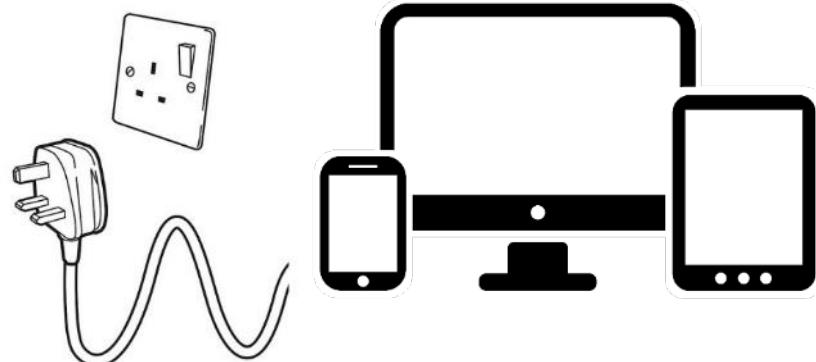
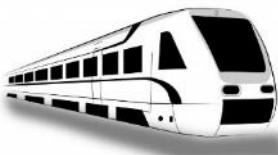


How and why IT matters for energy demand

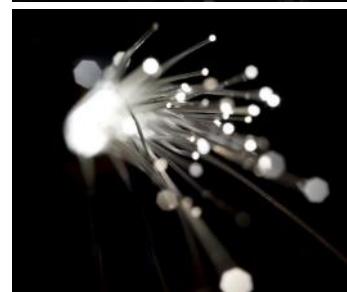
Janine Morley
Elizabeth Shove
Lancaster University



Power devices



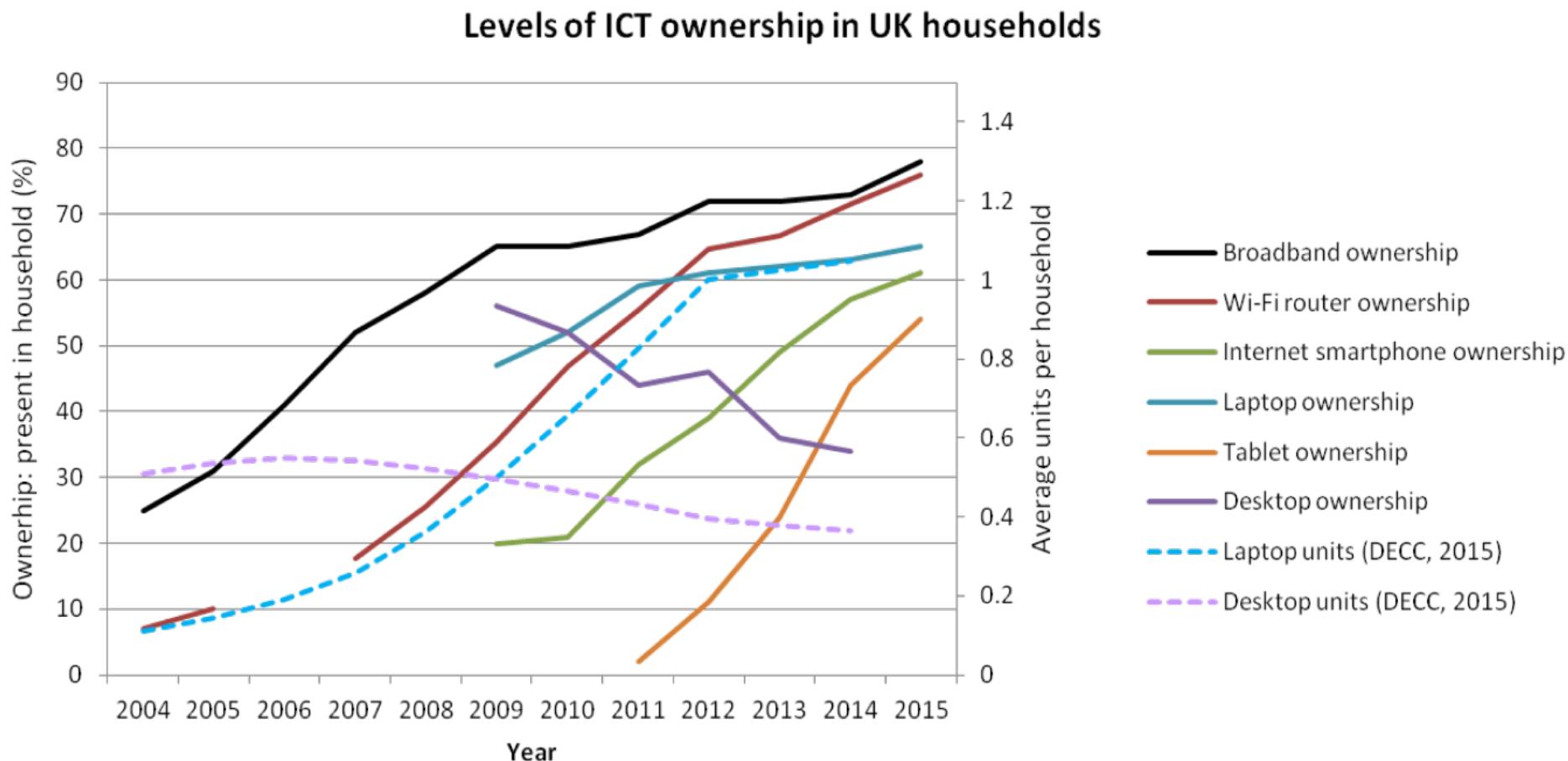
Power 'infrastructures'



Implications for other energy demands



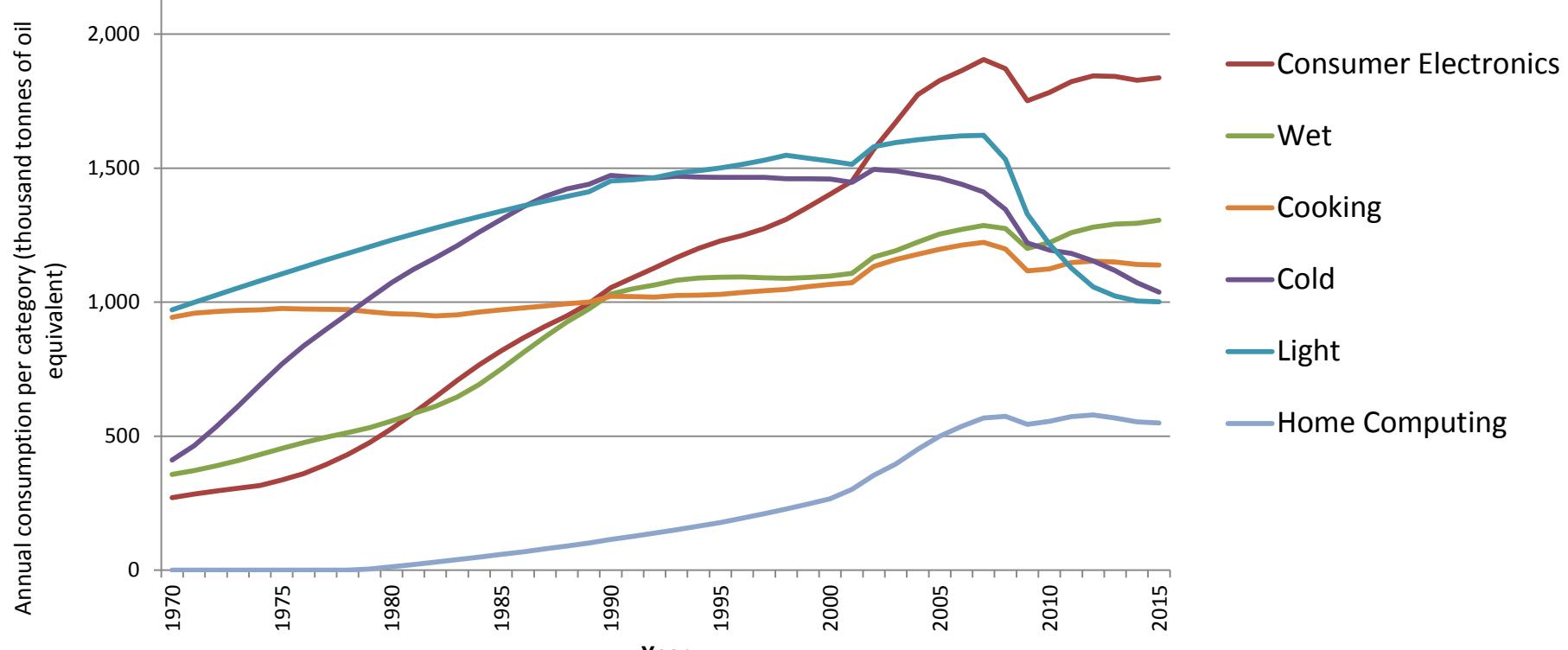
Technologies are changing quickly



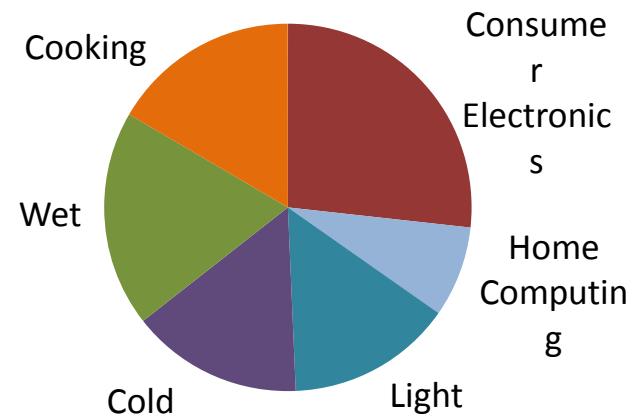
Source: Ofcom (2005, 2015a, 2015c) and DECC (2015)

Note: data from all years not available.

Household Electricity Consumption in the UK 1970-2015 (DECC, 2016)



**IT and electronics are important
for domestic electricity use**

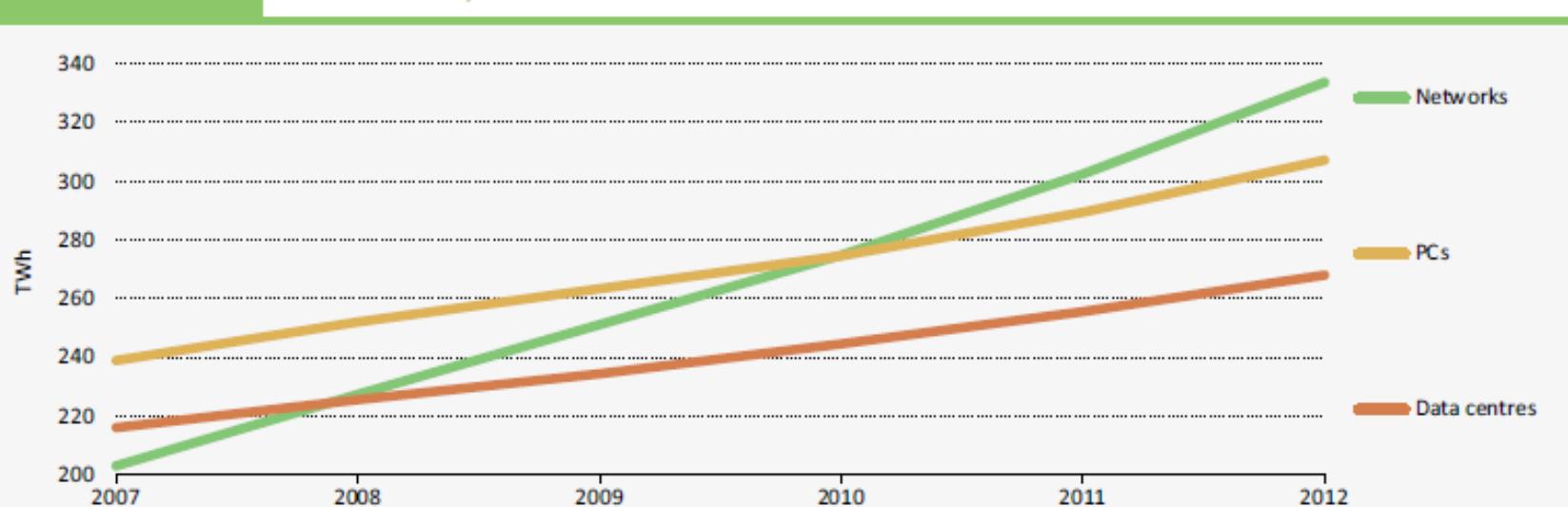


4.6% of global electricity in 2012
10% if add TV and other IT devices



Figure 2.1

Growth in global electricity consumption of communication networks, PCs and data centres



Source: Van Heddeghem, W. S. Lambert, B. Lannoo, D. Colle, M. Pickavet and P. Demeester (2014), "Trends in worldwide ICT electricity consumption from 2007 to 2012", Computer Communications (2014), doi: 10.1016/j.comcom.2014.02.008 <http://dx.doi.org/10.1016/j.comcom.2014.02.008>.

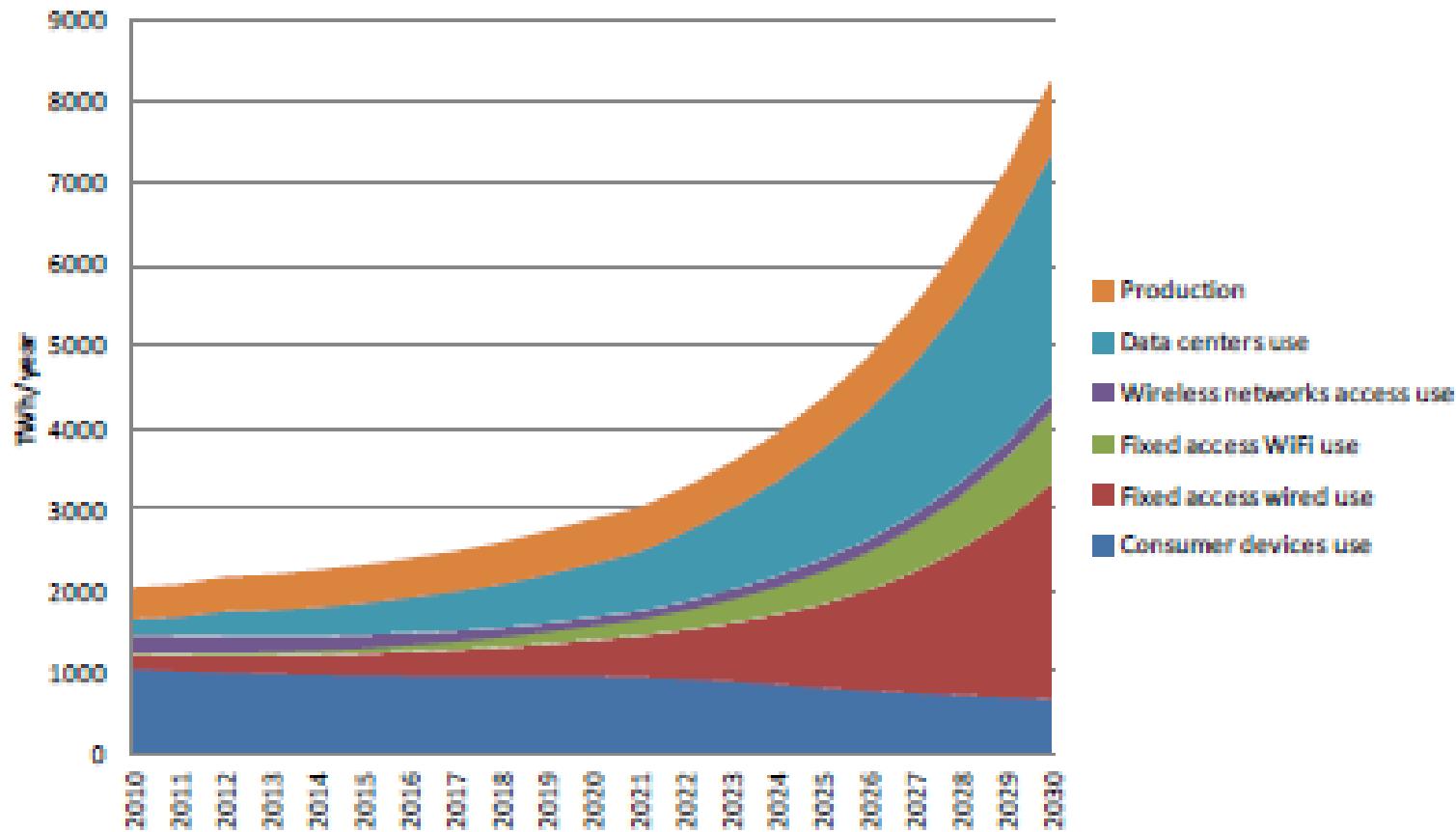
Key point

Electricity demand of networks, PCs and data centres is growing at a much faster rate than overall electricity demand – with networks showing the sharpest increase.

Reproduced from IEA, 2014; based on Heddeghem et al (2014)

Will data traffic be an increasing energy problem?

Expected case scenario CT electricity



Reproduced from Andrae and Edler, 2015



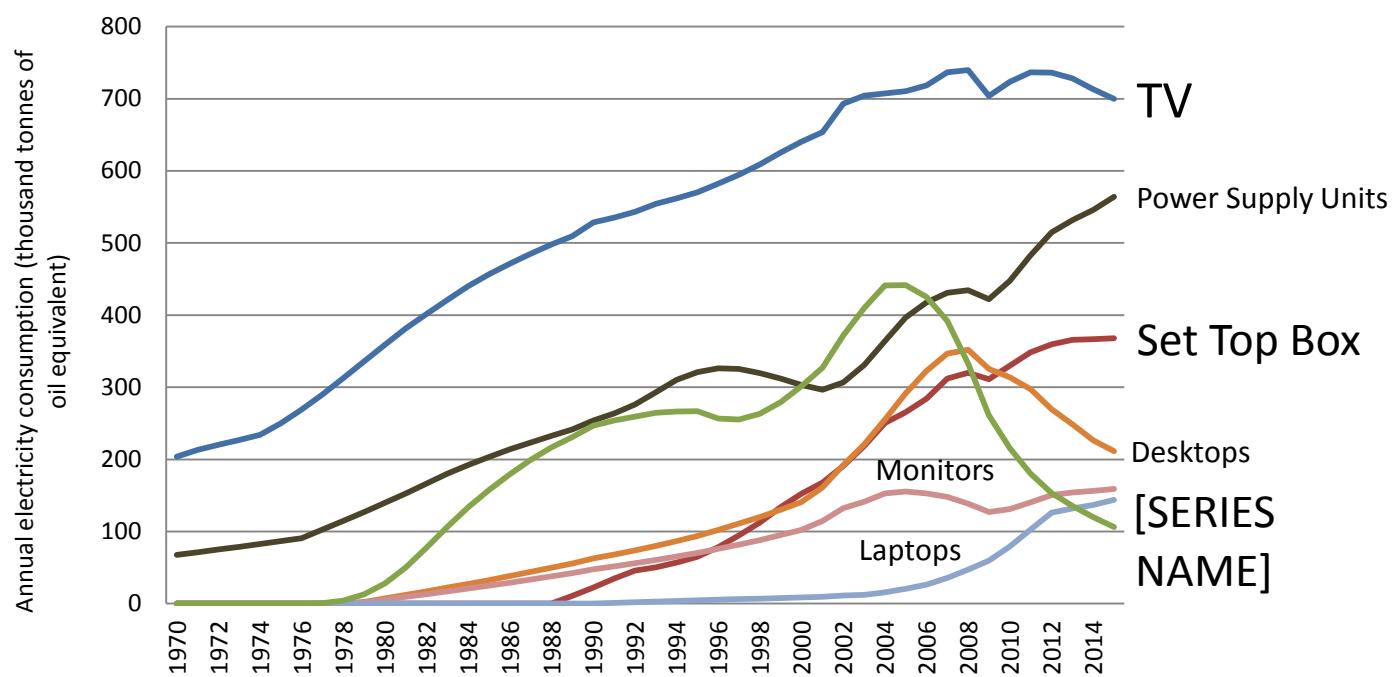
Practices are key to understanding implications





TV watching is changing: Fewer TVs?

Source: [Ofcom](#)

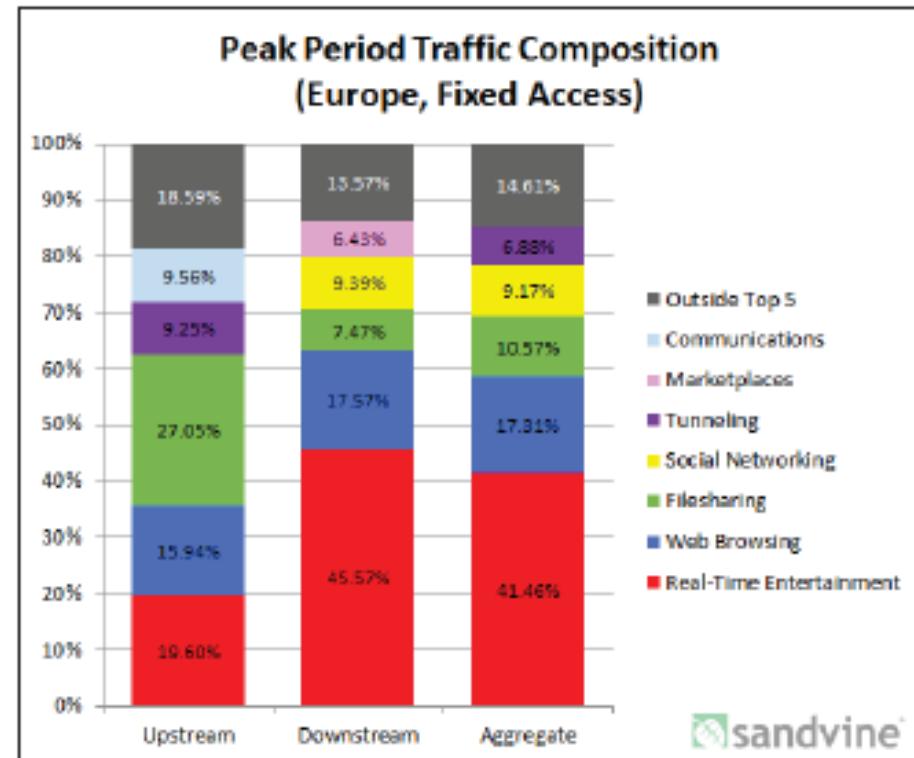


Source: DECC, 2016

On-demand = more data demand

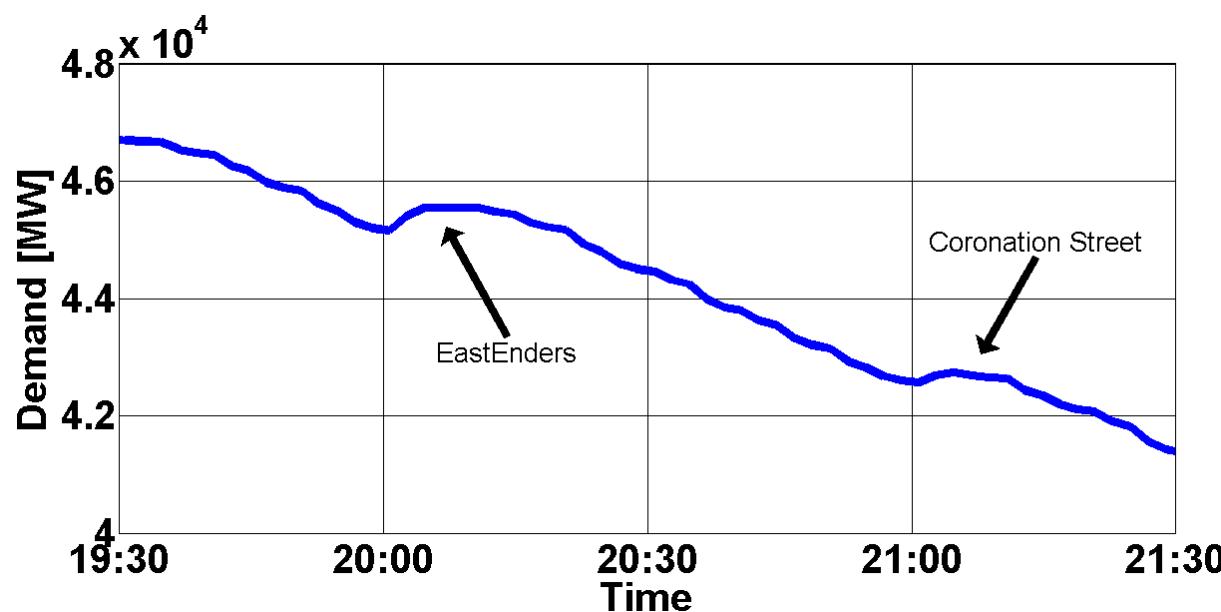


Global Internet Map



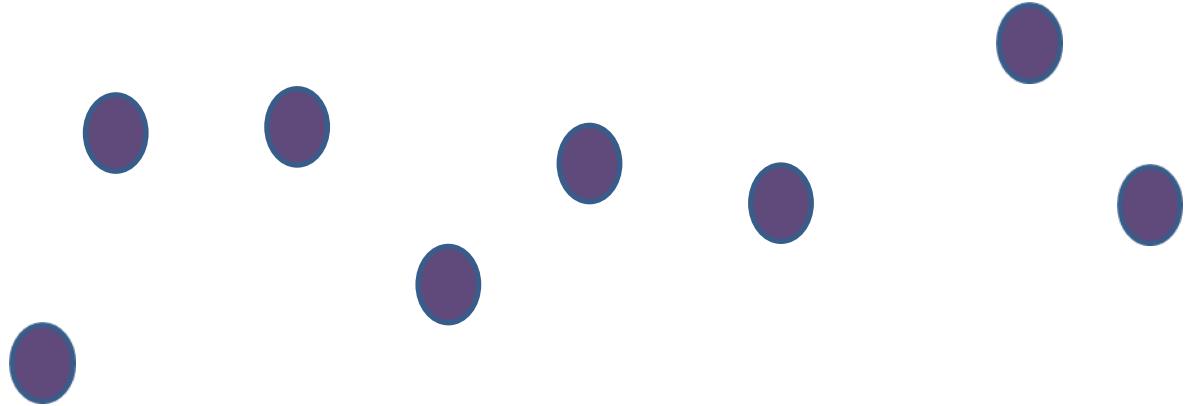
Source: Sandvine, 2015

On-demand = fewer simultaneous cups of tea



[University of Glasgow](#), source National Grid

Online shopping: different systems of provision?



Policy: encouraging system-wide changes



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