

Managing green rents in UK climate change policy

Jim Watson

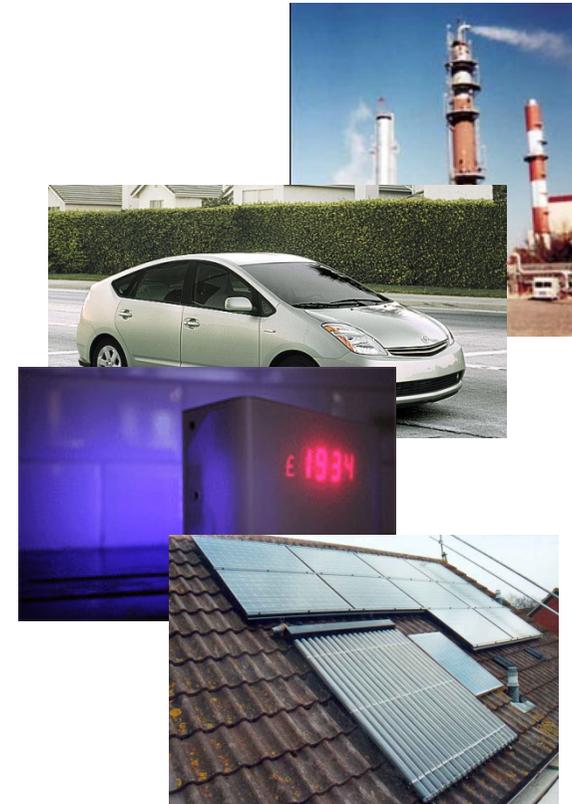
Director, Sussex Energy Group

DIE workshop: 'Managing economic rents for the green transformation'
Bonn, 6-7 November 2012

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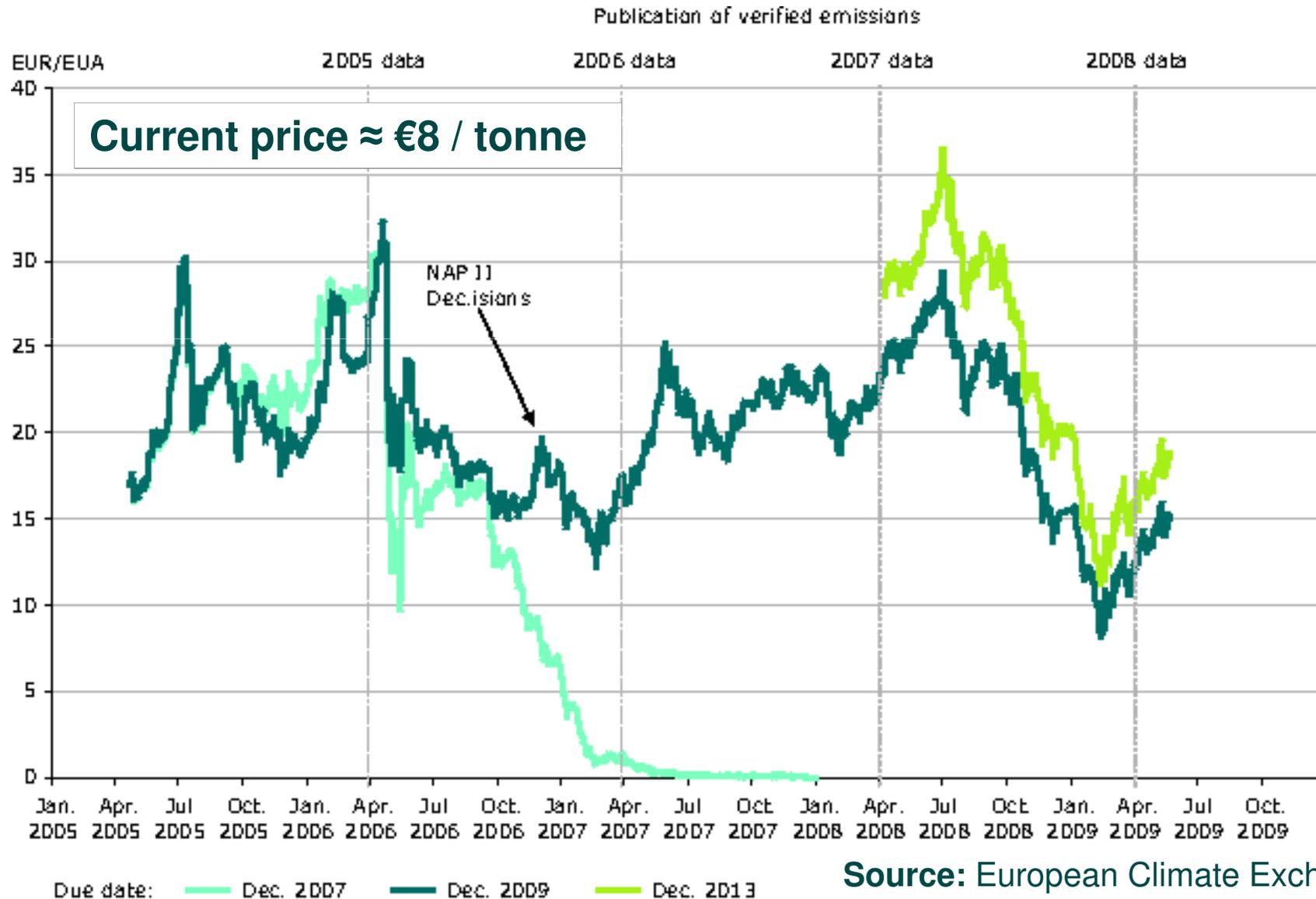
Overview

- 1 Why go beyond carbon pricing?
- 2 Innovation and the Entrepreneurial State
- 3 UK policy case studies (CCS and renewables)
- 4 Conclusions



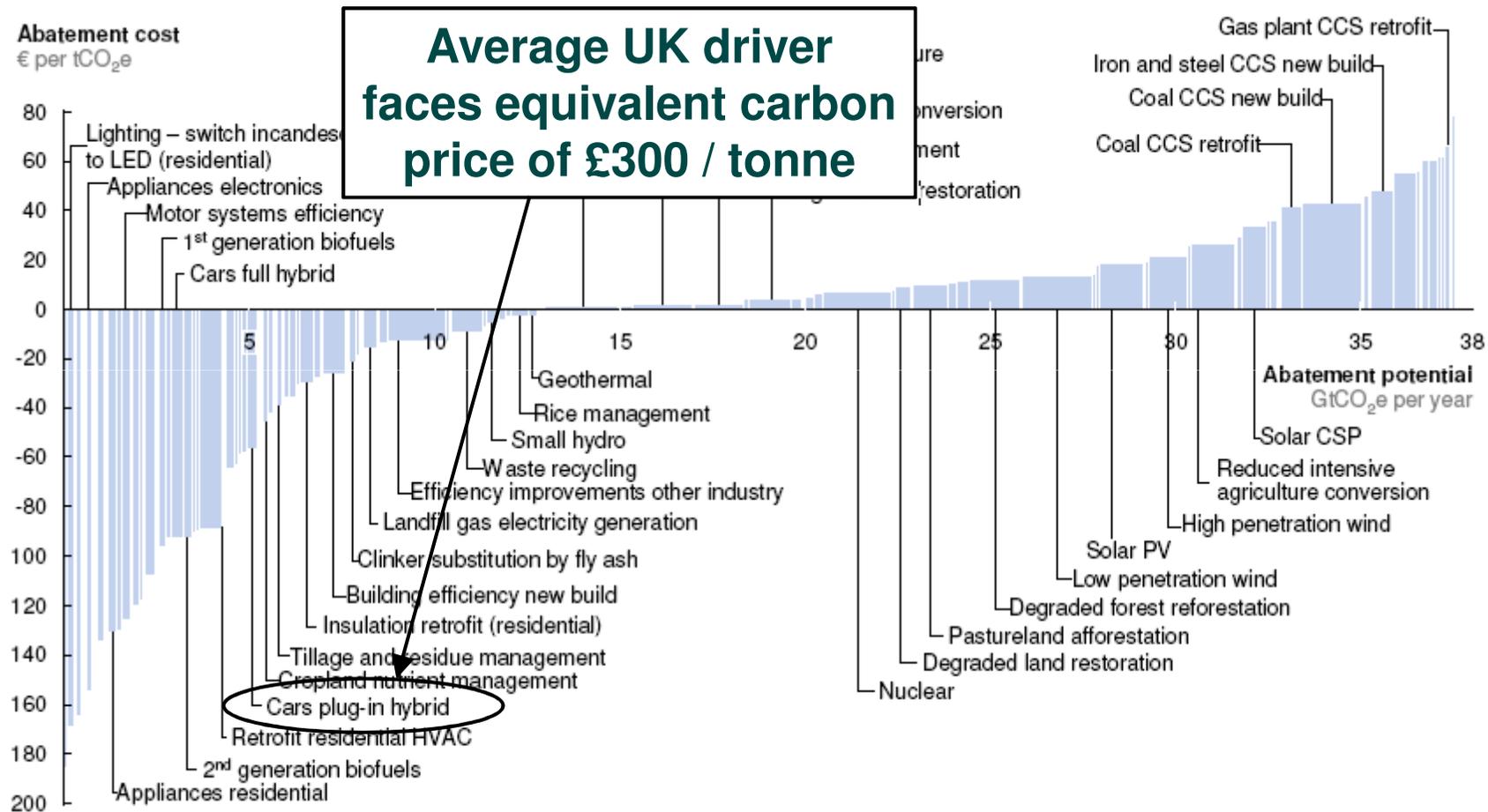
Why go beyond carbon pricing?

1. Low / volatile prices



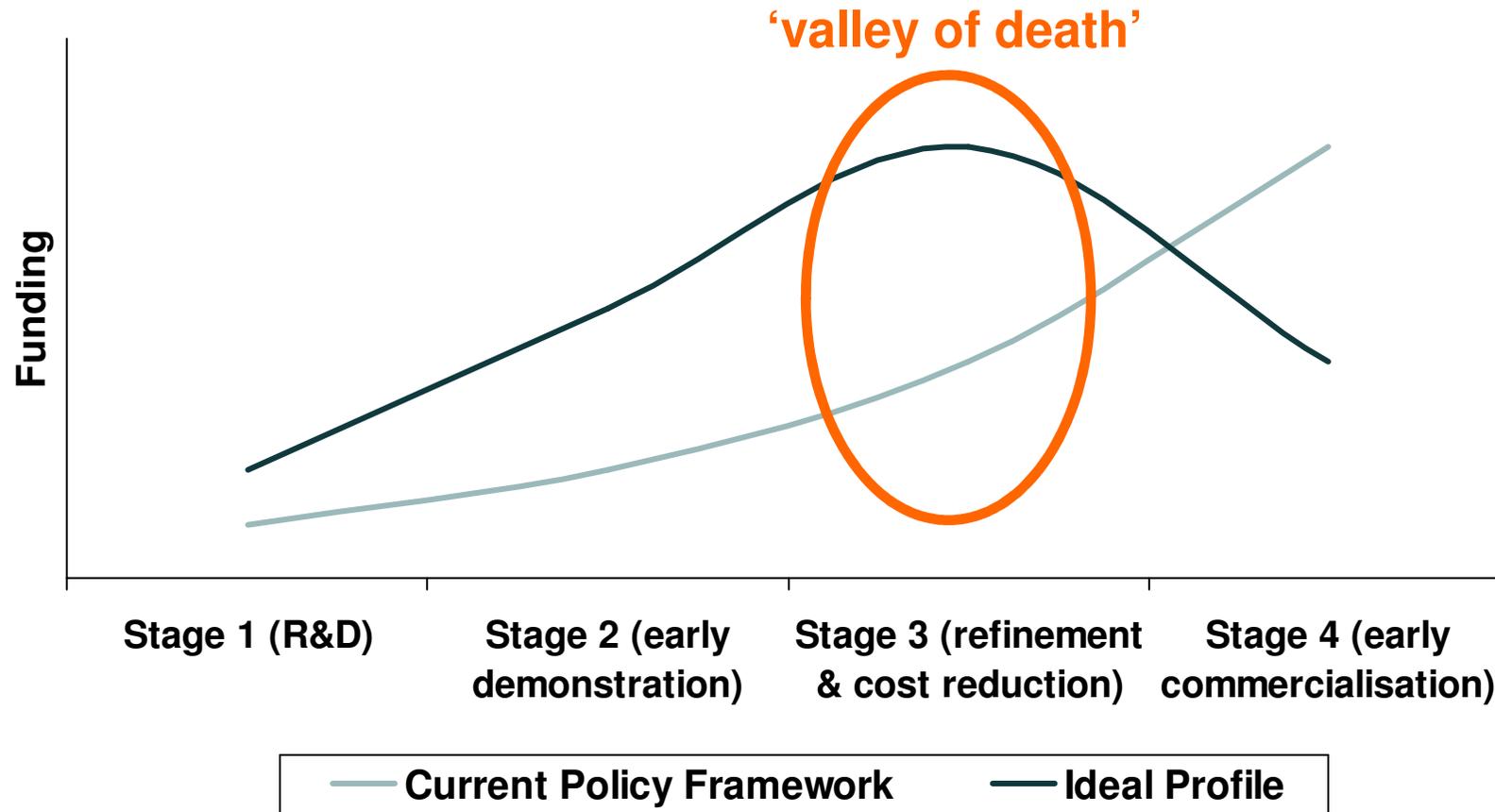
Why go beyond carbon pricing?

2. Bounded rationality / different markets



Why go beyond carbon pricing?

3. Innovation



Why go beyond carbon pricing?

3. Innovation



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“A prime consideration must be to create the right framework which will reward the best, most cost-effective technologies and encourage their development. This means a policy that is not about picking winners, but which allows the market to provide appropriate incentives”

Interdepartmental Analysts Group 2002

Why go beyond carbon pricing?

3. Innovation



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“Rather than pick a winning technology, the Government will create markets that enable competing low carbon technologies to win the largest market share as the pace of change accelerates in the 2020s ...

As we make the transition, the state will need to solve co-ordination problems and ensure that the system as a whole coheres – for example, to understand when infrastructure decisions are required relating to the electricity grid, the gas network and charging points for electric cars.”

The Carbon Plan 2011

Why go beyond carbon pricing?

4. Lock in



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‘Large scale technology, such as electric light and power systems, incorporate not only technical and physical things such as generators, transformers and high-voltage transmission lines, but also utility companies, electrical manufacturers and reinforcing institutions such as regulatory agencies and laws ...

Large technological systems represent powerful vested interests ... [They] construct a bulwark of organisational structures, ideological commitments, and political power to protect themselves and the systems’

Thomas Hughes (1989) American Genesis

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Why go beyond carbon pricing?

4. Carbon lock in



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‘Industrial economies have become locked in to fossil fuel-based technological systems through path a dependent process driven by technological and institutional increasing returns to scale.

This condition, termed carbon lock-in, arises through a combination of systematic forces that perpetuate fossil fuel-based infrastructures in spite of their known environmental externalities and the apparent existence of cost-neutral or cost effective remedies’

Greg Unruh (2000) ‘Understanding carbon lock-in’

Innovation and the entrepreneurial state



- **Carbon pricing is necessary but not sufficient:** so there is a need to resist temptation to return to this ‘simpler’ policy focus
- **Many goals of energy policy:** deep cuts in emissions; ensuring energy security; affordability / public legitimacy; producing cleaner goods and services (i.e. jobs)
- **A more complex policy mix is required, implying a more ‘active’ role for the state:** but how to achieve this whilst avoiding a return to the ‘bad old days’ of the 1970s
- **How have UK policies for low carbon innovation and technology deployment performed?**

Innovation and the entrepreneurial state



‘[Lessons from history] force the debate to go beyond the role of the state in stimulating demand, or the role of the state in ‘picking winners’ in industrial policy, where taxpayers’ money is potentially misdirected to badly managed firms in the name of progress, distorting incentives as it goes along. Instead it is a case for a targeted, proactive, entrepreneurial state, able to take risks, creating a highly networked system of actors harnessing the best of the private sector for the national good over a medium to long-term horizon.

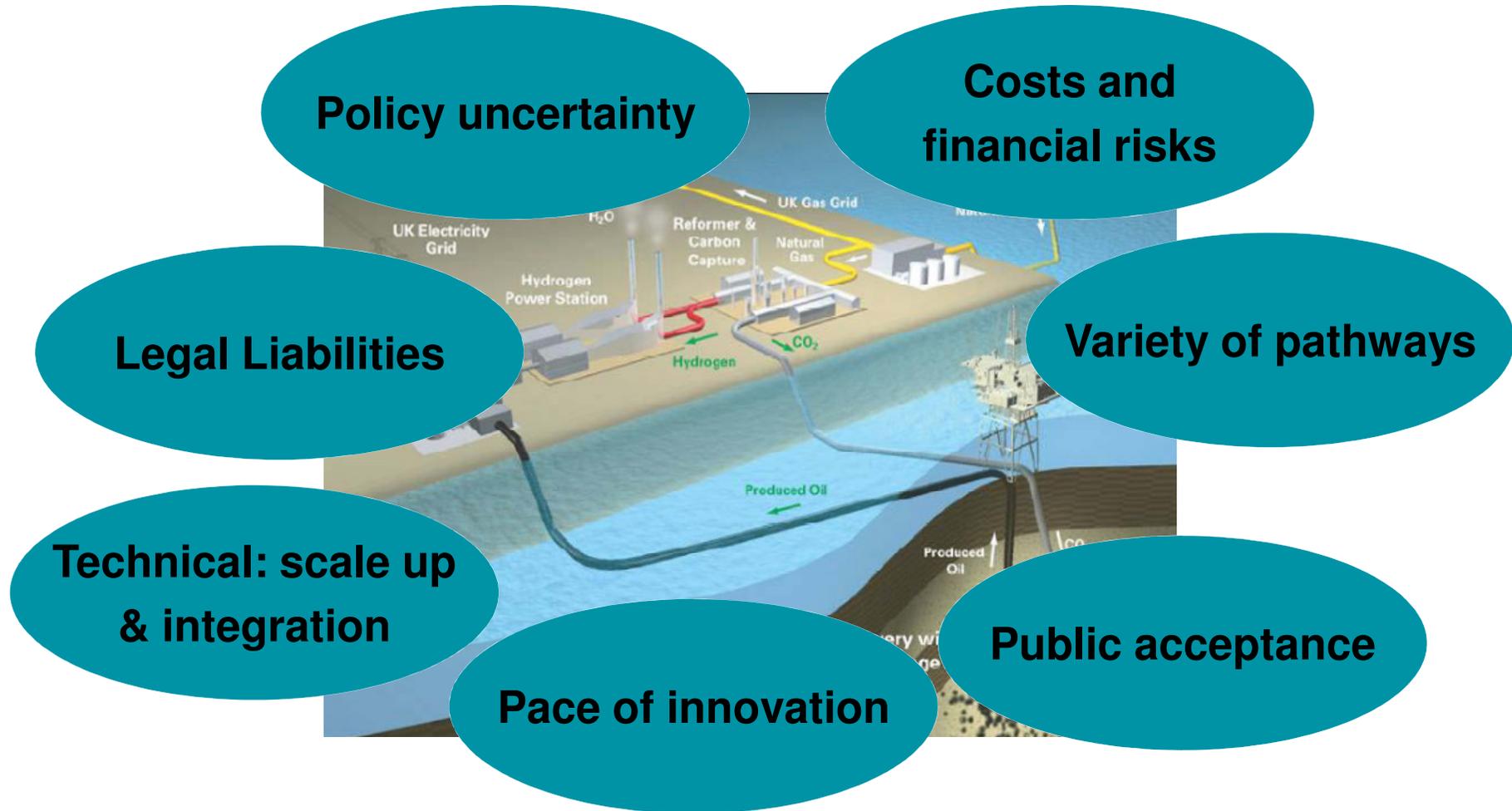
Mariana Mazzucato, *The Entrepreneurial State* (2011)

UK case studies

1: Carbon capture and storage



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UK case studies

1: Carbon capture and storage



- **UK government took a long time to commit to CCS demonstrations: many years to convince the Treasury**
- **Builds on history of debate on ‘clean coal’ demonstrations dating back to the 1990s**
- **Demonstration announced in 2007 budget following consultancy study**
- **Initial plan for one demonstration expanded to 2-4 demonstrations (with cross-party backing)**
- **Competition for first demonstration long and ultimately unsuccessful in its primary aim (i.e. to fund one!), but resulted in two engineering studies, and significant learning**

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UK case studies

1: Carbon capture and storage

Why did the demonstration competition fail?

- **Mistake from the start to pick a technology variant (post combustion capture) and a fuel (coal)**
- **Not enough money. Reports say that developers wanted £1.4bn-£1.6bn**
- **Integration of the main project partners very difficult, e.g. on contracts and risk sharing**
- **Parent company (Iberdrola, Spain) not enthusiastic enough about CCS**
- **Government ended up in a very difficult position: never easy to run competition with one bidder!**

UK case studies

1: Carbon capture and storage



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‘Developing new technologies is an inherently risky undertaking. Taking calculated risks is perfectly acceptable if those risks are managed effectively; but in this case DECC, and its predecessor, took too long to get to grips with the significant technical, commercial and regulatory risks involved ...

The Department must learn the lessons of the failure of this project if further time is not to be lost, and value for money achieved on future projects’

Amyas Morse, head of the National Audit Office

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UK case studies

1: Carbon capture and storage



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- **New competition launched in April 2012: more than one project to stretch money and risk further and neutral on technology variants and fuels**
 - **£1bn of capital funding secured in tough public spending round: seen as strategic national infrastructure project**
 - **Four bids shortlisted: mix of fuels and technologies**
 - **Money from EU ETS via NER 300 (up to £250m per project)**
 - **But also need funding from electricity market reform: contracts for electricity negotiated directly with government**
 - **Outcome still very uncertain ...**

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UK case studies

2: Renewable electricity technologies



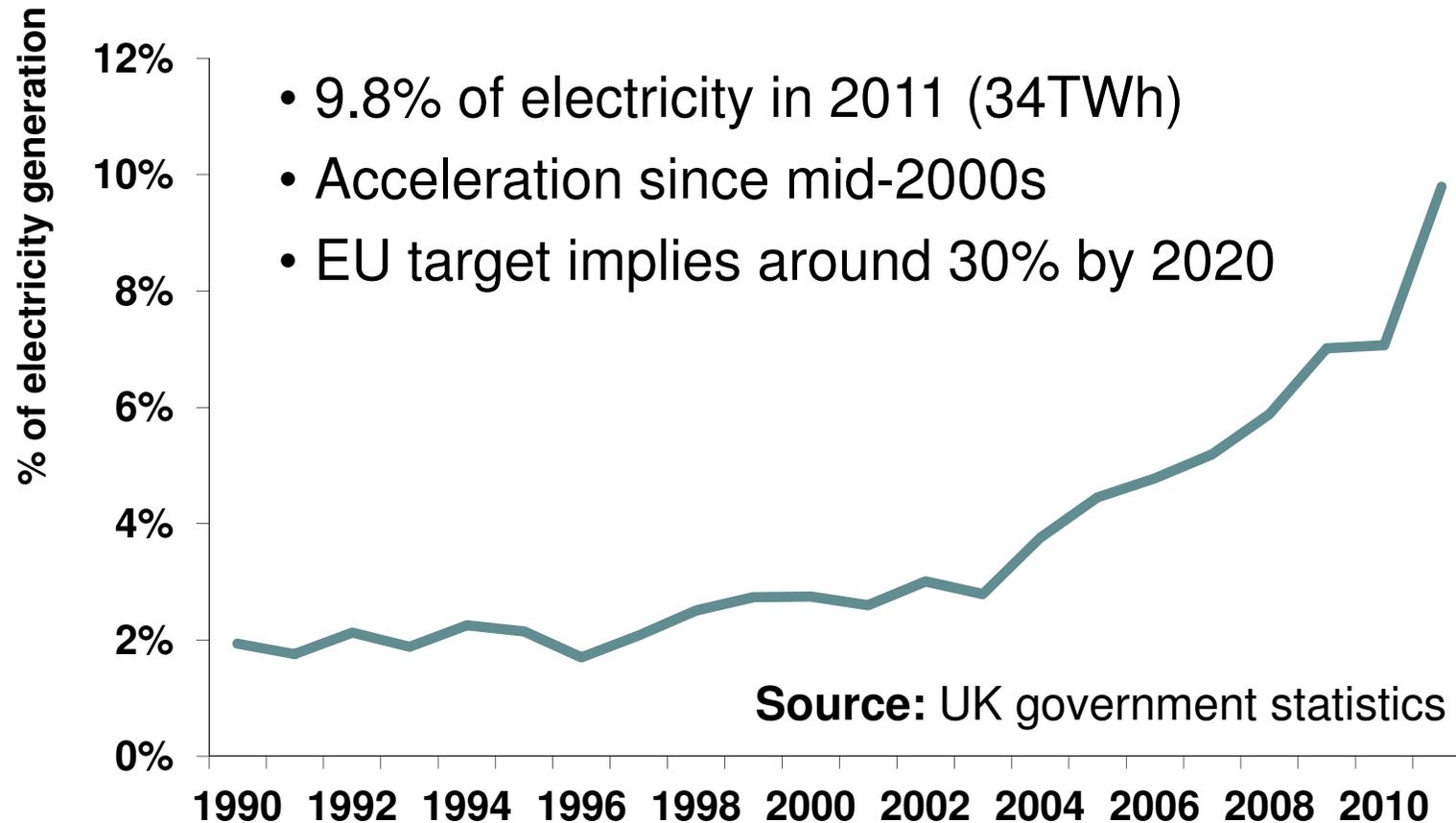
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- **Renewable energy deployment incentives since 1990**
 - **Started with competitive bidding policy to keep costs low (the Non Fossil Fuel Obligation)**
 - Many developers bid too low to secure contracts: projects never got financing
 - Others failed due to planning, market and network barriers
 - **Replaced with green certificate scheme in 2002. Again, designed to minimise rents / keep costs down**
 - A slow start, with generation running well behind target
 - Banding introduced (feed in tariff by the back door?): e.g. 2 certificates per MWh for offshore wind
 - **Recent controversy over policy costs & rising energy bills**

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UK case studies

2: Renewable electricity technologies



UK case studies

2: Renewable electricity technologies

MailOnline

Energy bills to soar by more than £300 a year because of obsession with wind power, report claims

- Report to be handed to Government says that electricity prices for average home will go up 58% by 2020 because of turbines
- Government's green energy plans are an expensive 'blunder', expert professor says

By [Martin Robinson](#)

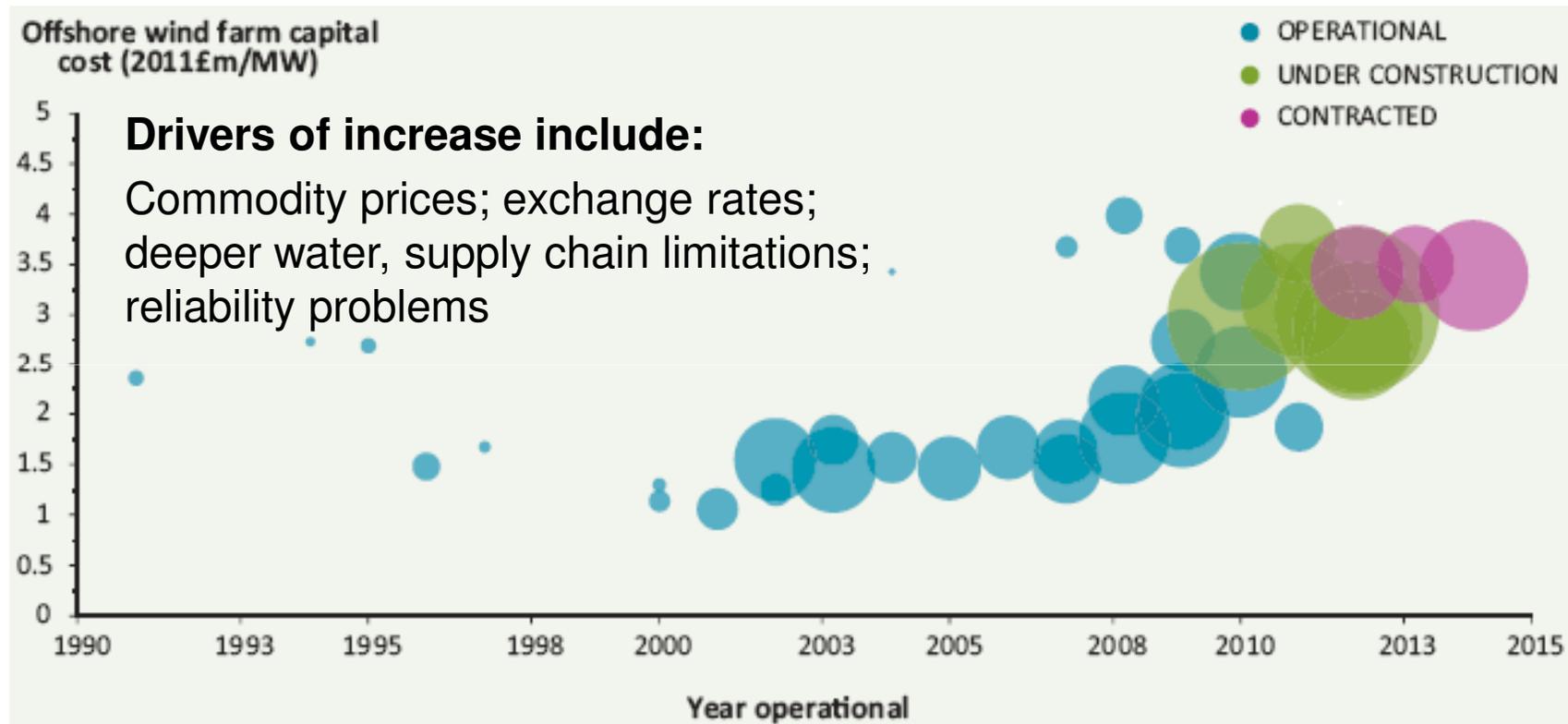
PUBLISHED: 10:42, 7 August 2012 | **UPDATED:** 14:49, 7 August 2012

Britain's 'obsession' with wind farms will push up family electricity bills by more than £300 a year, a report claimed today.

The Government's green energy plans for the next eight years are a £124billion 'blunder' that will hit every UK household, a senior British economist has also said.

UK case studies

2: Renewable electricity technologies



Source: The Crown Estate (May 2012)

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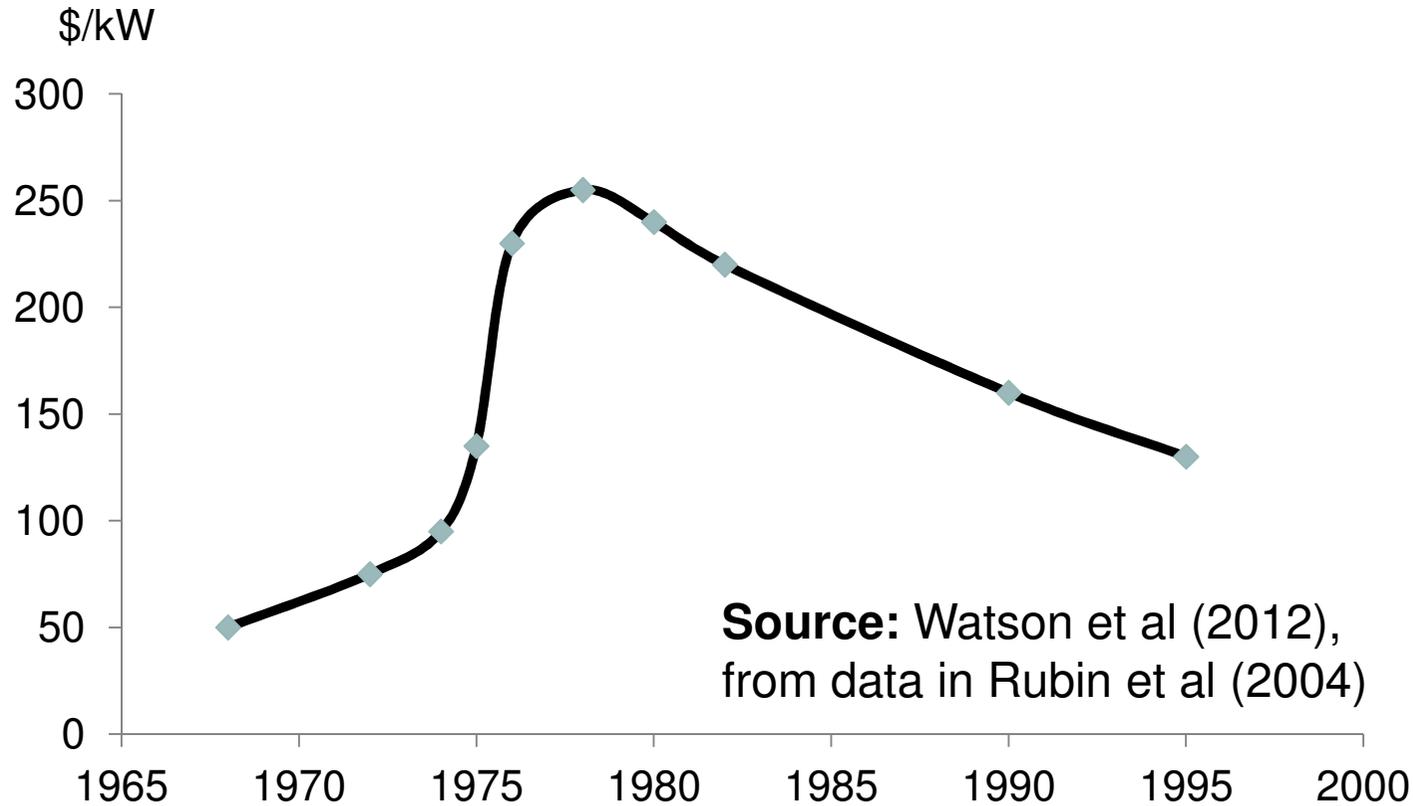
UK case studies

2: Renewable electricity technologies



Technology costs often rise before they fall

For example, FGD capital costs in the USA (1997\$):



UK case studies

2: Renewable electricity technologies



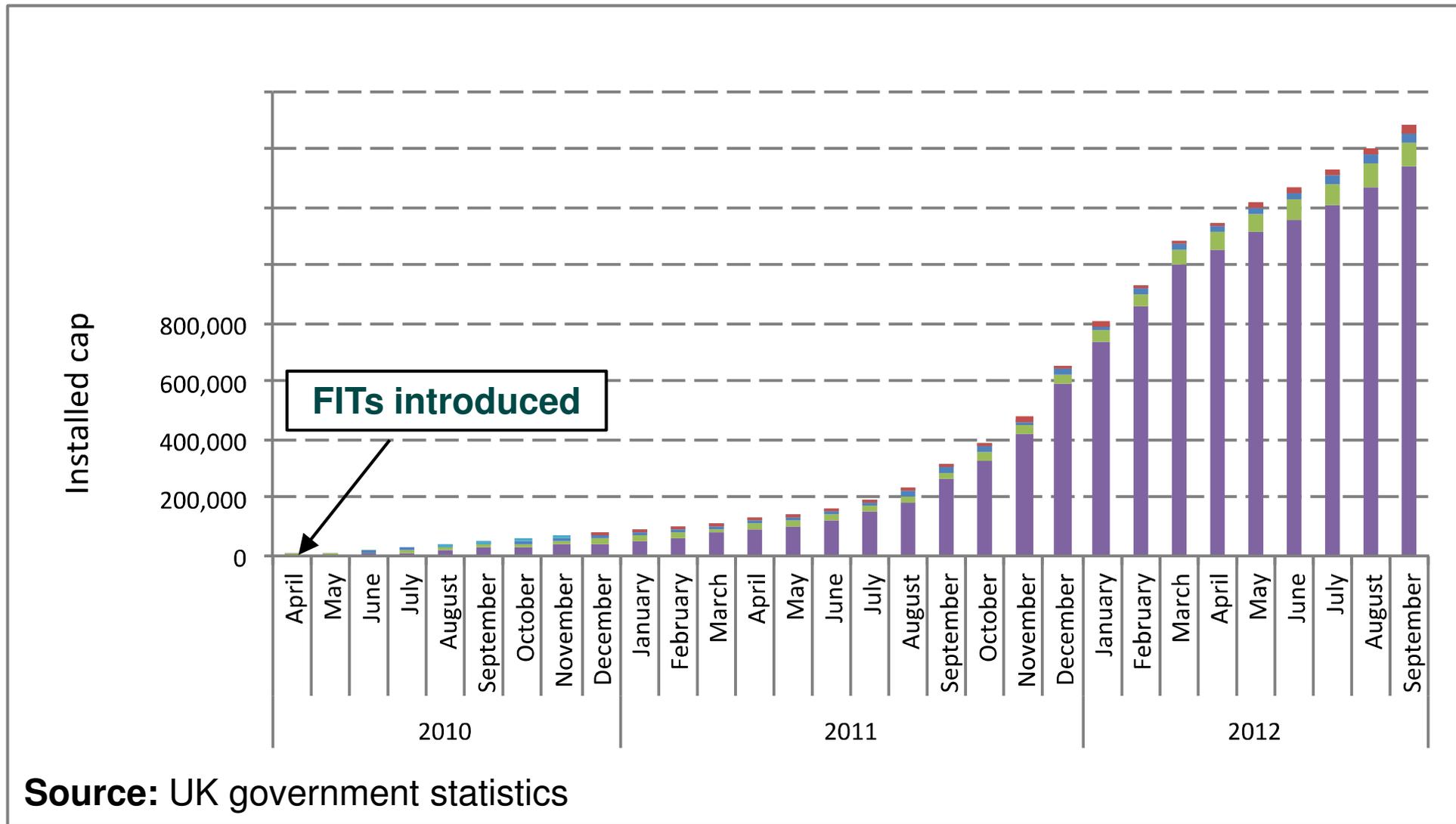
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- **Feed-in tariff for small renewables has led to mixed results**
 - Introduced in April 2010 for < 5MW installations
 - High rates for solar PV (e.g. 43p/kWh for households)
 - **But ‘too popular’ for the government: changes in rates at short notice to control costs. Negative impacts:**
 - On solar industry which had scaled up rapidly
 - On community energy schemes, many of which were developing projects based on FITs
 - **Rates are much lower now (e.g. 16p/kWh for PV), and will fall further. But abatement costs still high**
 - **Is it worth it? Need to consider non carbon benefits, e.g. jobs; community development; strengthening legitimacy**

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UK case studies

2: Renewable electricity technologies



Source: UK government statistics

Conclusions

Managing green rents



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- **Targets important to focus attention on strategic goals, and to generate debate about how to achieve them**
 - **Broad based economic instruments (i.e. carbon pricing) needs to be complemented by more specific measures**
 - **Public sector entrepreneurship important for innovation: low carbon technologies are not at the same stage; generators differ significantly (large vs small scale)**
 - **But a more ‘active’ role for government leads to risks, e.g. of capture by industries seeking subsidies (& rents!)**
 - To some extent, these risks are an inevitable part of infrastructure transformations (see Schumpeter)
 - However, government still has responsibility to manage them

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Conclusions

Managing green rents



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- **First need a change of attitude to risk by government: embrace and learn from failures**
 - More emphasis on evaluation; cycles of learning (e.g. in implementation of contracts for low carbon electricity)
 - Predictability with respect to reviews and revisions
 - **Second, need to strengthen public sector competencies in procurement and negotiation with firms**
 - This is not just an energy policy issue for the UK: also an issue for other sectors, e.g. health and defence
 - Independent advice also important: UK government still too prone to lobbying by industry

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Thanks

www.sussex.ac.uk/sussexenergygroup

www.ippr.org/images/media/files/publication/2012/09/complex-new-world_Aug2012_web_9499.pdf

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