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The 2017 Update of the Vision Scenario. A long-term scenario analysis for the EU-28

Press Briefing

Greens/EFA group in the European Parliament

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Brussels, 20th September 2017

Background

- **The Vision Scenario is an illustrative long-term scenario analysis for the energy sector and the greenhouse gas emissions (from all sectors except land use and land use change) that is based on comprehensive sustainability considerations**
  - deep decarbonization (based on a global emissions budget perspective)
  - risk minimization (ambitious nuclear phase-out trajectory)
  - broader sustainability aspects (availability of scare resources of sustainable biomass etc.)
- **The Vision Scenario for the EU-28 is contrasted with a Business-as-usual (BAU) scenario which is based on the Reference Scenario 2016 of the European Commission**
- **The Vision Scenario is built on a hybrid approach**
  - top-down modelling that is based on the analysis of a broad range of decarbonization scenarios
  - bottom-up modelling for the EU-28 power and the transport sector

The CO2 emission budget
A novel approach to ensure consistency to "Paris"

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	CO_2 budget globally from 2015	CO_2 budget EU-28		
		Emissions share 2015	Share in population	
			2015	2050
	Gt CO_2	Gt CO_2	Gt CO_2	Gt CO_2
1.5°C for 66% of model runs	240	21,7	16,6	12,9
1.5°C for 50% of model runs	390	35,2	27,0	20,9
1.5°C for 33% of model runs	690	62,2	47,7	37,1
2°C at 66% probability	890	80,2	**61,5**	47,7
2°C at 50% probability	1.000	90,1	69,1	53,6
2°C at 33% probability	1.290	116,2	89,2	69,2
3°C for 66% of model runs	2.240	202,0	154,9	120,2
3°C for 50% of model runs	2.640	238,0	182,6	141,7
3°C for 33% of model runs	3.090	278,6	213,7	165,9

The climate impact of energy and emission pathways can be assessed on the basis of cumulative CO2 emissions

The IPCC provides CO2 emission budget specifications that are widely used in analytical exercises on Paris-compatible pathways (e.g. by IEA/IRENA)

The EU's fair share in the global budget is based on a per-capita (equity) basis on the post-Paris (post-2015) CO2 emissions

The Vision Scenario
Key pillars

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- **Staying within an Paris-compatible emissions budget**
- **Massive roll-out of energy efficiency measures for all sectors**
- **Massive increase of energy supply from renewable energy sources (with a strong focus on new renewables like wind and solar energy)**
- **Coal phase-out in Europe by 2035**
- **Nuclear phase-out in Europe with a maximum lifetime of 40 years for nuclear power plants**
- **Sustainability-based limits for the use of biomass**
- **Large-scale electrification of the transport sector**
- **Restricted use of carbon capture and storage (CCS) for CO2 emissions from industrial processes**
- **Limited import of novel motor fuels (power-to-liquid or equivalents) from abroad**

CO2- and GHG emissions
Budget approach requires deep decarbonization

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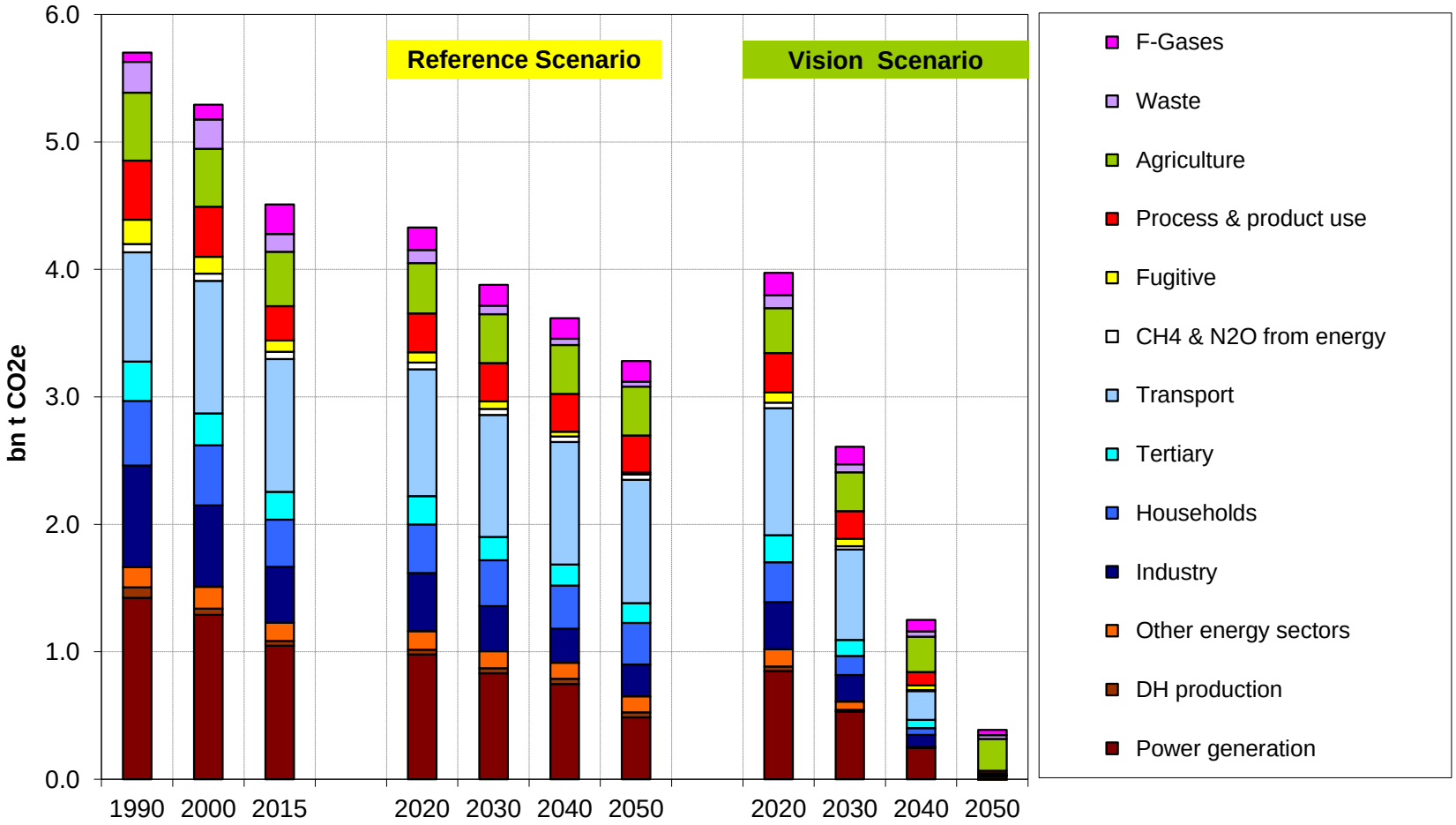

The EU's energy supply needs to be CO2-free by 2050 at the latest

All sectors need to decarbonize/contribute to massive emission reductions; power, transport and buildings are however the key sectors for action

Primary energy supply (w/o non-energy uses)
System transformation towards renewables

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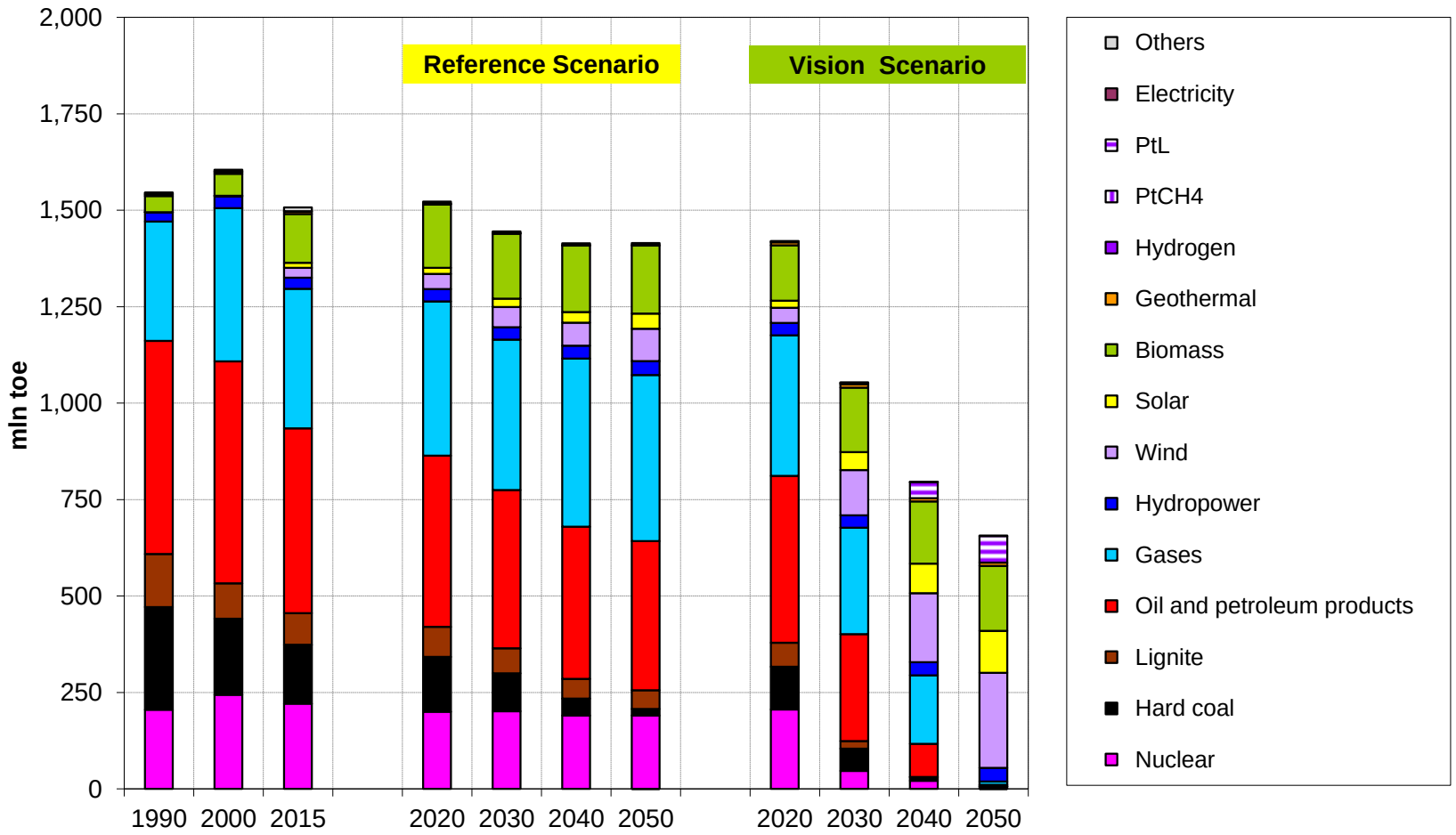

Wind, solar and biomass will/can fully deliver almost all primary energy in 2050

(Limited) imports of CO2-free motor fuels as a long-term option (beyond 2030)

Continuous transition of the system is beneficial
More ambitious targets ease future adjustments

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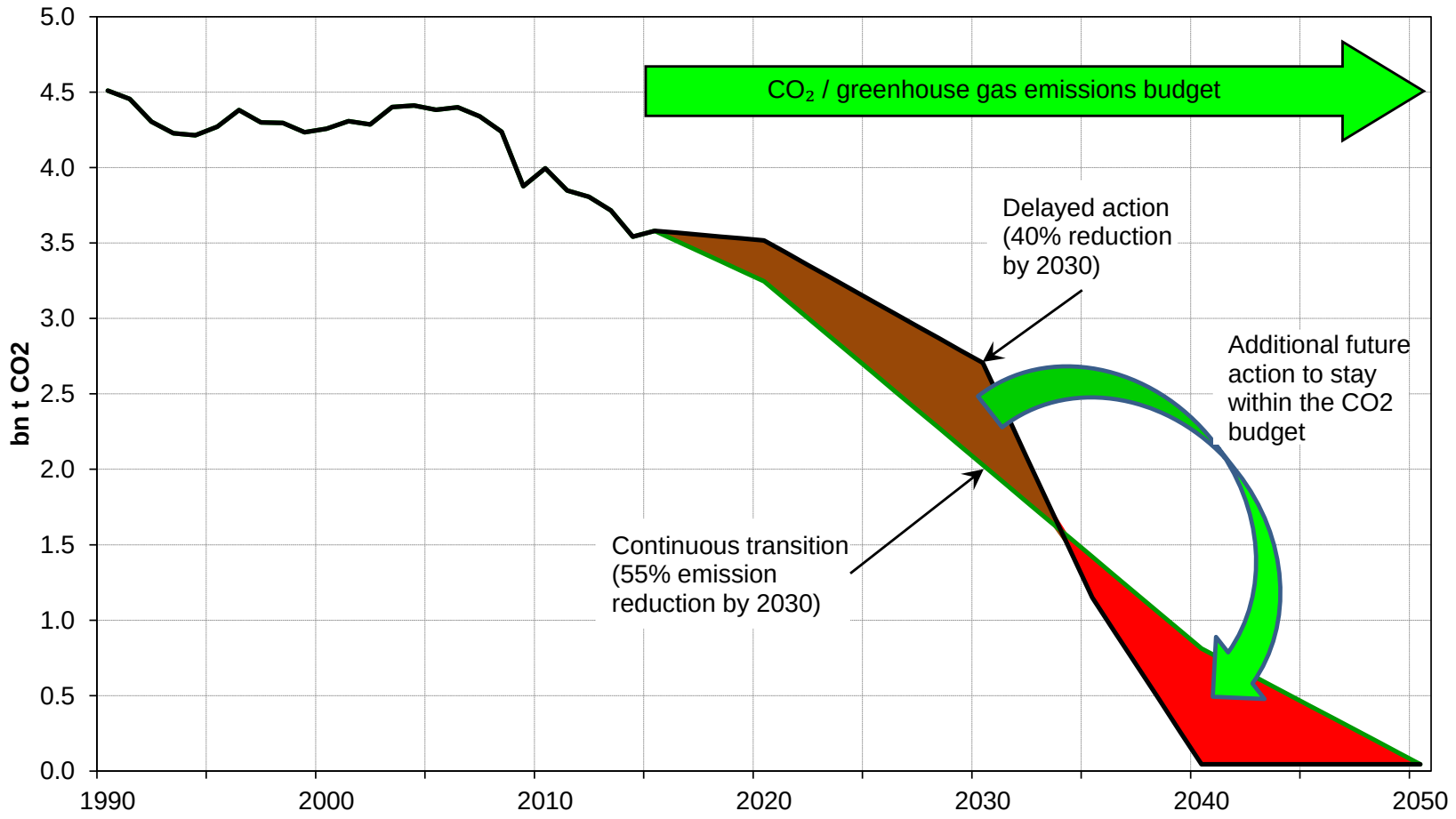

The more stringent the decarbonization efforts are in an early phase of the system transition the more flexibility exists on the longer-term

Targets for GHG emission, RES & energy efficiency need to be ambitious

Selected results from the Vision Scenario
Target-related indicators

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	Reference Scenario					Vision Scenario			
	2015	2020	2030	2040	2050	2020	2030	2040	2050
Share of renewables									
Power generation	29%	37%	43%	45%	53%	39%	70%	84%	100%
District heat*	26%	24%	23%	22%	22%	27%	60%	84%	96%
Final energy*	15%	19%	22%	24%	27%	19%	37%	65%	96%
Industry	*18%*	*24%*	*30%*	*34%*	*38%*	*24%*	*47%*	*67%*	*88%*
Tertiary	*18%*	*23%*	*28%*	*31%*	*36%*	*23%*	*48%*	*69%*	*99%*
Households	*25%*	*28%*	*29%*	*30%*	*33%*	*29%*	*55%*	*78%*	*100%*
Transport	*4%*	*7%*	*7%*	*8%*	*9%*	*7%*	*14%*	*57%*	*99%*
Primary energy	15%	17%	19%	21%	13%	20%	40%	70%	98%
Energy Efficiency	Change from Primes Baseline 2007**								
Primary energy	-	-18%	-23%	-	-	-23%	-44%	-	-
Primary energy imports***	17%	13%	13%	14%	17%	13%	10%	7%	7%
GHG emissions	Change from 1990								
Total****	-21%	-24%	-32%	-37%	-42%	-30%	-54%	-78%	-93%
CO2****	-21%	-22%	-30%	-35%	-42%	-28%	-55%	-82%	-99%

Notes: * The share of renewable energy sources includes indirect contributions from electricity, heat, hydrogen & synfuels. The statistically unaccounted ambient heat delivered by heat pumps represents additional contributions to the final energy supply from renewables. - ** The 2007 Primes Baseline projection for the EU-27 was adjusted for Croatia. - *** Excluding primary energy for non-energy uses, nuclear fuel was fully considered as imported primary energy. - **** Including international aviation and excluding LULUCF.

For a more continuous & consistent transformation towards a 2°C-compatible economy higher ambition levels of energy & climate policy are needed

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Thank you very much

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