



Approach of the EU Reference Scenario process and policy scenario development

**6th Energy and Climate Technical Working Group
of the Energy Community**

European Commission (DG ENER and DG CLIMA)

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The EU Reference scenario process

- **Objectives:**

- To develop an informed, internally-consistent and policy-relevant view on the future developments of the EU **energy system, transport system** as well as **greenhouse gas emissions**
- which will serve as a "**facts and figures**" basis for future EU policy developments
- **A regular exercise**

Most recent version: [EU Reference scenario 2016](#)

General approach

- Modelling-based **projections (not forecasts!)** of energy, transport and greenhouse gas emissions trends to 2050
- Building on:
 - Consistent set of assumptions across EU
 - Member States and EU policies
 - Member States specific characteristics
- Relying on the consultation of Member States experts

Key assumptions

- **Macro-level input variables:**
 - GDP growth rates drawing on most recent ECFIN's sources
 - Population across EU Member States (EUROPOP2018)
 - Calibrating the models to these projections up to 2050
- **Updated fossil fuel prices projections** up to 2050
- Updated key **technology assumptions:**
 - Energy, transport, non-CO₂ and LULUCF
 - Evidence-based (e.g. scientific literature review, in-depth studies)
 - Stakeholders consultation

Baseline assumptions

- Data reflecting the most plausible development in the future in the current (policy) context (based on **historic** trends)
- National and EU policies are an **important pillar** of the EU Reference Scenario process.
- Necessary for the **proper country-level representation**.
- Only adopted policies with a specific cut off date were considered.
- With national and EU energy climate goals becoming more concrete, **planned policies become also relevant** (NECPs).

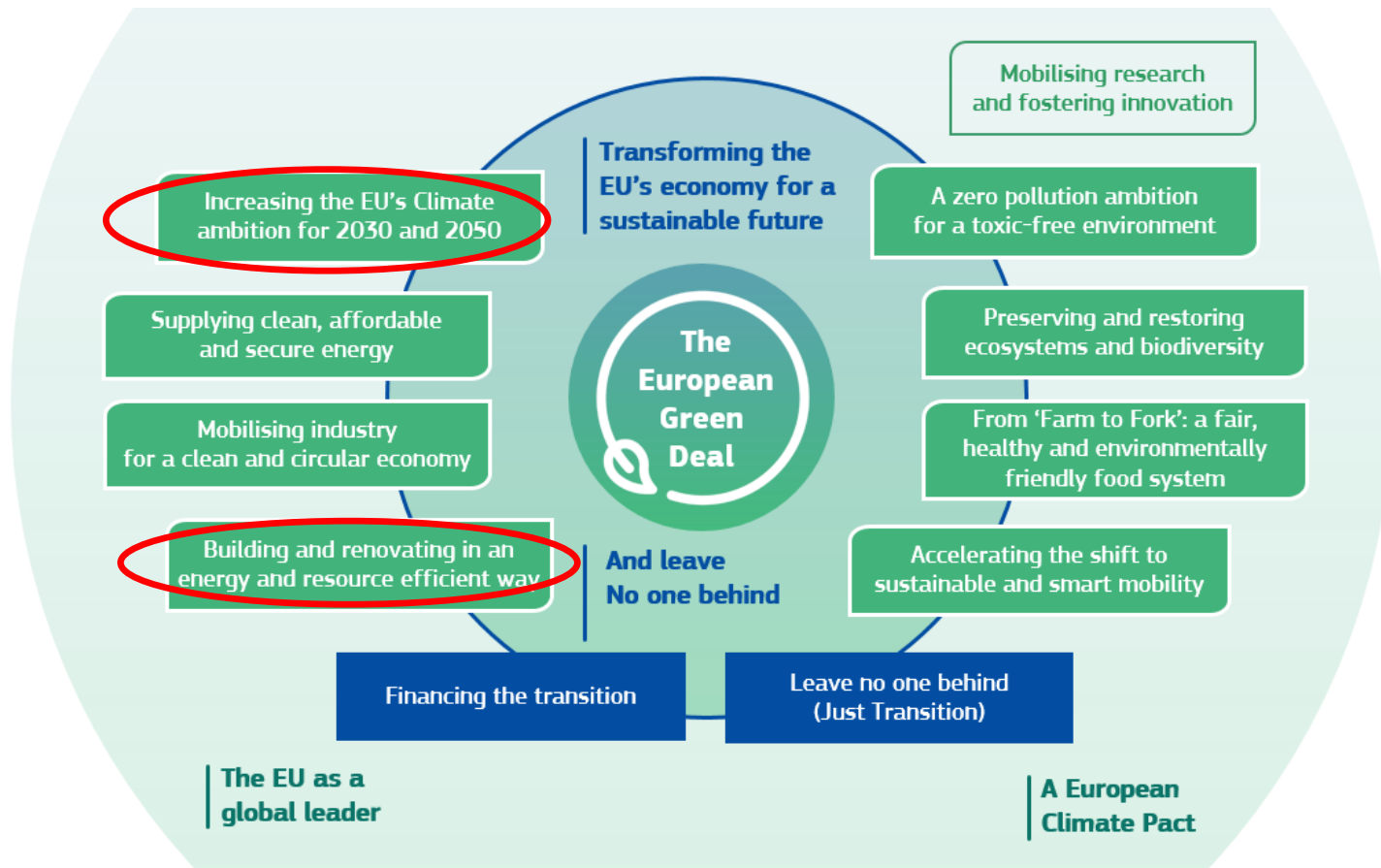
Reference Scenario 2020: NECPs specified Adopted policies and Additional policies

- Adopted policies: Concrete measures adopted by legislators and regulators by the end of year 2019.
 - **Already implemented or ready for implementation.**
 - **Not action plans, strategies, government proposals**
- Additional policies: to be adopted after the end of 2019.
 - **Planned for achieving the MS and EU energy and climate objectives for 2030 and beyond.**
 - **These measures should be part of final National Plans e.g. NECPs, NPFs, NFAPs.**

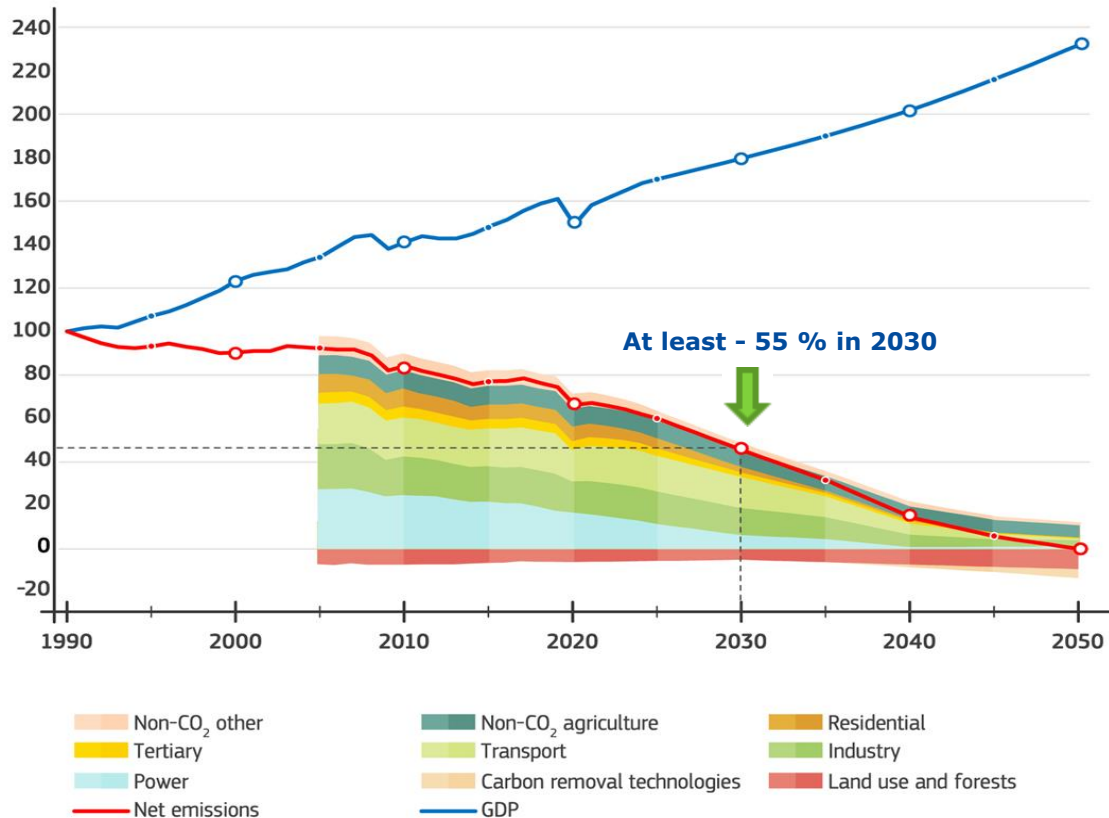
Consultation on policies and modelling results

- Policies: **bilateral meetings** to ensure good understanding of Member State policies
 - Organised on rolling basis after the submission of replies to the questionnaire
- Modelling results: consultation of Member State experts on draft modelling results per Member State for the *baseline scenario*

The European Green Deal



Our pathway to climate neutrality





Increased EU ambition

- The EU submitted its long-term strategy to the UNFCCC in March 2020, committing to **climate neutrality by 2050**;
- This commitment is in line with the Paris Agreement's goal;
- Existing climate target and legislation increase the **risk for carbon lock-in** and require back loading of actions;
- **Existing targets only achieve around 60%** greenhouse gas reductions by 2050;
- In December, **the European Council endorsed a binding EU target of a domestic reduction of at least 55%** in net GHG by 2030 compared to 1990. New target has been submitted to the UNFCCC.

Intervention logic

PROBLEM	EU has set a 2050 climate neutral objective, current 2030 climate target results in back-loading efforts to achieve this					
Problem drivers	At least 40% climate target is insufficient	Policy framework is inconsistent with climate-neutrality (1.5C) and sectoral ambition is insufficient				
GENERAL OBJECTIVES	Increase GHG target	Adapt policy framework (ETS, ESR, RES, EE, LULUCF)				
Specific objectives to address the problem drivers	(1) Increase level of economy wide climate target and (2) determine its scope	(3) Determine role of ESR and ETS including role of extending carbon pricing	(4 & 5) Prepare the ground for the review and, where necessary, revision of the energy policies (RES and EE), including insights for possible review/revision of the targets.	(6) Explore contribution of transport policies	(7) Determine role LULUCF policy	(8) Explore contribution of Non-CO2 mitigation

We analysed several policy scenarios

2030 Target Plan Policy Scenarios

	(REG) Policies and measures as main driver for GHG 55% target	(MIX)/ (MIX-50) Policies, measures and carbon pricing combined for GHG 55%/GHG 50% target	(CPRICE) Carbon pricing as main driver for GHG 55% target	(ALLBNK) Inclusion of all bunkers for GHG 55% target
Scope to assess GHG target ambition	All sectors including intra EU bunkers and LULUCF			All sectors including intra and extra EU bunkers and LULUCF
ETS Scope / Carbon Pricing	ETS scope: - Power, Industry, - Intra-EU aviation and navigation*	ETS scope: - Power, Industry, - Intra-EU aviation and navigation*, - Road transport, Buildings		ETS scope: - Power, Industry, - All aviation and navigation, - Road transport, buildings
EE policies	High intensification policies	Medium/low intensification policies	No additional measures compared to Baseline	Medium intensification policies
RES policies	High intensification policies	Medium/low intensification policies	No additional measures compared to Baseline	Medium intensification policies
Transport measures	High intensification policies (CO2 standards in road transport + RES, aviation and maritime fuel mandates + measures improving transport system efficiency)	Medium/low intensification policies (CO2 standards in road transport + RES, aviation and maritime fuel mandates + measures improving transport system efficiency)	Low intensification policies (CO2 standards in road transport + aviation and maritime fuel mandates + measures improving transport system efficiency)	Medium intensification policies (CO2 standards in road transport + measures improving transport system efficiency) High intensification of RES, aviation and maritime fuel mandates
non-CO2 policies	Medium intensification policies			High intensification policies
LULUCF policies	Baseline policies			

*Carbon pricing and carbon values are applied on extra EU aviation and navigation to represent ETS or other policy instruments regulating these sector's emissions (which can also stand for other policy instruments like CORSIA for aviation and technical and operational measures for both aviation and maritime).

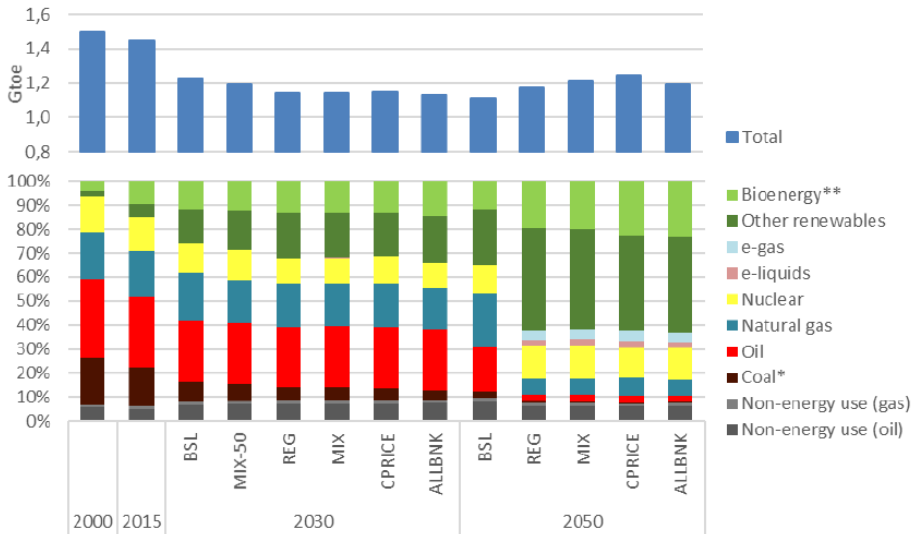
How will we achieve the new 2030 target?

- The Commission will come forward with **key legislative proposals** under the '*Fit for 55 package*' for all sectors by June 2021, accompanied by robust impact assessments and comprehensive public consultation.
- The EU is also **mainstreaming climate policy** across all policies
- In the coming months and years, the EU will **rally international support** to raise the global ambition on climate change.

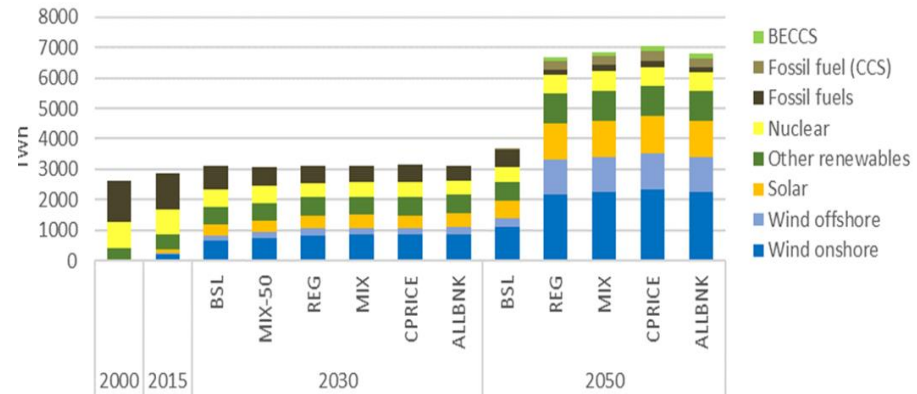
Ambition and interaction GHG and energy

Scenarios	Total GHG vs 1990	Renewables share Overall	Energy savings	
			Primary energy consumption	Final energy consumption
BSL	-46.9%	32.0%	-34.2%	-32.4%
MIX-50	-51.0%	35.1%	-36.8%	-34.4%
REG	-55.0%	38.7%	-40.1%	-36.6%
MIX	-55.0%	38.4%	-39.7%	-35.9%
CPRICE	-55.0%	37.9%	-39.2%	-35.5%
ALLBNK	-57.9%	40.4%	-40.6%	-36.7%
Variant MIX-non-CO ₂	-55.1%	37.5%	-39.3%	-35.9%

Gross inland energy consumption and power generation output

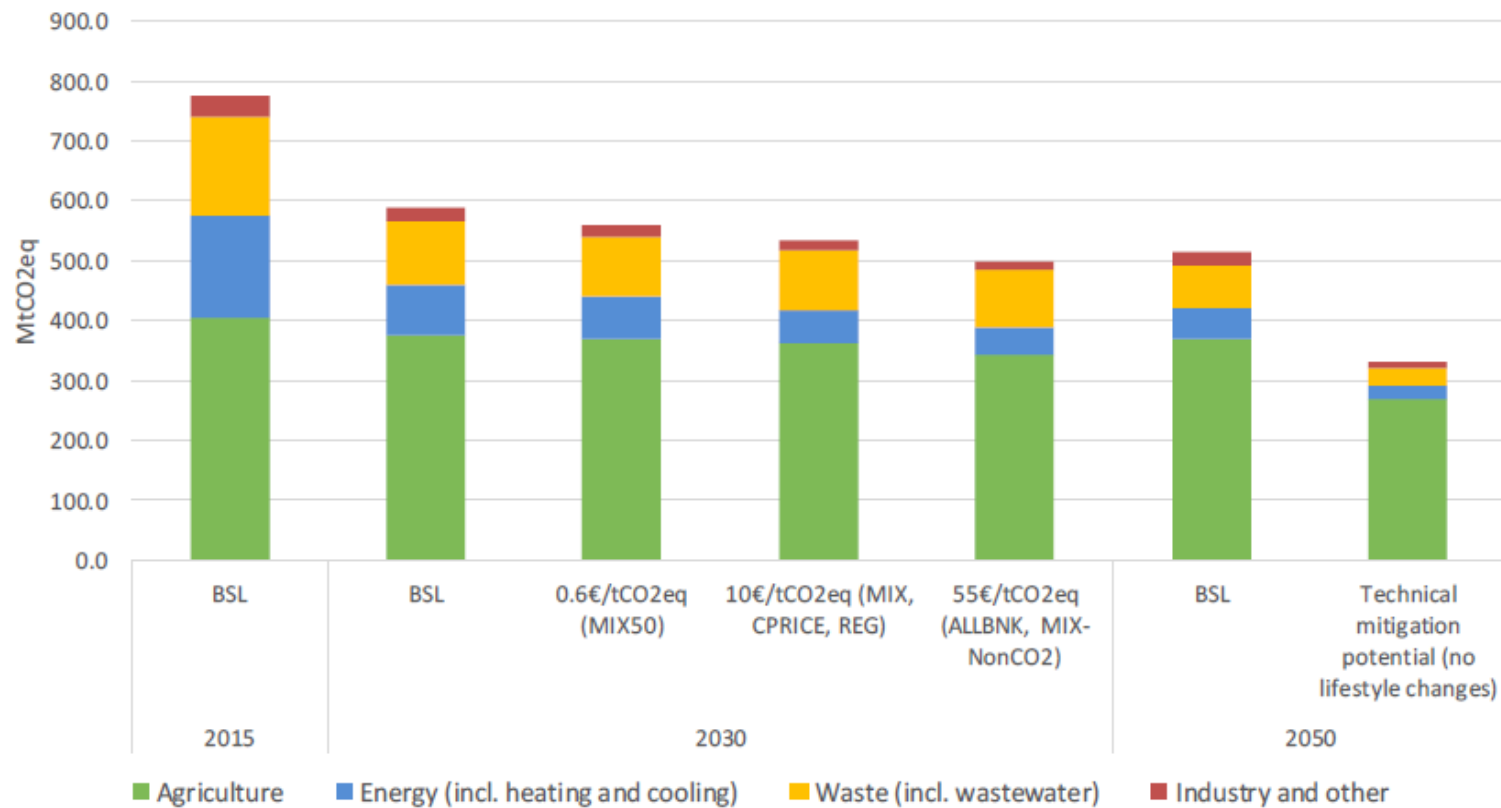


Note: * includes peat, oil shale, ** includes waste



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

Non-CO₂ greenhouse gases





European
Commission

Questions?