

Energy Summit

Energy reset: a view of the challenge and of the available solutions

Giacomo Chiavari
May 18th, 2023 - Rome



Building a better
working world

Several factors are shaking the Italian Energy Equilibrium

ENERGY TRADITIONAL SYSTEM



*Regulation,
incentives
and grants*

*Commodity
price
volatility*

*Gas & water
supply
shortage*

*Decarbonization
target*

*Technology
evolution*

*RES &
Ancillary
service
need*

*CO2
cost*



**AN ENERGY
RESET IS
NEEDED**

Large changes are shaking the Italian Energy Equilibrium

Commodity prices

11x

Gas price increased **x11** with respect to **2020** and it's currently falling back to **30-40 €/MWh**

Emission cost

10x

CO2 **allowance costs** have rocketed **more than tenfold (x10)** in a short time (91 €/ton expected for 2023)

Gas supply import mix rebalance

-30
bcm

Russian Gas contribution was **40% of Italian gas import mix** and need to be largely replaced

E-mobility new power demand

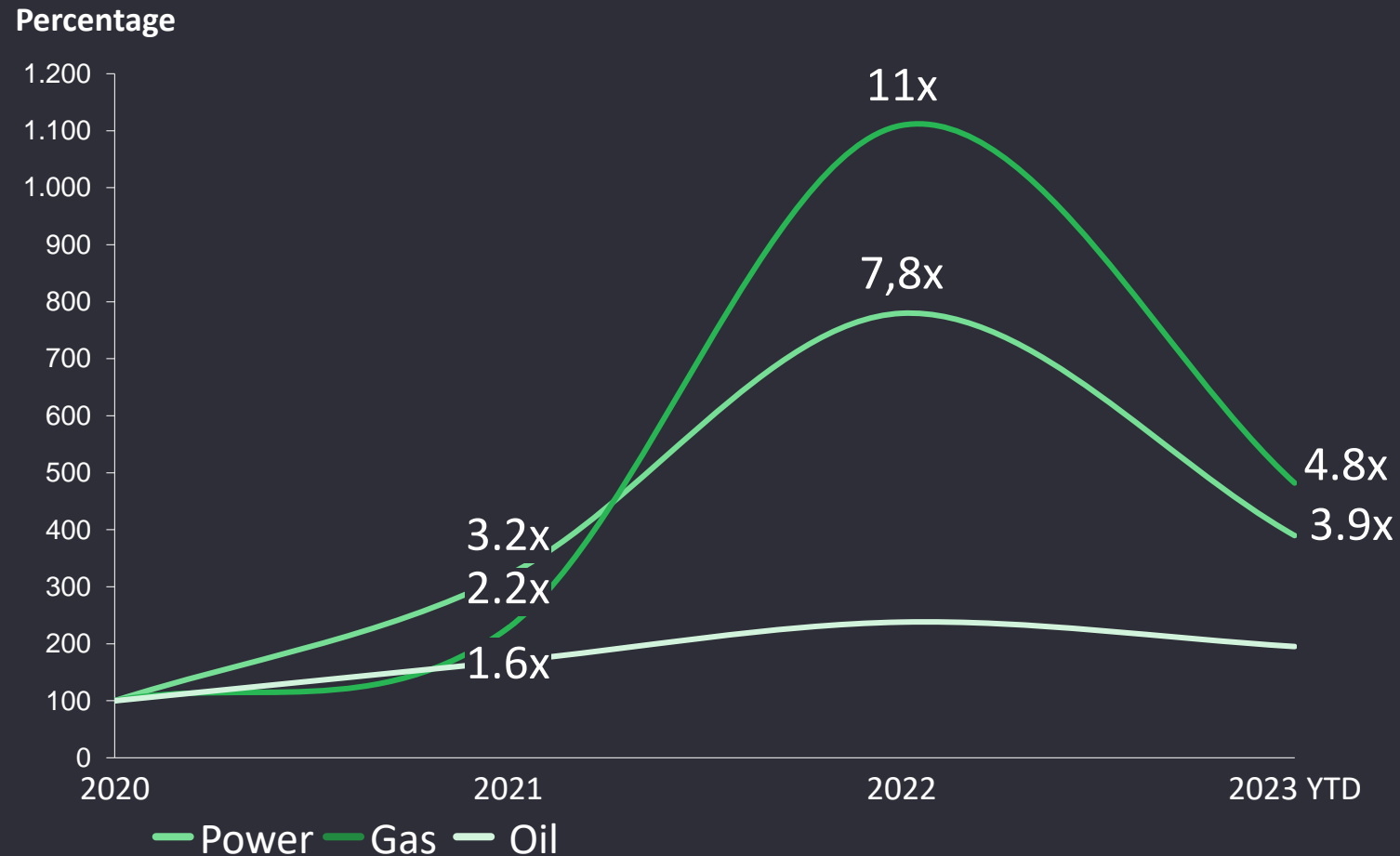
+50
TWh

Additional **Plug-in electric vehicle** energy consumption by 2050

Volatility in commodity prices have been as high as never seen before

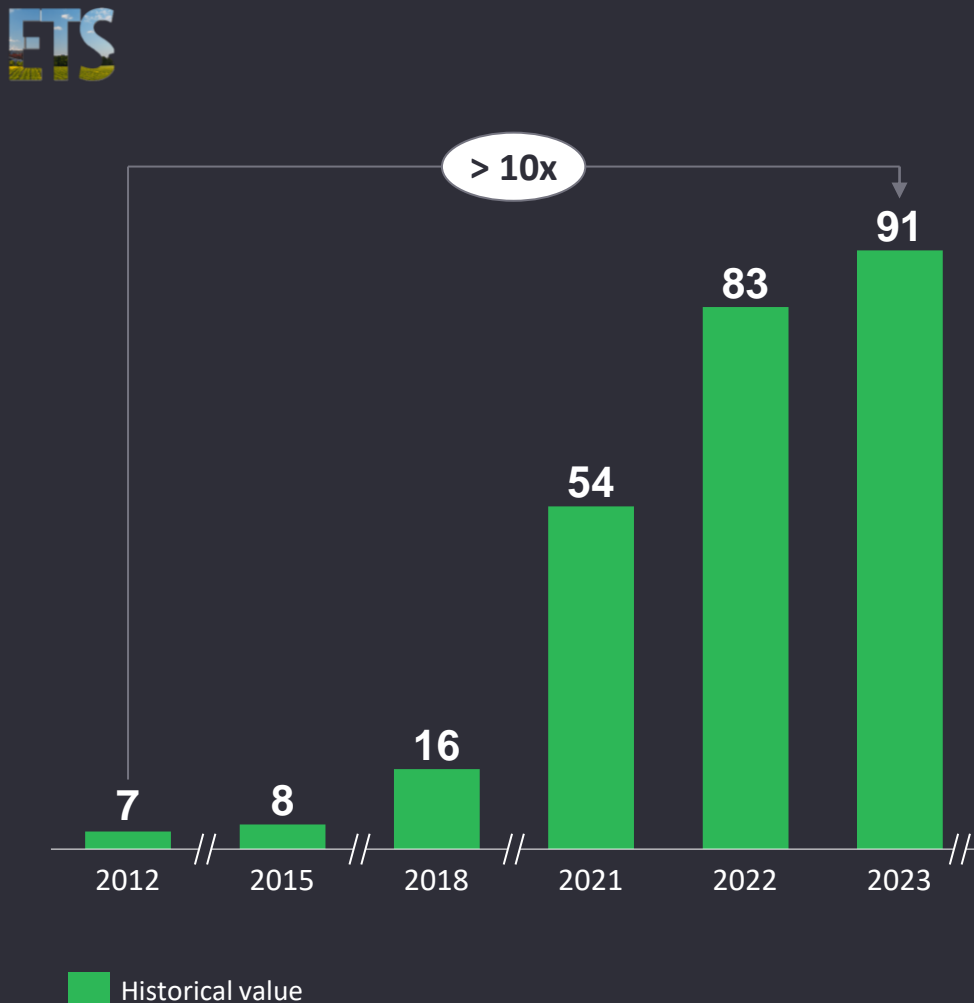
Commodities price trend 2020-2023 YTD

Annual average price trend on 2020 basis

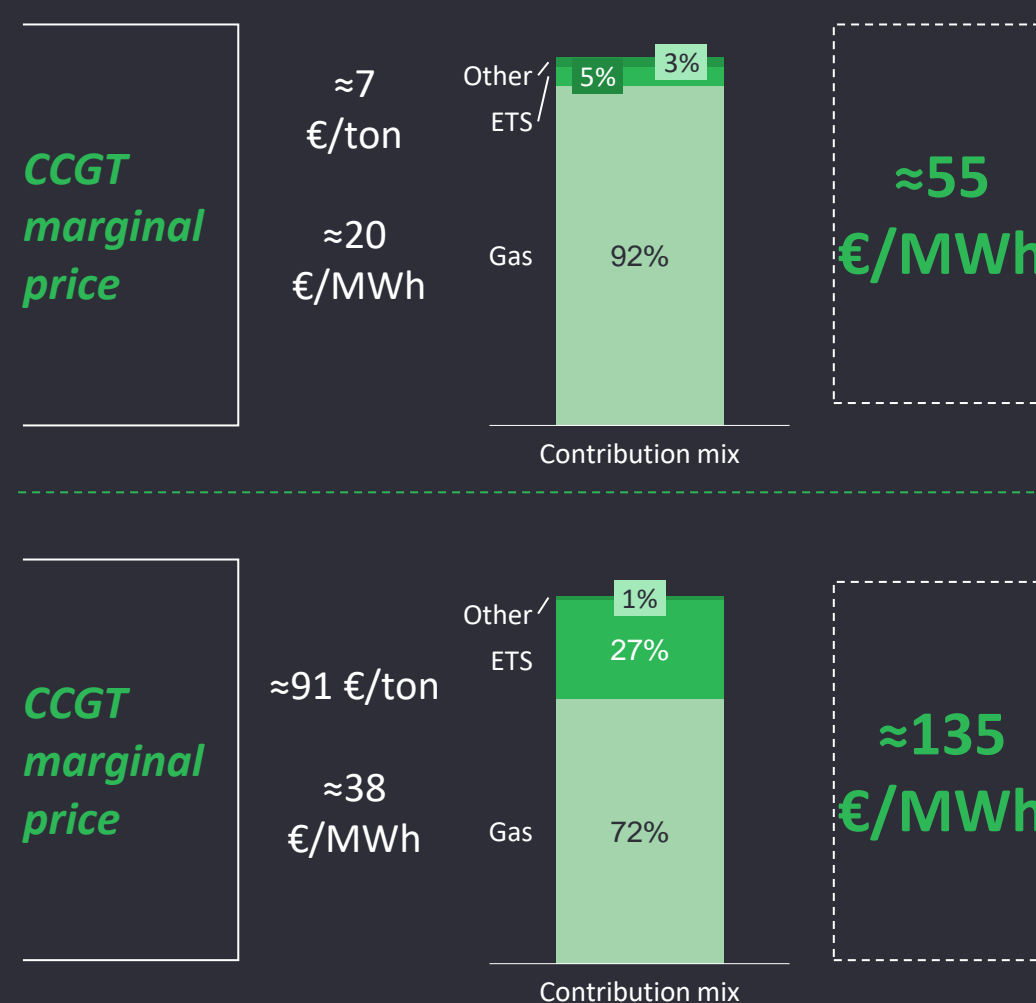


Increased ETS price is having a large impact on market dynamics

Average CO₂ price per ton (€/ton)

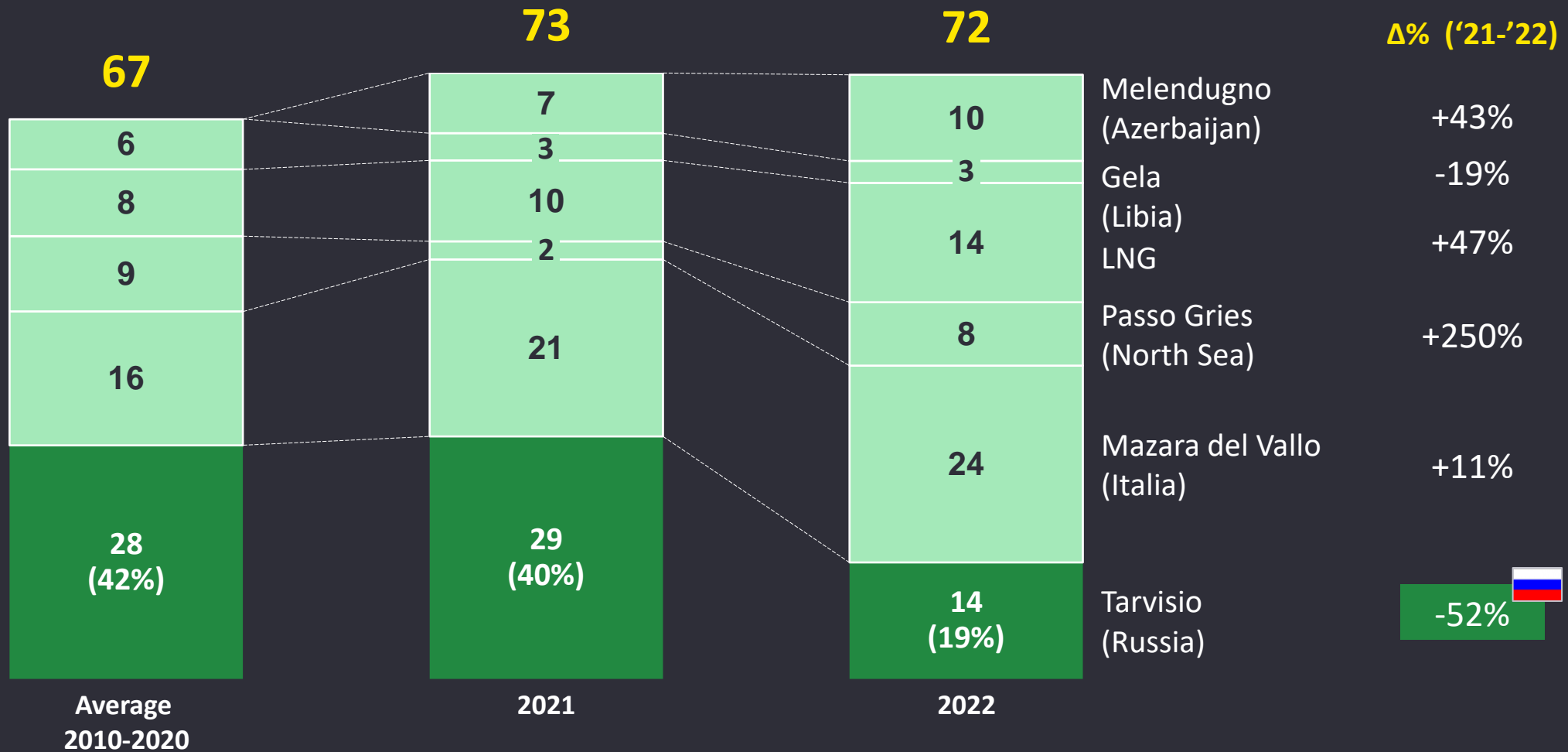


CCGT marginal price variation (low vs. high prices)



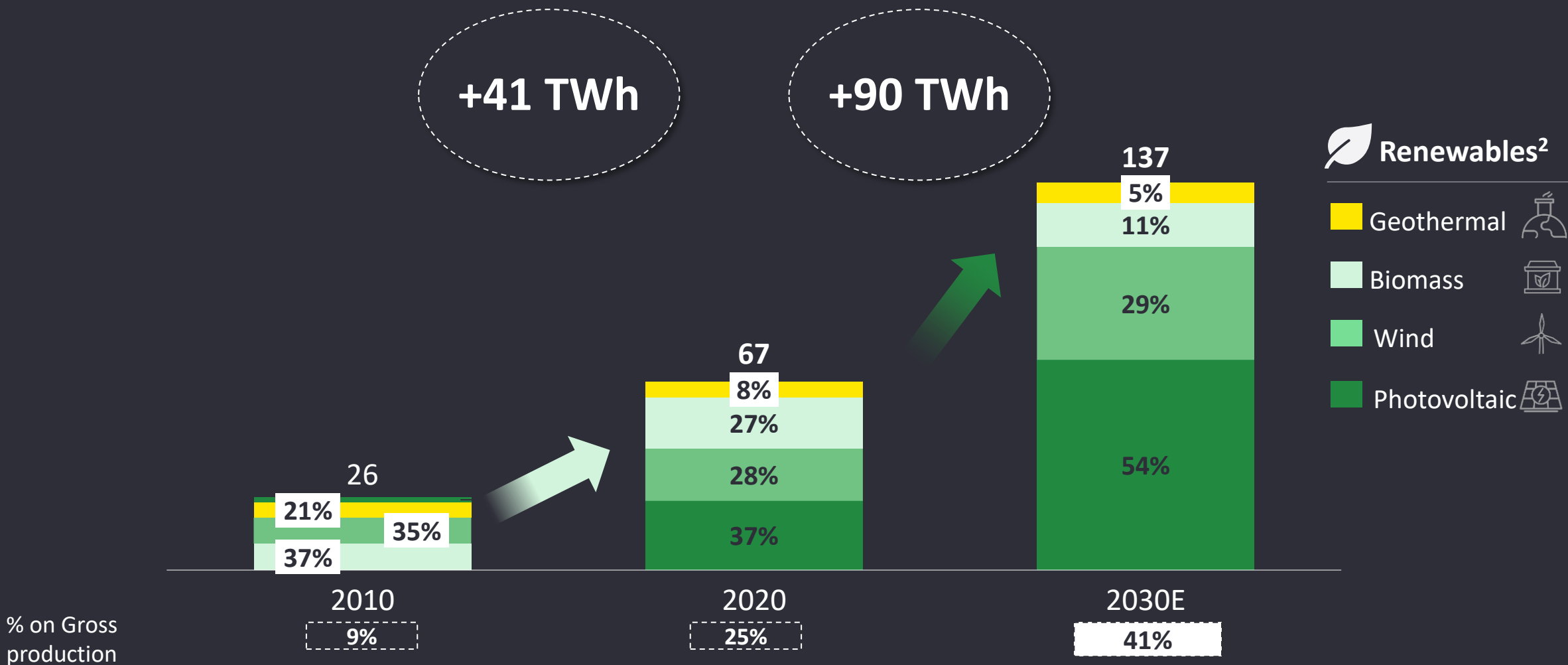
NG Russia import decreased by half in '22 – 2nd half to be replaced in '23

Natural gas - Import by entry points (bcm; %)



RES volume increase in 10 years needs to double vs increase in last 10 years

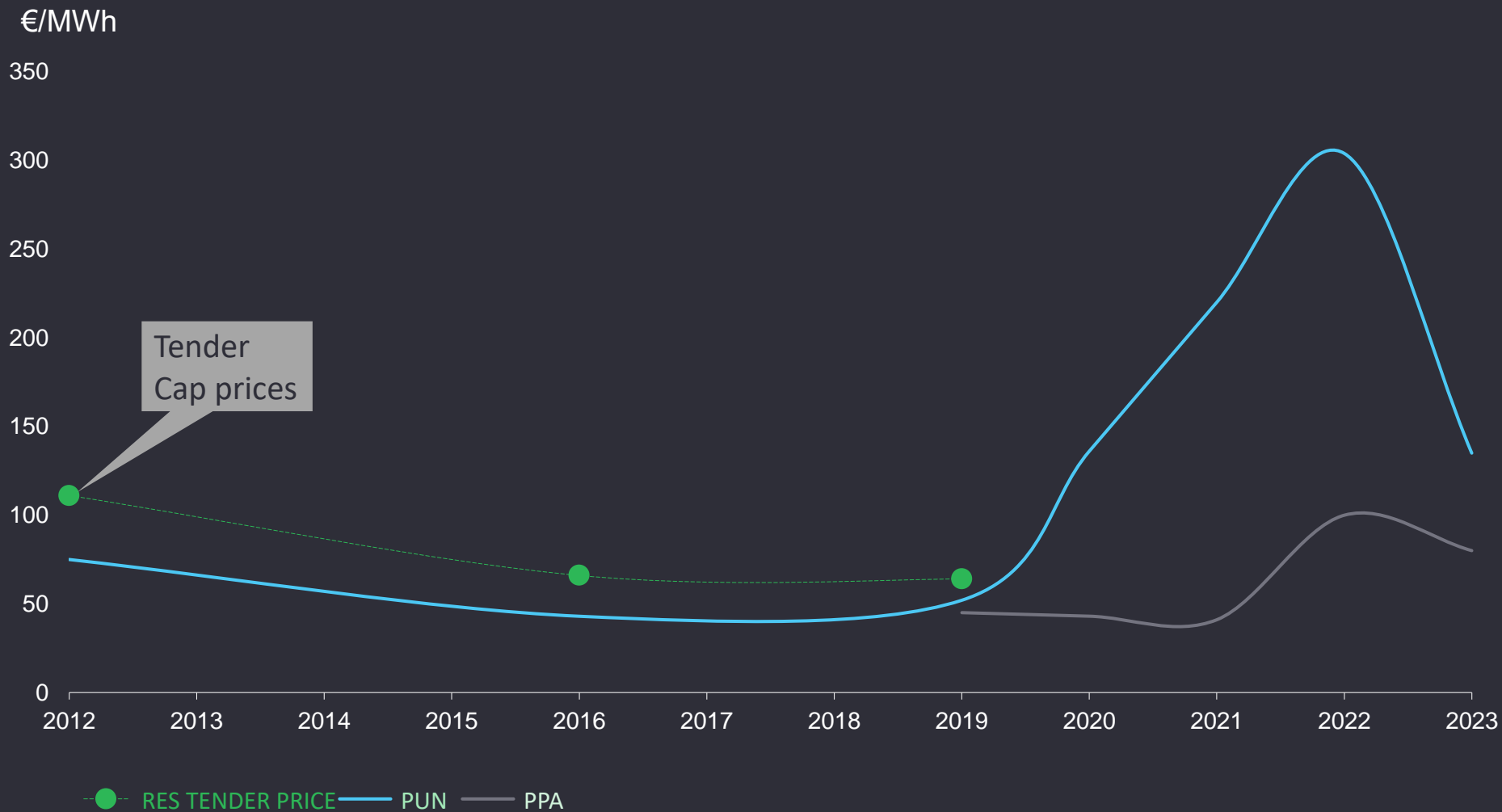
RES gross¹ electricity production in Italy by source of supply (TWh; %; 2010-2030E)



1. Renewables contributions reported independently from total generation by Terna; 2. Excluded the hydro contribution from the RE indicated
 Source: Electricity Balance sheet in Italy – Terna General Data; European Commission – Italian National Energy and Climate Plan; EY-P Analysis

RES energy sales price faced a strong increase in 2022

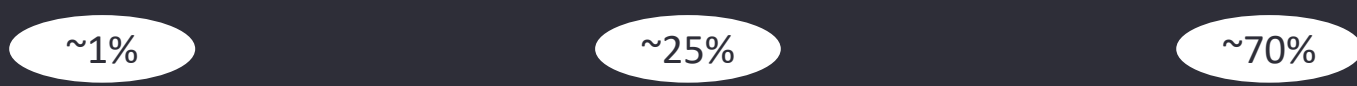
Wind on-shore price trend 2012-2022



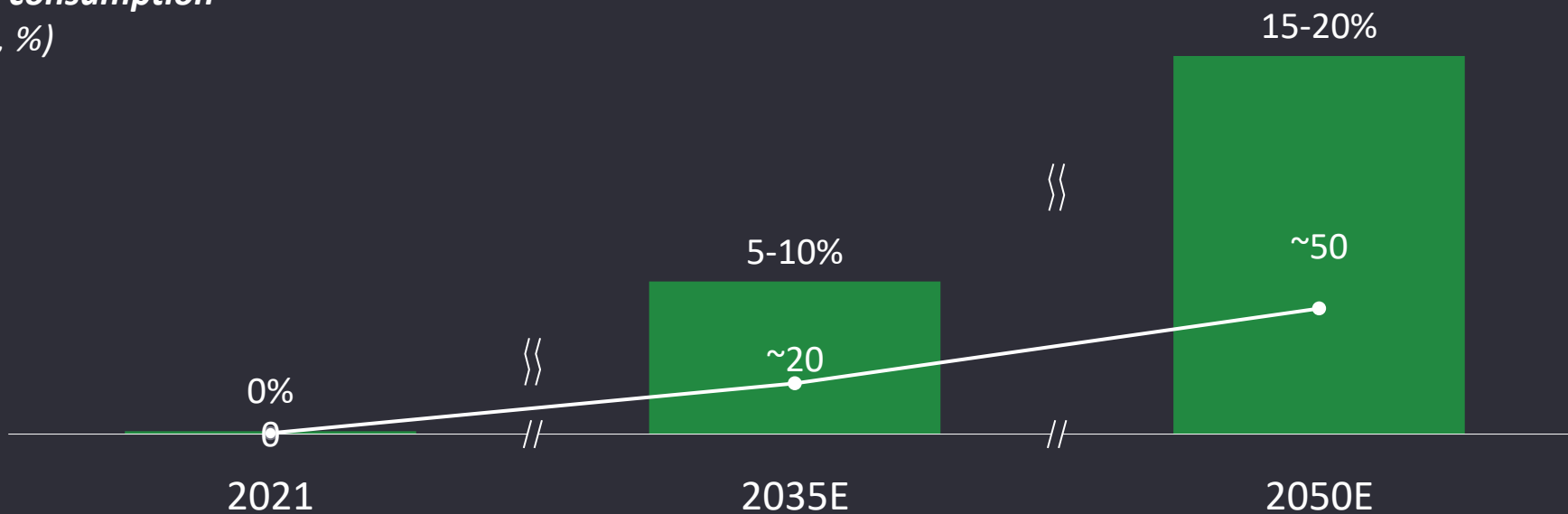
Petrol/diesel cars phase-out will create energy demand for ~50 TWh/year

Energy consumption for plug-in EV by 2050

**Plug-in EV¹ penetration
on total car park
(2021-2050E; %)**



**Plug-in EV¹ energy consumption
(2021-2050E; TWh, %)**

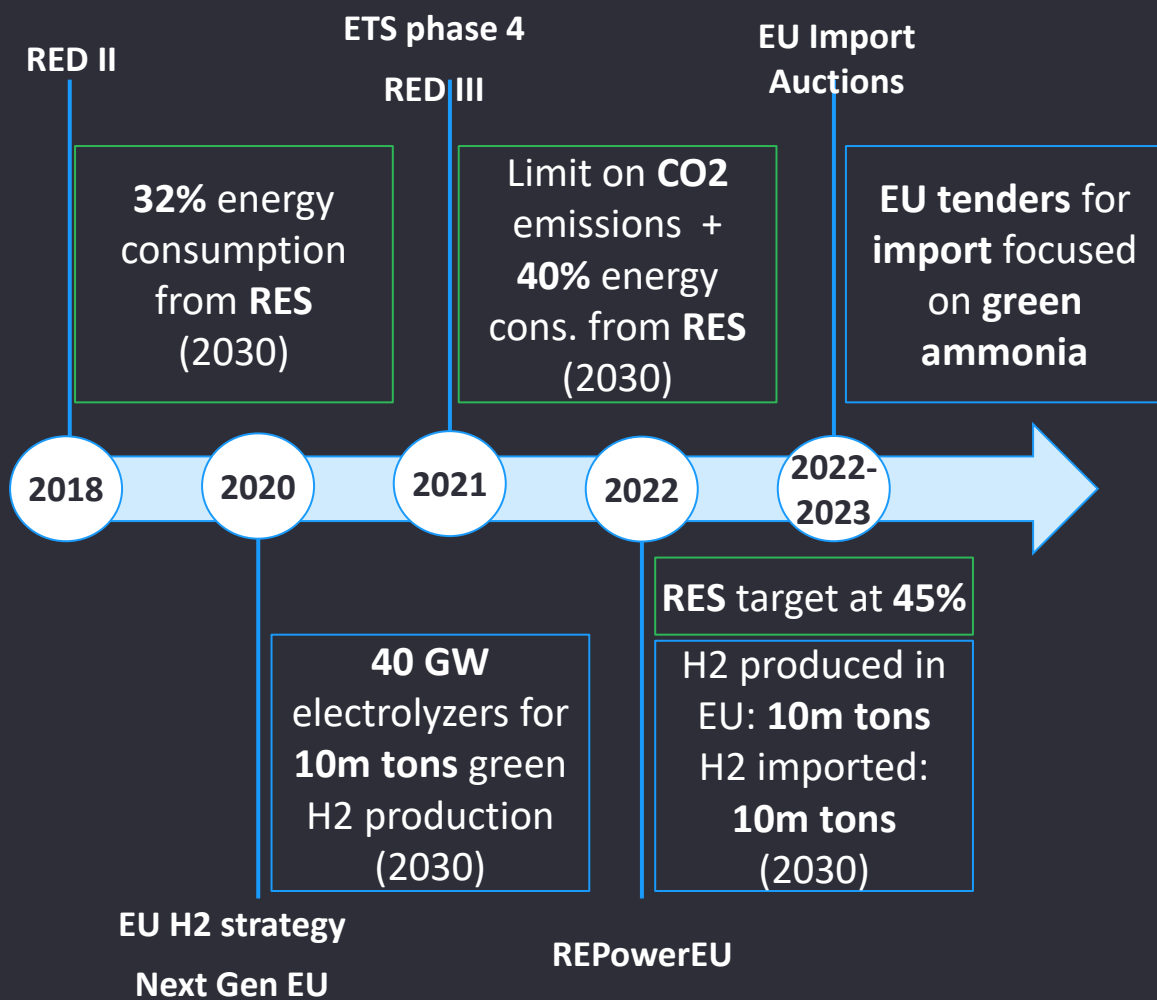


■ EV KWh demand² —● EV KWh demand over 2021 total national consumption

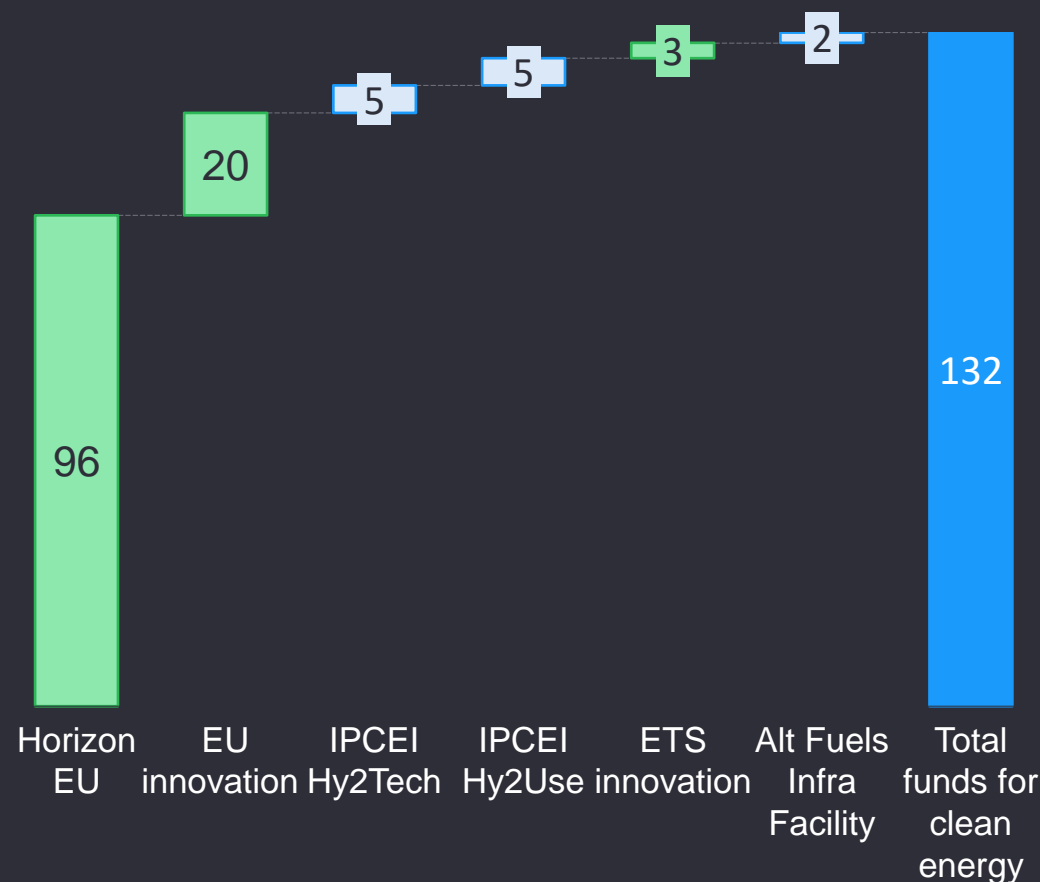
1. Plug-in EV are intended to be Battery Electric Vehicle (BEV) and Plug-in Hybrid Electric Vehicles (PHEV); 2. Demand of electric energy by plug-in electric vehicles (passenger cars only)
Source: European Alternative Fuels Observatory; ACI; LMC Automotive; EY-Parthenon analysis

130B€+ of funds allocated to promote green initiatives

Key regulation & targets



Main funds to reach targets (€B)

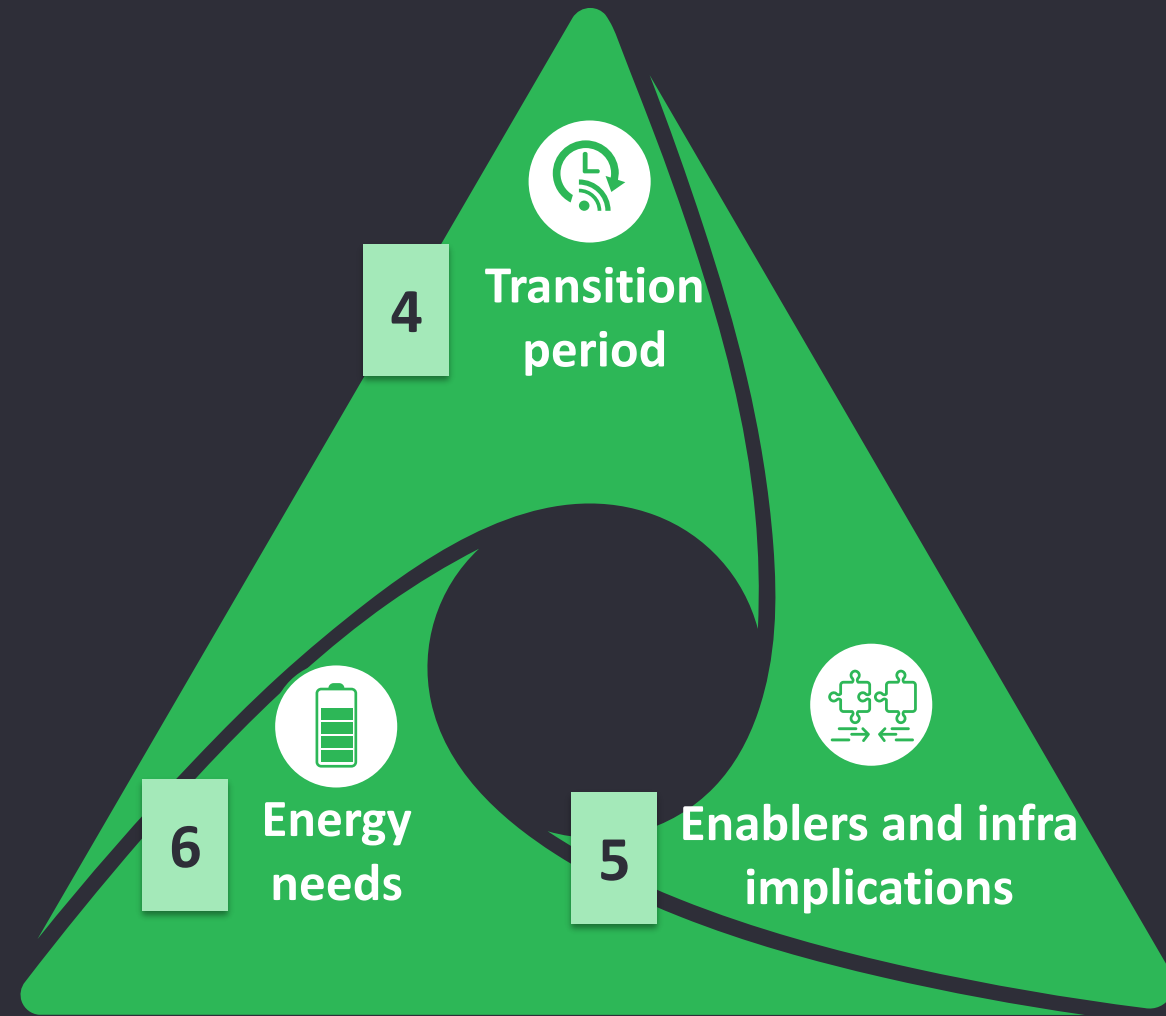
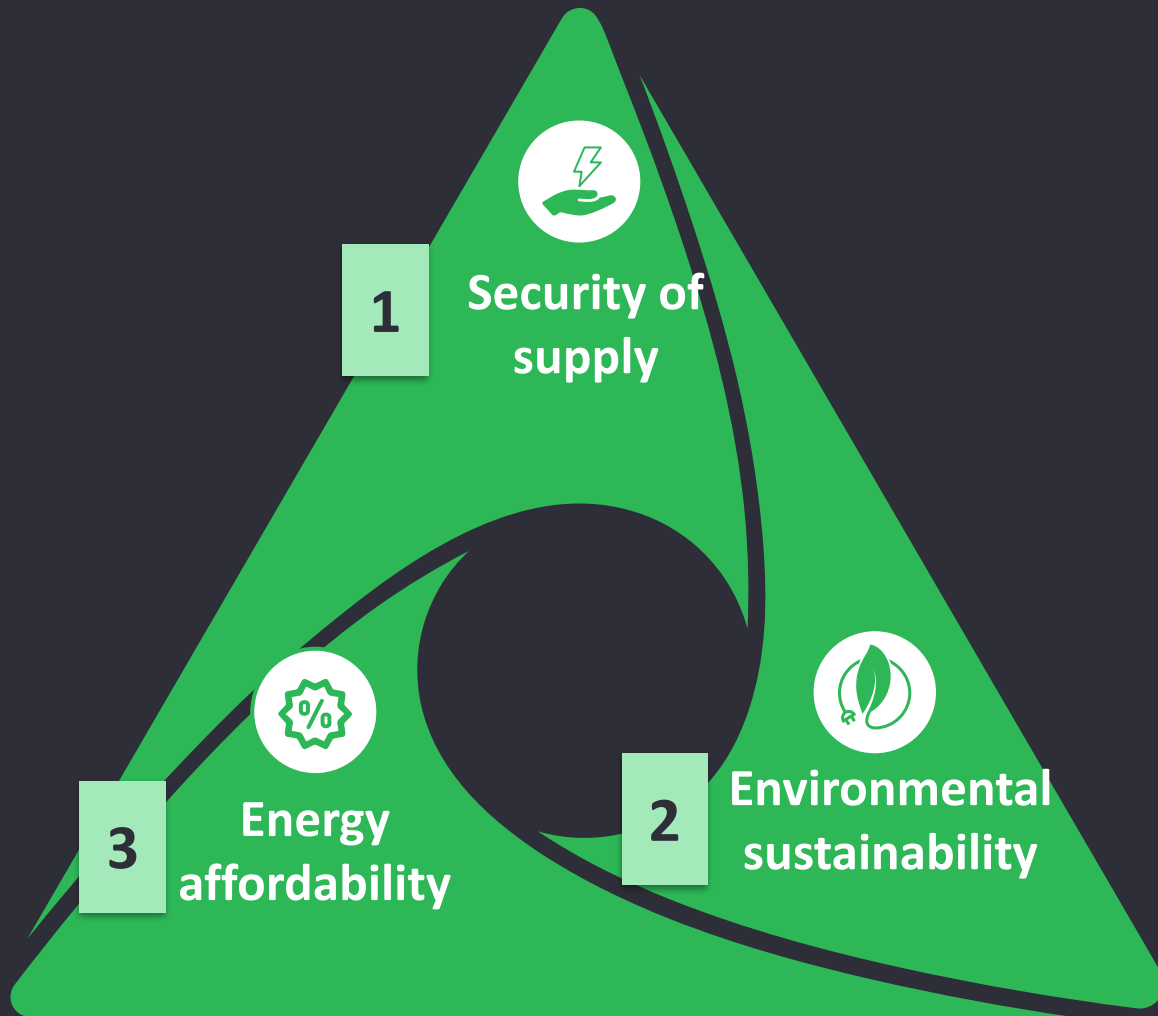


Source: European commissions, Public decree, EY-Parthenon analysis

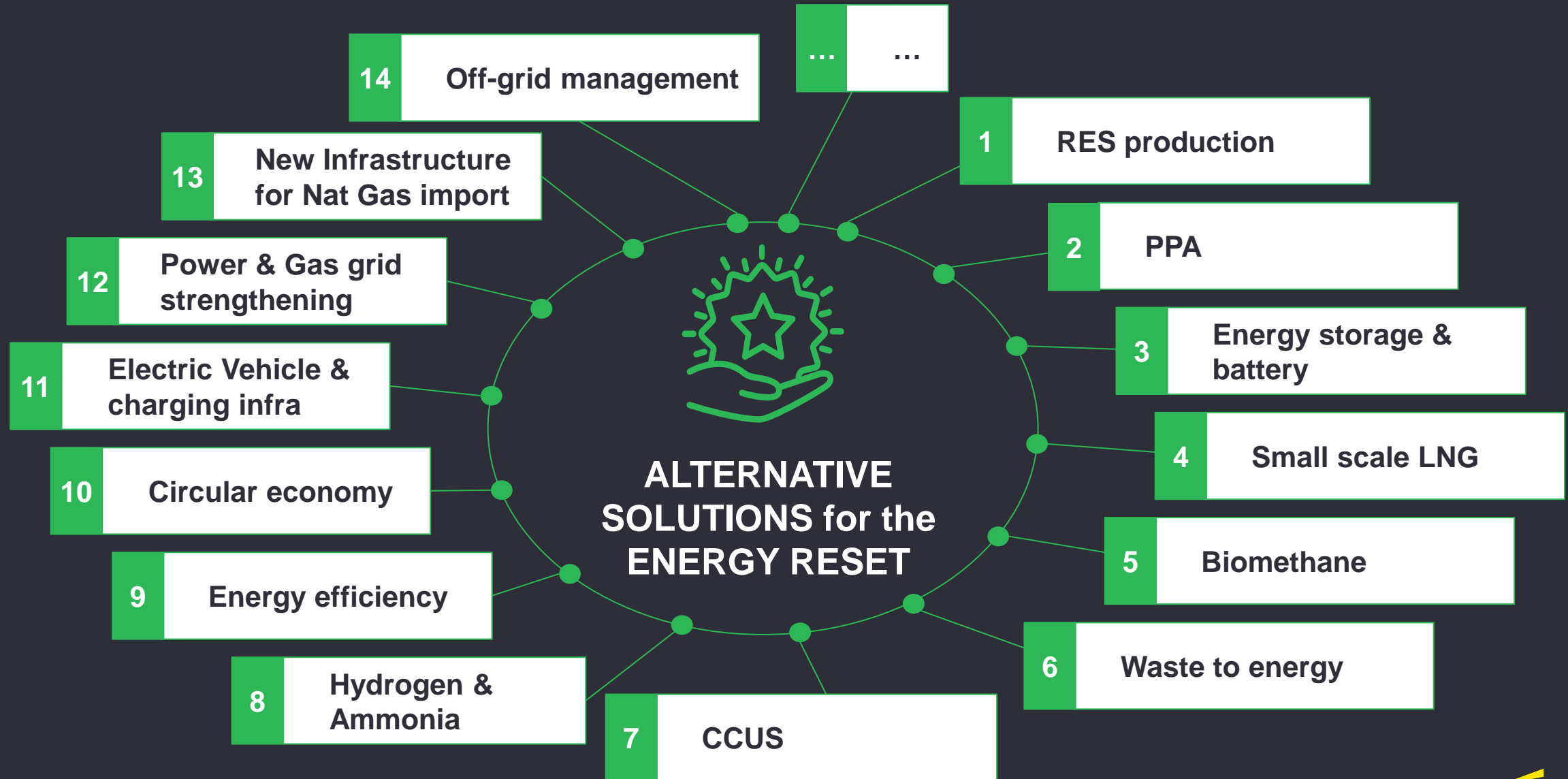
Six challenges and needs to address

Italy has to face 3 well-know TRILEMMA challenges ...

...and three more



Several solutions are available, based on new technologies

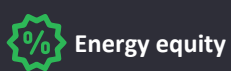


None of the solutions is able to tackle and fix all the 6 challenges

Solutions		Challenges						Solutions		Challenges					
1	Production of energy from renewable sources							8	Hydrogen and Ammonia						
2	PPA							9	Energy efficiency						
3	Energy storage							10	Circular economy						
4	Small scale LNG							11	EV charging infrastructure						
5	Biomethane							12	P&G network strengthening						
5	Waste to Energy							13	New infrastructure for methane import						
7	Carbon capture, Use and Sequestration							14	Off-grid management						



Security of supply



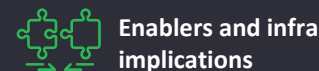
Energy equity



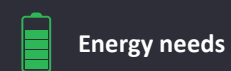
Environmental sustainability



Transition period



Enablers and infra implications



Energy needs

Let's keep in mind that all that glitters is not gold

Biomethane

28% of biomethane gas is **self-consumed** by the plant

200% required **incentive** to fill the gap between **biomethane prod costs** and **NG price**

38% of **transferred energy** in case of energy conversion

300% required **incentive** to fill the gap between **Green H2 production cost** and **grey H2 price**

Hydrogen

Energy Efficiency

75 B€ invested into the **Eco-bonus** in **2 years**

All Energy players are working on a selection of these solutions

L'INTERVISTA

Fabio Pressi (A2A E-Mobility): la mobilità elettrica? Una rivoluzione, ora acceleriamo sulle infrastrutture

Home > Smart MobilityUp

La transizione elettrica farà sentire il suo impatto sulle città, sui modelli di business e sulle infrastrutture, dice il CEO di A2A E-Mobility Fabio Pressi. "La sfida è semplificare le procedure e aprire tavoli che coinvolgano i diversi operatori coinvolti". I nuovi servizi

Home > Private Equity

Macquarie punta alle stazioni IP. Operazione da 500 mln per avviare la trasformazione delle aree di servizio, guardando alla mobilità elettrica

by Francesca Vercesi - 13 Marzo 2023 in Private Equity, Società

Scopri qui BeBeez Private Data, il database del private cap

Fogne, depuratori e idrogeno pulito: Hera investe 400 milioni su Bologna

Marco Bettazzi

Piano in cinque anni. Lepore sta svolgendo incontri per nominare il nuovo ad: il favorito s

23 APRILE 2022 ALLE 17:55

Eni: Plenitude punta su eolico off-shore e titolo supera i 13 euro in Borsa

Alessandro Aldrovandi - 13/01/2022 - 09:02



rollata Eni Gas e Luce, che cambierà nome nel Copenhagen Infrastructure Partners hanno esteso partnership francese, firmando un accordo di merito della gara per l'assegnazione di concessioni a supporto del piano di transizione energetica del est-europeo.

Eni, chiusura anticipata per il bond sostenibile da 2 miliardi

Lo ha annunciato la compagnia petrolifera alla luce delle domande ricevute: l'opzione scatta alle 17 d

19 GENNAIO 2023 ALLE 8:08

Enel punta al 75% di energia da fonti rinnovabili nel 2025

Presentato a Milano il piano 2023-2025 della multinazionale italiana. Starace: "All'orizzonte due anni di turbolenze, ma nei prossimi tre anni 37 miliardi di investimenti". Previste dismissioni per 21 miliardi di euro, verso la chiusura in Romania, Argentina e Perù

Terna investe 21 miliardi su rinnovabili e transizione ecologica

di Giulio Nespoli

Annunciato il piano decennale: cinque dorsali elettr Nord

16 Marzo 2023 alle 10:04

CNSOUSD 13209.0
+166.5 (+1.25%)

IL PIANO

Elettrificazione e nuove reti. Enel guarda al futuro e investe 37 miliardi

di Flavio Fabbri | 22 Novembre 2022, ore 11:43



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ENERGIA

Snam investe 10 miliardi in 5 anni: rigassificatori, depositi e rete di trasporto

di Fausta Chiesa - 19 gen 2023

La spagnola Iberdrola investe in energie verdi in Italia

La società realizzerà impianti eolici e fotovoltaici per una capacità complessiva di circa 400 megawatt, per un investimento totale da 300 milioni. La metà la presterà la Bei

ENERGY TRANSITION

A2A investe nelle batterie a CO2 della startup italiana Energy Dome

Home > Energy Transformation

02 maggio 2023

Enel X e Ferrari insieme per la nascita della prima Comunità Energetica Industriale in Italia

(CVC) della
propongono
le energie

X e Ferrari sarà
1 MW realizzato e

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