Risk and systemic innovation in long-term energy policymaking

2ND INTERNATIONAL FORUM FOR THE CLEAN ENERGY TRANSITION

26 March 2020

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)
Main Drivers	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
GHG target in 2050	-80% GHG (excluding sinks) ["well below 2°C" ambition]					-90% GHG (incl. sinks)	-100% GHG (incl. sinks) ["1.5°C" ambition]	
Major Common Assumptions	• Higher energy efficiency post 2030 • Deployment of sustainable, advanced biofuels • Moderate circular economy measures • Digitilisation					• Market coordination for infrastructure deployment • BECCS present only post-2050 in 2°C scenarios • Significant learning by doing for low carbon technologies • Significant improvements in the efficiency of the transport system.		
Power sector	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.							
Industry	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 2°C scenarios with targeted application (excluding CIRC)	COMBO but stronger	CIRC+COMBO but stronger
Buildings	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
Transport sector	Faster electrification for all transport modes	H2 deployment for HDVs and some for LDVs	E-fuels deployment for all modes	• Increased modal shift • Electrification as in ELEC	Mobility as a service			• CIRC+COMBO but stronger • Alternatives to air travel
Other Drivers		H2 in gas distribution grid	E-gas in gas distribution grid				Limited enhancement natural sink	• Dietary changes • Enhancement natural sink

Source: ENER (2018) 2050 long-term strategy

European Commission

Ref. Ares(2020)1631599 - 18/03/2020

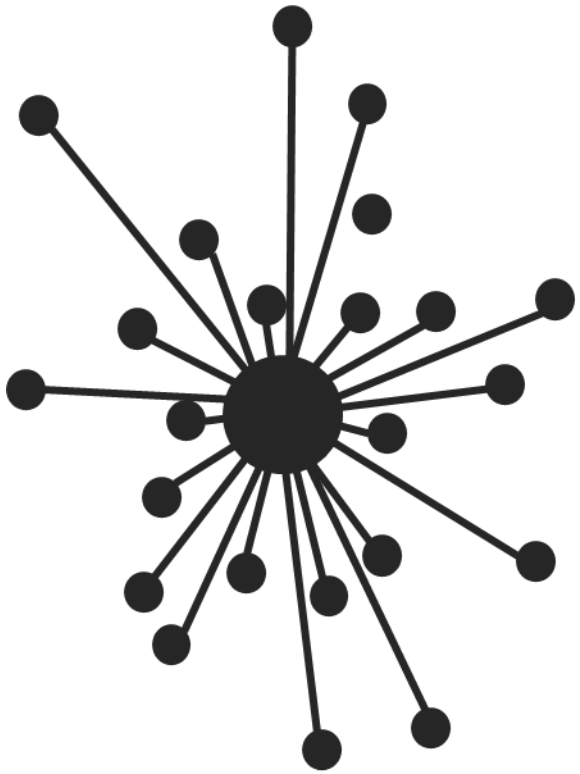
INCEPTION IMPACT ASSESSMENT

Inception Impact Assessments aim to inform citizens and stakeholders about the Commission's plans in order to allow them to provide feedback on the intended initiative and to participate effectively in future consultation activities. Citizens and stakeholders are in particular invited to provide views on the Commission's understanding of the problem and possible solutions and to make available any relevant information that they may have, including on possible impacts of the different options.

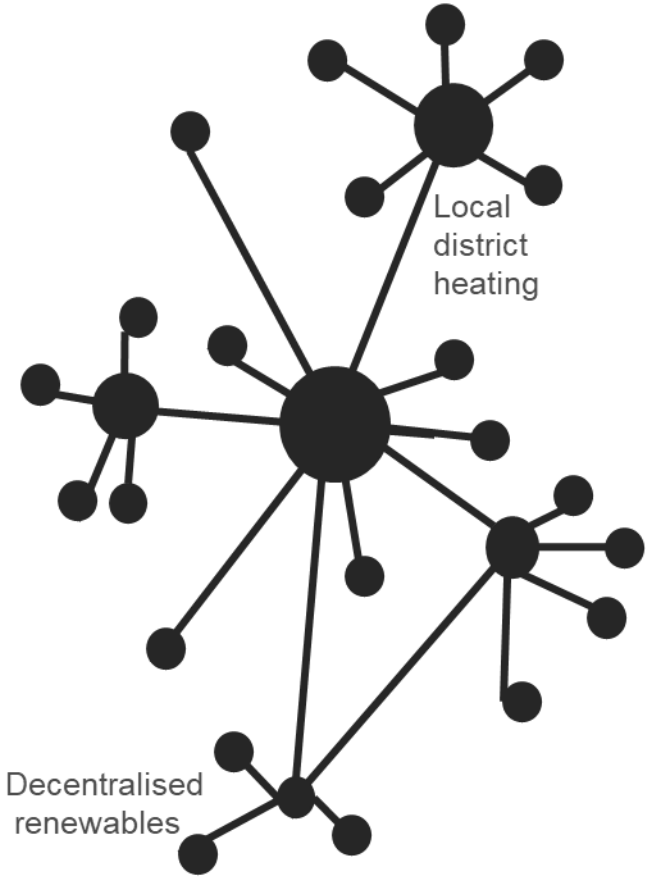
- impacts on the energy affordability, sustainability and security
- actions to reduce greenhouse emissions beyond the energy system
- the type and pace of clean technology development and roll-out needed;
- how this increase in the 2030 climate target [] ultimately resulting in climate neutrality by 2050;
- how the EU can increase the absorptions of CO2 emissions over time;
- the pace and scale of investment required, [] how to minimise the risk of stranded assets;
- macro-economic implications, including impacts on growth, employment and competitiveness;
- Societal challenges [] consumer choice, household expenditure, education and training;
- the synergies and trade-offs with social and other environmental concerns

https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12265-2030-Climate-Target-Plan

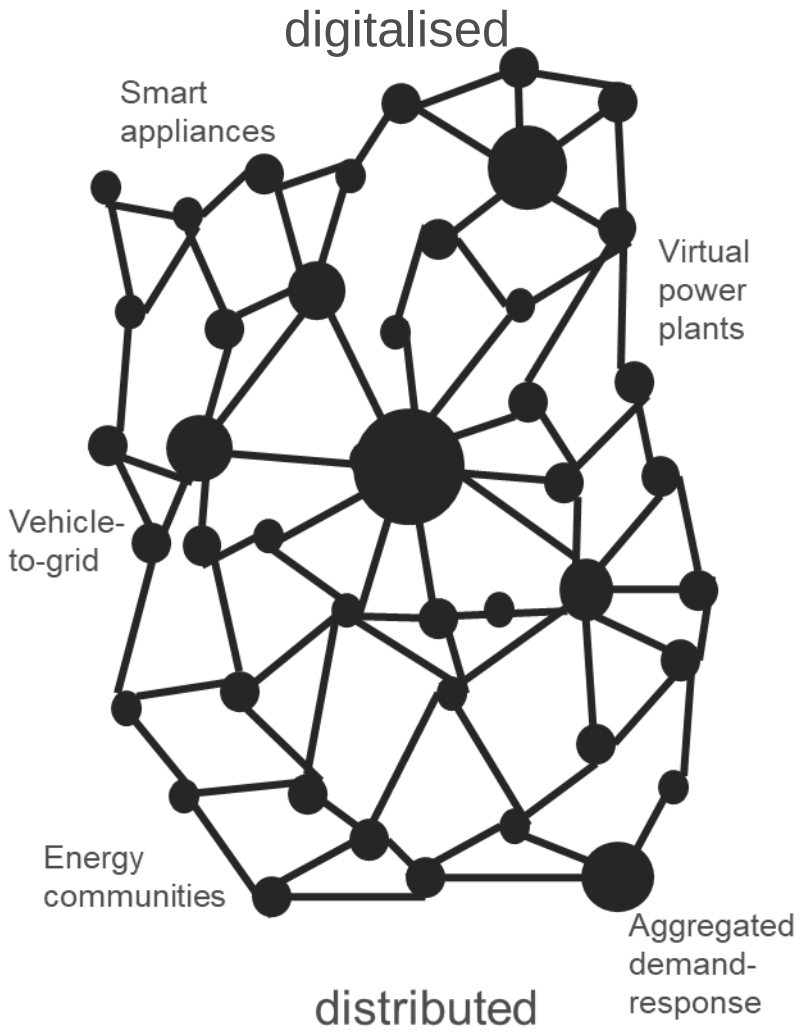
From centralised towards more distributed



centralised



decentralised



distributed

Source: Based on A.Aazami (2019)

European Commission

Thank you

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