7th AIEE ENERGY SYMPOSIUM - ENERGY INDUSTRY CHALLENGES TO A LOW-CARBON ECONOMY

THE ROLE OF RENEWABLES IN THE TRANSITION

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ERG
EVOLVING ENERGIES

15th December, 2022

ERG – WHO ARE WE

80+ years
in the energy sector

Listed
on the Milan stock exchange

Leading
renewable operator in Italy

Main player
in European onshore market

Business model oriented towards
sustainable development and decarbonisation,
in line with the energy transition underway at global level

A LONG STORY…

1938
Edoardo Garrone founds ERG in Genoa.

1947
Production commences at the San Quirico Refinery in Genoa.

1975


Production commences at the ISAB Refinery in Priolo.

1997


The ERG share is listed on the Stock Exchange.

2000
ERG - through ISAB Energy - starts to produce and sell electricity from the gasification of the heavy residues from refinement.

2006


ERG enters the renewables sector with the acquisition of EnerTAD.

2008


ERG sells 49% of the ISAB Refinery to LUKOIL.

2010
ERG Power's combined cycle power plant (480MW) fuelled by natural gas enters operation.

TotalERG is established, a joint venture for the sale of oil products.

2013
ERG becomes the leading wind operator in Italy with an installed capacity of 1,087MW and among the top ten in Europe (with a total of 1,340MW), and acquires a company for wind farm O&M activities.

ERG transfers the ISAB Refinery and completes its exit from refining.

2014
ERG transfers the ISAB Energy plant and the fuel network of ERG Oil Sicily.

2015
ERG enters the hydroelectric sector with plants in Umbria, the Marches and Lazio (527MW).

ERG acquires 6 wind farms in France (64MW) and constructs 3 wind farms in Poland for a total of 82MW. At the end of 2015, installed wind capacity is 1,506MW.

2016


ERG enters the wind market in the United Kingdom with a 47.5MW project. At the end of 2016, installed wind capacity is 1,720MW.

2017


ERG's growth in the wind sector continues: 48MW in operation in Germany; 16MW in operation in France. At the end of 2017, installed wind capacity in Europe is 1,814MW.

2018
ERG enters the solar power sector (30 photovoltaic plants acquired, 89MW in operation).

At the end of 2018, installed wind power totals 1,822MW. Definitive exit from Oil with the sale of TotalERG.

2019
ERG closed the acquisition of Andromeda (51MW) assets, increasing its PV total capacity up to 141MW.

Wind: ERG acquired 52MW in France and 34MW in Germany. At year end, installed wind capacity in Europe is 1,929 MW.

2020
ERG enters the solar sector in Germany: co-development agreement with AREAM (600MW).

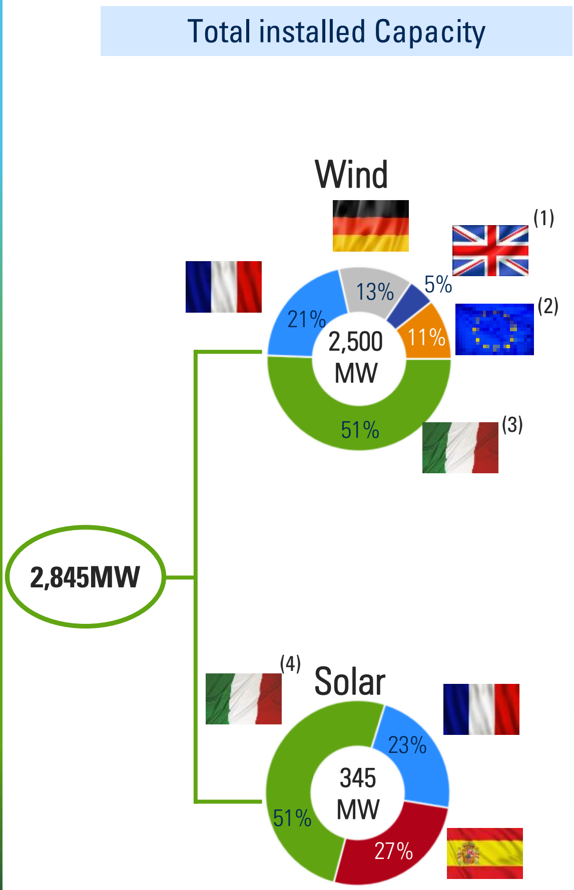
Installed wind power at the end of 2020 totals 1,967MW.

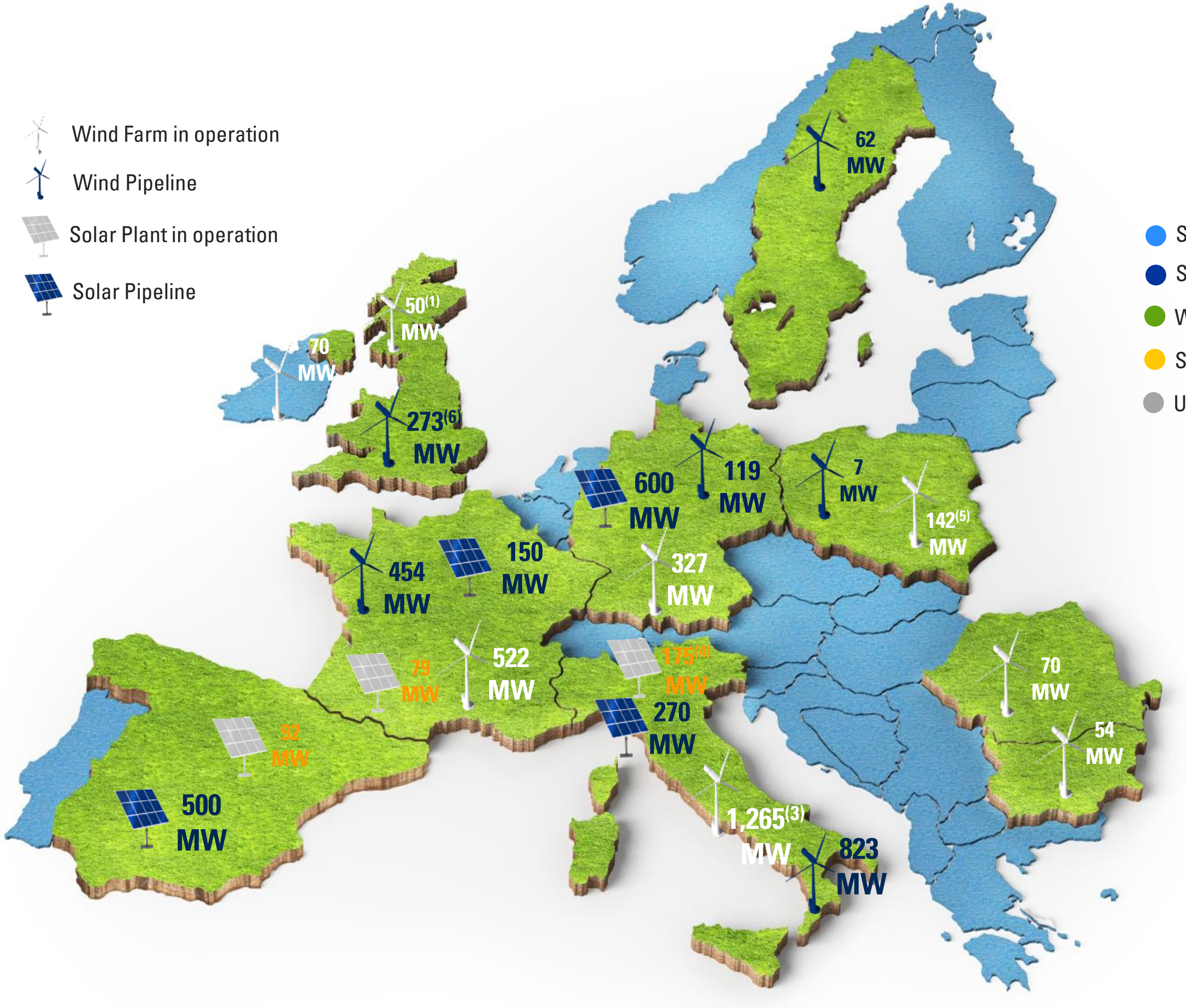
2021
Wind: ERG enters the Sweden market, and starts operation in U.K.. At year-end installed wind capacity in Europe is 2,198MW. On August 2, ERG signs an agreement with ENEL for the sale of ERG Hydro S.r.l.[(1)].

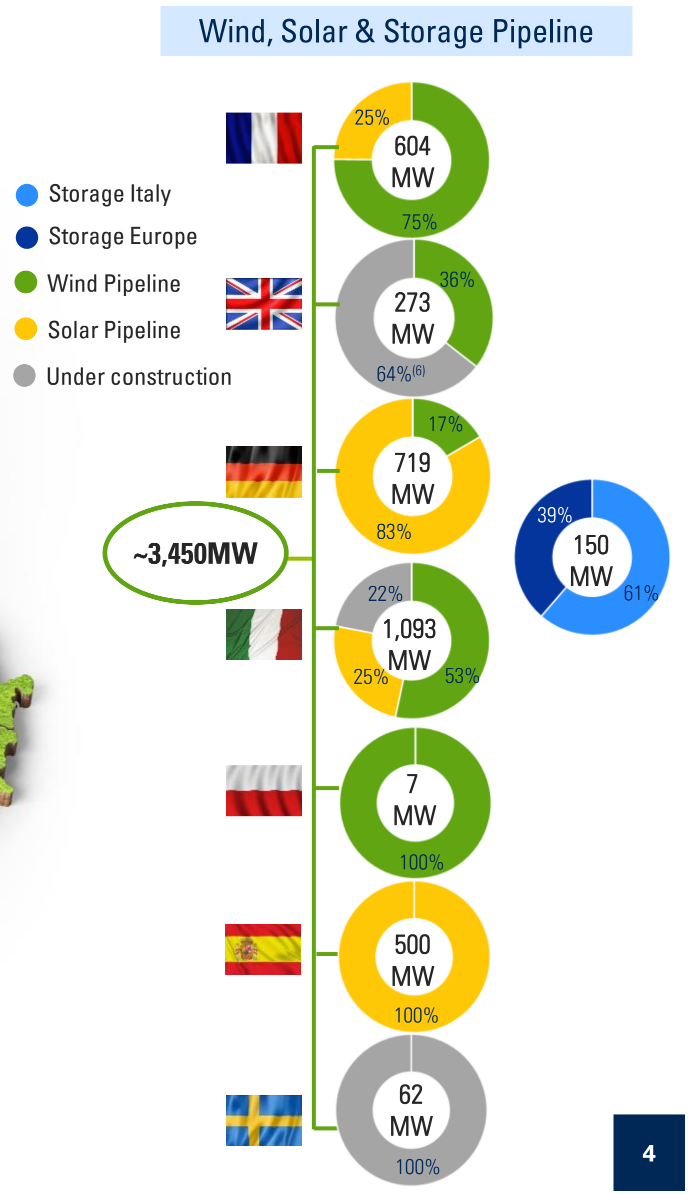
ERG enters the solar market in France (79MW) and Spain (92MW)[(2)].

[(1)] The closing for the sale of the Hydro portfolio to Enel took place on January 3, 2022
[(2)] The closing of the solar acquisition in Spain (92MW) took place on January 31, 2022

ERG TODAY: A SOLID PLATFORM READY TO GROW FURTHER







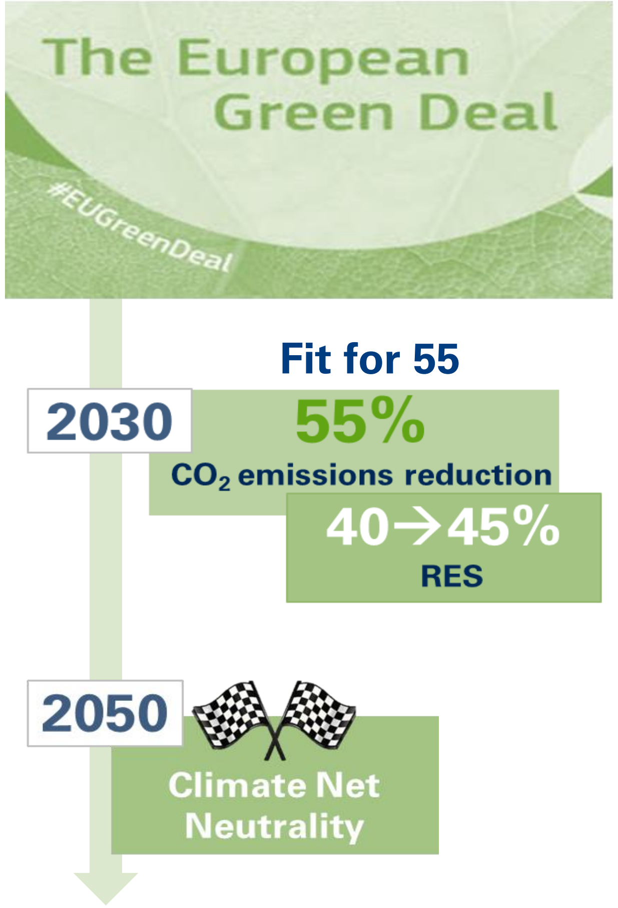
(1) It includes the first 50MW of Sandy Knowe wind farm, entered into operation on October 13, 2022
(2) It refers to Poland, Romania and Bulgaria
(3) It includes the recent wind acquisition (172.1MW), whose closing took place on September 9, 2022
(4) It includes the recent solar acquisition (33.8MW), whose closing took place on July 7, 2022
(5) It includes Laszki wind farm (36MW), entered into operation on October 24, 2022
(6) It includes Corlacky wind farm (~47MW), whose project was acquired on October 14, 2022

BUSINESS PLAN 2022-2026. MAIN OBJECTIVES

	ERG'S new targets to 2026
Growth in scale	**+2.2GW in 2022-26 (~450MW pa)** **4.6GW Installed Capacity in 2026**
Energy Sales / Mgmt	**85-90%** regulated on total EBITDA
Geographical diversification	**9-10 countries: EBITDA abroad at ~ 50% @2026**
Solar as strategic pillar	**~650MW of solar PV (out of +2,200MW)** ~20% of solar on group capacity @2026
Seeding in Innovation	**~50MW storage @2026 (o/w 22MW already secured)** Scouting on circularity, hydrogen and floating offshore
Conventional is "legacy"	**Completion of CCGT disposal (subject [1] to antitrust approval)**
Integration of ESG	Updated ESG Plan with more challenging KPI
Dividend Policy	**0.90 € per share** (+20% vs previous)

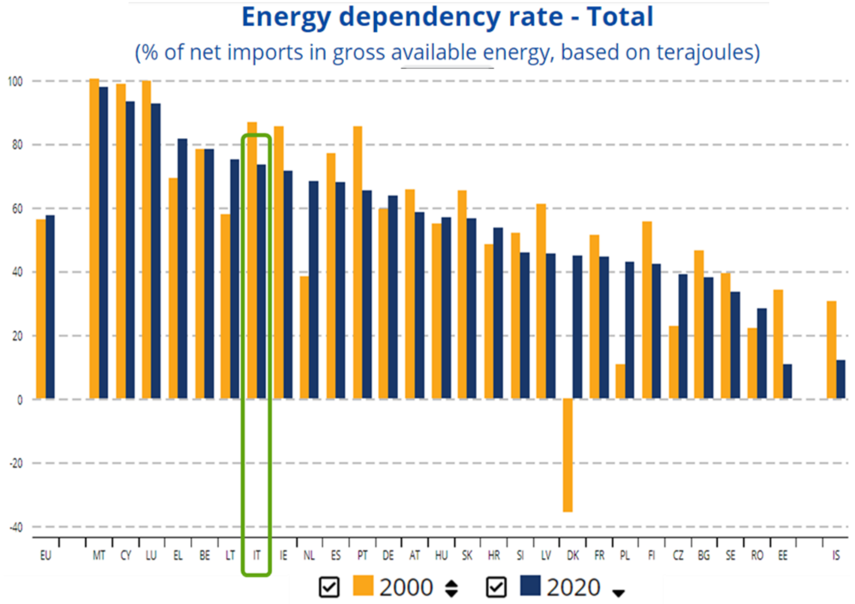
[1] Golden Power clearance already obtained

THE EUROPEAN APPROACH TO CLIMATE CHANGE AND ENERGY SECURITY - 1



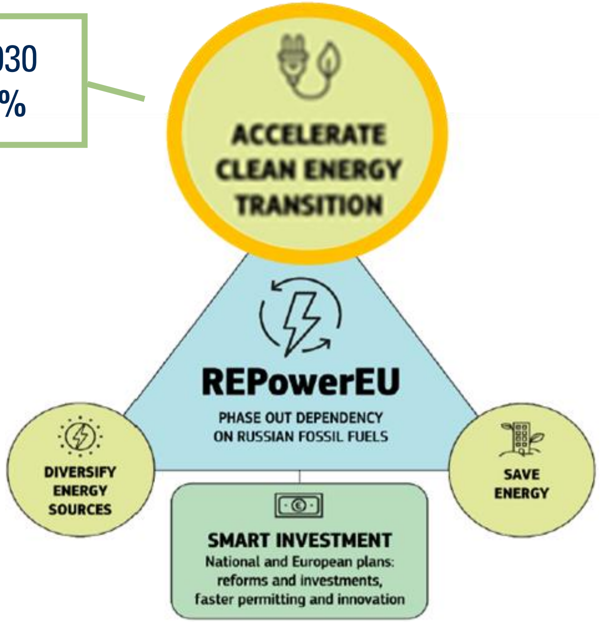
- **Key principles** of the **European Green Deal** for **energy:**
  - achieving a **Clean energy transition**
  - ensuring a **secure and affordable EU energy supply**
  - prioritising energy efficiency and **developing a power sector based largely on renewable sources**

- **Renewables at the core of energy policy** in Europe to match these principles



THE EUROPEAN APPROACH TO CLIMATE CHANGE AND ENERGY SECURITY - 2

Target FER @2030
from 40% to 45%



- Feb-2022: Russian invasion **altered the foundation of the EU energy equation**
  - the binomial that underpinned the EU energy/decarbonisation strategy since 2009 [cheap gas from East to sustain industry and decarbonisation in EU] **laid in pieces**

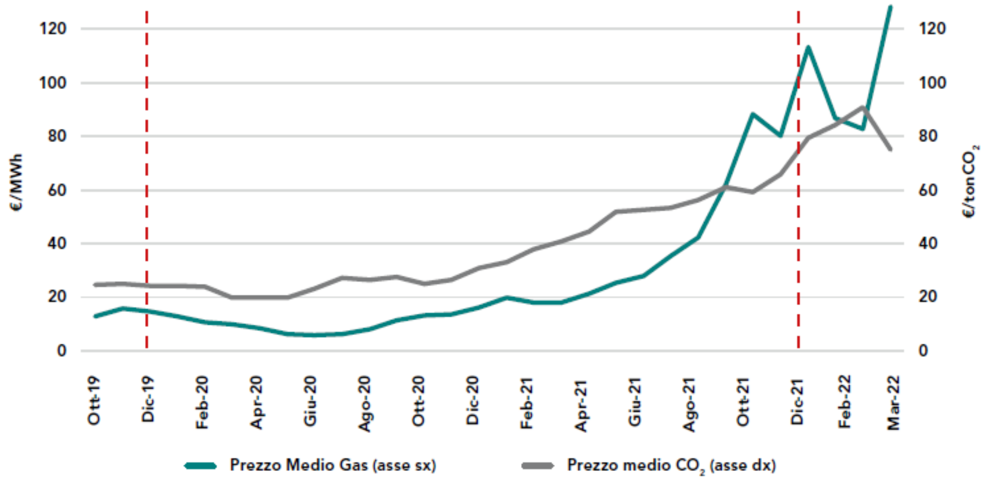
- **REPowerEU** communication - May 2022:
  - EU response to energy crisis
  - **further focus on Renewables** as the **ultimate solution** to reduce our dependence on foreign fossil fuels
  - proposal for increasing the **2030 renewables target to 45%**

RENEWABLES – A TRIPLE WIN

Renewables, a winning solution:

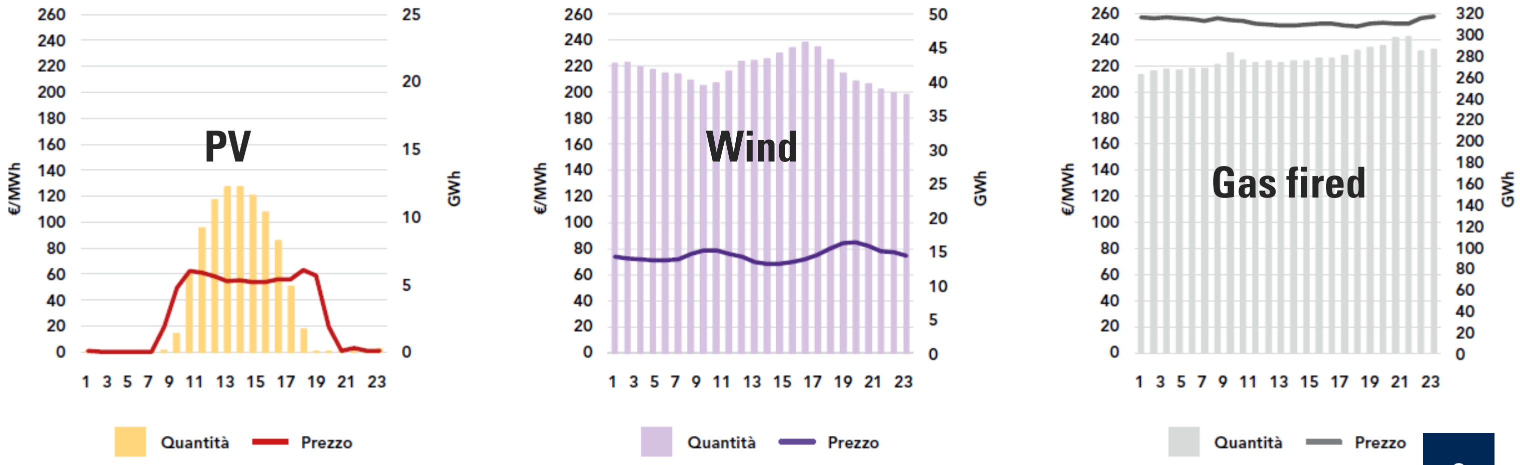
1. **Decarbonisation** – climate change mitigation
2. **Energy security**
3. **Energy price**: RES are **the cheapest available power source**

Gas price (IT – PSV) / CO2 price (EUA-ETS)



- The prices offered by renewables are **much lower than the price of gas thermoelectric**
- Through **PPAs or CfD auctions,** renewables would stabilize the cost of energy for consumers, increasing the security of supply

PRICES AND VOLUMES OF ELECTRICITY IN THE WHOLESALES MARKET PER SOURCE AND HOUR OF THE DAY MARCH 2022

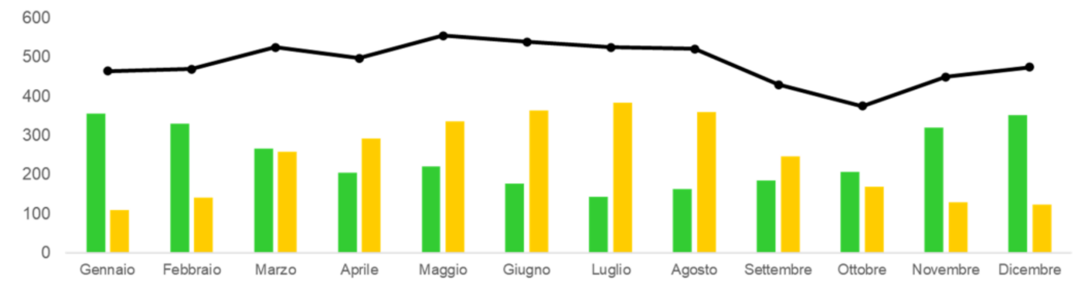


Renewable Energy Report 2022, Politecnico di Miano

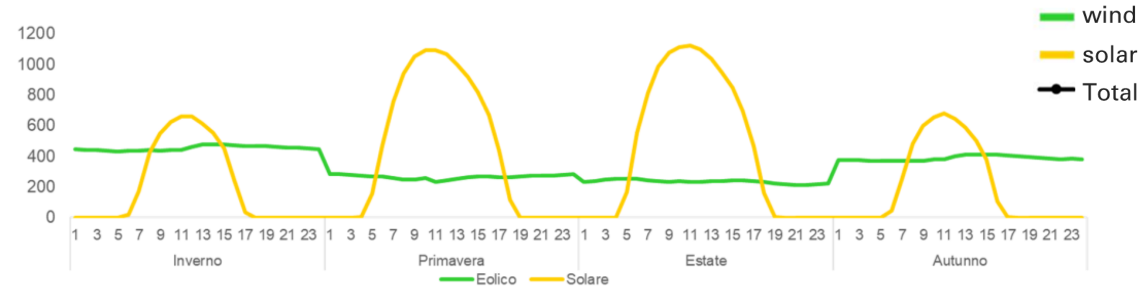
RENEWABLES – SINERGIES

- **Wind and solar**
  - › Solar and wind have different and **highly complementary production profiles**
  - › A proper mix of the two can give **technical and economical synergies** in a clean energy transition context

Produzione mensile (GWh) per 1,8 GW di solare e 1 GW di eolico [1], zona Sud

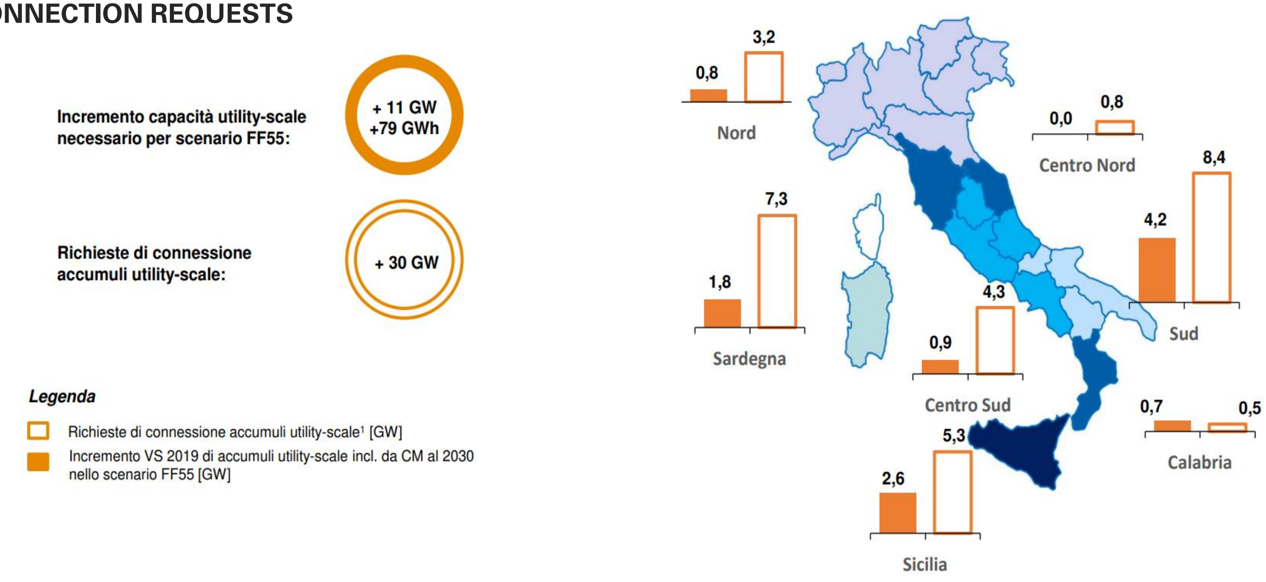


Media oraria stagionale (GWh) per 1,8 GW di solare e 1 GW di eolico, zona Sud



- **Renewables and storage**

UTILITY SCALE STORAGE – REQUIREMENTS AND CONNECTION REQUESTS



Anche le **richieste di connessione per gli accumuli sono significativamente superiori rispetto al valore necessario per realizzare lo scenario di riferimento.**

- › A **proper storage capacity** – small and utility scale - has to be deployed to **match the Ff55 2030 scenario in terms of renewables penetration** and fossil-fired plants phasing-down

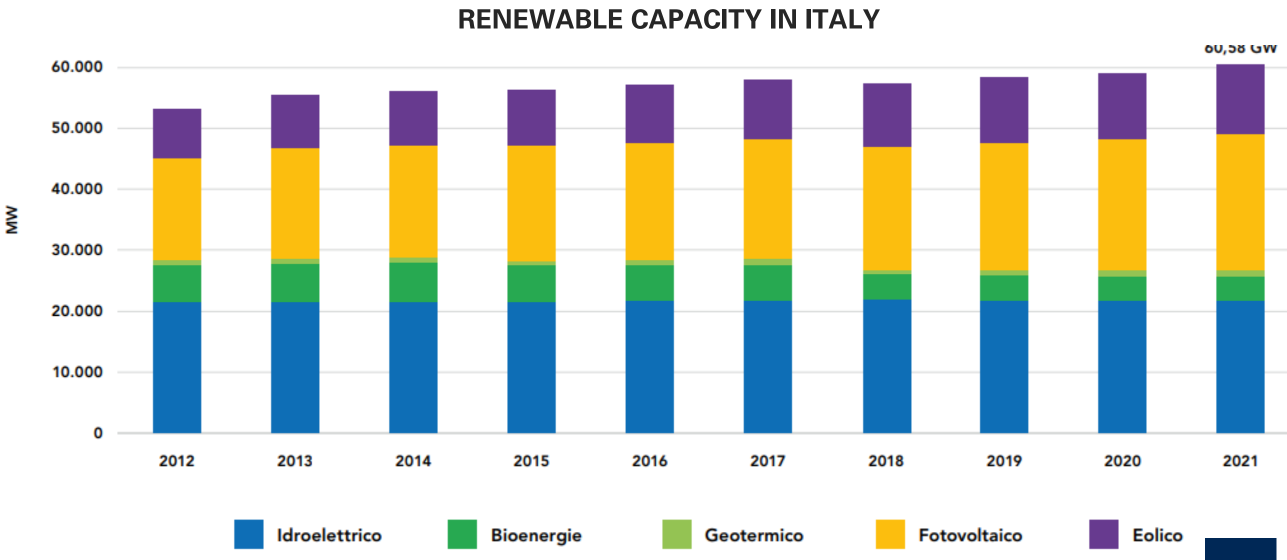
Terna, Nov-2022

THE CURRENT SITUATION

- Despite the potential, **renewables capacity addition is lagging behind the 2030 objectives**

Source: Elettricità Futura, 2021

Elettricità Futura estimates that in Italy no more than **3 GW** of new renewable capacity will be installed by the end of **2022**, better than last years but **less than one third** of the average yearly pace to achieve the 2030 target.



Renewable Energy Report 2022, Politecnico di Miano

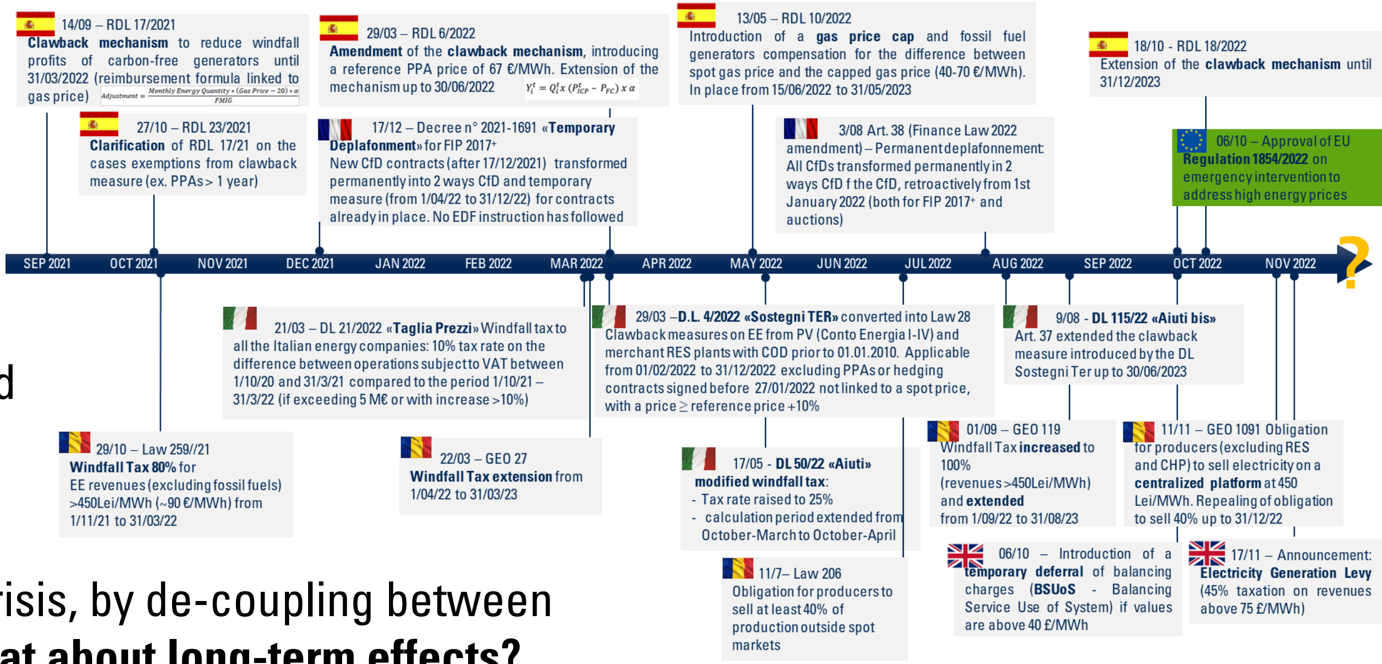
HURDLES & CONTRADICTIONS - 1

An increasingly complex landscape for energy (and renewables)

- The **current energy crisis could hinder the renewables deployment**, leading to a **delayed coal/lignite and gas phase out** and in the medium/long term a possible extension of nuclear

- An **uncoordinated stream of clawback measures at a national level** – aimed at reducing the impact of high electricity prices for final consumers – **is hitting the renewales**, despite being recognised as the ultimate solution to the energy crisis itself!

- The temporary **Regulation on revenues cap** introduced by the EU is implemented differently across Member States



- Possible **Market design review** as a reaction to the crisis, by de-coupling between marginal fossil fuel technologies and others… but **what about long-term effects?**

These facts may hinder or delay the investment decisions on renewables, further increasing the gap with the adopted clean energy policies

HURDLES & CONTRADICTIONS - 2

- **Authorization is the main obstacle** to the deployment of e-Renewables – European Directive on Renewables (RED II) permitting timing still not feasible
- **'Obstructive' approach** of some institutional bodies (e.g. the Ministry of Culture in Italy)
- **Lack of engagement** of Regions / Local communities in decarbonization efforts
    - lack of **binding regional targets,** burden effort sharing)
    - The **"suitable" / "go-to" areas** for renewables often not yet defined
    - **Administrative apparatus** not always "fit for the challenge" (staff, skills, digitalization)
    - **NYMBY** syndrome still widespread

Many of the implementation acts of the stated energy policies are missing or incomplete, giving further uncertainty to focused investors and jeopardising the clean energy transition

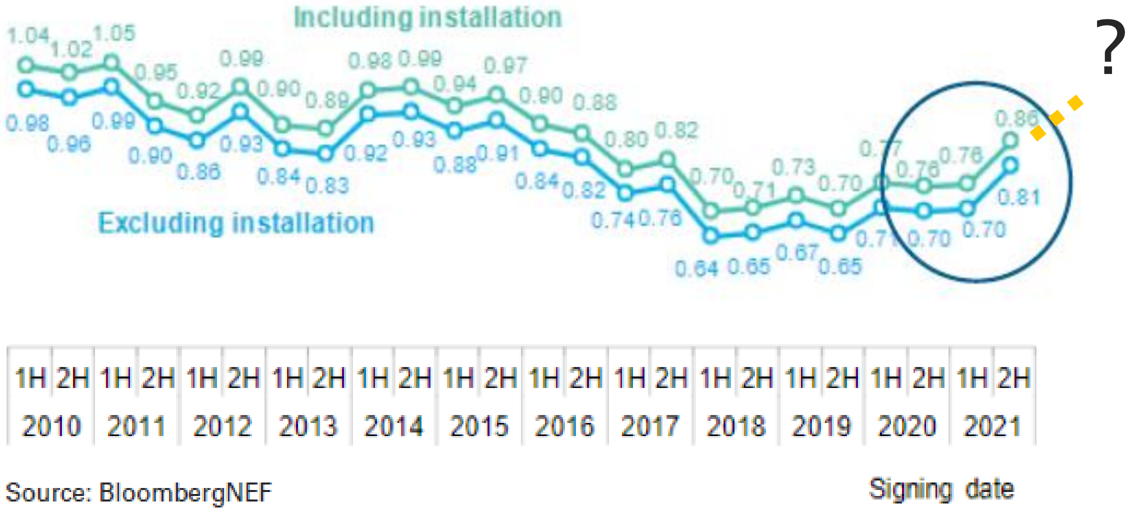
HURDLES & CONTRADICTIONS - 3

- **Multi-year renewables auctions mandatory** for wind, solar and storage

- The ***Greenflation effect*** - which stops a decade of reduction in the cost of renewables technologies – is lagging to be reflected in the **cap prices of support mechanisms**

- Together with an **unclear or not completely regulated revenues stacking**, it specifically **limits the deployment of storage / BESS**, delaying the phasing out of gas-fired balancing units

Onshore WT price (EUR)



Such an ambitious energy policy needs to be addressed by National support mechanisms and regulation, properly designed and updated to give a perspective to the renewables-investors

POSSIBLE SOLUTIONS

Renewables development execution acts

- Implementing procedures for new multi-annual renewables auctions
- Adjustment of auction cap-prices to Greenflation / tariff indexation to inflation / deletion of annual cuts
- Implementation of the authorization simplifications already required by law (i.e. "Suitable / go-to" areas guidelines) – PA staffing & digitalization

Market

- Removal of **sectoral and uncoordinated claw-back measures** / their adaptation to EU Regulation

Grid & connections

- **Expansion, modernization and digitalization** / optimization of existing grids
- Connection Request **priority management**
- **matchmaking between plans** from TSO, regional/national Energy&Climate and from renewables-industrial operators

WRAP-UP – THE ROLE OF RENEWABLES IN THE TRANSITION

- Most European countries have **structural delays in renewables' actual deployment**
- As of today, the **authorization time-limits of the RED II are not met** almost everywhere across Europe
- National-based supporting mechanisms are required to deliver the renewables deployment at the right pace
- **Uncoordinated clawback measures** confuse investors and halt renewables growth.

Despite all these challenges and hurdles,
the energy crisis has highlighted
the **strategic role of renewables**

Wind and solar are still the main solution in the short and medium term to:
reduce dependence on foreign fossil fuels
fight Climate Change and **lower energy cost at the same time**

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