Energy impoverishment: Addressing capitalism's new driver of inequality

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Abstract:
A rapidly growing number of households are suffering energy impoverishment caused by escalating electricity prices, low income and poor housing energy efficiency. Many households are suffering considerable hardship to pay energy bills. This manifestation of inequality has followed the global restructuring of electricity sectors and its incidence has become widespread across Europe, the UK, US, New Zealand and Australia. Current policy measures generally resemble 'retrospective compensation' rather than addressing the root cause of the problem. This paper argues for a new policy approach that reconfigures electricity price formation in order to address this increasingly embedded social phenomenon.

Keywords: capitalism, energy, poverty, pricing
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1. Introduction

A rapidly growing number of households have become energy impoverished caused by escalating electricity prices, low income and poor housing energy efficiency. This social problem has emerged following the restructuring of electricity sectors which most countries have undertaken since the 1990s. One of the proclaimed benefits of this restructuring was lower consumer prices. Households, however, have experienced increases far in excess of general price and wage movements. During 2000-10 some European prices rose by more than 100 per cent, by over 160 per cent in Chile and by more than 200 per cent in New Zealand (Chester and Morris 2011). Households in the most populous Australian States experienced an average price increase of 108 per cent in the six years to June 2013 (Chester 2013).

Household energy bills have become non-discretionary expenditure for low-income households. There is no choice. An increasing number of low-income households, who have a limited capacity to reduce their energy use, are experiencing deprivation and social exclusion directly attributable to the payment of higher household energy costs. Many of these households are already suffering cumulative disadvantage (Gandy 2009).

This phenomenon of energy impoverishment is becoming widespread globally and is not confined to one particular form of capitalism. Capitalism's diversity is observable through differing configurations of its institutional architecture, or mode of *régulation,* although all share common features of production and consumption. The electricity sectors of each form of capitalism have been similarly restructured and, despite institutional differences, each form has responded with similar policy measures. These policies have not stemmed the growing numbers which suggests an approach to address this social problem lies not within the specific institutional architecture of these contemporary forms of capitalism but within the institutional changes commonly adopted – by all forms – to restructure electricity sectors. This is the motivation for this paper; to advance an approach which both addresses and ameliorates the increasingly embedded social phenomenon of energy impoverishment.

The paper is structured as follows. Section Two discusses the movement in household electricity prices following the global restructuring of electricity sectors. Section Three discusses the growing evidence of the circumstances for low income households of rapidly rising electricity prices. The assistance provided to address difficulties experienced with the payment of household energy bills is discussed in Section Four and Section Five concludes.

2. Structural change and household electricity prices

Electricity sectors around the world have undergone major structural change over the last 20 years or so. The competitive activities of generation and retail have been separated from the natural monopolies of transmission and distribution. Privatisations have occurred and many consumers can now choose their electricity supplier. New regulatory regimes regulation have created wholesale and retail markets, set prices for transmission and distribution network services, monitor the performance of companies, and represent consumer interests. These policy measures have transformed electricity sectors (Chester 2007).

One of the proclaimed benefits of electricity sector restructuring was lower consumer prices. Table 1 shows the movement in household electricity prices since 1990. These increases have been significantly above inflation and have most noticeably occurred since 2000.[1]

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 prices occurred between 1990 and 2000 which were reversed after restructuring was implemented (Canada, Ireland, US). Price cap regulation limited the increases for two late starters (Netherlands and Spain). For 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 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 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 per cent 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).

Table 1: Household electricity prices for selected countries, 1990-2010 (%)

Country	Change 1990-2000	Change 2000-10	Electricity sector restructuring
Canada	n.c.	79.2	Started in the late 1990s
Chile	109.8	166.3	Started 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

n.a. = Not available; n.c. = No change
Source: Chester and Morris (2011: 439).

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

Similar pricing trends are evident for Australia, the most liberalised electricity sector and hailed by the International Energy Agency (IEA) as a restructuring role model (IEA 2005). As elsewhere, a rapid escalation in household 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 per cent in all other States and Territories except South Australia where prices stagnated before leaping 24 per cent in real terms in 2003-04. In the six year period to mid-2013, the average increase in NSW regulated household electricity prices was nearly 108 per cent. This compares to more than 80 per cent in

Victoria, Queensland and Tasmania, and slightly less than 80 per cent 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 per cent (Table 2).

Table 2: Nominal average increases in regulated Australian household electricity prices, 2007-13 [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)

Electricity prices comprise a complex array of tariffs which represent four types of charges for the activities of generation, transmission, distribution and retail. The Australian price increases since mid-2007 are directly attributable to higher charges for transmission and distribution (network) services, and to a lesser extent the wholesale (generation) charge (AEMC 2011). Elsewhere, the same has occurred. Household electricity price increases have been driven by substantive increases in charges for network services (See, for example, OFGEM 2013). As noted earlier, electricity sector restructuring implemented new regulatory regimes for the pricing of the monopoly activities of transmission and distribution. These pricing regimes have sought to recover the cost of investment in transmission and distribution networks to replace ageing assets, to increase capacity to meet rising peak demand and to meet reliability and safety standards. Nevertheless, an unequivocal outcome has been a rapid escalation in household electricity prices due to the magnitude of the increased charges for network services permitted under post-restructuring regulation.

3. The impacts and consequences for low income households of higher prices

The overwhelming focus of research into the impacts of higher household energy prices has been a phenomenon deemed fuel poverty found in the UK, Ireland, Europe, US 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 the conjunction of low income, rising energy prices and poor energy efficiency of 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. 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 per cent 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).

'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 per cent 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 per cent compared to 19 per cent 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 per cent (27 million) of EU households spend a 'considerable share' of expenditure on household energy costs compared to national averages (EC 2010:16). Across the Atlantic, nearly 16 million US households were energy-poor in 2006, and the difference between 'affordable' and 'actual' US 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 per cent in 2006 to 23 per cent in 2008 (O'Sullivan et al. 2011). This is a widespread and growing social problem not confined to one country.

Poor households spend higher proportions of income and expenditure on energy (Jamasb and Meier 2010a). 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. Jamasb 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 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 US, unusually cold weather has led to 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 sustained 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 expenditure on essentials such as food and reallocating expenditure 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.

4. The current policy approach

Energy impoverishment as a problem is not recognised by the majority of countries where it is prevalent (EPEE Project 2009). The UK is the only country to formally recognise it as a distinct social problem. Consequently, current policies are not designed to address the specific problem and are skewed towards temporary reactive financial assistance to limit the impact of household 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 the energy impoverished (Chester 2013; 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 accessible by low-income households, are relatively limited in scale compared to energy bill assistance and focus on changing household behavioural practices not housing conditions to reduce energy use. Overall, current policy measures assisting low-income households do not ameliorate or eliminate the energy hardship experienced.

5. Concluding comments

The growing numbers of energy impoverished have not been stemmed and the impacts are becoming more embedded (Heffner and Campbell 2011). Policy measures, like social policy more generally and poverty-related programs, resemble 'retrospective compensation'. There is no welfare safety net as there is for income-related poverty. Policy responses focus on a particular overt sign of the problem. This approach fails to treat the overall manifestation of the

problem. It also is not preventative because the causes are not addressed, that is, the conjunction of rising energy prices, low income and poor housing energy efficiency.

Despite the role of price, electricity pricing debates are not engaging with this phenomenon and its consequences. Nor is energy impoverishment forming part of more general debates about income-related poverty, deprivation and social exclusion despite the growing body of evidence.

In the electricity pricing discourse, the social consequences are treated as the realm of social not economic policy. Pricing debates are structured around the recovery of the costs of electricity generation transmission, distribution and retailing. A pricing regulator may note the distributional impacts of a price increase and even advocate social policy solutions but these matters are not an integral part of the structure of electricity prices. The formation of electricity prices needs to be reframed to engage with the issue of energy impoverishment given the critical role that regulated prices for network services has played in the generation of energy impoverishment. The social inequalities discourse is skewed towards either the social structures which generate social inequalities or alternatively, the reduction of inequalities through tax and welfare redistributive mechanisms. The discourse about effective policy measures to address and eliminate energy impoverishment needs to identify the institutional solutions – price formation - to deal with the root *causes* of energy impoverishment not its *manifestation* (e.g. electricity bill arrears, disconnections) or *consequences* (e.g. deprivation, social exclusion). Second, solutions should not be sought within the confines of the welfare state. Policy measures to eliminate and prevent a reoccurrence of energy impoverishment need to be developed without embodying welfare.

Finally, energy debates are framed around a conception of the consumer as a buyer underpinned by assumptions about behaviour and energy use with shifts in electricity prices. Poverty, deprivation and social exclusion debates are framed around the impoverished as social beings within a broader living standards and participation framework. These two disconnected debates need to intersect and only then will effective policy measures be developed to ensure the energy consumer, as a social being, does not experience energy impoverishment.

ENDNOTES:

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.

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