Delivering Sustainable Energy – the need for energy policy to engage more people than the ‘usual suspects’ - the supply side

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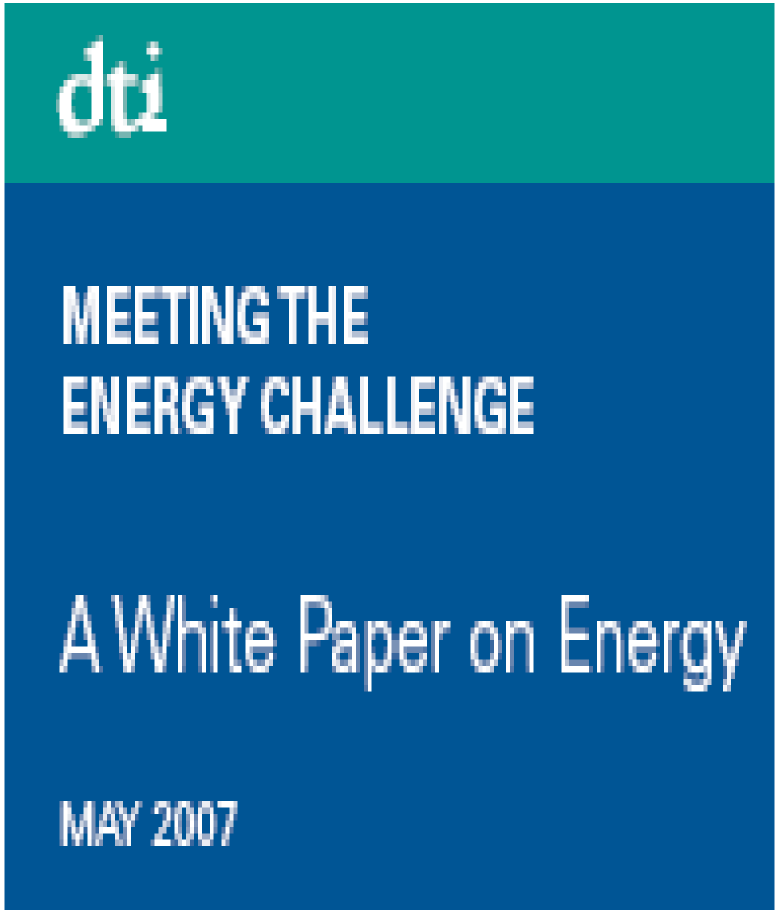
17 November 2008

Joint BIEE/EI Meeting

Overview

- Describing the incumbent system
  - Showing it's the usual suspects
- Looking at how Govt policies support incumbents
- What can be done?

60% cuts in carbon dioxide by 2050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MEETING THE ENERGY CHALLENGE

A White Paper on Energy

MAY 2007

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Heat important source of emissions

(Woodman, 2008)

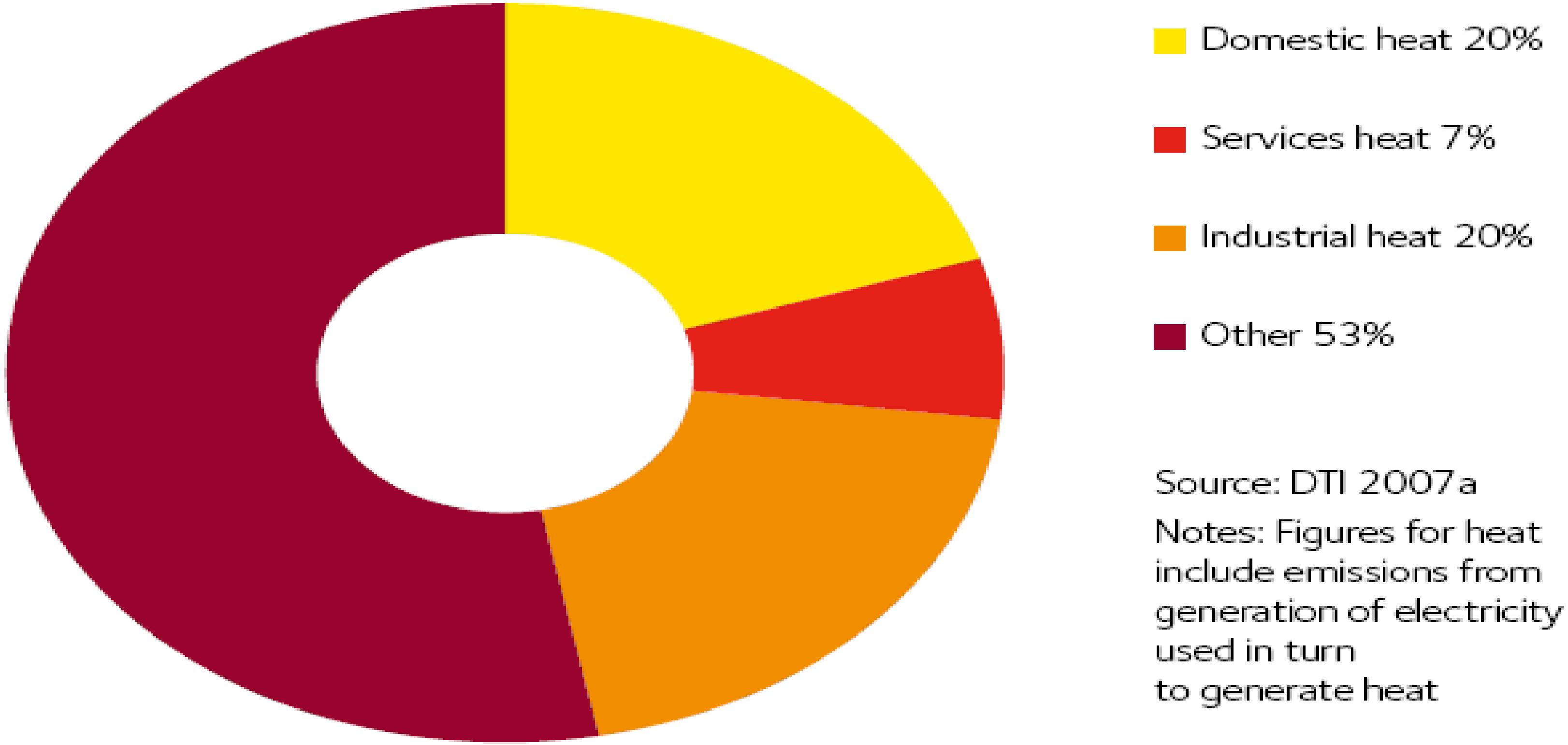


Figure 4.4 Carbon dioxide emissions by energy use

This demands:

- An energy system almost completely different from that in place today with respect to:
  - Electricity
  - Heat
  - Transport
- And with respect to
  - Infrastructure, including buildings
  - Technologies
  - Scale
  - Interfaces between energy, waste resources and agriculture
  - Customers
- And this requires innovation (or change)

How much change/innovation has there been so far?

- Energy
  - Gas and Electricity Suppliers
  - Electricity Generators
  - Heat
  - Infrastructure
  - Scale
  - Low/Zero/Net Zero Buildings
  - Interfaces
- Minimal

How much support/pressure is there for innovation/change within the energy system?

- Minimal
- Most policies are exclusive, meaning its difficult for new entrants to (successfully) and de facto supportive of incumbents

Energy Supply Probe – Initial Findings Report

R32
Monday 6 October 2008

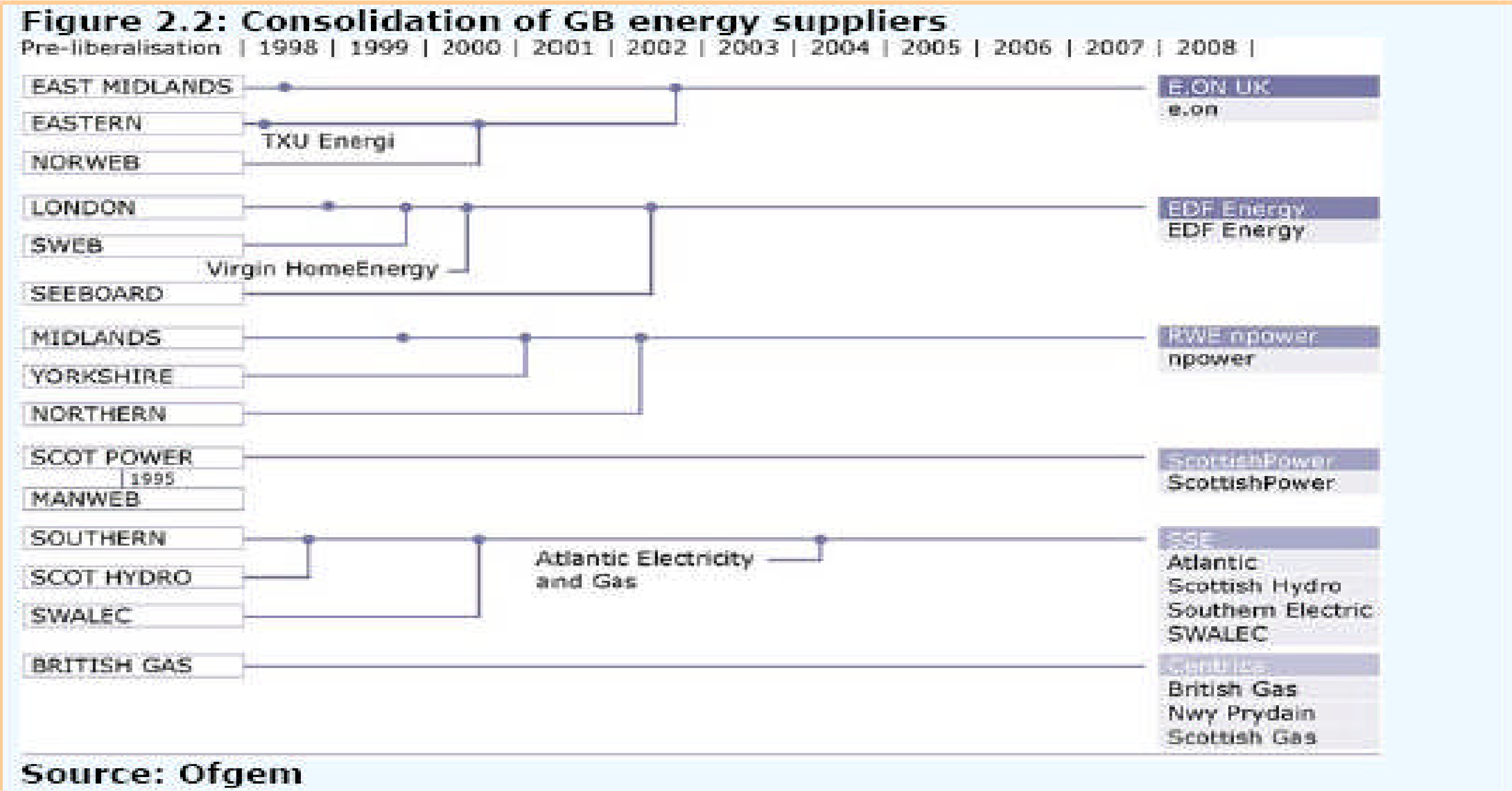
OFGEM PUTS INDUSTRY ON NOTICE TO MAKE MARKETS WORK BETTER FOR ALL

- **Ofgem's probe into energy supply markets finds some consumers missing out on full benefits of competition but market works well for most**
- **Ofgem's proposals will particularly help more than four million customers without gas who currently have no access to the most competitive offers**
- **While Ofgem proposes wide-ranging reforms to make the markets work better for all consumers, it has found no evidence of a cartel**
- **The regulator has launched a fast-track consultation on its findings and proposed remedies**
- **If industry fails to deliver, Ofgem can refer the market to Competition Commission**

Character of Electricity Supply

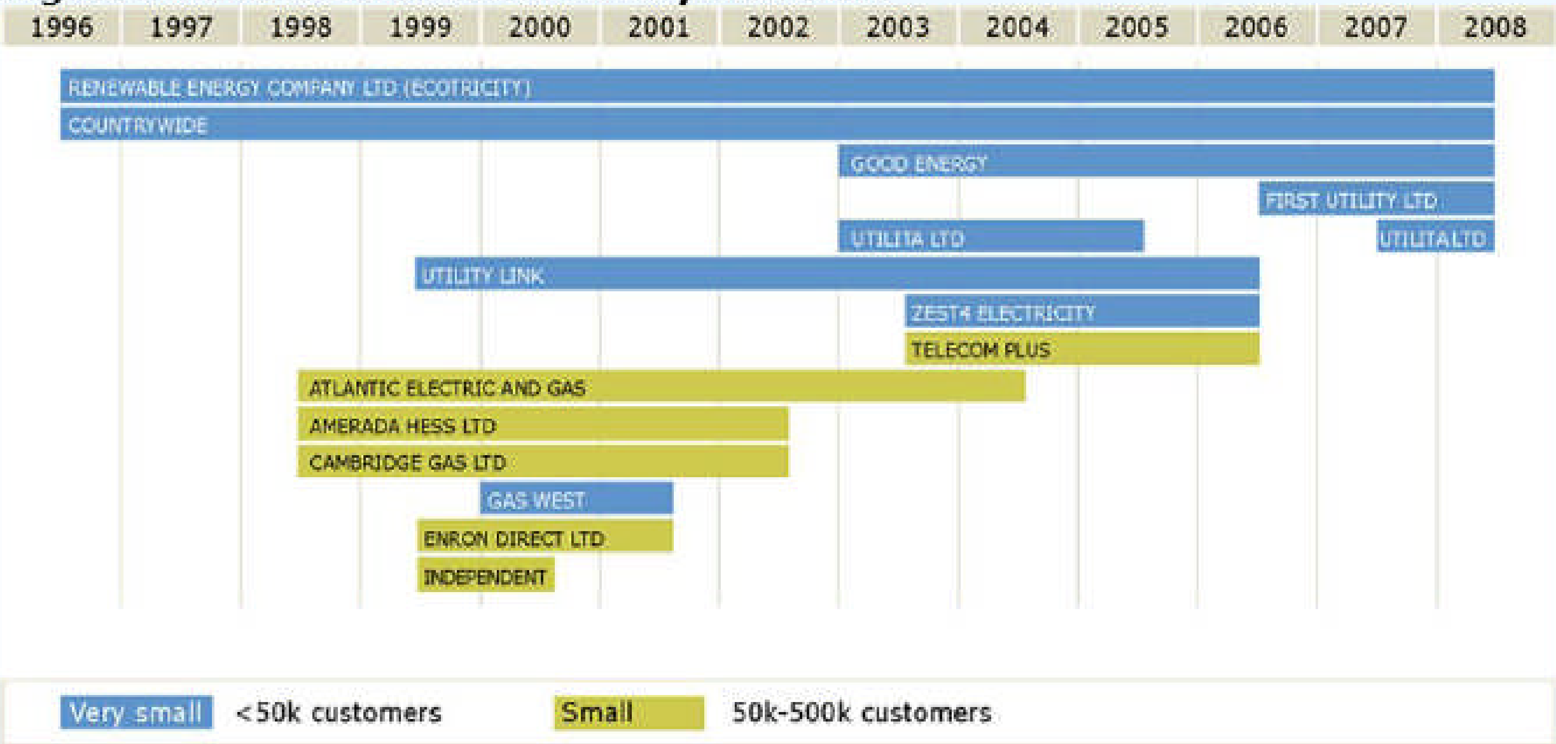
- Over 99% of domestic energy consumers are supplied by 6 companies
  - Centrica Plc, E.on UK, EDF Energy, RWE npower, SSE, Scottish Power
- 22 and 31 October saw bankruptcy of E4B and BizzEnergy in SME supply market, which had 80,000 customers between them

‘Big Six’ from Original 15 Suppliers



Domestic Supply

Figure 6.1: Non-incumbent entry and exit



Source: Ofgem

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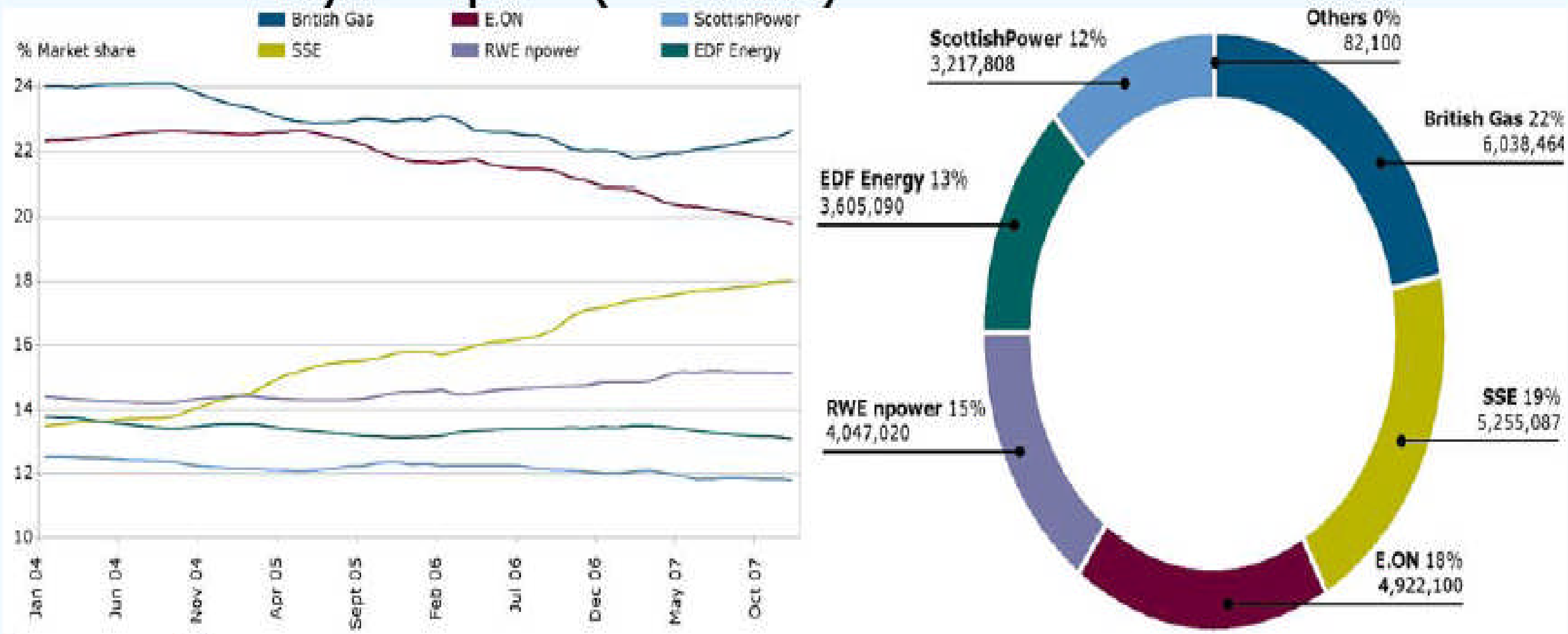
Utilita, First Utility, Good Energy, Ecotricity have 0.3% of domestic electricity supply contracts

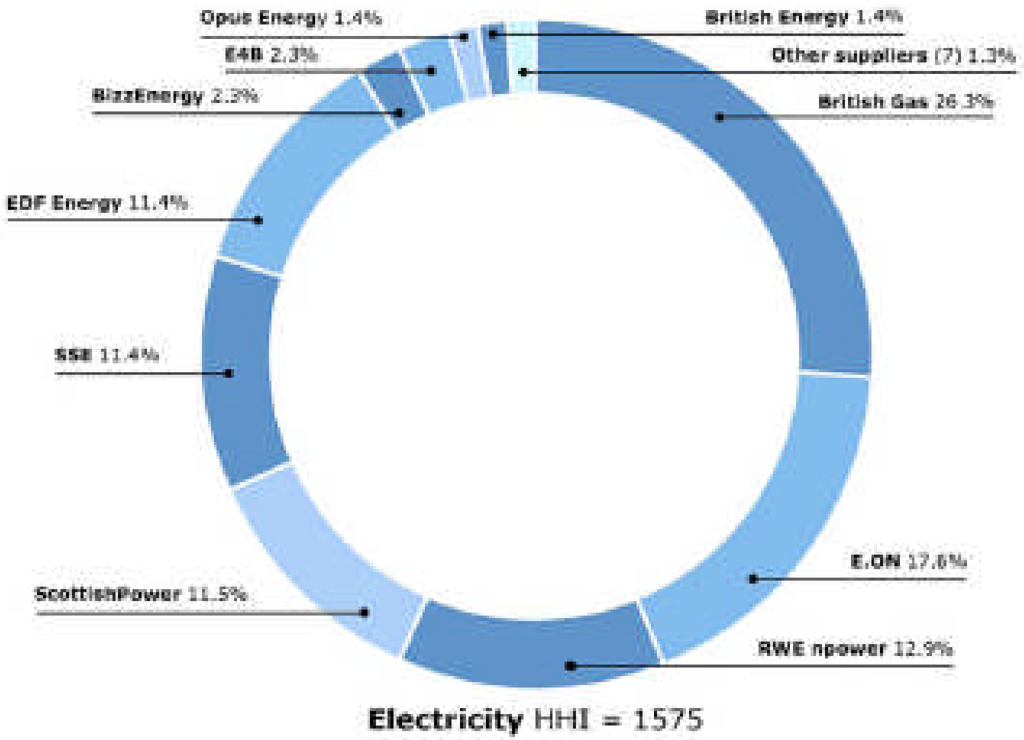
Figure 3.1: National GB domestic electricity market shares (January 2004 - December 2007) & snapshot (June 2008)



Source: Ofgem

Electricity SME market

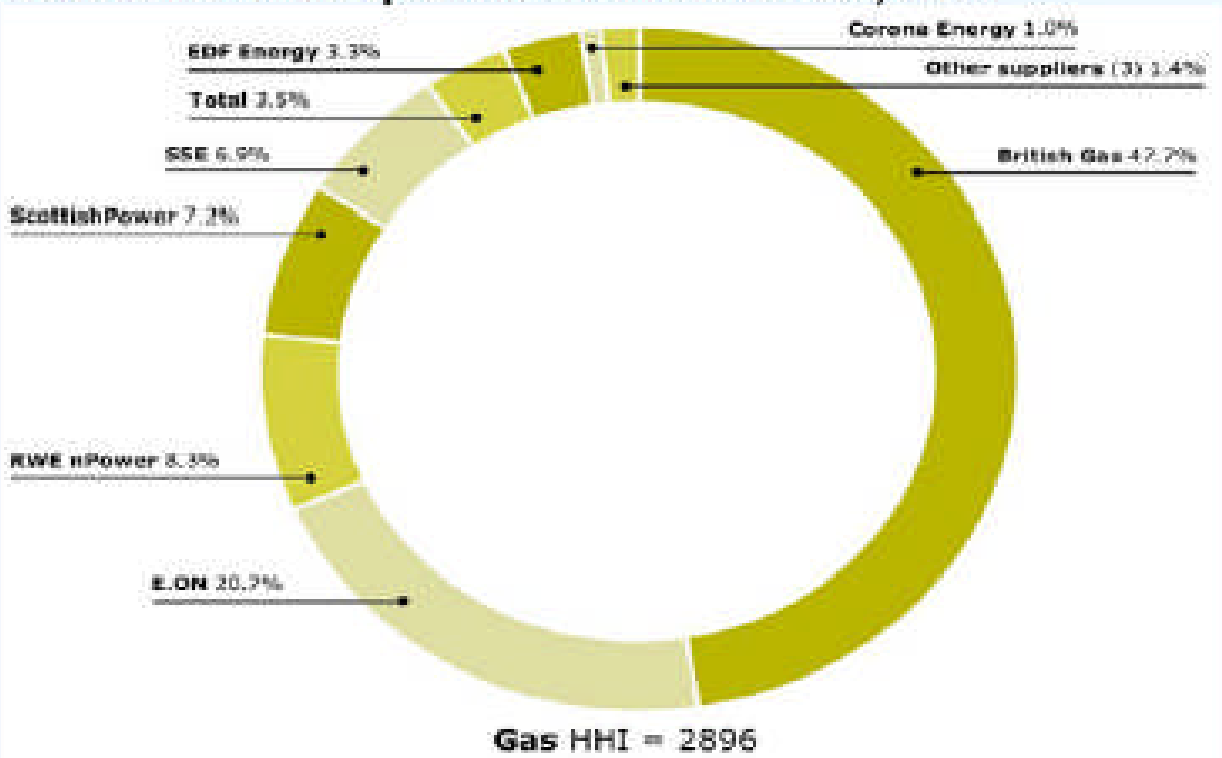
Figure 10.1: Electricity supply market shares among small business consumers with an annual spend of less than £10,000



Source: Datamonitor SME Market Analysis Survey, 2007
*Electricity suppliers included within "Others" are: Total, Utilita, Airtricity (bought by SSE in January 2008), Ecotricity, Gaz de France, Good Energy and Haven Power

Gas SME supply

Figure 10.2: Gas supply market shares among small business consumers with an annual spend of less than £10,000



Source: Datamonitor SME Market Analysis Survey, 2007

*Gas suppliers included within "Others" are: Shell Gas Direct, Utilita and BP

In-area Electricity is where profit is

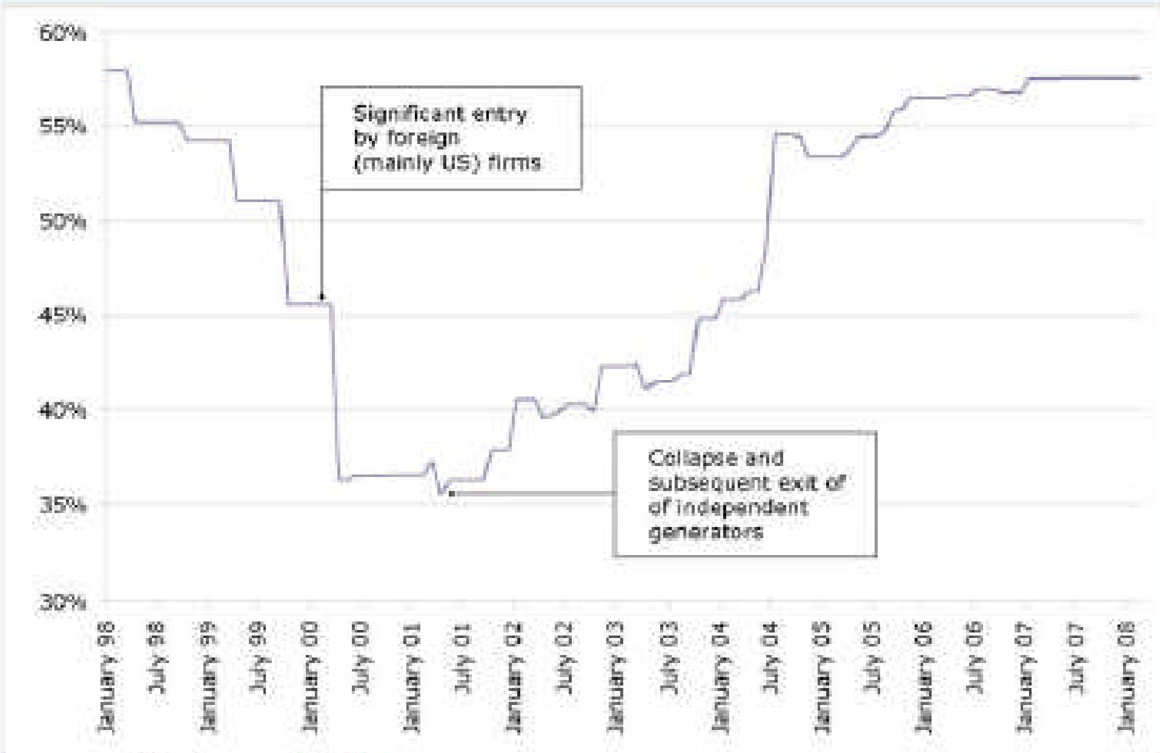
Table 8.2: The distribution of gross profits earned by former incumbent electricity suppliers, 2005 to 2007, between in-area and out-of-area and between electricity and gas

%	Gas	Electricity	TOTAL
In-area	-0.9	74.3	73.4
Out-of-area	2.6	24.0	26.6
TOTAL	1.7	98.3	100.0

Source: Ofgem from supplier submissions

Vertical Integration - 5 of the Big 6 can meet all their domestic/SME requirements from their own generation

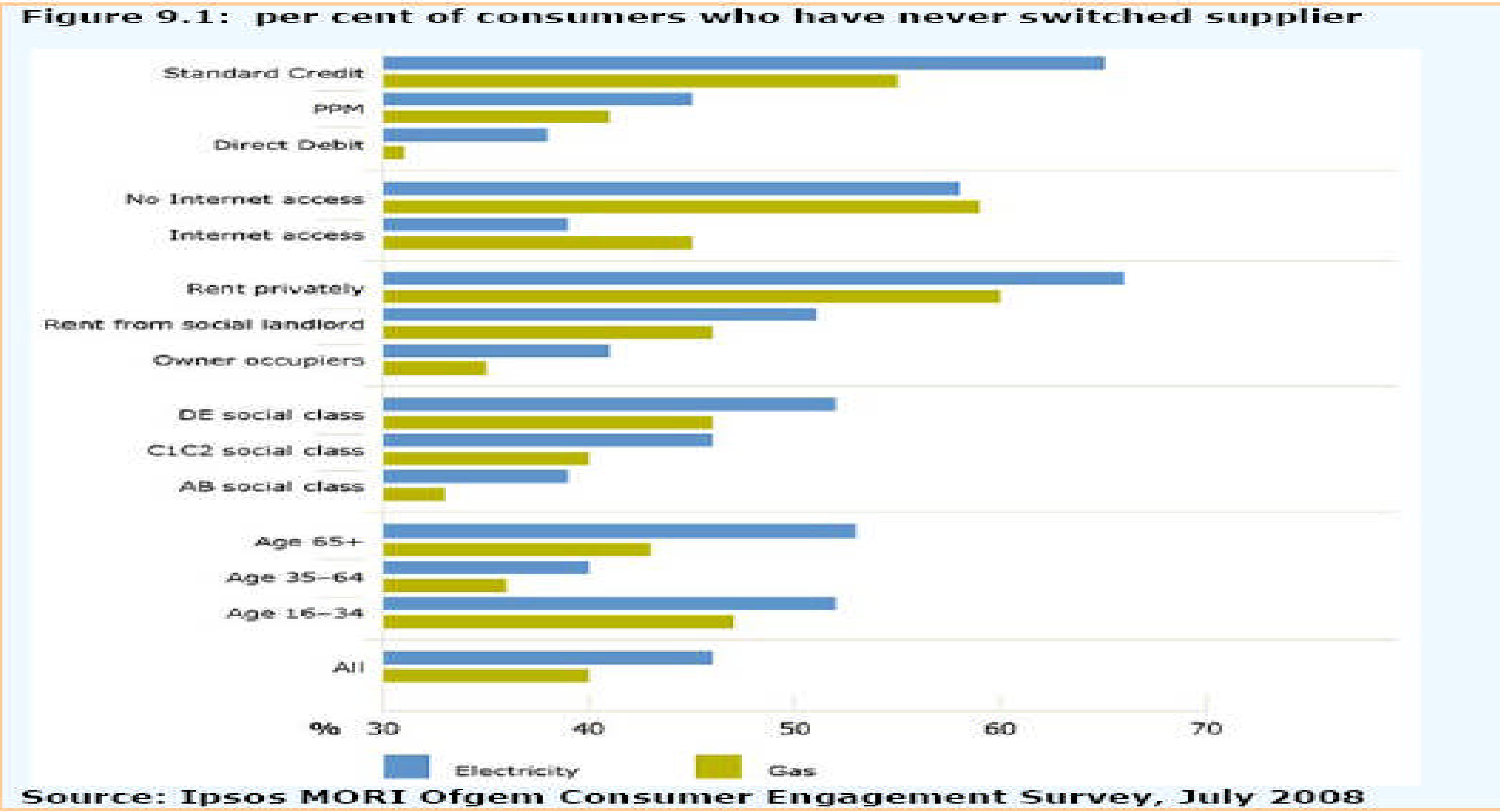
Figure 2.3: GB generation capacity shares of the Big 6 since market opening, 1998-2008



Source: National Grid

Note: For England and Wales only. Capacity not allocated on an equity share basis. Also includes monthly traded volumes.

Between 40-50% of all customers have never switched



Technologies and Scale

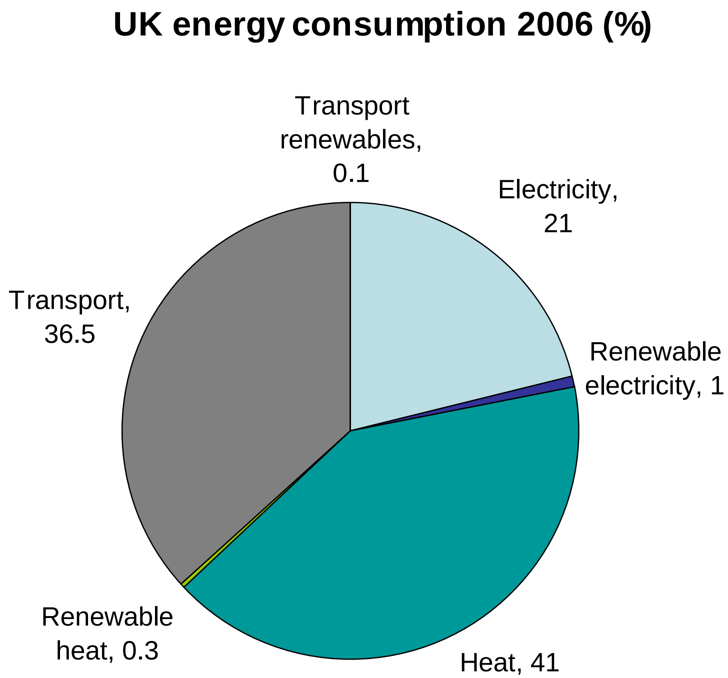
- Very similar to what it was at privatisation
  - Gas exception as fuel for electricity
  - Very limited smaller scale despite ‘supportive’ policies
  - CHP reducing
  - Similar infrastructure
    - Limited moves so far to complement greater amount of renewables
- Transport similar
- Sustainable Energy policies favour incumbents as obligations are placed on suppliers

EU Action Plan – could lead to change

- The Presidency adopted an energy action plan based on proposals from the European Commission including the following targets:
  - 'Saving 20% of the EU's energy consumption compared to projections for 2020'
  - 'A binding target of a 20% share of renewable energy in overall EU energy consumption by 2020'
  - 'A 10 % binding minimum target to be achieved by all Member States for the share of biofuels in overall EU transport petrol and diesel consumption by 2020, to be introduced in a cost efficient way'.

Renewables in the UK energy mix

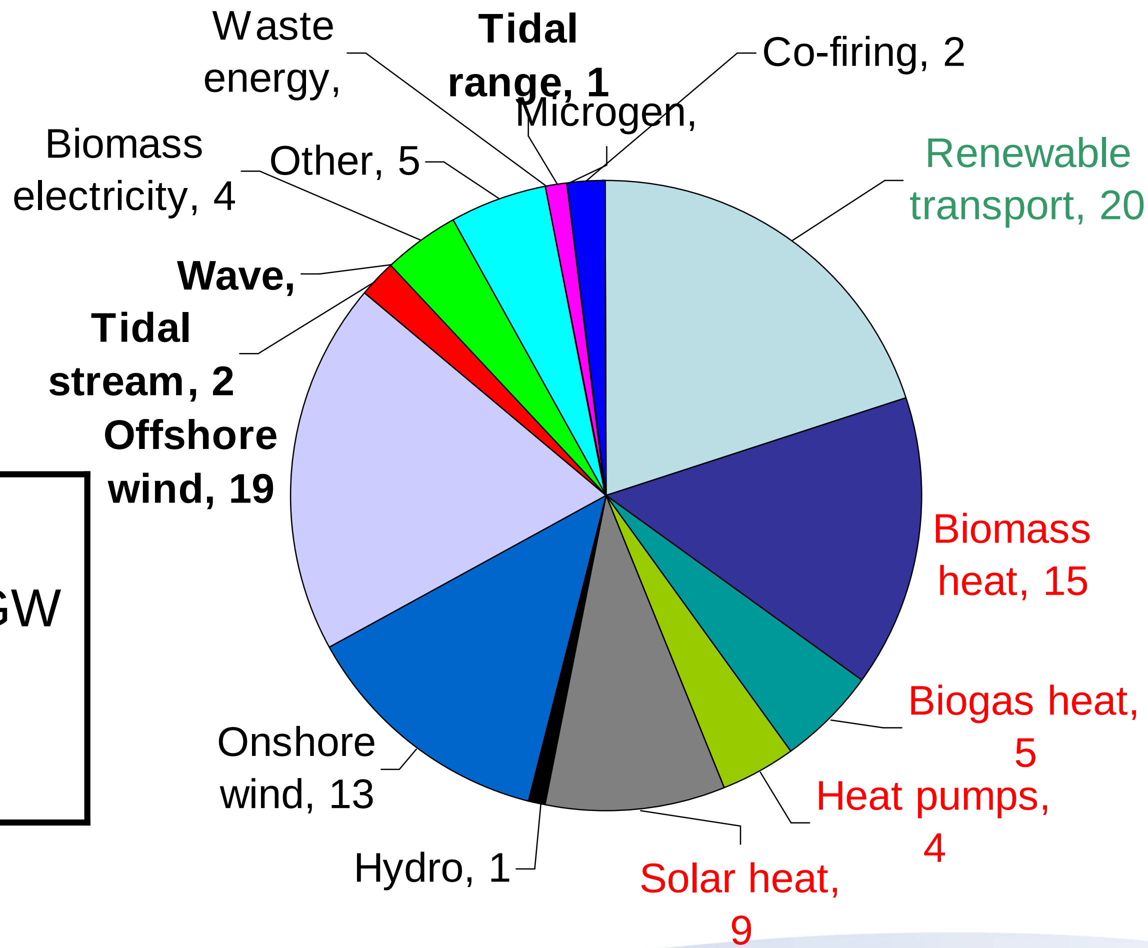
- Renewables currently provide about 1.4% of the energy used in the UK
- UK share of the EU target is 15% renewable energy by 2020
- Will require effective policy to ensure uptake
- 82% from Big Six



2020 renewables (%)

RE target by sector	
Electricity	32%
Heat	14%
Transport	10%

2020 technologies	
Offshore wind	14 (– 33) GW
Wave and tidal stream	~2 GW



BERR (2008)

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‘Exclusive’ RO supports incumbents

- Obligation on suppliers
- Annual percentage met between 60-70%
- Cost can be passed on to customers if wish
- RO contract not acceptable for finance
  - Need own assets
- No requirement on supplier other than obligation
  - Unique among all RE mechanisms in the globe
  - Gives supplier market and political power
- 7000 people work in the renewable industry in the UK, compared to 250,000 in Germany

Electricity only comparison

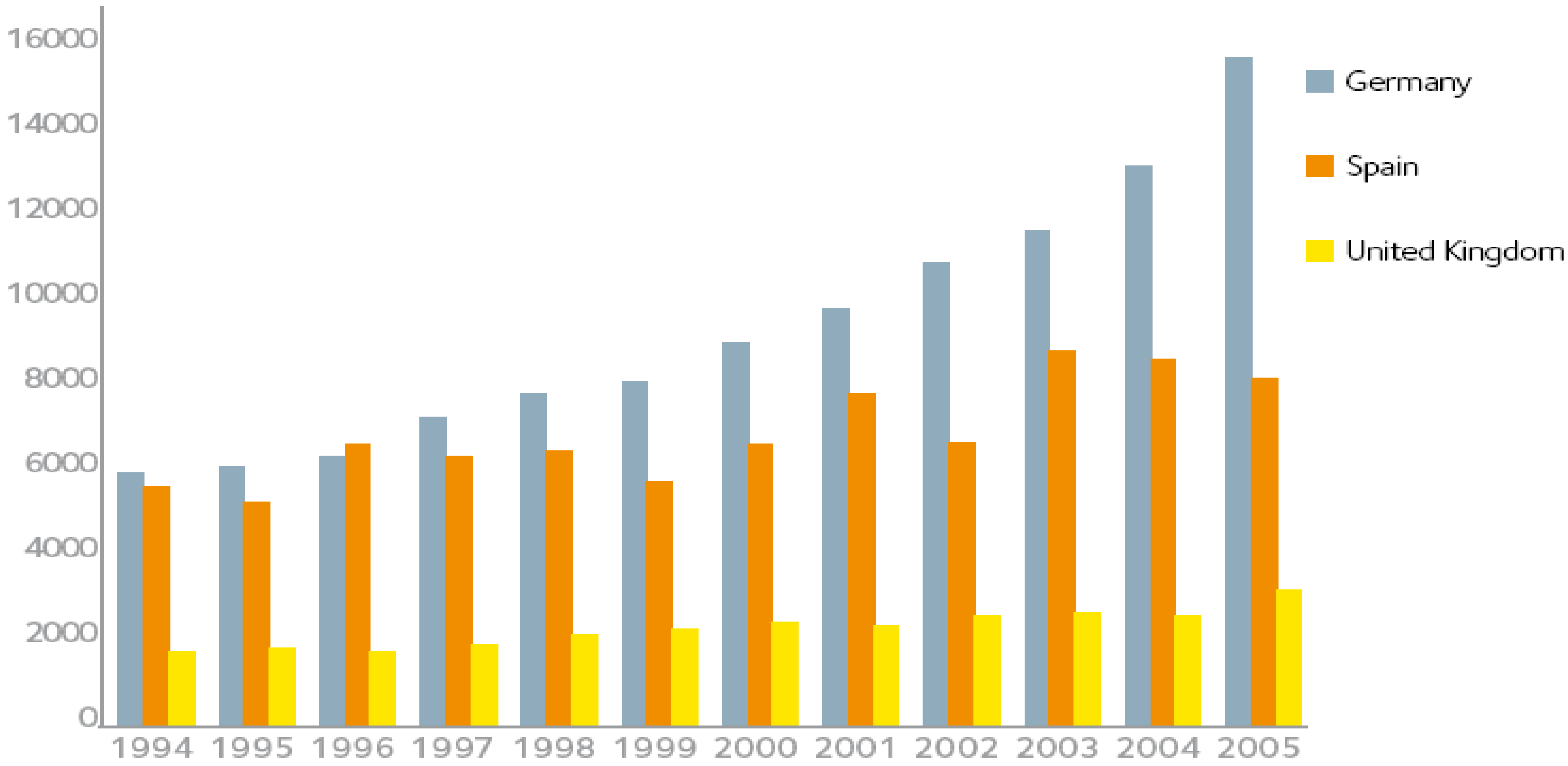

Figure 1.2 Renewable electricity production (1000toe)

Germany has tackled electricity, heat and transport

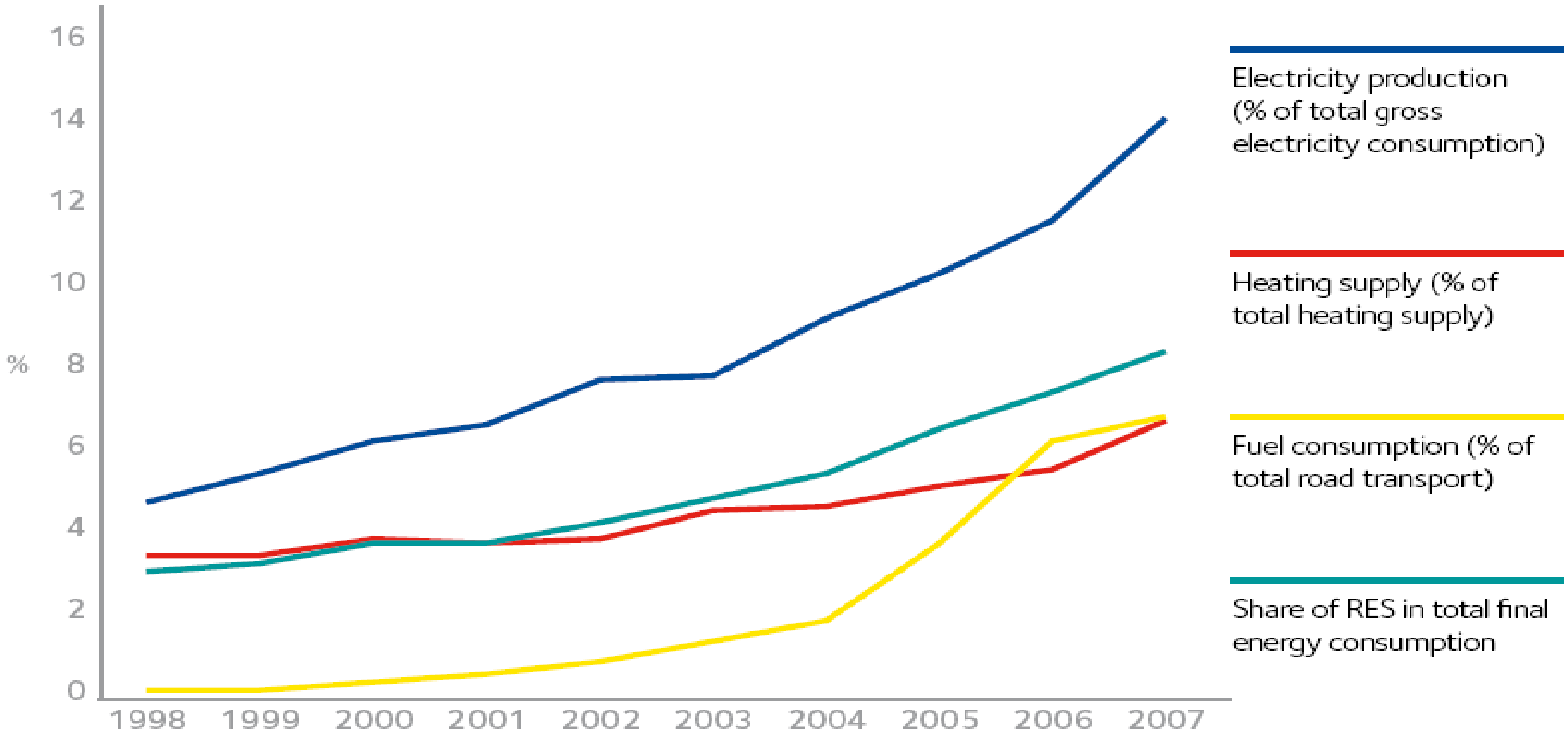

Figure 1.1 Renewable energy share of energy consumption in Germany.

Source BMU (2008a)

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UK needs an inclusive mechanism

	RO	Feed in
Guaranteed market	✘	✓
Price certainty	✘	✓
Market access	✘	✓
Differentiates between technologies	✓ From 2009	✓

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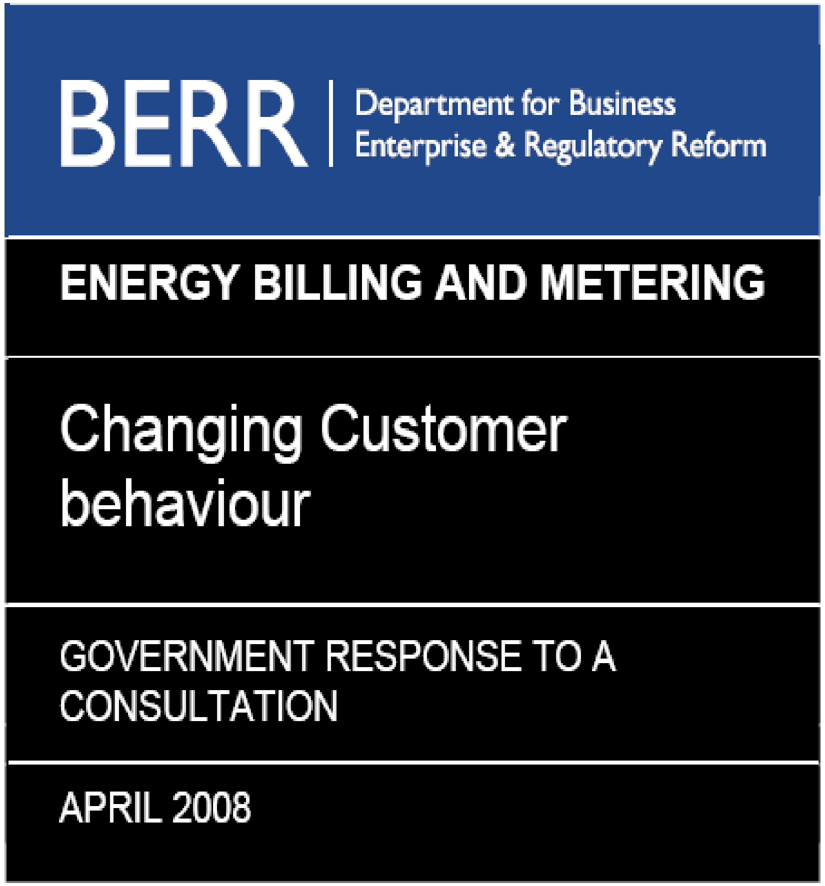
Infrastructure Network

- Transmission Entry Capacity (TEC) good for incumbents
  - Awarded to those which have capacity and provided they pay, they can keep it even if don't use it
- Some change within distribution but small and slow
  - Design and operation very similar

Some movement on metering


BERR | Department for Business Enterprise & Regulatory Reform

ENERGY BILLING AND METERING

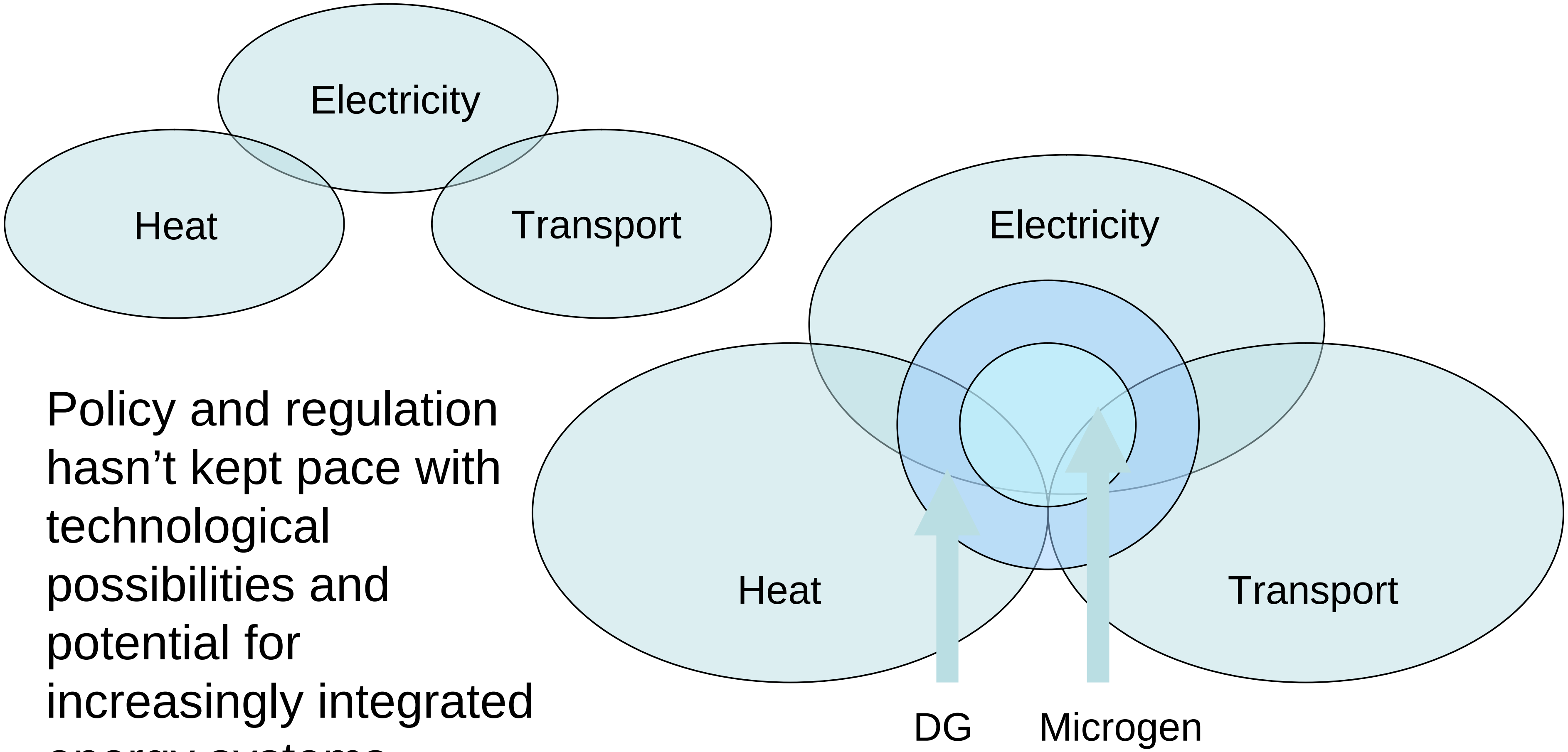
Changing Customer behaviour

GOVERNMENT RESPONSE TO A CONSULTATION

APRIL 2008

- Widespread support for roll-out of smart meters
- Support for smart metering for businesses
- Broad support for historical consumption data on bills
- Majority of respondents against real-time display device requirements

Evolving regulation too slow



Policy and regulation hasn't kept pace with technological possibilities and potential for increasingly integrated energy systems

Buildings and Sustainable Energy On-site – both supply and demand

- Skills – almost completely lacking for New Build and Refurbishment - needs huge investment
  - Builders
  - Building regs
  - Architects
  - Planners
  - On-site demand reduction and energy supply

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Skills – The Green Economy lost in a non-joined up fog of policy

- Institutions
  - Govt departments
  - Regulators
  - Planners
  - Lawyers
- Infrastructure
- Interfaces
- Buildings
- Renewables
- Demand Reduction roll-out

Any hope out there at all?

- DECC – possibly
- CCC – yes

In conclusion

- Usual suspects dominate
  - Electricity supply and generation
  - Large scale gas supply but less so than electricity
- More or less non-existent:
  - Renewable transport
  - Smaller scale sustainable heat
  - Interfaces between energy, waste resources and agriculture
  - Skills for Green Economy
- Need inclusive, open policies
- Need strategic plan with political intervention and funds
- Evidence of what works is out there