UNIVERSITY OF CAMBRIDGE | Energy Policy Research Group

Energy Prices: Up or Down?

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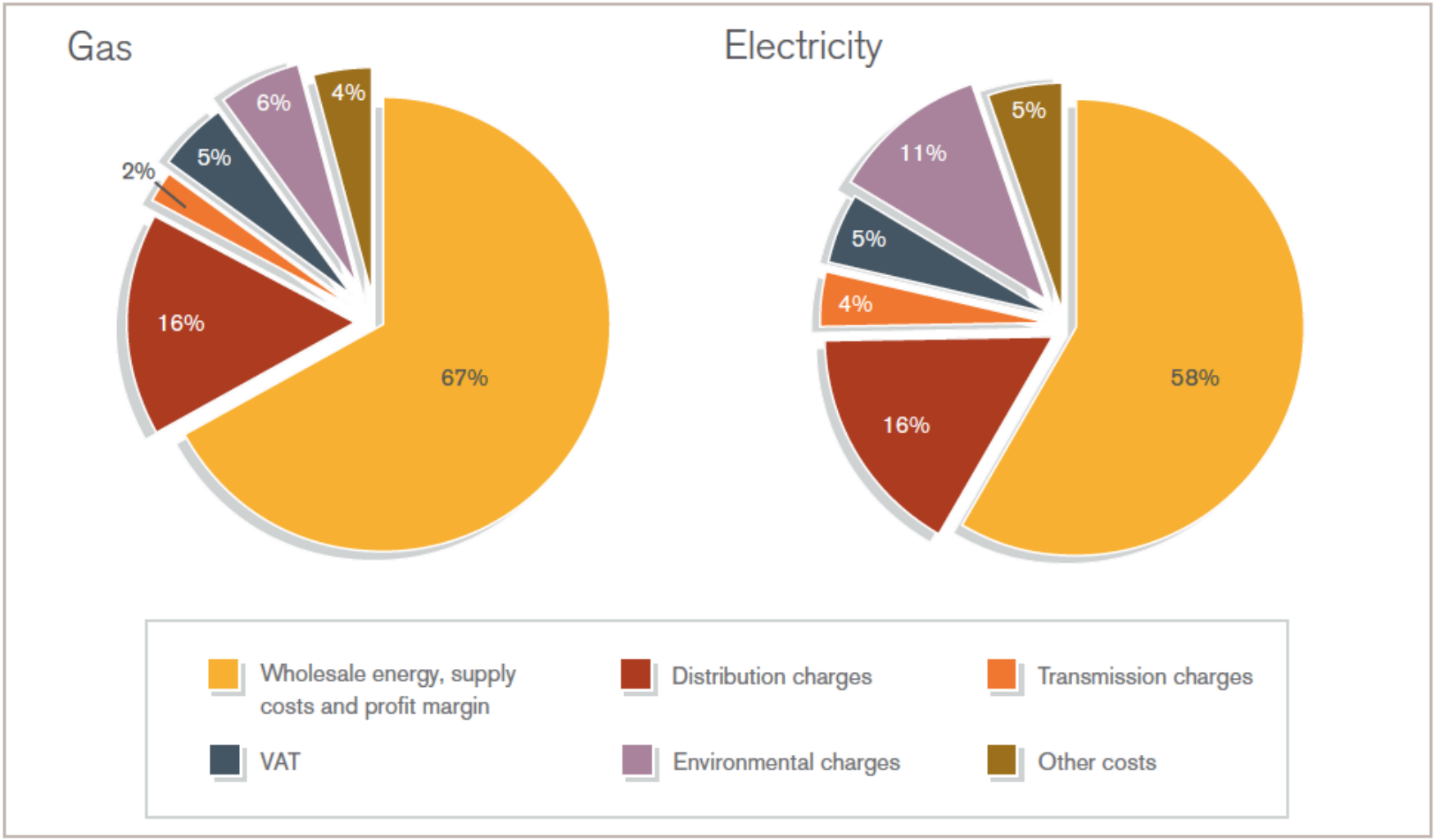
Summary

- Background and trends
- Additional policy support costs
- Competition in energy markets
- Exploitation of demand reduction
- Taxation of energy
- Future prospects

BACKGROUND AND TRENDS

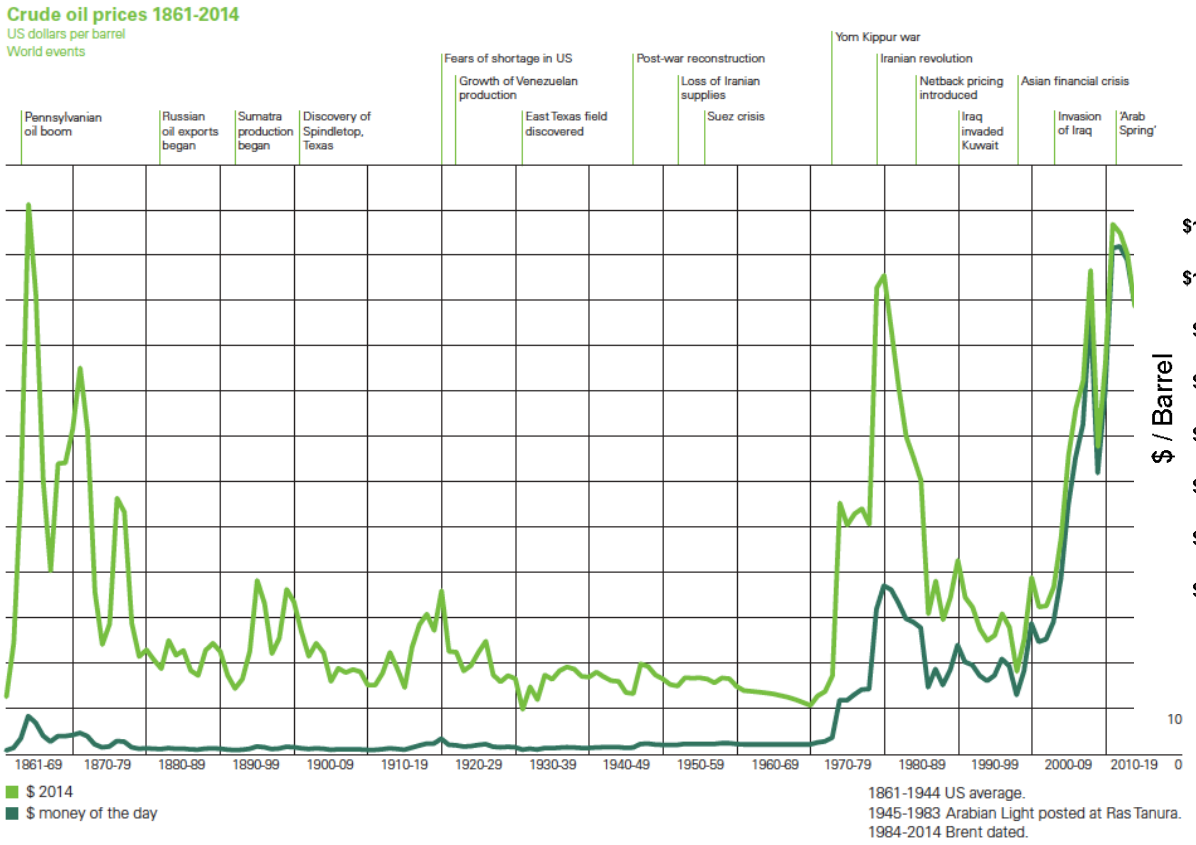
Breakdown of Household Energy Bills



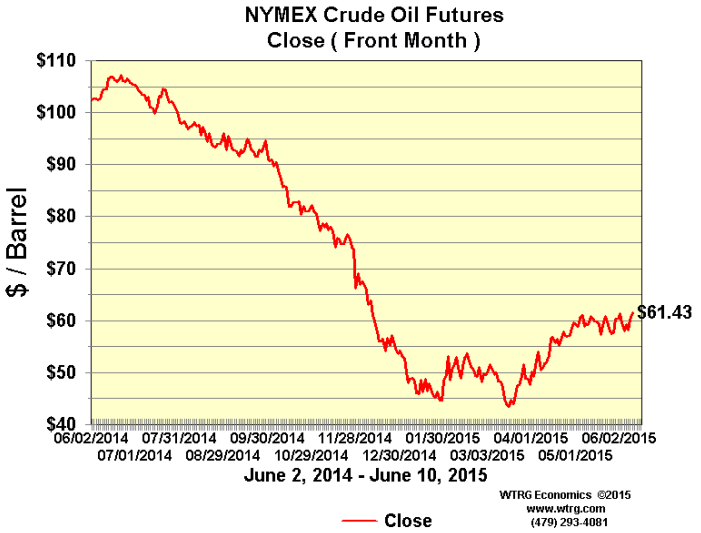
The average bills above are based on average annual consumption figures of 3,300 kWh for electricity and 16,500 kWh for gas, averaged across all big six suppliers and across Great Britain. Please note that the numbers may not sum to 100% due to rounding.

Typical Gas Bill: £811; Typical Electricity Bill: £531. Source: Ofgem, Feb 2013

It is all about oil (and gas)…..

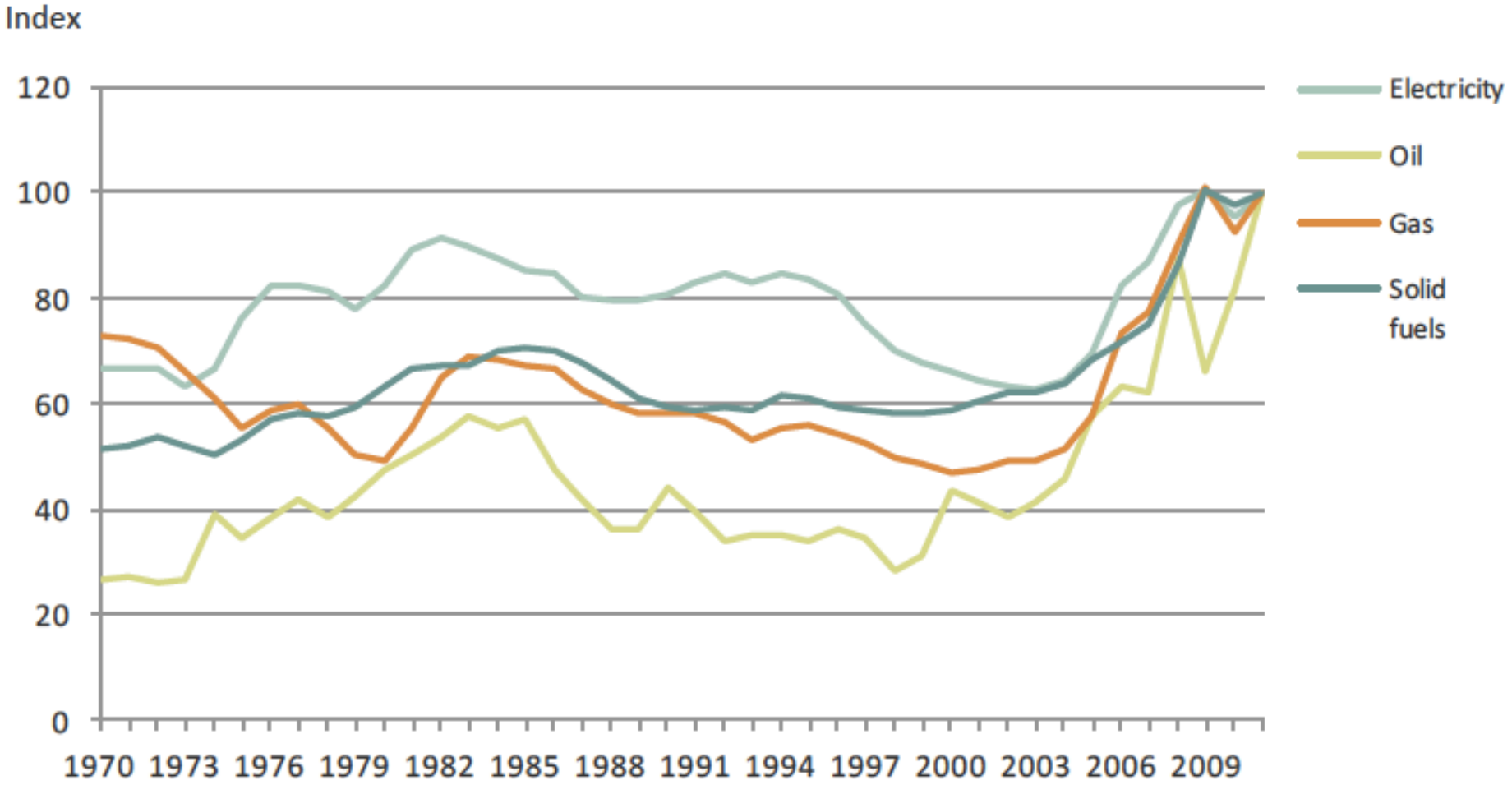


Source: BP Statistical Review of World Energy 2015, p.15.



Source: http://www.wtrg.com/daily/clfclose.gif

Over 40 years real household prices have risen…

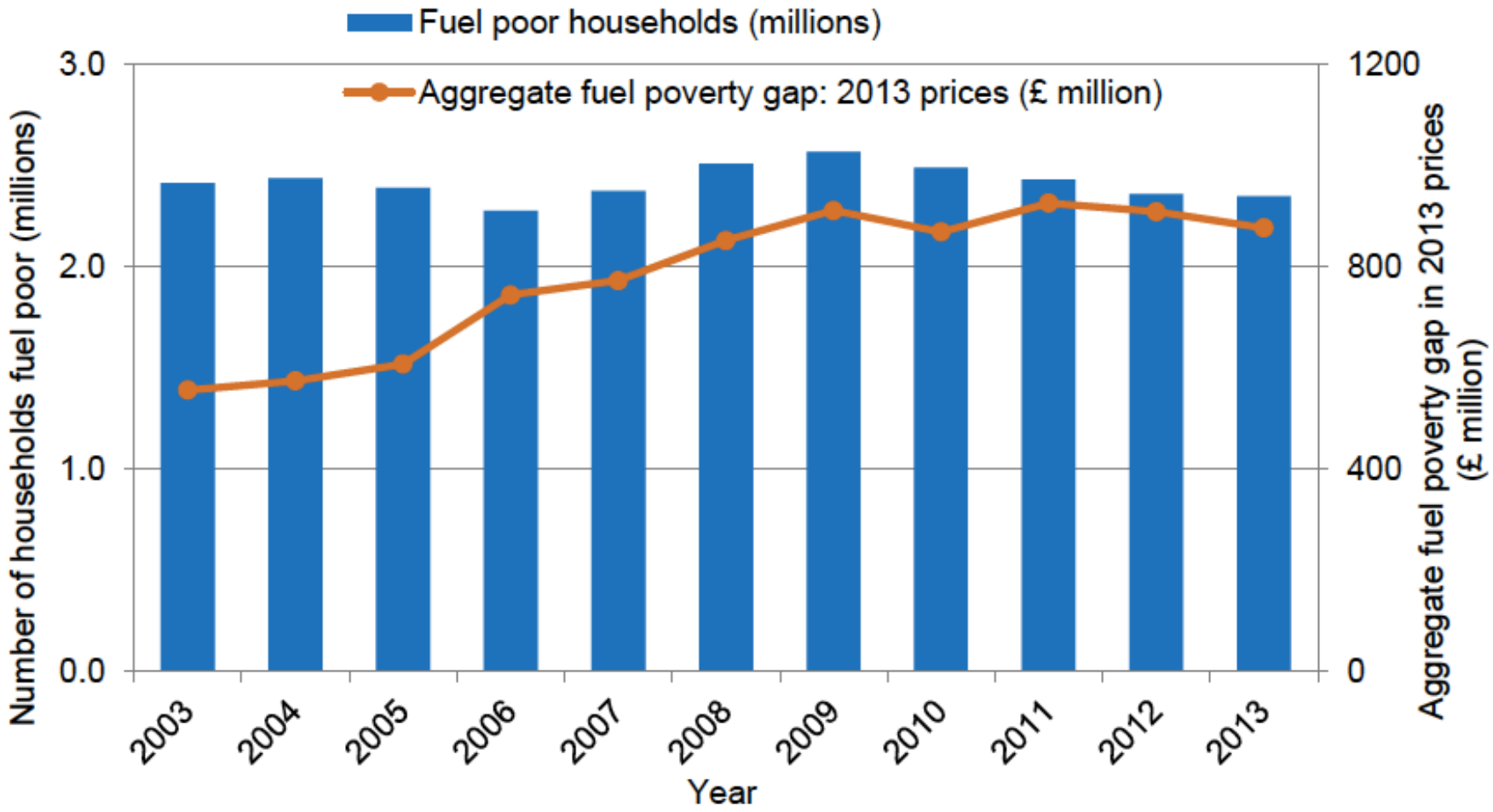


Graph 3d: Average deflated UK household fuel price indices (2011 = 100)

Source: Great Britain's Housing Energy Fact File, 2013

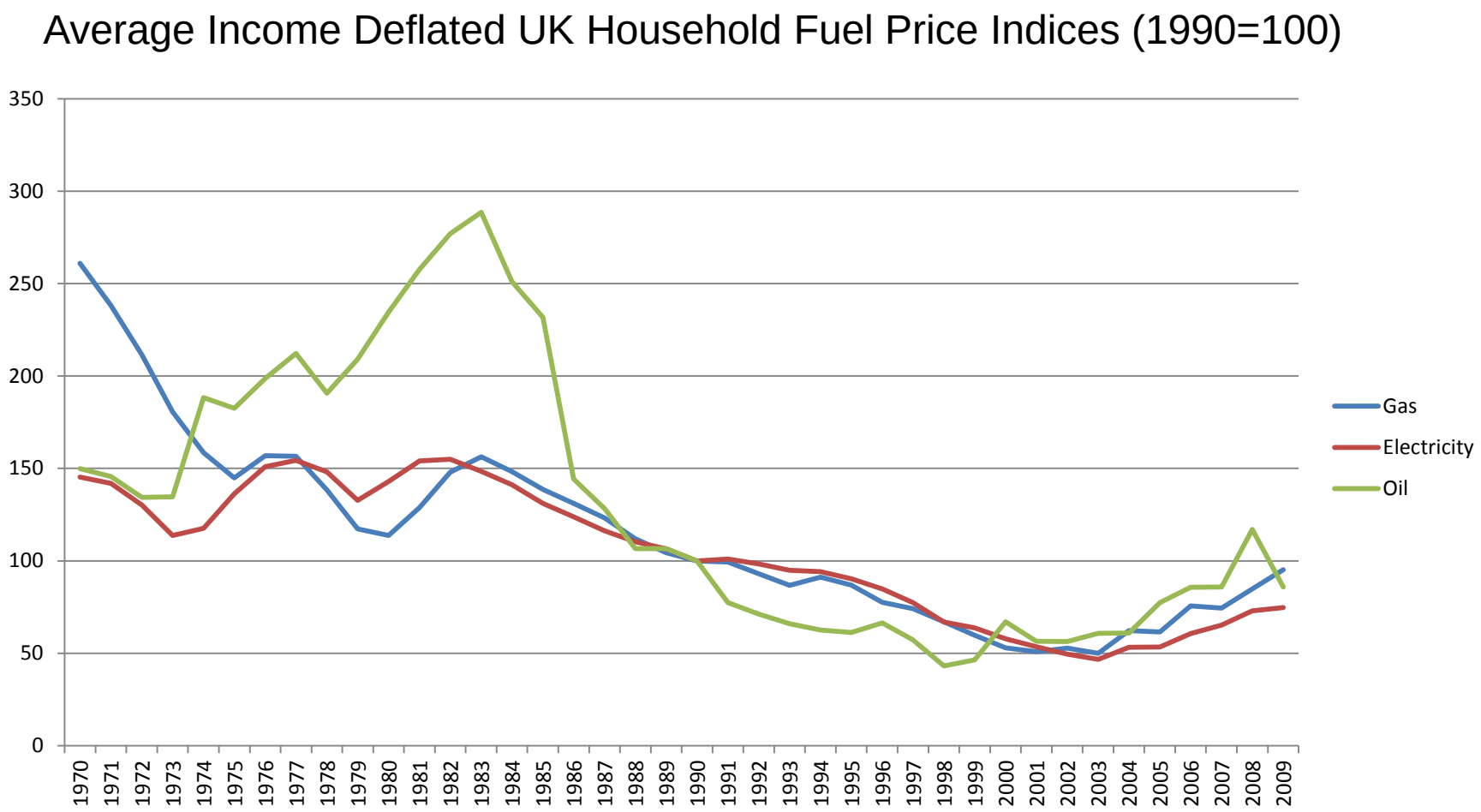
Fuel Poverty for low income high costs households is an issue…

Chart 2.1: Fuel poverty in England, 2003 – 2013



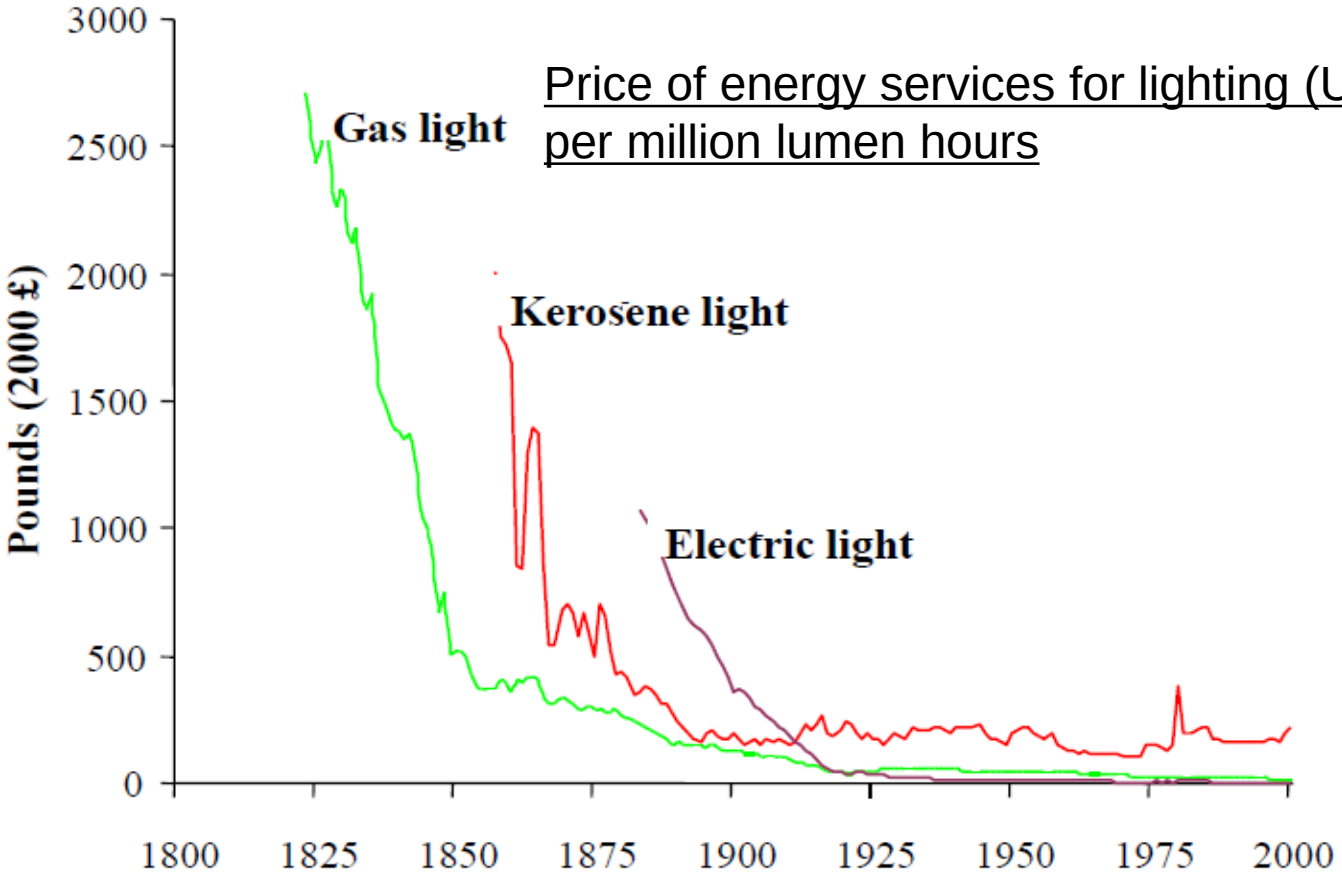
Source: Annual Fuel Poverty Statistics Report 2015, p.17.

However deflating by income…



Sources: Great Britain's Housing Energy Fact File, 2011, Table 3d and Social Trends: Income and Wealth (ST41), ONS 2010, Data for figure 1. Obtained by dividing average deflated household fuel price indices by real household disposable income per head indices.

However it's not about energy per se…



Source: Fouquet and Pearson, 2006, p.158.

POLICY COSTS

Currently energy and climate policy costs are small…

Table D1: Estimated average impact of energy and climate change policies on household en bills in 2014

Real 2014 prices	2014		
	Gas	Electricity	Dual Fuel
1) Bill before policies (inc VAT)	£832	£627	£1,459
2) Bill impact of energy efficiency savings (ex VAT)[127]	-£76	-£100	-£176
Of which:			
Green Deal and Energy Company Obligation	*£2*[128]	*-£8*	*-£6*
Smart Meters	*-£0.4*	*-£0.5*	*-£1*
Historic energy efficiency policies	*-£31*	*-£36*	*-£67*
Products Policy	*£14*	*-£56*	*-£41*
Building Regulations	*-£61*	-	*-£61*
Private Rental Sector regulations	-	-	-
3) Bill impact of price effects and rebates (ex VAT)[129]	£30	£59	£89
Of which:			
Energy Company Obligation	*£21*	*£15*	*£36*
Smart Meters	*£2*	*£1*	*£3*
Small-scale Feed-in-Tariffs	-	*£9*	*£9*
Renewables Obligation	-	*£36*	*£36*
Contracts-for-Difference	-	-	-
Capacity Market gross auction cost	-	-	-
EU Emissions Trading System carbon cost	-	*£7*	*£7*
Carbon Price Floor carbon cost	-	*£16*	*£16*
Other wholesale price effects of policies	-	*-£5*	*-£5*
Warm Home Discount support	*£7*	*£6*	*£13*
4) Warm Home Discount rebate	-	*-£13*	*-£13*
5) Government Electricity Rebate	-	*-£12*	*-£12*
Bill impact of price effects and GER only (3 - 4)	£30	£72	£102
6) VAT impact of policies (2 + 3 - 4 - 5) x 5%[130]	-£2	-£1	-£3
7) Estimated impact of policies, £ (2 + 3 + 6)	**-£49**	**-£41**	**-£90**
Estimated impact of policies, % (7/1)	**-6%**	**-7%**	**-6%**
Bill after policies (1 + 7)	**£783**	**£586**	**£1,369**
Of which:			
Wholesale energy costs	£402 (51%)	£235 (40%)	£637 (46%)
Network costs	£147 (19%)	£139 (24%)	£286 (21%)
Supplier costs and margin	£167 (21%)	£124 (21%)	£291 (21%)
Energy and climate change policies	£30 (4%)	£59 (10%)	£89 (7%)
VAT @ 5%	£37 (5%)	£29 (5%)	£66 (5%)

Source: DECC 2014. Figures rounded to the nearest £1 except where impacts are below 50p. Figures may not sum due to rounding.

Source: DECC 2014, Estimated Impact of Energy and Climate Change Policies on Energy Prices and Bills, p.72.

Future Policy Costs look high (and assumptions suspect)…

Table D3: Estimated average impact of energy and climate change policies on household energy bills in 2030

Real 2014 prices	2030[136] (See footnote)		
	Gas	Electricity	Dual Fuel
1) Bill before policies (inc VAT)	£897	£689	£1,586
2) Bill impact of energy efficiency savings (ex VAT)[137]	-£96	-£155	-£251
Of which:			
Green Deal and Energy Company Obligation	*-£6*	*-£19*	*-£25*
Smart Meters	*-£14*	*-£17*	*-£30*
Historic energy efficiency policies	*-£25*	*-£28*	*-£53*
Products Policy	*£6*	*-£90*	*-£84*
Building Regulations	*-£58*	*-*	*-£58*
Private Rental Sector regulations	*£0.0*	*-£1*	*-£1*
3) Bill impact of price effects and rebates (ex VAT)[138]	-£1	£192	£191
Of which:			
Energy Company Obligation	*-*	*-*	*-*
Smart Meters	*-£7*	*-£5*	*-£12*
Small-scale Feed-in-Tariffs	*-*	*£13*	*£13*
Renewables Obligation	*-*	*£30*	*£30*
Contracts-for-Difference	*-*	*£84*	*£84*
Capacity Market gross auction cost	*-*	*£14*	*£14*
EU Emissions Trading System carbon cost[139]	*-*	*£80*	*£80*
Carbon Price Floor carbon cost[140]	*-*		
Other wholesale price effects of policies	*-*	*-£17*	*-£17*
Warm Home Discount support	*£6*	*£5*	*£11*
4) Warm Home Discount rebate	*-*	*-£11*	*-£11*
5) Government Electricity Rebate	*-*	*-*	*-*
Bill impact of price effects and GER only (3 - 4)	-£1	£204	£203
6) VAT impact of policies (2 + 3 - 4 - 5) x 5%[141]	-£5	£2	-£2
7) Estimated impact of policies, £ (2 + 3 + 6)	**-£102**	**£40**	**-£62**
Estimated impact of policies, % (7/1)	**-11%**	**6%**	**-4%**
Bill after policies (1 + 7)	**£795**	**£729**	**£1,524**
Of which:			
Wholesale energy costs	£445 (56%)	£237 (32%)	£682 (45%)
Network costs	£160 (20%)	£141 (19%)	£301 (20%)
Supplier costs and margin	£154 (19%)	£124 (17%)	£277 (18%)
Energy and climate change policies	-£1 (-0.1%)	£192 (26%)	£191 (13%)
VAT @ 5%	£38 (5%)	£35 (5%)	£73 (5%)

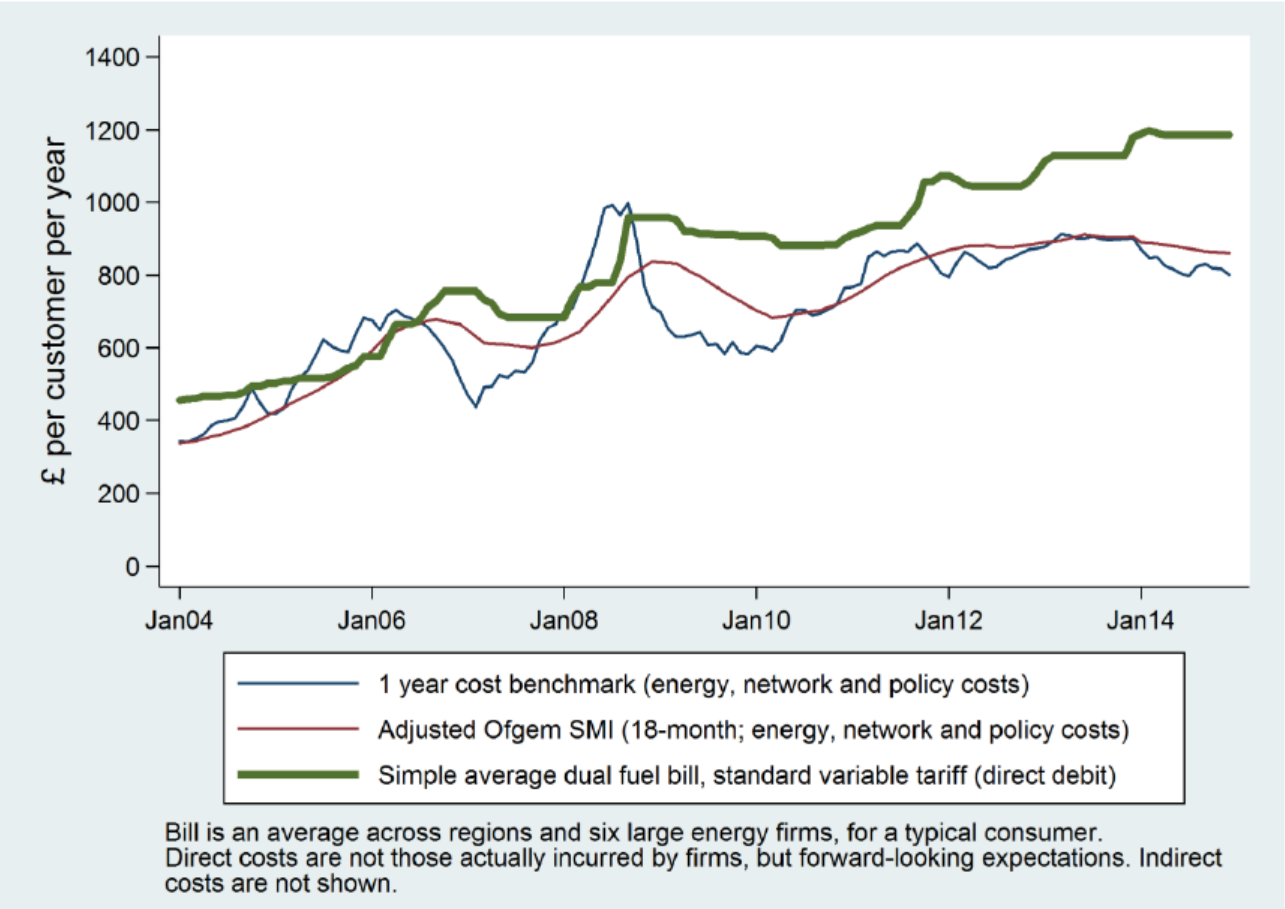
Source: DECC 2014. Figures rounded to the nearest £1 except where impacts are below 50p. Figures may not sum due to rounding.

Source: DECC 2014, Estimated Impact of Energy and Climate Change Policies on Energy Prices and Bills, p.74.

COMPETITION

Is competition a problem? Now being investigated by Competition and Markets Authority…

Evolution of average SVT bill against expected direct costs



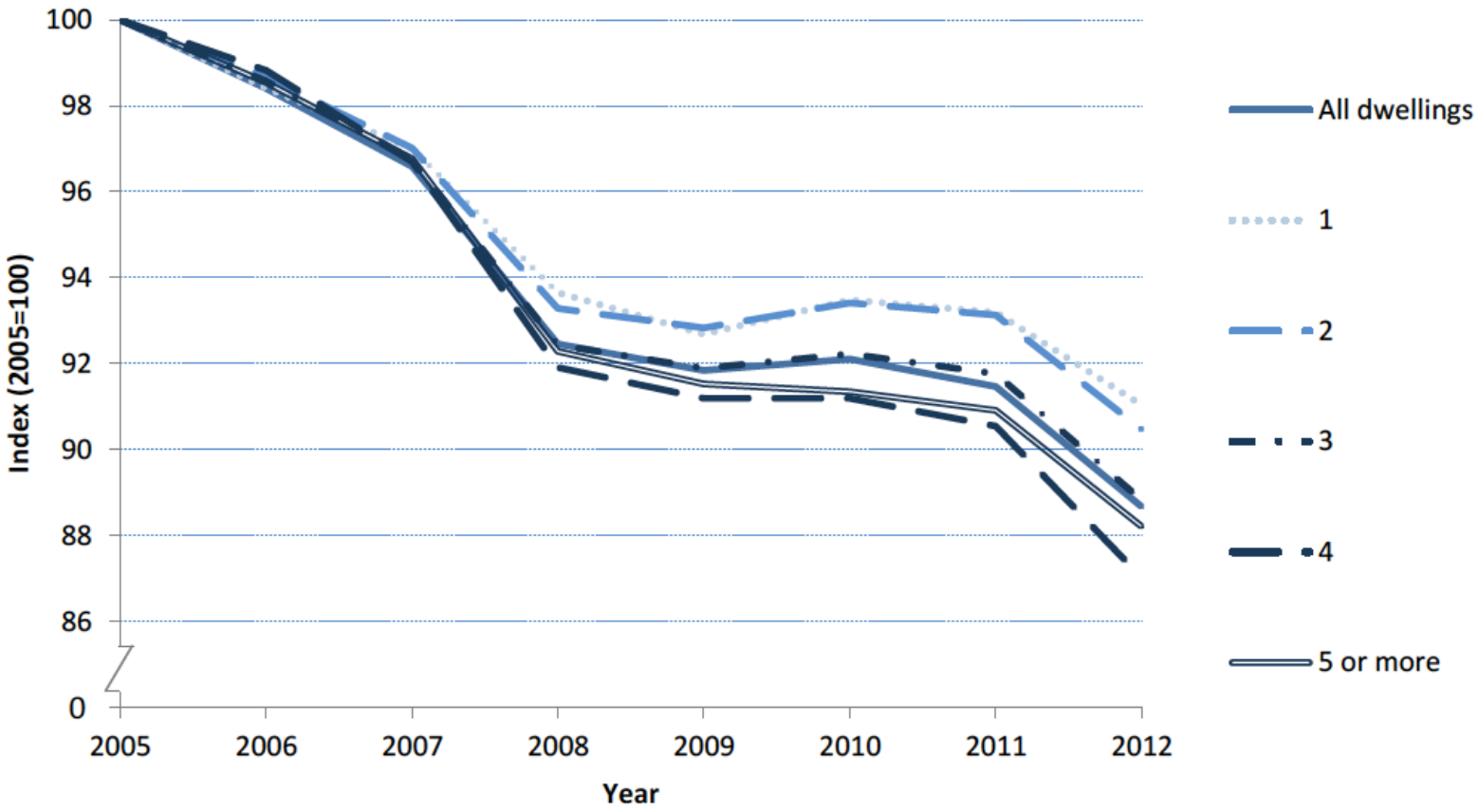
SVT = Standard Variable Tariff (Default tariff)

Source: CMA February 2015, Updated Issues Statement, p.28.

DEMAND REDUCTION POTENTIAL

High prices have promoted energy saving by households…

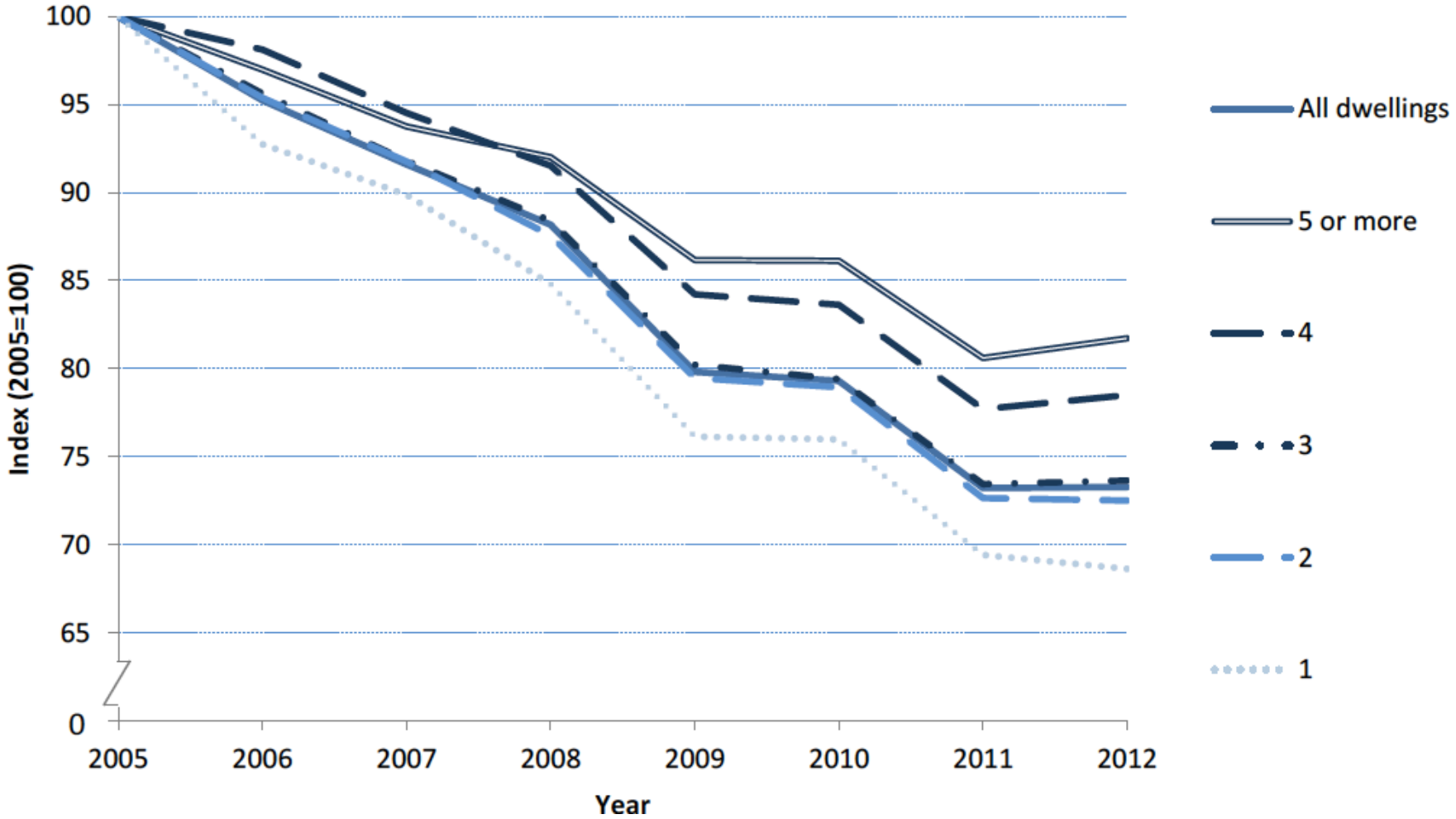
Figure 3.7: Median electricity consumption by number of bedrooms, 2005 to 2012 (2005=100)



Source: DECC 2014, Summary of Analysis using National Energy Efficiency Data Framework, p.16.

High prices have promoted energy saving by households…

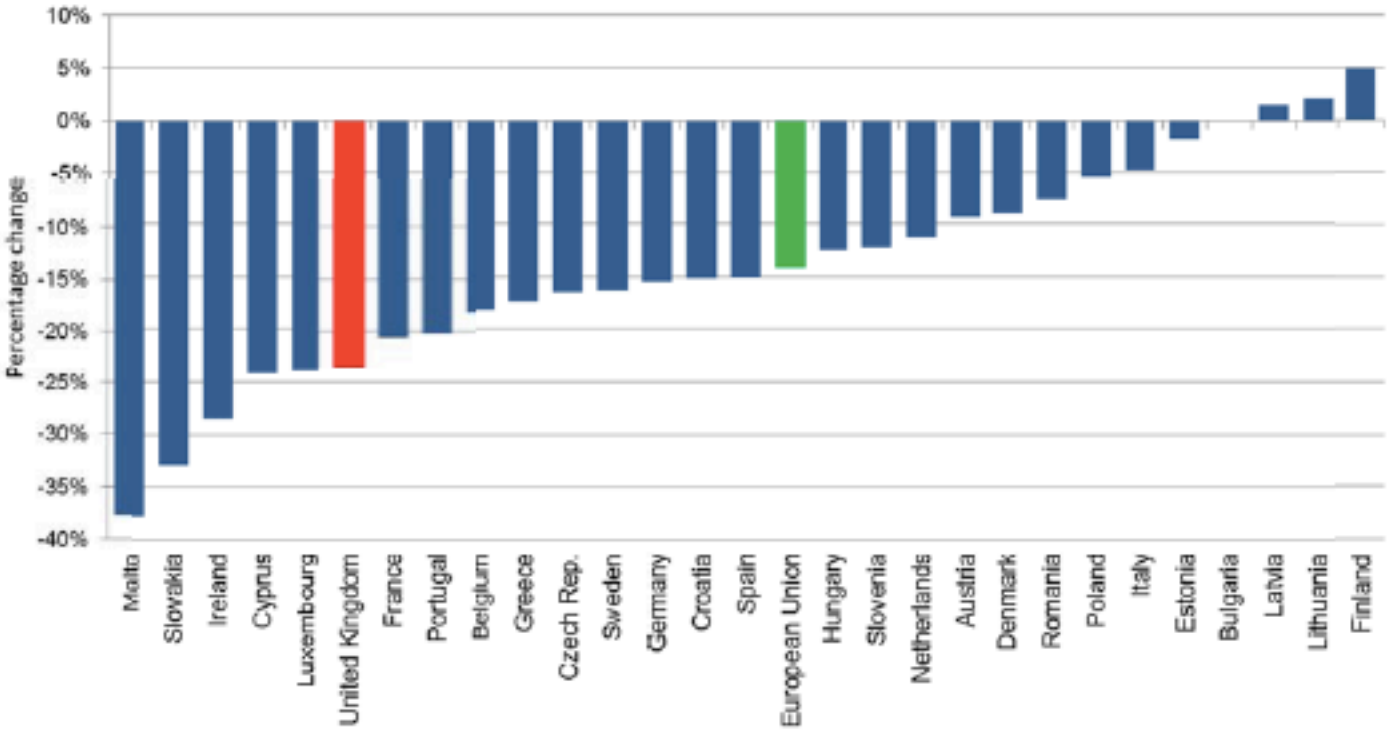
Figure 3.6: Median gas consumption by number of bedrooms, 2005 to 2012 (2005=100)



Source: DECC 2014, Summary of Analysis using National Energy Efficiency Data Framework, p.15.

This is one of the biggest falls in the EU…

Chart 2: Change in domestic energy consumption per dwelling adjusted to the EU climate from 2002 to 2012



Source: ODYSSEE

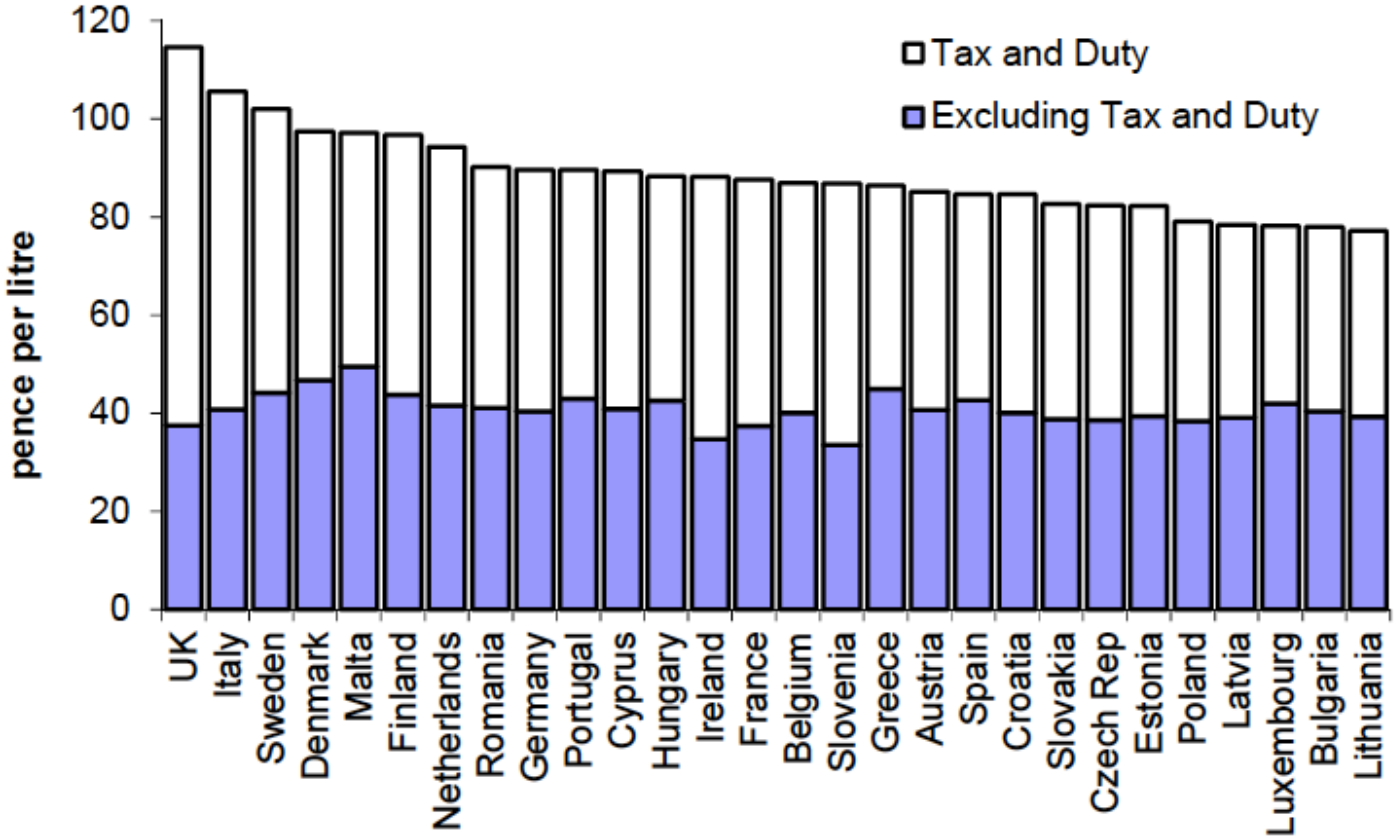
Note: Data for Belgium and Romania are for 2002 to 2011.

Source: Energy Trends March 2015, p.75.

TAXATION OF ENERGY

Diesel taxes are particularly high in UK…

Average EU Diesel Prices in Pence per litre as at February, 2015

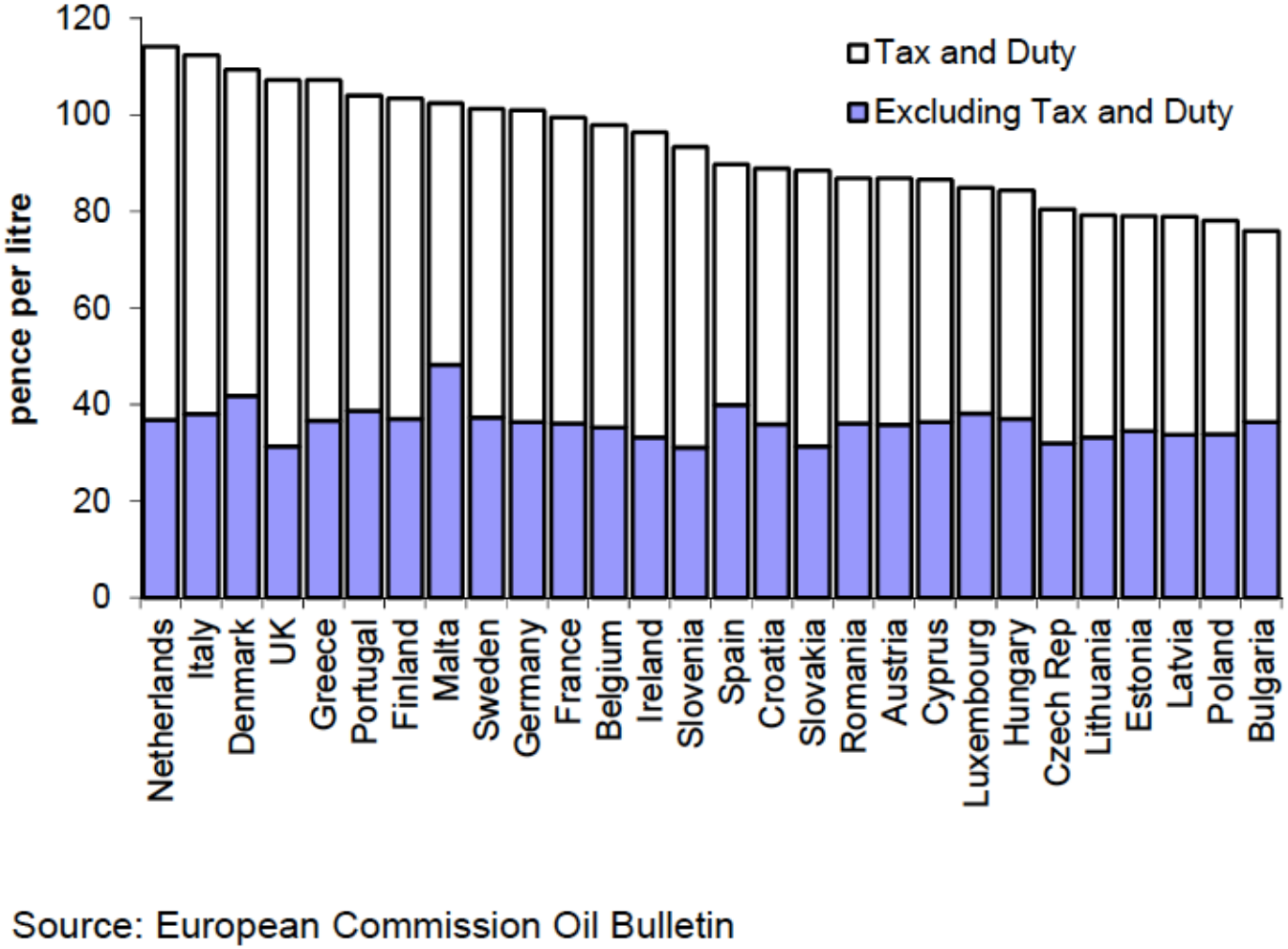


Source: European Commission Oil Bulletin

Source: Table 5.2.1 from QEP, March 2015, p.49.

Petrol taxes are pretty high in the UK…

Average EU Premium Unleaded Petrol Prices in Pence per litre as at February, 2015

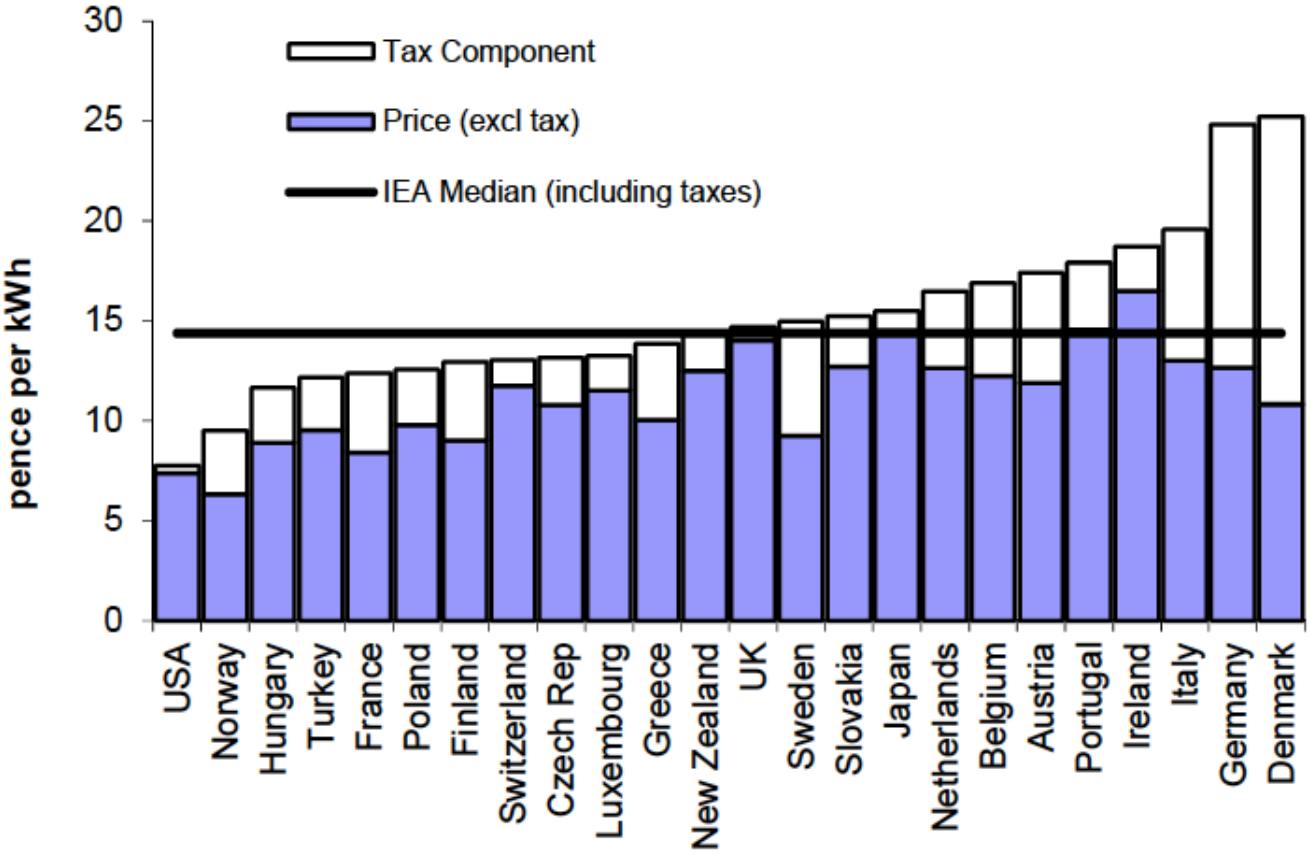


Source: European Commission Oil Bulletin

Source: Table 5.1.1 from QEP, March 2015

Electricity taxes in UK are very low…

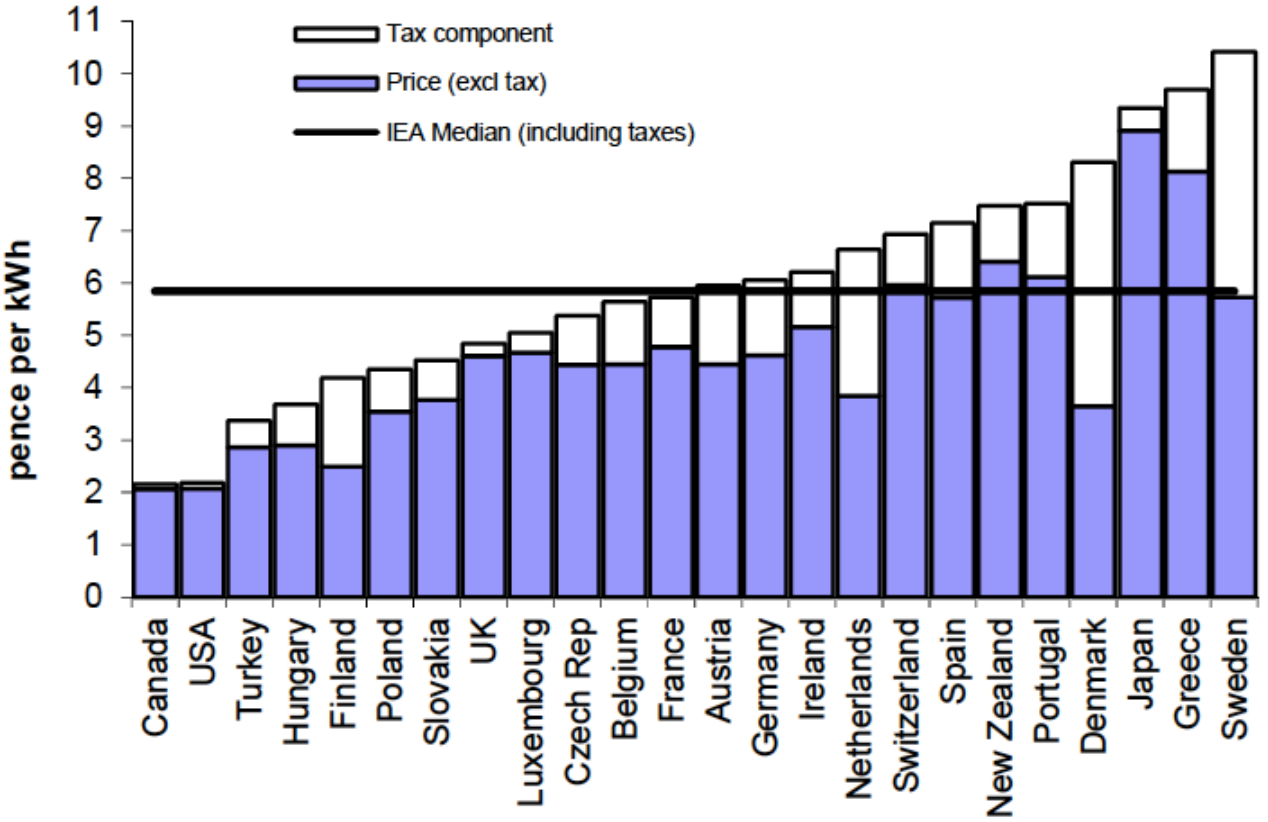
Electricity Prices for Household Consumers, 2013



Source: IEA Energy Prices and Taxes
In Table 5.5.1 from QEP, March 2015, p.51.

Gas taxes in UK also low…

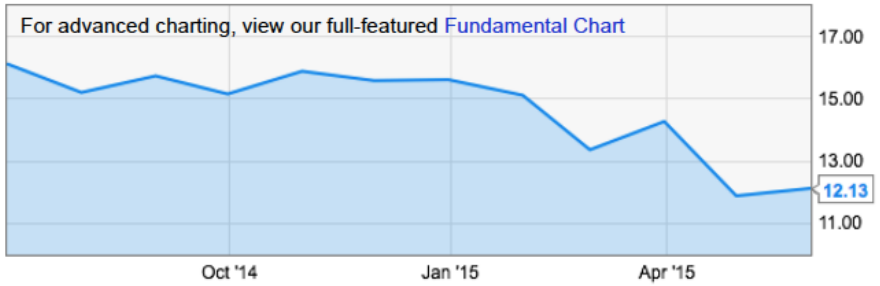
Natural Gas Prices for Household Consumers, 2013

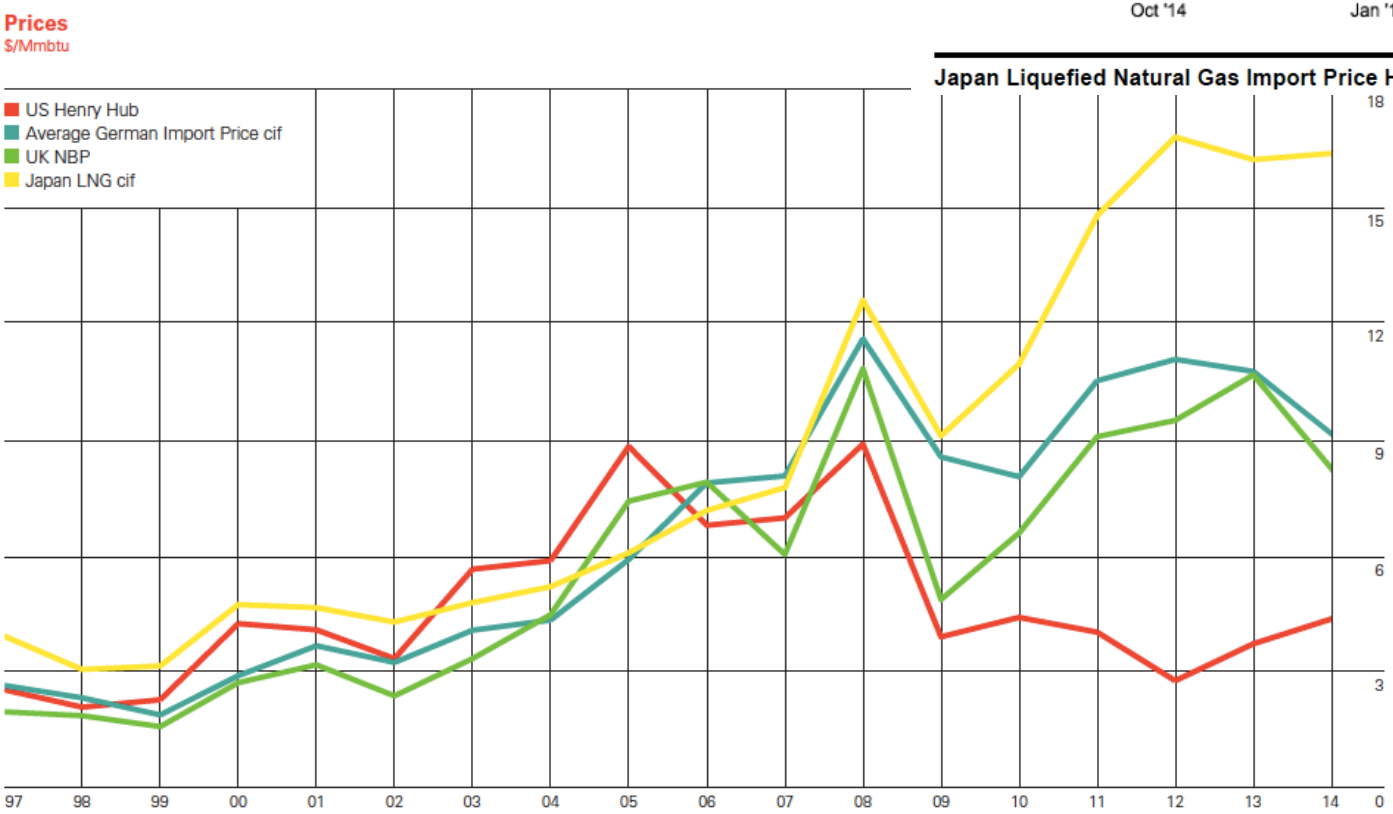


Source: IEA Energy Prices and Taxes
In Table 5.9.1 from QEP, March 2015, p.55.

FUTURE PROSPECTS?

Impact of shale gas…





Japan Liquefied Natural Gas Import Price Historical Data

Source: BP Statistical Review of World Energy, 2015, p.27.

Source: http://ycharts.com/indicators/japan_liquefied_natural_gas_import_price

Technology may save us…

Concluding comments

- International volatility in commodity prices.
- Tax and policy pressure upwards.
- Shale gas global impact uncertain.
- Clean energy services getting cheaper.
- Bills not necessarily the same as prices.