



# European Energy Forum

**“Roads to an affordable energy transition towards 2050” dinner-debate of 12 February”**

**12 February 2019**

Rémi Mayet, deputy head of unit,  
security of supply



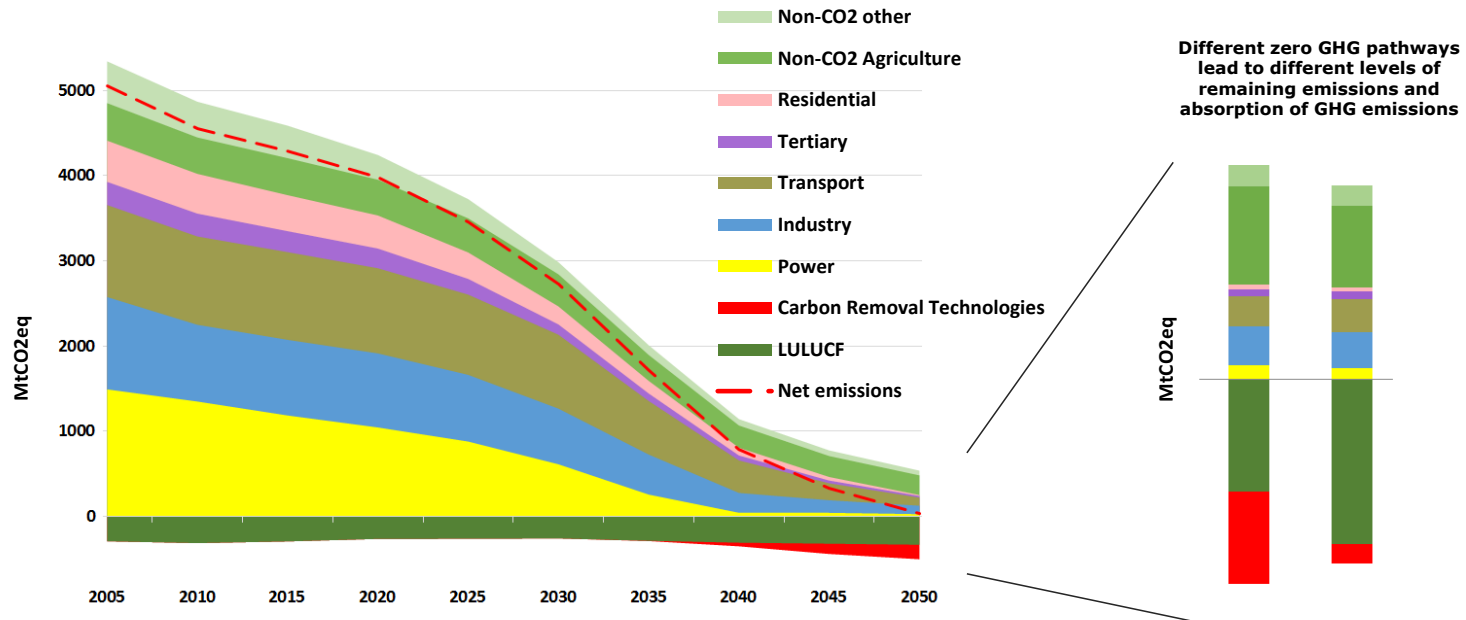
# **Commission's Communication**

***“A Clean Planet for all.  
A European strategic long term vision for a prosperous, modern, competitive and climate neutral economy”***



# Vision for a Clean Planet by 2050

- EU leads in clean energy transition and GHG emissions reduction. Ambitious 2030 targets. 60% reductions in 2050 with current policies – not in line with the Paris Agreement.
- Radical transformations necessary: central role of energy system, buildings, transport, industry, agriculture.
- There are a number of pathways for achieving a climate neutral EU, challenging but feasible from a technological, economic, environmental and social perspective.



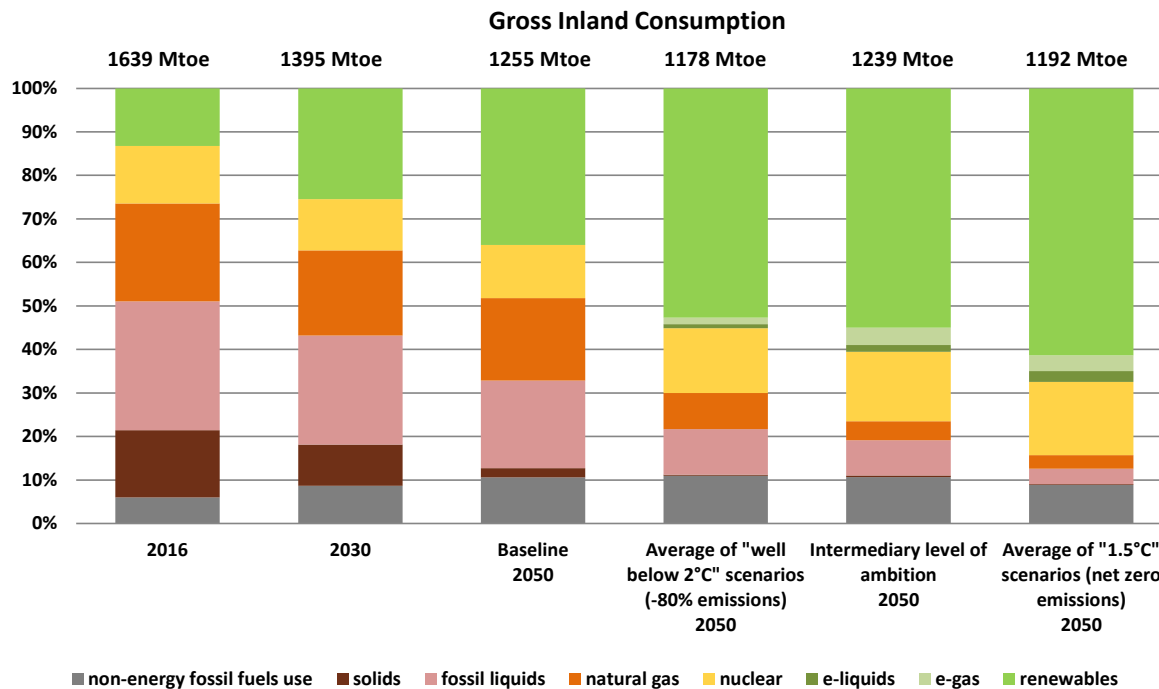
# Detailed assessment supported by scenario analysis

## Long Term Strategy Options

	Electrification (ELEC)	Hydrogen (H2)	Power-to-X (P2X)	Energy Efficiency (EE)	Circular Economy (CIRC)	Combination (COMBO)	1.5°C Technical (1.5TECH)	1.5°C Sustainable Lifestyles (1.5LIFE)
<b>Main Drivers</b>	Electrification in all sectors	Hydrogen in industry, transport and buildings	E-fuels in industry, transport and buildings	Pursuing deep energy efficiency in all sectors	Increased resource and material efficiency	Cost-efficient combination of options from 2°C scenarios	Based on COMBO with more BECCS, CCS	Based on COMBO and CIRC with lifestyle changes
<b>GHG target in 2050</b>	-80% GHG (excluding sinks) ["well below 2°C" ambition]					-90% GHG (incl. sinks)	-100% GHG (incl. sinks) ["1.5°C" ambition]	
<b>Major Common Assumptions</b>	<ul style="list-style-type: none"> <li>Higher energy efficiency post 2030</li> <li>Deployment of sustainable, advanced biofuels</li> <li>Moderate circular economy measures</li> <li>Digitilisation</li> </ul>				<ul style="list-style-type: none"> <li>Market coordination for infrastructure deployment</li> <li>BECCS present only post-2050 in 2°C scenarios</li> <li>Significant learning by doing for low carbon technologies</li> <li>Significant improvements in the efficiency of the transport system.</li> </ul>			
<b>Power sector</b>	Power is nearly decarbonised by 2050. Strong penetration of RES facilitated by system optimization (demand-side response, storage, interconnections, role of prosumers). Nuclear still plays a role in the power sector and CCS deployment faces limitations.							
<b>Industry</b>	Electrification of processes	Use of H2 in targeted applications	Use of e-gas in targeted applications	Reducing energy demand via Energy Efficiency	Higher recycling rates, material substitution, circular measures	Combination of most Cost-efficient options from "well below 2°C" scenarios with targeted application (excluding CIRC)	COMBO but stronger	CIRC+COMBO but stronger
<b>Buildings</b>	Increased deployment of heat pumps	Deployment of H2 for heating	Deployment of e-gas for heating	Increased renovation rates and depth	Sustainable buildings			CIRC+COMBO but stronger
<b>Transport sector</b>	Faster electrification for all transport modes	H2 deployment for HDVs and some for LDVs	E-fuels deployment for all modes	Increased modal shift	Mobility as a service			<ul style="list-style-type: none"> <li>CIRC+COMBO but stronger</li> <li>Alternatives to air travel</li> </ul>
<b>Other Drivers</b>		H2 in gas distribution grid	E-gas in gas distribution grid					Limited enhancement natural sink

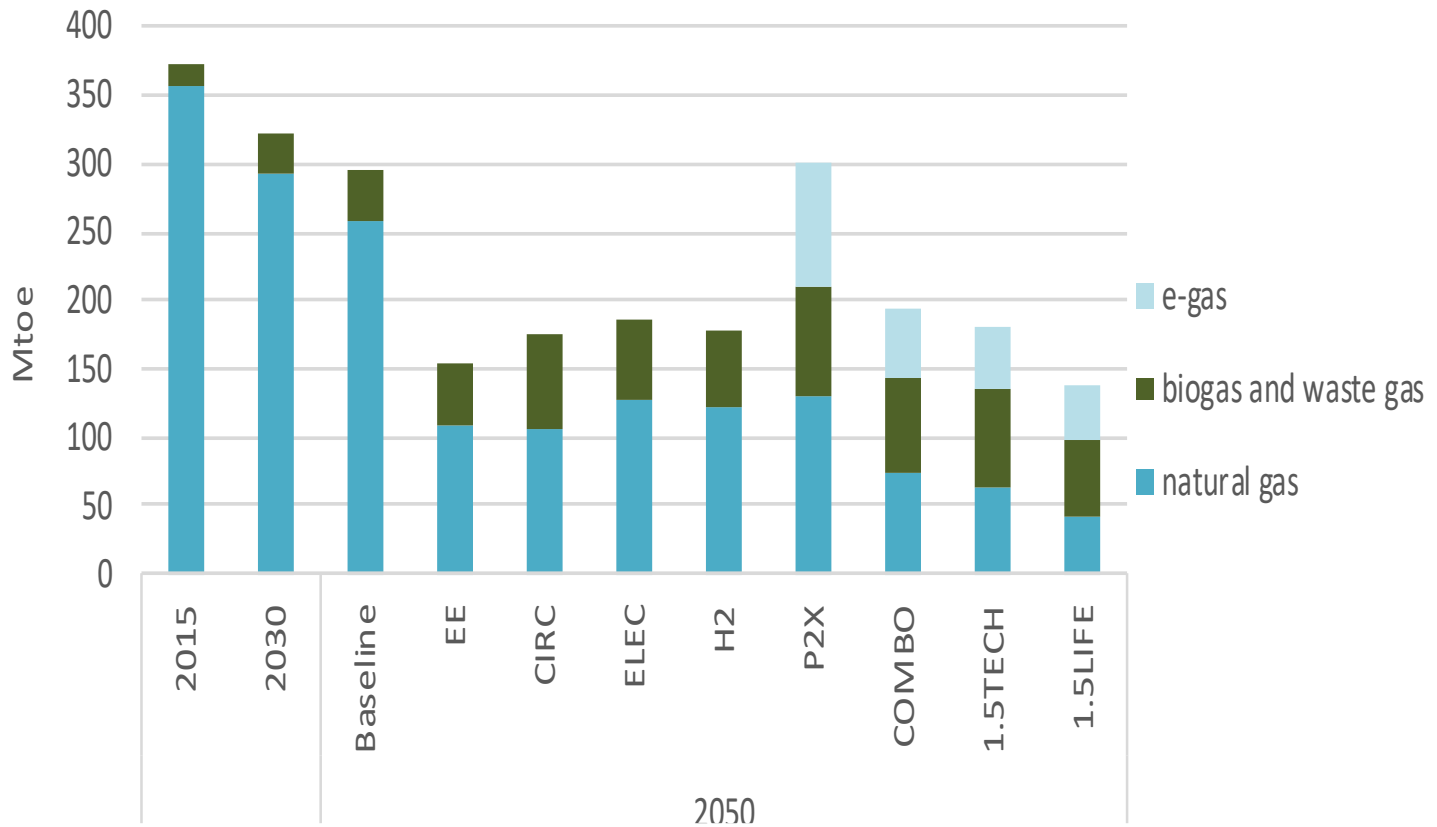
# Deployment of renewables

Primary energy in 2050 largely coming from renewable sources



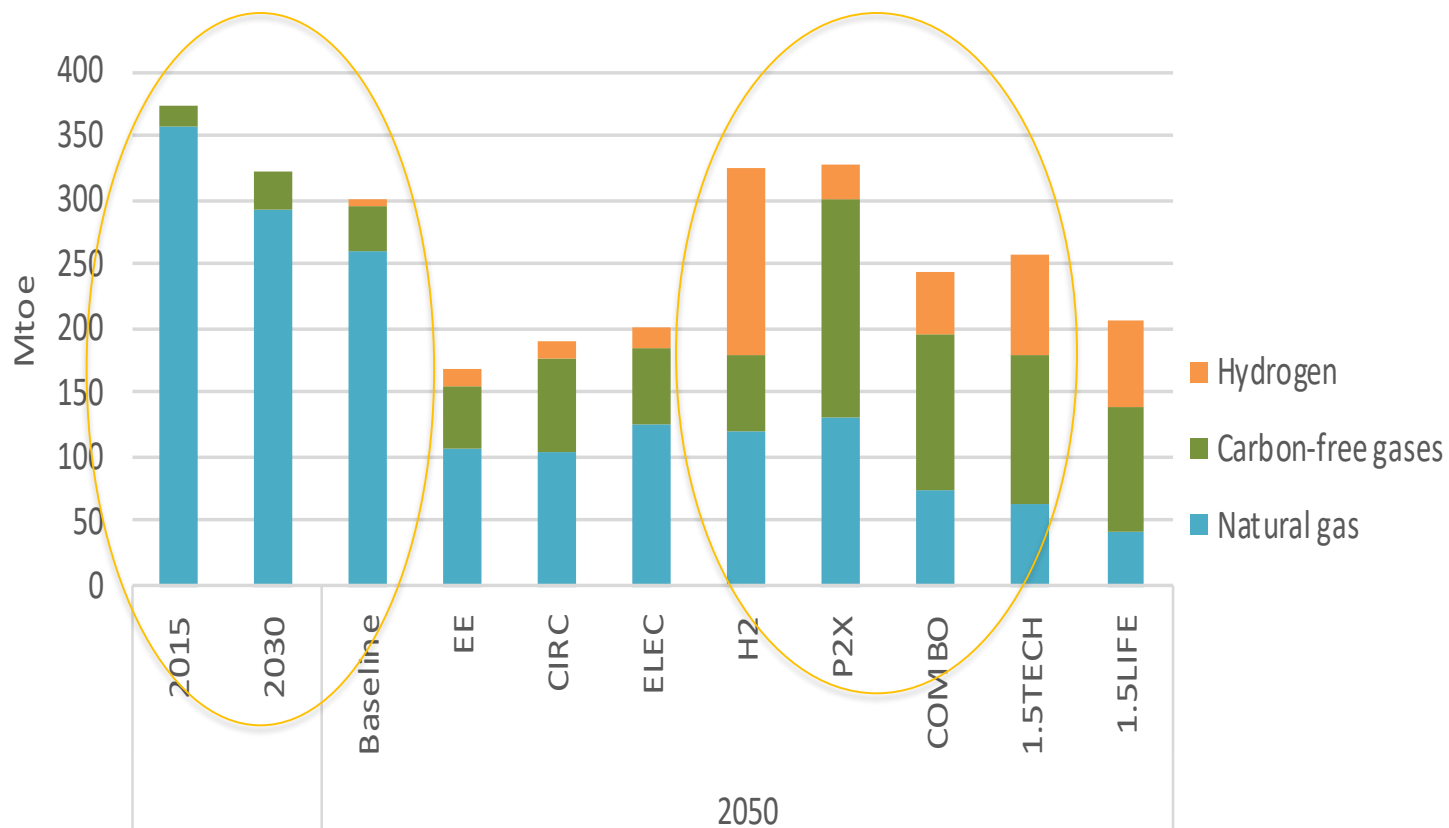
# Consumption per gas type

Decrease of natural gas but increase of biogas and e-gas



# Consumptions of gaseous fuels

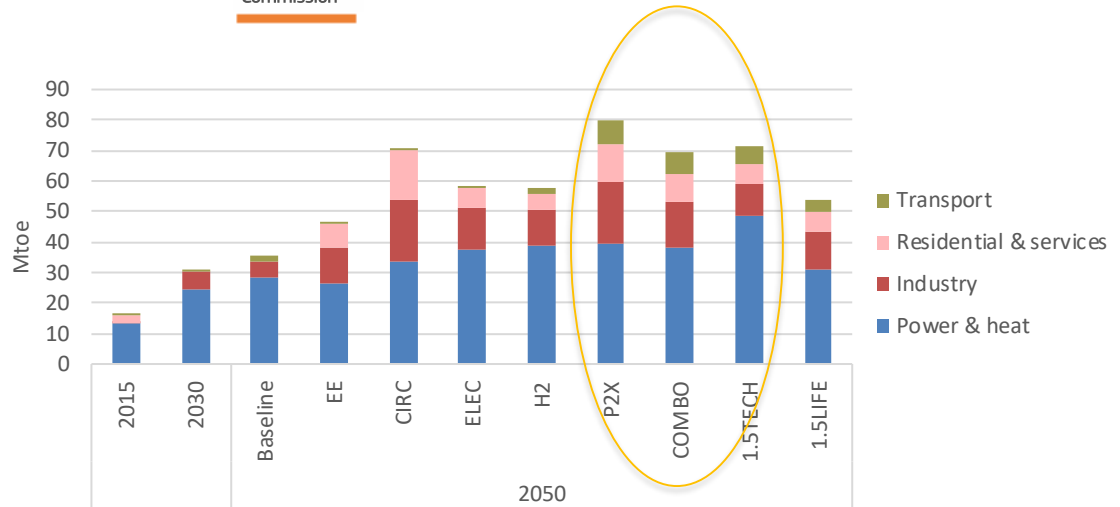
Stay at nearly same level with hydrogen in several scenarios



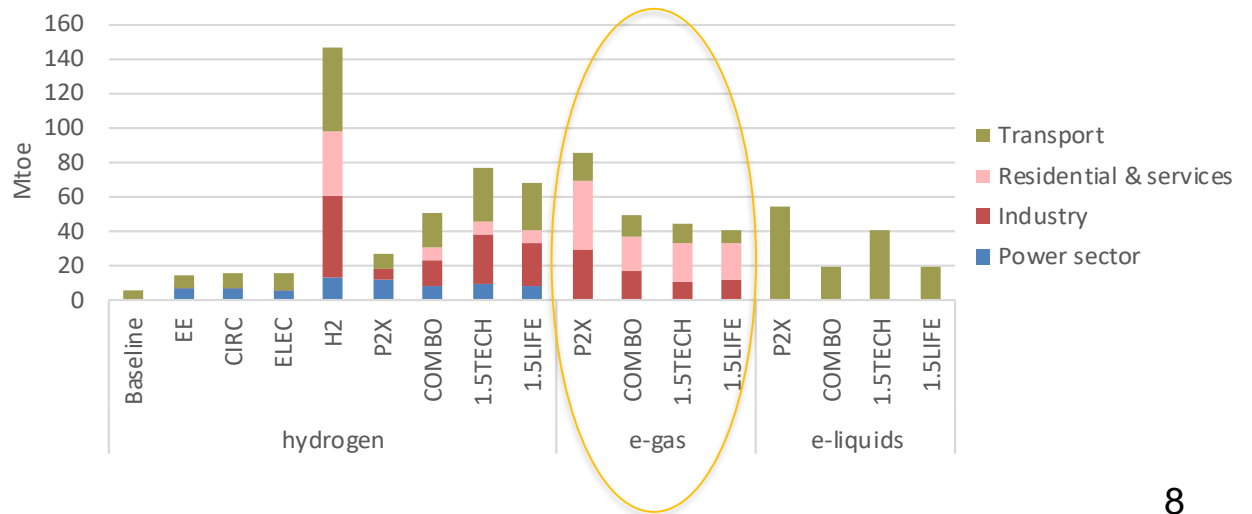


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## Consumption of biogas per sector



## Consumption of new fuels per sector





## Security of supply

Importance of the internal market, effective regional cooperation and solidarity between Member States when implementing the regulation on gas security of supply.

Energy efficiency, RES, biogas, e-gas and hydrogen are good news to reduce external dependency of fossil fuels. But in all scenarios external dependency decreases very slowly.

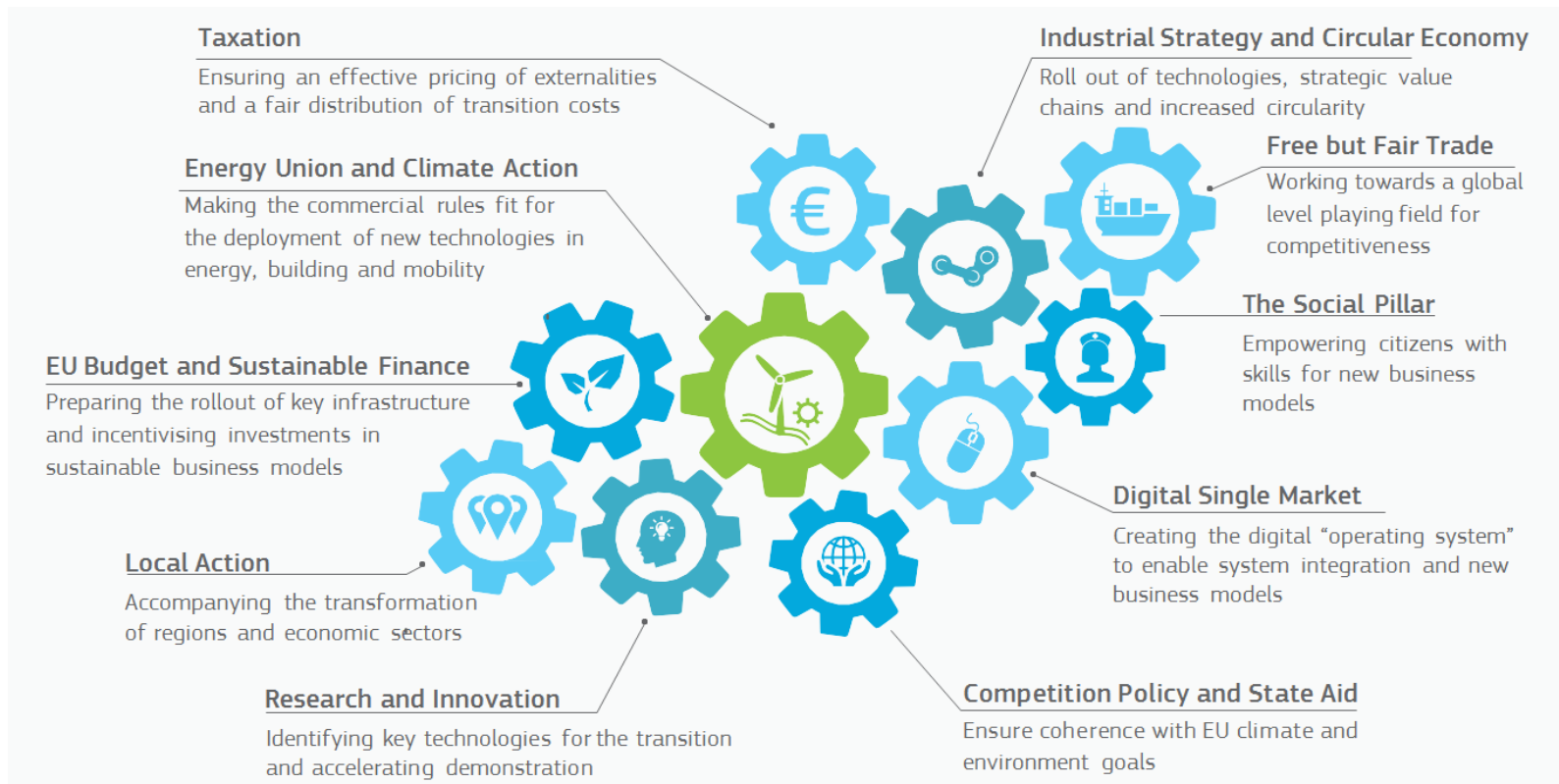
Inter-dependencies between Member States increases with electricity RES. Importance of risk preparedness and adequacy assessments. New risks appear like cybersecurity due to digitalisation and decentralisation.

## Key role of gas in the clean energy transition

Less polluting than coal, flexibility to compensate variable RES, potential of biogas and biomethane, lower cost of storage and transport than electricity, potential of synthetic methane and hydrogen as energy carrier.

But avoid stranded assets and adapt infrastructure, optimise the internal market, assess regulatory barriers and gaps, mind methane leakage, develop CCS and last but not least integrate with electricity => sector coupling !

# EU Enabling framework across policies





## Next steps

- National level: National Energy and Climate Plans under development – draft submitted, new version end of the year.
- EU level: invitation to EU leaders to reflect on the EU vision of 'a Clean Planet for All' in Sibiu summit, to European Parliament and the different Council formations.
- Technical level, inclusive working method of DG ENER: on-going studies in DG ENER and work by stakeholders in the Madrid Forum.



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**Thank you for your attention !**