NINETY YEARS OF HOUSING, 1921–2011

Trends relating to living standards, energy use and carbon emissions

Janet Utley and Les Shorrock

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CONTENTS

Preface iv

1 EXECUTIVE SUMMARY 1

2 INTRODUCTION 2

3 THE CURRENT HOUSING STOCK 4

4 NUMBER OF HOUSEHOLDS AND MEAN HOUSEHOLD SIZE 6

5 TENURE DISTRIBUTION AND HOUSE PRICES 8

6 PRESENCE OF BASIC AMENITIES 10

7 HOUSEHOLDS WITH GAS AND ELECTRICITY SUPPLIES AND THE UPTAKE OF HOUSEHOLD APPLIANCES 12

8 CENTRAL HEATING AND ENERGY EFFICIENCY MEASURES 14

9 TOTAL ENERGY USE, PROPORTIONS OF EACH FUEL TYPE AND ENERGY USE PER HOUSEHOLD 16

10 CARBON DIOXIDE EMISSIONS OF THE STOCK AND PER HOUSEHOLD 18

11 RENEWABLE ENERGY 20
11.1 Solar energy 20
11.2 Micro wind 21
11.3 Heat pumps 21
11.4 Biomass 21
11.5 Grid electricity 21

12 CARBON DIOXIDE EMISSION TARGETS FOR 2050 AND THEIR IMPLICATIONS FOR HOUSING 22
12.1 Policy 22
12.2 Refurbishment 22
12.3 Newbuild 23
12.4 Past and future trends 23
12.5 Meeting the 2050 target 23

13 CONCLUSIONS 24

14 REFERENCES 25

Appendix A Underlying data 26

Appendix B Past and future trends: adopting energy efficiency measures throughout the housing stock 32

Appendix C Meeting the 2050 target: the scale of the challenge 34

Appendix D Housing and health 36

PREFACE

In 1921, the year when BRE was set up, Britain was still emerging from the hardships of World War I. At this time, the government was embarking on plans aimed at improving standards of living for the British people. In particular, for soldiers returning from the war and their families, there was much talk from politicians of providing 'homes fit for heroes'. Improving housing standards was therefore a key policy aim, and a major part of the rationale for establishing the new Building Research Station (now BRE). The focus has inevitably changed over the years, but housing research has remained at the heart of much of BRE's work to this day. This report is but one example of such housing research work, produced to coincide with BRE's ninetieth anniversary.

This report looks back over the past 90 years, presenting statistics that illustrate key changes and the progress that has been made in improving the nation's homes. A retrospective such as this is highly relevant as we start to contemplate the massive changes that are being proposed in the coming years and decades to address concerns about climate change.

The report ends by considering what the housing stock will need to look like in 2050 if the UK government is to meet its targets to tackle climate change, and the scale of the challenge that this presents. What has been achieved in the past is very substantial, but also provides an important reality check on the feasibility of achieving such large-scale changes over the next 40 years.

Simon Nicol
Group Director, BRE Housing & Energy

1 EXECUTIVE SUMMARY

This report looks back over the past 90 years, presenting statistics that illustrate key changes and the progress that has been made in improving the nation's* homes. The focus is on changes to the housing stock that have had an effect on standards of living, energy use and carbon dioxide (CO_2) emissions. Impacts on health are also discussed in one of the appendices.

The report is similar in concept to the Domestic Energy Fact Files that BRE has produced in the past[1, 2, 3]. The difference is that the time period under consideration is more than double that of the Domestic Energy Fact Files, which generally cover the period from 1970 to the present. This means that the information presented in this report is inevitably less detailed because the statistics collected in the early twentieth century were limited. Nonetheless, it has been possible to compile reasonably complete time series on key topics (with figures presented at 10-year intervals) that clearly show the scale of the changes that have occurred over 90 years.

Whilst some of the changes are entirely what might have been expected, there are nevertheless some surprising facts that emerged from the analysis. In particular, the average home in 1921 consumed around double the energy of the average home now, and CO_2 emissions were almost 2.5 times as high. However, the number of households has also grown by a factor of about 2.5, so the CO_2 emissions of the entire housing stock are now in fact relatively similar to the emissions in 1921. Many other interesting findings, eg the effect of the existence of the National Grid on the uptake of a whole range of household appliances that are nowadays widely considered necessities, can be found within the pages of this report.

The report closes by considering what the housing stock will need to look like in 2050 in order to meet the UK government's target to cut CO_2 emissions by 80% on 1990 levels, and the scale of the challenge that this presents. What has been achieved in the past is very substantial, but also provides an important reality check on the feasibility of achieving such large-scale changes over the next 40 years.

* This report is intended to focus on the housing stock of the UK. However, due to data availability limitations, some data may only relate to Great Britain or England.

2 INTRODUCTION

The housing stock in the UK has changed significantly since 1921. Many additional homes have been constructed since then, leading to the very wide diversity that we see today. This diversity is illustrated by the building typology in Figure 1.

This report focuses on energy-related matters. Age and built form as shown in the typology clearly affect the energy use and CO_2 emission characteristics of the stock, but so too do various other factors. Many of these other factors are discussed in the rest of this report, which presents detailed trends for the 90 years between 1921 and 2011. The values used in the charts are presented in Appendix A. Although the report focuses on energy-related matters, it also covers some associated issues such as the presence of basic amenities. The aim is to highlight the major changes that have occurred over the past 90 years before looking forward to the prospects for the future housing stock (and to 2050 in particular). However, we start by considering the characteristics of the current housing stock and, in very broad terms, how these have been shaped by the policies and events of the past.

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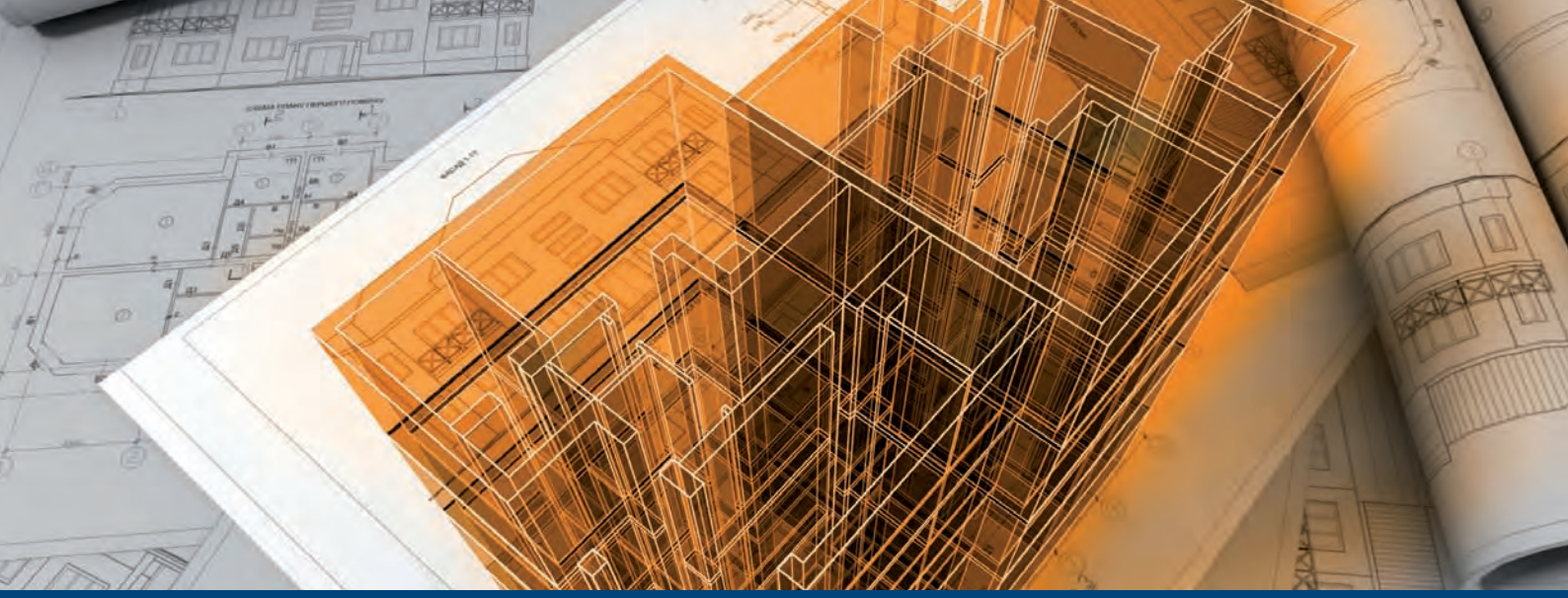

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