

Fixing Fuel Poverty

Challenges and Solutions

Brenda
Boardman

First published by Earthscan in the UK and USA in 2010

Copyright © Brenda Boardman, 2010

All rights reserved

ISBN: 978-1-84407-743-4 hardback
978-1-84407-744-1 paperback

Typeset by MapSet Ltd, Gateshead, UK
Cover design by Susanne Harris

For a full list of publications please contact:

Earthscan

Dunstan House
14a St Cross Street
London EC1N 8XA, UK
Tel: +44 (0)20 7841 1930
Fax: +44 (0)20 7242 1474
Email: earthinfo@earthscan.co.uk
Web: www.earthscan.co.uk

22883 Quicksilver Drive, Sterling, VA 20166-2012, USA

Earthscan publishes in association with the International Institute
for Environment and Development

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data

Boardman, Brenda, 1943-

Fixing fuel poverty : challenges and solutions / Brenda Boardman.
p. cm.

Includes bibliographical references and index.

ISBN 978-1-84407-743-4 (hbk.) — ISBN 978-1-84407-744-1 (pbk.) 1. Poor—
Energy assistance—Great Britain. 2. Dwellings—Energy consumption—Great
Britain. 3. Energy consumption—Government policy—Great Britain. 4. Energy
policy—Great Britain. I. Title.

HC260.P63B59 2010
362.5'83—dc22

2009031019

At Earthscan we strive to minimize our environmental impacts and carbon footprint through reducing waste, recycling and offsetting our CO₂ emissions, including those created through publication of this book. For more details of our environmental policy, see www.earthscan.co.uk.

This book was printed in the UK by TJ International,
an ISO 14001 accredited company. The paper used
is FSC certified and the inks are vegetable based.



Mixed Sources

Product group from well-managed
forests and other controlled sources
www.fsc.org Cert no. SCS-COC-2482
© 1996 Forest Stewardship Council

Fixing Fuel Poverty

Over many years, I have been indebted to John Chesshire for his support, wisdom and positive perspectives on the problems of fuel poverty – he read and commented favourably on Chapters 1 and 2 in June. His death in September 2009 has robbed the energy research community of a tireless champion for social justice. John's compatriot since 2003 on the Fuel Poverty Advisory Group for England was the redoubtable Peter Lehman, who died in November 2008. They were formidable advocates for the fuel poor, and I dedicate this book to the memory of both of them, in the hope that those of us who continue to battle on behalf of the fuel poor can replicate their commitment, compassion and perceptiveness.

Preface

This is my second book on fuel poverty. The first one, *Fuel Poverty: From Cold Homes to Affordable Warmth* (Boardman, 1991) identified the problem and proved that it existed – there was considerable political scepticism at the time. The book also contained the first quantified definition of fuel poverty: it occurs when a household is unable ‘to have adequate energy services for 10 per cent of income’ (Boardman, 1991, p227). This applies to heating, hot water, lighting and all the other energy services within the home, not just warmth.

That book differentiated between the causes and symptoms – otherwise too much emphasis is placed on the immediate problems, such as fuel debts, disconnections and cold homes, without solving the underlying reasons. While fuel prices and low incomes contribute, these are also problems for many people who are not fuel poor. With fuel poverty, the real differentiating cause is the energy inefficiency of the home as a result of insufficient capital expenditure on improving the calibre of the home. As a consequence, the home is expensive to heat and so some of the poorest people have to buy the most expensive warmth. This emphasis on capital expenditure is what differentiates fuel poverty from poverty. Raising incomes can lift a household out of poverty, but rarely out of fuel poverty.

That first book resulted from my doctoral thesis, completed in 1988, so much of the data in it are now over 20 years old, including the basis for the original – and continuing – definition of fuel poverty. It is an appropriate moment to reassess where we have got to and what policies are needed. This has been confirmed by the substantial growth in the numbers living in fuel poverty since 2004 as a result of rising fuel prices. Something is going badly wrong as about one fifth of all UK households are now living in fuel poverty.

Two other major influences have shaped this book: my work with the Lower Carbon Futures (LCF) team at the University of Oxford and with Friends of the Earth. The report *40% House* (Boardman et al, 2005) produced by the LCF team provided the background study on how to reduce the carbon emissions from the housing sector by 60 per cent by 2050. Then, early in 2007, I was commissioned by Friends of the Earth and The Co-operative Bank to look at the opportunities and policies for achieving an 80 per cent cut in the residential sector, together with the eradication of fuel poverty. This resulted in *Home Truths* (Boardman, 2007). I continued to work with Friends of the Earth

on fuel poverty by providing the witness statements for the judicial review of the UK government's policies on fuel poverty, which it launched with *Help the Aged* in February 2008. The discipline, research focus and positive enthusiasm that have come from working with these two groups have been of enormous benefit to me.

A new imperative is the way in which fuel poverty is occurring in other countries. Back in 1991, the UK was the best-known example, with similar problems found in Ireland and New Zealand. Now, in Europe, it is the countries of the former Soviet Union where there is growing evidence of fuel poverty. As their planned economies change to liberalized energy markets and subsidies are removed, the cost of heating and energy are no longer negligible, but a major part of the weekly budget. It is to be hoped that the debates in this book on the lessons from the UK can be useful in other countries, where fuel poverty is, sadly, growing.

A final imperative that is influencing the coverage of this book is the debate about the way in which action on climate change and on fuel poverty can be synchronized and whether it is inevitable that conflicts will occur. The issue of fuel poverty has an important environmental dimension: the fuel poor tend to live in energy-inefficient properties and these are, per pound of fuel expenditure, the most polluting. Action to improve the homes of the fuel poor is action on climate change.

This book does not repeat the details in the former book – for instance, on the early history and evidence of fuel poverty; nor does it deal with the underlying science – for example, on the way in which heat is lost from homes and the efficiency of boilers. Neither book extends beyond the home into other forms of energy use (e.g. for travel).

What I am doing is reassessing the evidence on the causes of fuel poverty, the effectiveness of the policies that have been implemented and identifying some possible new initiatives. This is loosely for the period since 2000; but there is, sometimes, a gentle reaching back a bit further, to bridge the gap with the first book. The future perspective is strongly linked to the government's legal obligation to end fuel poverty by 2016, though the climate change debate has a much further horizon.

The majority of the evidence provided has come from government or respected academic sources – it is a synthesis of the evidence that is already out there and not new primary data. The justification is that this is a horribly interdisciplinary subject and it has taken me considerable effort to make any sense of the existing information. At times, I am clearly defeated; but this is not for want of trying. Perhaps some of the conundrums I have uncovered will be of assistance to your thinking. It would be wonderful if the government could simplify its definitions and policies in order to make the whole process of understanding fuel poverty easier. After all, it is a relatively simple concept.

One of the underlying themes is based on a memorable study that I used in the first book. In 1986, Karen Smith interviewed elderly private tenants in the London borough of Kensington and Chelsea about their housing conditions.

She gave this study the apt title of ‘I’m Not Complaining’. It refers to some of those in society who live their lives in considerable hardship, but who prefer not to do anything that might jeopardize their quite fragile existence: they do not want to risk it getting worse, so they continue to suffer in silence. I believe that this group of people are likely to experience some of the worst fuel poverty; but we don’t know about them. So I have consistently demonstrated where they could be found. A guess, but finding the hidden is never easy. This is what they said (Smith, 1986):

They won’t do the repairs. They’re just waiting for me to die.
(p24)

I don’t say anything about the repairs. My main problem is being able to stay here ... the landlord wants to convert the house into luxury flats. (p25)

I won’t apply for a grant, because I have to ask for the landlord’s permission. Even if I did something which is legal, he might put the rent up. (p27)

My landlord grudges to pay out for repairs. But he never bothers me so I can’t say that he is unreasonable. (p34)

I’m frightened to go to the toilet in case I lose my balance and fall down the basement. But I’ve got used to it now. I’m not complaining. (p37)

References

- Boardman, B. (1991) *Fuel Poverty: From Cold Homes to Affordable Warmth*, Belhaven, London
- Boardman, B. (2007) *Home Truths: A Low-Carbon Strategy to Reduce UK Housing Emissions by 80% by 2050*, Research report for the Co-operative Bank and Friends of the Earth, London, www.for.co.uk/resource/reports/home_truths.pdf
- Boardman, B., Darby, S., Killip, G., Hinnells, M., Jardine, C. N., Palmer, J. and Sinden, G. (2005) *40% House*, Environmental Change Institute, University of Oxford, Oxford, UK, www.eci.ox.ac.uk/research/energy/downloads/40house/40house.pdf
- Smith, K. (1986) ‘I’m Not Complaining’: *The Housing Conditions of Elderly Private Tenants*, Kensington and Chelsea Staying Put for the Elderly Ltd in association with SHAC, London

Acknowledgements

Within the Lower Carbon Futures team at the Environmental Change Institute, I am particularly grateful to Nick Eyre, my successor, for his acute observations and to Noam Bergman, Sarah Darby, Tina Fawcett, Mark Hinnells, Chris Jardine, Gavin Killip and Allen Shaw for reading chapters and helping to develop my ideas.

At Friends of the Earth, my inspiration is Ed Matthew, with strong support from the legal team of Phil Michael and Laura Gyte.

Many other people have kindly given of their time and expertise to read some of the text and advise me on the intricacies and nuances of policy: William Baker; Ron Campbell; Martin Evans; Jack Hulme, Norrie Kerr; Jim Kitchen; Christine Liddell; Phil Matthews; Stephen McCulla; Douglas McIlldoon; JohnMcMullan; Catherine Mitchell; Dick Moore; Chris Morris; Tim Nicholson; Ian Preston, Noel Rice, Simon Roberts; Les Shorrocks; Steve Thomas; Joanne Wade; Damon Wingfield and Phil Wright.

My thanks to the two reviewers of the initial proposal to Earthscan, who both backed it and provided challenging observations. I hope I have lived up to their expectations.

Lastly, my ever-patient and supportive husband, John, has coped with being a book widower with great understanding and tolerance – we can now be sociable again.

Abbreviations

AHC	after housing costs
APPEEL	Awareness Programme for Policy-Makers in Energy Efficiency in Low-Income Housing
BEC	benefit entitlement check
BERR	UK Department for Business, Enterprise and Regulatory Reform (now BIS)
BHC	before housing costs
BIS	UK Department for Business, Innovation and Skills
BRE	Building Research Establishment
BREDEM	Building Research Establishment Domestic Energy Model
CCC	Climate Change Committee
CERT	Carbon Emissions Reduction Target
CESP	Community Energy Saving Programme
CFL	compact fluorescent light bulb
CH ₄	methane
CHP	combined heat and power
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalent
CRAG	carbon reduction action group
CSH	Code for Sustainable Homes
DCLG	UK Department for Communities and Local Government
DD	direct debit
DECC	UK Department of Energy and Climate Change
Defra	UK Department for Environment, Food and Rural Affairs
DETR	UK Department of the Environment, Transport and the Regions
DHS	Decent Homes Standard
DLA	disability living allowance
DOE	UK Department of the Environment
DOH	UK Department of Health
DSDNI	Department for Social Development in Northern Ireland
DSO	Departmental Service Order
DTI	UK Department of Trade and Industry (subsequently BERR)
DWP	UK Department for Work and Pensions

EAGA	Energy Action Grants Agency
EAPN	European Anti-poverty Network
ECE	Eastern and Central Europe
EEC	Energy Efficiency Commitment
EEPE	European Fuel Poverty and Energy-Efficiency Project
EFRA	Environment Food and Rural Affairs
EESOP	Energy Efficiency Standards of Performance
EHCS	<i>English House Condition Survey</i>
ENDS	Environmental Data Services
EPC	Energy Performance Certificate
EU	European Union
EU ETS	European Union Emissions Trading Scheme
EU-SILC	Eurostat Survey on Income and Living Conditions
EWD	excess winter death
FPAG	Fuel Poverty Advisory Group
FPI	Fuel Price Index
g	gram
GB	Great Britain (England, Wales and Scotland)
GHG	greenhouse gas
HBAI	households below average income
HECA	Home Energy Conservation Act
HEES	Home Energy Efficiency Scheme
HHSRS	Housing Health and Safety Rating System
ICT	information and computer technology
ISMI	income support for mortgage interest
kg	kilogram
kWh	kilowatt hour
LAA	Local Area Agreement
LCF	Lower Carbon Futures
LCZ	low-carbon zone
LED	light-emitting diode
LESA	Landlord's Energy Saving Allowance
LPG	liquid petroleum gas
LSP	Local Strategic Partnership
LZC	low- and zero-carbon technology
m	metre
MIS	minimum income standard
MP	member of parliament
NatCen	National Centre for Social Research
NHER	National Home Energy Rating
NHS	National Health Service
NI	National Indicator, with appropriate number (as in NI 187)
NI	Northern Ireland
NIAUR	Northern Ireland Authority for Utility Regulation
NIEES	Northern Ireland Electricity Energy Supply

ODPM	UK Office of the Deputy Prime Minister
OECD	Organisation for Economic Co-operation and Development
Ofgem	Office of the Gas and Electricity Markets
PG	Priority Group
Poca	Post Office card account
pph	people per household
PPM	prepayment meter
PSA	Public Service Agreement
RdSAP	reduced Standard Assessment Procedure
RO	Renewables Obligation
RPI	Retail Price Index
RSL	Registered Social Landlord
SAP	Standard Assessment Procedure
SC	standard credit
SDC	Sustainable Development Commission
SEEDA	South-east England Development Agency
SEG	socio-economic group
SHQS	Scottish Housing Quality Standard
SO	Supplier Obligation
SOA	Single Outcome Agreement
SSE	Scottish and Southern Electricity
TUC	Trades Union Congress
TWh	terawatt hour
UK	United Kingdom (Great Britain and Northern Ireland)
UNICEF	United Nations Children's Fund
VAT	value added tax
W	watt
WF	Warm Front
WFP	winter fuel payment
WHECA	Warm Homes and Energy Conservation Act 2000
WHO	World Health Organization
WZ	Warm Zone

Contents

<i>Figures and Tables</i>	<i>xi</i>
<i>Preface</i>	<i>xv</i>
<i>Acknowledgements</i>	<i>xix</i>
<i>Abbreviations</i>	<i>xxi</i>
1 Political Recognition	1
Fuel poverty as a policy issue	1
The first estimates of the numbers in fuel poverty	4
<i>The UK Fuel Poverty Strategy</i>	6
Broader government policies	9
2008 and the judicial review	13
Fuel poverty elsewhere	15
Present situation	16
How has the UK reached this stage?	17
2 Finding the Fuel Poor	21
Current definitions	21
Vulnerable and non-vulnerable households	24
The scale of fuel poverty	26
Modelling	28
Income and housing costs	29
Alternative income definitions	31
Bringing energy use and income together	34
Who are the fuel poor?	36
Tenure	39
Combined effects	40
Trends	41
Conclusions	42
3 Income as a Cause	47
Household expenditure on fuel	48
Total income over time	51
Sources of income	52
State benefits	54
Levels of benefit take-up	55

	Benefit rates over time	57
	Total cost to the Exchequer	58
	Fuel poor who are non-claimants	59
	Pensioners	59
	Government income grants	60
	Access to capital	62
	Eligibility for energy-efficiency grants	63
	Targeting	65
	Future policy	66
	Conclusions	67
4	Fuel Prices and Policy	73
	The effect of world energy prices	73
	UK price controls	75
	Competition	77
	<i>Predicting fuel price rises</i>	78
	Fuel pricing and the fuel poor	80
	Other company policies and fuel poverty	88
	Do the fuel poor have the cheapest options?	89
	Role of fuel prices in fuel poverty	91
	Utility funding for energy efficiency	91
	New policies	92
	Conclusions	95
5	Energy Use and Emissions	101
	Greenhouse gases and UK trends	101
	Carbon intensity of fuels	103
	<i>Residential carbon emissions</i>	105
	Comparative fuel prices	107
	Consumption and expenditure	109
	Energy consumption by the fuel poor, over time	109
	What is fuel used for?	112
	Who uses which fuels?	114
	Low- and zero-carbon technologies	115
	Future policies	117
	Conclusions	119
6	Energy Efficiency of the Housing Stock	125
	Measuring energy efficiency	126
	Energy efficiency of the home	130
	Which are the best homes?	134
	Which are the worst homes and how to treat them?	135
	Tenure and energy efficiency	138
	Where do the poor live?	140
	Where do the fuel poor live?	142
	Existing policies	145

New policies	156
Conclusions	159
7 Warmth and Health: The Benefits of Action and the Penalties of Inaction	167
Excess winter deaths	168
Excess winter morbidity	171
Children and health	172
Summer heat waves	174
Cold homes	174
Effect of energy-efficiency improvements	175
Warmth versus money	178
Mental and physical benefits – adults	179
Financial costs and benefits	180
Current policies	181
Conclusions	183
8 Governance and Budgets	189
Systematic approach	190
European Union	191
UK government and departmental responsibility	192
Country variations	194
Regional, local and district authorities	197
Local Area Agreements and fuel poverty	199
Other players	201
People and communities	202
Costs	203
Cost effective and reasonably practicable	207
Current expenditure and future funds	208
Conclusions	210
9 Solutions	215
The proposed framework	216
Targeting homes and people	217
What standard?	221
Package 1: The first 50 per cent	222
Package 2: The second 50 per cent	224
Costs	226
Incomes	228
Fuel prices	228
Contributory policies	230
Definition	231
A new strategy	232
<i>Index</i>	235

Figures and Tables

Figures

1.1	Households in fuel poverty, England (1996–2016)	11
2.1	Households in fuel poverty, by income decile, UK (2006)	31
2.2	Relationship between fuel poverty and income poverty, England (2007)	32
2.3	Risk of fuel poverty, England (1996)	35
2.4	Relationship between incomes, energy efficiency and affordable warmth	36
3.1	Fuel poverty ratios – required household spend on energy as a proportion of income, England (2003–2006)	50
3.2	Sources of income, by gross income quintile, UK (2007)	53
3.3	Targeting fuel-poor pensioners, England (2006)	60
4.1	Suppliers' costs of residential payment methods, per customer, Great Britain (2005–2007)	83
4.2	Fuel poverty, vulnerability and prepayment meter ownership	85
4.3	Electricity bills, by tariff and supplier, Great Britain (2007–2008)	87
4.4	Possible reverse tariff for electricity, Northern Ireland	94
5.1	Average carbon dioxide emissions and energy efficiency (Standard Assessment Procedure) rating, by energy-efficiency decile, England (2006)	106
5.2	Carbon dioxide emissions by dwelling age (million tonnes of CO ₂), England (2006)	106
5.3	Electricity consumption per household in domestic appliances (1970–2006)	112
6.1	Average and banded energy efficiency rating SAP05 by dwelling age, England (2006)	132
6.2	Energy efficiency rating SAP05 by house and flat, England (2006)	133
6.3	Fuel poverty by SAP05 rating, England (2006)	137
6.4	Warm Front and SAP05 ratings, England (2007/08)	148
6.5	Emission reduction paths from Supplier Obligation policies	158
7.1	Seasonal fluctuations in mortality in cold and warm homes, UK (1991)	169

Tables

2.1	Constituent parts of the definition of fuel poverty	23
2.2	Vulnerable and non-vulnerable households (millions) and fuel poverty, England (2006)	25
2.3	Numbers of households (millions) in fuel poverty, UK (1996–2008)	26
2.4	Numbers of households (millions), by country (2000–2008)	27
2.5	Fuel poverty by country, UK (millions of households) (2000–2008)	27
2.6	Target dates for eradicating fuel poverty, by country	28
2.7	Effect of a rent rise on fuel poverty qualification (data are per week)	30
2.8	Indices of per capita energy use, floor space and equivalized income, by household size (people per household, or pph)	33
2.9	Social characteristics of fuel-poor households, England (2006)	38
2.10	Fuel poverty for households with children, by country (2006)	39
2.11	Relationship between income, tenure and fuel poverty, England	39
2.12	Tenure of households spending 10 per cent or more on fuel, England (2001/02–2006/07)	40
2.13	Risk of fuel poverty	41
3.1	Weekly expenditure on fuel (£ and percentage of expenditure), UK (2000–2007)	49
3.2	Income levels, UK (1999/2000–2007/08) (2007/08 prices)	51
3.3	Estimates of some unclaimed benefits, Great Britain (2006/07)	55
3.4	Winter fuel payments, UK (2000–2008)	62
3.5	Eligibility for main fuel poverty energy-efficiency grants, England (2006)	65
3.6	Fuel poverty expenditure and the fuel poor, England (2006)	66
4.1	Residential fuel and retail price indices, UK (1998–2008)	74
4.2	Index of residential gas and electricity prices, UK (2000–2008)	75
4.3	Annual cost to individual customers of utility programmes (2008/09)	76
4.4	Annual cost of electricity through a prepayment meter (2000–2008)	82
4.5	Fuel cost penalties paid by and benefits received by the fuel poor and vulnerable, Great Britain (million) (2008)	90
4.6	Characteristics of fuel pricing and the fuel poor, England (2006)	92
5.1	Annual greenhouse gas (GHG) and carbon dioxide emissions: Total and residential, UK (1990–2020)	102
5.2	Carbon intensity of domestic fuels, delivered energy, UK (2006)	103
5.3	Carbon intensity of delivered electricity, UK (2000–2050)	104
5.4	Residential per capita carbon emissions, by country (2006)	105
5.5	Residential fuel prices, delivered energy, UK (2008 prices) (2000–2008)	107
5.6	Expenditure on fuel (£ per week per household) (2006/07)	108
5.7	Comparisons between gas and electricity impacts, per household	108
5.8	Residential gas and electricity consumption, UK (2000–2008)	109

5.9	Energy use by fuel and income group, UK (percentage of fuel expenditure) (1999/2000–2007/08)	110
5.10	Change in expenditure on fuel and the Fuel Price Index (FPI), UK (2000–2008)	111
5.11	Ratio of expenditure by different income groups, UK (1999/2000–2007/08)	111
5.12	Low- and zero-carbon technologies	116
5.13	Relationships between energy services and energy efficiency	118
6.1	Energy Performance Certificate (EPC) bands (Standard Assessment Procedure (SAP) ratings), running costs and fuel poor, England (2006)	128
6.2	Balance between SAP and non-SAP fuel usage, expenditure and carbon, UK (2007/08)	129
6.3	Average energy efficiency rating (SAP05), by country (2000–2007)	130
6.4	Energy savings from energy-efficiency improvements, by initial indoor temperature	131
6.5	Type of dwelling by heat loss and fuel-poor numbers (2006)	133
6.6	Size of new homes (2000/01–2007/08)	134
6.7	Level of insulation by tenure, Great Britain (2004)	138
6.8	Energy Performance Certificate (EPC) bands and SAP05 rating by tenure, England (2001–2006)	139
6.9	Ownership of main insulation measures, by income, England (percentage of homes with the measure) (2006)	142
6.10	Fuel poor and non-fuel poor, by Energy Performance Certificate (EPC) band, England (2006)	143
6.11	Housing characteristics of the fuel poor, England (2006)	144
6.12	Main Carbon Emissions Reduction Target (CERT) measures (April–December 2008)	153
6.13	Expenditure on fuel poverty energy-efficiency programmes (£ millions) (2000–2011)	154
6.14	Proportion of assistance that the fuel poor are eligible for, England (2005–2006)	156
6.15	Calculations behind SAP 81	160
7.1	Excess winter deaths, UK (1999–2008)	168
7.2	Children's physical and social response to inadequate heating	173
8.1	Variations in housing characteristics (percentage of homes), by country (2005)	195
8.2	Warm Front spending and fuel poverty, by region, England (2006)	198
8.3	Proportion of homes in south-east England, by efficiency (1996–2005)	199
8.4	Relationship between targeting and programme cost, UK	205
8.5	Estimated cost, per household, in a low-carbon zone	206