



Image courtesy of Theo van Rensen,  
TBB Photo Contest



TKI Urban Energy Conference – Klaar voor Later

# Navigating the Energy Transition

Lucienne Krosse, 10 January 2024, Driebergen, The Netherlands

## Contents

- InnoEnergy – who we are
- Factors shaping today's and tomorrow's Energy Landscape
- Journey to net zero - some industry practices





## Reducing risk and time-to-market for energy innovations

- Public-private partnership supported by the **European Institute of Innovation and Technology (EIT)**, founded in 2010
- We have scrutinized **7000+ innovative cases** in sustainable energy, invested and supported **450+ innovations** and produced **200+ industrial companies**, that are viable
- Recognised globally as the most active sustainable energy investor and one of the largest climate and renewable energy tech investors

## EIT InnoEnergy Activities



**Human Capital:**  
Master Programs and professional learning



**Incubation:**  
Investing in early-stage start-ups and scale-ups

**northvolt**

**H<sub>2</sub>green steel**



**Innovation:**  
Investing in product development



**Setting up Industrial value chains:**  
European **Battery Alliance (EBA)**, European **Green Hydrogen Acceleration Center (EGHAC)**, European **Solar industrial Alliance (ESIA)**



# EIT InnoEnergy's track record at a glance

## Offices across Europe and in Boston

**1200+**  
partners

**29**  
shareholders

**200+**  
portfolio companies

**€12.8b**  
in energy costs  
targeted to be saved  
accumulatively by 2030

**2.1 Gtonnes CO<sub>2</sub>**  
targeted to be saved  
accumulatively by  
2030

**3** Unicorns **7** Centaurs **52** Ponies

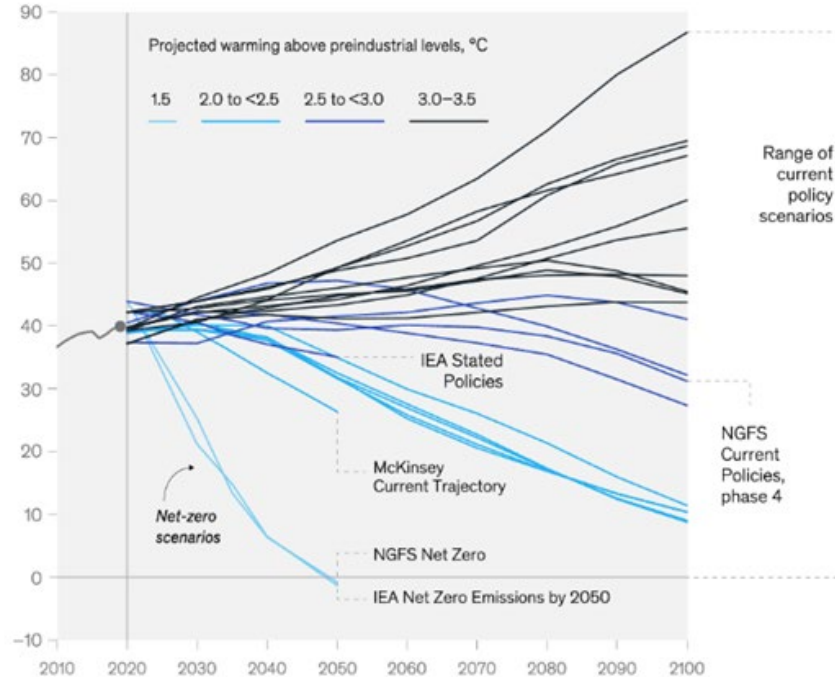
**1600** Master School Alumni



## 5 Bridging the Gap to Net-Zero: The Urgency of Energy Transition

McKinsey analyses: A wide range of scenarios shows that if the world stays on its current trajectory, net zero will not arrive during this century

Global CO<sub>2</sub> emissions, by scenario,<sup>1</sup> metric gigatons



Potential future effects of global climate change include more frequent wildfires, longer periods of drought in some regions, and an increase in the wind intensity and rainfall from tropical cyclones.

Source: [climate.nasa.gov/effects/](https://climate.nasa.gov/effects/)  
Credit: left - Mike McMillan/USFS, center - Tomas Castelazo / Wikimedia Commons / CC BY-SA 4.0, right - NASA.

- Higher energy prices and energy security threats have added to climate concerns:
- 6 Globally tightened and urgent Energy Efficiency policies, strengthening business cases



## It's a global play

**Europe:** REPowerEU plan - increasing to **13% the binding EU energy savings target** by 2030, up from 9% in the Energy Efficiency Directive, doubling the deployment rate of individual heat pumps to reach 10 million cumulative units over 2023-2027, and accelerating electrification, especially in industry

**Canada:** increased funding for efficiency with the **Deep Retrofit Accelerator**

**USA:** Inflation Reduction Act of 2022 includes major **investments in energy efficiency**, cut costs for homes and business and reduce CO<sub>2</sub> emissions.

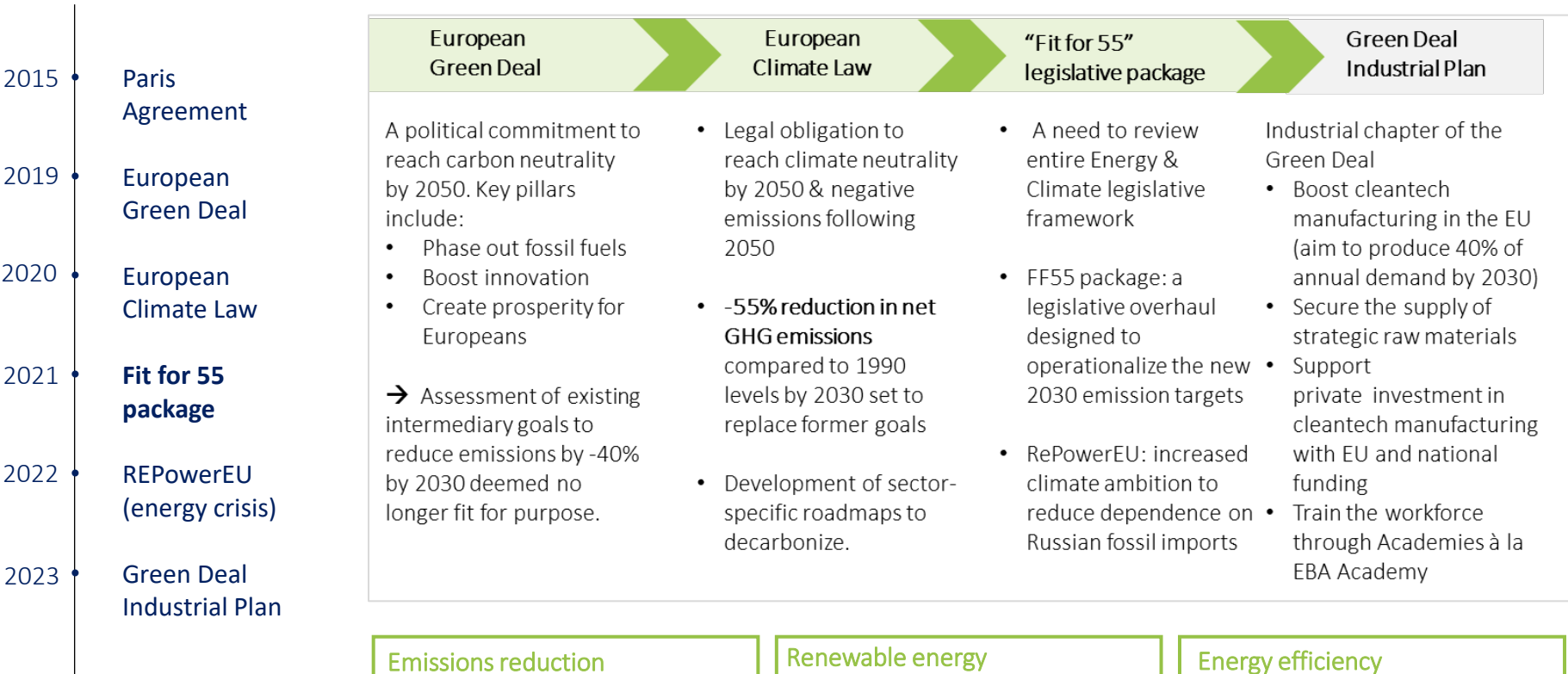


**Japan:** stronger policies in 2022, promoting greater power and energy saving and use of demand response. **Stronger energy efficiency standards for heating and cooling, with 2027 and 2029 as target years** and up to 35% efficiency improvement for air conditioners needed compared to current standards.

**Korea:** “The comprehensive measure for energy demand efficiency based on market mechanism”. The plan aims to reduce national energy consumption by 22 Mtoe by 2027 and **improve energy intensity by 25%**. To achieve this goal, the new plan will push forward 15 major tasks in various fields such as industry, buildings, transport and digital energy management.

**India:** compounding the challenge of rising energy prices, a significant heatwave has prompted an increased **focus on cooling and access to efficient fans and air conditioning**.

# 7 Europe's way forward to Carbon Neutrality – Transformative regulatory framework



2030 targets set in 2023

Emissions reduction

# 55%

At a minimum

Renewable energy

# 42.5%

collective endeavor to reach 45%

Energy efficiency

# 11.7%

European Commission  
July 2021

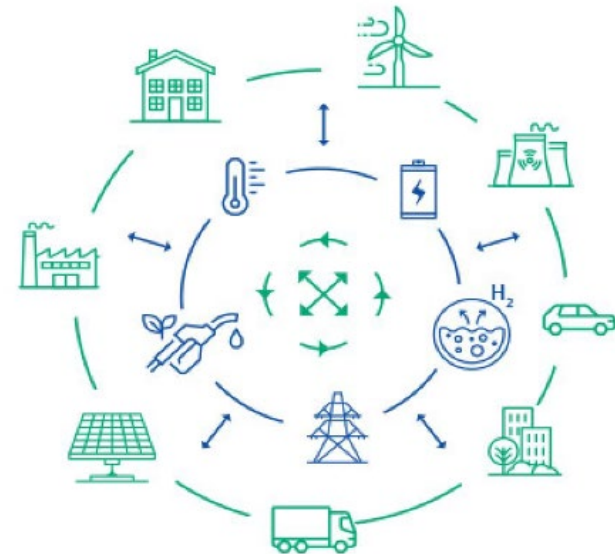
## DELIVERING THE EUROPEAN GREEN DEAL

### THE DECISIVE DECADE

The EU will reduce its net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels, as agreed in the EU Climate Law. On 14 July 2021, the Commission presented proposals to deliver these targets and make the European Green Deal a reality.

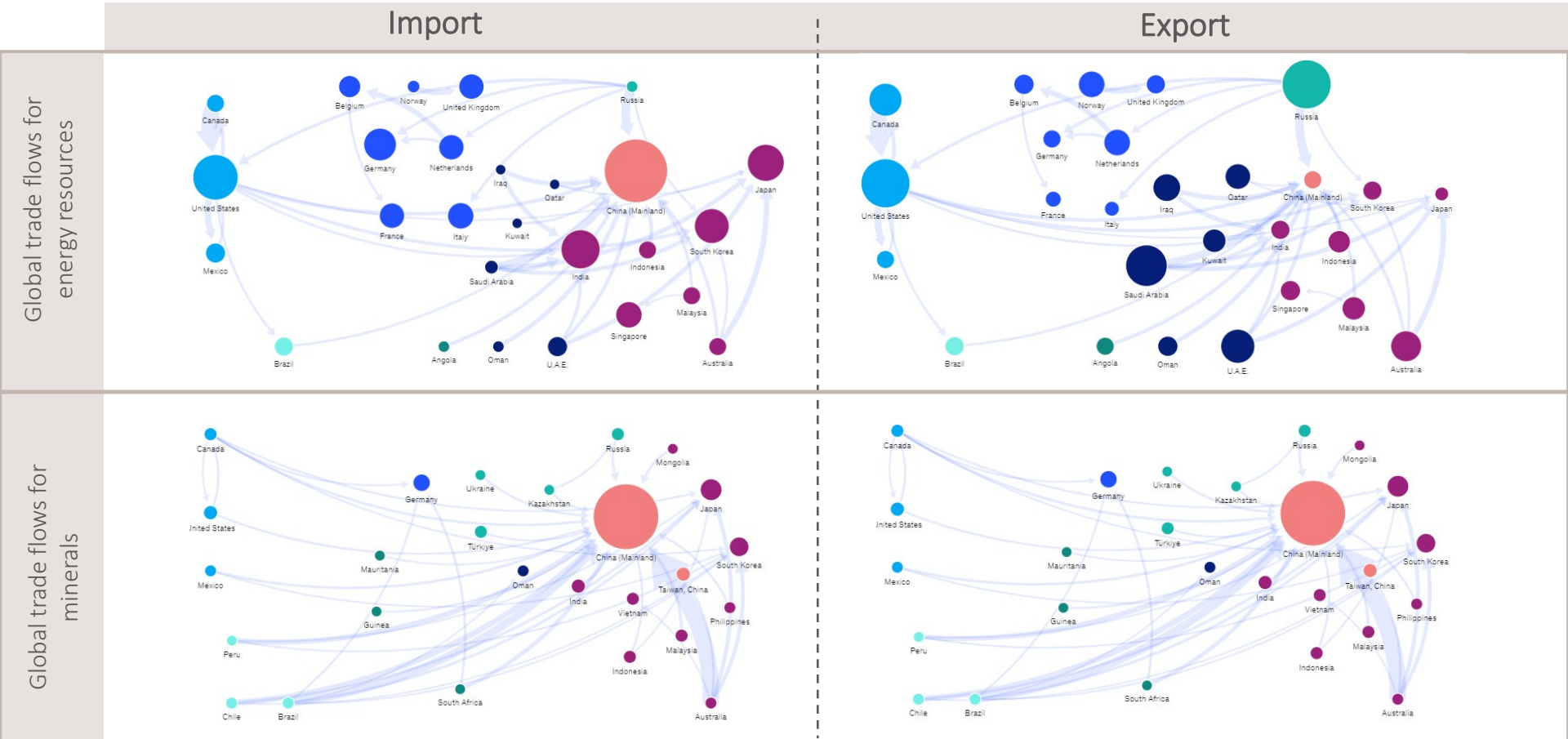
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**Integrated energy system**  
Energy flows between users and producers,  
Reducing wasted resources and money



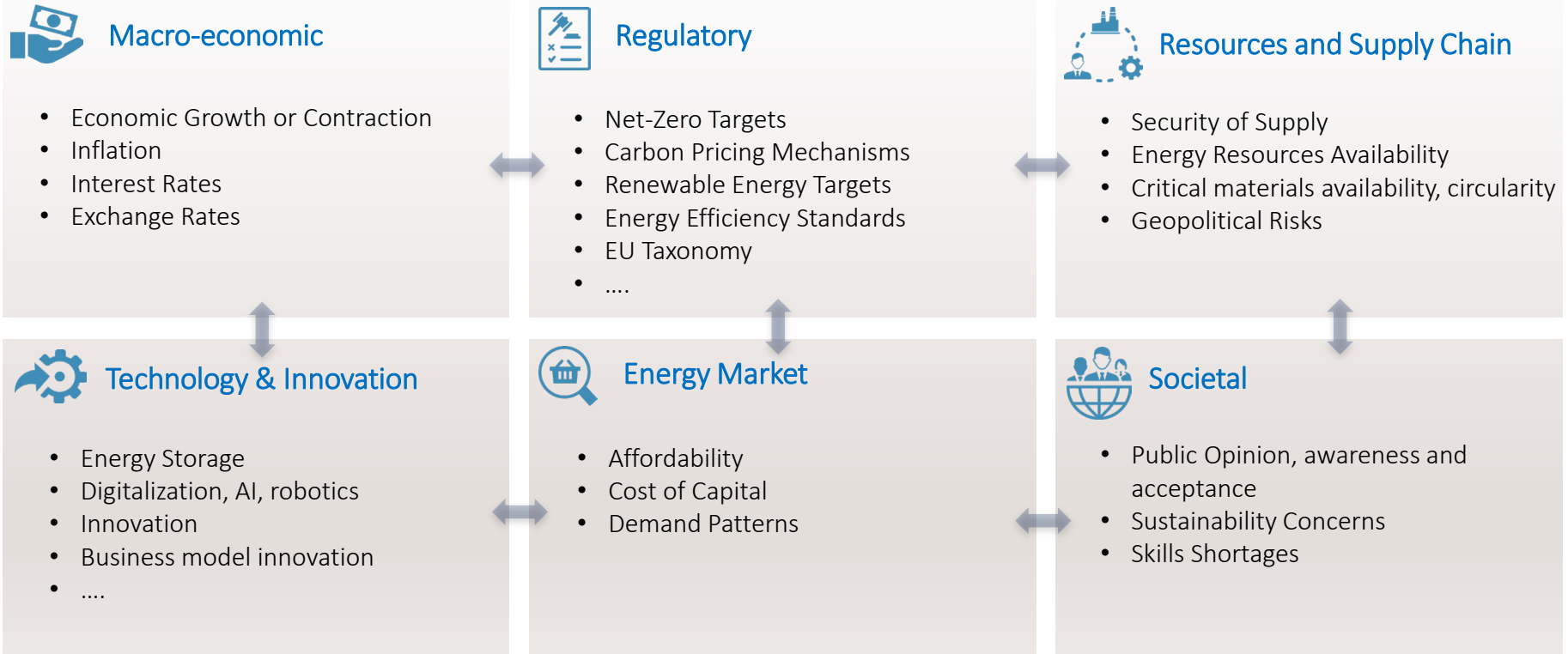


# 9 Global Supply Chains in Flux: Risks and Volatility in an Interconnected World



Source: [www.mckinsey.com/mgi/our-research/global-trade-explorer-what-are-the-most-important-trade-corridors?sector=02r&eco=wld&year=2021&product=270900&toggle=e&sub-sector=T2R](http://www.mckinsey.com/mgi/our-research/global-trade-explorer-what-are-the-most-important-trade-corridors?sector=02r&eco=wld&year=2021&product=270900&toggle=e&sub-sector=T2R)

## Factors affecting today's investment decisions and tomorrow's energy landscape



How to innovate and create value in a landscape with moving panels?

11 How are others doing it? Generally, start-ups are the innovation drivers

## 200+ Start-ups in InnoEnergy portfolio

**Team** makes the difference

Business plan, market potential, product, serendipity

### Scalability

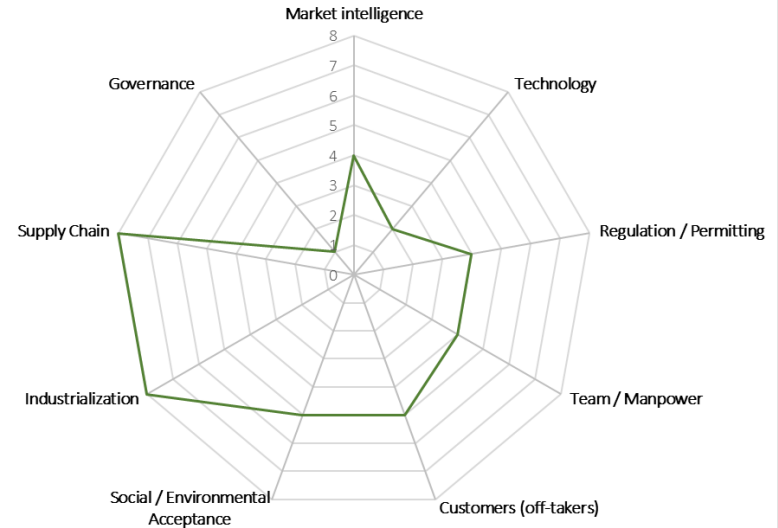
- Shared vision essential as starting point
- Integrated system approach in all aspects
- Team, plan, **execution**, timing

**northvolt**

*“In 2017, we announced a bold and simple plan: to enable the future of energy by developing the world’s greenest battery cell and establish a European supply of batteries.”*

<https://northvolt.com/about/>

$$IRL=f(TRL, MRL, CRL, SRL)$$



Note: this graph is for a random start-up



## Creating new markets by establishing industrial value chains

Structuring industrial value chains in Europe, for growth and jobs



**400 GWh**

domestic EU cell production  
per year across the  
entire value chain by 2025

EUROPEAN  
BATTERY  
ALLIANCE

**EBA250**

**€250bn/year**

new market potential  
by 2025



**1,200 TWh**

of EU final energy  
based on green H<sub>2</sub>  
by 2025

**EGHAC**

European Green Hydrogen  
Acceleration Center

**€100bn/year**

new market potential  
by 2025

H<sub>2</sub> **green steel**



**30GW**

annual solar PV  
manufacturing capacity  
by 2025



**ESIA**

European Solar PV  
Industry Alliance

**€40bn/year**

front-loaded investment  
in PV production capacity required

# posco

A Leading South Korean steelmaker and global provider of high-quality steel products.

Established: 1968  
Employees: 53418  
Revenue: 60 B€  
Subsidiaries: 40 companies

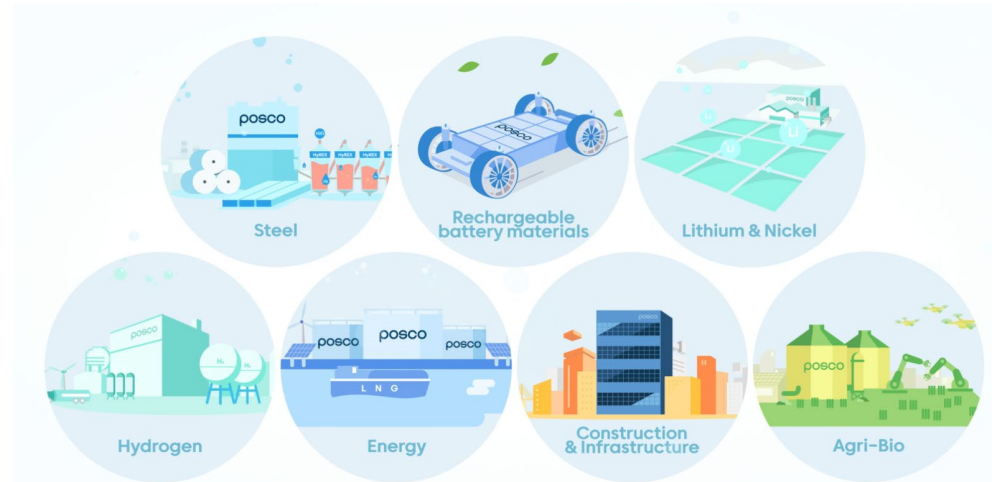
**Ambition:** Global leader in sustainable steel and new growth businesses by 2068

**Plan:** Short term measurable kpi's and intermediate targets (sales, operating profit, GHG emissions, ratio production recycled steel, M&A, supply agreements, etc)

### How:

- Continuously improving core operations/business
- Diversification portfolio into new growth markets
- R&D
- M&A
- Strategic partnerships

### 'Building a better future together' seven core businesses to achieve transformation



### Value Creation through:

- Portfolio strategy
- Green Premiums
- Green business building
- Decarbonised operations and supply



## Main take-aways



### Vision and Leadership

- Clarity of purpose
- leadership commitment
- Continuous Evolution



### Mindset and resilience

- Embrace experimentation
- Resilient mindset
- Organization-wide innovation



### Ambitious Timing, Planning and execution

- Detailed short-term plan
- Long-term roadmap
- Risk management
- Partly parallel scaling



### Technology and Scalability

- Strategic technology investment
- Avoid Workarounds
- Focused efforts
- Align M&A strategy (technology, markets, customers)



### People and Culture

- HR alignment
- Skills development



### Organizational Structure

- Agile Pilot Teams
- Gradual integration



### Collaboration and Partnerships

- Strategic alliances
- Early-stage agreements
- External resource utilization



### Delivery, Quality and routines

- Well-designed routines
- Comprehensive training and knowledge transfer
- Continuous Quality Improvement

15 Thank you for your attention! Any questions?



*"In the race towards a net-zero future, companies are the drivers of change. The winners will be those who innovate, collaborate and navigate the evolving landscape with adaptability at their core."*

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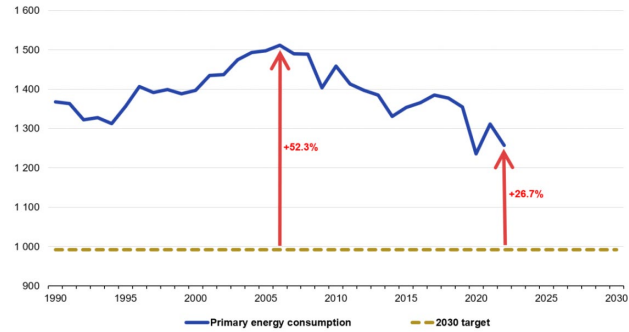
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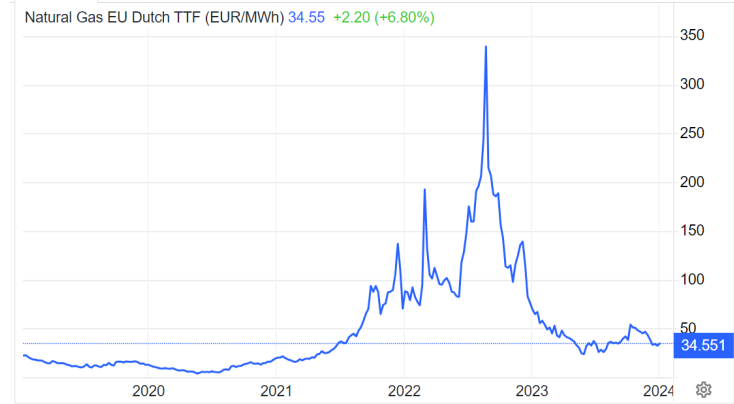


### Distance to 2030 target for primary energy consumption, EU



Source: Eurostat (online data code: nrg\_ind\_eff)

eurostat


 Source: <https://tradingeconomics.com/commodities>
[https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy\\_efficiency\\_statistics#Final\\_energy\\_consumption\\_and\\_distance\\_to\\_2020\\_and\\_2030\\_targets](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_efficiency_statistics#Final_energy_consumption_and_distance_to_2020_and_2030_targets)