Joint Research Centre

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Stimulating innovation
Supporting legislation

From the 1996 European Union Green Paper on Renewable Energy to the 2022 Solar Communication

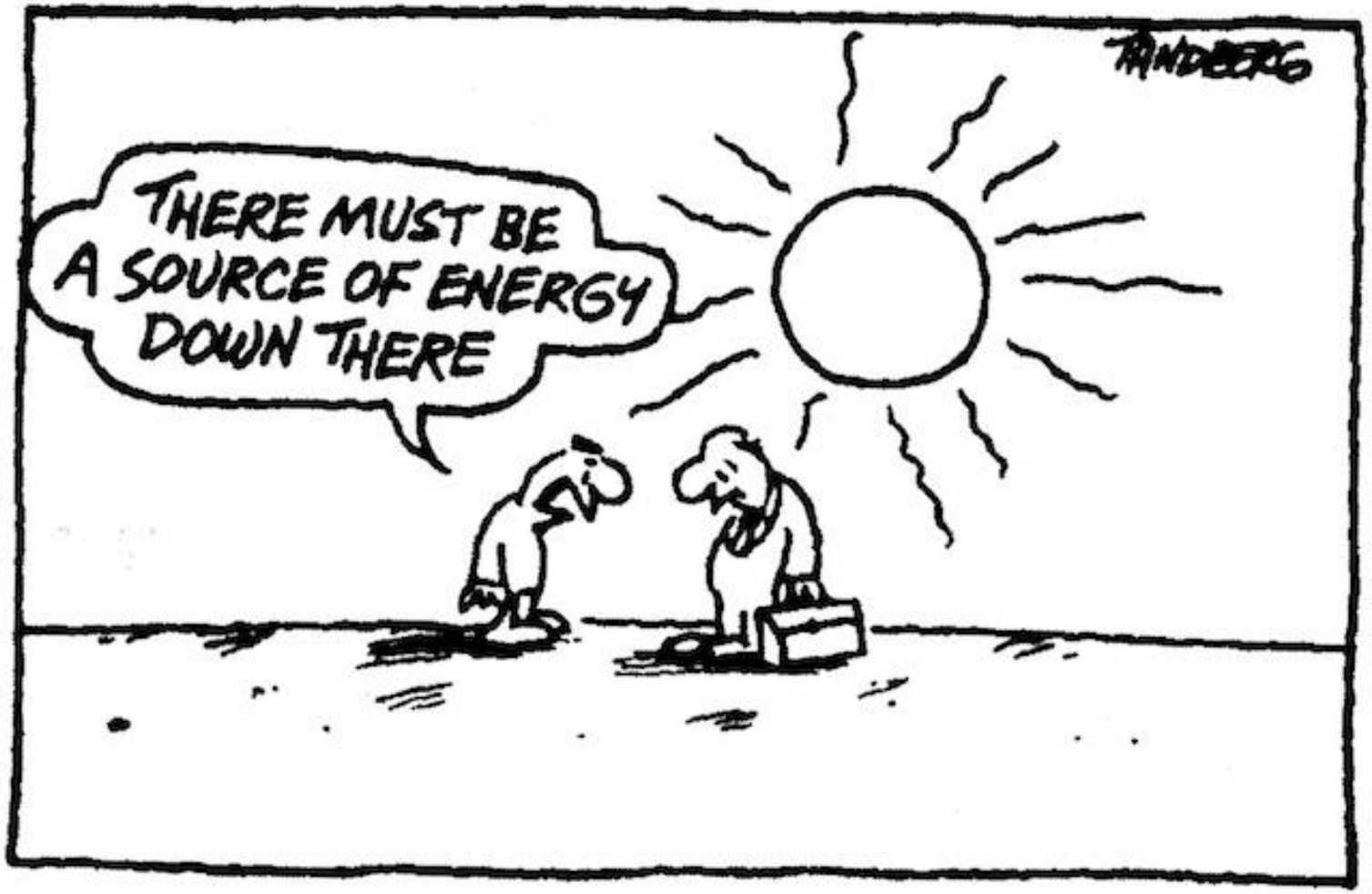
Arnulf Jäger-Waldau

8th WCPEC

Milan, 27 September 2022

European Commission

Perception



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Starting Point

Arco Photovoltaic Power Plant 1983
Carrizo Plains, San Luis Obispo County, CA

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11 years later

Arco Photovoltaic Power Plant 1994
Carrizo Plains, San Luis Obispo County, CA

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Today

Kagoshima power plant 2013, Kyocera

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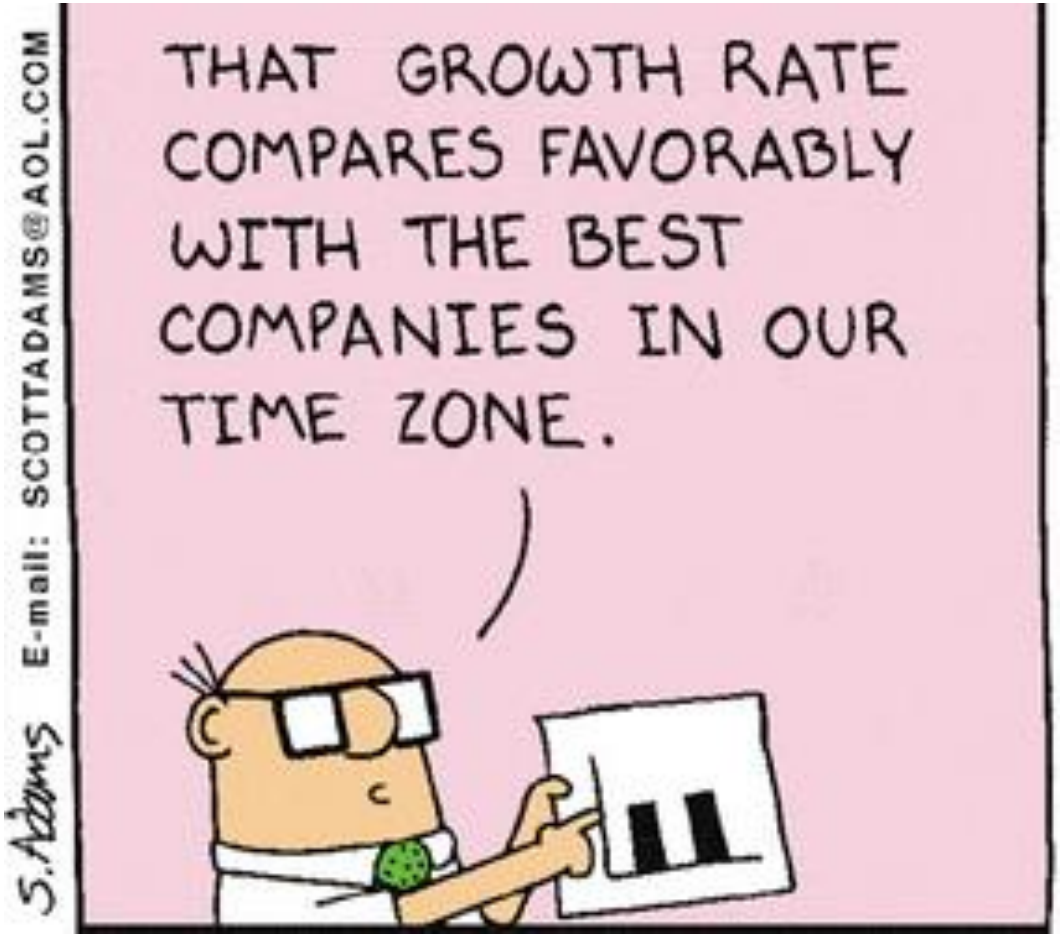
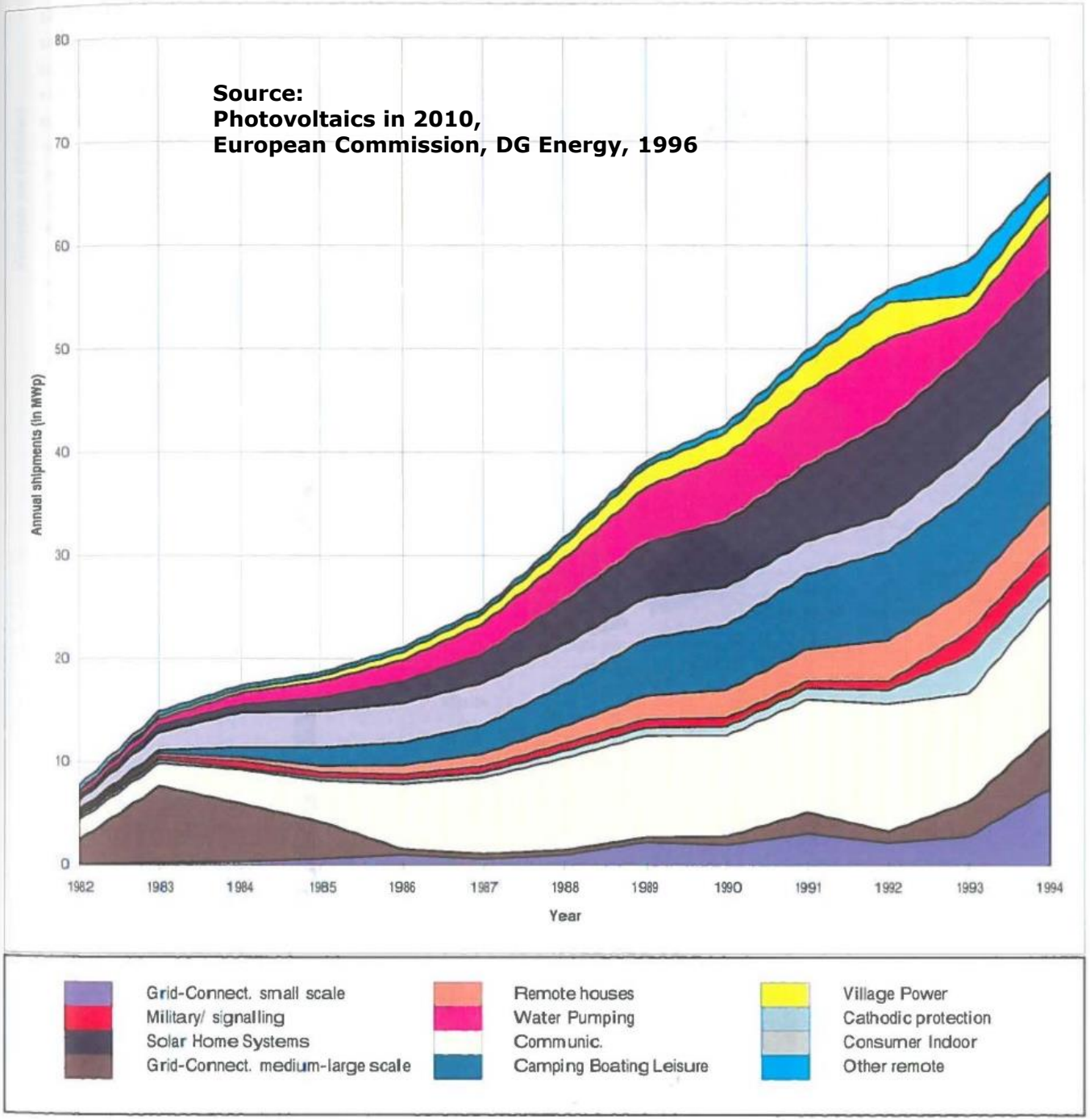
Markets

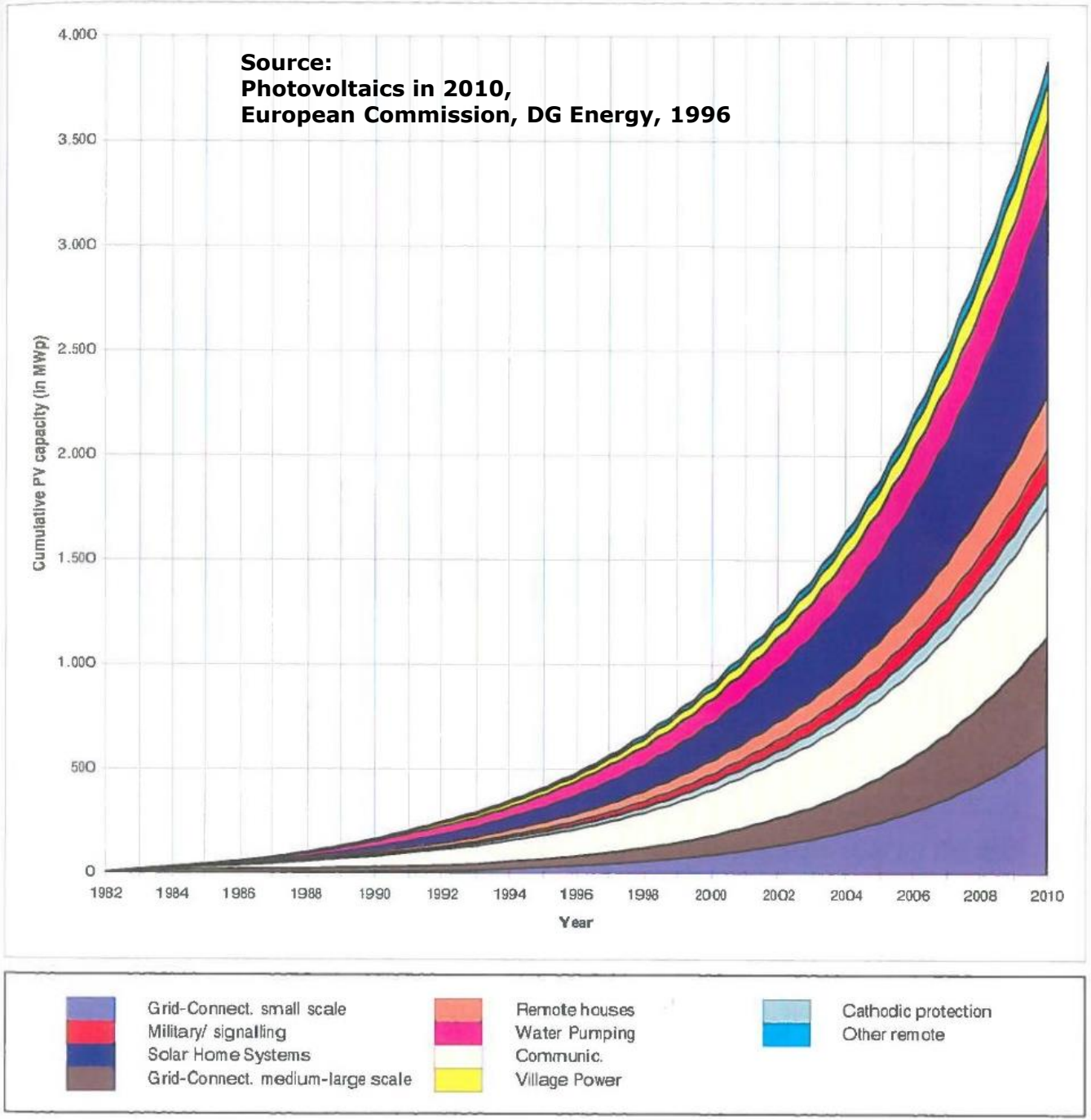


European Commission

Source:
Photovoltaics in 2010,
European Commission, DG Energy, 1996



Installation Forecast for 2010



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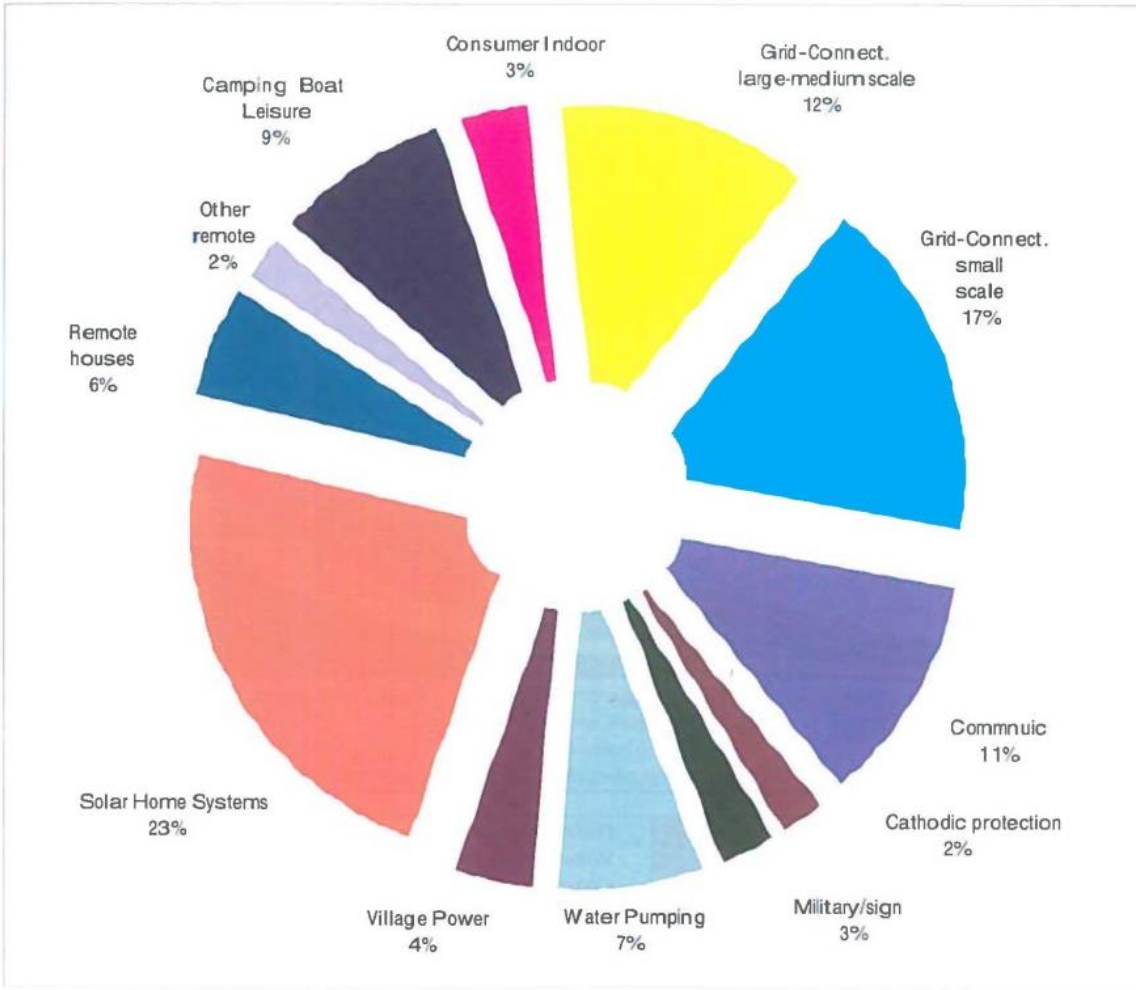
Markets

Year 2010 World PV market forecast per application



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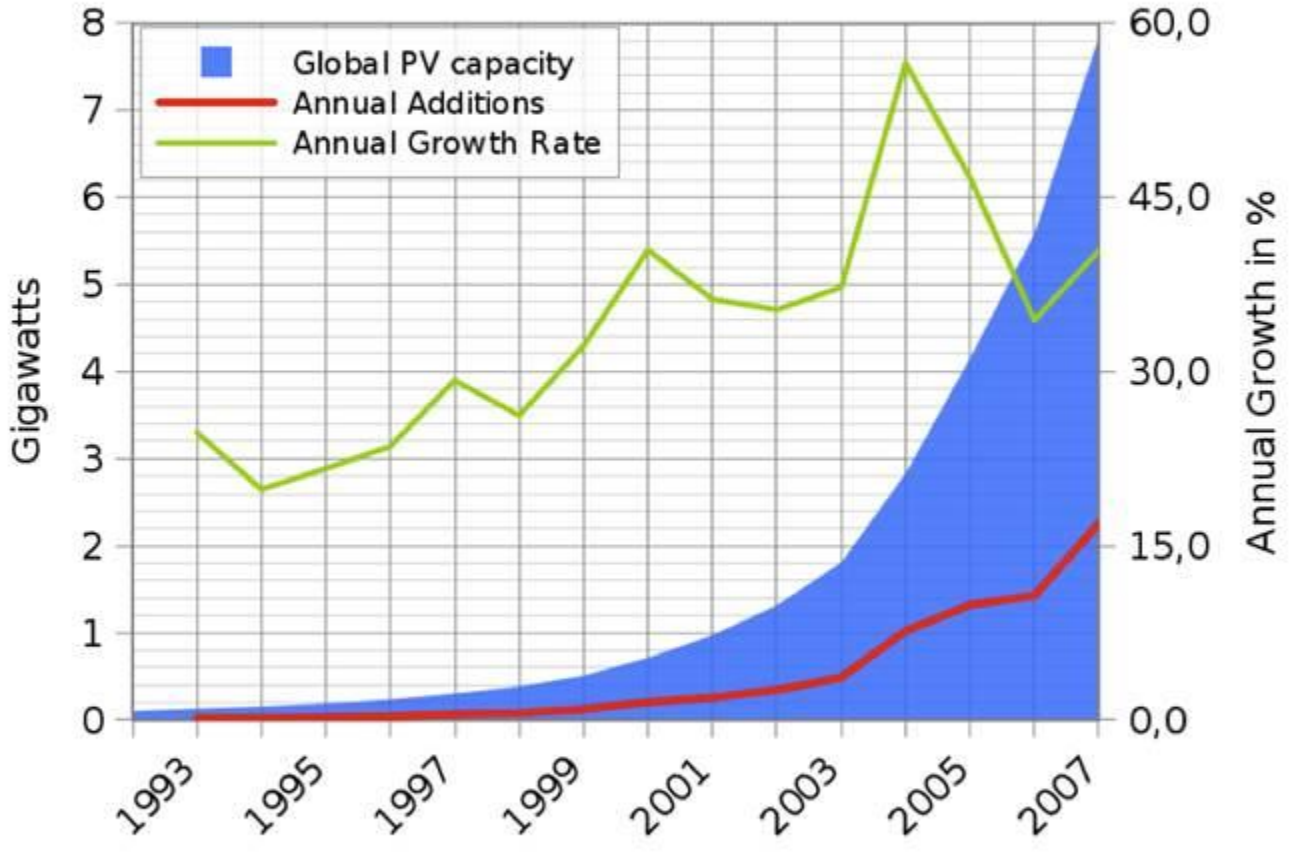
Reality Faster than scenario

Neglected Developments



Data: IEA Photovoltaic Power Systems Programme; 2008,

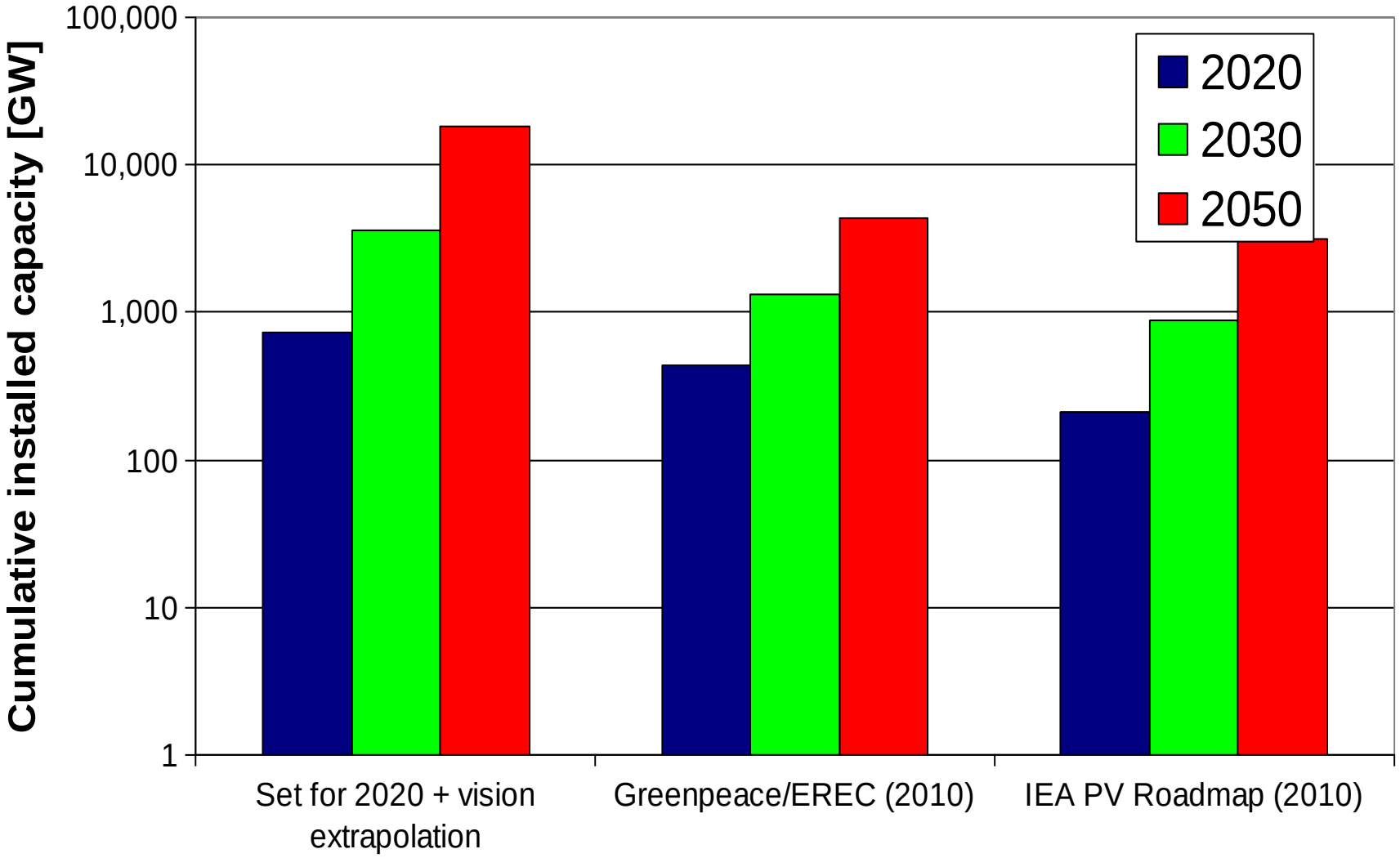
The "Green" 12th Five-Year-Plan

12th Five-Year-Plan – Six Major Markets of Greentech Dev.

Energy Supply			Resource Utilization		Others
Cleaner Conventional Energy	Renewable Energy	Electric Power Infrastructure	Green Buildings	Cleaner Transportation	Clean Water
Clean Coal	Hydro	Transmission	Optimized Design	Cleaner Road	Extraction
Cleaner Oil	Nuclear	Distribution	Sustainable Materials		Treatment
Cleaner Gas	Wind	Storage	Energy Efficiency		Distribution
	Solar	DSM			Utilization
	Biomass	Supply Flexibility			Wastewater Treatment

Govt. Funding for RE earmarked: US$ 700-800 bln

Scenario comparisons



Sources: IEA PV Roadmap 2010,
Greenpeace energy [r]evolution, 2010, EPIA SET for 2020 (2009)

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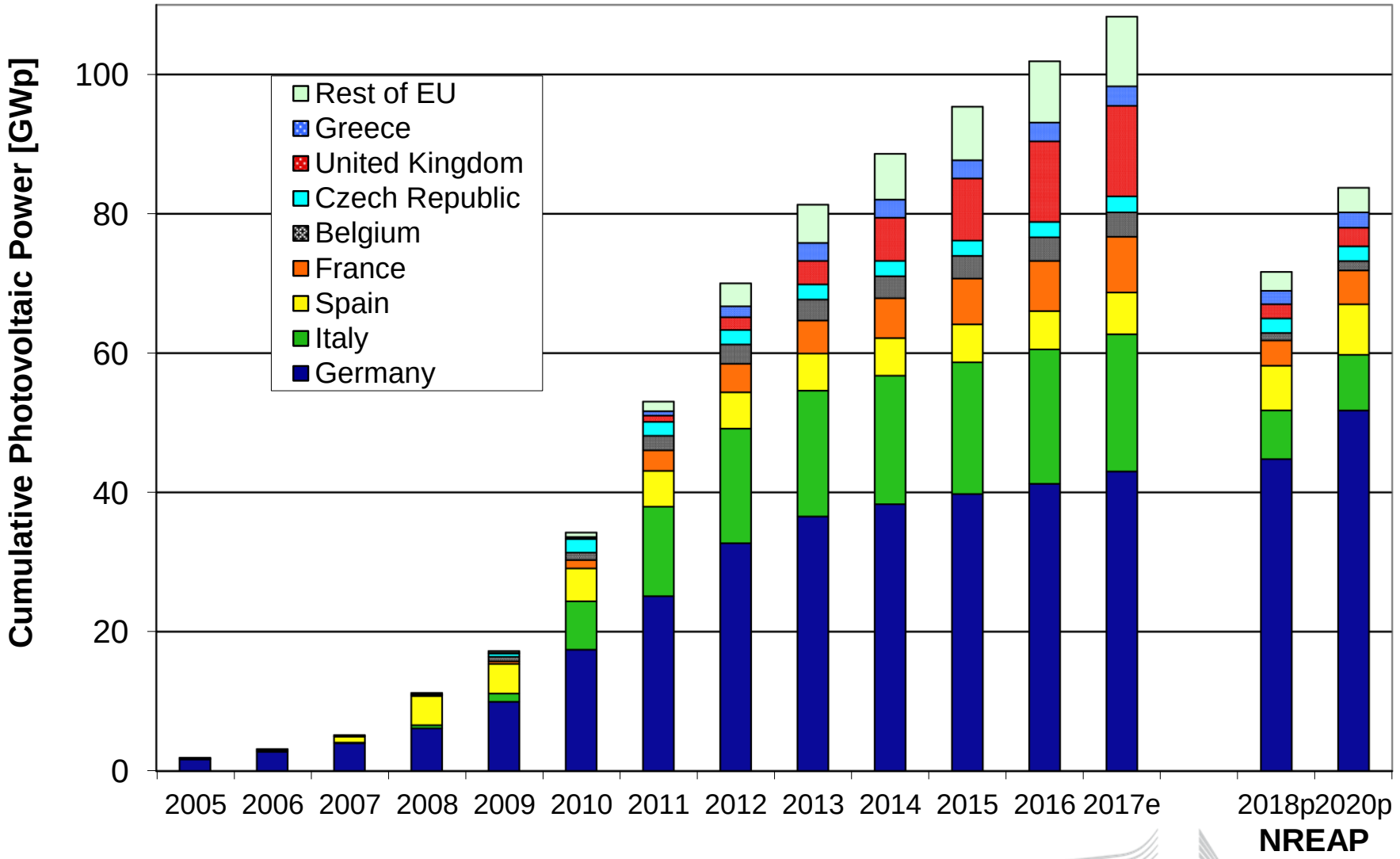
PV in the EU NREAPs (2011)



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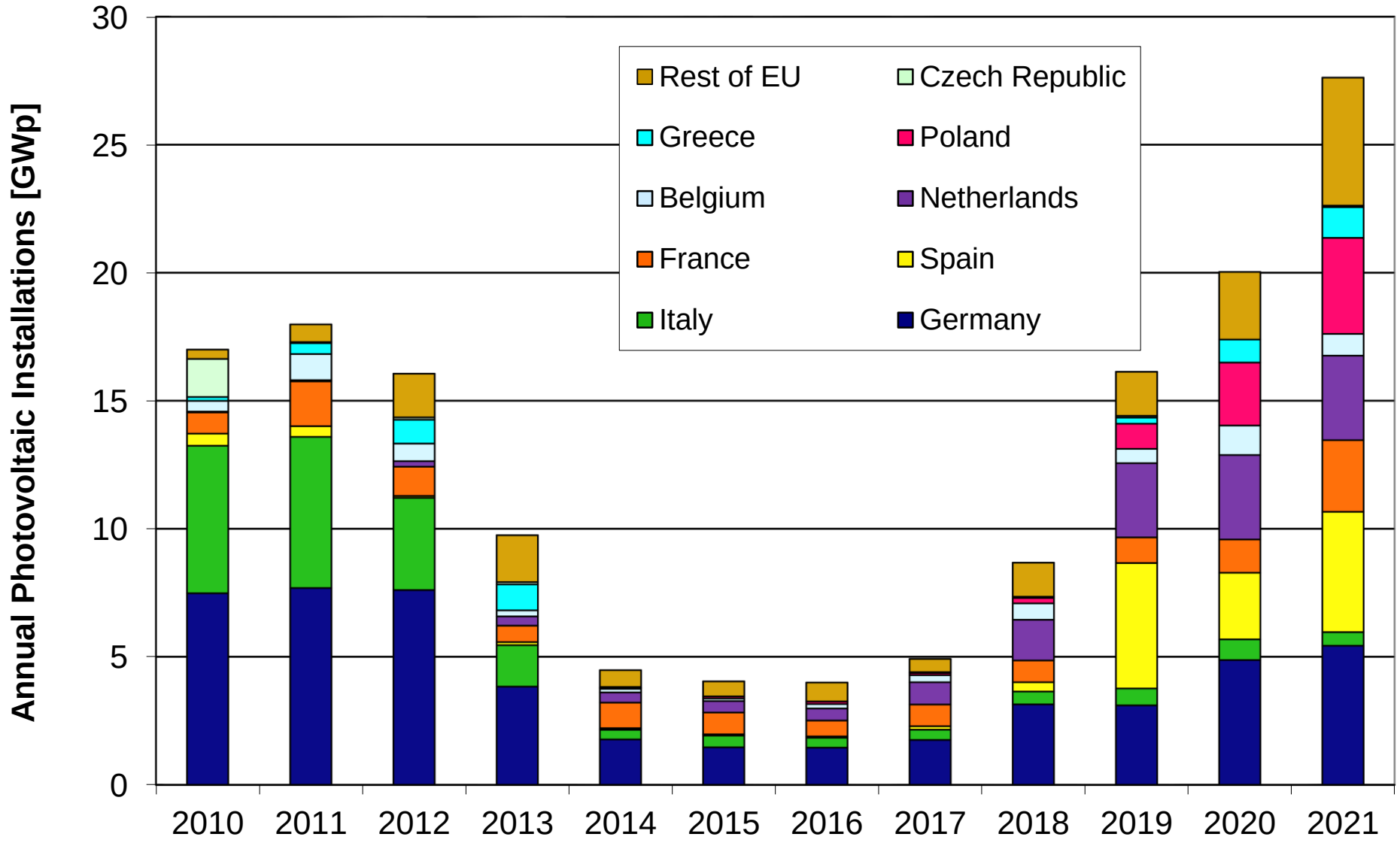
Annual EU PV Installations



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EU PV capacity scenarios 2021

	Market Trend	NECP High	55% GHG red.	55% + H_2
PV capacity [GW_p]	614	314	468	563
Δ PV capacity from 2020 [GW_p]	475	175	329	424
Compound Annual Growth Rate 2020-2030	16%	8.5%	13%	15%

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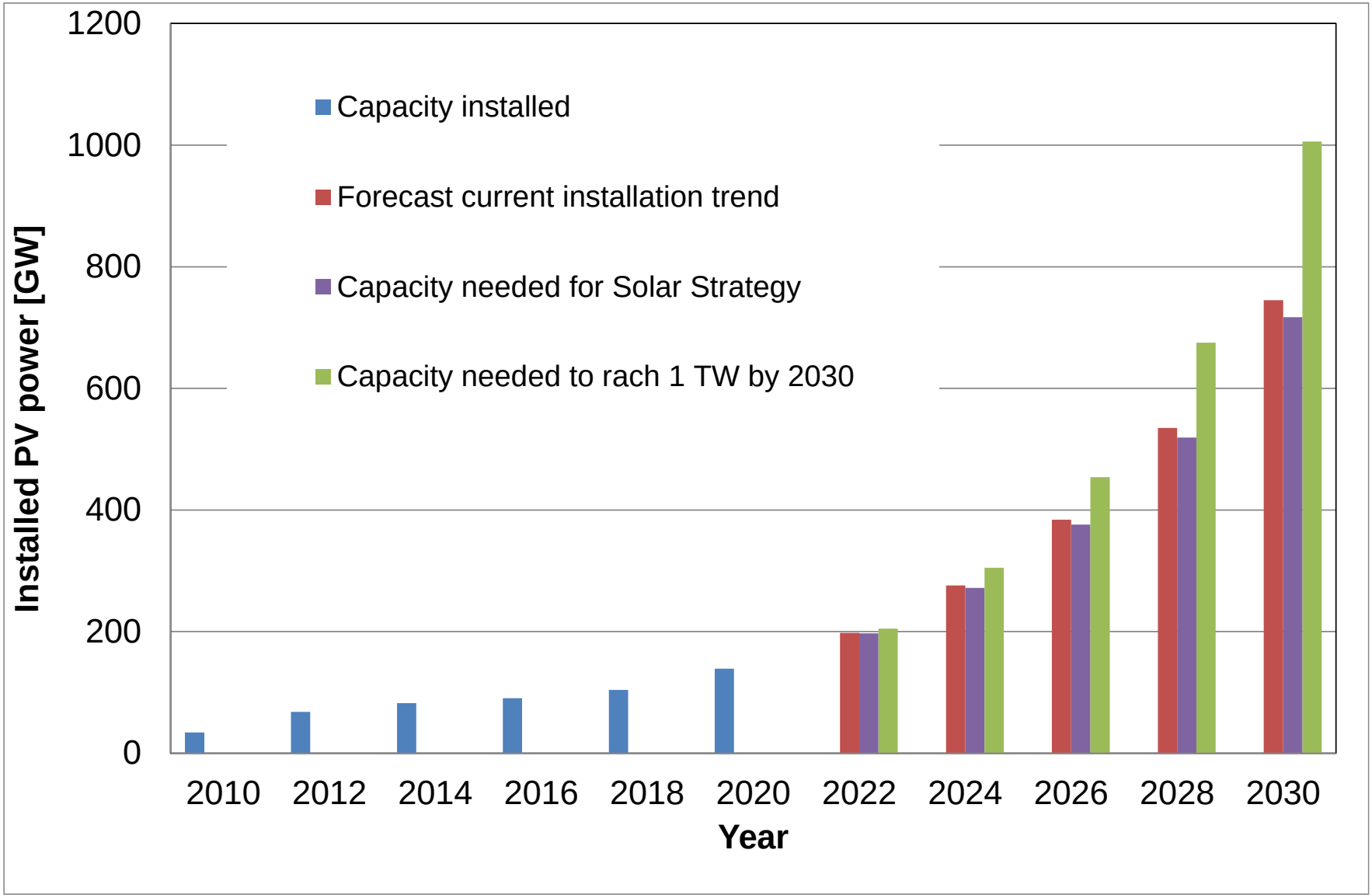
EU PV capacity scenarios 2022

	Market Trend	Solar Strategy	1 TW
PV capacity [GW_p]	745	720	1 000
Δ PV capacity from 2021 [GW_p]	577	552	832
Compound Annual Growth Rate 2020-2030	18%	17.5%	22%

Necessary EU PV Installations



Conclusions

- Targets for PV capacity were always exceeded
- The growth rates for PV deployment are mostly set without understanding Moor's Law
- The 2022 Solar Strategy calls for more deployment of PV in the EU, but still falls short of the capacity needed


Thank you for your attention!