



# *Energy transition and H2 opportunities in the EU*

## *The international dimension*

**Dr. Tudor Constantinescu**

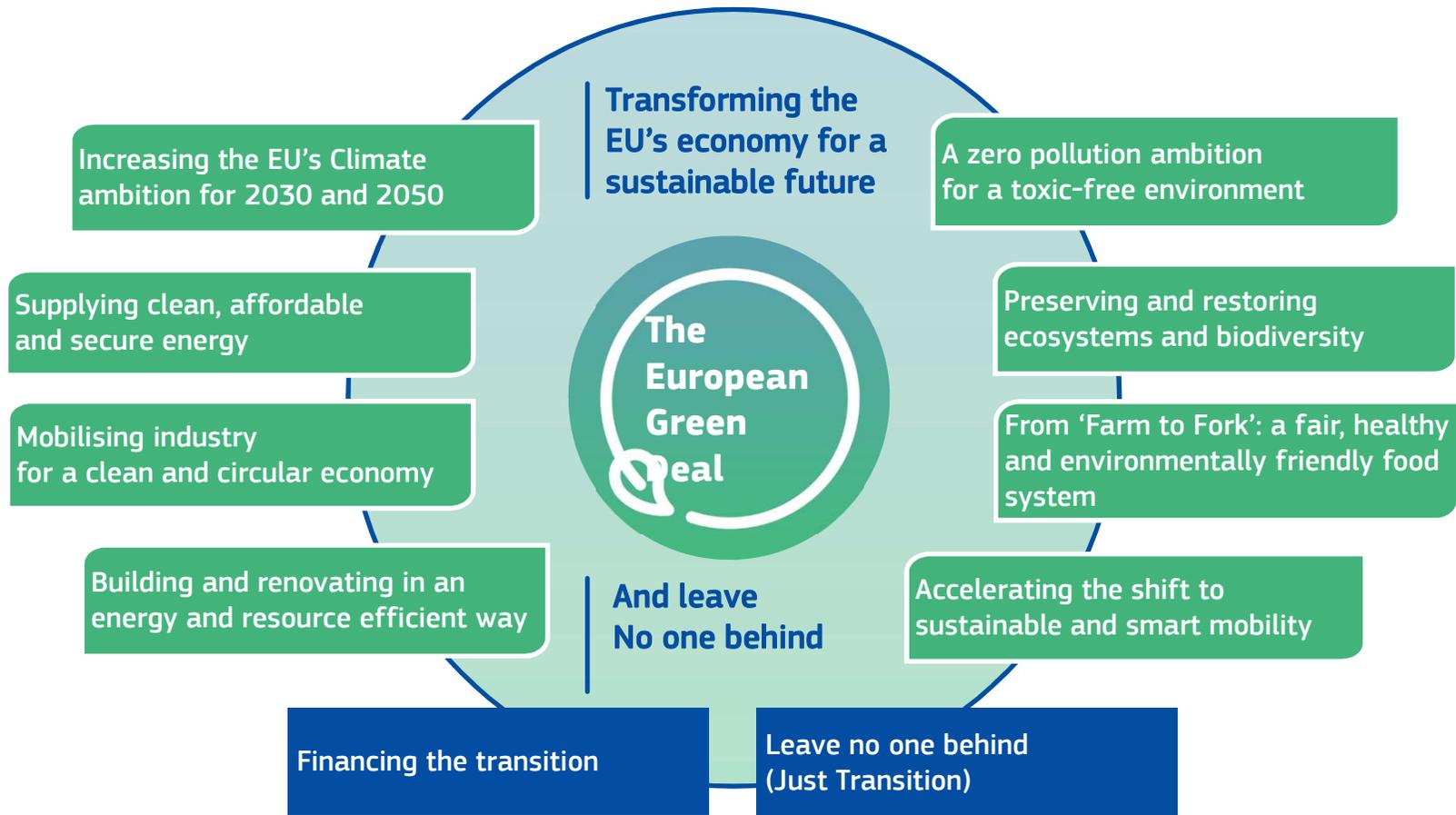
**Principal Adviser**

**DG ENER – European Commission**

**Eastern Partnership Network**

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# The European Green Deal

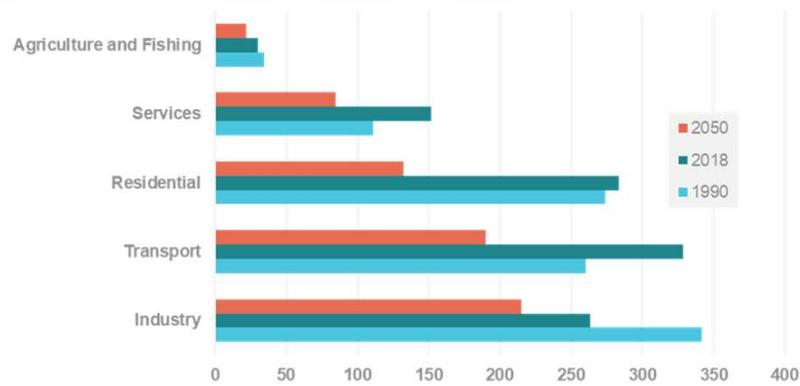


The EU as a global leader

A European Climate Pact

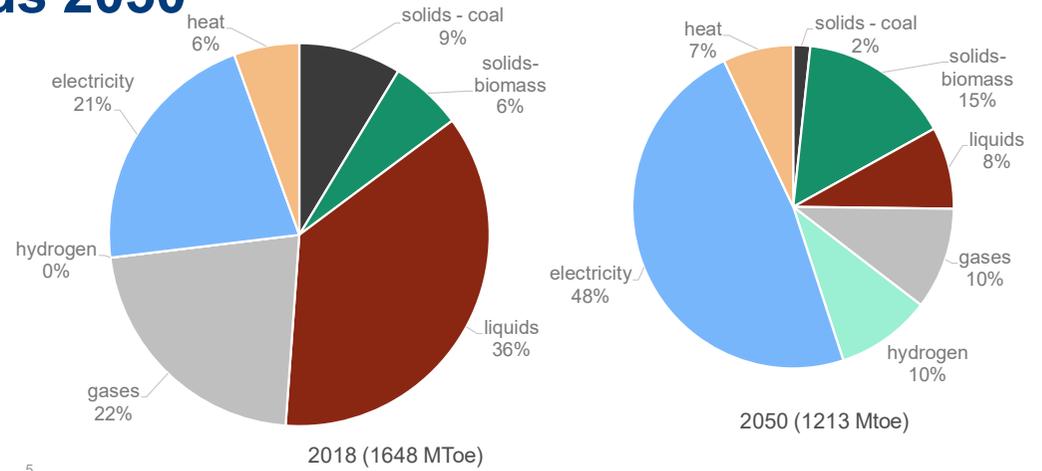


# A changing energy landscape towards 2050



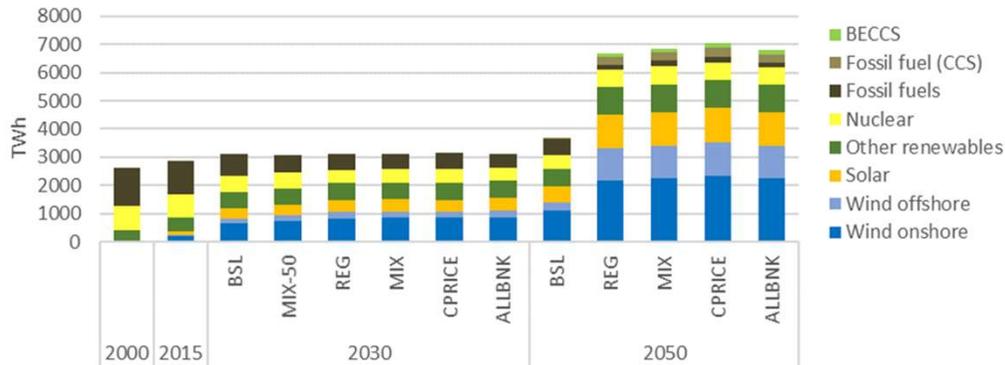
Source: Mtoe, based on EU28 Eurostat/LTS 1.5LIFE/TECH scenarios

## (1) Changing demand



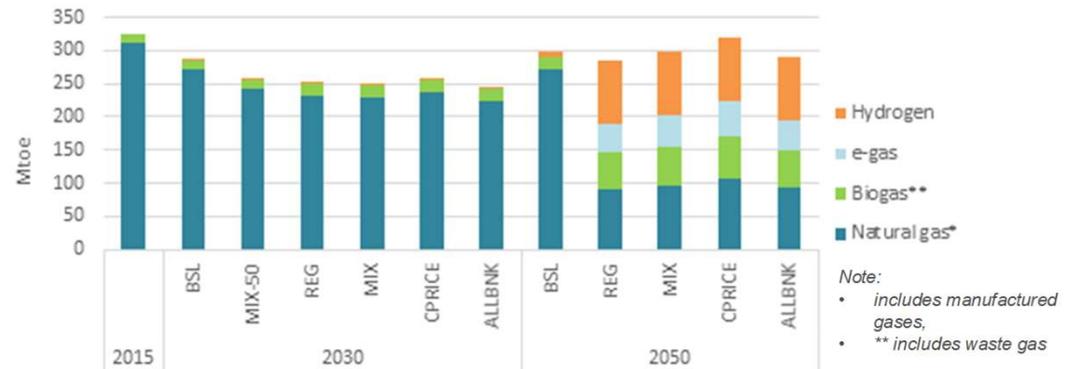
Source: Based on EU28 Eurostat/LTS 1.5LIFE/TECH scenarios

## (2) Changing energy carriers



Source: 2015: Eurostat, 2030-2050: PRIMES model

## (3) Massive increase RES-E



Source: 2015: Eurostat, 2030-2050: PRIMES model

## (4) Renewable and low-carbon gases



## **A full value chain approach**

### **Building on the Green Deal and Recovery Plan objectives**

## **The Energy System Integration**

## **The Hydrogen Strategy**

- An investment agenda
- Boosting demand and scaling up production
- Develop hydrogen infrastructure and markets
- Research and innovation
- The international dimension

## **The Hydrogen Alliance**

# The Hydrogen Strategy – a roadmap to 2050

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**2024**

- 6 **GW** of renewable hydrogen electrolyzers
- Replace **existing hydrogen production**
- Regulation for liquid hydrogen markets
- Planning of hydrogen infrastructure

**2030**

- **40 GW** of renewable hydrogen electrolyzers
- New applications in **steel and transport**
- Hydrogen for electricity balancing purposes
- Creation of “Hydrogen Valleys”
- Cross-border logistical infrastructure

**2050**

- Scale-up to **all hard-to-decarbonise sectors**
- Expansion of hydrogen-derived **synthetic fuels**
- EU-wide infrastructure network
- An open international market with € as benchmark

## Making it happen – an action plan for the Hydrogen Strategy

Full value chain approach,	Actions oriented towards	Main tools involved (*)
<b>An investment agenda</b>	<ul style="list-style-type: none"> <li>• Create project pipeline</li> <li>• €220-340 bln renewable power, €24-42 bln electrolysers, €65 bln infrastructure</li> </ul>	Clean Hydrogen Alliance, InvestEU, IPCEI, State aid, Cohesion policy
<b>Boosting demand and scale up production</b>	<ul style="list-style-type: none"> <li>• Comprehensive terminology and EU-wide certification of hydrogen</li> <li>• Support schemes and CCfD for renewable and low-carbon hydrogen</li> <li>• Demand-side policies in end-use sectors</li> </ul>	RED, EU ETS, Transport policy, Industrial strategies
<b>Develop hydrogen infrastructure and markets</b>	<ul style="list-style-type: none"> <li>• Planning of hydrogen transport, storage and dispatch infrastructure</li> <li>• Ensure access, develop liquid hydrogen markets and integrity of internal gas market</li> </ul>	TYNDPs, TEN-E, TEN-T, AFID, CEF, decarbonisation of gas package
<b>Research and Innovation</b>	<ul style="list-style-type: none"> <li>• Scale up electrolysers</li> <li>• Develop hydrogen value chain</li> <li>• Innovative hydrogen technologies</li> </ul>	Clean Hydrogen Partnership, ETS Innovation Fund, Horizon Europe,
<b>The international dimension</b>	<ul style="list-style-type: none"> <li>• International standards, regulation and definitions for hydrogen</li> <li>• Promote cooperation</li> </ul>	IEA, IRENA, CEM, G20, Neighbourhood policy, EU-Africa Green Energy Initiative, bilateral energy dialogues, € benchmark

(\*) Non-exhaustive list

## Hydrogen – the international dimension

- ✓ **Structured Energy Dialogue** with OECD and developing countries
- ✓ **R&D / Mission Innovation** (e.g. H2 valleys platform)
- ✓ **International Partnership for Hydrogen in the Economy (IPHE):**
- ✓ **Clean Energy Ministerial Hydrogen Initiative**
  - *Global aspirational goals*
  - *Global ports consortium*
  - *Other activities*
- ✓ **The Eastern Partnership**
- ✓ **Green Energy Initiative** with Africa
- ✓ (...)

## Hydrogen – the long distance transport

- ✓ Global market rules but also **Infrastructure backbone** for long distance transport necessary
- ✓ A number of countries are positioning as future H2 **exporters or importers**
- ✓ Favourable locations for high volume **RES may not be located next to existing demand centers**
- ✓ Different options to **transport** hydrogen in a **cost competitive** way

# Thank you