



Stepping up Europe's 2030 Climate Ambition

The 2030 Climate target plan

Energy scenarios towards a climate neutral EU

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The 2030 Climate Target Plan

EU-wide, economy-wide greenhouse gas emissions reduction target of **at least 55%**, **including emissions and removals**, by 2030 compared to 1990

Actions required across all sectors of the economy.

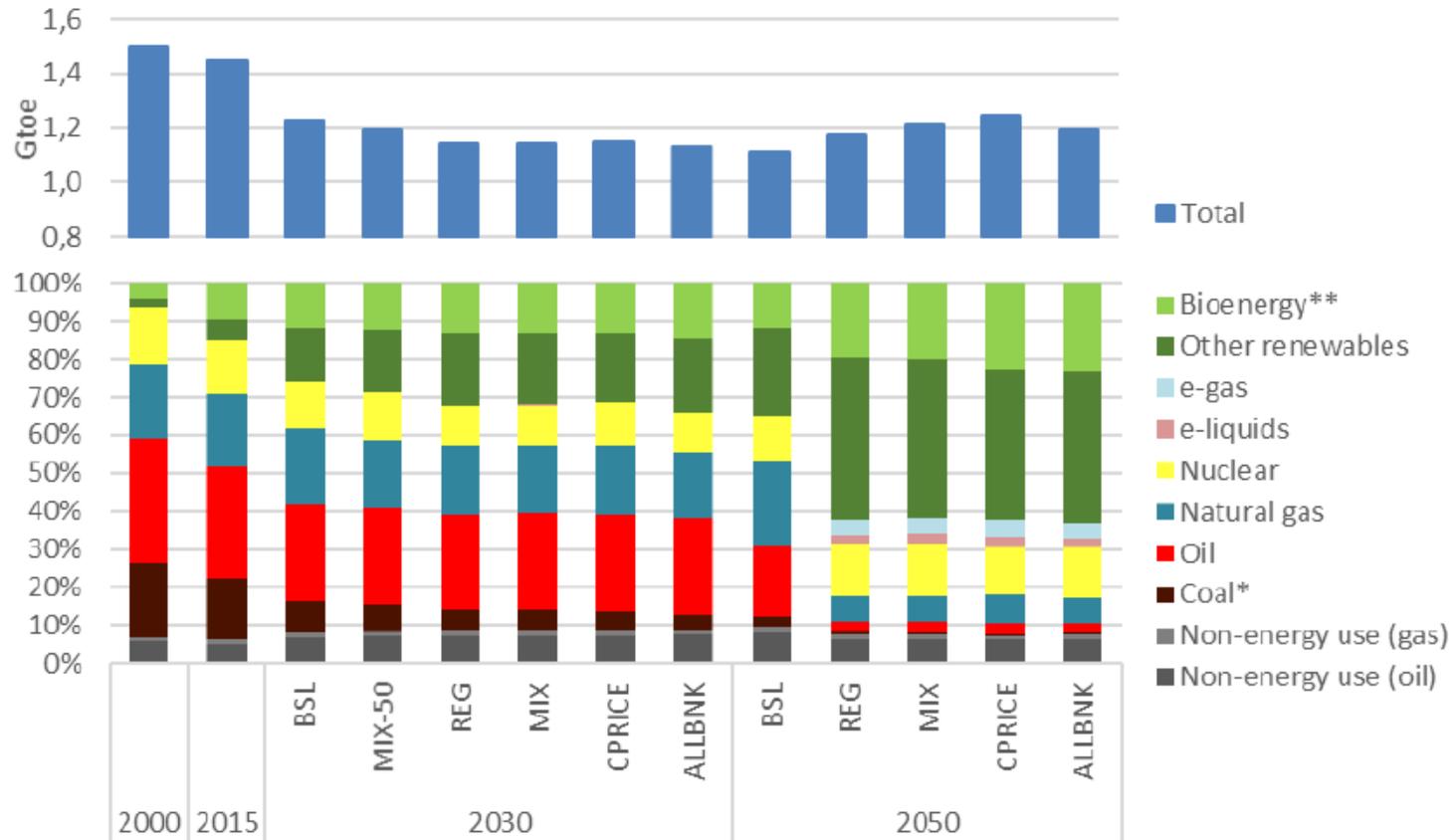
- RES ambition: 38-40%.
- EE ambition: FEC – 36-37%; PEC – 39-41%

Commission to make detailed **legislative proposals by June 2021 (ETS, ESR, LULUCF, RED, EED, ETD, CBAM)**

From options to scenarios

- BSL: achieves current GHG, RES, EE 2030 targets
- REG: based on intensified regulatory measures in EE, RES, Transport, EU ETS scope unchanged
- CPRICE: based on carbon pricing and low intensification transport measures
- MIX and MIX-50: based on a mix of carbon pricing and intensified regulatory measures
- ALLBNK: including full aviation and maritime sectors in scope, highest ambition
- Variants: EU-NECP, MIX-nonCO2 (higher contribution of non-CO2 GHGs), COVID-BSL and COVID-MIX

Energy: Gross inland energy consumption

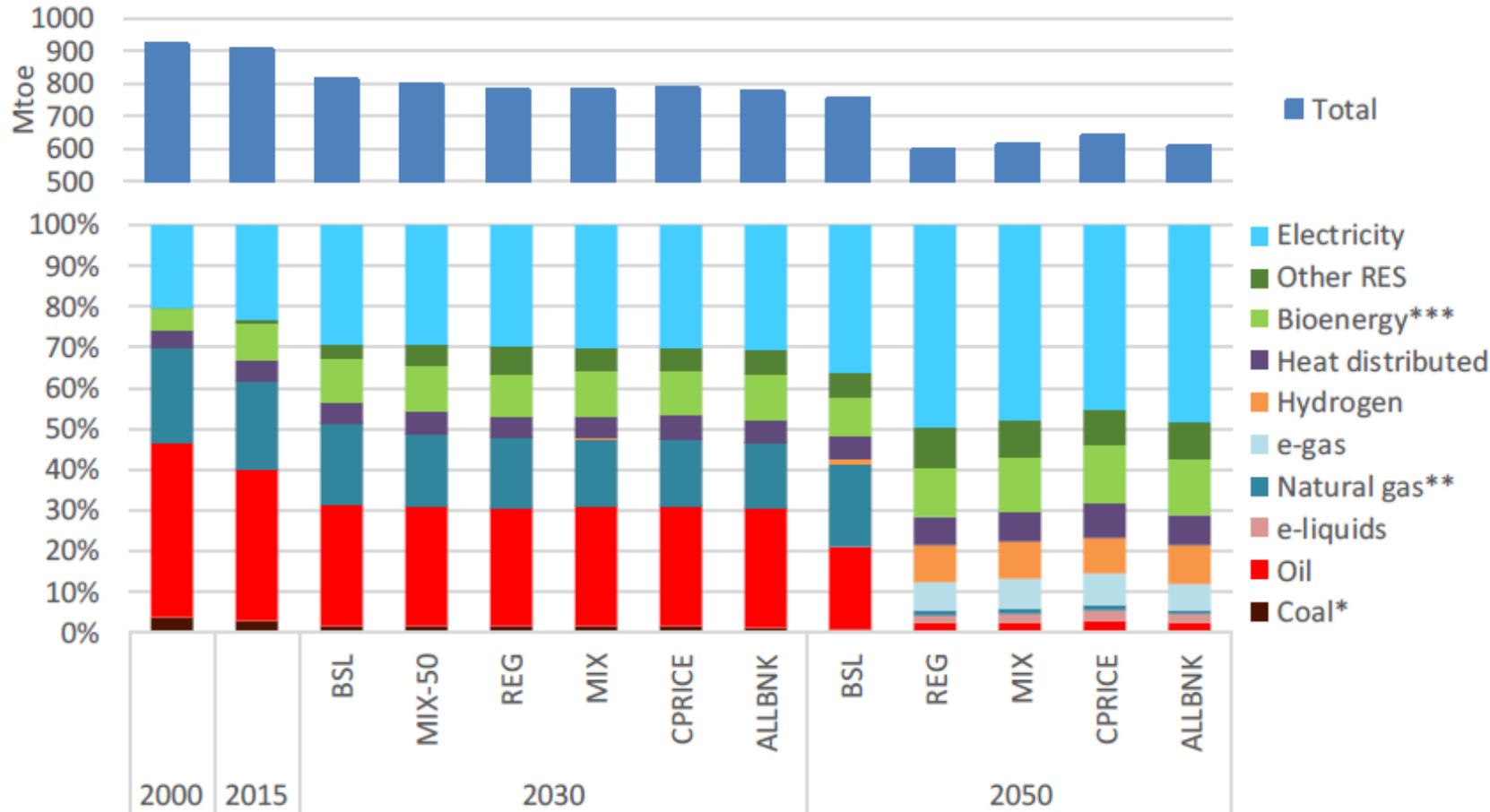


By 2030, coal consumption would be reduced by more than 70% compared to 2015, and oil and gas by more than 30% and 25%, respectively.

Renewables develop strongly and by 2030 their share would reach 38-40%

Note: * includes peat, oil shale, ** includes waste

Energy: Final energy consumption



By 2030, electricity share needs to reach 30%.

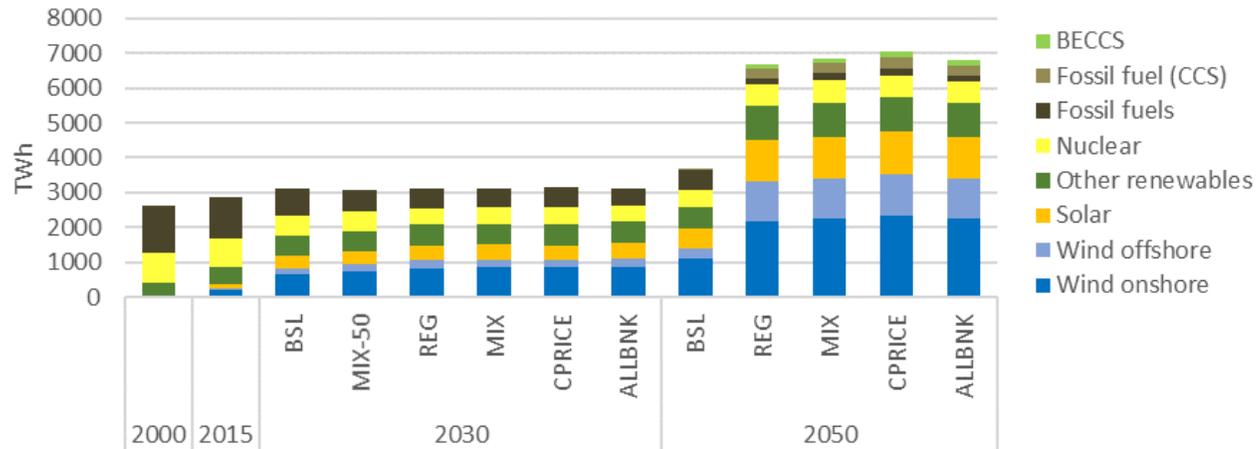
Hydrogen and e-fuels have very small uptake by 2030 but reaching climate neutrality relies on their use.

Natural gas still conserves its share by 2030 but virtually disappears in 2050.

Note: * includes peat, oil shale, ** includes manufactured gases, *** solid biomass, liquid biofuels, biogas, waste⁵

Energy: Electricity

Production



By 2030, share of RES in electricity reaches around 65% or more.

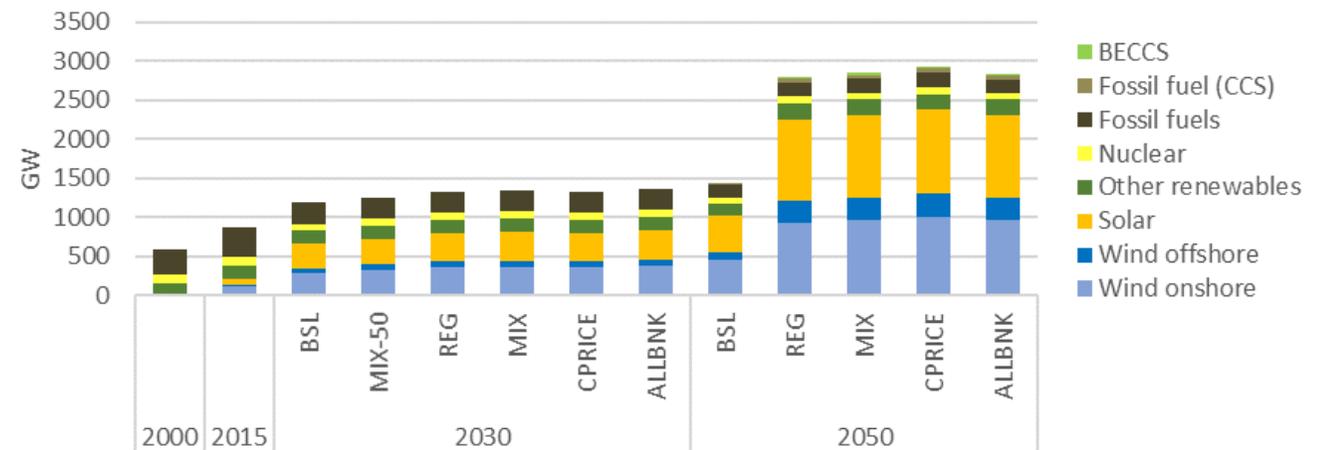
Fossils-fired generation still present by 2030 but is marginal in 2050 and to large extent coupled with CCS.

Renewables capacities have to grow at a very rapid rate.

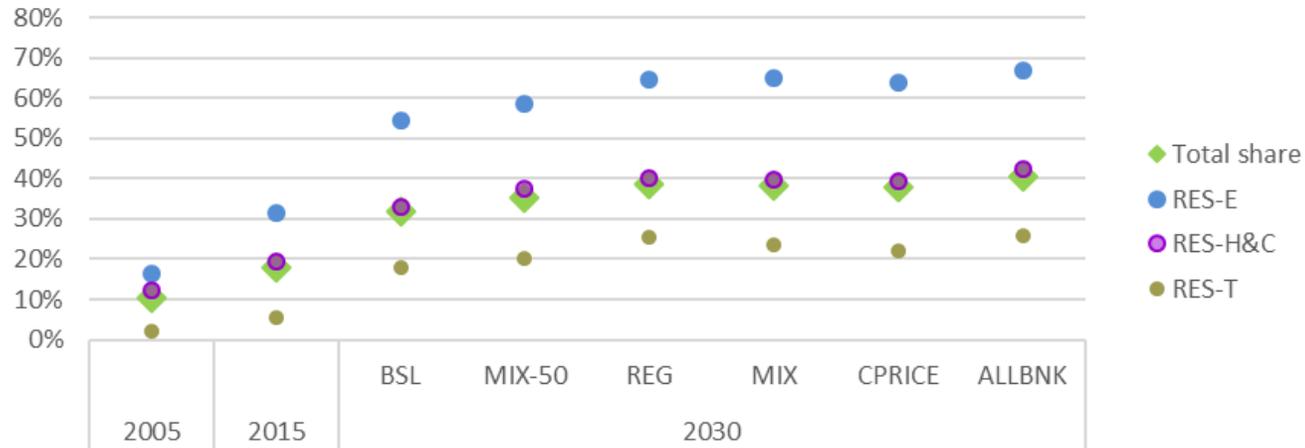
Europe's seas will be at the forefront of the EU's efforts to go carbon-free.

Offshore wind will be the fastest growing technology, with the installed capacity in 2030 reaching some 70 GW in the policy scenarios.

Capacities



Energy: Renewable energy



All sectors contribute to higher overall RES uptake.

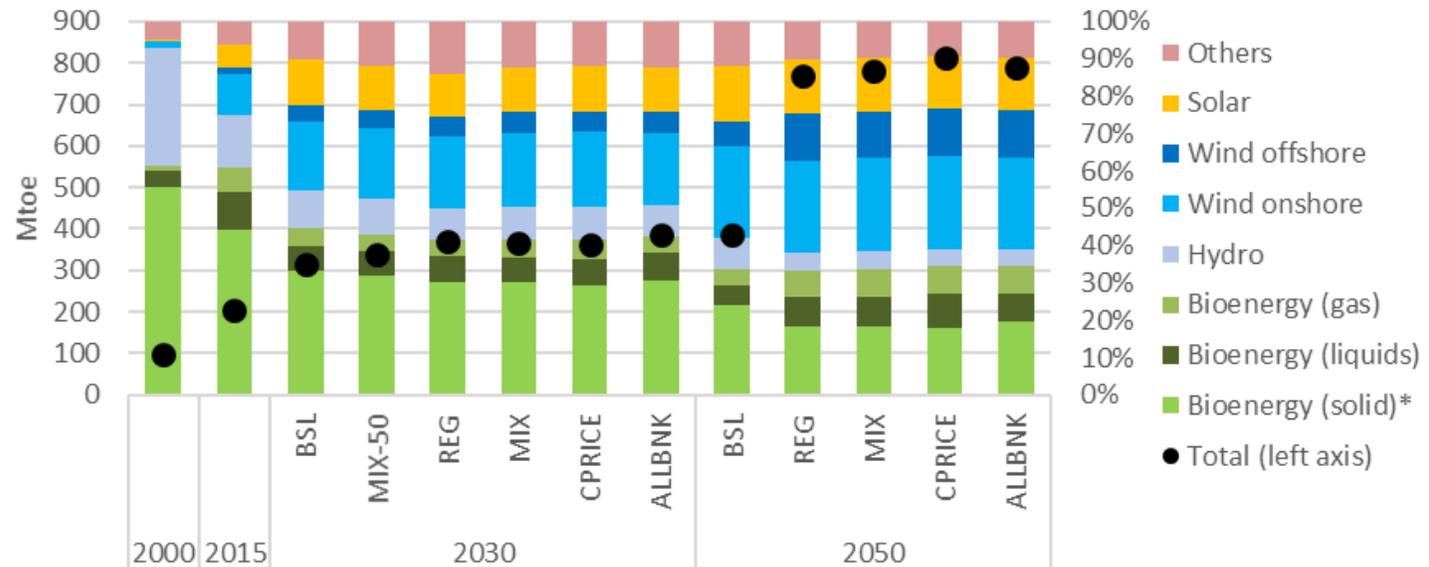
Highest share in electricity.

39-40-% share in H&C and 24% share in transport.

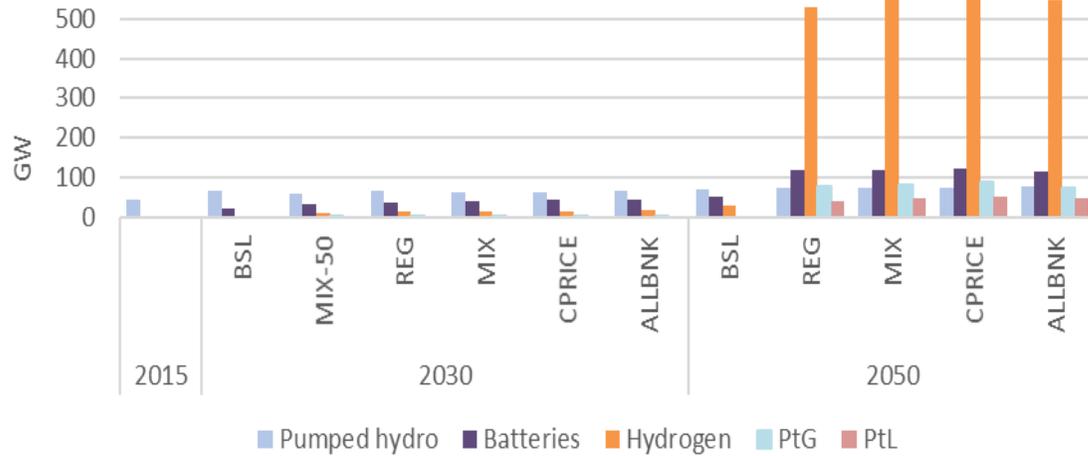
RES portfolio getting more diverse

Share of biogenic RES and hydro to fall

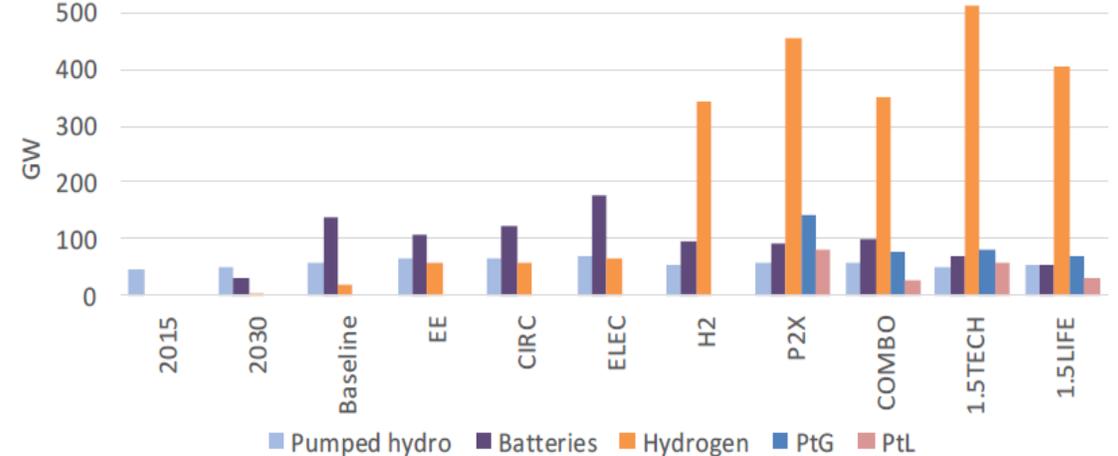
Shares of wind and solar to increase



CTP/LTS: Storage and production of new fuels



CTP

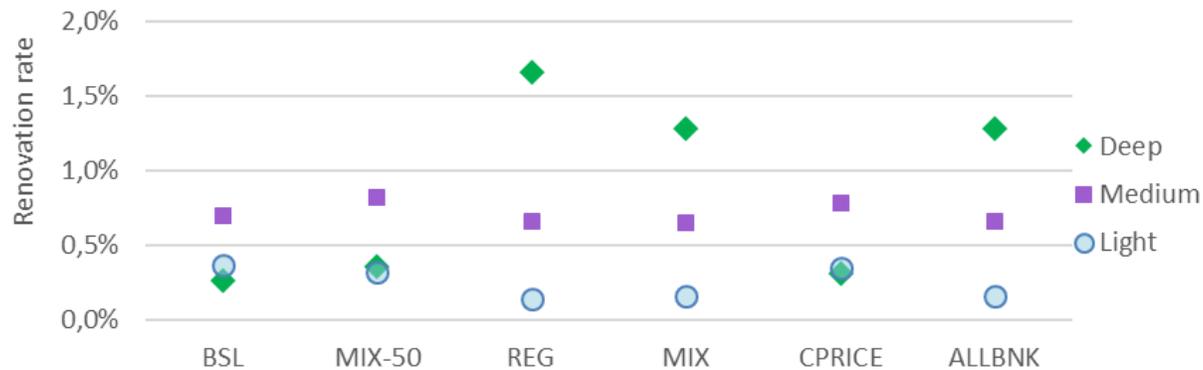


LTS

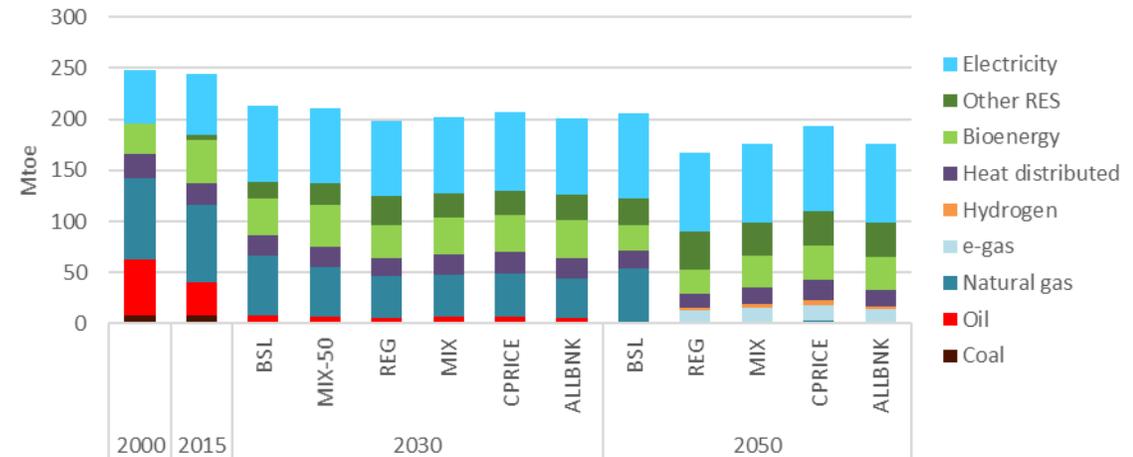
Source: PRIMES model

Energy: Buildings Renovations

Renovation rate in residential buildings



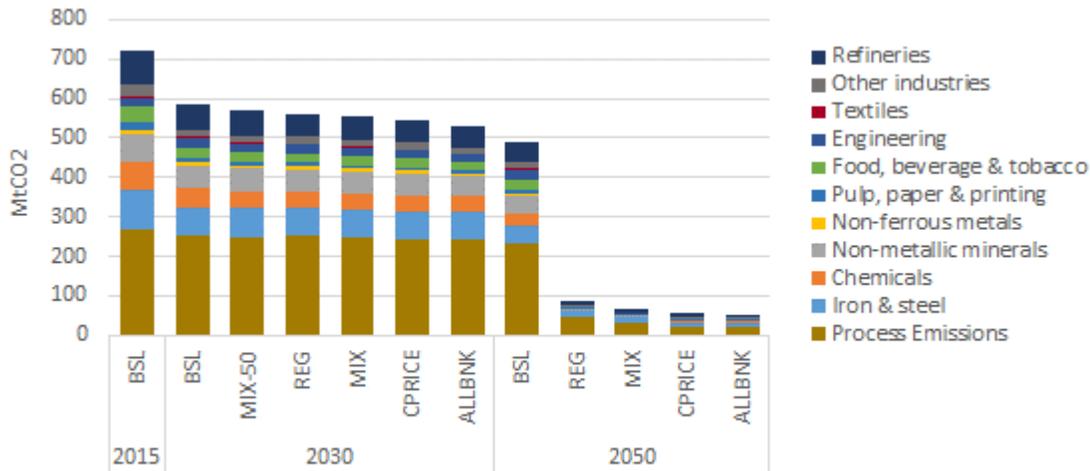
Fuel mix in residential buildings



- Significant differences in building shell renovation depending on the policy instrument, carbon pricing alone triggers this in a very limited manner.
- Fuel mix changes similar across the scenarios – regardless of different policy architecture with all scenarios seeing a higher rate of replacement of boilers (4% per year)

Industry

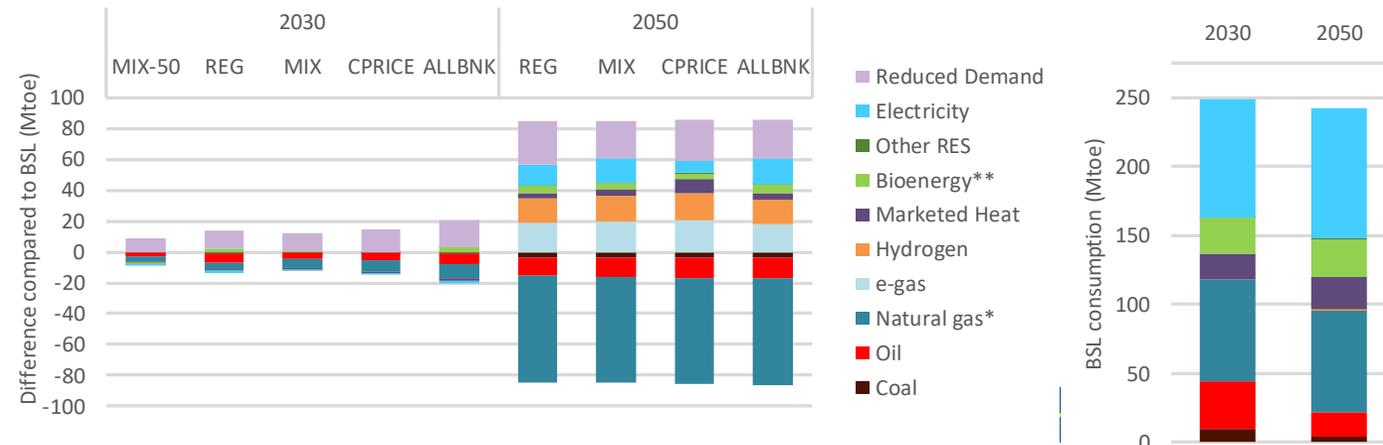
CO₂ emissions



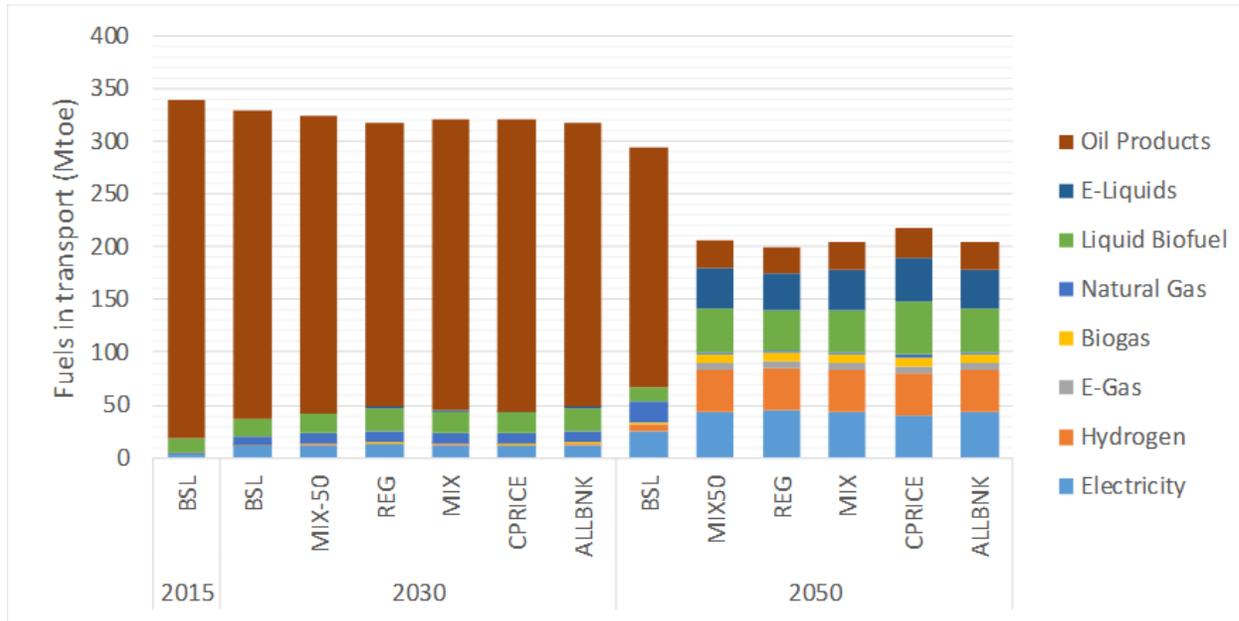
- By 2030: energy efficiency gains, leading to reductions of fossil fuel use
- Beyond 2030 noticeable role of new renewable and low-carbon fuels

- By 2030: compared to BSL overall limited additional reduction of CO₂ emissions in industry, in particular for process emissions

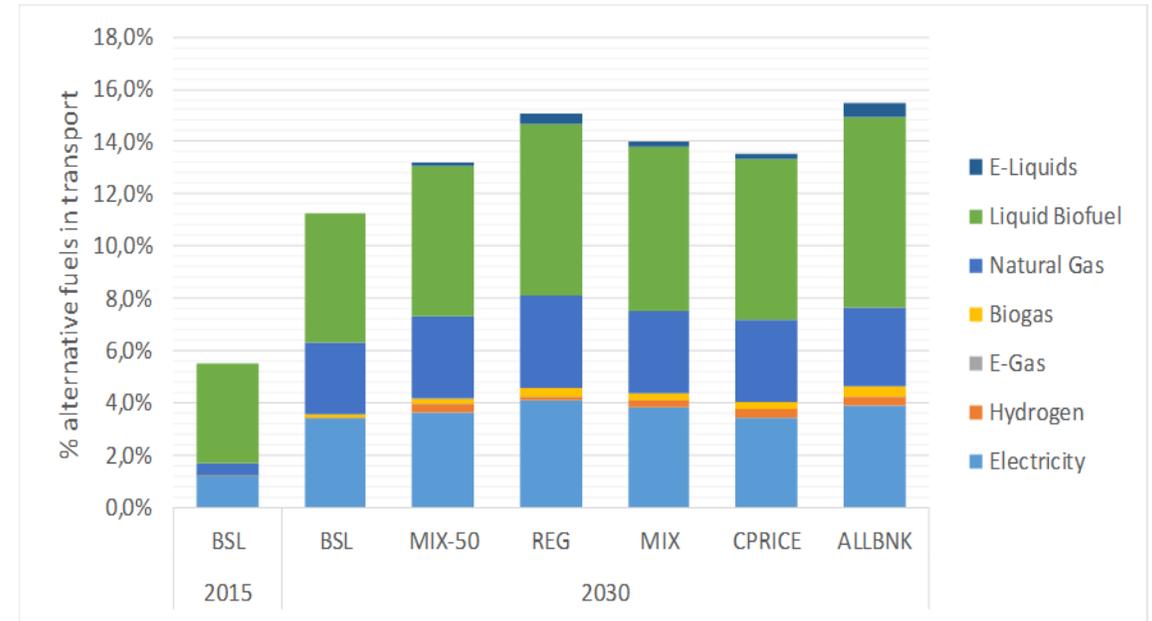
Change in energy mix



CTP: Final energy demand sectors: transport fuel switch – 2030 and 2050



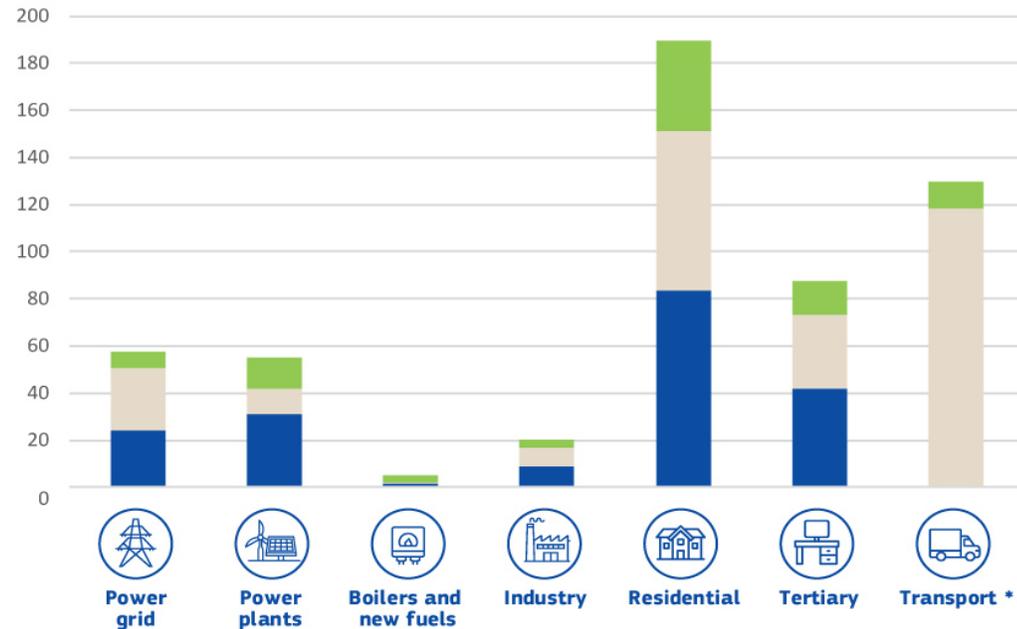
Fuel mix in transport sector



Alternative fuels in transport sector

Economics: Investment challenge in 2030

Average annual investment 2011-2020 and additional investment 2021-30
under existing policies and to achieve -55% greenhouse gas emission reductions
(in billion EUR 2015)

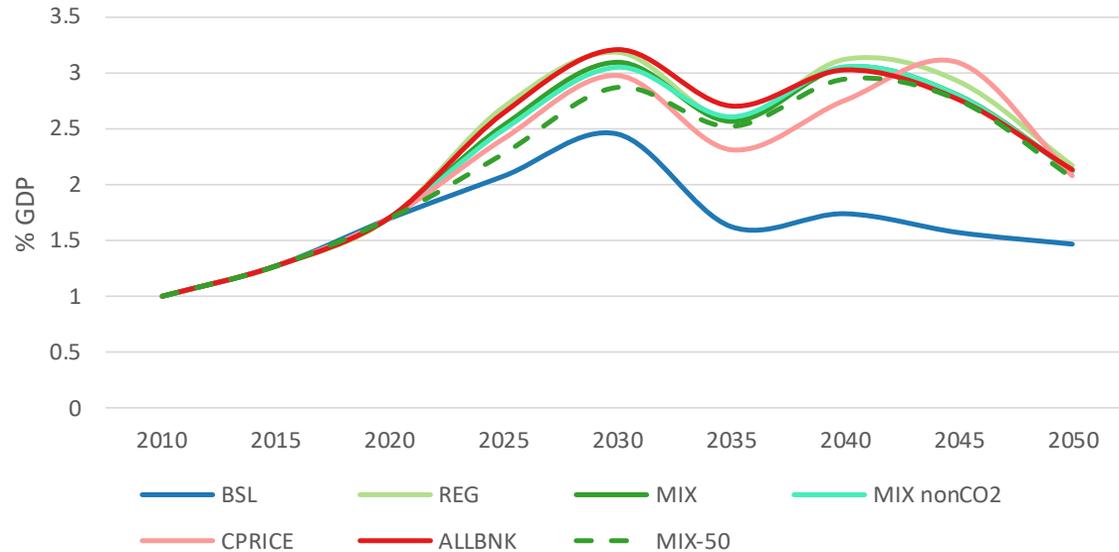


- Additional to achieve -55% greenhouse gas reductions, 2021-2030
- Additional under current 2030 policies in 2021-2030 compared to 2011-2020
- Historic annual investments in the energy system 2011-2020

* transport only shows additional investment

Economics: Investments

% GDP (excl, transport)



Annual investment (2021-2030, bn € 2015, excl. transport)

	BSL	MIX	COVID-BSL	COVID-MIX
TOTAL excl. transport	336.0	417.8	324.8	409.8

- In BSL, investment to reach existing target in a growing economy increase by EUR 260 bn/year compared to the past decade. Going further to 55% GHG leads to additional EUR 90 bn/year.
- Order of magnitude unchanged in COVID scenario. This is a challenge that needs to be addressed properly in the context of economic recovery.

Economics: Energy system cost

- Impacts energy system costs are limited, increasing to around 11%
- Investments are to large extent offset by fuel savings
- Including carbon pricing payments and disutility, costs increase in a more pronounced manner, with higher increases in scenarios based on (only) carbon pricing, but also with more revenues to recycle.

Energy System Costs (€'15)* (excl. carbon pricing payments and disutility costs)		BSL	MIX-50	REG	MIX	MIX- nonCO2**	CPRICE	ALLBNK
in bn (average annual)	2021-'30	1,593	1,612	1,654	1,626	1,621	1,620	1,633
	2031-'50	1,774	1,915	1,922	1,926	1,923	1,913	1,919
% of GDP (average annual)	2021-'30	10.7%	10.9%	11.1%	11.0%	10.9%	10.9%	11.0%
	2031-'50	9.9%	10.7%	10.8%	10.8%	10.8%	10.7%	10.7%
in bn	2030	1,700	1,720	1,771	1,743	1,732	1,735	1,752
	2050	1,851	2,105	2,107	2,109	2,098	2,122	2,091
% of GDP	2030	10.9%	11.0%	11.3%	11.1%	11.1%	11.1%	11.2%
	2050	9.1%	10.4%	10.4%	10.4%	10.4%	10.5%	10.3%



Thank you!