UNIVERSITY OF CAMBRIDGE | Electricity Policy Research Group

Energy Regulation and Energy Services

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E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

Plan

- Some background on the evolution of industries
- Lessons from Telecoms
- The Potential for Energy Services
- The future?

How do industries evolve?

- Stylised facts (Geroski, 1995):

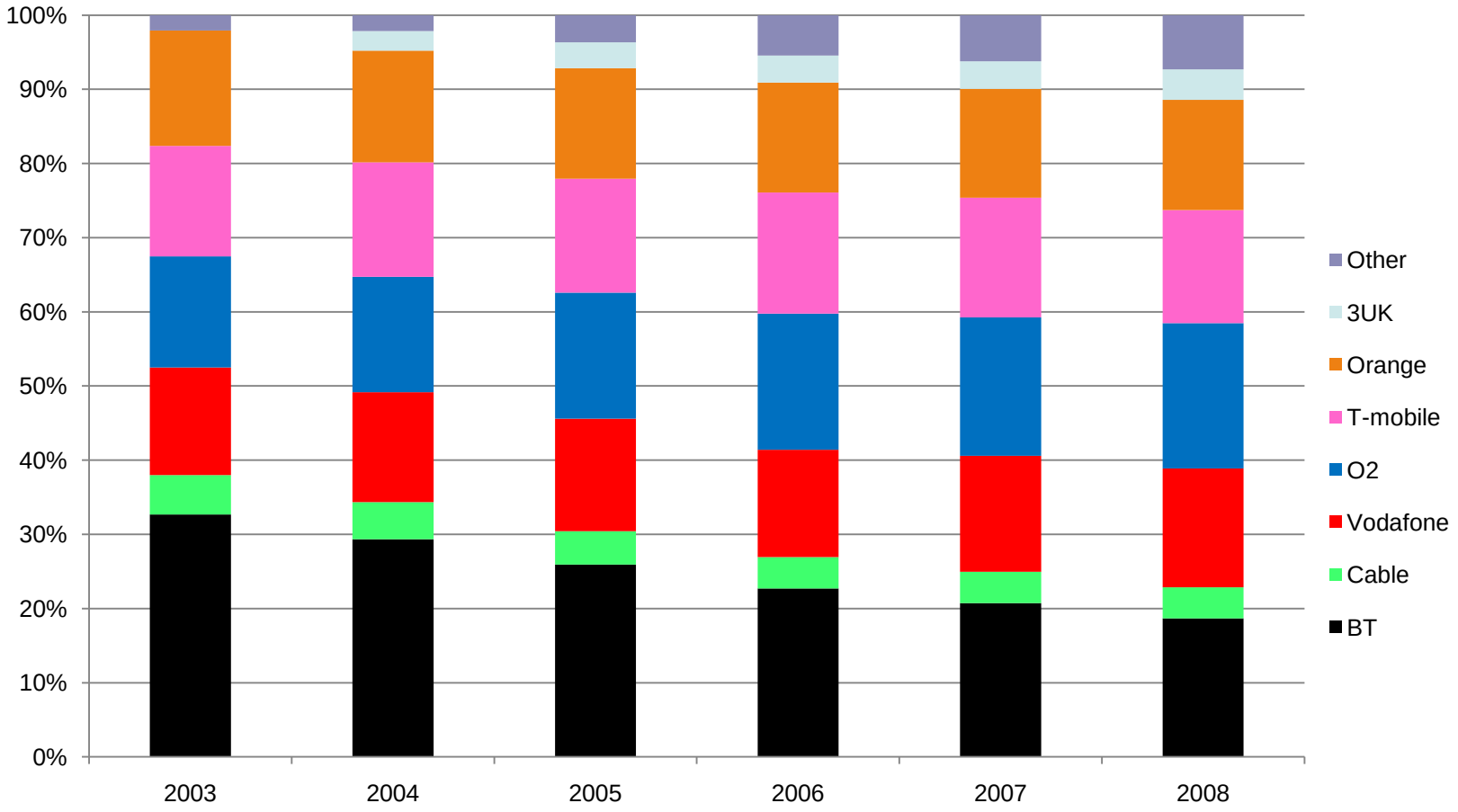
- Incumbents have an advantage.
- There is lots of small scale entry and exit.
- Entrants take 5-10 years to become large.
- Incumbents don’t respond to entrants immediately.
- Diversifying entry more successful than de novo entry.
- Technological and regulatory changes facilitate entry.

‘Dominance by birthright’?

- Klepper and Simons (2000):
- Example of the dominance of US Radio producers in television production.

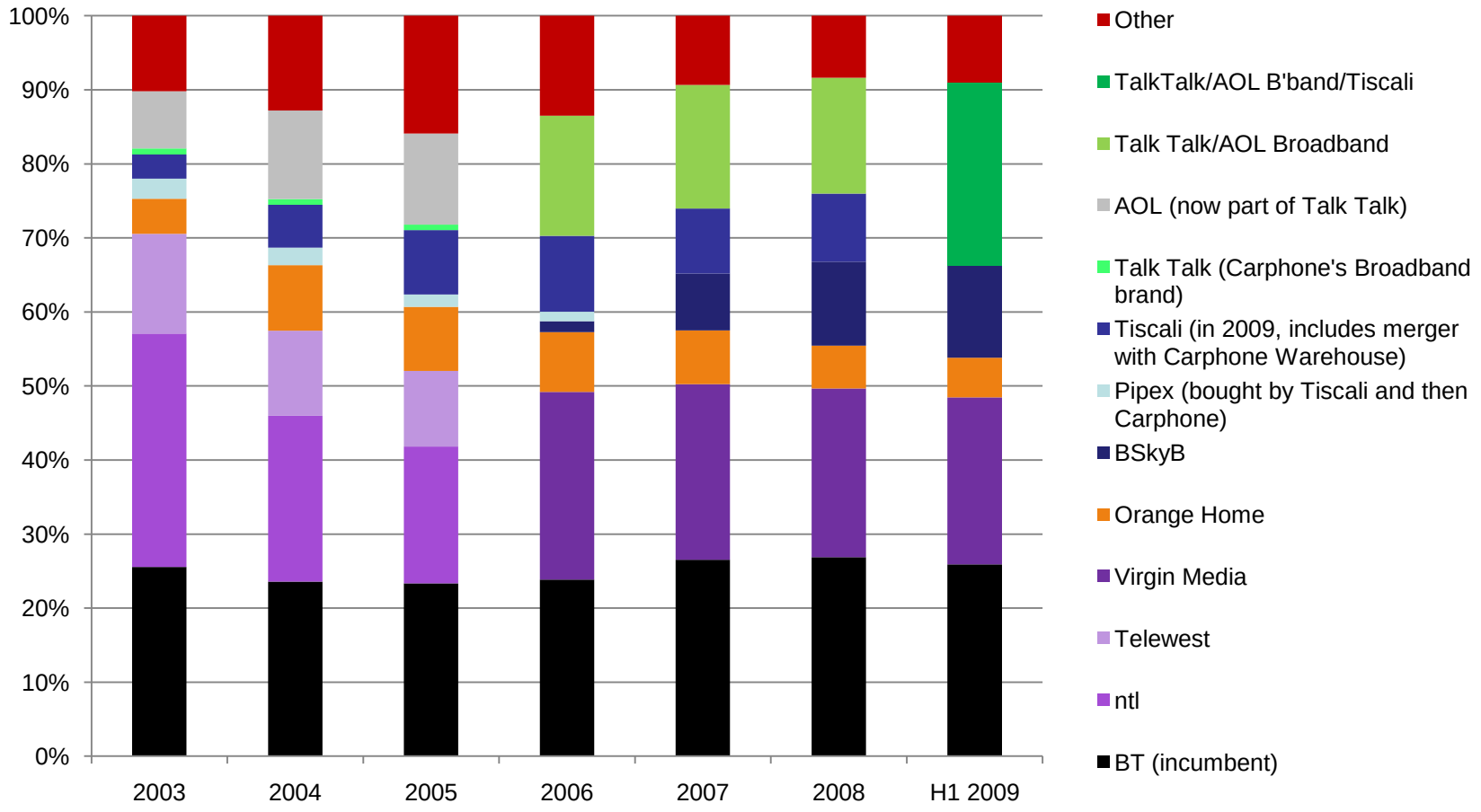
- Pre-existing firms in related industry have advantage in new ones.
  - This may be true for individuals with prior experience.
- Government policies can promote learning by new entrants (Japanese TV producers).
  - How policy can best help entrants?

UK Telecoms market shares – fixed & mobile



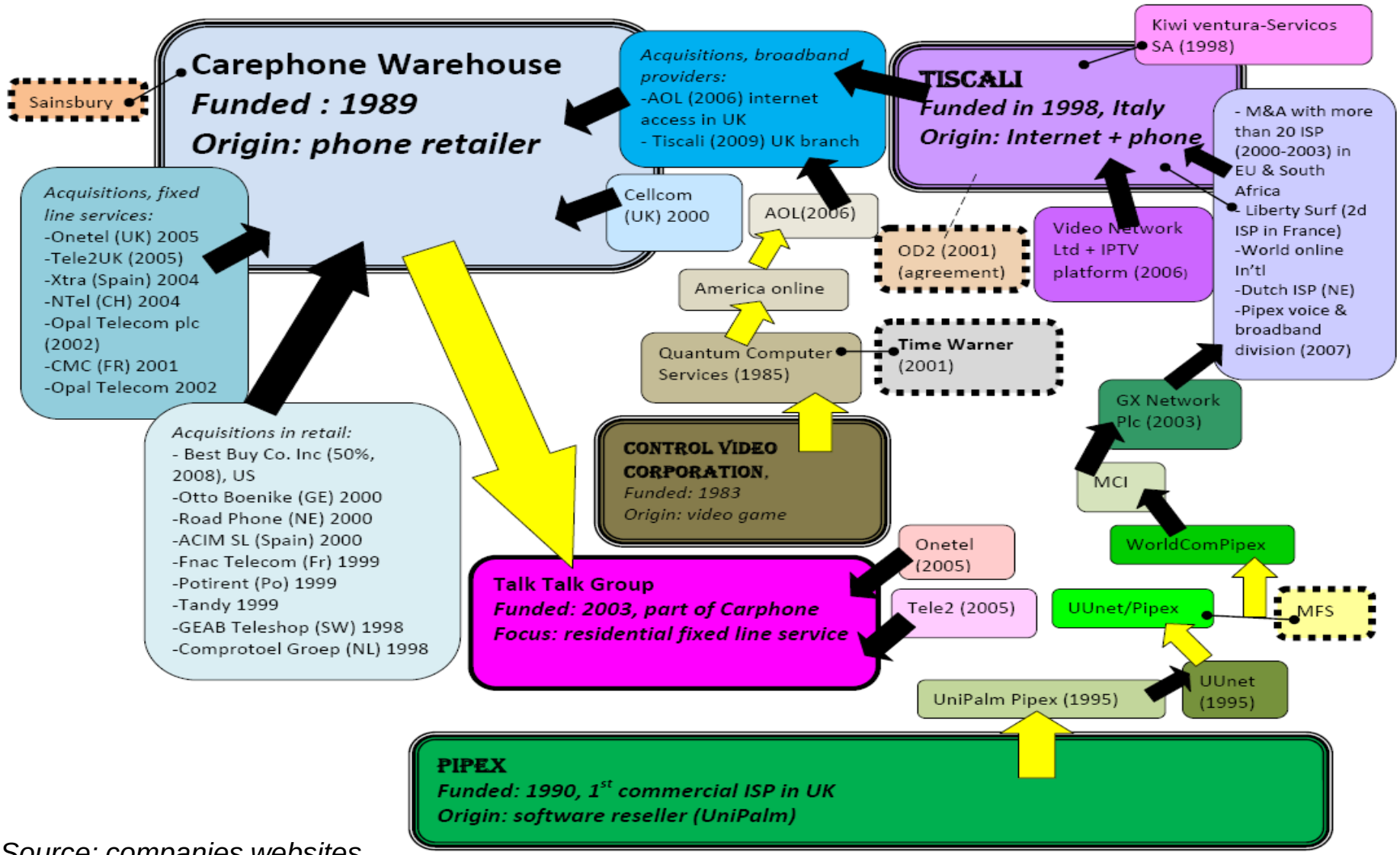
Source: Ofcom, market data tables

UK Telecoms market shares - broadband



Source: Ofcom, market data tables

Talk Talk Group – family tree



Source: companies websites

Observations about telecoms

- Key role of technology in evolution
- Important roles for:
  - Regulation
  - Competition Policy
- Deconstruction of value chain (Li and Whalley, 2002):
  - From value chains to value networks
  - Multiple entry and exit points
  - Complex business relations

Are energy and telecoms different?

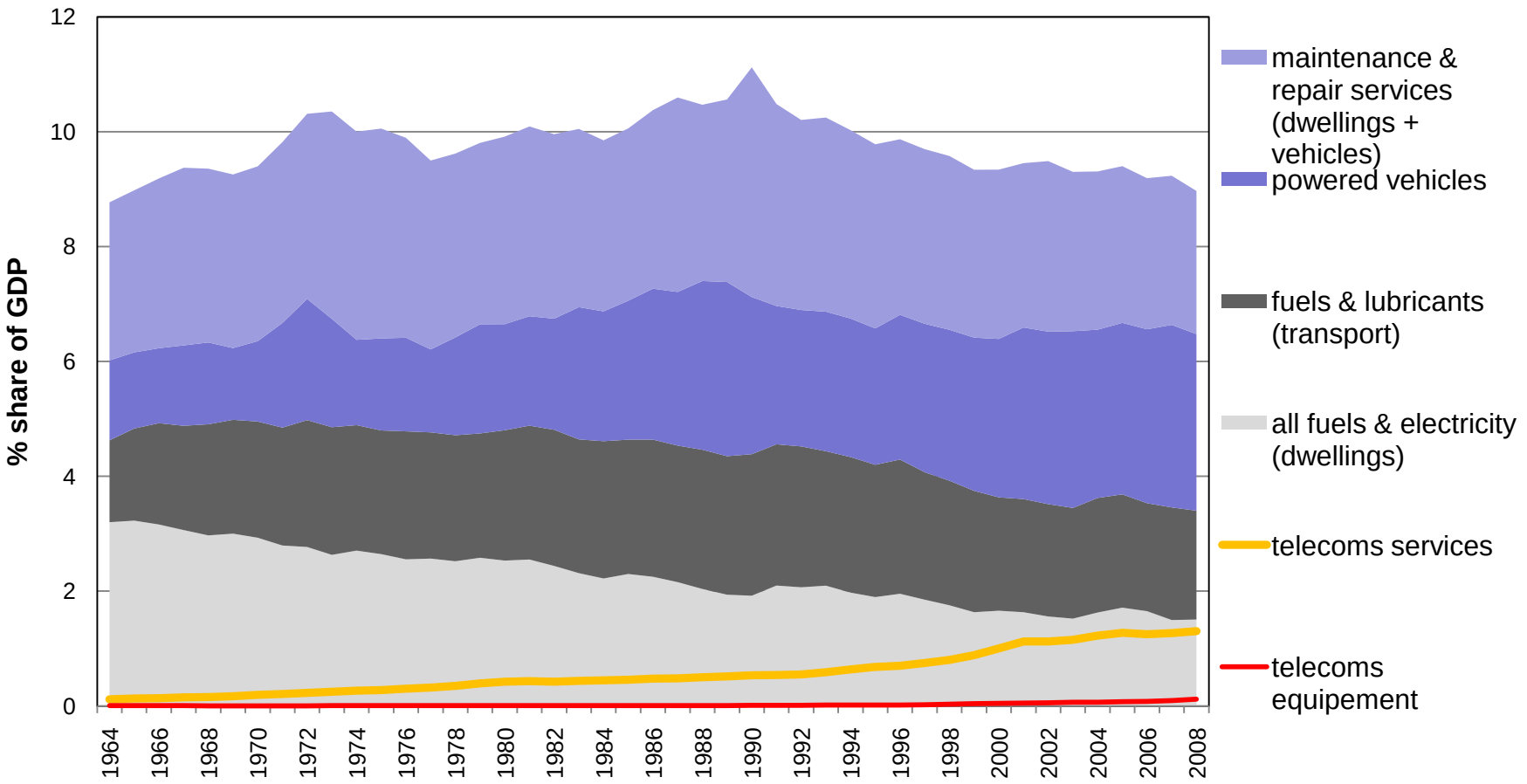
- Joskow and Noll (1999) say yes:
- Electricity (*and* gas *and* liquid fuel):

- Almost never relies on facilities based competition
- Not switched networks
- Unsophisticated metering and control
- Little scope for innovation and technical change

- In 1999, but in 201??

Energy *vs* telecoms spending

consumers spending as share of UK GDP



Source: ONS, chained volume terms, http://www.statistics.gov.uk/STATBASE/Product.asp?vlnk=242

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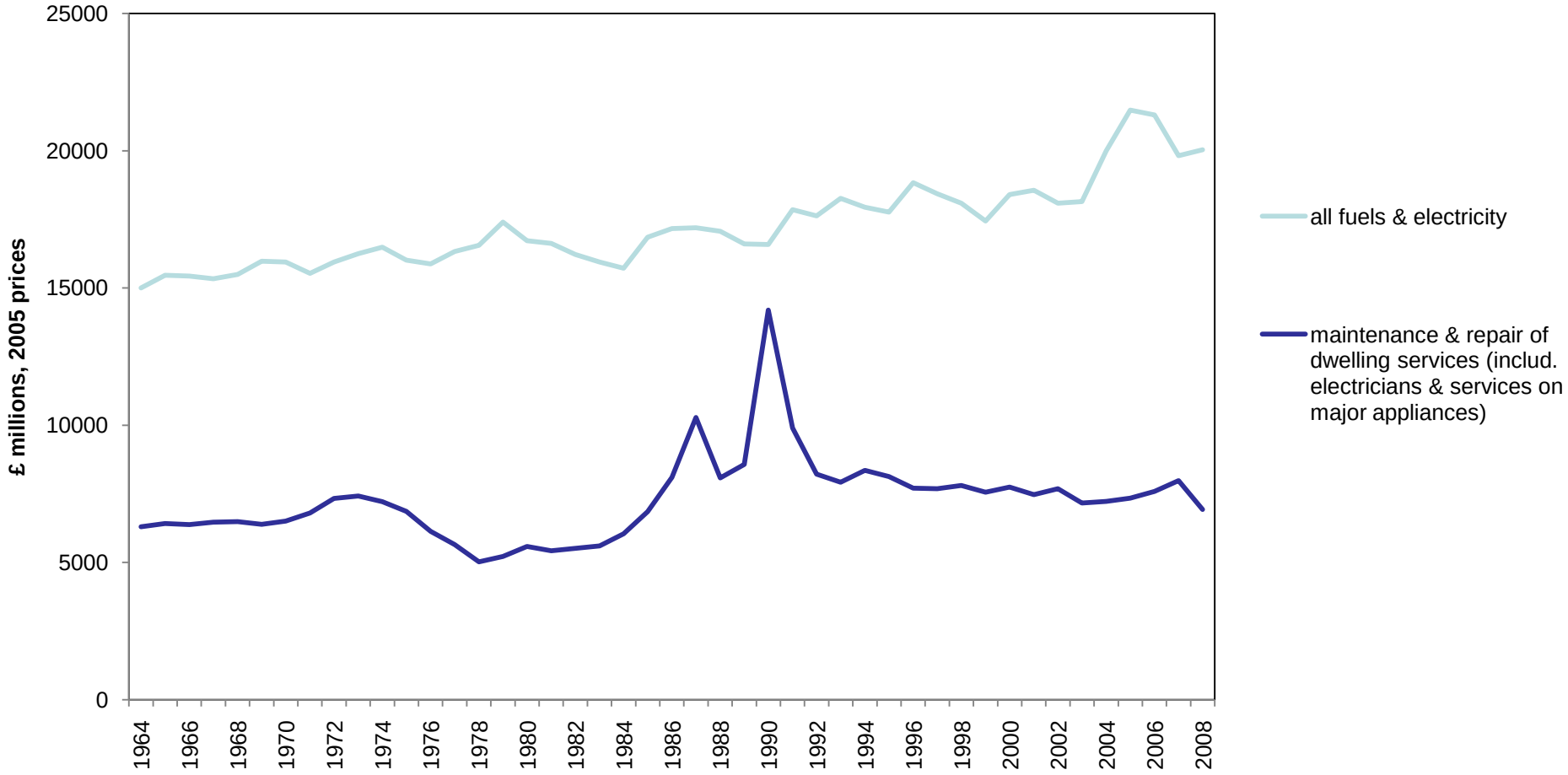
UK household spending on energy services



Source: ONS, chained volume terms

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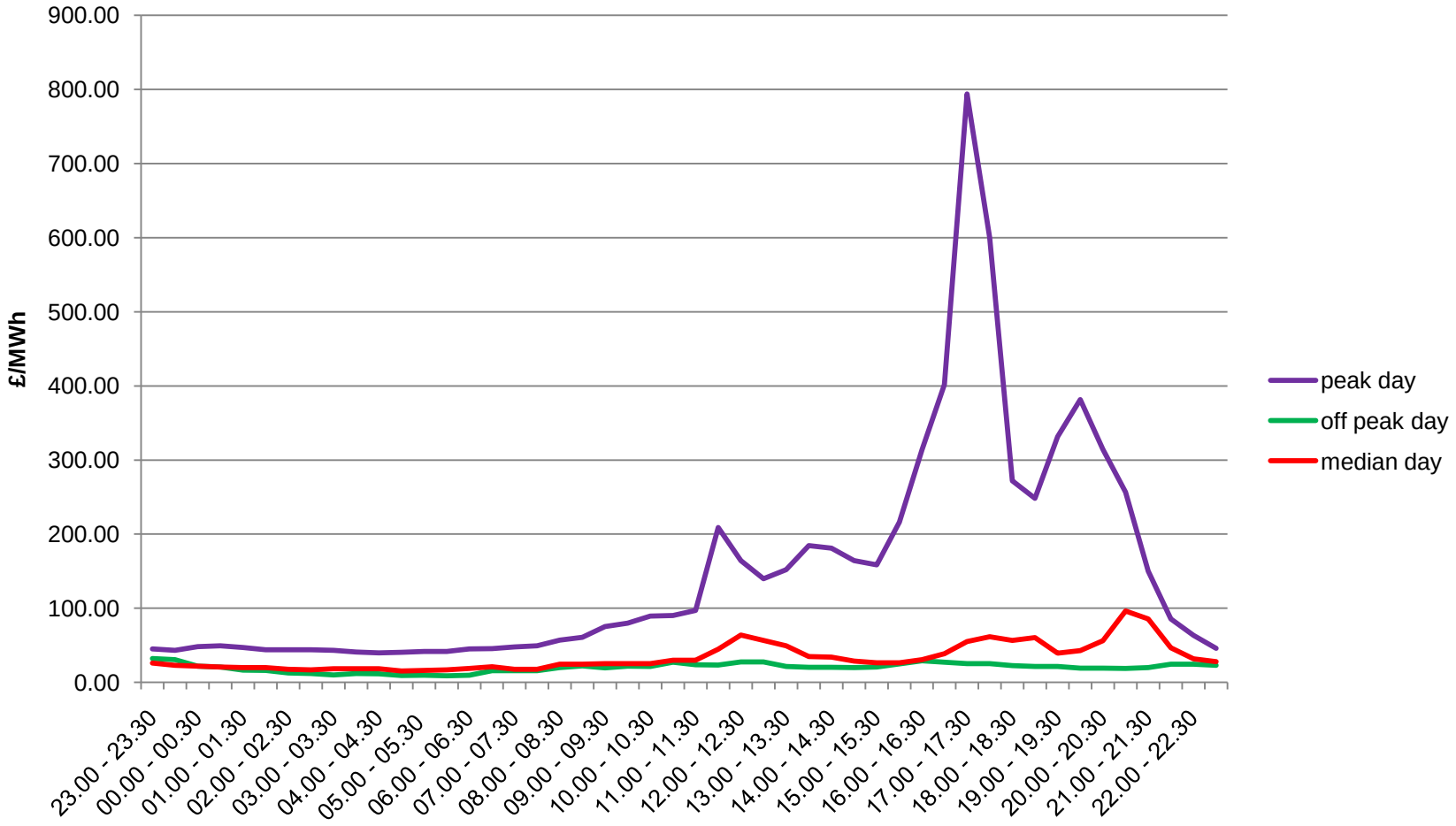
Market Opportunities: Fundamentals

Electricity Prices (2009)



Source: APX, http://www.apxgroup.com/index.php?id=61

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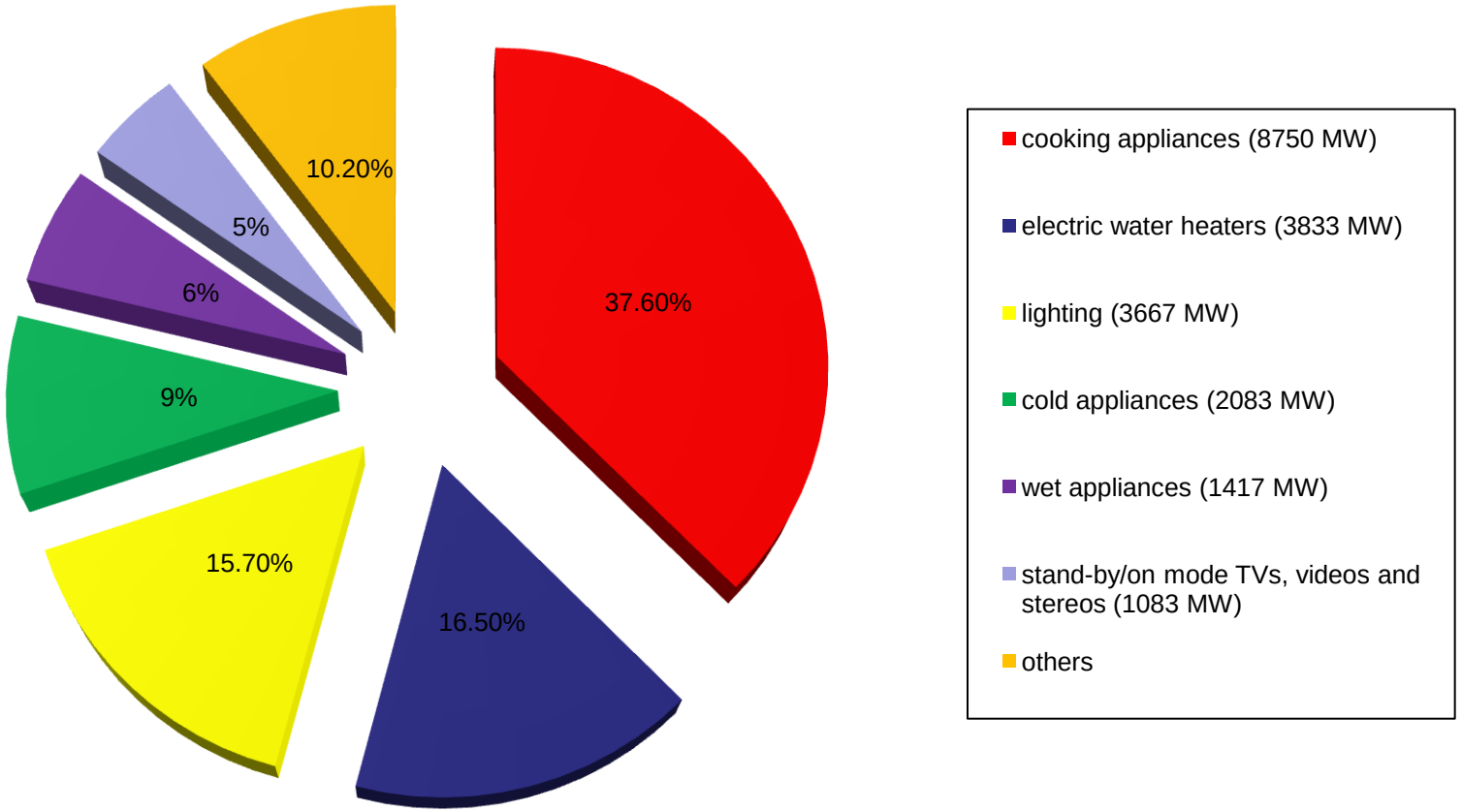
Market Opportunities: Shiftable load

Household peak in the UK (5-6 pm, responsible for 45% of system peak):
breakdown by appliance type, whole UK, typical winter week-day (52016 MW)



Source: adapted from Lampaditou, E. and M. Leach (2005)

Market Opportunities: Shiftable load

- Simulation by Lampaditou and Leach (2005):

- Impacts of **time of use pricing** with water/wet appliances shift :
  - morning peak: **47% decrease** - shift of water heating
  - evening peak: **6% decrease** - shift of wet appliances

  - *consumers' benefits*: **£52/yr** per consumer (using average spot prices of random winter day from UKPX 2005).

- Impact of **direct load control** of major appliances at 5-6 pm (switch off & better cycling) :
  - Switch off washing machine, tumble driers, dish washers & cold appliances: **15% of household peak reduction** (3500 MW)
  - Plus better cycling of water heater: **23%** (5500 MW)

Some ‘Known Unknowns’

- What outturn response elasticities could be:
  - London Congestion Charge experience (-0.42 actual against -0.15 predicted)
- What innovations might come along
  - Telecoms suggests expect the unexpected (e.g. growth of SMS)
- Which diversifying entrants will enter
- How consumers will react
  - EDRP trials appear to be disappointing
  - Non-rational behaviour likely

The Future

- Convergence between electricity, heat and transport sectors?
- Entrants from other sectors?
- Marketer/Retailer led business models?
- Interventions from regulator to force incumbents to facilitate new business models?

- Telecoms suggests any of these possible (and probably welcome).

Conclusions

- Technology will be a key facilitator
- Market potential enormous
- Incumbents have big advantages
- Diversifying entrants to be encouraged
- May take years for entry to be significant
- However new entrants should shake industry
- Regulation and competition policy needed

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