Annual Update on Fuel Poverty and Health

December 2009
Public Health Policy Centre

Key points

- International and national evidence continues to demonstrate the impact of fuel poverty on health and well-being. Newly published studies confirm that these impacts extend across the lifespan, and are not confined to senior citizens.
- The economic downturn presents a formidable challenge to reducing fuel poverty on the island, creating pressure for the development of new and innovative approaches.
- Two new growth areas have emerged strongly in the past 12 months. These are smart metering and the experimental roll-out of sustainable technologies as a means of tackling fuel poverty.
- New inroads were made into tackling fuel poverty through maximising the household benefit uptake, especially in Northern Ireland.
- The audit of public housing stock by the Department of Environment, Heritage and Local Government in the Republic of Ireland was welcomed by stakeholders. An extension of this to privately owned, local authority and rented housing in the future would be welcome.
- Better commitment is required to standards in rental accommodation in both jurisdictions.
- The priority of fuel poverty for both governments is reflected in Northern Ireland's review of regional fuel poverty strategy, and in the Republic of Ireland's decision to develop its first affordable energy strategy.
- At a broader level, both governments have introduced policy measures to reduce expenditure and generate new revenue. These may have significant impacts on social welfare and public services in the near future, which means that the impact of such measures on fuel poverty merits scrutiny.
- Both governments have also introduced policies to protect the environment, including carbon taxation
 and banning of turf-cutting on protected bogs. These policies will impact on fuel poverty, and vigilance is
 needed.
- The inclusion of fuel poverty considerations in the Republic of Ireland's energy efficiency action plan is welcome.
- There have been significant improvements in energy efficiency in the residential sector in both jurisdictions, but progress could be faster and increasingly concentrated on reaching people who are fuel poor.
- Increasing emphasis is being placed on impacts of fuel poverty on working families, as well as impacts on infants and children. Lone caregivers remain a very vulnerable group.
- The role of utility regulators expanded with increased attention on protecting the rights of vulnerable customers.
- There is growing interest in the setting of social tariffs, although workable models have yet to reach the consultation stage in either jurisdiction.





Introduction



Fuel poverty means that some people are unable to afford to heat their homes to a level that is healthy and safe. Fuel poverty is caused by the interaction of high fuel prices, low income and poor energy efficiency in the home.

This paper follows on from the All-Ireland Policy Paper on Fuel Poverty and Health published by the Institute of Public Health in Ireland (IPH) in December 2007, and the Annual Update on Fuel Poverty and Health 2008.¹

It is clear that 2009 created particular challenges for the fuel poverty lobby. The combined impacts of a severe economic downturn, rising fuel prices, and a colder than average winter created unusual pressures. In response both jurisdictions introduced additional winter fuel subsidies.

It was a prolific year for public consultations, reviews of policy, and partnership building. A wide-ranging package of fuel poverty activities were undertaken, coordinated by governments, local authorities, and voluntary sector agencies. These had significant impacts on housing stock and household energy efficiency. Nevertheless, the prevalence of fuel poverty on the island, and its severity has continued to rise.

This paper presents some of the island's significant developments in policy, research, economics and the activities of the statutory, community and voluntary sectors during the past year.

Republic of Ireland 2009

JANUARY

Budget 2009 measures are implemented. Fuel allowance is increased by \leq 2 to \leq 20 a week and the duration increased from 30 to 32 weeks.

Despite overall cuts in most government departments, additional funding is allocated to the Warmer Homes Scheme. The scheme is operated by Sustainable Energy Ireland and includes a programme to tackle fuel poverty by improving the energy efficiency of low income housing. Electricity Supply Board (ESB) and Bord Gáis contribute an additional €5.2m; 15,000 homes are expected to benefit from the scheme in 2009.

HSE launches Keep Safe This Winter as part of the Keep Well This Winter information campaign. The Keep Well and Warm booklet is updated with 150,000 copies printed for distribution.

FEBRUARY

Houses rented from 1 February are required to comply with the Housing (Standards for Rented Houses) Regulations 2008.² Landlords must ensure houses are not subject to serious dampness and heating appliances are available in all rooms. Local authorities and certain housing bodies do not have to adhere to the new Regulations.

The National Insulation Programme for Economic Recovery is launched. The €100m scheme applies to low income and social housing as well as private homes and is estimated to benefit 50,000 homes. Householders are promised reductions in their heating bill of up to €700 per annum.

Bord Gáis announces that it is entering the residential electricity market, promising its bills will be 10% less than ESB.

MARCH

Winter 2008/09 confirmed by Met Eireann as coldest winter in 8 years.3

Incandescent light bulbs of 75 watts and over are removed from the market with a view to moving away from energy inefficient lighting.

Concern is raised over the impact of carbon tax on rural households. Irish Rural Link estimates that rural households spend more on coal and oil than urban households and as much as three times more on turf and peat.⁴

APRIL

A Supplementary Budget is announced to counteract the Republic of Ireland's deepening economic crisis. Working families are hit with income and pension levies and discontinuation of mortgage interest relief. Dáil debates focus on the fuel poverty impact of the loss of the Social Welfare Christmas bonus.

Proposals to means test the medical card for over 70s are strongly contested.

MAY

Bord Gáis reduces unit rates by 12%. ESB reduces unit rates by 10.3%.

Local authorities begin an audit of the public housing stock.

The National Energy Efficiency Action Plan is published. The Action Plan identifies 90 measures to reduce the Republic of Ireland's energy usage by 20% in 2020, with a chapter devoted to affordable energy. A number of measures are targeted at low income and vulnerable households.

ESB target 25,000 homes with the HALO scheme which offers a free energy efficiency assessment of the home.

Energy Efficiency in Ireland 2009 reports that energy efficiency in the residential sector improved by 15% between 1995 and 2007.

JUNE Rent supplement is reduced.

SEI announces that over 40,000 Building Energy Rating certificates (BER) have been issued since January 2009. The BER enables house buyers and tenants to assess the energy effficiency of a house prior to purchase or rental decision.

Consultation opens on the National Positive Ageing Strategy.

JULY

The report from the Special Group on Public Service Numbers and Expenditure Programmes (the McCarthy Report) recommends that the responsibility for the Warmer Homes Scheme be transferred to the energy suppliers, as part of their licence obligations.

The Republic of Ireland's unemployment rate soars to 12.2%, double the rate in 2008. IBEC estimate that across the economy, wages will fall by 3% and consumer spending will fall by 8.7% in 2009.5

The World Health Organization publishes the first indoor air quality guidelines on dampness and mould.6

Eirgrid reports a fall for demand in electricity of 4-5% as the recession hits business and domestic power consumption.

The Interdepartmental Group on Affordable Energy is asked to produce an Affordable Energy Strategy for consultation by end 2009.

AUGUST

Concerns are raised over the fuel poverty impact on around 1000 rural households from legislation banning turf cutting in 30 raised bogs.

New data on fuel poverty, based on the EU Survey of Income and Living Conditions 2007 7 is released.8

The Department of Communications, Energy and Natural Resources publishes the Energy Demand Reduction Target Programme for consultation. The draft programme seeks to establish views on the introduction of a new programme to deliver energy efficiencies and the extent to which low income households should be targeted.

SEPTEMBER The Commission on Taxation recommends the introduction of a carbon tax and that the carbon tax revenue be used to combat fuel poverty.9 Age Action warns that the tax should not be introduced until the necessary measures are in place to protect frail older people who are already struggling to heat their homes.¹⁰

> Rural Link seeks a compensation package for families no longer allowed to cut turf and a consideration of the limited ability of rural households to switch fuels.

The Commission for Energy Regulation approves a reduction in the price of gas by 9.8%, ESB reduces price by 0.2%.

OCTOBER

The Commission for Energy Regulation publishes a Draft Strategic Plan 2010-2014 for consultation. This proposes how the Commission will ensure that energy prices charged are fair and reasonable.¹¹

ESB reports an increase in the number of customers having difficulty paying bills on time. Special Payment Arrangements operated by ESB increased from 49,000 in 2008 to 78,000 in 2009.

The Department of Social and Family Affairs report that 318,000 households are in receipt of fuel allowance in 2009, at a cost of €217m, an increase of €50m since 2007. In 2009, 373,000 households received a Household Benefits package at a cost of €220m, an increase of €60m.

A renewed Programme for Government is agreed which commits to publishing a Fuel Poverty Strategy by the end of 2009. It also commits to the introduction of a carbon tax in Budget 2010, but states those most at risk of fuel poverty will be protected.

The 2007 EU-SILC Survey: Fuel Poverty in Ireland

The European Union produces annual statistics on the income and living conditions of citizens in EU member states. The 2007 survey ⁷ asked several questions related to fuel poverty. These include:

- a) Has the household had to go without heating in the last 12 months?
- b) Has the household been unable to afford to keep the house adequately warm in the last 12 months?
- c) Has the household been in arrears with energy bills in the last 12 months?

In the 2007 EU-SILC Survey 14,115 Irish householders were surveyed.

Number of households in fuel poverty

Fuel poverty is defined in many different ways, depending on the country and the research team. For the purposes of this update fuel poverty is defined in the way described below.

In fuel poverty – is defined as a head of household answering yes to one or more of the three questions listed above. Of this group:

One indicator – is defined as a head of household answering yes to one of the three questions.

Two or more indicators – is defined as a head of household answering yes to two or more of the questions.

By measuring fuel poverty in this way, utility bill debt can be incorporated into the way fuel poverty is defined. Debt may become an increasingly common element of fuel poverty definitions in the future.

Table 1. Households in fuel poverty according to the EU-SILC Survey 2007.8

Fuel Poverty	No. of indicators of fuel poverty	%	Estimated number of Irish households in fuel poverty based on the EU-SILC survey
Not in fuel poverty		90.5%	
In fuel poverty		9.5%	146,597
	Has one indicator of fuel poverty	5.4%	83,109
	Has two or more indicators of fuel poverty	4.1%	63,488

Table 1 indicates that, in 2007, over 9% of Irish households were estimated as being in fuel poverty using the present methodology. This amounts to more than 146,000 households. Of these, over one-third had suffered a more severe form of fuel poverty, having experienced two or more indicators of fuel poverty in the last 12 months.

Types of households in fuel poverty

As can be seen from Table 2, lower rates of fuel poverty seem to be found amongst pensioners. This may reflect, at least in part, the extent to which senior citizens have been effectively targeted through fuel poverty strategies. It may also reflect the reluctance of senior citizens to declare an inability to afford warmth, or to acknowledge the fact that they have been in arrears with a utility bill. Either way, when lone and couple pensioner households are combined, more than 13,000 of these households were still experiencing fuel poverty in 2007.

Table 2. Households in fuel poverty by selected family types.8

Household type	One indicator of fuel poverty	Two or more indicators of fuel poverty	All fuel poverty	All fuel poverty Estimated number of households
Lone pensioner	3.3%	1.7%	5.0%	7,656
Pensioner couple	2.2%	1.5%	3.7%	5,870
Couple under 65 years without children	4.4%	3.3%	7.7%	17,770
Single caregiver and child/children	21.9%	15.4%	37.3%	37,251
Couple and child/children	4.2%	3.3%	7.4%	26,082

The highest prevalence of households in fuel poverty is found amongst lone caregivers with children. Over one-third of these households experienced fuel poverty in 2007 – this represents more than 37,000 homes. High levels of fuel poverty among lone caregivers with children has also been reported in Northern Ireland: in 2006, 48% of lone caregiver households were in fuel poverty.¹²

Fuel poverty and income

Although fuel poverty is significantly more likely to be experienced by lower income households, it is not confined to low income households. Table 3 indicates that almost as many low-middle income households experienced fuel poverty (15%) as did lowest income households (16.6%). Furthermore, over 10% of middle income households reported having experienced fuel poverty in the previous 12 months.

Table 3. Fuel Poverty and income levels* 8

Income level of household	One indicator of fuel poverty	Two or more indicators of fuel poverty	All fuel poverty
Lowest income	8.0%	8.6%	16.6%
Low-Middle income	8.3%	6.7%	15.0%
Middle income	5.9%	4.3%	10.2%
Middle-High income	2.7%	0.9%	3.6%
Highest income	2.0%	0.0%	2.0%

* Lowest income = deciles 1 and 2 Low-Middle income = deciles 3 and 4 Middle income = deciles 5 and 6 Middle-High income = deciles 7 and 8 Highest income = deciles 9 and 10

These results illustrate that fuel poverty is not synonymous with income poverty. Successful approaches to fuel poverty must address the energy efficiency of the house as well as provision of adequate income.

Health impacts of fuel poverty

Over the past 2 years, a convincing scientific evidence base has accrued which demonstrates the impacts of fuel poverty on human health.¹³ Studies from North America, New Zealand, the UK, and elsewhere in Europe indicate impacts on infants, children, adolescents, and people over 50 years old – a wide-ranging age span. Impacts are found in the domains of both physical health and mental wellbeing.

Respondents in the EU-SILC Survey were asked to assess their general health status on a scale from "very good" to "very bad". Health status is affected by many factors including: age, poverty, and smoking history. Preliminary analysis indicates that, after taking into account the contributions these made to people's assessments of their general health, fuel poverty had a significant and independent impact. Over and above the impacts of age, income poverty and smoking, fuel poverty seems to exert a detectable effect on people's assessment of their health status. People who had not experienced fuel poverty in the past 12 months were significantly more likely to rate their health as very good. Similarly, people who had experienced two or more indicators of fuel poverty in the past 12 months rated themselves as in significantly poorer health than people who experienced only one indicator. This is illustrated in Figure 1.

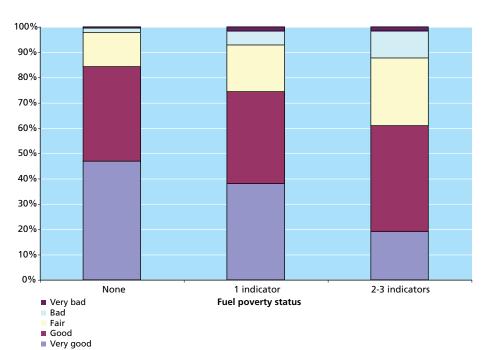


Figure 1. Self-reported general health status and fuel poverty.8

Northern Ireland 2009

JANUARY

The first Cold Weather Payments of 2009 are issued after temperatures fall to 0°C and lower for 7 consecutive days.

Northern Ireland Authority for Utility Regulation publishes a Decision Paper on the Social Action Plan for 2009-2012. Protecting vulnerable households and access to affordable energy are key themes.

Save the Children NI briefs the Committee for Social Development on the need for more investment in projects which tackle the impacts of fuel poverty on children.

Macmillan Cancer Trust calls on government to extend the Winter Fuel Payment Scheme to cancer patients. It estimates that 85% of people in Northern Ireland who received a Macmillan grant need help with fuel costs.

Western Health Action Zone launches the Warm Zones pilot project, tackling fuel poverty in 450 homes across 3 at-risk communities.

FEBRUARY

Utility Regulator convenes an Academic Advisory Panel to undertake research and intervention work in fields such as fuel poverty, energy supply, and harmonised markets.

In addition to the customary annual Winter Fuel Payment, which varies between £125 and £400 depending on age and circumstance, Minister Margaret Ritchie announces an additional Household Fuel Payment. This comprises a one-off payment of £150 for vulnerable households.

National Energy Action (NEA) hosts a conference in Belfast called "Action on Fuel Poverty. Finding it. Fixing it". Guest speakers include Emeritus Fellow Brenda Boardman, Oxford University, Environmental Change Institute.

Northern Ireland Electricty launches a pilot Hard To Treat Homes project. Approximately 60 homes will be upgraded to a high standard of energy efficiency and followed up over time to assess the impacts on fuel costs, health and wellbeing.

MARCH

Northern Investing For Health Fuel Poverty Partnership gives evidence on best practice in delivering local area models to the Committee for Social Development.

Strabane District Council publishes a Health Impact Assessment of 2,501 homes which took part in a Home Heating Conversion Programme.¹⁴ Air quality monitoring demonstrated a halving of black smoke and PM10 concentrations in Strabane. Returns to the scheme from NHS savings were estimated to have made the scheme cost-neutral.

APRIL

Utility Regulator publishes a new 5-year Corporate Strategy.¹⁵ A strategic priority is the protection of vulnerable customers.

Led by the Older People's Advocate - Joan Harbison - the British Psychological Society presents evidence in Stormont, concerning the relationship between fuel poverty and risks to healthy ageing.

NEA launches Phase 2 of Northern Exposure, a community-based fuel poverty project in North and West Belfast. Key to Phase 2 will be a strong emphasis on introducing sustainable technologies.

MAY

The annual conference of the UK Home Energy Conservation Association is held in Belfast. This is the first time the conference has been held outside Great Britain. Over 200 delegates attended.

Queen's University Belfast hosts a Green Deal event chaired by Dr. John Barry, Lecturer and Green Party member. The focus is on tackling the 'triple crunch' of job losses, fuel poverty and climate change.

JUNE

A new Benefits Uptake programme is launched, in the wake of a report which shows that the Social Security Agency's 2008/09 Benefit Uptake Programme resulted in 4,000 people receiving an average of £50 a week more in income.

NEA briefs the Energy Efficiency Partnership for Homes in London on the impact of Northern Ireland's Home Energy Payment Awareness Campaign.

Northern Investing For Health Fuel Poverty Partnership briefs colleagues on delivery models and efficacy at the Low Carbon Building Exchange in London.

JULY

Social Development Minister Margaret Ritchie launches the new Warm Homes Scheme. Changes to the scheme include a greater emphasis on insulation measures, and a widening of eligibility criteria to include more families with children. Households on qualifying benefits with no central heating, solid fuel heating, Economy 7 or Liquid Petroleum Gas heating will be targeted.

Department for Enterprise, Trade and Investment launches a public consultation on the draft Strategic Energy Framework.

AUGUST

Utility Regulator publishes a Social Action Plan for 2009-2012.16 Core to the Plan is a strategy focused on protecting vulnerable groups and ensuring access to services.

Noel Williams, Director of the Energy Saving Trust in Northern Ireland, is appointed Chair of the Northern Ireland Fuel Poverty Advisory Group. He succeeds John McMullan, Chief Executive of the Bryson Charitable Group.

SEPTEMBER The UK Department of Energy and Climate Change launches the £10m Low Carbon Communities Challenge, a 2 year programme to support 20 'test-bed' communities in England, Wales and Northern Ireland.

> Following a year of steadily rising energy prices, significant falls in prices for the consumer are announced. These include electricity, which has fallen 16% since January, and gas by 19%.

NEA launches the Affordable Warmth Campaign. This campaign will run for three years with the central goal of eradicating fuel poverty amongst the older population in Northern Ireland. The campaign is supported by The Atlantic Philanthropies.

Utility Regulator publishes a review of the Energy Efficiency Levy.¹⁷ It is to be renamed the NI Sustainable Energy Programme (NISEP). The amount available in the scheme will be £7.34m in 2009/10, an increase of 16% over the previous year. The proportion of the scheme which is ring-fenced to tackle fuel poverty among vulnerable customers remains the same as previously, at 80% of the fund. Fewer whole-house solutions are likely to be funded.

Northern Ireland Assembly debates the introduction of a social tariff. It is estimated that a social tariff would cost £76 million, if it were to provide a £300 payment to the 34% of households in Northern Ireland that are estimated to be fuel poor. Concerns are raised as to how such an amount will be raised.

OCTOBER

Department for Social Development launches a review of the Fuel Poverty Strategy which has been in place since 2004. The review will reflect current status, capture innovations, and explore how future plans can reflect best practice.

The 13th Annual Energy Savings Week is launched by Energy Saving Trust. The Trust estimates that each home in Northern Ireland can save around £300 a year by insulating, improving their heating system and being energy efficient.

Northern Ireland Assembly publishes a library research paper reviewing Fuel Poverty in Northern Ireland. Key themes include limitations of the "10% of income on heating" definition of fuel poverty, the need for better targeting through data-sharing, and the importance of data being made available at District Council level.

The 7th Annual Progress Report on Fuel Poverty in the UK is published.¹⁹ For Northern Ireland, 84% of Housing Executive stock, and 99% of Housing Association stock met the thermal comfort element of the Decent Homes Standard.

The Oil Stamp Saving Scheme, which helps customers save gradually for an oil tank refill, celebrates its first anniversary. The Scheme was originally piloted by St. Vincent de Paul, and is now also run by several Councils. Stamps are sold in local retailers throughout Northern Ireland.

References

- 1. McAvoy, H. All Ireland Policy Paper on Fuel Poverty and Health. Dublin: Institute of Public Health in Ireland; 2008. Available from: http://www.publichealth.ie/files/file/FuelPoverty 0.pdf
- 2. Office of the Attorney General. Housing (Standards for Rented Houses) Regulations 2008 Statutory Instrument No. 534. Dublin: Irish Statute Book; 2008. Available from: http://www.irishstatutebook.ie/2008/en/si/0534.html
- 3. Met Eireann. Monthly Winter Bulletin The Weather of Winter 2008/09. Dublin: Met Eireann; Feb 2009;274:16. Available from: http://www.met.ie/climate/monthlyBulletins/feb09_lores.pdf
- 4. Irish Rural Link. Ignoring rural realities: The Implications of a Carbon Tax for Rural Ireland. Meath: Irish Rural Link; 2009. Available from: http://www.irishrurallink.ie/Publications/IRL%20Briefing%2009.01%20Carbon%20Tax%20and%20Rural%20Ireland.pdf
- 5. IBEC. Quarterly Review Economic Trends July 2009. Dublin: IBEC; 2009. Available from: http://www.ibec.ie/IBEC/Publications.nsf/vPages/Economic_Trends~economic-trends---july-2009-22-07-2009/\$File/Economic%20Trends%20July%2009.pdf
- 6. World Health Organization Europe. WHO Guidelines for Indoor Air Quality Dampness and Mould. Copenhagen: World Health Organization; 2009. Available from: http://www.euro.who.int/document/E92645.pdf
- 7. Eurostat. Survey on Income and Living Conditions. Luxembourg: Eurostat; 2007.
- 8. Central Statistics Office. EU Survey on Income and Living Conditions (EU-SILC). Dublin: Central Statistics Office; 2007. Available from: http://www.cso.ie/releasespublications/pr_EUSILC.htm
- 9. Commission on Taxation. Commission on Taxation Report 2009. Dublin: The Stationery Office; 2009. Available from: http://www.commissionontaxation.ie/downloads/Commission%20on%20Taxation%20Report%2 02009.pdf
- 10. Age Action Ireland. Poorest older people must be protected from impact of proposed carbon tax [press release]. Dublin: Age Action Ireland; 7 Sept 2009. Available from: http://www.ageaction.ie/news124.htm

- 11. Commission for Energy Regulation. Draft Strategic Plan 2010-2014 for Stakeholders Comments. Dublin: Commission for Energy Regulation; 2009. Available from: http://www.cer.ie/en/about-us-strategic-plan.aspx?article=d60a49e4-4167-4119-95f7-99844e9f397a
- 12. Liddell, C. The Impact of Fuel Poverty on Children. Belfast: Save the Children Northern Ireland; 2008. Available from: http://www.savethechildren.org.uk/en/docs/The_Impact_of_Fuel_Poverty_on_Children_Dec_08.pdf
- 13. Liddell, C. Tackling Fuel Poverty and Impacts on Human Health: A Review of Recent Evidence. Belfast: University of Ulster; 2009. Available from: http://www.science.ulster.ac.uk/psyri/
- 14. Liddell, C. A Health Impact Assessment of Strabane District Council Heating Conversion Programme. Coleraine: University of Ulster; 2009.
- 15. Utility Regulator. Corporate Strategy 2009-2014. Belfast: The Northern Ireland Authority for Utility Regulation; 2009. Available from: http://www.niaur.gov.uk/uploads/publications/Corporate_Strategy_2009-14.pdf
- 16. Utility Regulator. Social Action Plan Decision Paper 2009-2012. Belfast: The Northern Ireland Authority for Utility Regulation; 2009. Available from: http://www.niaur.gov.uk/uploads/publications/2009-08-11_SAP_Decision_Paper_2009-2012.pdf
- 17. Utility Regulator. Decision Paper on a Framework for the Northern Ireland Sustainable Energy Programme. Belfast: The Northern Ireland Authority for Utility Regulation; 2009. Available from: http://www.niaur.gov.uk/uploads/publications/2009-09-15_Decision_Paper_on_NISEP_Framework.pdf
- 18. Northern Ireland Assembly. Fuel Poverty in Northern Ireland Research Paper 89/90. Belfast: Research and Library Services; 2009. Available from: http://www.niassembly.gov.uk/researchandlibrary/2009/8909.pdf
- Department of Energy and Climate Change. UK Fuel Poverty Strategy 7th Annual Progress
 Report. London: Department of Energy and Climate Change; 2009. Available from:
 <a href="http://www.decc.gov.uk/en/content/cms/what_we_do/consumers/fuel_poverty/strategy/str

Please note that all documents listed in the references can be accessed through the Fuel Poverty Collection on the All-Ireland electronic Health Library (www.AleHL.org). The All-Ireland Policy Paper on Fuel Poverty and Health and this update document can be downloaded from the Institute of Public Health in Ireland website www.publichealth.ie



Institute of Public Health in Ireland

5th FloorForestviewBishop's SquarePurdy's LaneRedmond's HillBelfastDublin 2BT8 7 ZX

Tel: +353 1 478 6300 Tel: +44 28 90 648494 Fax: +353 1 478 6319 Fax: +44 28 90 646604

Email: info@publichealth.ie www.publichealth.ie

Design: www.slickfish.ie