

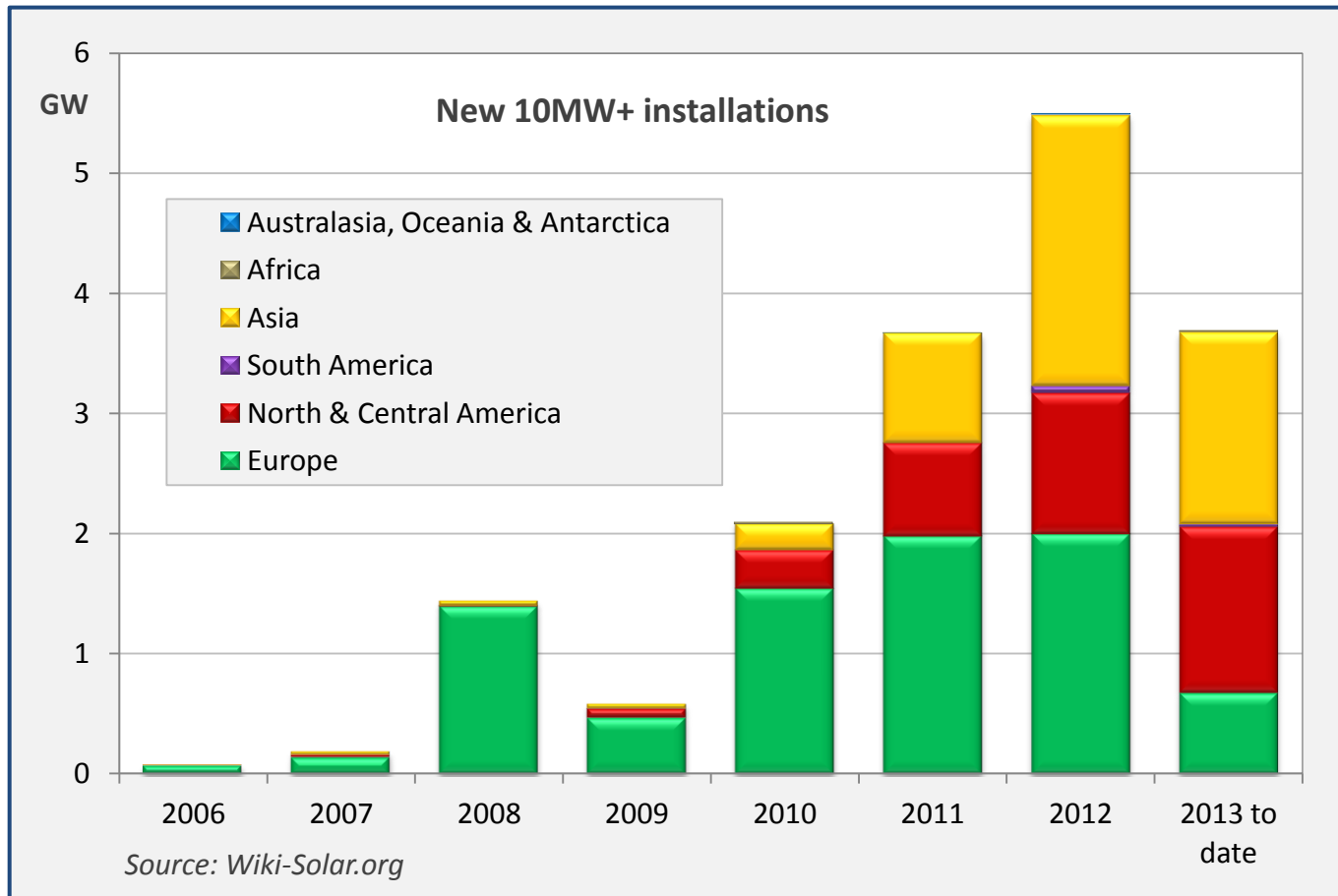
Going for growth in UK large-scale solar

Philip Wolfe

Wiki-Solar, WolfeWare



Why this focus on utility-scale?



My topics

Utility-scale solar in the UK

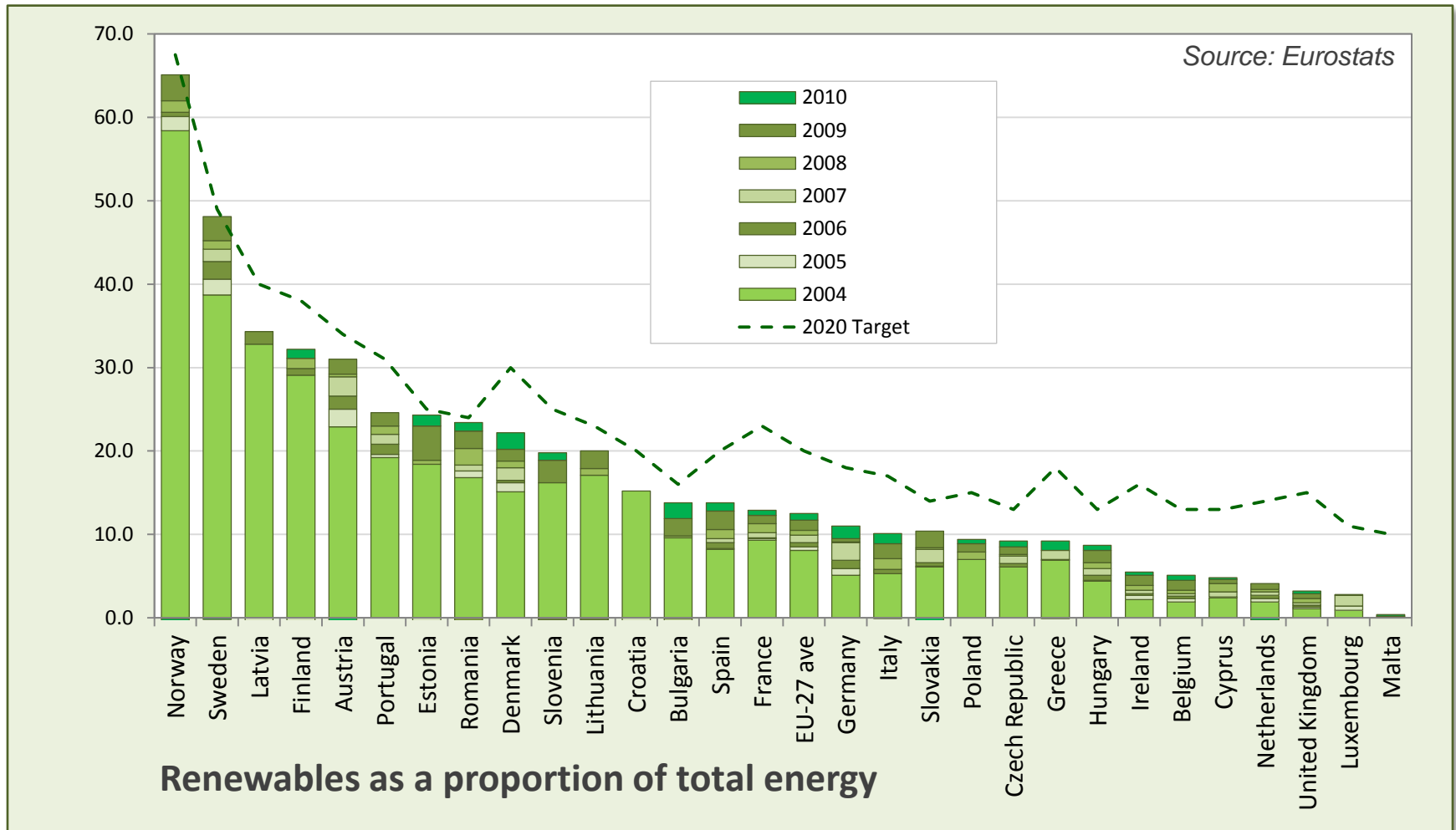
- The good news
- The bad news

Development and financing models

- Leading participants
- What's in it for them?



EU R.E.D. a strong driver for the UK



UK position in utility-scale solar

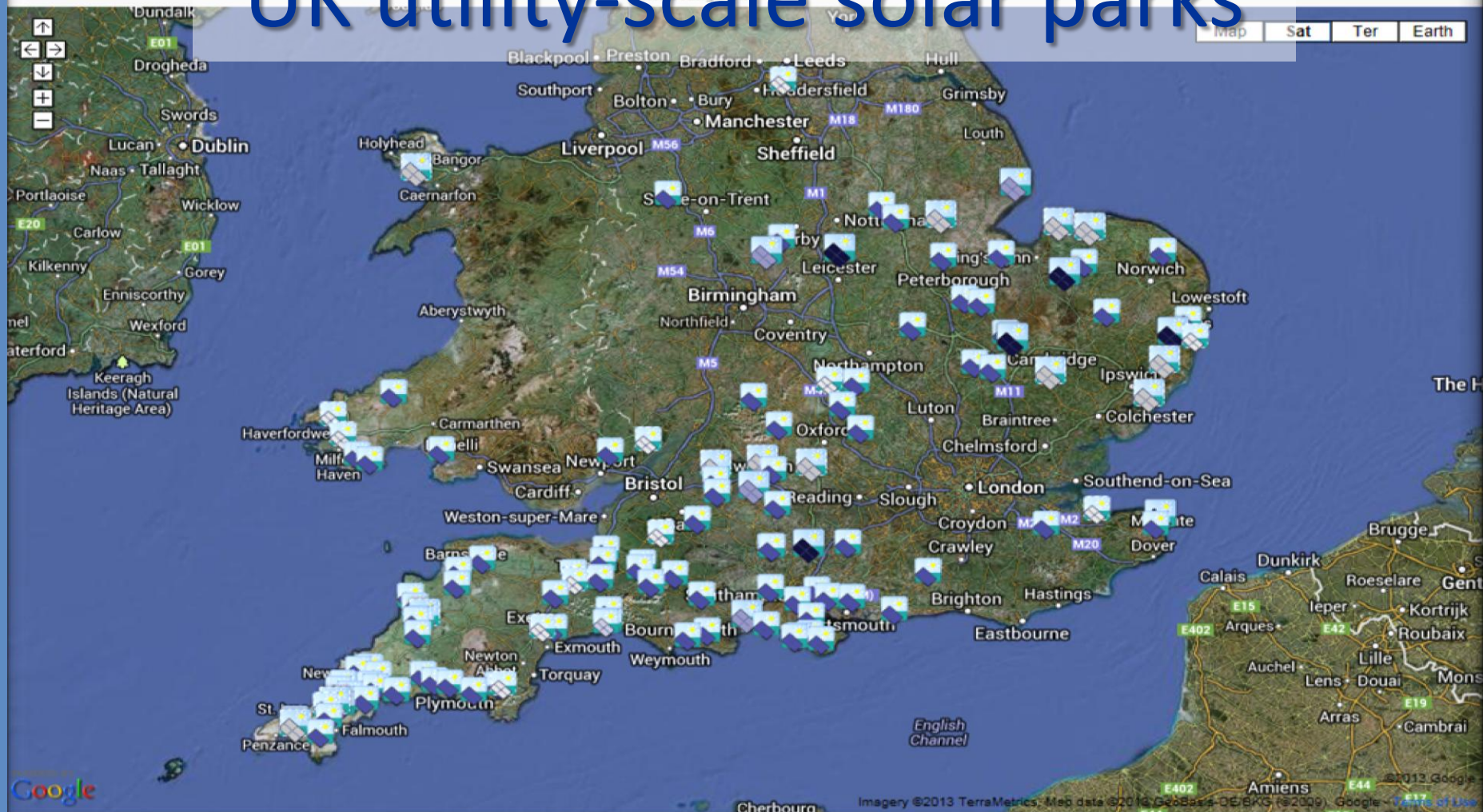
<i>Plants over 5 MW</i>			Cumulative		Since Dec-12		
Rank	Chg	Country	Sites	MWp	Sites	MWp	Rank
Total			1,074	17,230	192	3,689	
1	→	Germany	194	3,412	3	87	8
2	↑	United States	129	3,207	25	1,262	1
3	↓	China	143	3,096	38	909	2
4	→	Spain	156	1,683	0	0	
5	→	India	128	1,473	45	508	3
6	→	Italy	61	838	0	0	
7	→	France	27	590	2	30	10
8	→	Canada	27	539	9	121	7
9	↑	United Kingdom	88	537	50	341	4
10	↓	Ukraine	9	441	3	128	6
11	→	Thailand	32	359	10	159	5
12	↓	Czech Republic	24	276	0	0	
13	→	Bulgaria	8	181	0	0	
14	↑	Greece	12	140	2	76	9
15	↓	Korea (South)	7	95	1	13	13

Source:
Wiki-solar.org





UK utility-scale solar parks



Largest solar parks *(to scale)*

#1 USA



#2 China



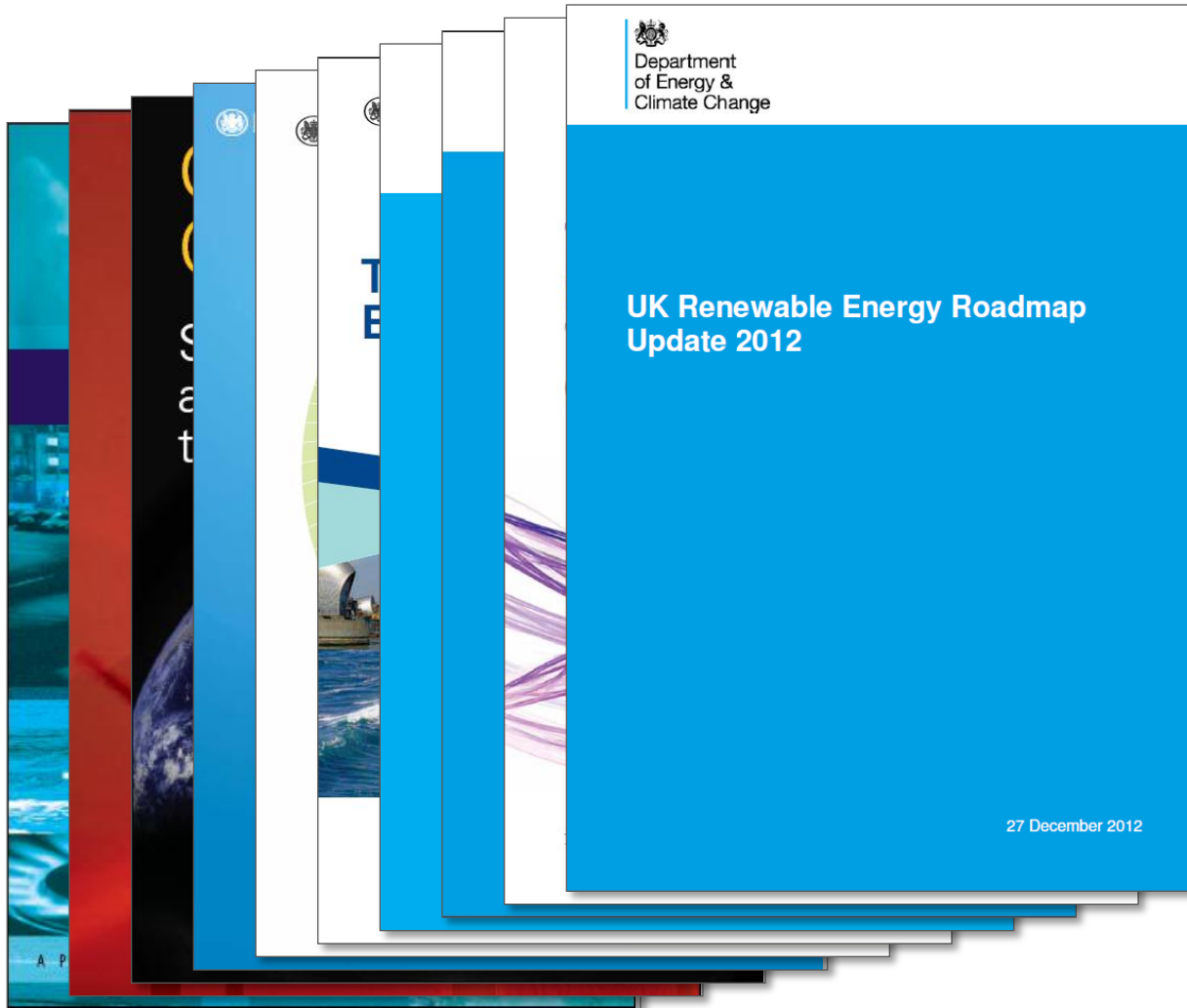
#3 Germany



#9/15 UK



UK energy/climate policy

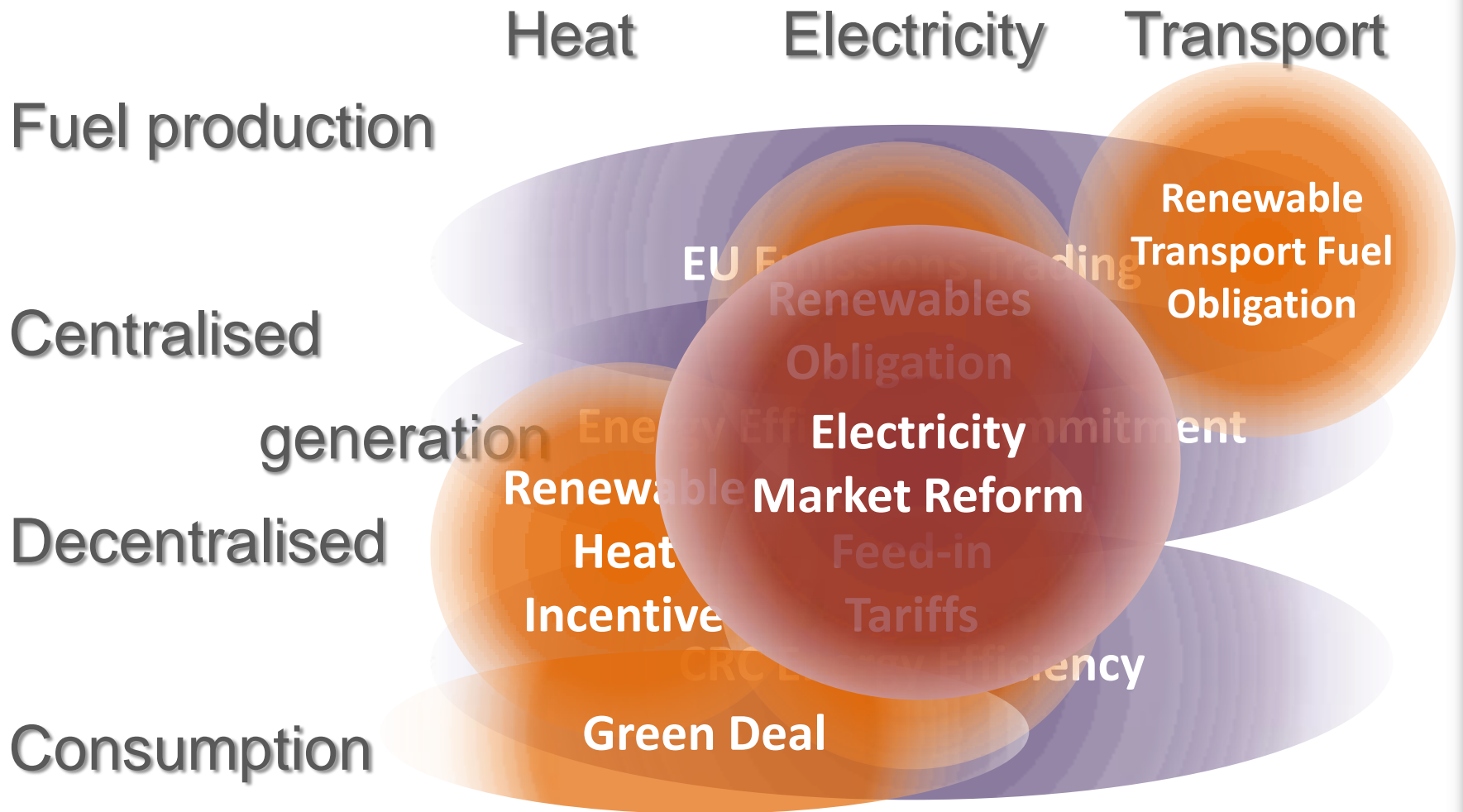


***“Leading the
world with
commitment to
cut emissions”
Ed Miliband***

***“the greenest
Government
ever”
David Cameron***



UK energy/climate policy measures



To summarise: The UK

- ☀ Strong statutory drivers
- ☀ Adequate financial support
- ☀ One of Europe's few growth markets
- ☀ Diversity of financial options
- ☀ Complex regulatory regime
- ☀ Grid connection issues and costs
- ☀ Planning variability
- ☀ Complex fiscal regime



Main players in the UK market

	Own	Dev	Build	Site	Power	Fin	Re-fin
'Big 6' utilities							
Small utilities / energy traders							
Specialist IPPs							
Farmers & land-owners							
Industrial companies							
Renewables developers							
PV systems integrators							
Mainstream banks							
Smaller banks							
Pension funds							
Specialist funds							
	Key:	None	Little	Some	More	Most	



Some leading owners

Rank	Owner	Sites	MWp
1	Lightsource [GB] (<i>with Octopus</i>)	24	151
2	Hazel Capital [GB]	4	53
3	Low Carbon [GB]	3	19
4	Prosolia Energía [ES]	3	16
5	Isolux [ES]	3	15
6	S.A.G. Solarstrom [DE]	2	11
7	Kronos [DE]	2	10
8	Foresight Group [GB]	2	10
9	Alectron Investments [GB]	2	10
10	Downing [GB]	1	6
11	Carlton Power [GB]	1	5
12	Gravis Capital Partners [GB]	1	5
13	Westmill Solar Co-operative [GB]	1	5
14	Vogt Solar [DE]	1	5
15	Toyota [JP]	1	5



Top developers of UK projects

Rank	Developer	Sites	MWp
1	Lark Energy [GB]	5	53
2	Vogt Solar [DE]	8	47
3	Hive Energy [GB]	6	34
4	Low Carbon [GB]	5	32
5	Orta Solar [GB]	4	24
6	AEE renewables [DE]	4	23
7	Abbey Renewables [GB]	3	22
8	Kronos [DE]	3	20
9	Inazin [GB]	3	19
10	Wirsol Solar [DE]	3	16
11	Wessex Solar [GB]	3	16
12	Aelectron Investments [GB]	3	15
13	Solarcentury [GB]	2	15
14	TGC Renewables [GB]	2	11
15	MO3 Power [GB]	2	11
16	Anesco [GB]	1	10
17	British Solar Renewables [GB]	2	10
18	Solar Power Generation [GB]	2	10
19	Belectric [DE]	2	10
20	Lightsource [GB]	2	10



EPC contractors for UK projects

Rank	EPC contractor	Sites	MWp
1	Solarcentury [GB]	5	44
2	S.A.G. Solarstrom [DE]	2	39
3	Moser Baer [IN]	5	29
4	Martifer [PT]	4	24
5	Goldbeck Solar [DE]	3	20
6	Vogt Solar [DE]	3	20
7	Abakus Solar [DE]	3	19
8	Anesco [GB]	2	16
9	Wirsol Solar [DE]	3	16
10	Lark Energy [GB]	2	11
11	Stepnell [GB]	2	10
12	T Clarke [GB]	2	10
13	Oskomera [NL]	2	9
14	Conergy [DE]	2	9
15	Smarter Energy Solutions [GB]	1	5
16	Belectric [DE]	1	5
17	AGRenewables [GB]	1	5



UK solar power off-takers

In addition to the 'big 6':

Power off-taker
Smartest Energy [GB]
Good Energy [GB]
Ecotricity [GB]
Bentley Motors [GB]
Toyota [JP]
AmeyCespa [GB]
Rockspring [GB]



Financing models

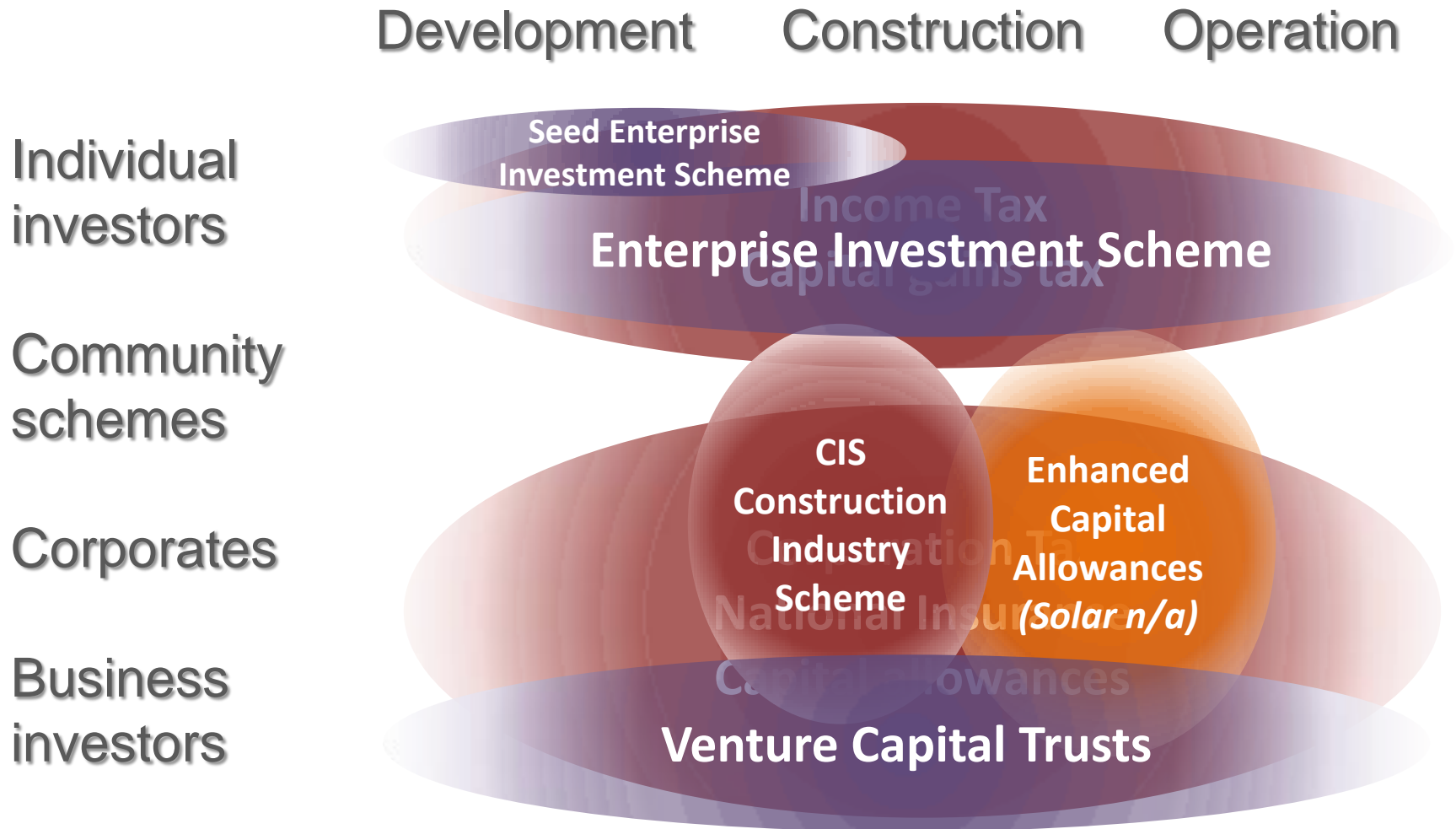
The UK has many more financiers than PV practitioners!

There are all sorts of financing models:

- ☀️ Specialist solar power funds
- ☀️ More general funds part-invested in solar
- ☀️ IPPs with equity & debt
- ☀️ Community schemes with equity & debt
- ☀️ Banks and pension funds, direct and indirect holdings
- ☀️ Structured to take advantage of available tax breaks ...



UK fiscal measures



Finance providers






Some early entrants:

Finance provider
Deutsche Bank [DE]
Investec [ZA/GB]
NIBC [NL]
Royal Bank of Scotland [GB]
HEP Capital [DE]
Lancashire County Council Pension Fund [GB]
Co-operative Bank [GB]
Triodos Bank [NL]



A final word of warning

Make sure you budget enough for:

-  Grid connection specialists
-  Planning consultants
-  Tax advisors
-  Lawyers
-  Accountants



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Global market information:

www.wiki-solar.org

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Solar park advisory:

www.wolfeware.co.uk/Solar.html

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