

The Growing Un-affordability of Energy for Households and the Consequences

By Lynne Chester*

Introduction

One of the proclaimed benefits of electricity sector restructuring was to be lower consumer prices. But households are not paying lower electricity prices and have experienced increases far in excess of general price movements. Some European prices rose by more than 100% between 2000 and 2010. Many Australian households experienced an increase of up to 108% during the period 2007-13. Growing numbers of low-income households are spending a higher proportion of their disposable income on energy bills and are suffering deprivation and social exclusion as a result. The energy-impooverished population has been estimated at 150 million in Europe and growing. There is strong empirical evidence that the phenomenon of energy impoverishment is not isolated or temporary but becoming widespread and embedded. Policy responses have been ineffective and are poorly targeted. This article explores the increasing un-affordability of energy for households and the consequences.

Household Electricity Price Increases Following Sector Restructuring

Electricity sectors around the world have undergone major structural change over the last 20 years or so. Table 1 shows the movement in household electricity price increases that has occurred since 1990. These increases have been significantly above inflation and most noticeably since 2000. ¹	Country	Change 1990-2000	Change 2000-2010	Electricity sector restructuring
	Canada	n.c.	79.2	Started in the late 1990s
	Chile	109.8	166.3	Started in 1982; early 1990s price increases matched inflation which fell to 5% or less
	Czech Republic	100.0	133.3	Started 1992; cost-reflective household prices phased in 1995-2002
	France	-32.0	1.3	Started 1999
	Germany	-26.2	16.0	Started 1998
	Hungary	66.7	116.9	Started 1990; cost-reflective household prices introduced in 1995
	Ireland	47.3	99.9	Started 1999; cost-reflective household prices phased in from 2001
	Japan	20.9	8.4	Minor changes from 1995
	Mexico	47.8	30.9	Minor changes; household prices remain heavily subsidised
	Netherlands	12.0	35.0	Started 1998; regulation has capped size of price increases
	New Zealand	9.1	203.3	Started 1987; cross-subsidies eliminated in 1992; new regulation from 2003 led to major price increases
	Norway	-20.5	106.1	Started 1991
	Spain	-38.4	58.3	Started 1997 Price regulation capped nominal price increases below supply cost until 2008
	Sweden	n.a.	87.6	Started 1996
	UK	-9.3	86.0	Started 1990
	US	3.8	41.5	Started in the late 1990s

Table 1: Nominal Changes in Household Electricity Prices for Selected Countries, 1990-2010 (%)
n.c. = no change; Sources: Chester and Morris (2011:439).

For those countries with relatively minor electricity sector restructuring (Japan, Mexico), household price movements have been either in line or lower than inflation.

For major economies that did not embark on electricity sector liberalisation until the late 1990s, real reductions in household electricity prices occurred between 1990 and 2000, which were reversed after restructuring was implemented (Canada, Ireland, U.S.). Price cap regulation has limited the increases for two 'late starters' (Netherlands and Spain). In the cases of France and Germany, energy policy decisions about nuclear power and renewable energy - made prior to sector restructuring - lowered long-term electricity production costs which has maintained real reductions for household electricity prices. Two countries which led sector restructuring in 1990 (Norway, United Kingdom) had real reductions in household prices between 1990 and 2000, due to falling generation fuel prices (hydro and coal). Steep increases since then have eliminated these gains. UK electricity prices declined from 1996 to 2004 due to falling fossil fuel prices but rose in real terms by 44% from 2005 to 2010 (Hills 2011: 104). The largest increases in household electricity prices between 2000 and 2010 have been in countries which started restructuring the earliest (Chile, Czech Republic, Hungary, New Zealand).

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See footnotes at end of text..

National changes, however, can mask underlying variations. For example, U.S. prices show an increase post-restructuring of over 40% between 2000 and 2010. Yet household electricity prices in 12 American States rose, between 1999 and 2007, by more than 50% with the highest increase being 74% (Anderson 2009; Showalter 2008). In those U.S. States which have liberalised their electricity sectors, household electricity prices are at least 10% higher than elsewhere (Marcus 2011).

Similar pricing trends are evident for Australia, the most liberalised electricity sector and hailed by the International Energy Agency as a restructuring role model (IEA 2005). As elsewhere, a rapid escalation in household electricity prices started about a decade after restructuring commenced in the mid-1990s.

During the five years to 2003-04, New South Wales (NSW) regulated household prices showed no real change although there were real increases of 5-11% in all other States and Territories except South Australia where prices stagnated before leaping 24% in real terms in 2003-04 (ESAA 2003). In the six year period to mid-2013, the average increase in NSW regulated household electricity prices was nearly 108%. This compares to more than 80% in Victoria, Queensland and Tasmania, and slightly less than 80% for households living in South Australia, Western Australia and the Northern Territory. Australian Capital Territory households experienced the smallest increase of slightly less than 71% (Table 2).

State/Territory	Annual change						Cumulative change		
	2007-08 (%)	2008-09 (%)	2009-10 (%)	2010-11 (%)	2011-12 (%)	2012-13 (%)	2007-08 to 2010-11 (%)	2007-08 to 2011-12 (%)	2007-08 to 2012-13 (%)
NSW	7.5	7.5	20.2	10.0	17.3	15.7	52.8	79.5	107.9
Victoria	7.3	7.4	13.5	6.0	12	18.0	39.3	56.0	84.0
Queensland	11.4	9.1	11.8	13.3	6.6	11.5	54.0	64.1	83.0
South Australia	12.3	2.5	2.0	18.2	17.4	8.9	38.8	62.9	77.4
Western Australia	0.0	10.0	23.6	10.0	5.0	12.5	49.6	57.0	76.7
Tasmania	15.7	3.9	7.0	15.3	11.0	10.6	48.3	64.6	82.0
NT	4.4	3.4	18.0	5.0	2.8	30.0	33.7	37.5	78.7
ACT	16.7	7.1	6.4	2.4	6.4	17.7	36.2	44.9	70.6

Source: Chester (2013: 2)

Table 2: Nominal Average Increases in Regulated Australian Household Electricity Prices, 2007-13²

The Concept of Household Energy Impoverishment

The overwhelming focus of research into the impact of higher household energy prices has been a phenomenon deemed ‘fuel poverty’ found in the UK, Ireland, Europe, U.S. and more recently, New Zealand (e.g., Boardman 1991; Buzar 2007; Healy 2004; Lloyd 2006). Fuel-poor households are considered to have energy costs which are excessive compared to overall household income (Heffner and Campbell 2011: 6). Boardman’s (1991) pioneering fuel poverty research exposed the causes to be a conjunction of low income, rising energy prices and poor energy efficiency in housing.

The official UK definition maintains that fuel poverty exists if a household needs to spend more than 10 per cent of its income on fuel to achieve an adequate level of warmth, and on all other energy services such as cooking and lighting.³ The rationale for 10 per cent was it represented twice the median energy expenditure which was deemed to be a disproportionate level (Boardman 2010). This definition can encompass households that clearly are not poor (Hills 2012: 6). The UK Fuel Poverty Review recommended a more meaningful measure of households below an income threshold of 60% of median income (after housing costs and adjusted for household size and composition) that have energy costs above a reasonable level.

The European Commission’s Energy Policy (2010) suggests that fuel poverty arises from a household using a broad group of energy sources, whereas energy poverty occurs when a household relies on only two energy sources, electricity and gas. The policy’s proposed definition of energy poverty is a pre-defined threshold share of overall household energy expenditure around twice the relevant national average (EC 2010: 16).

Growing Prevalence

Regardless of the definition, the incidence ... is growing (Heffner and Campbell 2011: 6). The numbers judged energy-poor are most prevalent in countries with restructured electricity sectors. Up to 150 million of the European population and 20% of UK households were estimated to be experiencing energy poverty in 2009 (Bird et al. 2010). Within the UK there are marked regional differences, with an

estimated incidence in Northern Irish households of 44% compared to 19% in England (DECC 2011: 11). As electricity prices dropped between 1996 and 2004, energy-poor English households fell to 1.2 million but rose up to four million by 2009 as electricity prices surged (Hills 2011: 32).

Some 13% (27 million) of EU households spend a considerable share of expenditures on household energy costs compared to national averages (EC 2010:16). Relying primarily on 2005 data, the national estimates range from six to nearly 20%, which would now be higher following more recent electricity price increases. Across the Atlantic, nearly 16 million U.S. households were energy-poor in 2006, and the difference between affordable and actual U.S. household energy bills jumped from US\$18.2 billion in 2002 to US\$41.2 billion by 2008 (Cohen 2008; Power 2006). In New Zealand, the estimated population living in energy poverty grew from 10-14% in 2006 to 23% in 2008 (O'Sullivan et al. 2011).

Data about the numbers of Australian energy-impooverished low-income households are more limited. Chester and Morris (2011) posit that energy impoverishment is a growing problem due to the high ownership rate of high energy use appliances, particularly for space cooling, and the proportions of income and expenditure spent on energy by low-income households.

Poor households spend higher proportions of income and expenditure on energy (Jamasp and Meier 2010a). In 2009-10, domestic fuel and power accounted for 2.6% of average weekly expenditures for all Australian households with electricity costs accounting for 75%. As household disposable income rises, a steadily declining proportion is spent on domestic energy. The poorest 20% of households in 2009-10 spent 4% of average weekly expenditures on domestic energy costs, double that of the richest households (Table 3).

Table 3 also shows the disproportionate impact of energy costs. In 2009-2010 the poorest income quintile, actually nearly 25% of Australian households, spent, on average, 7% of equivalised disposable income on household energy costs. This is nearly three times the proportion spent by the wealthiest households.

	2009-10					All	Second & third deciles
	Lowest	Second	Third	Fourth	Highest		
% of total households	24.5	18.2	18.1	18.6	20.6	100	21.3
Mean weekly income	\$314	\$524	\$721	\$975	\$1704	\$848	\$429
% of av. weekly expenditure	3.9	3.2	2.8	2.4	2.0	2.6	3.7
on domestic fuel and power							
% of av. weekly domestic fuel and power expenditure on electricity	76.3	75.0	74.6	75.7	74.3	75.1	n.a.
% of equivalised disposable income on domestic fuel and power	7.0	5.3	4.3	3.7	2.6	3.8	6.5
% of equivalised disposable income on electricity	5.4	4.0	3.2	2.8	1.9	2.9	n.a.

Source: Chester (2013: 4)

Table 3: Average Australian Household Expenditure on Energy, 2009-10⁴

The Impacts and Consequences for Low-income Households

A low-income household's capacity to meet escalating energy costs will be influenced by housing conditions, tenure and the capacity to change its energy demand. Draughty, poorly insulated, inadequately ventilated and older housing causing damp and mould growth, excess cold or excess heat, will drive energy use for space heating and cooling. Owner-occupiers are more likely to make energy efficiency improvements but may have insufficient financial resources to do so, whereas renters will not generally have the responsibility or right to make housing improvements to reduce energy use. Low-income households have much less capacity to influence housing energy efficiency to reduce their energy demand and stem the growth of energy bills as prices rapidly rise.

The ability of low-income households to adjust their energy demand also will be influenced by the size, composition and daily activities of the household, as well as the capacity to replace energy-inefficient appliances and adopt different household practices. A number of studies have found that the energy demand of low-income households is relatively price insensitive (e.g., Jamasp and Meier 2010b). Consequently, higher electricity prices can be expected to shift low-income household expenditure patterns because greater proportions of disposable income are needed for energy bills and less will be available to meet other essentials.

There is strong international evidence of increasing proportions of disposable income needed to pay ever-increasing electricity bills and of low-income households suffering considerable hardship to pay these bills (e.g., EPEE Project 2009). Strong correlations also have been found, in the UK and Europe, between fuel poverty and winter mortality, housing energy efficiency, self-disconnection, expenditure

trade-offs between food and energy, impacts on nutrition, physical and psychological health, as well as social exclusion, marginalisation and relationship breakdown (e.g., Gibbons and Singler 2009; Liddell and Morris 2010; McKendrick et al 2003). In the U.S., unusually cold weather has led low-income families to reduce their expenditures on food – the ‘heat or eat’ syndrome (Battacharya et al 2003).

Recent Australian research has found that the well-being, health and lifestyle of low-income Australian households are suffering from the cumulative effects of ever-increasing electricity bills over a period of many years (Chester 2013). Using only one room, shorter (or occasionally, no) showers, watching less television, rarely having friends or extended family at home to avoid using cooking appliances and/or the room temperature being uncomfortable, never or rarely leaving home, going to bed fully clothed (or early) to avoid the use of heating – these are some of the strategies that low-income Australian households are using to manage their energy use as they endeavour to control the size of bills. As a result of cutting expenditures on essentials such as food and reallocating expenditures on other items to pay energy bills, and making relatively severe changes in household practices to reduce energy use, these households are suffering physical discomfort, reduced physical and mental well-being, loneliness and social isolation, strains within household relationships, and distress about the social and emotional well-being of children.

Current Assistance for the Energy Impoverished

Generally not designed to address the specific problem, current policies are skewed towards temporary reactive financial assistance to limit the impact of energy prices or, and to a much lesser extent, provide short-term increases in household income. The dominant policy measures are social tariffs, concessions, rebates, and pre-payment meters supplemented by allowances such as the UK winter fuel payment or the Australian utilities allowance for income support recipients. Improvements to housing energy efficiency, such as insulation and retrofitting, are far more limited.

The majority of policy measures are so tightly targeted that they do not capture all those experiencing energy poverty (Chester and Morris 2011). Moreover, these measures are reactive, fragmented and do not provide widespread, long-term improvements to housing energy efficiency, a critical driver of energy use. Policy measures to improve energy efficiency and increase accessibility by low-income households, are relatively limited in scale compared to energy bill assistance and a focus on changing household behavioural practices rather than housing conditions to reduce energy use. Overall, current policy measures assisting low-income households do not ameliorate or eliminate the energy hardship experienced.

Footnotes

¹ Further steep increases are expected with the adoption of carbon pricing policies adopted given electricity generation’s high reliance on fossil fuels which contributes more than 40 per cent to global carbon emissions.

² Most Australian households can choose the company to supply their electricity. For those who have not chosen a ‘market contract’, their electricity prices are set by State and Territory government regulators. The prices paid by households under a market contract are not available. The changes in regulated prices, however, are a strong indicator of the experience of all Australian households.

³ World Health Organisation standards are used to define ‘adequate’ level of warmth. These are: 21 degrees Celsius in the main living room and 18 degrees Celsius in other occupied rooms during the day and lower temperatures at night.

⁴ These figures understate the current situation because they do not include the effect of the substantial Australian electricity price increases since mid-2010 (Table 1).

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