

ENERGY TRANSFORMATION, AN OPPORTUNITY FOR EUROPE... AND FOR BULGARIA!

Claude Turmes, Member of the European Parliament

Sofia, 19 April 2018



The Greens | European Free Alliance
in the European Parliament

GHG ISSUE IS A VOLUME ISSUE: A CARBON BUDGET APPROACH

	CO ₂ budget globally from 2015	CO ₂ budget EU-28		
		Emissions share 2015	Share in population	
	Gt CO ₂		Gt CO ₂	2015
		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

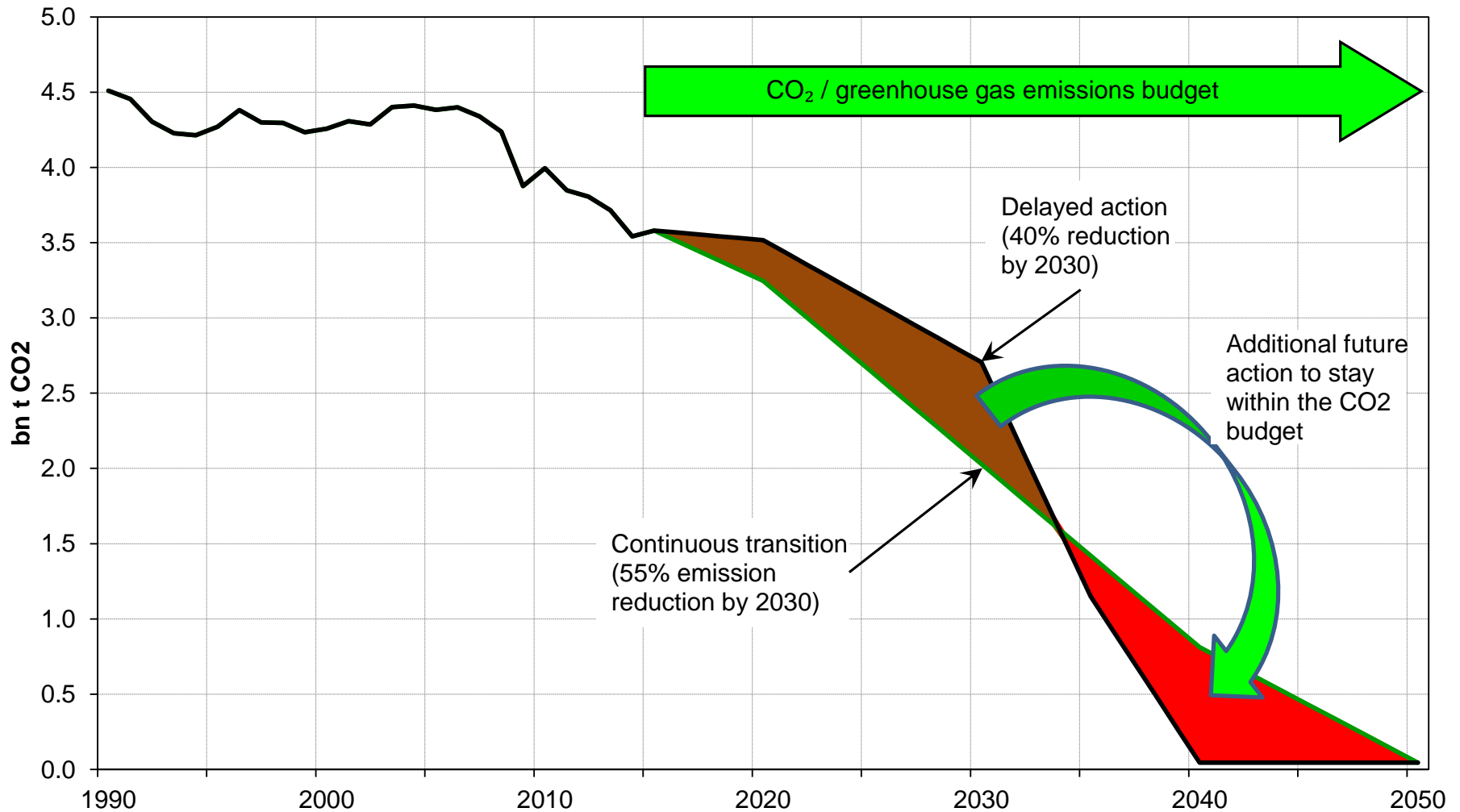
The climate impact of energy and emission pathways can be assessed on the basis of cumulative CO₂ emissions

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

TOWARDS ANOTHER LOST DECADE?

'DELAYED ACTION' PATHWAY NOT IN LINE WITH THE PARIS AGREEMENT

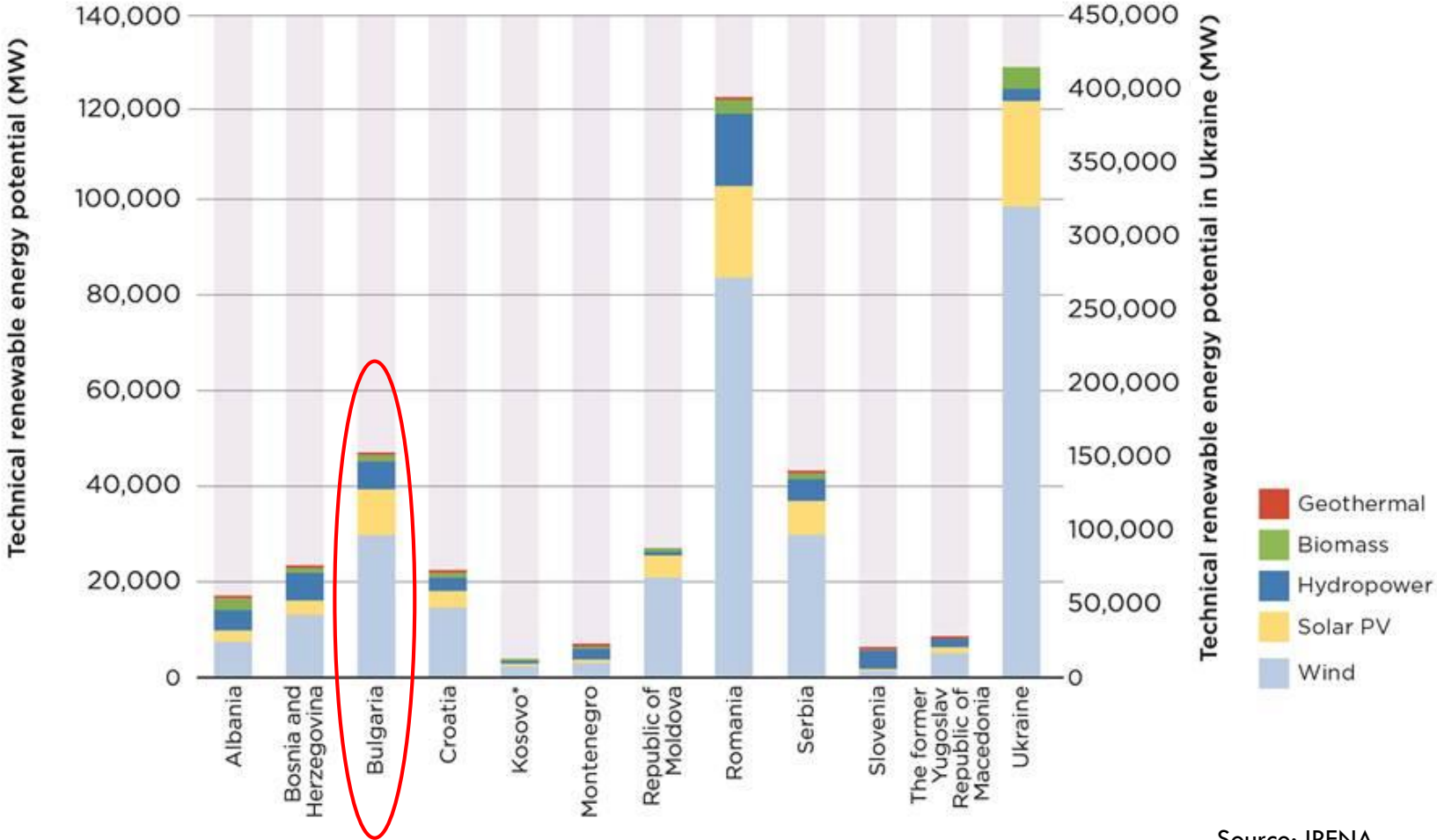


“27-27-40” ARE NOT ENOUGH 2030 TARGETS SHALL BE REVISED UPWARDS

	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%
<i>Industry</i>	18%	24%	30%	34%	38%	24%	47%	67%	88%
<i>Tertiary</i>	18%	23%	28%	31%	36%	23%	48%	69%	99%
<i>Households</i>	25%	28%	29%	30%	33%	29%	55%	78%	100%
<i>Transport</i>	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.

RES POTENTIAL IN SOUTH-EASTERN EUROPE IS GIGANTIC

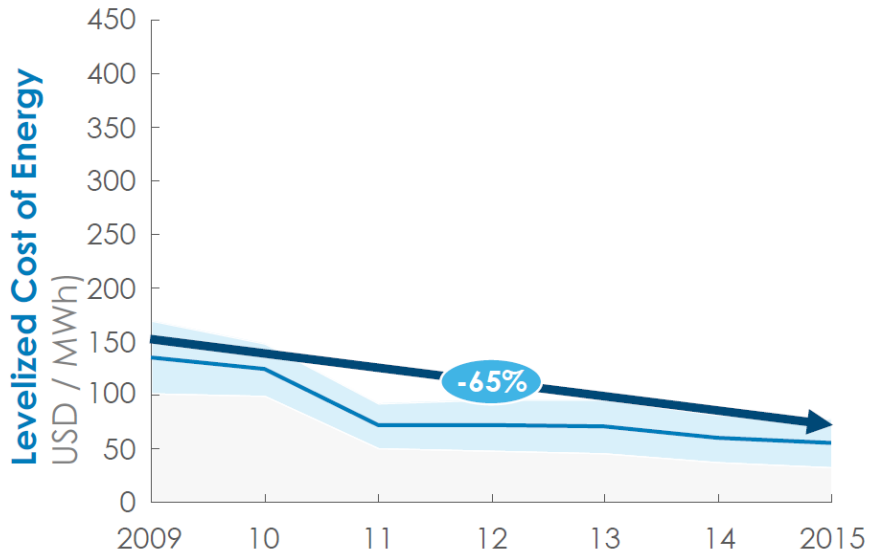


Source: IRENA

RES HAVE NEVER BEEN SO CHEAP

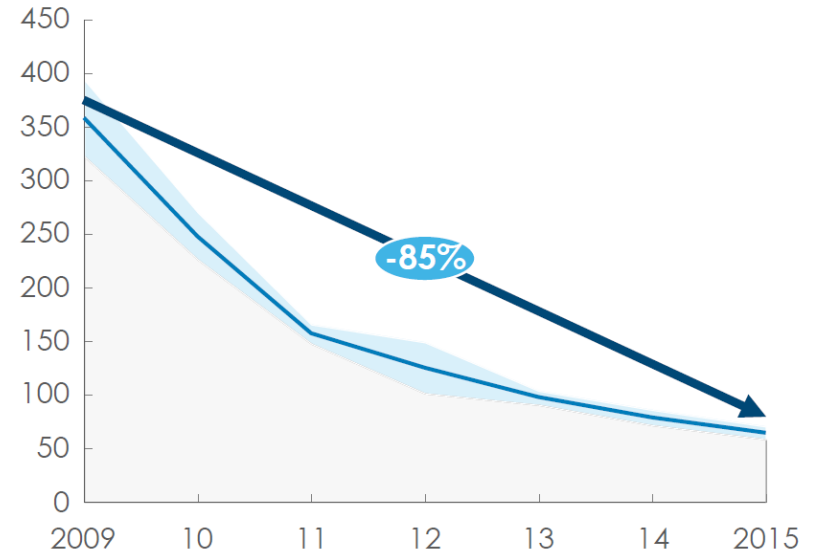
Onshore Wind

USD/MWh, Unsubsidized



Utility-Scale PV

USD/MWh, Unsubsidized



SOURCE: Lazard Levelized Cost of Energy 9.0 (2015), Greentech Media, Lawrence Berkeley National Lab

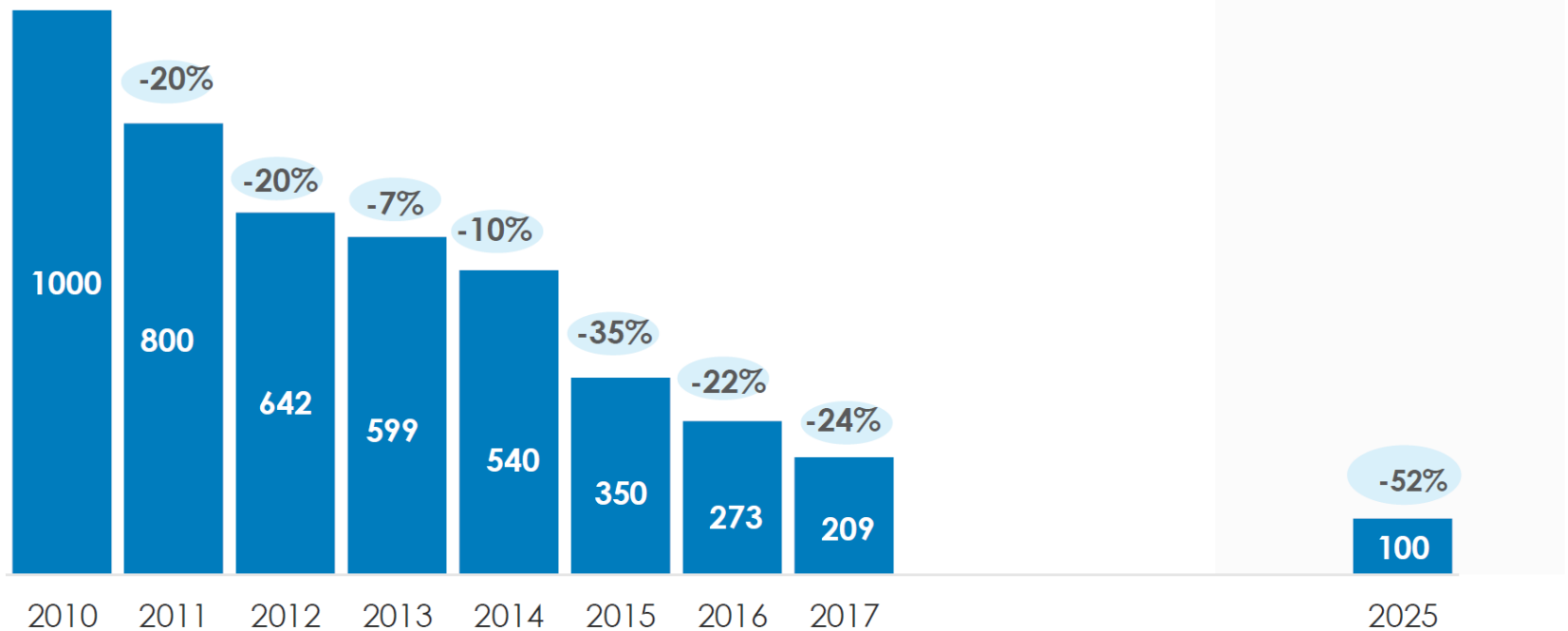
Source: Energy Transition Commissions

COST OF BATTERIES ARE FALLING

Lithium ion battery prices – Observed

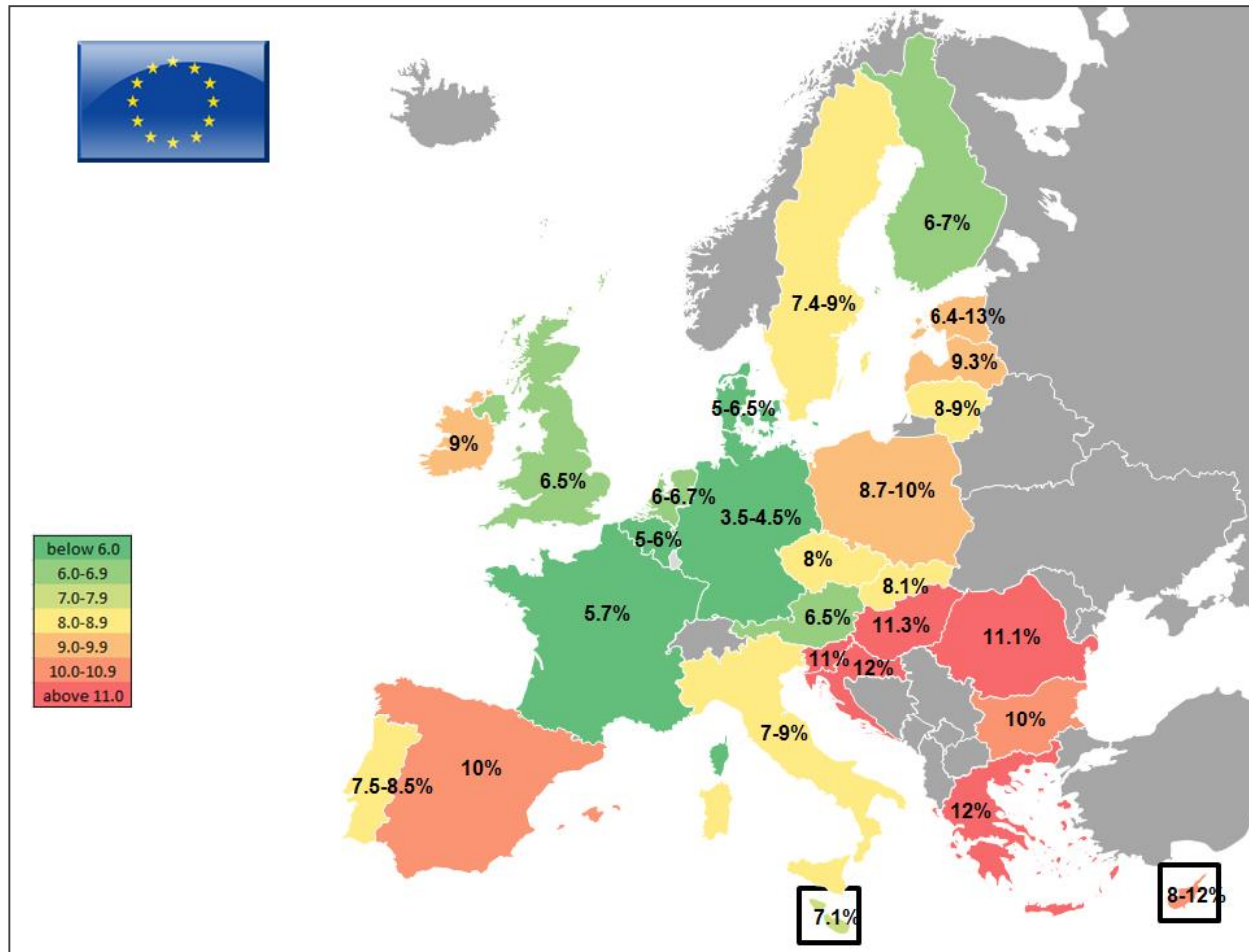
USD per kWh of storage

Projected



SOURCE: Bloomberg New Energy Finance (2017)

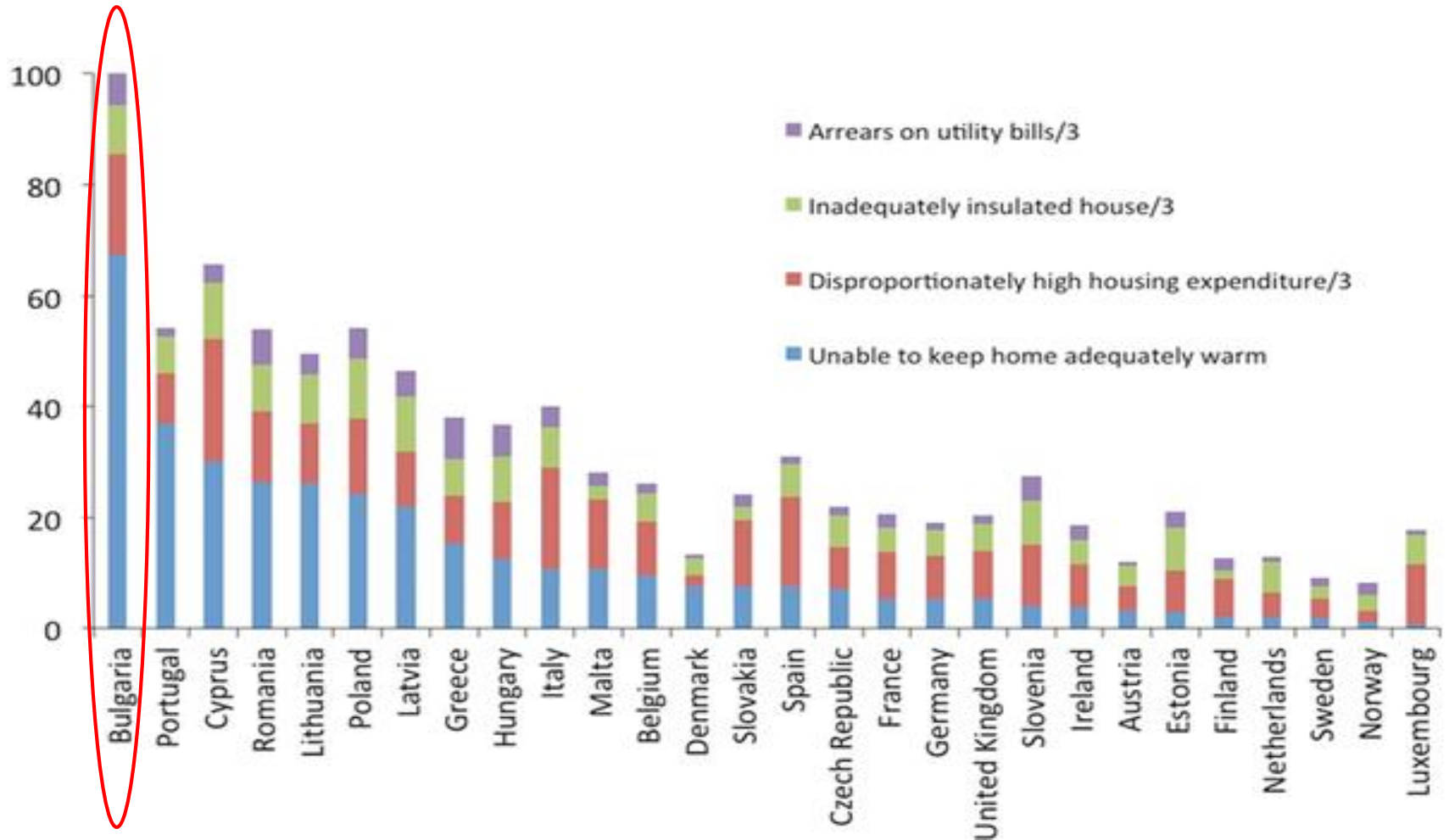
ONE IMPORTANT BARRIER REMAINS: COST OF CAPITAL



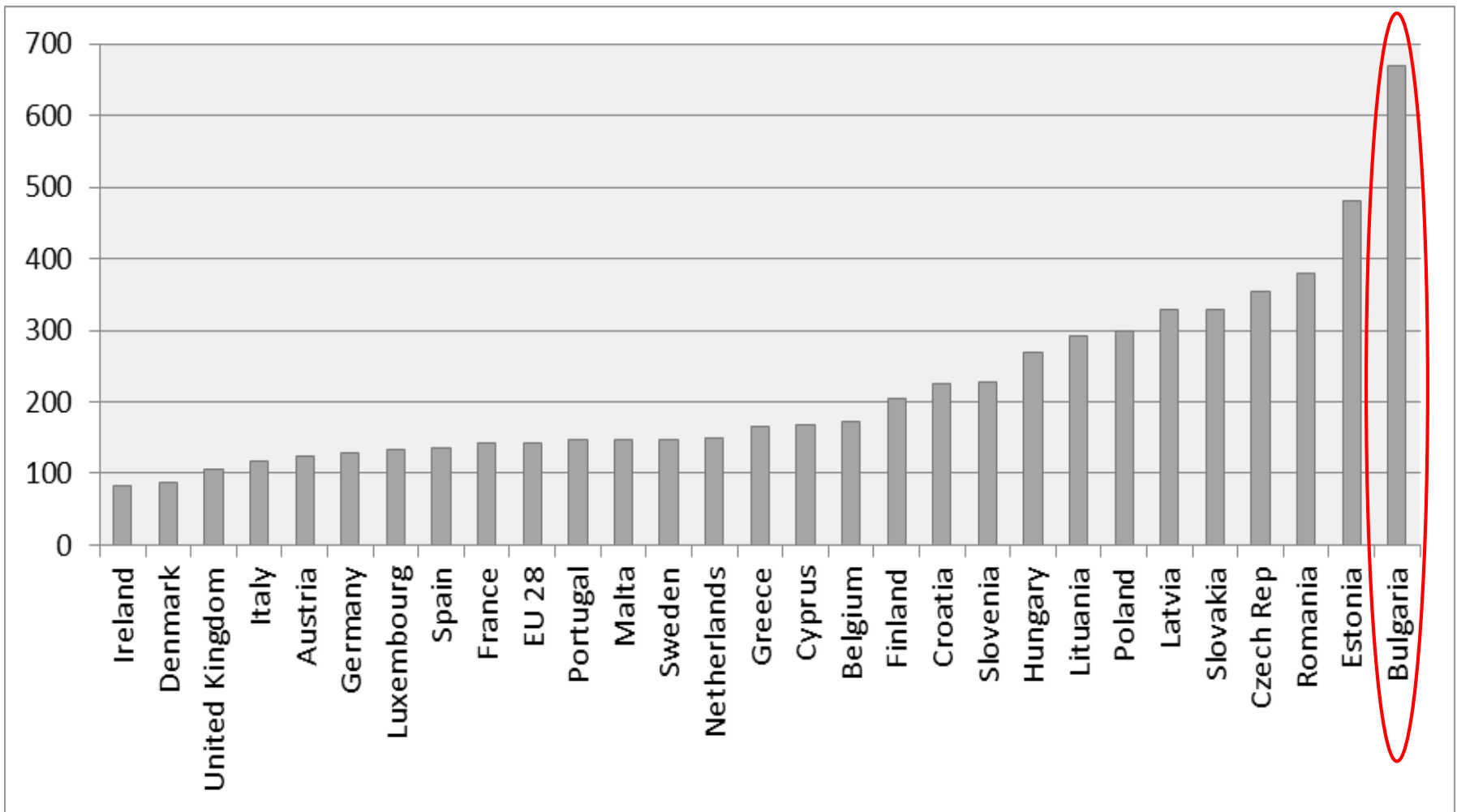
Source: DiaCore project

Estimation of WACC for on-shore wind projects

ENERGY POVERTY NEEDS TO BE ADDRESSED...



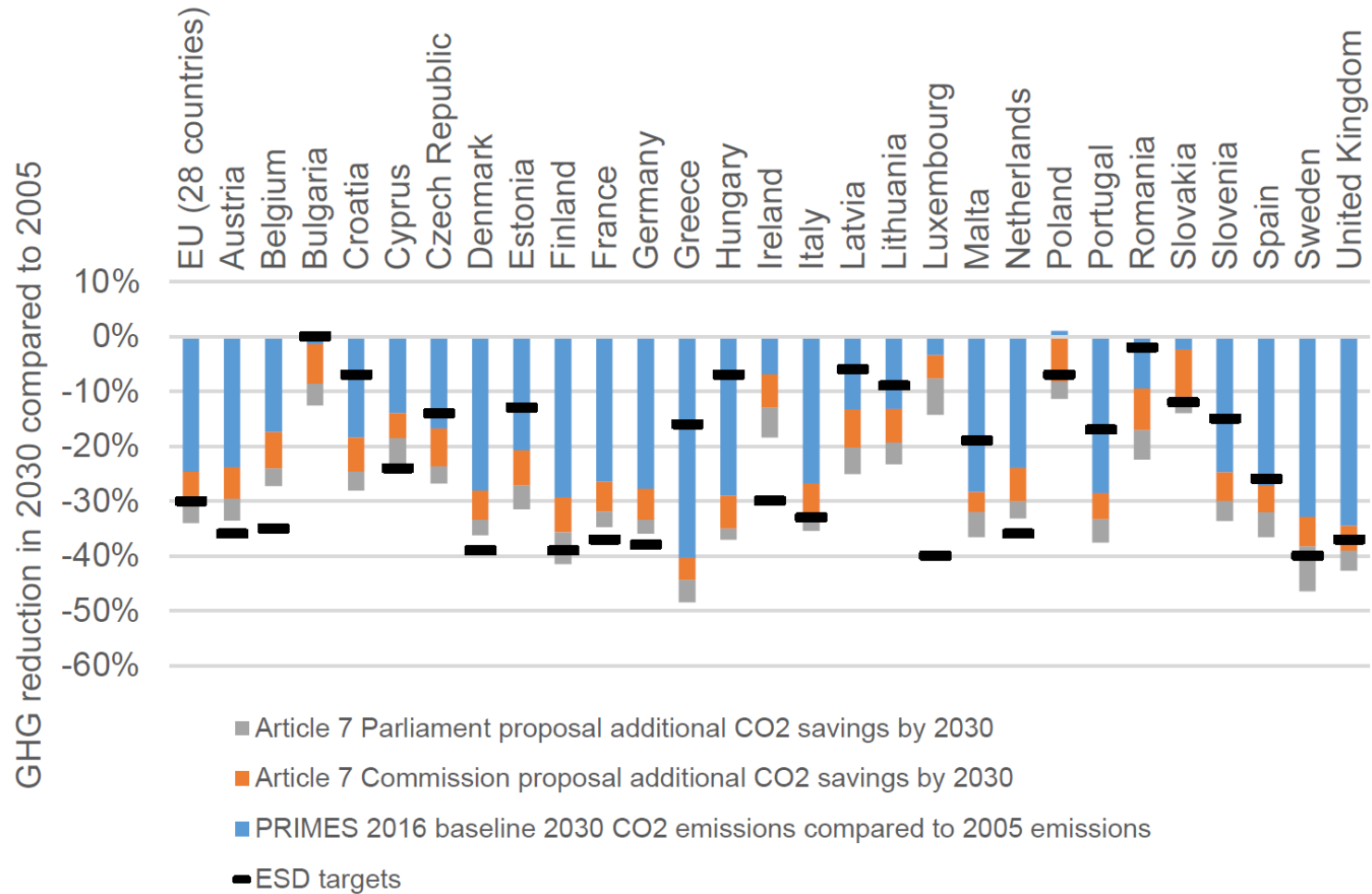
...NOTABLY BY AMBITIOUS ENERGY EFFICIENCY MEASURES



Energy intensity in EU 28, in toe/M€ GDP

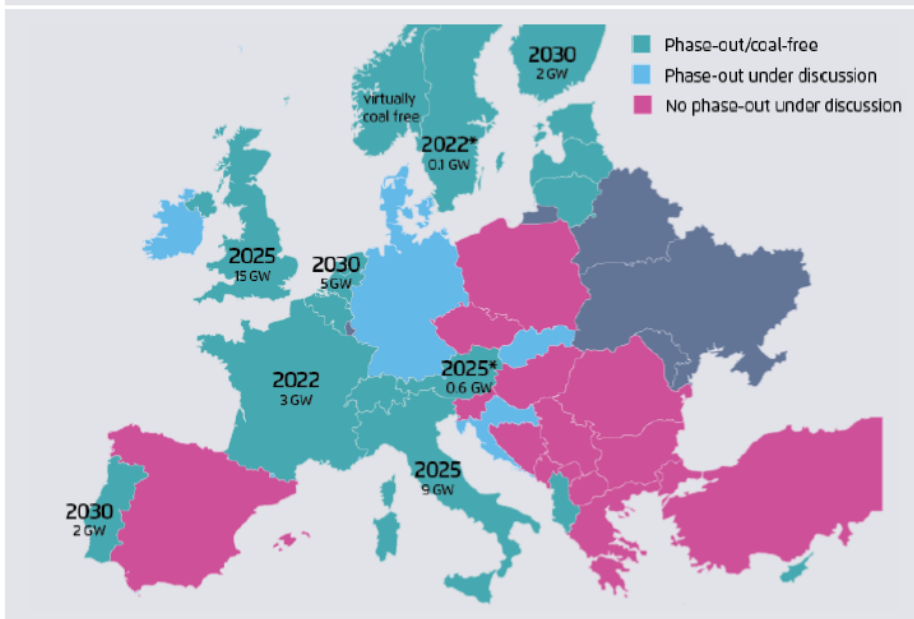
Source: European Commission

STRONG EED ARTICLE 7 HELPS ACHIEVING CLIMATE OBJECTIVES



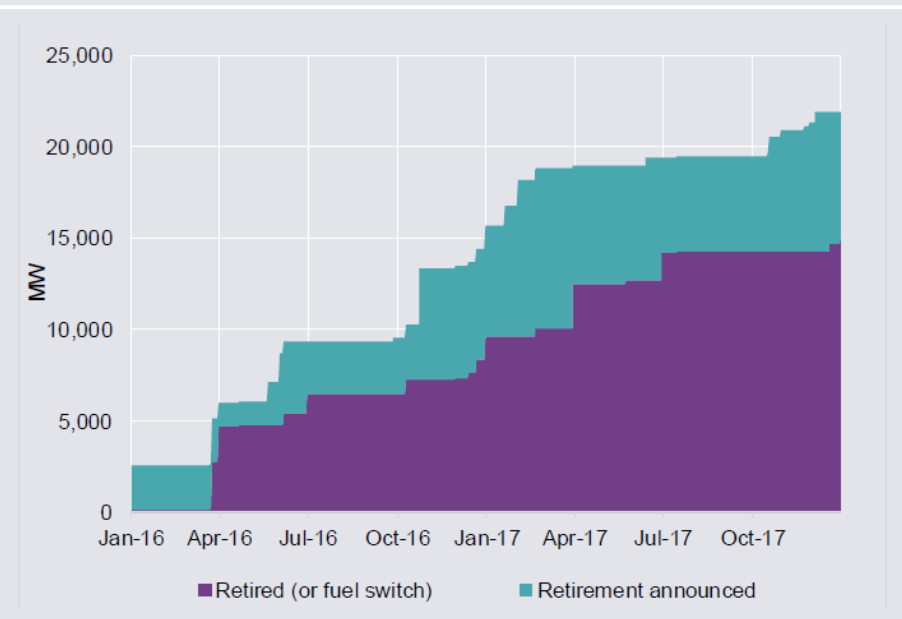
EUROPE NEEDS TO ACCELERATE COAL PHASE-OUT

Coal phase-out years and operational capacity



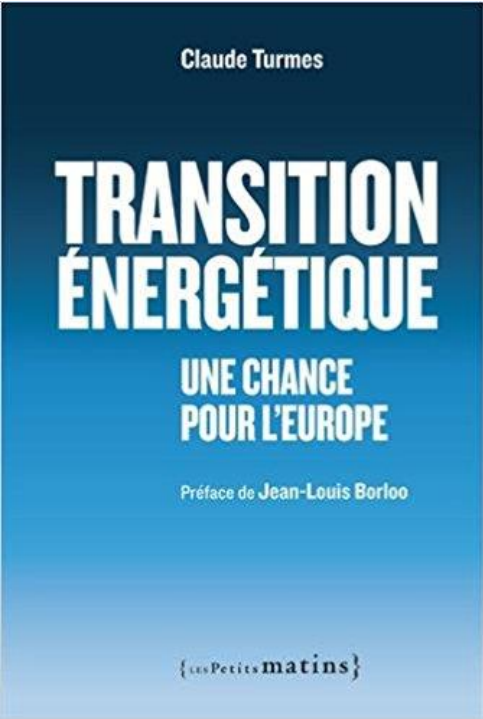
Europe Beyond Coal campaign 2018

Coal plants retired or announced to retire



Europe Beyond Coal campaign 2018

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Thank you for your attention!

Claude Turmes

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