

# Renewable Energy Development Under a Fully Privatised Market

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## Overview

- ▣ **UK Energy Policy**
- ▣ **UK interpretation of privatisation**
- ▣ **The Renewable Obligation**
- ▣ **Innovation**
- ▣ **Conclusion and Conundrum**

# UK Energy Policy Goals

- ⌘ 'To put ourselves on a path to cut the UK's CO2 emissions by some 60% by about 2050, with real progress by 2020;'
- ⌘ 'to maintain the reliability of energy supplies;'
- ⌘ 'to promote competitive markets in the UK and beyond, helping to raise the rate of sustainable economic growth and improve our productivity'; and
- ⌘ 'ensure that every home is adequately and affordably heated'

## UK Interpretation of Privatisation

- ⌘ The UK is at one end of the spectrum
- ⌘ In theory, the market is competitive and networks are regulated
  - ⌘ 70 of 300 Ofgem (the energy regulator) staff work on networks.
- ⌘ No intervention in the market
- ⌘ Market should be technology and fuel blind
- ⌘ Workings of electricity market are exactly the same for renewables as for any other source of electricity
- ⌘ Any help for renewables (or any other technology) should be 'indirect' or 'external' to the market

## Support for renewables in the UK

- ■ ■ The Non Fossil Fuel Obligation 1990-2009
- ■ ■ The Renewable Obligation 2002-2027
- ■ ■ Some R&D (around £20m pa)
- ■ ■ Some capital grants – around £100m total (ie about \$150m) between 2002-2007
- ■ ■ Result: nearly 2% extra from renewables since 1990.

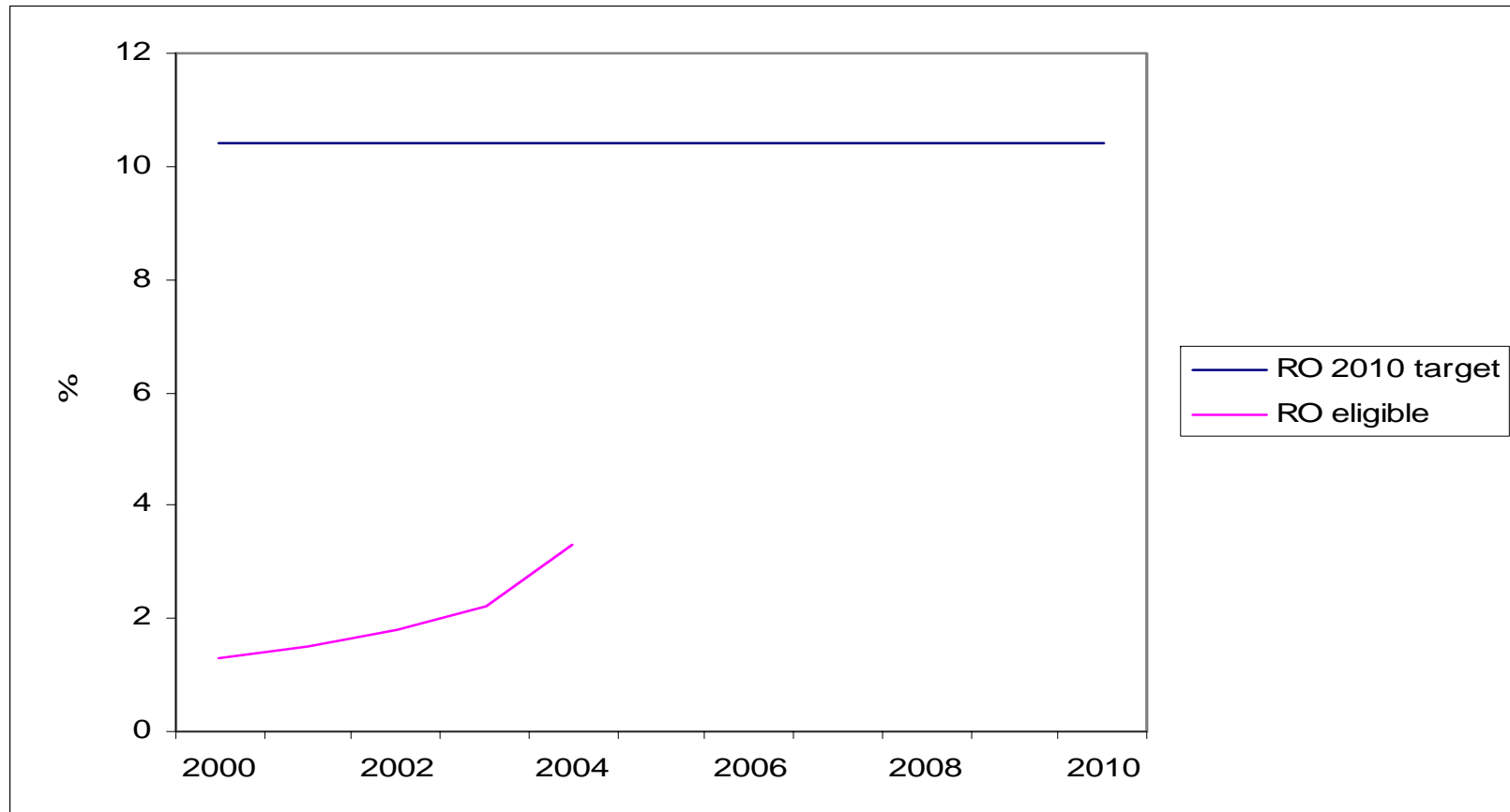
## The RO – how it works

- ❑ An obligation is placed on a supplier to meet a certain percentage of the previous year's supply from eligible renewable electricity
  - ❑ Proven to Ofgem by ROCs (1 ROC = 1 kWh)
- ❑ The supplier can either meet the obligation by purchasing ROCs or by paying a penalty of 3p/kWh in 2001 (raised each year)
- ❑ The penalty fund is recycled back to the suppliers in the proportion that they met the total annual RO target
- ❑ Renewable electricity only has value up to annual obligation %.
- ❑ Supplier and renewable generator agrees price, contract length, volume.

Results so far – includes large hydro,  
renewables already in place.

	<b>Target</b>	<b>Achieved</b>	<b>%</b>
2002-3	3.0	1.8	60
2003-4	4.3	2.4	56
2004-5	4.9	3.4	69

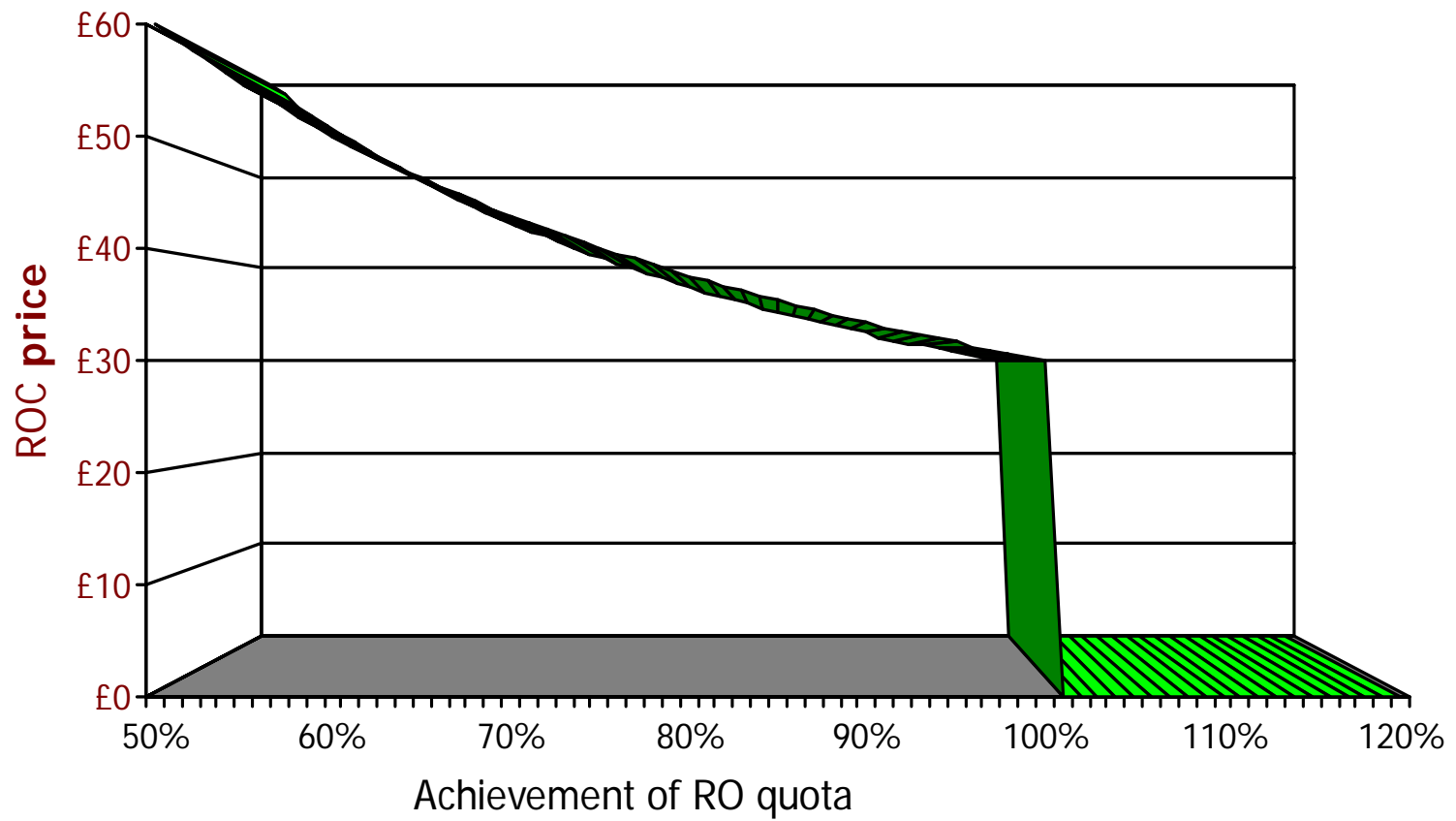
# Will it reach the target?



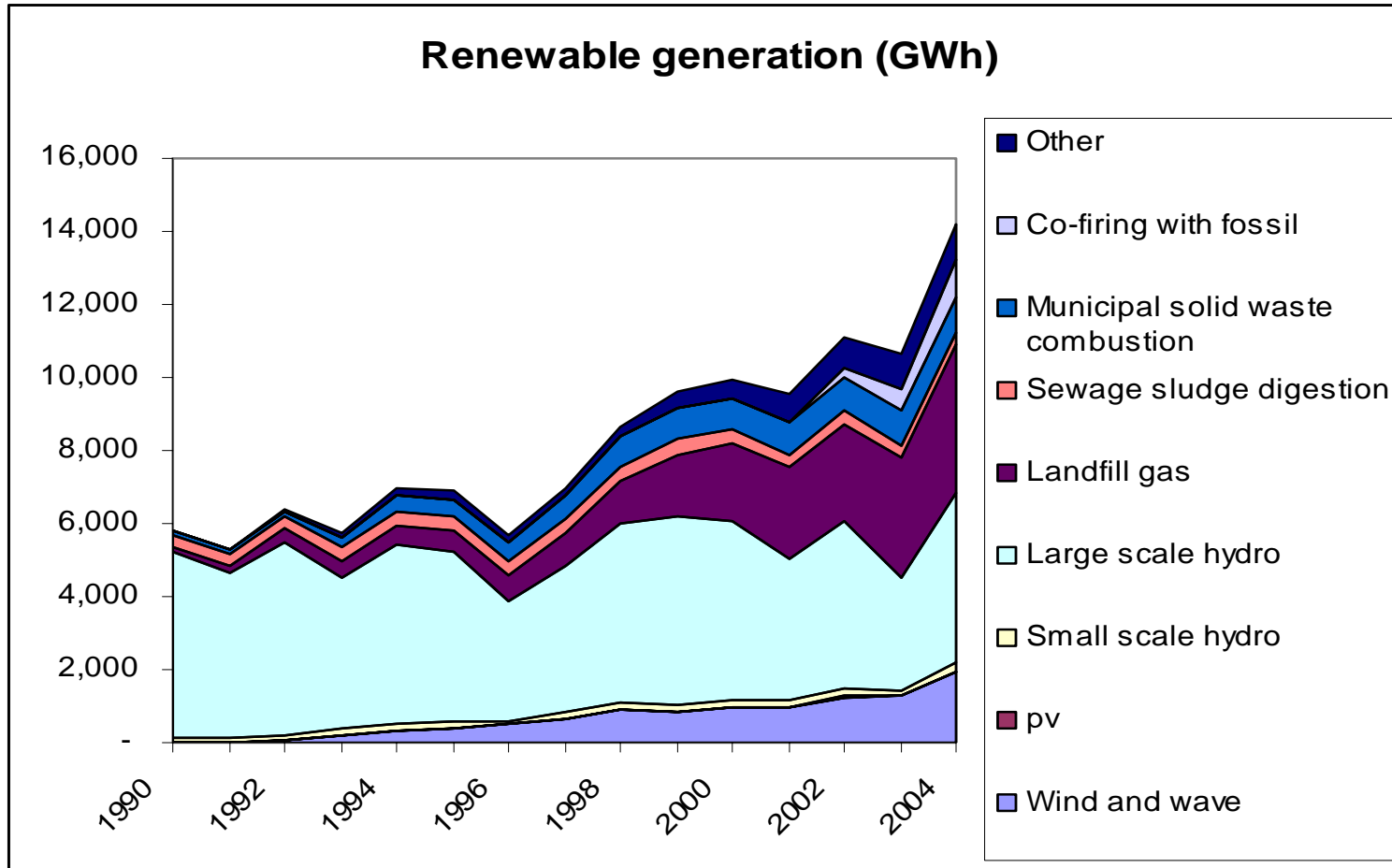
## Analysis of RO

- ❑ Fits well with liberalised market
- ❑ Risky mechanism
  - ❑ Price
  - ❑ Volume
  - ❑ Market
- ❑ Good for incumbants
- ❑ Not good for new entrants – need to be suppliers and be able to take risk
- ❑ Not set up to do better than obligation
- ❑ Only good for cheapest, market technologies

# RO Risk



# Renewable Generation in the UK



## What it lacks

- ❑ Electricity only, nothing for heat
- ❑ Obligation on suppliers, difficult because of transaction costs for smaller companies or domestic households to obtain value from renewables
  - ❑ Doesn't develop mentoring base for renewables
    - ❑ v. few renewable energy investors in the UK
  - ❑ Need net-metering/feed-in type tariff for small scale/domestic dwellings
    - ❑ These don't fit with market so resisted but market failing because of transaction costs
    - ❑ why should suppliers benefit rather than customers/small investors

## Innovation in Fully Liberalised Markets

- ⌘ Will need enormous amount of innovation to reach a low carbon energy system
- ⌘ Limited innovation in both market and networks
  - ⌘ RO supports cheapest electricity technologies, other technologies via capital grants which are not working
  - ⌘ Major concerns about network security from beginning of support for renewables in 1990
    - ⌘ Regulated networks have renewable power zones (RPZs) but only 1 set up despite vigorous and good thought by Ofgem since 2001.

## Conclusion - A Conundrum

- ❑❑❑ Some European countries have had a great deal of support before privatisation eg Denmark and Germany
  - ❑❑❑ Denmark is an example of a country which is successful in terms of sustainable energy capacity which resulted from consistent, risk-free, regulated support
  - ❑❑❑ UK wonderfully secure network but very little sustainable capacity
- ❑❑❑ Risk-free support provides sustainable capacity but doesn't fit with laissez faire economic regulation
- ❑❑❑ Competitive mechanisms provide secure networks but not capacity
- ❑❑❑ My view is you cannot have both

## References

- ■ ■ For review of NFFO, see Mitchell, 1995, Energy Policy 23 (12) 1077-1091.
- ■ ■ For review of RO versus German feed-in, see Mitchell et al, 2006, Energy Policy 34 (3) 297-305
- ■ ■ For review of general UK renewable energy policy, see Mitchell and Connors, 2004, Energy Policy 32 pages 1935-1949; and Mitchell, 2000, Annual Review of Energy and Environment 25, pages 285-312.