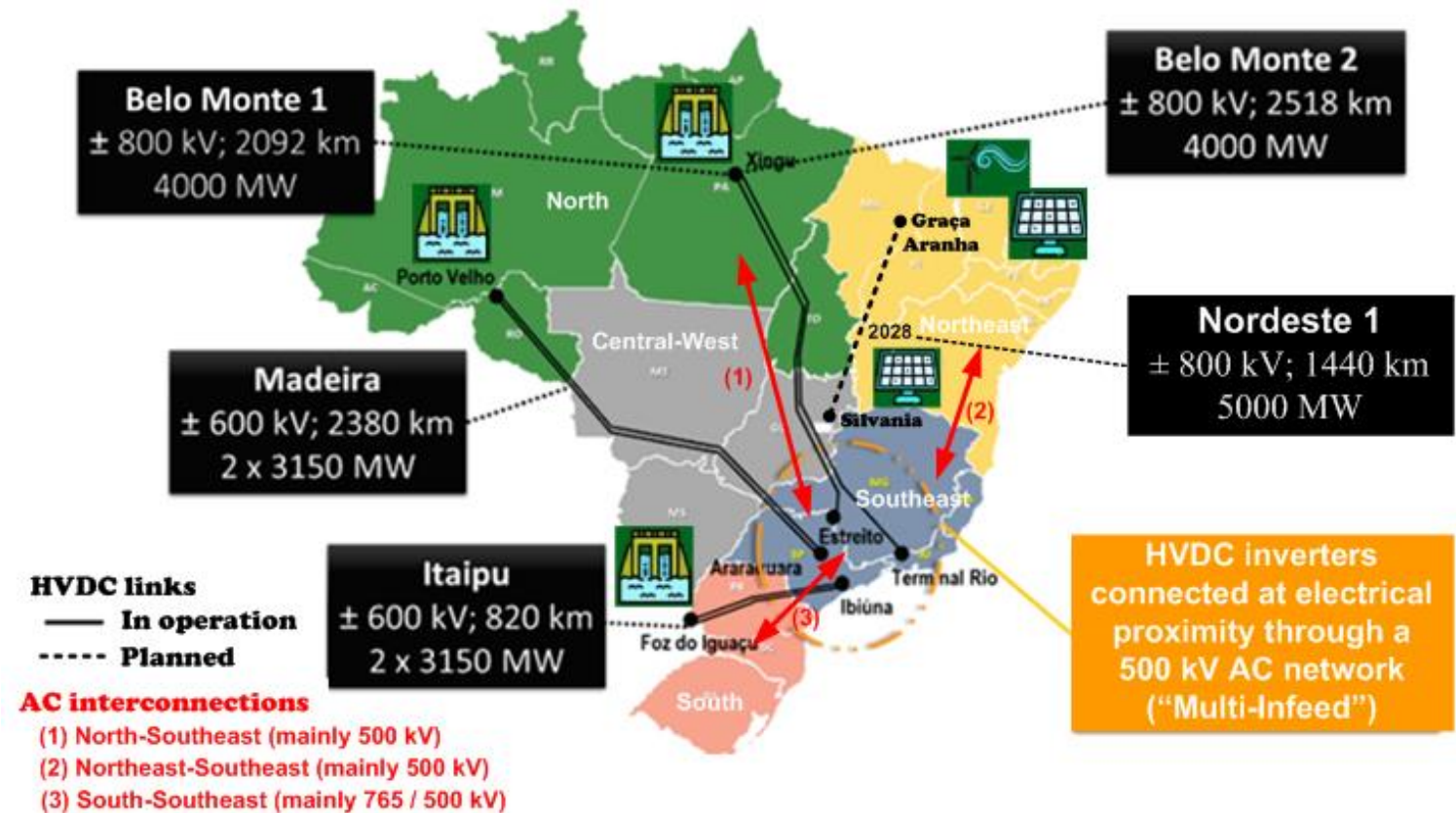
- France

- Today  $\Sigma_{inter}$  = 19 GW
- Capacity by 2050 = 40 GW.



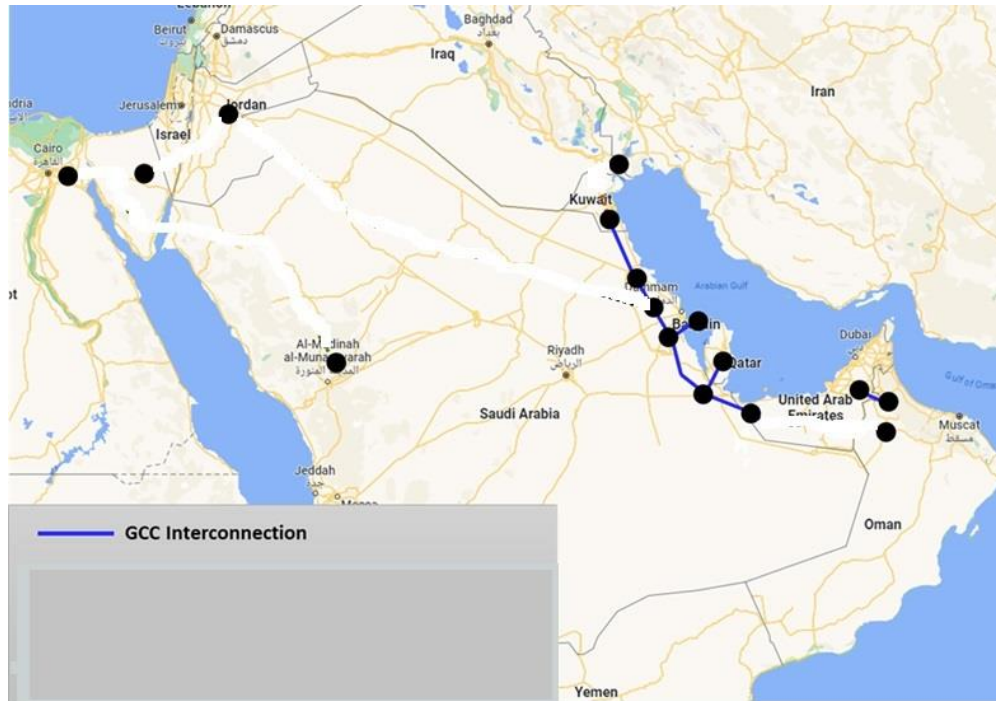


- Brazil (almost the size of Europe)
  - The main driving force behind the development of interconnections is the use of **renewable energies** (hydroelectricity, wind and solar power).

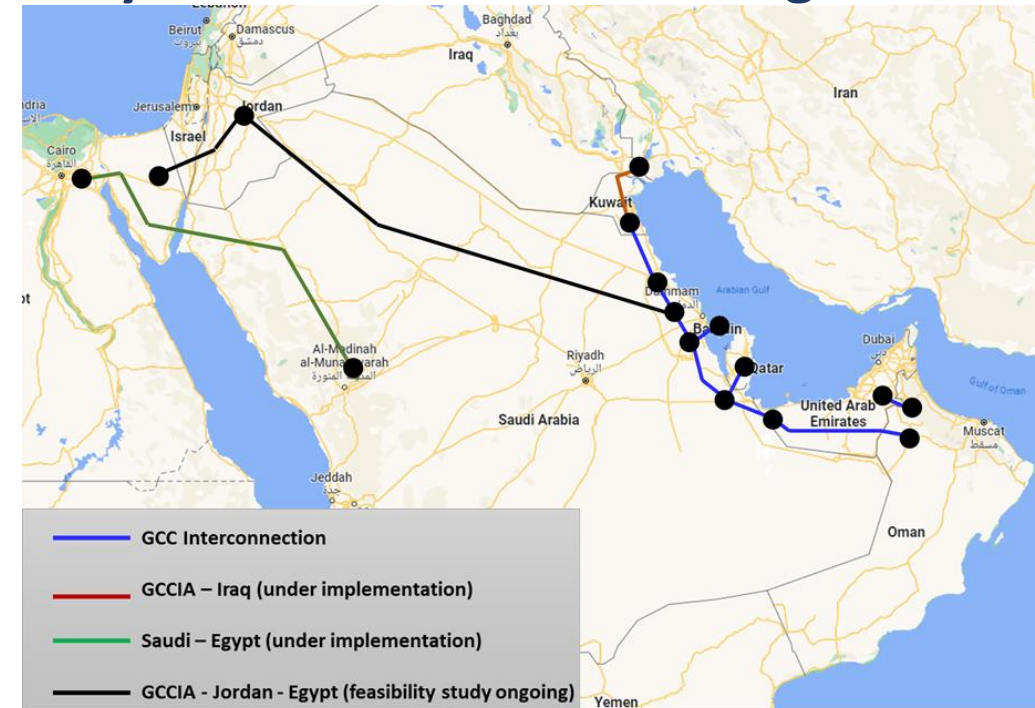


- Large hydro power plants with relatively low storage capacity (run-of-river) are located at the South region. Itaipu power plant (~14 GW) is an example of a very large HPP with relatively low storage capacity.

## Today – GCC region



## By 2025 and after – GCC region



- The driving forces behind the development of interconnections are the use of **renewable energies** and the **pooling of reserves**.

Treat as separate regions: ~8.3 GW increase

Treat GCC as one system: ~5.5 GW increase

- China (almost the size of Europe)
  - The main driving force behind the development of interconnections is the use of **renewable energies** (hydroelectricity, wind and solar power).







- Massive electrification
- Electricity demand will triple in 50 years
- Massive development of RES change the energy mix and the markets
- Interconnections contribute to reliability
- Interconnections are growing worldwide
- Grid investment (US\$ 20 trillion by 20250 according to BNEF)
- **No Transmission, No Transition!**
- One Sun One World One Grid (OSOWOG) launched by India
- Toward a global grid by the end of the century?



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MINISTRY OF POWER  
GOVERNMENT OF INDIA



MINISTRY OF NEW AND  
RENEWABLE ENERGY  
GOVERNMENT OF INDIA



नीति आयोग  
National Institution for Transforming India



MINISTRY OF ELECTRONICS &  
INFORMATION TECHNOLOGY  
GOVERNMENT OF INDIA



MINISTRY OF HEAVY INDUSTRIES  
GOVERNMENT OF INDIA



MINISTRY OF JAL SHAKTI  
DEPARTMENT OF WATER RESOURCES,  
RIVER DEVELOPMENT & GANGA REJUVENATION,  
GOVERNMENT OF INDIA



MINISTRY OF POWER  
GOVERNMENT OF INDIA  
CENTRAL ELECTRICITY AUTHORITY

# THANK YOU

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[www.isuw.in](http://www.isuw.in)

Links/References (If any)



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