

# Renewable Energy Market Perspectives:

## Solar PV

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Chairman, Solarcentury

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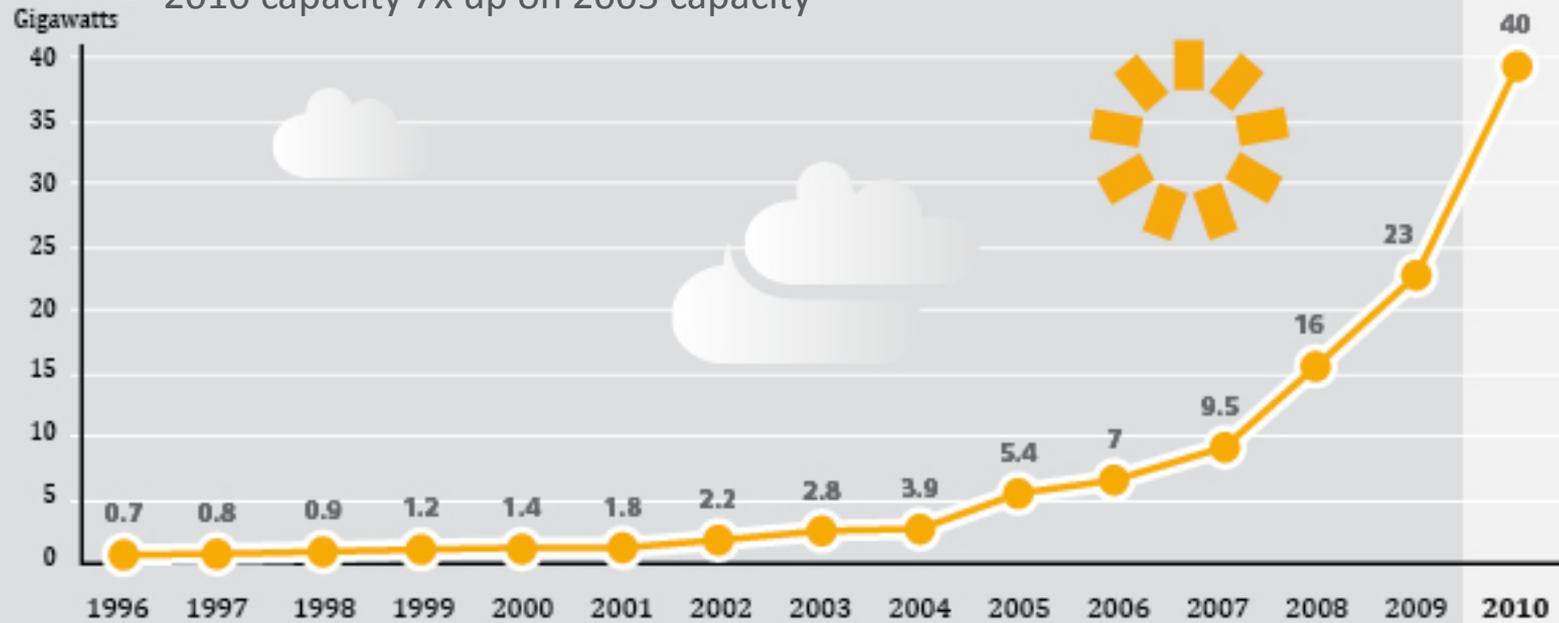


# Solar Photovoltaics

## Global Market Overview

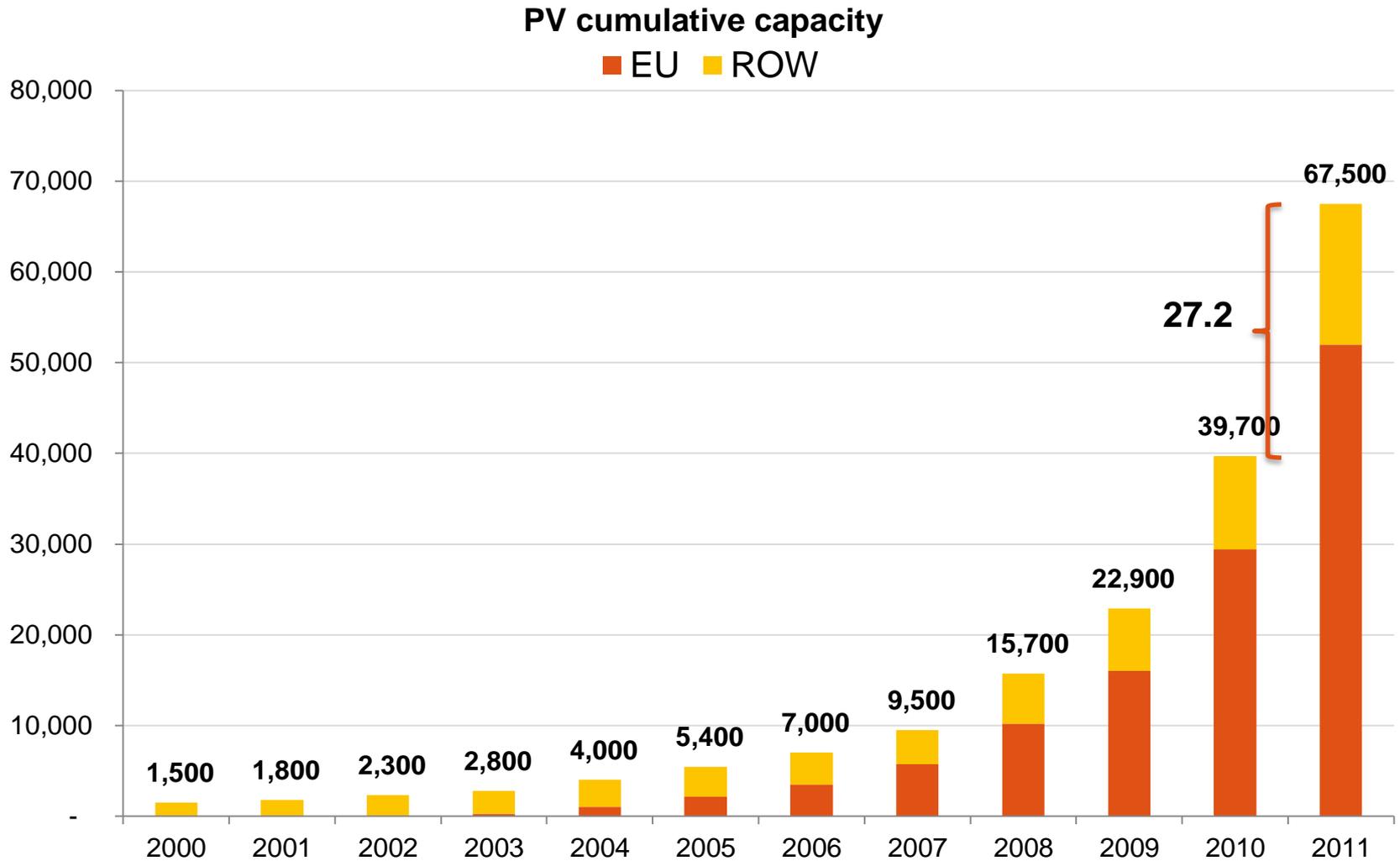
### Solar PV, existing world capacity 1996 -2010

- Fastest growing power-generation technology, up 72% in 2110 (c. 17GW)
- 2010 capacity 7x up on 2005 capacity



Source: PV News, EPIA

# PV MARKET 2000-2011 - EU SHARE



	2011 added	2011 Cumulative
Italian market boomed, in an unsustainable way.	<b>Italy</b> 9,300	12,800
	<b>Germany</b> 7,500	24,700
Behind Italy and Germany, no large sustainable market exist so far in Europe	<b>China</b> 2,200	3,100
	<b>USA</b> 1,600	4,200
France and Spain are constrained	<b>France</b> 1,600	2,600
	<b>Japan</b> 1,300	4,900
Outside EU, China has taken the first place, with US and JP following.	<b>UK</b> 860	970
	<b>Australia</b> 770	1300
More and more new markets but not mature yet.	<b>Belgium</b> 600	1,600
	<b>Spain</b> 400	4,200
	<b>RoE + RoW</b> 2,670	8,230
	<b>Total MW</b> 28,800	68,600



Cambridgeshire, UK



Bari, Italy



Cornwall, UK



Oxfordshire, UK

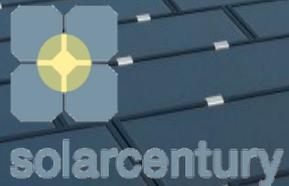




Birmingham



Gazeley, Spain



Berlin



P&G, Germany





Yorkshire



London



Pyrenees



Maidenhead



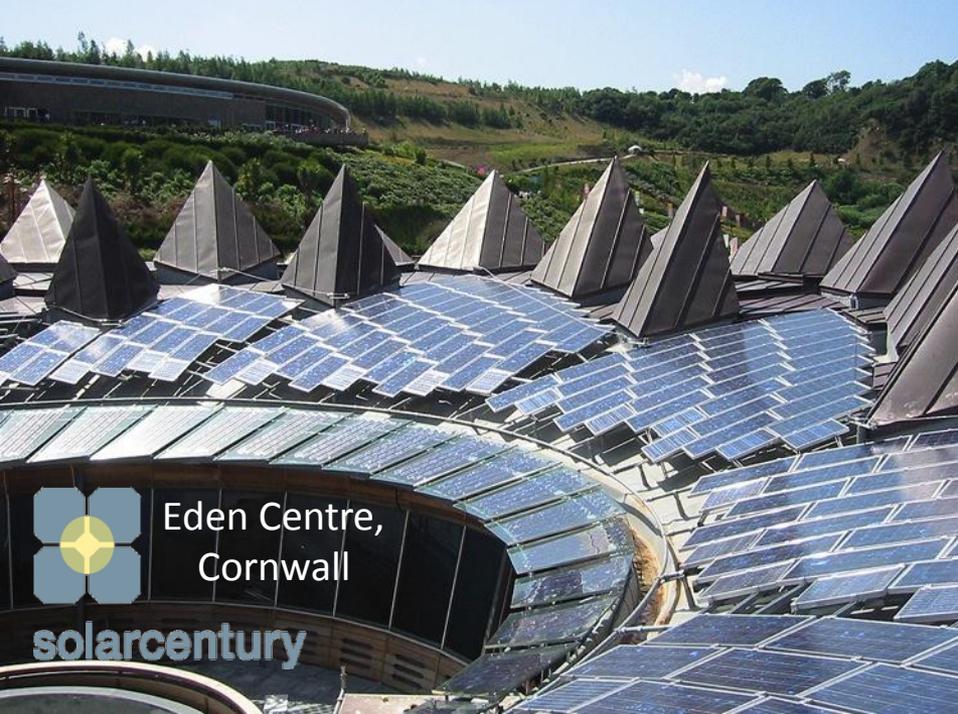
CIS Tower,  
Manchester



Derby Quad,  
Derby



London Borough of Hackney



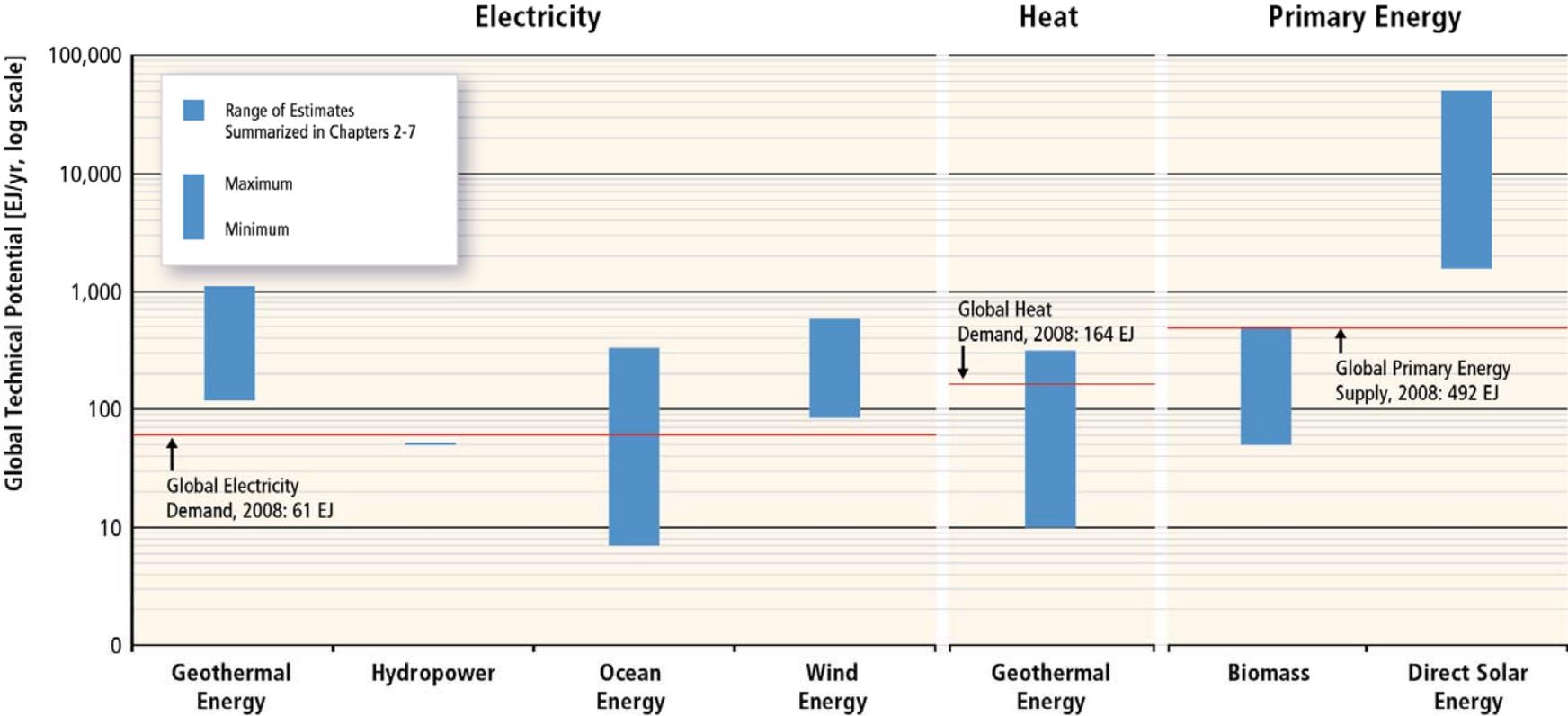
Eden Centre,  
Cornwall

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CGI of Blackfriars, London:  
world's largest solar bridge

# The technical potential of RE technologies to supply energy services greatly exceeds current demands



Range of Estimates of Global Technical Potentials

Max (in EJ/yr)	1109	52	331	580	312	500	49837
Min (in EJ/yr)	118	50	7	85	10	50	1575

## Resource potential for UK solar electricity generation on buildings

	TWh per year	% UK electricity
All building-mounted	460	116%
South-facing roofs only	140	35%



UK  
Photovoltaic  
manufacturers association



Essex, UK

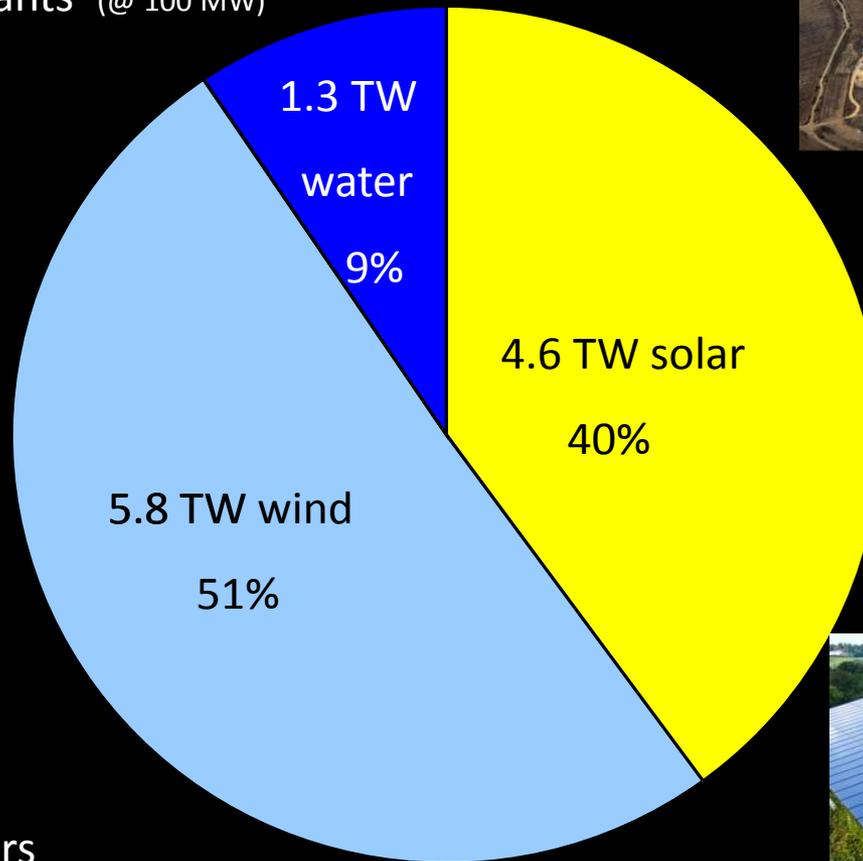
# The potential in principle in the 11.5 TW world of 2030

490,000 tidal turbines (@ 1MW)



5,350 geothermal plants (@ 100 MW)

900 HEP plants  
(@1.3 GW ....70% existing)



49,000 CSP plants  
(@ 300 MW)

40,000 PV plants  
(@300 MW)

1.7 bn PV rooftops  
(@ 3 kW)



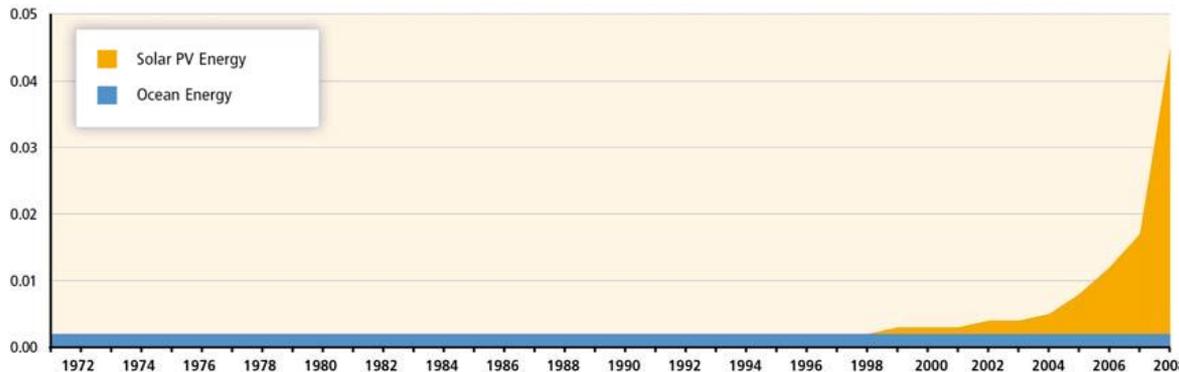
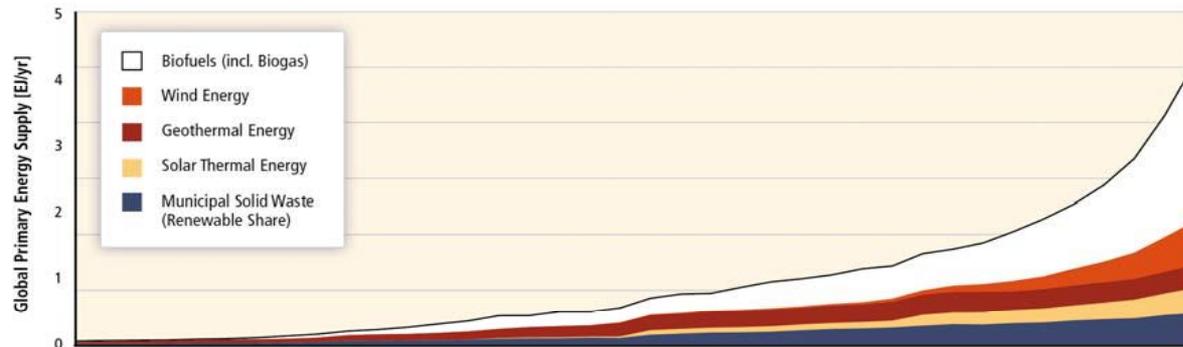
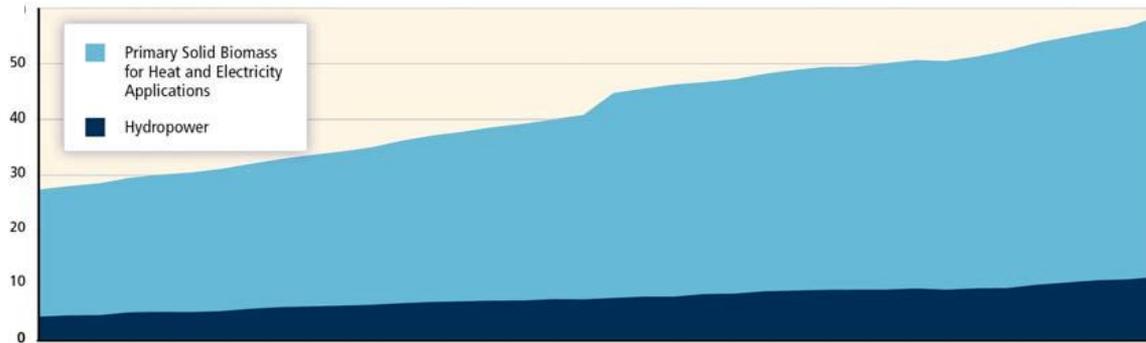
3.8 m turbines  
(@ 5MW)

720,000 wave converters  
(@ 750 kW)



# RE capacity has been speeding up in recent years

...especially PV



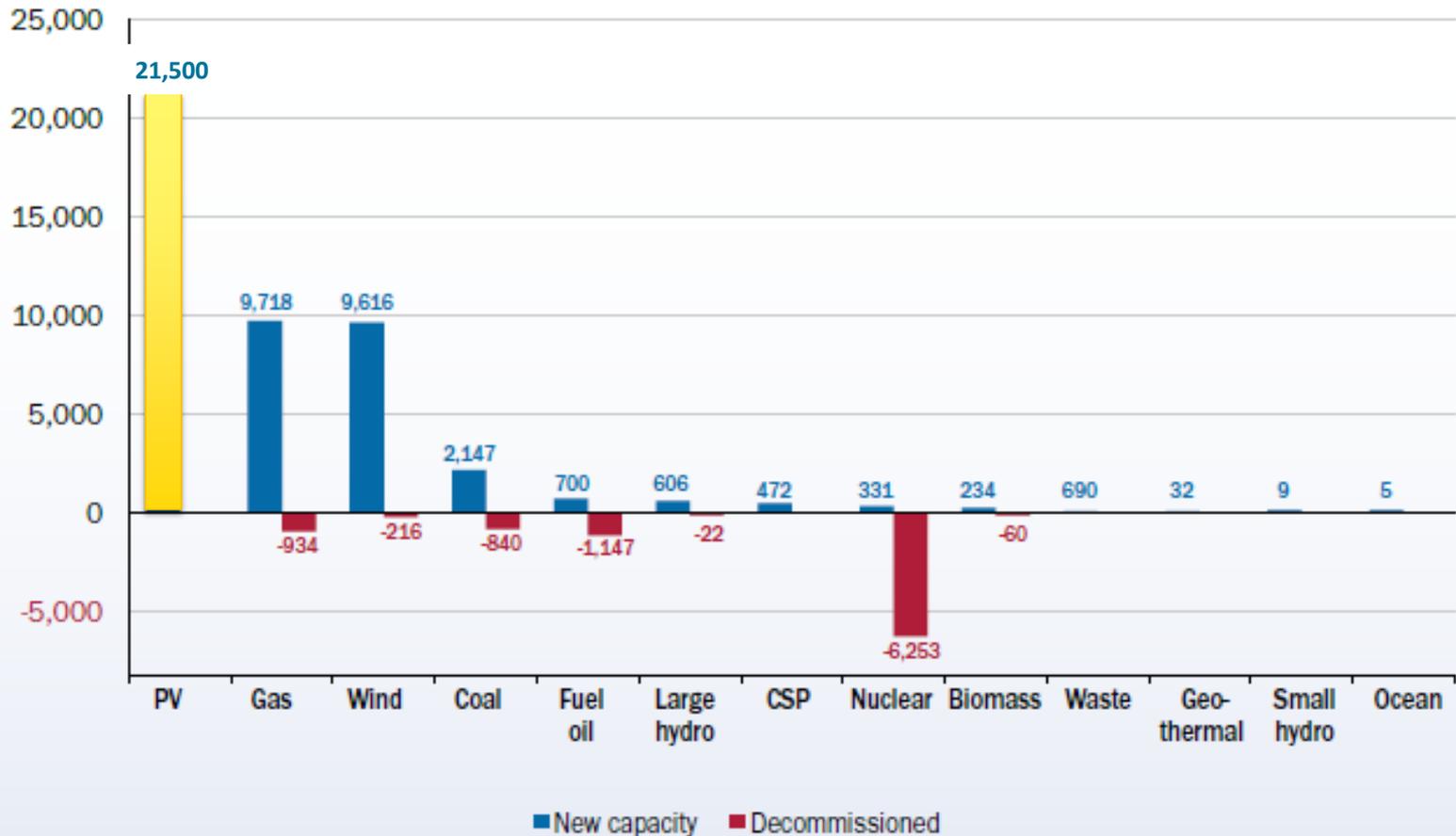
140 GW of new RE  
plant built 2008-2009

= 47% of all new  
power capacity in that  
period

# New installed and decommissioned capacity in 2011 (EU)

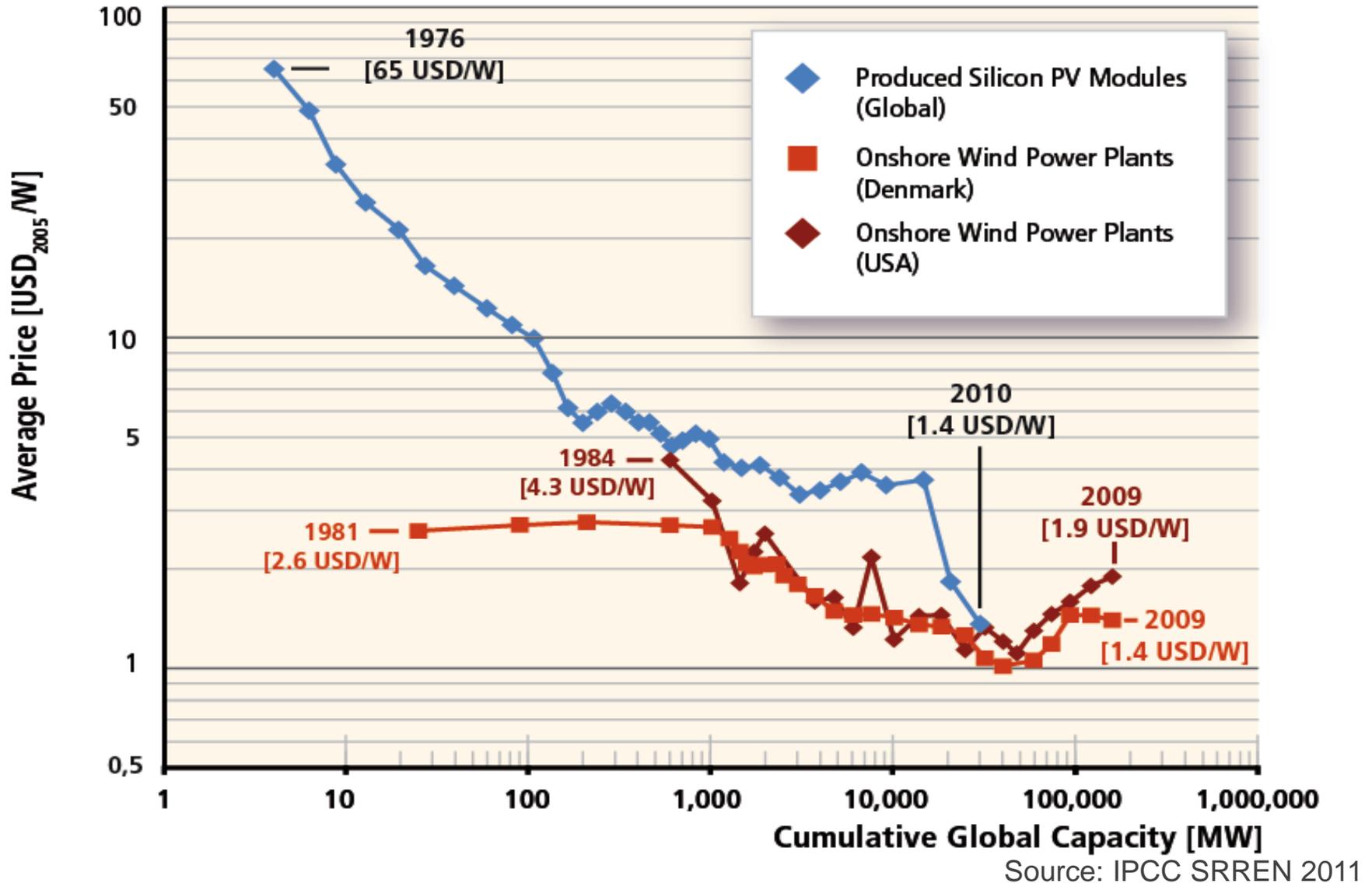
NEW INSTALLED CAPACITY AND DECOMMISSIONED CAPACITY IN MW. TOTAL 35,468 MW

FIGURE 1.3

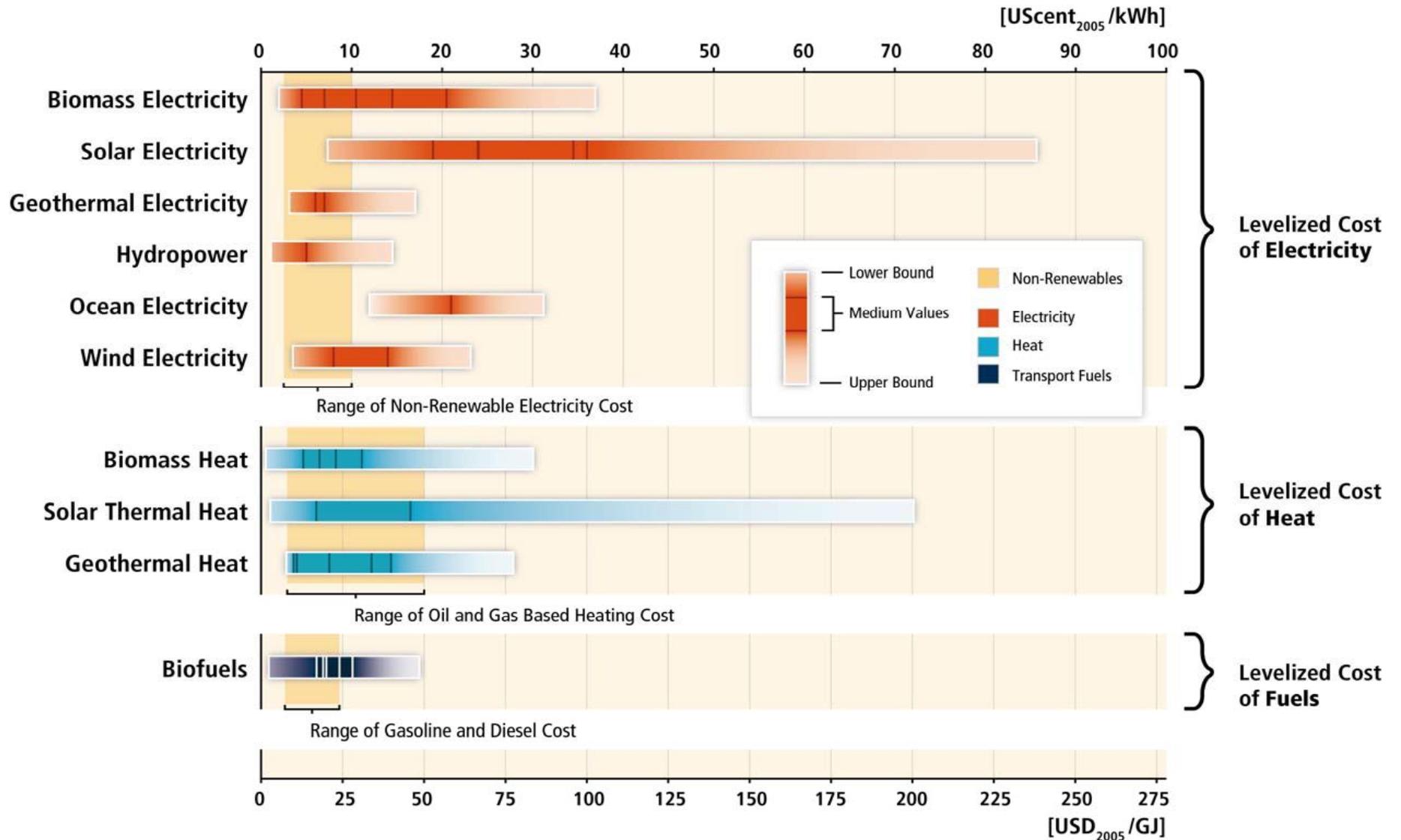


Source: EPIA / EWEA

RE costs have mostly been declining over time and this trend can be expected to continue



# RE levelized costs are still higher than most conventional energy but in various settings RE is already competitive



# 5 Chairmen and CEOs from a cross section of UK industry

“The next five years will see us face another crunch – the oil crunch. This time, we do have the chance to prepare. The challenge is to use that time well. ....Our message to government and businesses is clear. Act. ....**Don't let the oil crunch catch us out in the way that the credit crunch did.**”



Richard Branson, Founder, Virgin Group



Iain Macrae, CEO, Scottish & Southern Energy



Brian Souter, CEO, Stagecoach Group



Philip Dille, Chairman, Arup



Jeremy Leggett, Chairman, Solarcentury



Industry Taskforce  
on Peak Oil & Energy Security

ARUP

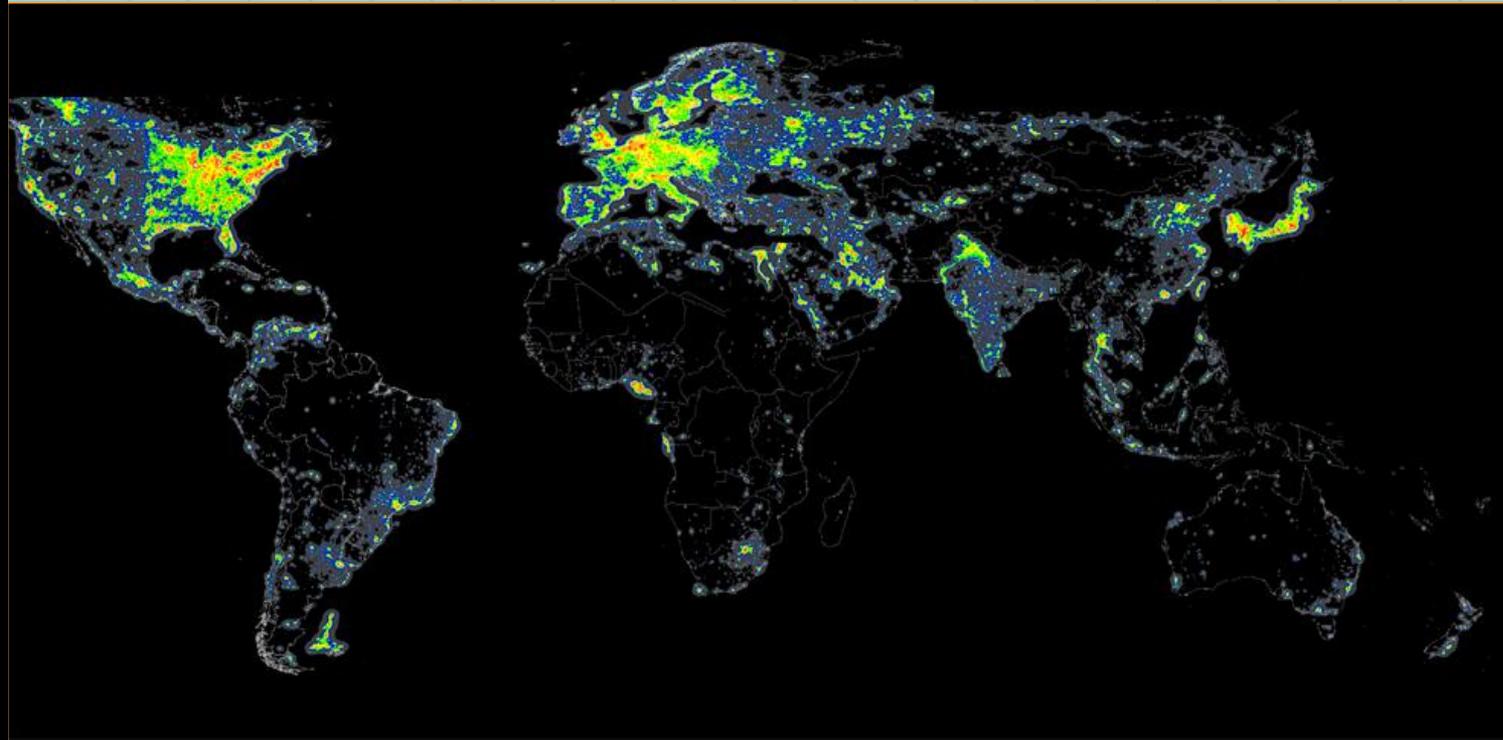
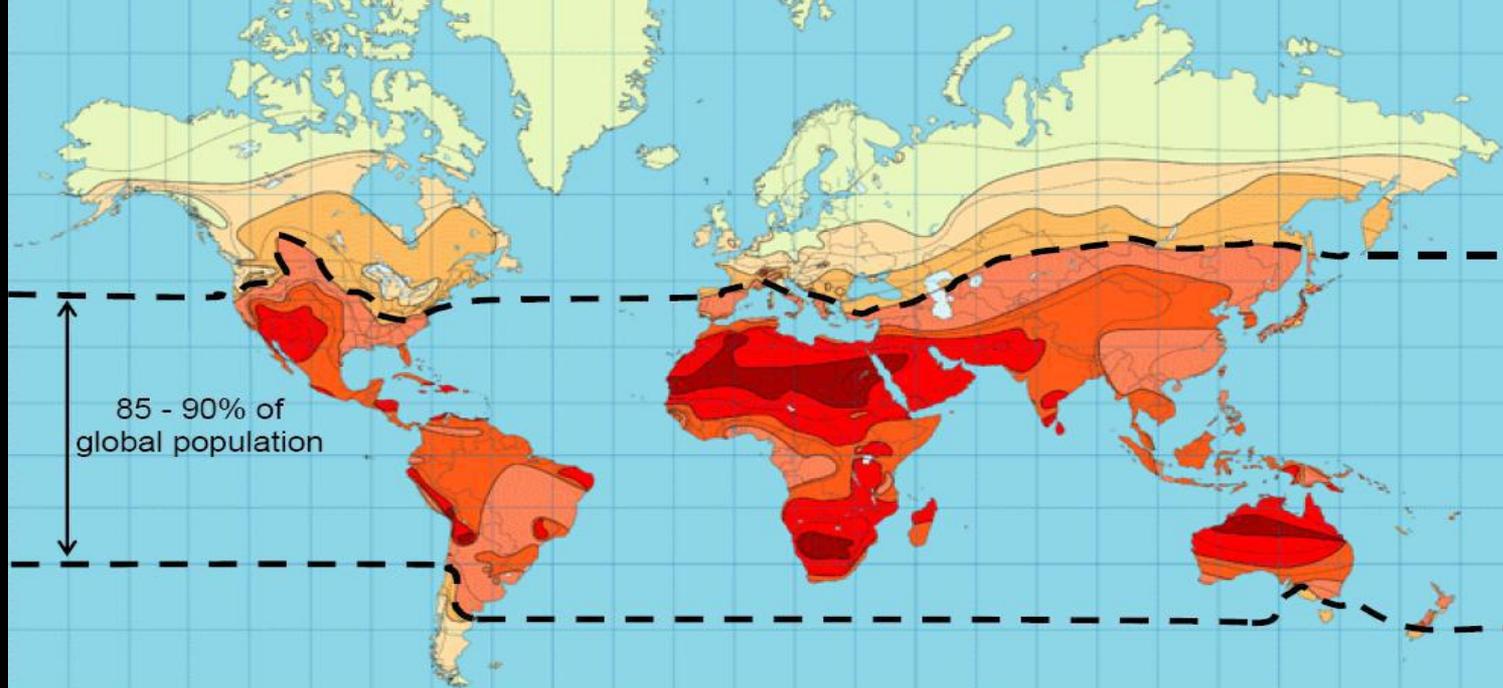


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Foster + Partners

STAGECOACH GROUP  
greener smarter travel

Scottish and Southern  
Energy





**“This is no place for a child to do homework”**

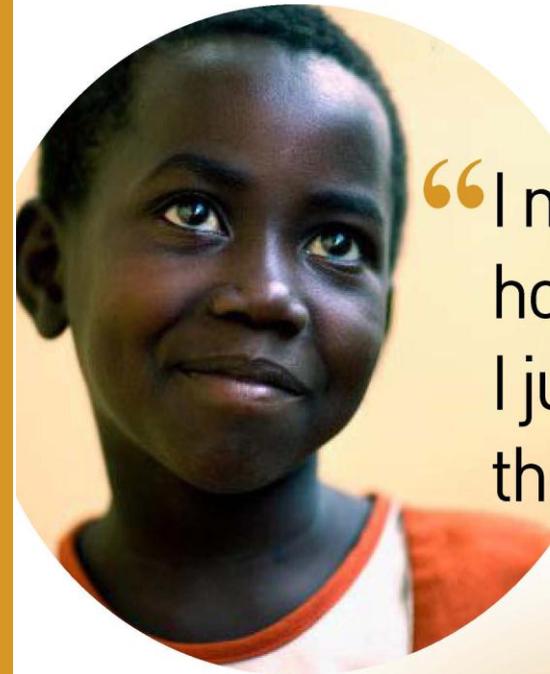
Around the world, 2 billion people do not have access to electricity. So the only way these children can study is under streetlights. That is if their town is lucky enough to have them.

Solar is a safe, free power source, which can enable the poorest families to light their homes and cook food. And because it replaces toxic fossil fuels, it's good for people's health and the environment too. Will you help SolarAid to bring solar power to the people who need it most?

**The answer is staring us in the face**



[www.solar-aid.org](http://www.solar-aid.org)



**“I need to do my homework. But I just don't have the energy.”**

For children like Stephen, an education is their best chance of escaping a lifetime of poverty. But because they have no electricity at home, they are unable to study when the sun goes down.

SolarAid, a brand new charity, needs your help to bring clean, affordable, safe solar power to the people who need it most.

**The answer is simple**



[www.solar-aid.org](http://www.solar-aid.org)





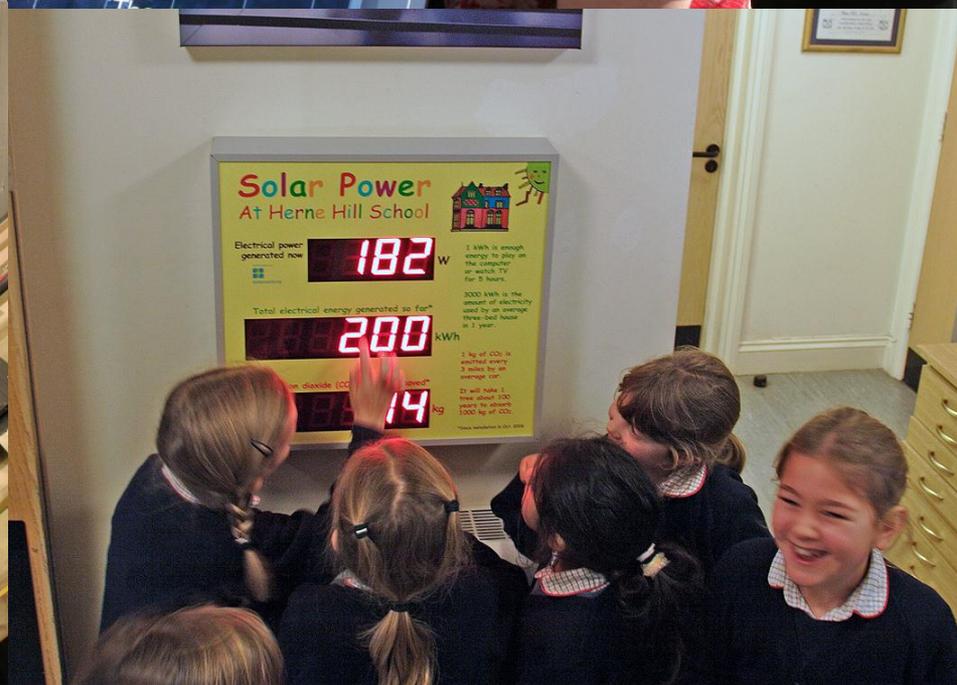
## Low Carbon Buildings Programme

Solar PV for Education, public sector  
& housing associations.  
Additional funding from:

**The Co-operative,  
Barclaycard Breathe,  
Northern Ireland Energy,  
Scottish & Southern Energy**



Peacehaven Community School  
The 100<sup>th</sup> school to receive solar panels from The Co-operative's Green Energy for Schools Initiative  
22<sup>nd</sup> July 2008



**Solar Power At Herne Hill School**

Electrical power generated now: **182** W

Total electrical energy generated so far: **200** kWh

Weight of CO<sub>2</sub> emitted today: **14** kg

1 kWh is enough energy to play on the computer or watch TV for 3 hours.  
3000 kWh is the amount of electricity used by an average three-bed house in 1 year.  
1 kg of CO<sub>2</sub> is emitted every 3 hours by an average car.  
It will take 1 tree about 100 years to absorb 1000 kg of CO<sub>2</sub>.

\*These measurements are © 2008

# Thank you

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[www.peakoiltaskforce.net](http://www.peakoiltaskforce.net)

