TERNA
The Italian Transmission System Operator (TSO) for electricity

ESMAP Knowledge Exchange & Study Tour on Grid Digitalization and Cybersecurity

May 2026

Terna is one of the largest European TSO

Who we are

An essential infrastructure for Italy

- Terna is a **major electricity transmission grid operator.**
- Among the **leading grid operators in Europe and the world** with about 75,000 km of lines operated.
- It manages the **transmission** of electricity in Italy and **the electricity flows** 365 days a year, 24 hours a day.
- Guiding role for **the energy transition**.
- Listed on the Stock Exchange since 2004, **among the top industrial companies** on the FTSE-MIB.
- A centre of excellence made up of more than 7,000 **professionals**.
- **Innovation, sustainability and Service Quality** are the drivers of the Terna Group's activities and business.

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Terna is one of the largest European TSO

Terna assets

~ 900
Electricity Substation

~ 75.000km
Power Lines

of which...

~ 2.000 km
Underground Lines

~ 1.500 km
Undersea Lines

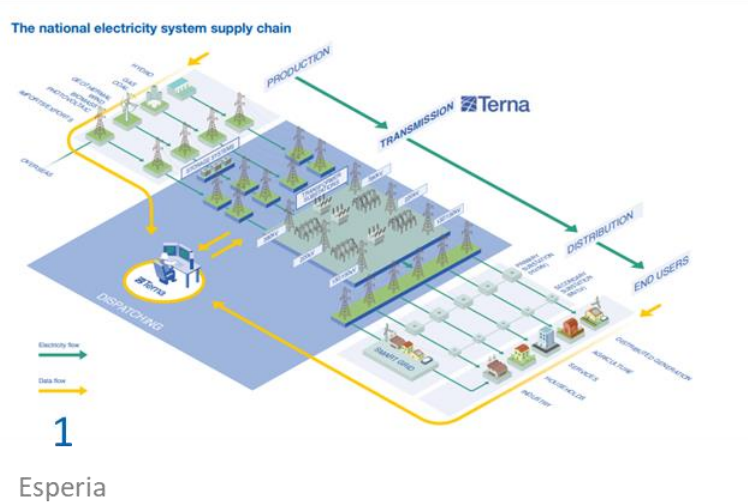
~ 750
Electricity Tranformers

5
Storage Sites

3
Regional Control & Switching Centers

1
National Control Center

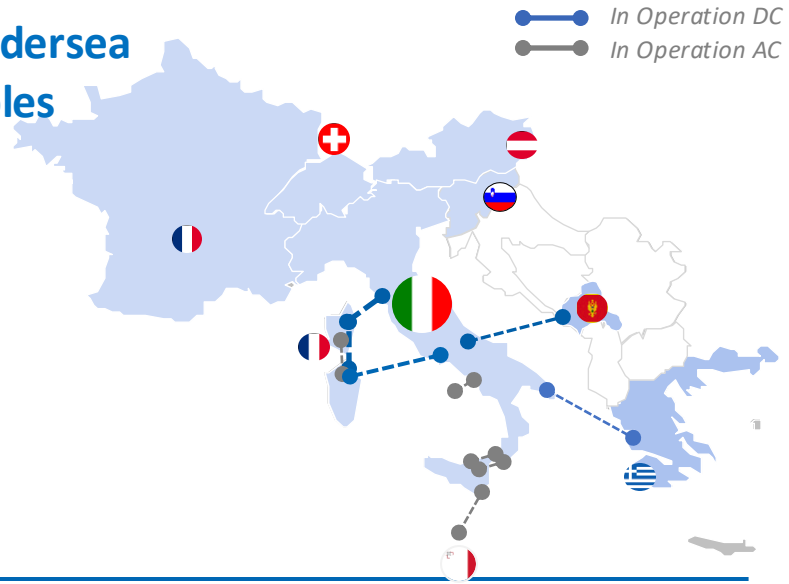
1
Market Operation Room



1
Esperia

AC Power lines...

... + Undersea cables



Terna Driving Energy

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Scenario

EU and Italian decarbonization targets for 2030

EUROPE

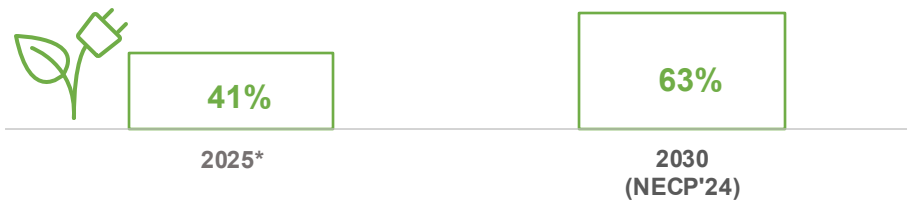
ITALY

CO2 emissions reduction
(GHG reduction vs 1990)

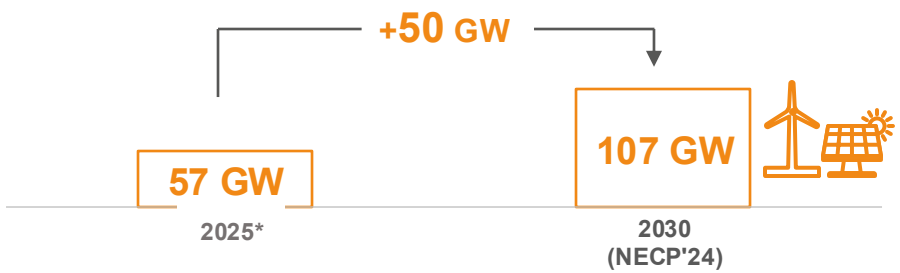
EUROPE	ITALY
2030 (FF55)	2030 (NECP'24)
-55%	-50%

FOCUS ON ITALIAN RES

RES share in electricity consumption



PV and WIND installed capacities



Source: National Energy and Climate Plan (NECP) 2024

** Terna data*

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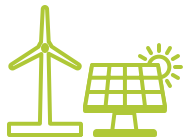
Scenario

System towards Energy Transition: Terna's Role

INFRASTRUCTURE DEVELOPMENT

RENEWABLES INTEGRATION



STORAGE

MARKET DESIGN

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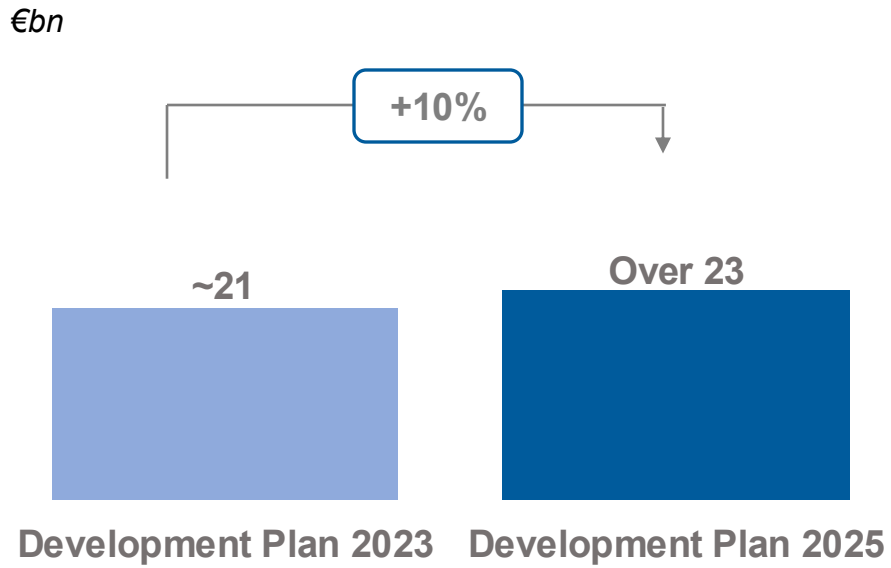
10-year National Development Plan

Overview

GRID INVESTMENTS



PLANNED ACTIONS

- **RES & non-RES connections**
- **Interzonal interventions**
  (Hypergrid, Tyrrhenian Link, Adriatic Link)
- **Foreign interconnections**
  (Italy-Tunisia, GR.ITA.2)
- **Intrazonal interventions**
  (380 kV Chiaramonte-Gulfi-Ciminna)
- **Network rationalization**

Creating a safer and more efficient system

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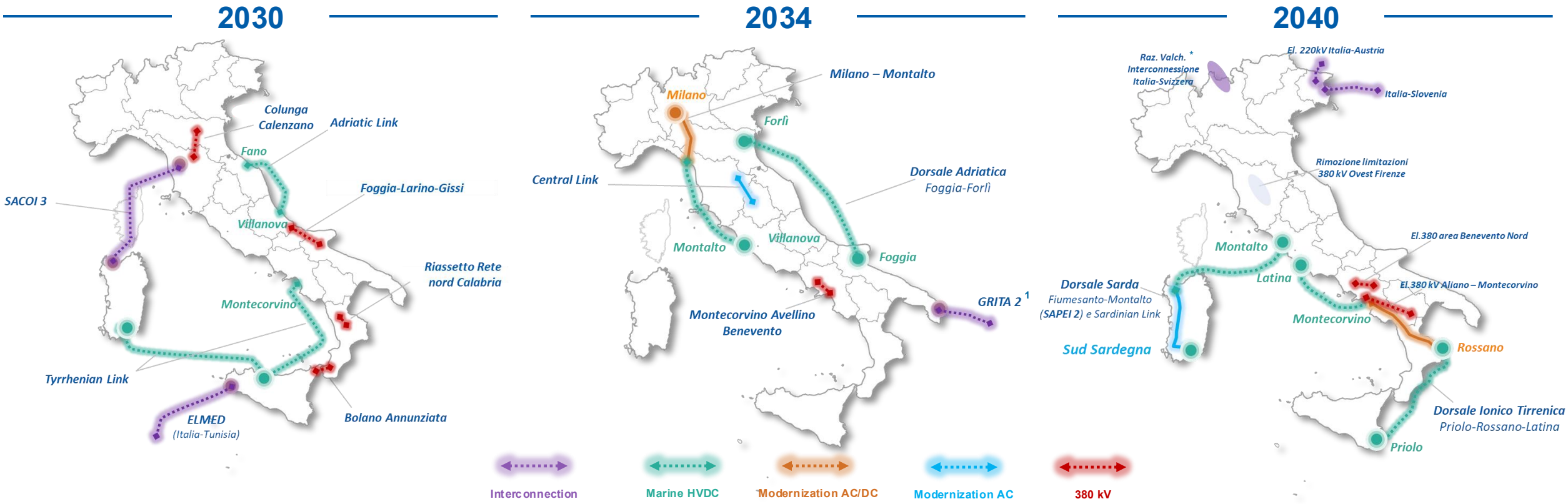
10-year National Development Plan

Main international initiatives and interconnections with foreign countries



Developing the infrastructure of the future

GR.ITA.2 First pole: +500 MW by 2033
GR.ITA.2 Second pole: +500 MW by 2035

1. Possibility of bringing forward the complete project within the 2025-2034 planning horizon is under evaluation.

**The network scheme of the project is under further analysis with the TSO counterpart Swissgrid to identify the most suitable solutions to implement*

Strategy

Digital Transformation scale-up

Digital Value

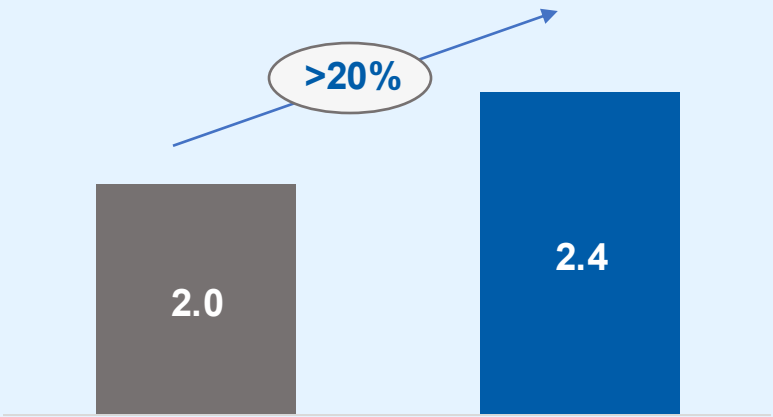
Process Digitalization

Digital Twin

Data-driven company

New Technologies

Digital Capex



Resilience and Cyber

Digital Transformation embraces all the dimensions of **TSO value chain**

→

Network Engineering | System Operator | Transmission Operator | Corporate

Maximizing the utility of digital transformation for the electricity system

Terna Driving Energy

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Terna
Driving Energy

THANK YOU