BUSINESSEUROPE

Energy and climate transition: How to ensure the EU's competitiveness

Economic study & BusinessEurope recommendations

July 2024

Study objectives

- The energy crisis highlighted the vulnerability of the EU's economy to energy market shocks, energy security of supply and impact on energy prices
- In 2023-2024, BusinessEurope commissioned Compass Lexecon to provide an in-depth analysis of the EU energy system's transition towards 2050 and its impact on EU competitiveness
- The study builds on four workstreams

Study's content

1. Modelling Net-Zero transition pathways for the EU energy system
2. Impact of Net-Zero transition costs on energy and cost of doing business in the EU
3. Review of the relevant policy framework for security of supply and competitiveness
4. Key takeaways for policy action

Source: COMPASS LEXECON

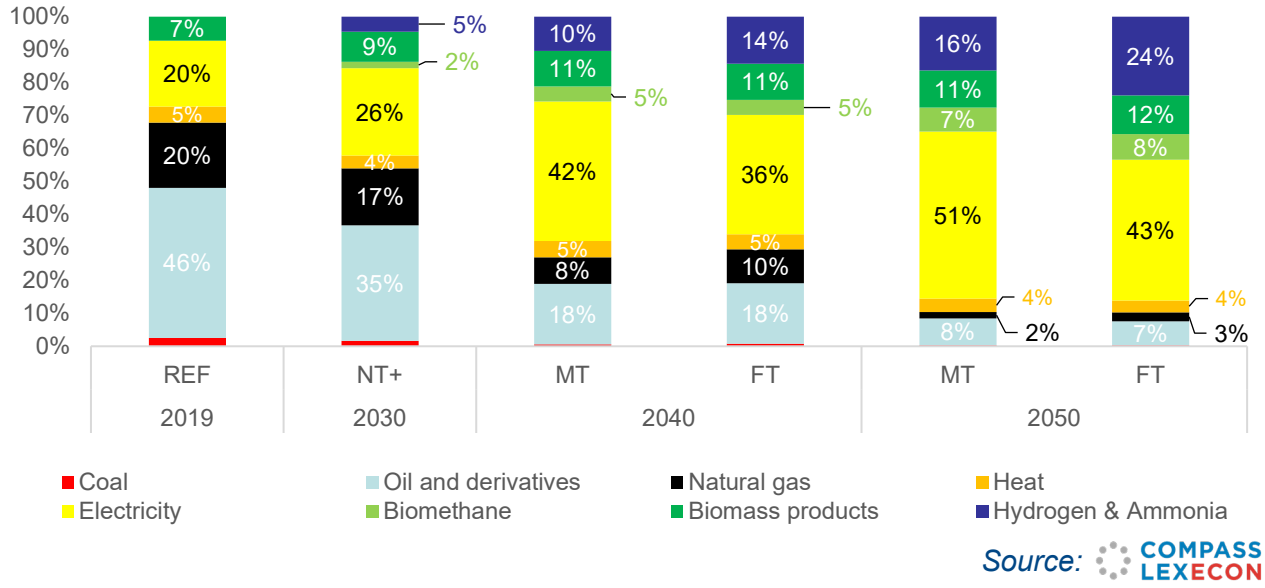
Net-Zero pathways

- Two scenarios are modelled: the Managed Transition scenario and the Frustrated Transition scenario which both assume reaching the Net-Zero target by 2050.
- The **Managed Transition** scenario shows how policies supporting the deployment of critical infrastructures and decarbonised technologies can reconcile the objectives of security and affordability with progress on climate targets.
- The **Frustrated Transition** scenario analyses the impact of policies that delay the necessary investments in clean technologies and infrastructure, resulting in rising costs and bigger competitiveness concerns.
- For example, the deployment of interconnections is modelled with a 5-year delay in the Frustrated Transition scenario.

The study assesses the impact of two different policy responses to Net-Zero: Managed Transition and Frustrated Transition

Energy demand

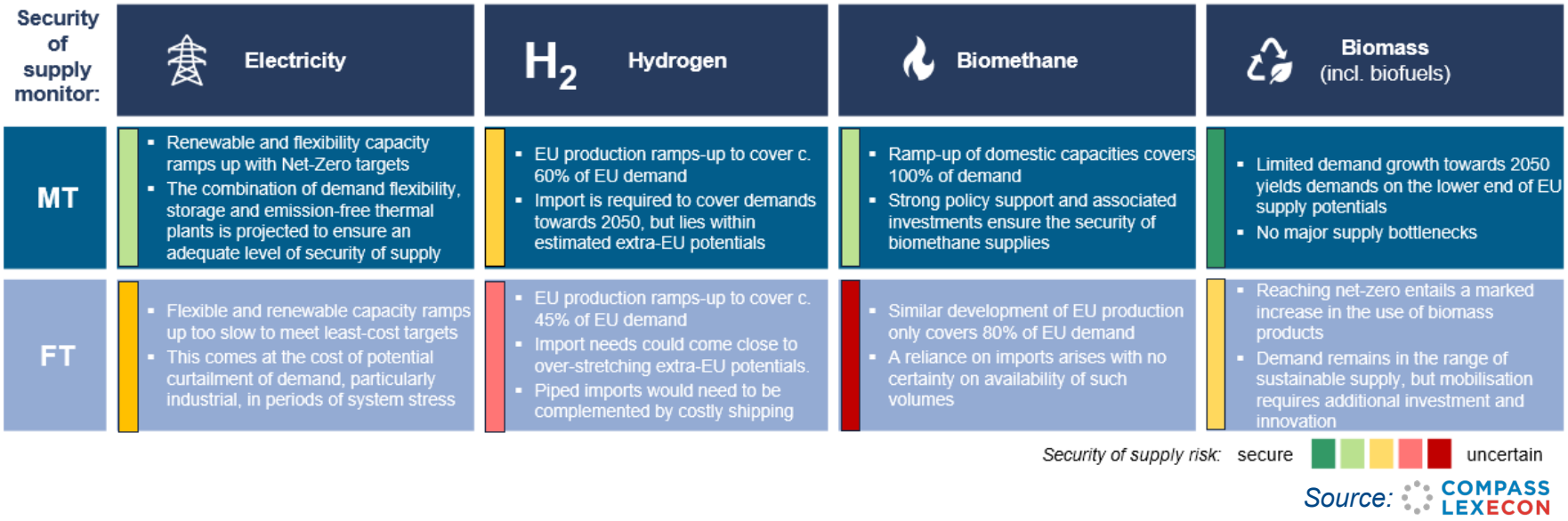
Final energy demand by carrier [TWh and %] – EU27



Source: COMPASS LEXECON

Electricity (RES, nuclear…) becomes the single largest energy carrier in both scenarios, but the energy mix will need to rely to a bigger extent on hydrogen, biomass and biomethane

Security of supply



Security of supply monitor:	Electricity	H_2 Hydrogen	Biomethane	Biomass (incl. biofuels)
MT	▪ Renewable and flexibility capacity ramps up with Net-Zero targets ▪ The combination of demand flexibility, storage and emission-free thermal plants is projected to ensure an adequate level of security of supply	▪ EU production ramps-up to cover c. 60% of EU demand ▪ Import is required to cover demands towards 2050, but lies within estimated extra-EU potentials	▪ Ramp-up of domestic capacities covers 100% of demand ▪ Strong policy support and associated investments ensure the security of biomethane supplies	▪ Limited demand growth towards 2050 yields demands on the lower end of EU supply potentials ▪ No major supply bottlenecks
FT	▪ Flexible and renewable capacity ramps up too slow to meet least-cost targets ▪ This comes at the cost of potential curtailment of demand, particularly industrial, in periods of system stress	▪ EU production ramps-up to cover c. 45% of EU demand ▪ Import needs could come close to over-stretching extra-EU potentials. ▪ Piped imports would need to be complemented by costly shipping	▪ Similar development of EU production only covers 80% of EU demand ▪ A reliance on imports arises with no certainty on availability of such volumes	▪ Reaching net-zero entails a marked increase in the use of biomass products ▪ Demand remains in the range of sustainable supply, but mobilisation requires additional investment and innovation

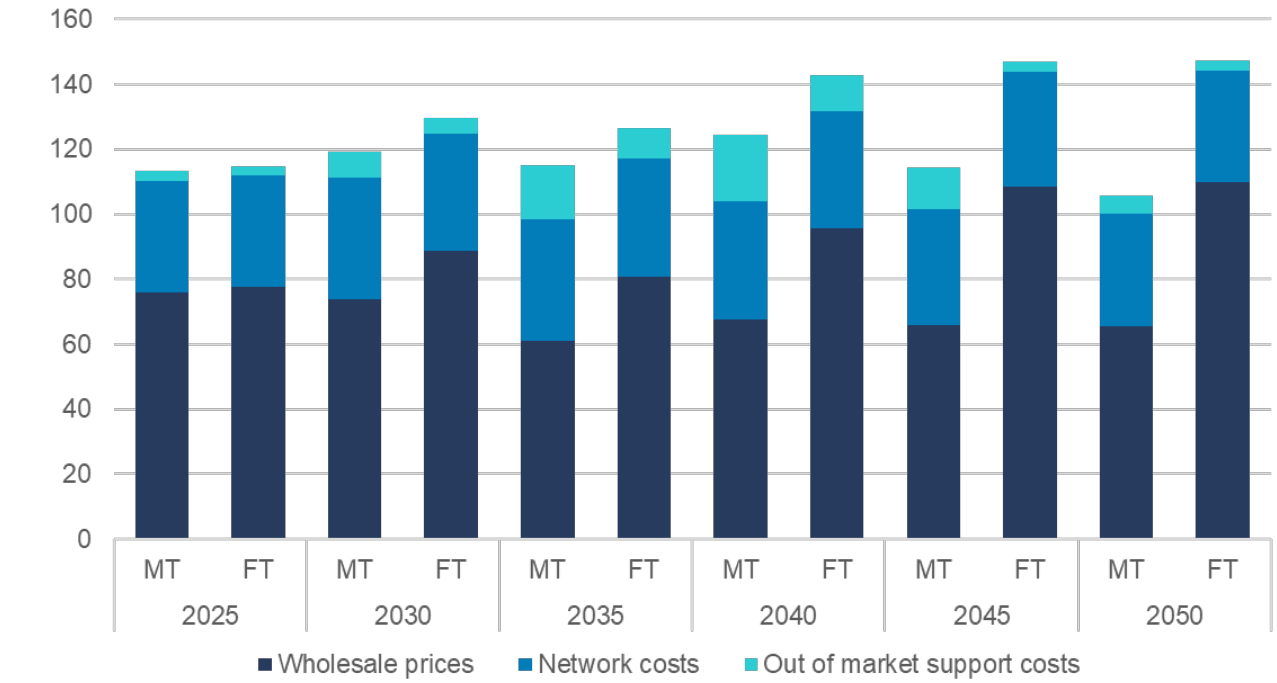
Security of supply risk: secure — uncertain

Source: COMPASS LEXECON

Achieving Net-Zero with electrification delays means that the EU must rely on imported H2 and biomethane, resulting in supply risks

Power prices

Industry retail power prices, excluding taxes – average EU27 (EUR/MWh real 2022)

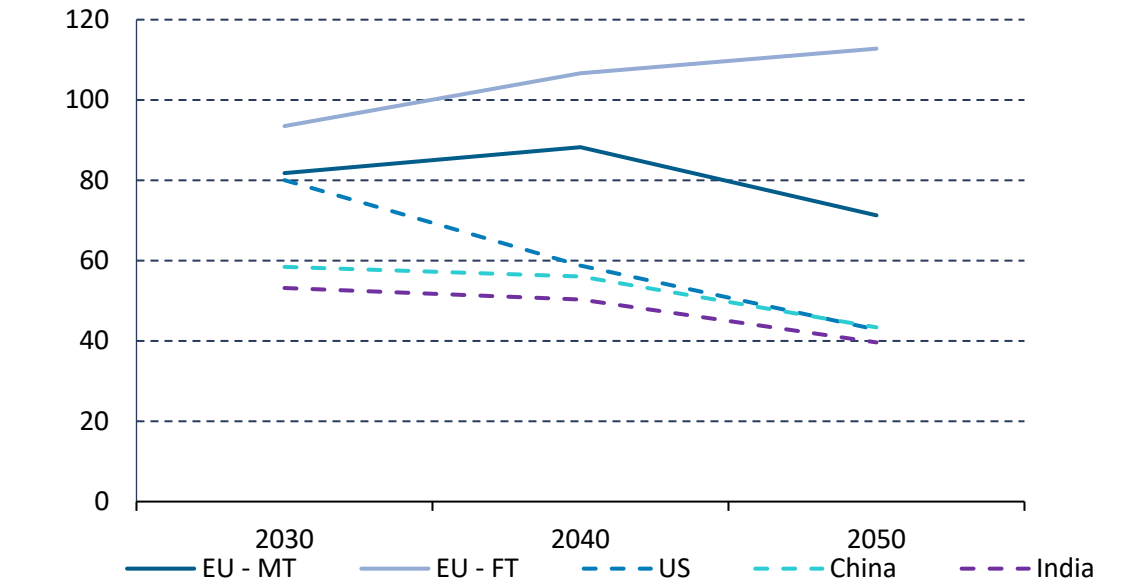


Source: COMPASS LEXECON

Total system costs remain 30% cheaper for end-users in the Managed Transition

Energy price gap

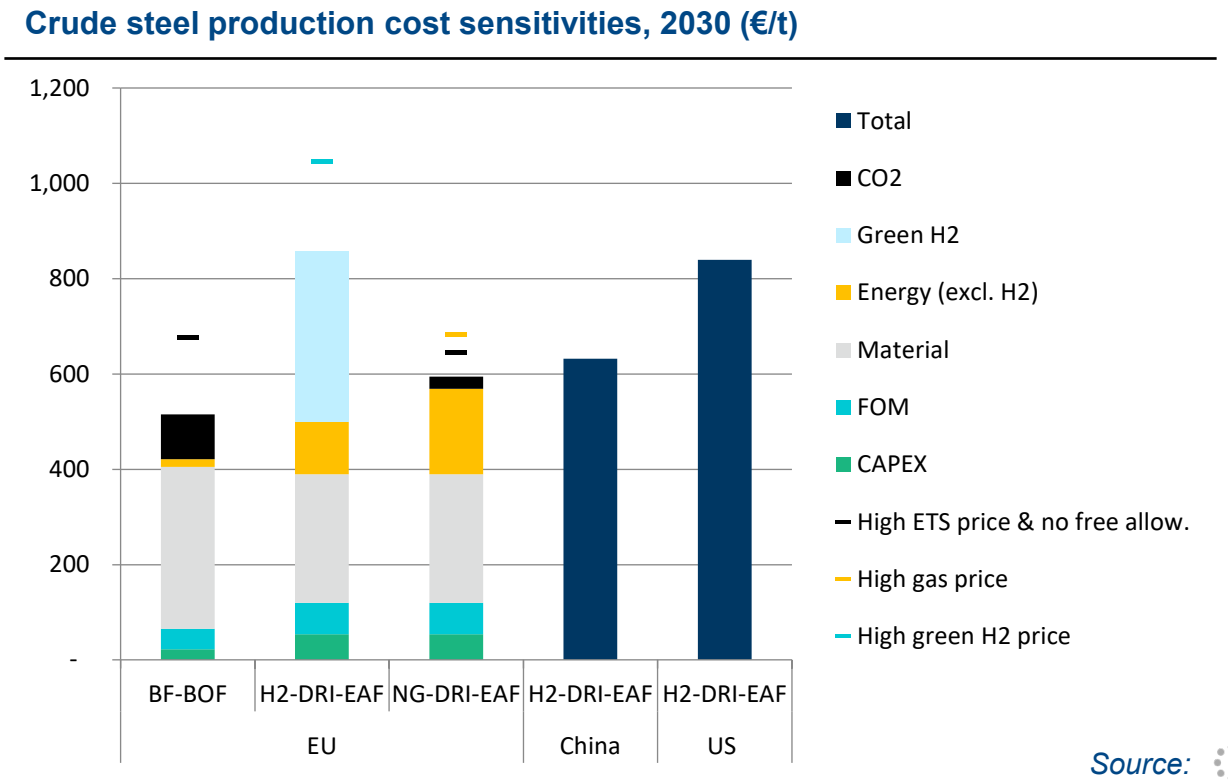
Electricity generation costs (incl. out-of-market support, excl. network costs) in a selection of jurisdictions (EUR/MWh)[2] – 2030-2050



Source: COMPASS LEXECON

Average EU electricity generation costs are projected to be 2 to 3 times higher than in the US and China in 2040 and 2050 in the Frustrated Transition scenario

Sector impact: steel

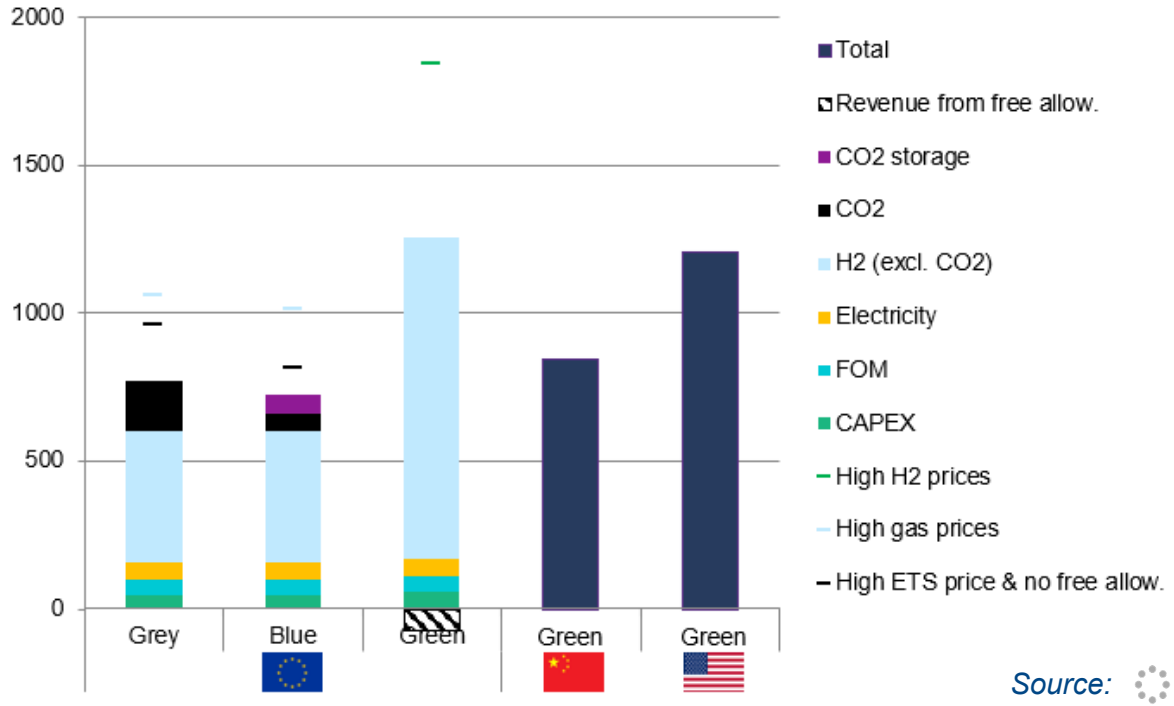


Source: COMPASS LEXECON

EU green steel (H2 DRI EAF) would be 25% more expensive than Chinese green steel but could compete with US

Sector impact: ammonia

Ammonia production cost sensitivities, 2030 (€/t)



Source: COMPASS LEXECON

EU green ammonia would be 45% more expensive than Chinese green ammonia, while being competitive compared to US green ammonia

BusinessEurope policy recommendations

Call for urgent action: seven recommendations to improve upon on the Managed Transition and reduce the projected energy price gap with our key competitors

1. **Massively increase the deployment and integration of all renewable and low-carbon energy sources and infrastructure**
2. **Close the investment gap**
3. **Secure the hydrogen value chain**
4. **Continue speeding-up and streamlining permitting procedures**
5. **Tackle the carbon cost differential and ensure effective implementation of CBAM**
6. **Introduce measures to close the energy competitiveness gap**
7. **Foster industrial decarbonisation through effective demand-side measures**

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Access the full report and BusinessEurope recommendations here