



Institute for European
Environmental Policy

***Renewable energy in Europe:
realising the potential***

Jason Anderson, IEEP

12 November 2008

www.ieep.eu



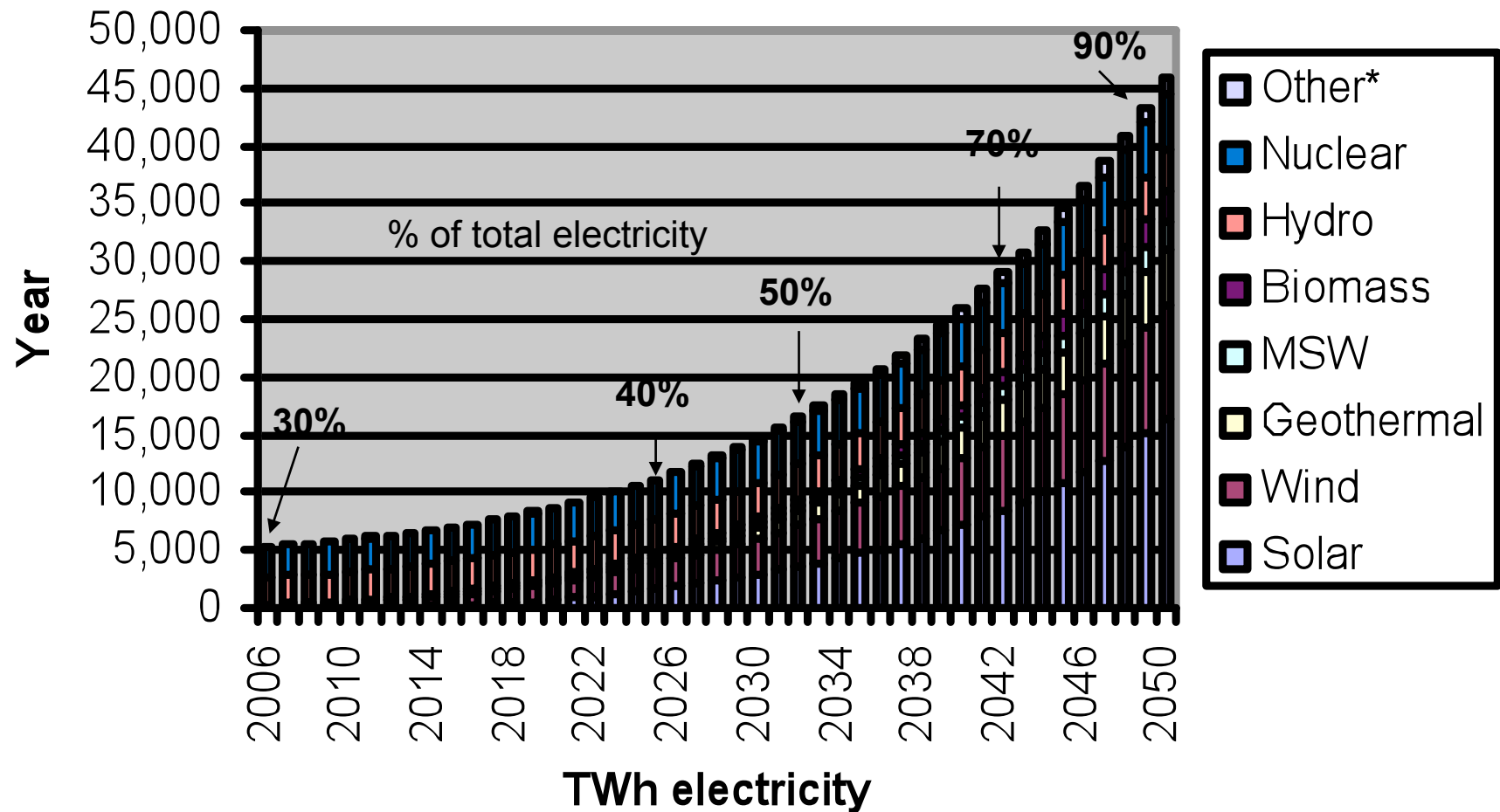
**IEEP is a not-for-profit institute
dedicated to the analysis, understanding and promotion
of policies for a sustainable environment in Europe**

Overview



- Global RE potential and growth rates
- Europe's progress and potential
- Critical discussions in current proposals
- Keys to good implementation of new policy

Global Zero-carbon energy to 2050



Solar	Wind	Geothermal	MSW	Biomass	Hydro	Nuclear	Other*
37%	20%	20%	17%	17%	1%	2%	31%

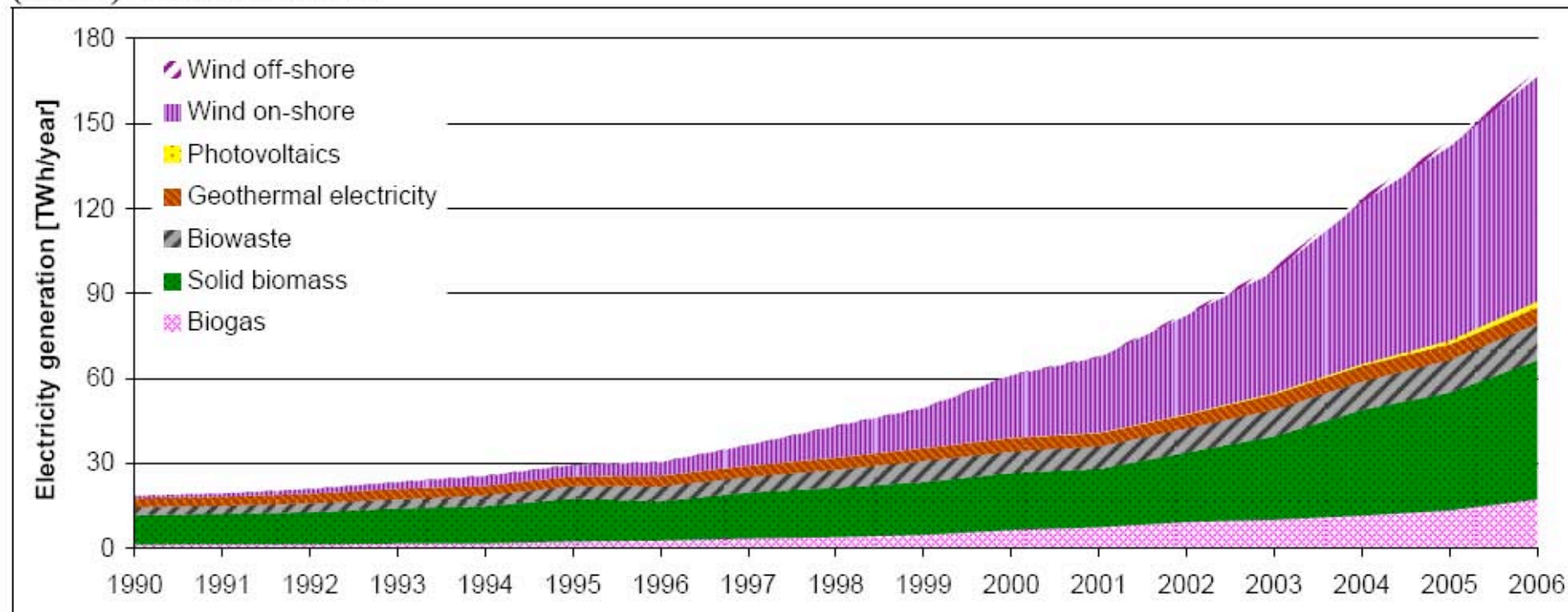
Electricity



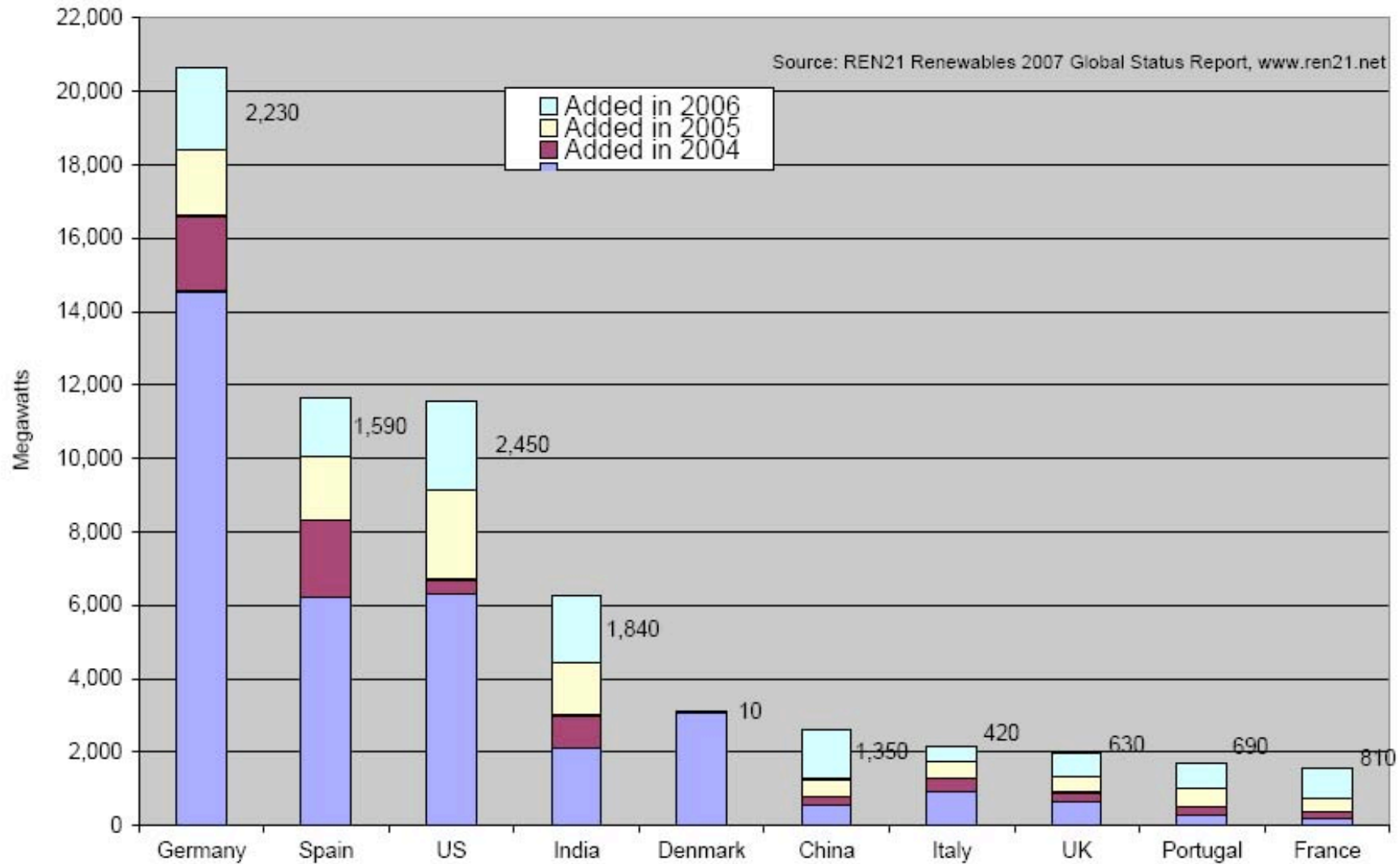
	1997 [GWh]	2006 [GWh]	Average annual growth 1997-2006 [%]	2006 normalised [GWh]
Biogas	3.49	17.30	19%	17.30
Solid Biomass	16.25	49.14	13%	49.14
Biowaste	5.48	12.92	10%	12.92
Geothermal electricity	3.96	5.69	4%	5.69
Hydro large-scale	294.96	266.72	-1%	297.09 ¹
Hydro small-scale	39.00	41.35	1%	43.00
Photovoltaics	0.04	2.23	56%	2.23
Solar thermal electricity	0.00	0.00	-	0.00
Tide & Wave	0.57	0.52	-1%	0.52
Wind on-shore	7.26	79.48	30%	92.05
Wind off-shore	0.07	1.84	44%	2.53
Total RES-E	371.07	477.19	3%	522.47
Total RES-E excl. hydro	37.11	169.12	19%	182.39



(EU-27) from 1990 to 2006



Wind power capacity



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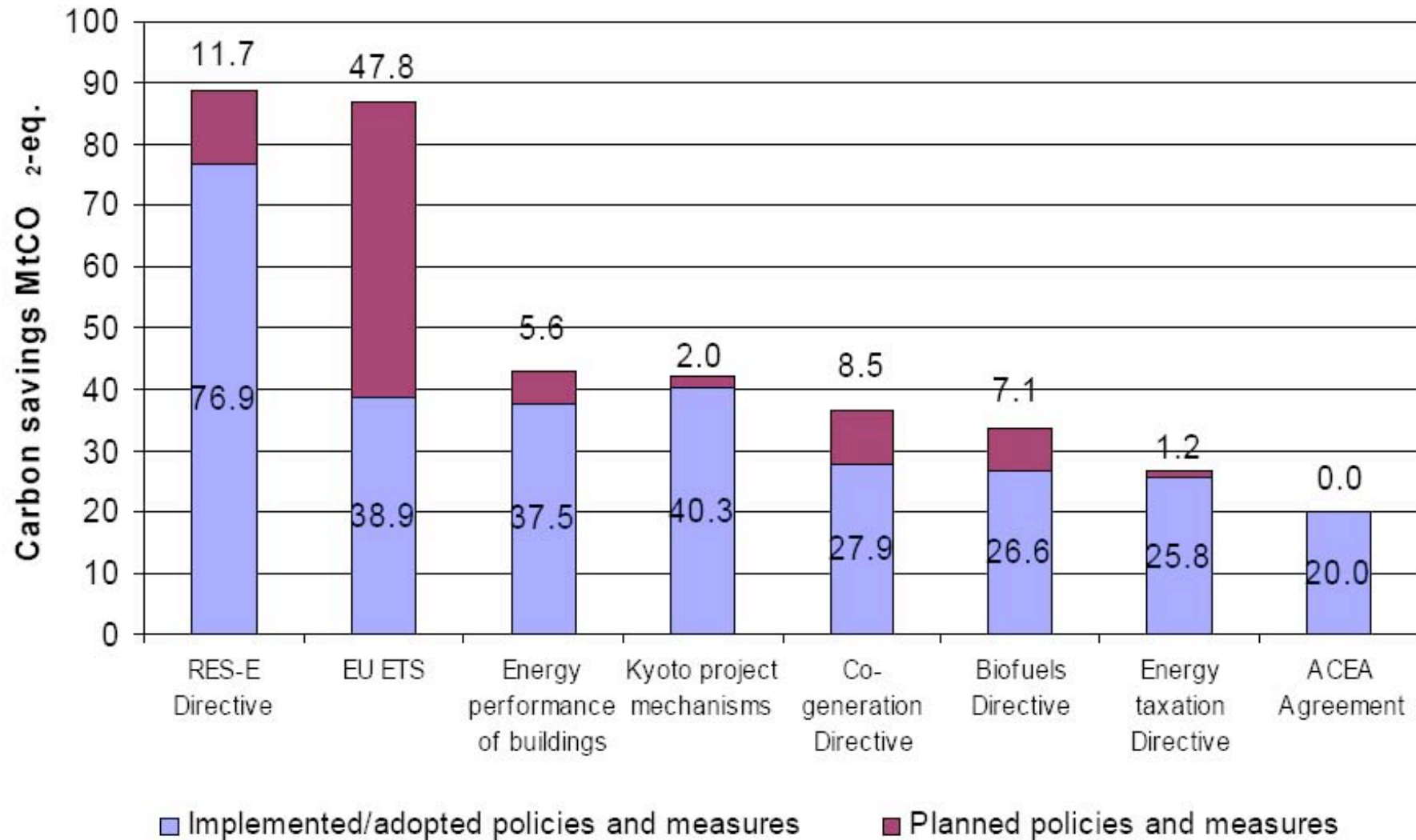
Heat and biofuels



	1997 [Mtoe]	2006 [Mtoe]	Average annual growth 1997- 2006 [%]
Biofuels	0.41	5.38	33%

	1997 [Mtoe]	2005 [Mtoe]	Average annual growth 1997- 2005 [%]
Biomass heat	47.81	55.81	2%
Solar thermal heat	0.32	0.68	10%
Geothermal heat incl. heat pumps	0.72	1.58	10%
Total RES-H	48.86	58.07	2%

Anticipated carbon savings



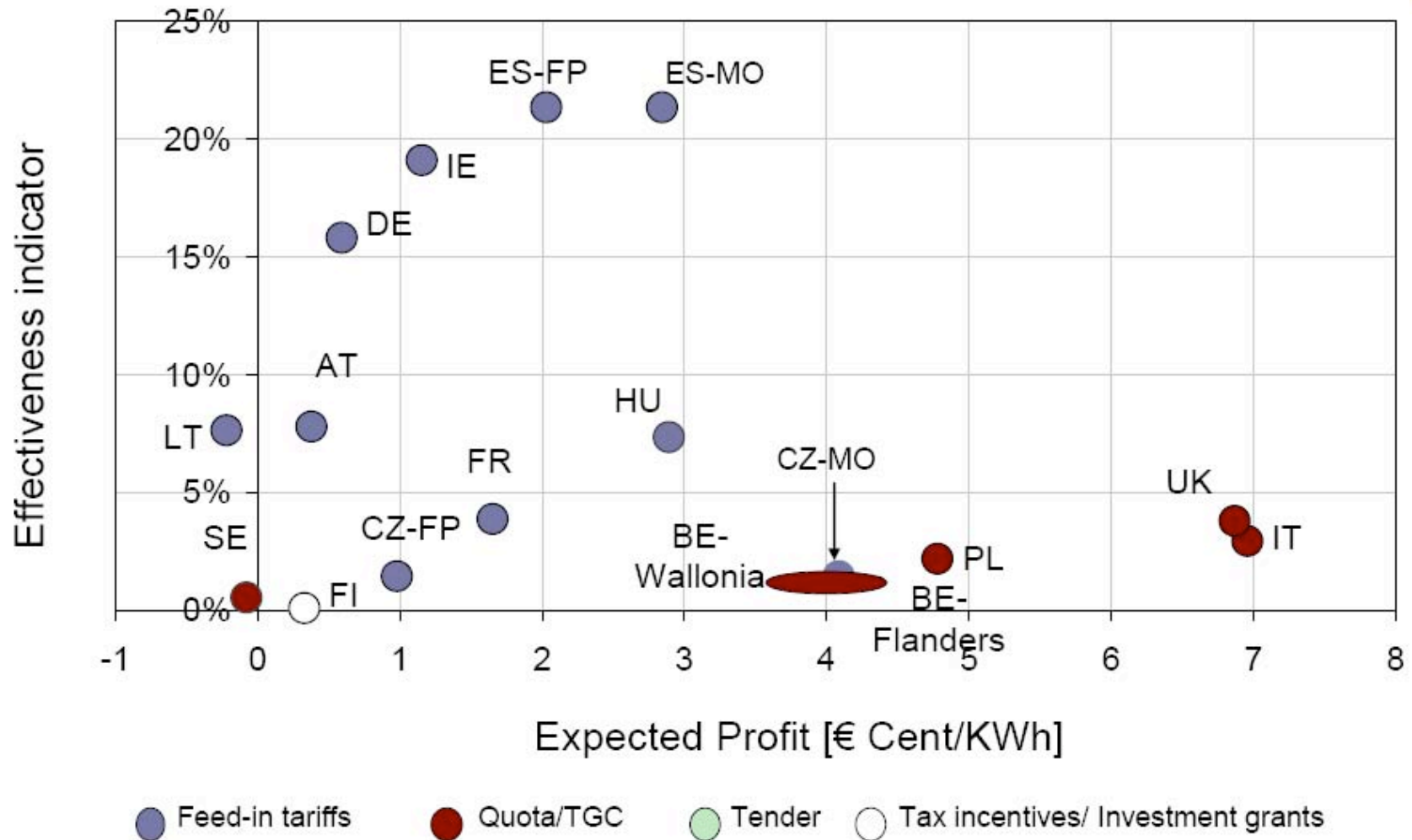
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Overall progress

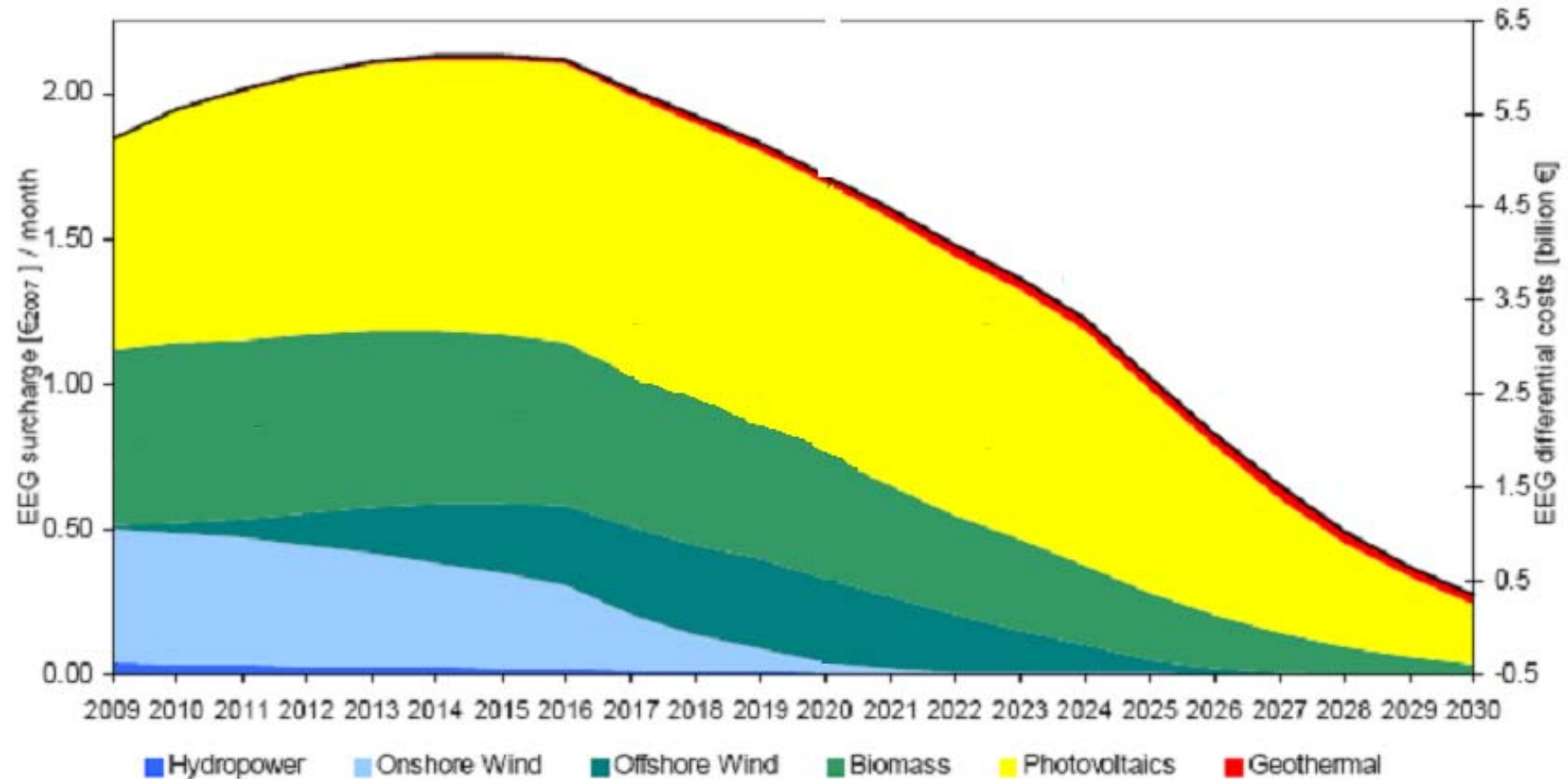


		2005	2010 (BAU)	2010 target (RES-E Directive)
Share of RES-E in gross demand	[%]	13.7%	18.5%	21.0%
RES-E generation - breakdown by RES-E option				
Hydro large-scale	[TWh]	267.0	314.8	300
Hydro small-scale	[TWh]	39.4	49.0	55
Wind onshore	[TWh]	68.6	132.5	80 ¹
Wind offshore	[TWh]	1.8	9.6	
Biogas	[TWh]	13.3	24.4	230 ²
Solid biomass	[TWh]	41.6	95.1	
Biowaste	[TWh]	11.7	21.5	
Geothermal electricity	[TWh]	5.4	7.2	7
Photovoltaics	[TWh]	1.5	4.2	3
Solar thermal electricity	[TWh]	0.0	1.2	n.a.
Tide & wave	[TWh]	0.0	2.1	n.a.
RES-E total	[TWh]	450.4	661.5	675
of which RES-CHP	[TWh]		94.7	n.a.

Effectiveness of support

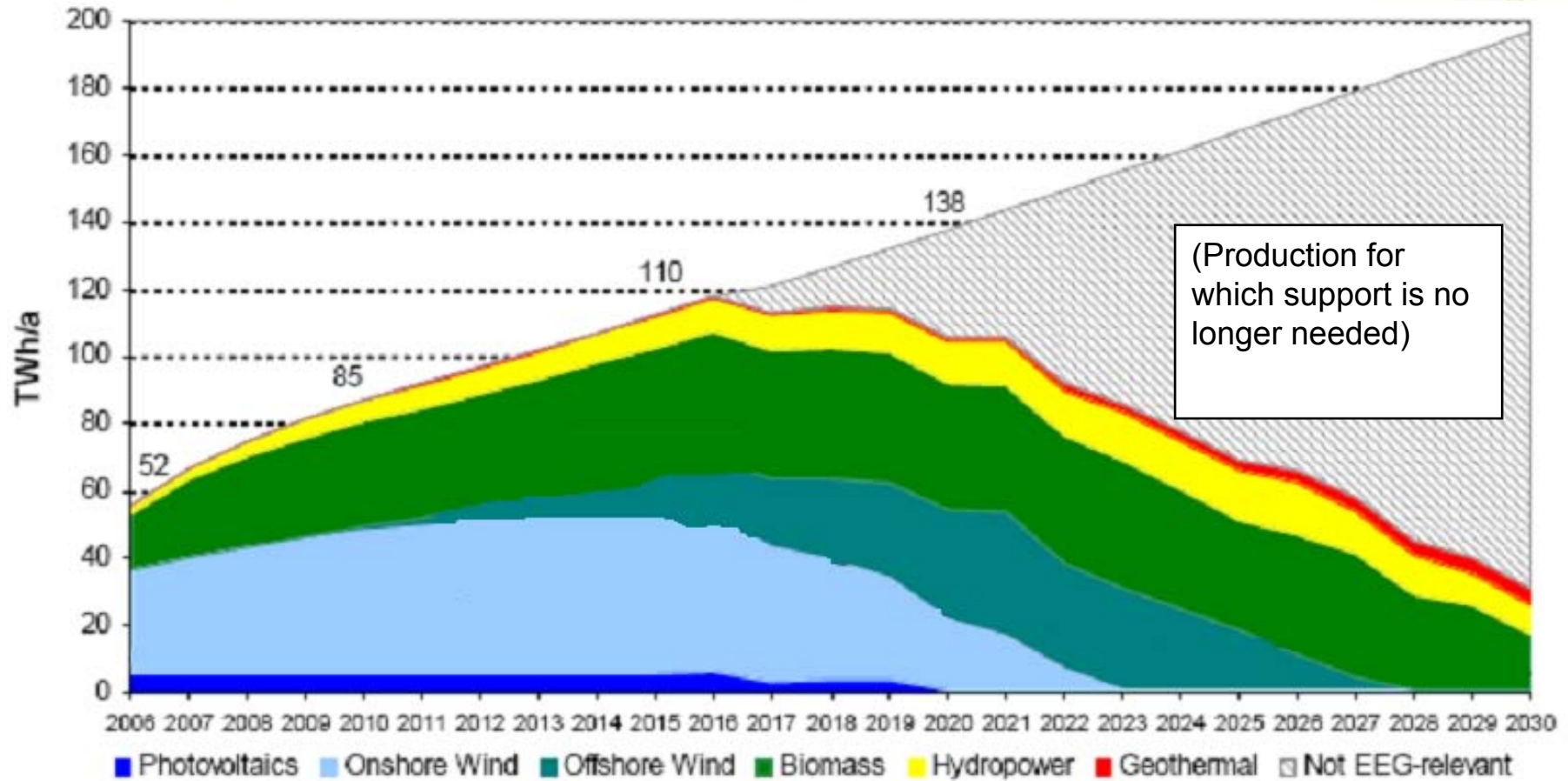


German support over time



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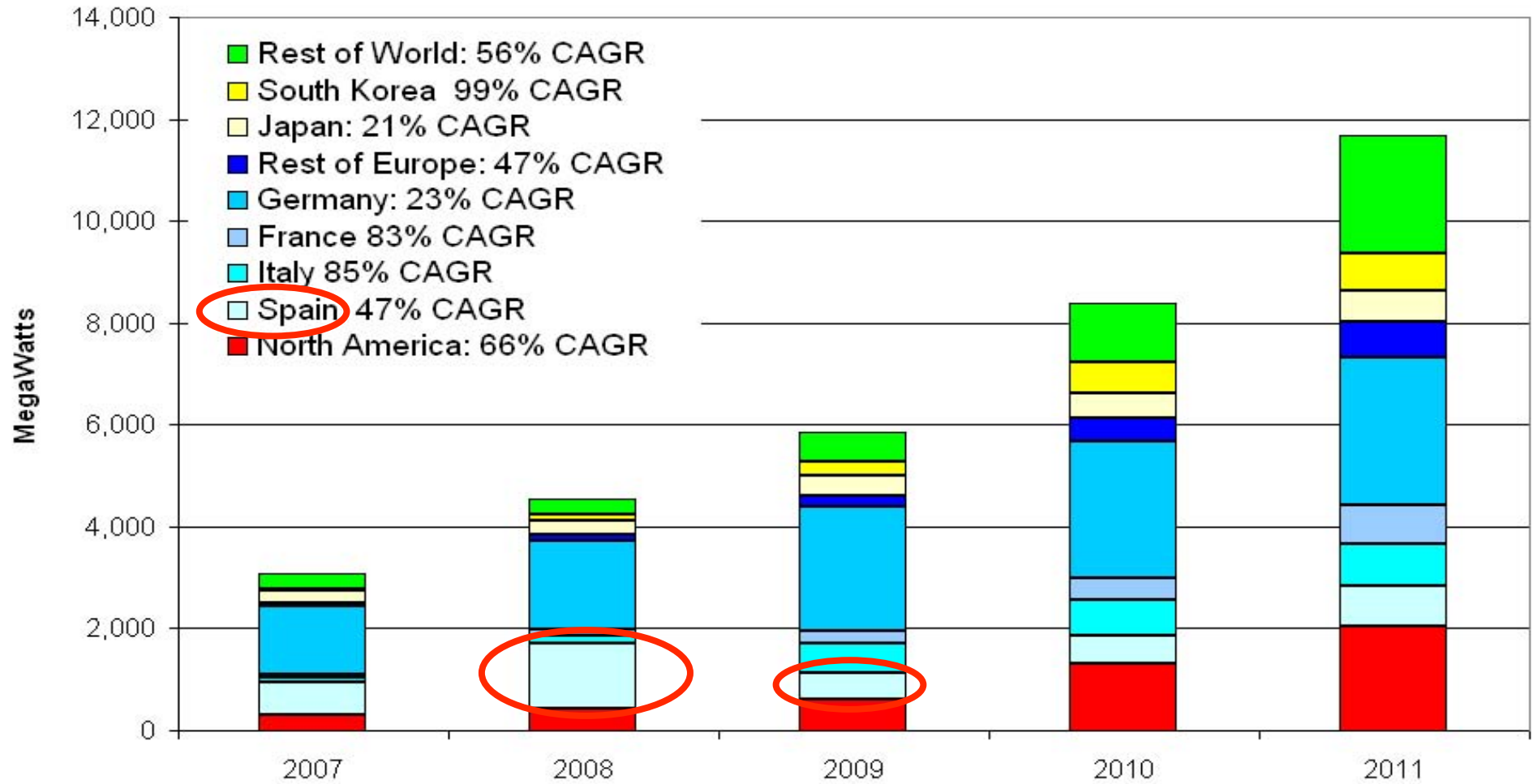
German model: economically/politically tenable and diverse



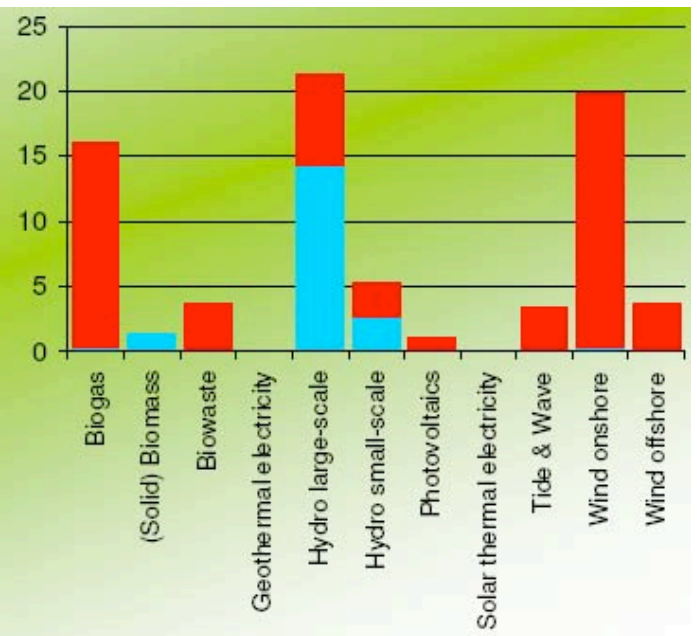
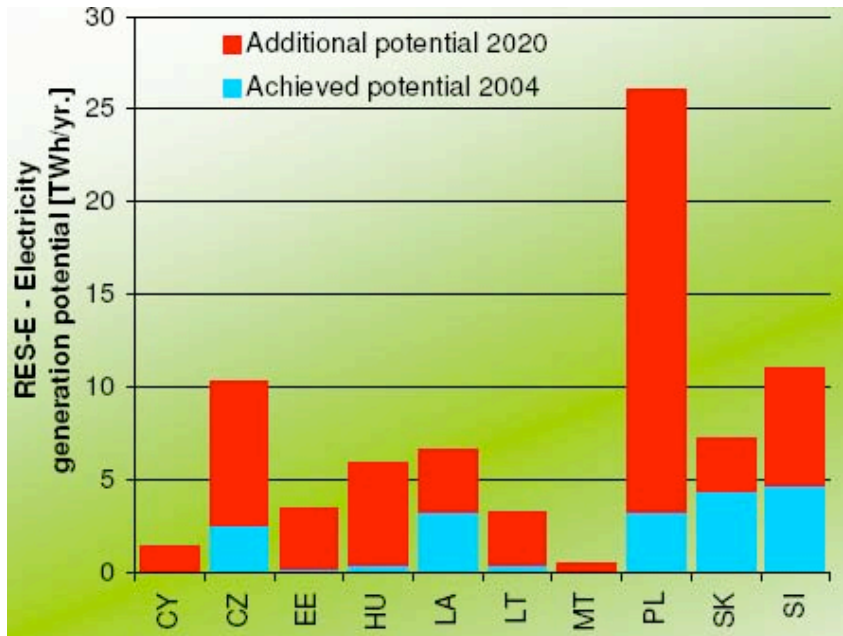
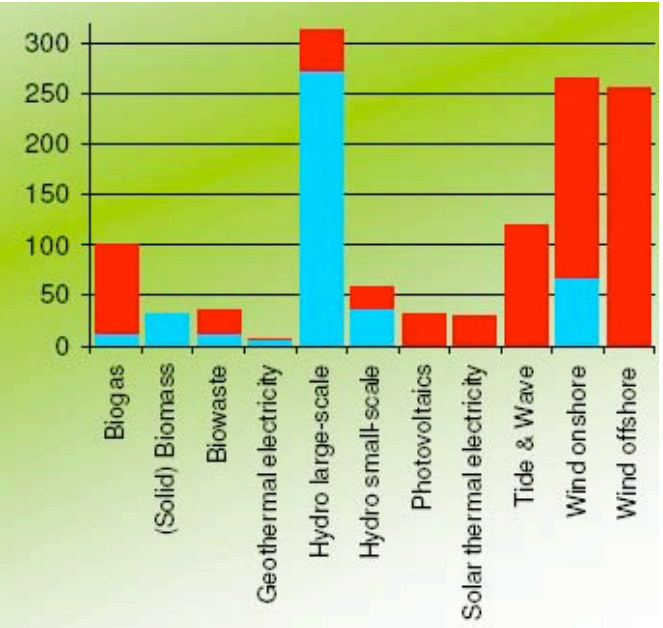
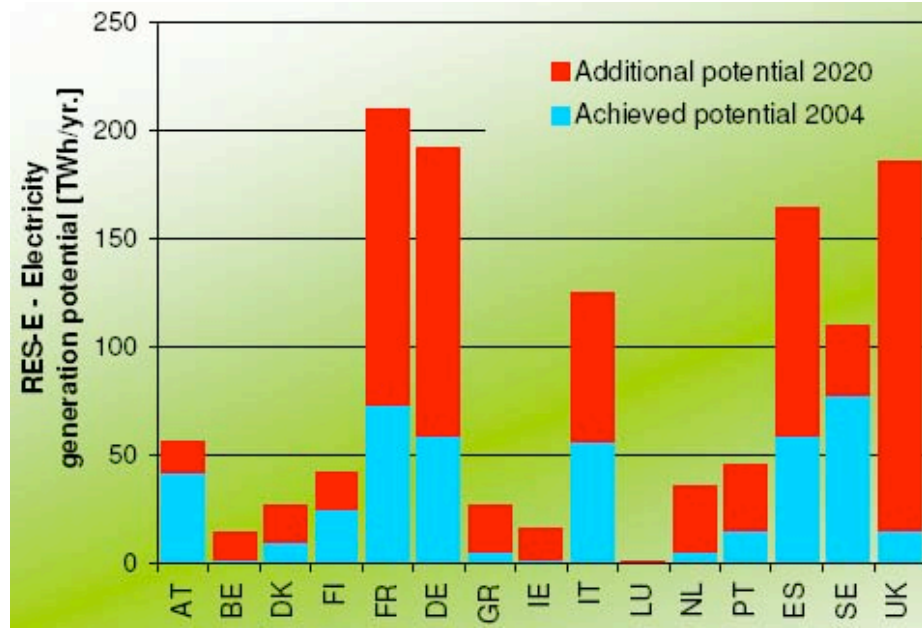
Source:

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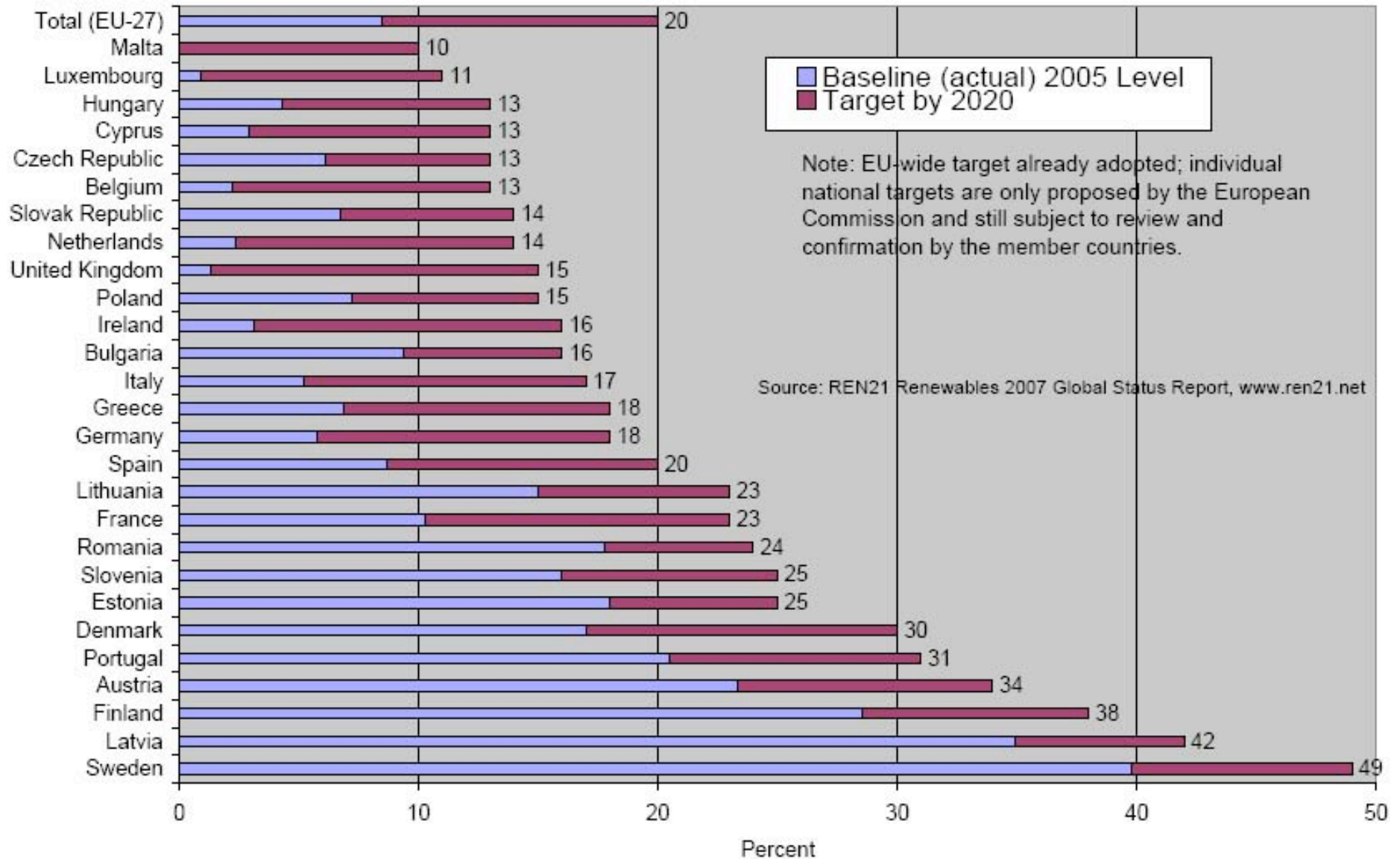
Global Demand Growth: 43% CAGR



Source: SunEdison, 2008



2020 renewables targets



The difficult issues



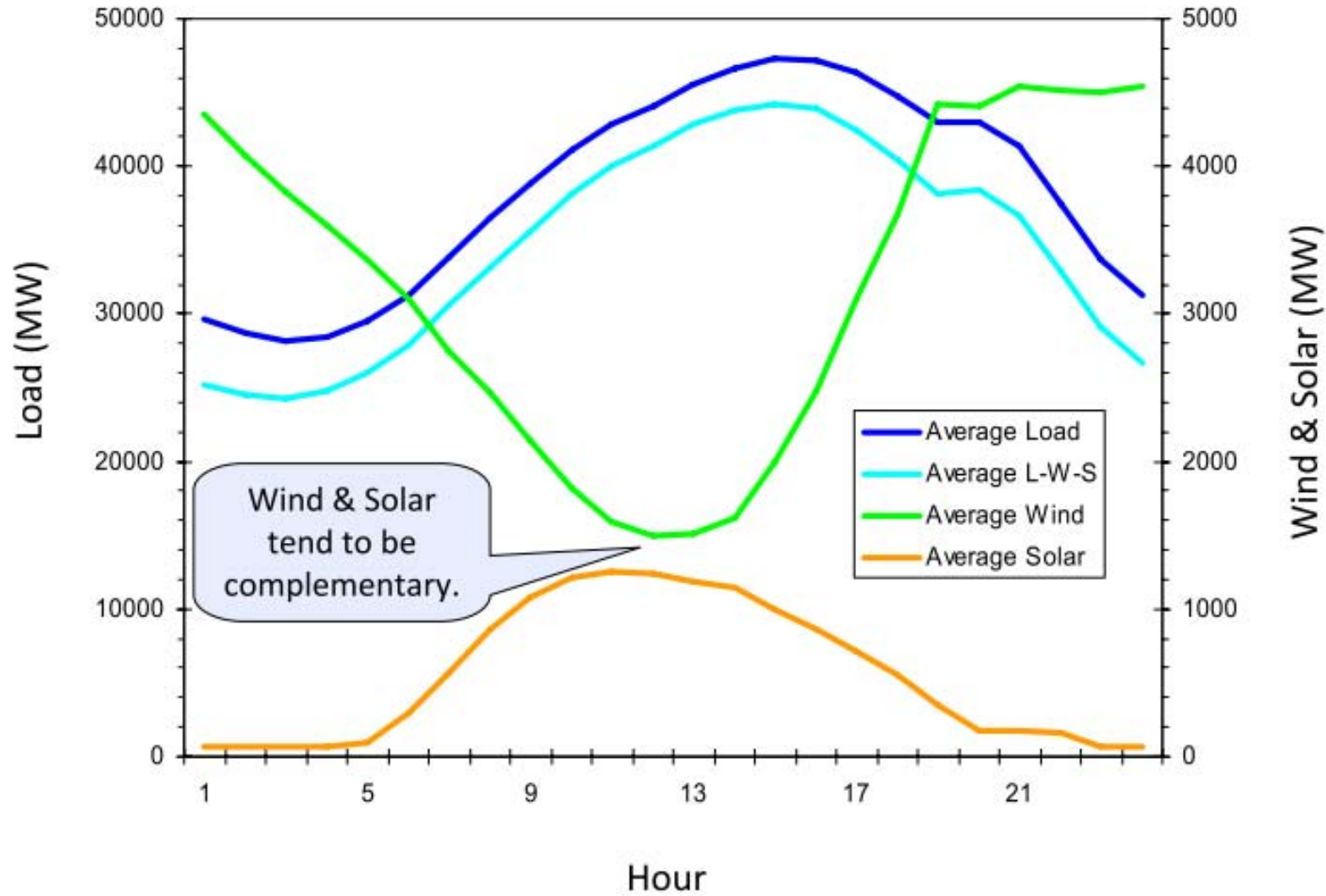
- Binding heating and cooling obligation
- Priority access for renewables
- Non-compliance penalties
- Biofuels targets and sustainability criteria
- Reconsideration in 2014
- Exclusion of sectors (e.g. aviation)
- Means of exchanging RE

Overcoming barriers

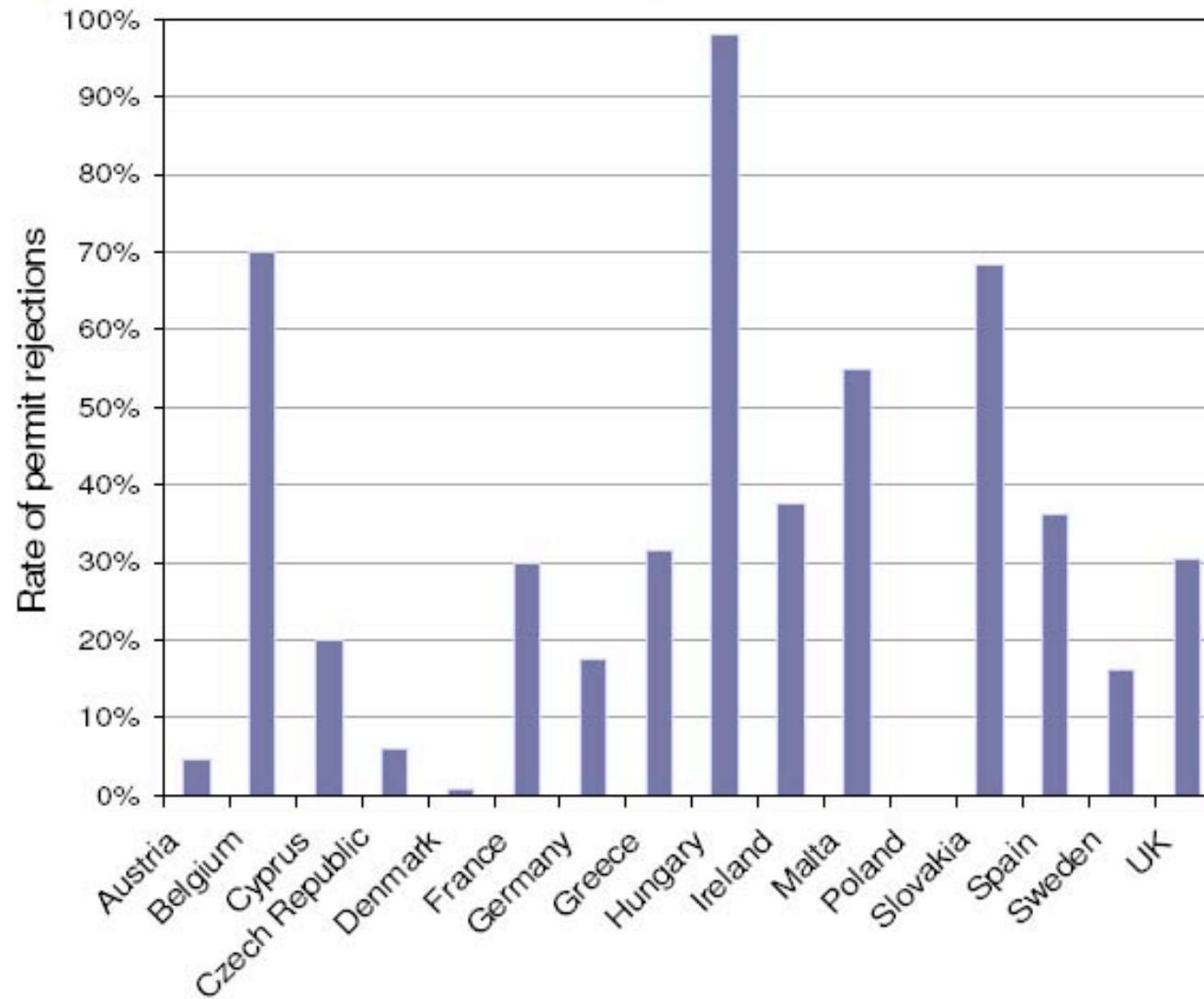


- Cost: making up the gap with subsidy (declining proportion, increasing quantity)
- Rationalizing permitting procedures
- Synergizing with a smart, and well-connected grid
- Taking advantage of decentralized opportunities, especially for heat
- Reducing subsidies for competing industries

Recognizing opportunities



Increasing effectiveness

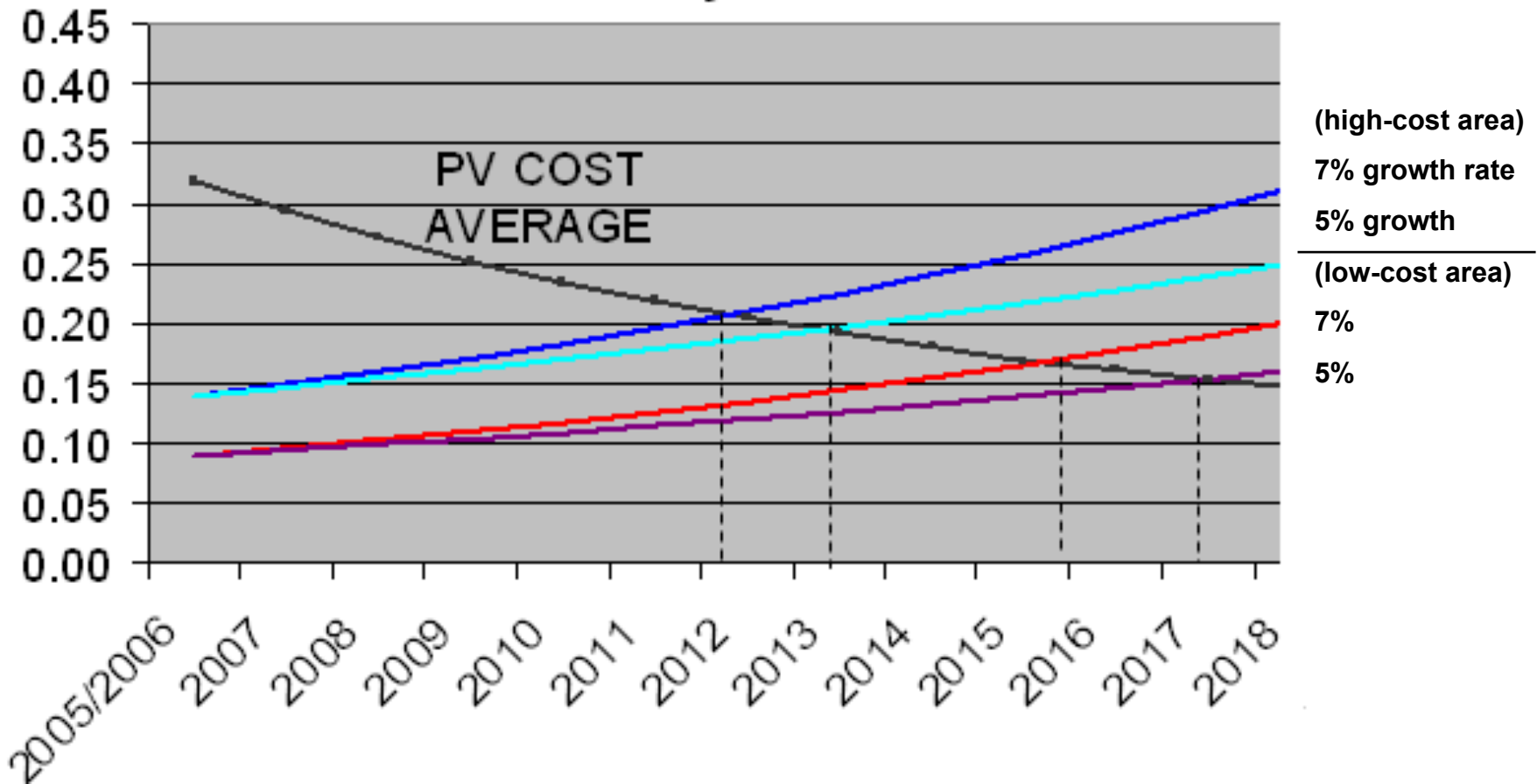


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Improving assumptions



Grid Parity Forecast



Taking renewables seriously



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Recognizing the realities



“Each year, an area the size of Wales disappears from Indonesia’s forests. At this rate, all lowland forest in the regions of Sumatra and Kalimantan could be gone by 2010.”

UK Department for International Development, May 2007

“levels of illegal logging in exporter countries...can be as high as 80 per cent for countries such as Indonesia, which have widespread corruption. Indonesia accounts for the highest value of wood imports into the EU”

The independent 22 November 2005



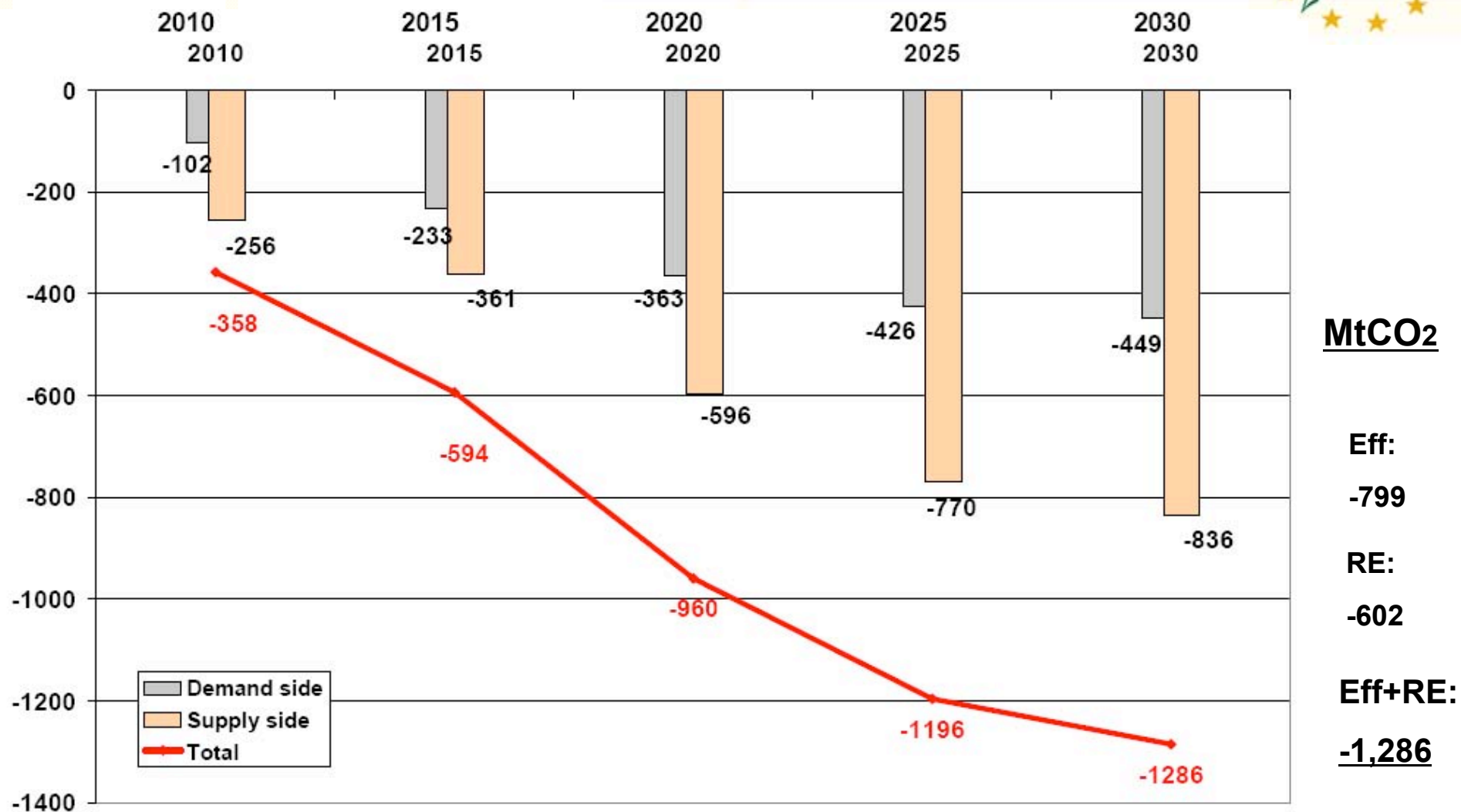
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Renewables and efficiency (should) go together



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DG Tren RE+EE escenarios (2006)



Implementation...



National energy efficiency action plans

- Only 2 received by the deadline of 30 June 2007
- 17 received by the end of the year
- Infringement proceedings against 8

‘Among the seventeen NEEAPs reviewed by the Commission, several present comprehensive strategies and plans likely to deliver savings beyond the required 9%. However, many seem to present a business-as-usual approach.’

Not to mention EPBD:

- 2 MS transposed Directive 2002/97 by deadline of 4 January 2006
- By the end of 2007: 5 being implemented, 20 infringement procedures
- In addition to lacking sufficient ambition to begin with...

Thank you



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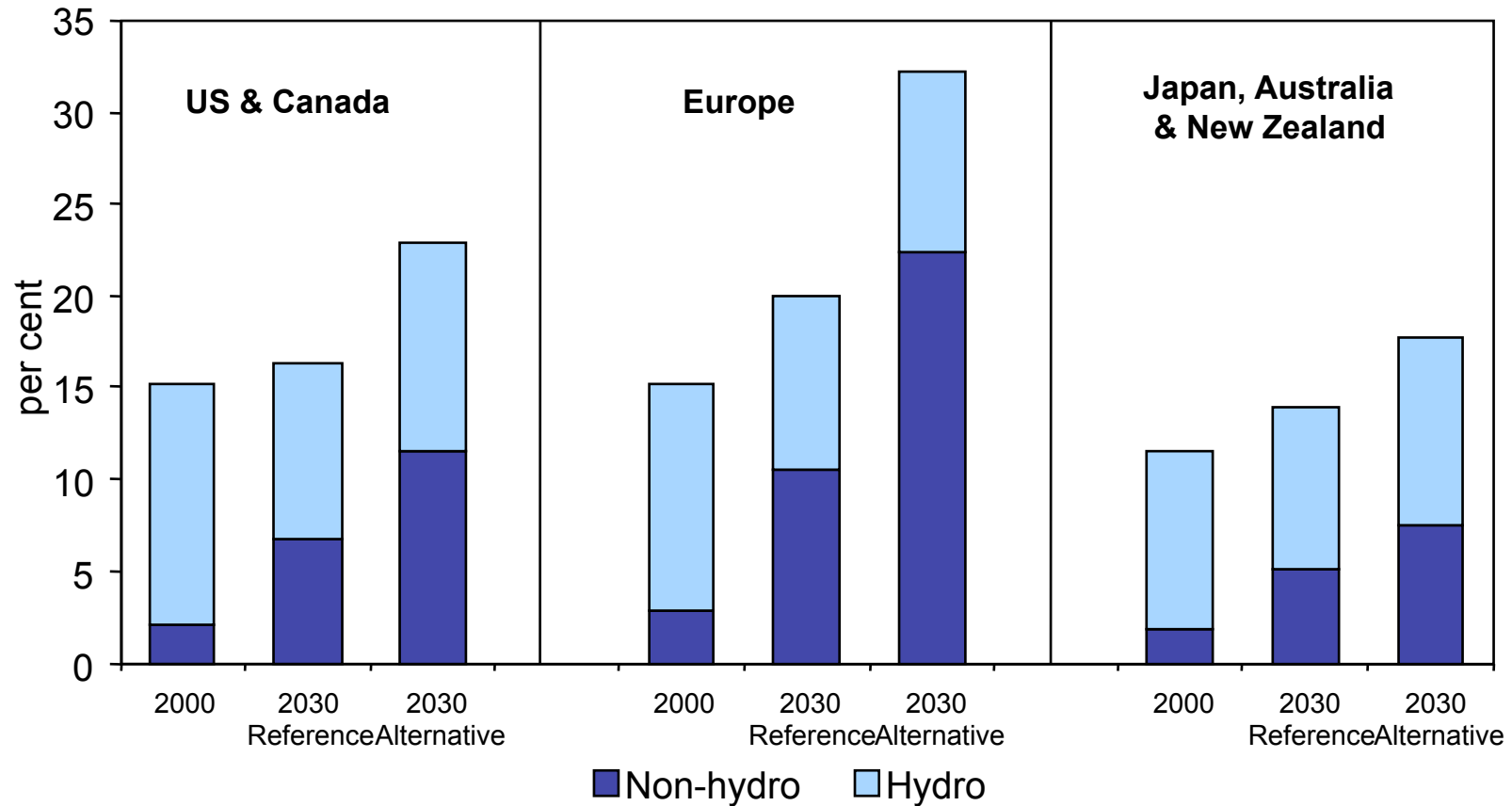
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Policies make a difference



Share of Renewables in Electricity Generation



Commission priorities for new policy:



- Be based on long term mandatory targets and stability of the policy framework,
- Include increased flexibility in target setting across sectors,
- Be comprehensive, notably encompassing heating and cooling,
- Provide for continued efforts to remove unwarranted barriers to renewable energies deployment,
- Take into consideration environmental and social aspects,
- Ensure cost-effectiveness of policies, and
- Be compatible with the internal energy market.



FITs and Soft Loans

