centre for sustainable energy

Ofgem energy consumer archetypes update 2024

Final report and detailed methodology

Version	Prepared	Date	Reviewed	Date	Submitted	Date
1.0	EP	06/07/2023	CMW; SH; CJ	07/07/2023	EP	07/07/2023
2.0	EP	24/11/2023	CMW, JA	27/11/2023	EP	29/11/2023
2.1	EP / TW	19/02/2024	CMW	20/02/2024	CMW	20/02/2024

Contents

1. Introduction

Ofgem uses archetypes to better understand the impacts that changes in the energy system have on different groups of consumers. In 2019, CSE were commissioned by Ofgem to segment the population of Great Britain into a set of distinct groups of energy consumers, or archetypes, which together represent all households across the country. The archetypes were designed to assist with the identification and understanding of different types of energy consumers, including those in vulnerable situations, and to model the impacts of policy changes. This report outlines updates undertaken in 2023 using newer data and features to better represent vulnerable consumers. The number of archetypes have been increased in order to gain more detailed descriptions of consumers in Great Britain.

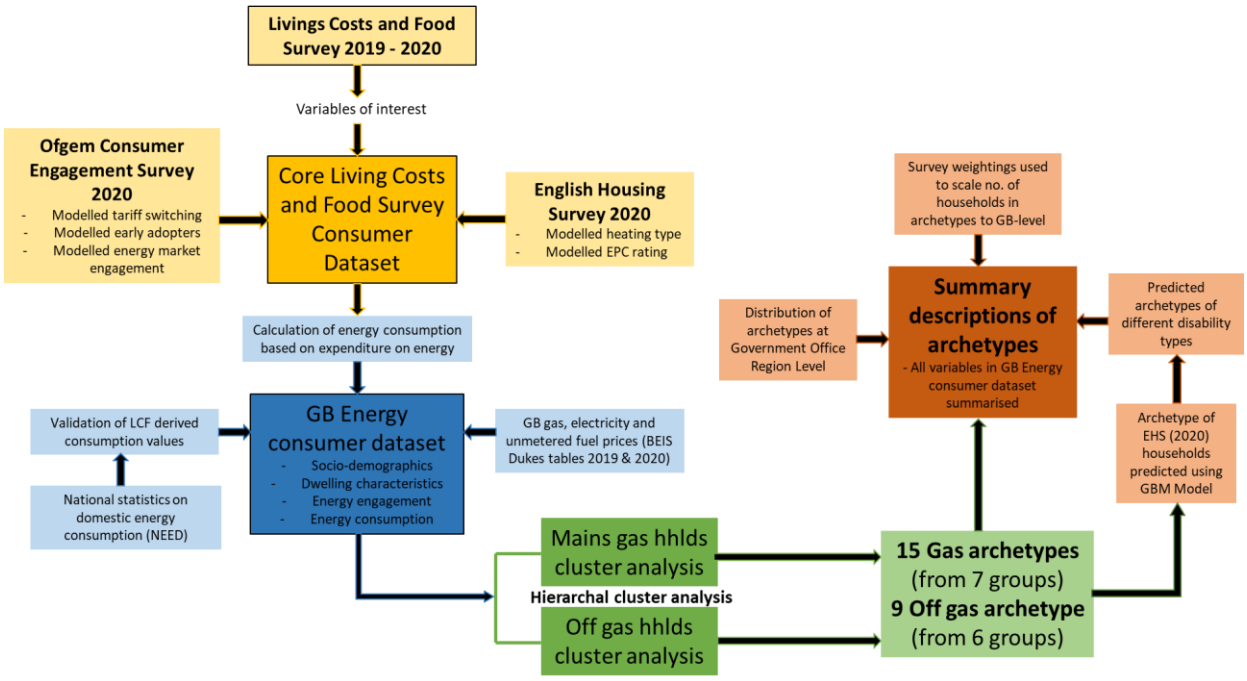
For this revision of Ofgem's archetypes all datasets were updated to include the latest available versions, additional datasets were included, and the total number of archetypes increased from 13 to 24, allowing more varied and detailed descriptions of energy consumers in Great Britain. We have expanded on the previous set by bringing in new descriptive data from the special license version of the English Housing Survey, allowing the archetypes to include additional information such as disability types (e.g. vision, mobility, learning difficulties), type of boiler in the households, type of water heating system in the households, and smart meter ownership. Further, we have included more information on the benefits received by households, and the eligibility of each archetype to government discount schemes such as the Warm Home Discount Scheme.

In this report, we present: the method used to produce the archetypes (overview in Section 2 and the full methodology in Appendix A); a description of the updates to the previous set of archetypes (Section 3); a discussion on how the archetypes are intended to be used and their limitations (Section 4); an overview of the general structure of the archetypes (Section 5); and detailed descriptions of each archetype, showing their headline characteristics (income, energy consumption, heating fuel), a pen portrait describing the defining attributes of each archetype, a table summarising various other characteristics, a histogram plot showing the distribution of the households in each archetype across income deciles, and a map of regions and devolved nations within Great Britain illustrating the geographic distribution of each archetype (Section 6).

2. Overview of method

The archetypes were produced by segmenting an energy consumer dataset that was derived from the Living Costs and Food (LCF) Survey 2019-2020. This core dataset was supplemented by additional data to incorporate critical information that is missing from the LCF Additional datasets included the Ofgem Consumer Engagement (OCE) Survey 2020, from which we incorporated various energy market engagement metrics, and the English Housing Survey (EHS), from which we incorporated EPC ratings, different disability types, water heating system types, types of boilers, and communal heating data. The resulting energy consumer dataset was segmented using a cluster analysis. A summary of the method is shown in Figure 1.

Figure 1: Overview of the analytical workflow for producing the consumer archetypes.



The variables included in the dataset and the weighting given to each of the variables was specified based on discussions and agreed with Ofgem, resulting in a set of 24 archetypes that are tailored towards highlighting consumers that are vulnerable in terms of the energy market across Great Britain. For each archetype, statistical summaries covering the geographic distribution, socio-demographic characteristics, dwelling, energy engagement and energy consumption characteristics are provided. The process also included a workshop where a set of provisional archetypes were presented, which gave Ofgem a chance to review the method and provide some further input into the development of the archetypes. Feedback from this workshop was fed into the analysis with the final set of archetypes presented in this report.

Full details of the methodology used are provided in Appendix A.

3. Updates to the archetypes

Along with updating the archetypes by creating them from newer datasets of the LCF, EHS and OCE surveys, new features have also been added to describe the archetypes in better detail.

The archetypes now contain information on the number and proportion of GB households in each archetype that are eligible for the Warm Home Discount Scheme (WHDS), Winter Fuel Payments (WFP), Cold Weather Payments (CWP), and the Energy Company Obligation (ECO) Scheme. Further, information on the number and proportion of GB households in each archetype that received a range of different benefits is now included in the data tables.

By linking the archetypes to the special-license access version of the EHS[1], information on the number and proportion of GB households in each archetype that have different disabilities is now provided. These new disability types include mobility, learning difficulty, dexterity, memory, vision, and wheelchair user. Linking to the special-license EHS also allowed for the inclusion of the number and proportion of GB households in each archetype that have communal heating systems, the different water heating systems, different types of boilers, and smart meters.

To increase the detail in the descriptions of consumers across GB, the number of archetypes has been increased from 13 to 24. This benefits the distributional impacts analysis of different policies as it allows for smaller variations in the characteristics between archetypes be described, and therefore more nuanced impacts of certain policies to the different archetypes can be observed.

[1] Access to the special license English Housing Survey is through the UK Data Service (UKDS). Users must register with the UKDS, and fill in the special license application form, specifying the uses of the data and the expected outputs.

4. Using the archetypes and limitations

The key objective of this work was to segment representative survey (and supplementary) data into distinct consumer or household archetypes. The archetypes derived from this analysis and presented here are intended as a tool that enables a more detailed review of different consumer issues across the energy sector. In particular, it is intended that the archetypes will help enhance understanding of the different experiences and needs of different energy consumers, the different drivers that may exist for households to engage in energy related policies and enable a more considered and nuanced approach to policy design and promotion of energy technologies or smart energy systems.

However, it should be recognised that the descriptions of the archetypes presented here represent the most typical characteristics, predominant features or average statistics (e.g. household income) across all households in these groups. Within groups there exists a degree of variation in all characteristics and statistics. Therefore, the archetypes should not be used with the intent of understanding policy impacts on individual households. For characteristics such as income, distributions within the archetypes have been presented to help illustrate and remind users of the variation of these characteristics within each archetype.

Furthermore, segmenting the population into 24 archetypes has resulted in group sizes varying between 163,000 and 3.5 million households. Grouping households together in archetypes of this size will not always reveal the multitude of vulnerable situations and circumstances that different households can experience.

Several of the archetypes presented here have differing levels of certain vulnerabilities (e.g. higher rates of long-term health conditions or being on very low incomes), and some archetypes will be more disadvantaged than others. However, it was never the objective of this exercise to present a detailed profile of different and multiple vulnerabilities and the extent to which these predominate across the population. Therefore it should be recognised that the archetypes do not serve as a tool which enables users to examine complex vulnerabilities with relation to energy. It should also be recognised that vulnerabilities can exist in all households and that these vulnerabilities can vary significantly in magnitude, severity and duration.

The archetypes themselves are intended to be used to understand how different policies may impact on a selection of different types of households and energy consumers. They may be used to investigate existing or proposed policy designs or to help rebalance policies which have been identified as unintentionally overlooking or disadvantaging certain households. However, for the reasons mentioned above, they are not intended to be used as the main source of information when considering a policy design. For example, they are not intended to be used as the main tool to accurately identify or locate vulnerable households or to design detailed eligibility criteria for policies. The archetypes themselves do not represent a distributional analysis tool, however they can be used to consider the distributional impacts of policies when considering each of these archetypes.

5. Summary of the archetypes

The 24 archetypes are split into ten groups ranging from A - J, with those in group A being the lowest earners and belonging to the first income decile, and J being the highest earners and belonging to the tenth income decile. The archetypes without a mains gas supply, which therefore have no gas consumption values in the following tables, were produced using a separate cluster analysis to those with a mains gas supply, so the archetypes can also be split into off-gas and on-gas archetypes.

The archetypes produced from the off-gas cluster analysis are:

- B4
- B5
- C8
- F15
- F16
- G17
- G18
- H19
- J24

All other archetypes were produced from on-gas cluster analysis and have mains gas as their main heating fuel.

Some headline statistics for all archetypes are presented below in Table 1. This shows the variation in size, income, and energy consumption levels and provides a brief summary of some of the key characteristics of each group. The archetypes vary significantly across a number of other characteristics, and these are described in more detail in the individual archetype profiles later in this report.

Table 1: Headline statistics and summary descriptions of 2024 energy consumer archetypes

Archetype	Number of households	Main heating Fuel	Gross annual household income	Average Annual Elec consumption (kWh)	Average Annual Gas consumption (kWh)	Attributes (key words)
A1	578,333	Mains gas	£15,643	2,742	10,933	Lowest income; mains gas; retired; 75+ years old; single adults; owner-occupied; urban; not early adopters; no internet connection; no degree or higher
A2	868,191	Mains gas	£17,327	2,849	9,464	Low income; housing association; single adults; 55+ years old; prepayment meter; WHDS eligible; good EPC rating; no degree or higher
A3	883,413	Mains gas	£18,195	3,519	10,622	Low income; mains gas; retired/unoccupied < 65 years old; prepayment meter; housing association/local authority; disability benefits; mobility disability; CWP eligible; WHDS eligible; good EPC rating; no degree or higher
B4	731,318	Electricity	£18,776	4,811	-	Low income; electric heating; retired/unoccupied; 65+ years old; purpose-built flats; owner-occupied/housing association; high electricity consumption
B5	465,288	Electricity/Other (Solid fuel/LPG)	£22,423	6,597	-	Low income; electric/solid fuel/LPG heating; 45+ years old; retired/unoccupied; disability benefits; high electricity consumption
B6	920,172	Mains gas	£24,869	3,028	10,525	Low income; mains gas; private rented/local authority; 45-74 years old; low gas consumption; early adopters
C7	659,595	Mains gas	£29,257	3,649	13,119	Lower-middle income; mains gas; purpose-built flats; housing association/local authority; full-time/part-time employed/ 25-54 years old; early adopters; high proportion BAME

C8	228,477	Electricity	£32,240	5,587	-	Lower middle-income; electric heating; purpose-built flat; private rented/local authority; full-time/part-time employed; 1 child; 25-54; early adopters; high proportion BAME
C9	3,408,514	Mains gas	£32,344	3,337	13,685	Lower-middle income; couples/single adult woman; retired; 65+ years old; owner occupied semi-detached/terraced dwellings; average energy consumption; WFP eligible
D10	1,163,946	Mains gas	£31,819	3,881	13,981	Lower-middle income; mains gas; disability benefits; mobility & dexterity disability; retired/unoccupied; owner occupied; semi-detached/terraced; 55+ years old; not early adopters; CWP & WFP eligible;
D11	1,197,075	Mains gas	£40,980	2,482	8,782	Lower-middle income; low energy consumption; good EPC rating; purpose-built flats; full-time employed; 25-74 years old; early adopters; urban; low scheme eligibility
D12	1,457,829	Mains gas	£38,927	3,952	16,065	Lower-middle income; retired 65+; owner occupied; detached; couples; high gas consumption; not early adopters; eligible for WFP; suburbanites
E13	690,892	Mains gas	£38,351	5,075	16,722	Middle income; <35-54 year old unoccupied/retirees; 1+ children; disability benefits; early adopters; high energy consumption; CWP & WHDS eligible; prepayment meter; hard-pressed living
E14	1,178,684	Mains gas	£43,026	4,070	14,606	Middle income earners; 2+ children; 25-54 year olds; full-time/part-time employed; private-rented/owner occupied; urban; early adopters
F15	323,433	Other/Electricity	£46,005	6,883	-	Middle income; other/electric heating fuel; 2+ children; full-time/self-employed; 25-54 year olds; early adopters; high electricity consumption;
F16	989,639	Electricity	£50,721	4,317	-	Middle income; electric heating; has degree or higher; purpose-built flats; 16-54 year olds; good EPC rating; full-time employed; couple/single adult man; early adopters

G17	163,166	Oil/Other (solid fuel/LPG)	£44,586	5,901	-	Upper middle income; Oil/Other heating system; unconventional housing; Owner occupied; self-employed; couple/single adult; 45+ year olds; rural; unknown EPC rating
G18	667,836	Other (solid fuel/LPG)	£49,265	5,294	-	Upper middle income; Other heating fuel; owner occupied; full-time employed/retired 65+; low scheme eligibility
H19	675,712	Oil	£52,621	4,907	-	Upper-middle income; oil heating fuel; retired 65+/full-time employed; poor EPC rating; rural; owner-occupied; detached/semi-detached; WFP eligible
H20	3,540,270	Mains gas	£58,924	3,143	11,677	Upper-middle income; mains gas; early adopters; 25-54 years old; full-time employed; below average consumption
I21	2,210,494	Mains gas	£59,668	4,070	15,461	High income; mains gas; 1 child; full-time employed; 25-54 years old; early adopters; owner-occupied/private rented; semi-detached/terraced; high ECO eligibility
I22	1,792,593	Mains gas	£68,332	4,684	18,530	High income; no children; mains gas; highest gas consumption; 45-64 years old; full-time employed; early adopters; has degree or higher
J23	1,956,103	Mains gas	£74,795	4,532	16,330	High income; mains gas; 2+ children; 35-54 years old; full-time employed; owner-occupied; semi-detached/terraced; early adopters; urban
J24	231,658	Oil	£78,813	7,523	-	Highest earners; 1+ children; oil heating; highest electricity consumption; rural; full-time employed; owner-occupied; poor EPC rating; early adopters
All GB households	**26,982,631**		**£44,938**	**3,955**	**13,697**	

6. Archetype profiles

The following presents the 24 energy consumer archetypes and their characteristics. Each archetype profile provided in this report includes the following:

- Headline statistics
- Summary descriptions of the archetype highlighting key features
- Statistical profile
- Graphs showing the income distribution of each archetype in income decile
- Map showing the proportion of the population in each English region and devolved nation that the archetype represents

The characteristics provided are just a selection of some of the most important variables used to produce the archetype and to provide adequate information to paint a full picture of the consumers. The archetype characteristics are presented alongside the GB-wide statistics for comparison. The GB statistics were calculated by summarising (either summing or averaging depending on the variable) the weighted values for all data in the energy consumer dataset. All other characteristics not included in the descriptions are in the data tables provided with this report.

6.1. Archetype A1:

6.1.1. A1 headline statistics

Archetype A1: Key statistics		GB-wide statistics
Number of households	578,333	26,982,631
Average net income	£14,990	£37,883
Households on disability benefits	1%	12%
Average electricity consumption (kWh)	2,742	3,955
Average gas consumption (kWh)	10,933	13,697

Key words: lowest income; mains gas; retired; 75+ years old; single adults; owner-occupied; urban; not early adopters; no internet connection; no degree or higher.

6.1.2. A1 summary description:

These are the lowest income households with a gross annual income of £14,990, far below the GB average. They mostly contain single adult retirees that are over 75 years old. They live in a mixture of semi-detached and terraced housing, which they own, and are heated by a mains gas supply. This is the only archetype where all households (100%) do not have an internet connection in the household.

They do not tend to be early adopters but have engaged in the energy market in the last 12 months and have switched tariff before. While they are not on disability benefits, 26% of them reported a mobility disability, 13% reported a dexterity disability and 10% reported a vision disability.

While their gas consumption is lower than the GB average, it is still relatively high despite there only being a single occupant. This is likely due to the older age of the occupants, and prevalence of retired people which may mean they spend more time at home and therefore use more gas to heat the dwelling. Their profile is therefore likely to not have very sharp peaks throughout the day, with relatively stable consumption. 99% of these households are eligible for the Winter Fuel Payments scheme. The regions with the highest percentage of this archetype are the West Midlands and the North East of England.

6.1.3. A1 summary profile

Archetype A1: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	0%	3%
	25-34	0%	14%
	35-44	0%	17%
	45-54	0%	19%
	55-64	2%	18%
	65-74	18%	15%
	75+	79%	14%
Main tenure	housing-association	10%	8%
	local-authority	12%	8%
	owner-occupied	69%	66%
	private-rented	9%	17%
Household composition	couple	21%	34%
	couple and children	0%	20%
	multiple adults	1%	9%
	multiple adults with children	0%	4%
	single adult (man)	25%	13%
	single adult (woman)	53%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	100%	72%
	1	0%	12%
	2+	0%	16%

Economic status of head of household	full-time employee	0%	44%
	part-time employee	0%	10%
	retired/ unoccupied over min national insurance (NI) age	97%	26%
	self-employed	3%	8%
	unemployed	0%	2%
	retired/ unoccupied - under min NI age	1%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	0%	94%
Early adopters	2%	67%
Has a degree qualification (or higher)	1%	28%
Pre-payment meter for electricity	12%	12%
Households in poverty (income below 60% of national median)	52%	19%
Eligible for Cold Weather Payments	11%	14%
Eligible for Energy Company Obligation	3%	15%
Eligible for Warm Home Discount Scheme	19%	17%
Eligible for Winter Fuel Payments	99%	33%
Rural Population	23%	22%

Figure 2: Income decile distribution of Archetype A1

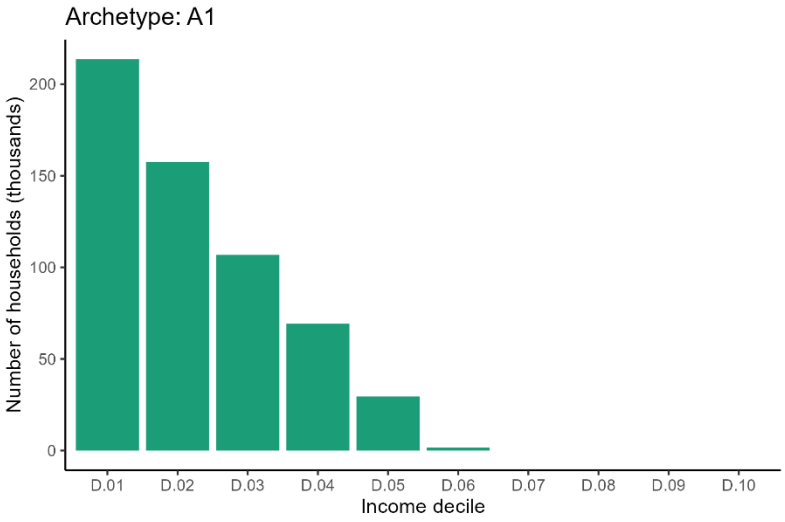
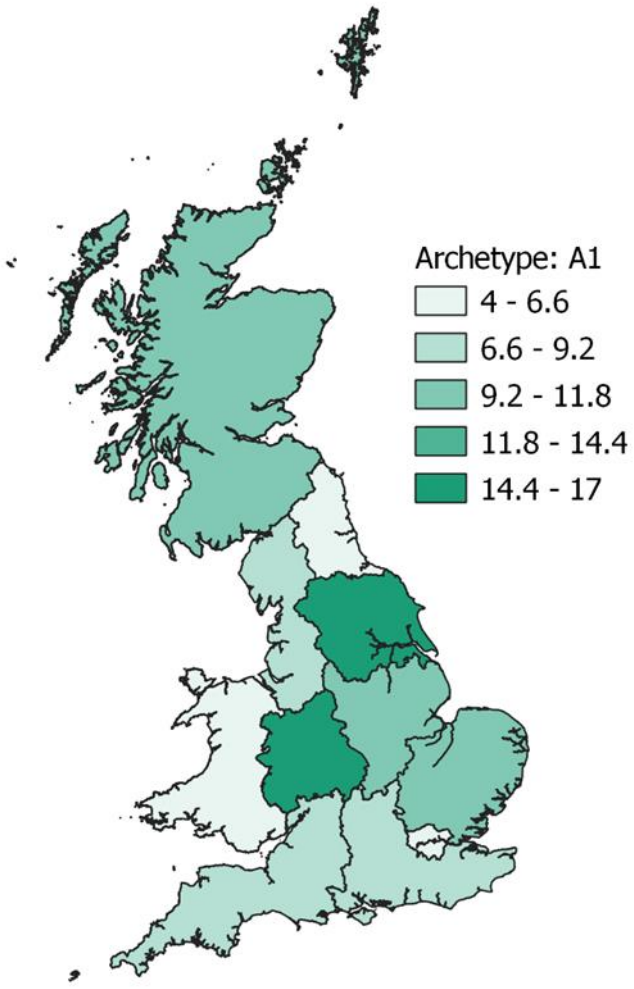


Figure 3: Percentage of the population of each English region and devolved nation of Great Britain in Archetype A1



6.2. Archetype A2:

6.2.1. A2 headline statistics

Archetype A2: Key statistics		GB-wide statistics
Number of households	868,191	26,982,631
Average net income	£16,115	£37,883
Households on disability benefits	10%	12%
Average electricity consumption (kWh)	2,849	3,955
Average gas consumption (kWh)	9,464	13,697

Key words: low income; housing association; single adults; 55+ years old; prepayment meter; WHDS eligible; good EPC rating; no degree or higher.

6.2.2. A2 summary description:

This archetype has the second lowest annual income and contains retired or unoccupied single adults between the age of 55+. They rent a mix of purpose-built flat and terraced dwellings from housing associations. The dwellings are heated by a mains gas supply. 38% and 30% of these households pay for their electricity and gas, respectively, using a prepayment meter.

They have an internet connection in the household, do not have a degree, but 97% of them have engaged in the energy market in the last 12 months, and half would consider themselves early adopters.

They have below average consumption for both gas and electricity due to the households containing mostly single adults. Their gas consumption is much lower than the average, potentially due to their fairly good EPC ratings of between A-C. The regions with the highest percentage of this archetype are in London, Scotland, the West Midlands, and the North West of England.

6.2.3. A2 summary profile:

Archetype A2: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	4%	3%
	25-34	8%	14%
	35-44	5%	17%
	45-54	14%	19%
	55-64	24%	18%
	65-74	22%	15%
	75+	23%	14%
Main tenure	housing-association	63%	8%
	local-authority	21%	8%
	owner-occupied	4%	66%
	private-rented	12%	17%
Household composition	couple	19%	34%
	couple and children	0%	20%
	multiple adults	10%	9%
	multiple adults with children	0%	4%
	single adult (man)	35%	13%
	single adult (woman)	35%	15%
	single parent (man)	0%	0%
	single parent (woman)	1%	4%
Number of children in household	0	99%	72%
	1	1%	12%
	2+	0%	16%

Economic status of head of household	full-time employee	17%	44%
	part-time employee	7%	10%
	retired/ unoccupied over min national insurance (NI) age	43%	26%
	self-employed	4%	8%
	unemployed	11%	2%
	retired/ unoccupied - under min NI age	17%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	78%	94%
Early adopters	43%	67%
Has a degree qualification (or higher)	9%	28%
Pre-payment meter for electricity	38%	12%
Households in poverty (income below 60% of national median)	57%	19%
Eligible for Cold Weather Payments	24%	14%
Eligible for Energy Company Obligation	0%	15%
Eligible for Warm Home Discount Scheme	54%	17%
Eligible for Winter Fuel Payments	49%	33%
Rural Population	11%	22%

Figure 4: Income decile distribution of Archetype A2:

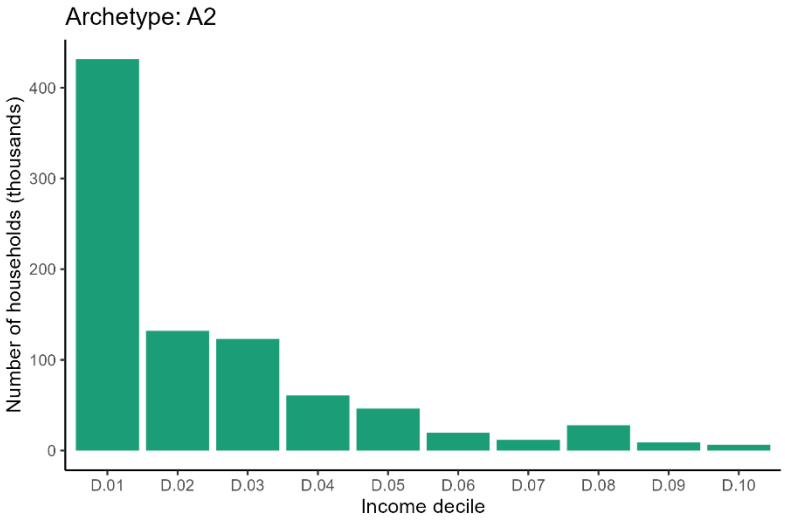
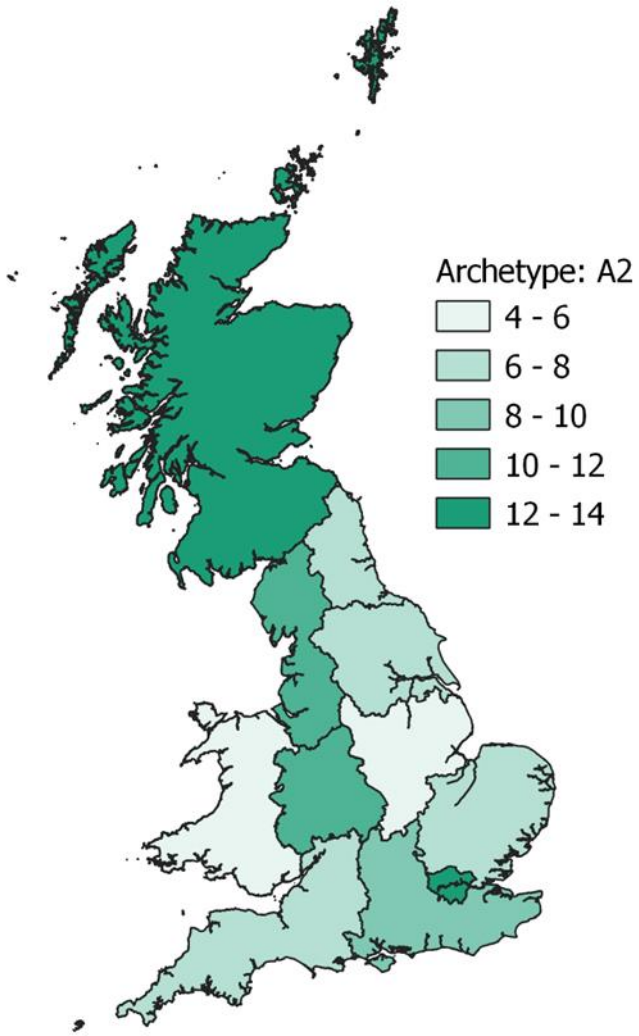


Figure 5: Percentage of the population of each English region and devolved nation of Great Britain in Archetype A2



6.3. Archetype A3:

6.3.1. A3 headline statistics

Archetype A3: Key statistics		GB-wide statistics
Number of households	883,413	26,982,631
Average net income	£17,114	£37,883
Households on disability benefits	100%	12%
Average electricity consumption (kWh)	3,519	3,955
Average gas consumption (kWh)	10,622	13,697

Key words: low income; mains gas; retired/unoccupied < 65 years old; prepayment meter; housing association/local authority; disability benefits; mobility disability; CWP eligible; WHDS eligible; good EPC rating; no degree or higher.

6.3.2. A3 summary description

This archetype is a low-income household, similar to A1 and A2 except 100% of A3 households are on disability benefits. 62% of these households have a mobility disability, and no less than 15% of households have any of the other disability types.

They are couples or single adult retirees over between the ages of 45 and 64, living in housing association or local authority purpose-built flats, terraced or semi-detached houses, or purpose-built flats.

84% of the households have internet access, 43% consider themselves early adopters, and only 7% have a degree or higher level of education, all of which are below the GB average. 52% of them are below the poverty line, which is higher than the GB average. A3 has the highest of occurrence of households paying for electricity with a prepayment meter (41%), and the second highest for gas prepayment meters (38%).

100% of the households are eligible for Cold Weather Payments, and 83% of households are eligible for the Warm Home Discount Scheme, both of which are substantially greater than the GB average. The regions with the highest percentage of this archetype are Scotland and North West England.

6.3.3. A3 summary profile

Archetype A3: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	3%	3%
	25-34	7%	14%
	35-44	9%	17%
	45-54	28%	19%
	55-64	34%	18%
	65-74	12%	15%
	75+	8%	14%
Main tenure	housing-association	40%	8%
	local-authority	31%	8%
	owner-occupied	8%	66%
	private-rented	20%	17%
Household composition	couple	33%	34%
	couple and children	0%	20%
	multiple adults	10%	9%
	multiple adults with children	0%	4%
	single adult (man)	28%	13%
	single adult (woman)	29%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	100%	72%
	1	0%	12%
	2+	0%	16%

Economic status of head of household	full-time employee	7%	44%
	part-time employee	3%	10%
	retired/ unoccupied over min national insurance (ni) age	17%	26%
	self-employed	1%	8%
	unemployed	2%	2%
	retired/ unoccupied - under min ni age	70%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	84%	94%
Early adopters	43%	67%
Has a degree qualification (or higher)	7%	28%
Pre-payment meter for electricity	41%	12%
Households in poverty (income below 60% of national median)	52%	19%
Eligible for Cold Weather Payments	100%	14%
Eligible for Energy Company Obligation	2%	15%
Eligible for Warm Home Discount Scheme	83%	17%
Eligible for Winter Fuel Payments	24%	33%
Rural Population	14%	22%

Figure 6: Income decile distribution of Archetype A3

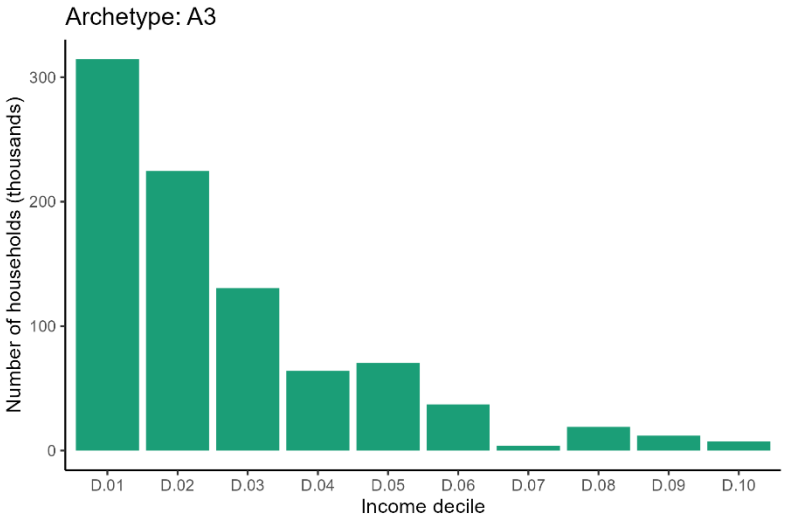
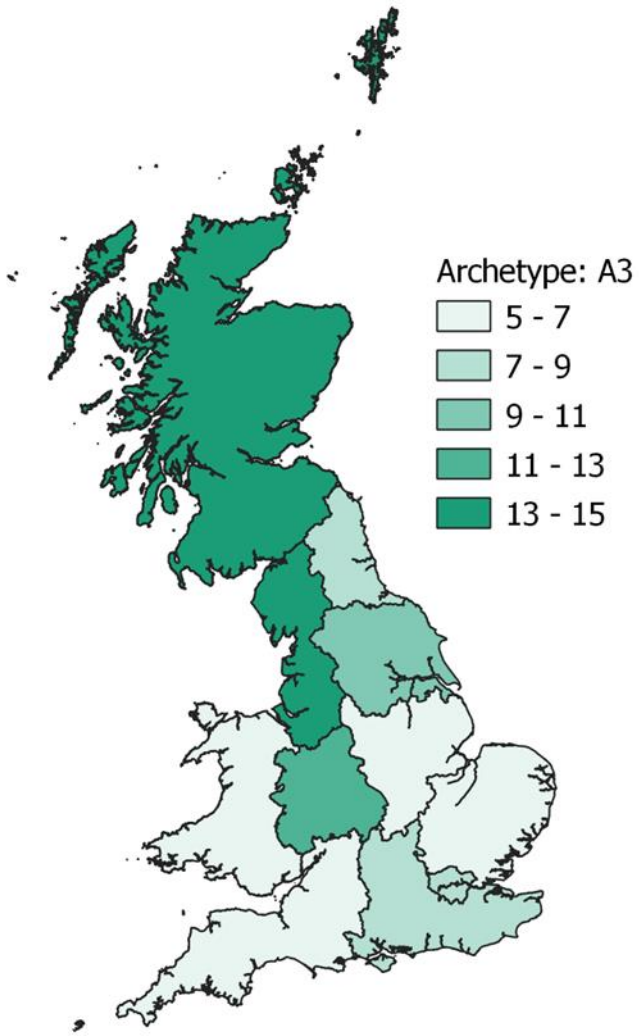


Figure 7: Percentage of the population of each English region and devolved nation of Great Britain in Archetype A3



6.4. Archetype B4:

6.4.1. B4 headline statistics

Archetype B4: Key statistics		GB-wide statistics
Number of households	731,318	26,982,631
Average net income	£17,649	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	4,811	3,955
Average gas consumption (kWh)	-	13,697

Key words: low income; electric heating; retired/unoccupied; 65+ years old; purpose-built flats; owner-occupied/housing association; high electricity consumption.

6.4.2. B4 summary description

These households are the lowest income of the second income decile group. They are off mains gas and have electricity as their main heating fuel. They are retired couples and single adults over the age of 65 living in owner occupied or housing association purpose-built flats or terraced houses. 41% of households in B4 are below the poverty line, and 883% are eligible for Winter Fuel Payments.

Their electricity consumption is substantially greater than the GB average due to relying on electricity for their heating. This is compounded by some households having EPC ratings up to and including G, and due to their retired or unoccupied economic status which means they likely spend more time at home. 88% of archetype B4 heat their water using an electric immersion heater. They are not early adopters of technologies and 58% have never switched tariffs - which is much greater than the GB average.

This archetype is broadly distributed across GB, with highest concentrations of houses found in the South East of England, Scotland and North West of England.

6.4.3. B4 summary profile

Archetype B4: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	3%	3%
	25-34	1%	14%
	35-44	4%	17%
	45-54	6%	19%
	55-64	4%	18%
	65-74	25%	15%
	75+	57%	14%
Main tenure	housing-association	26%	8%
	local-authority	7%	8%
	owner-occupied	53%	66%
	private-rented	15%	17%
Household composition	couple	28%	34%
	couple and children	0%	20%
	multiple adults	2%	9%
	multiple adults with children	1%	4%
	single adult (man)	32%	13%
	single adult (woman)	37%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	99%	72%
	1	0%	12%
	2+	1%	16%

Economic status of head of household	full-time employee	2%	44%
	part-time employee	6%	10%
	retired/ unoccupied over min national insurance (ni) age	78%	26%
	self-employed	7%	8%
	unemployed	4%	2%
	retired/ unoccupied - under min ni age	3%	10%
Main heating fuel of dwelling	electricity		

Variable	Archetype	GB average
Internet in home	69%	94%
Early adopters	9%	67%
Has a degree qualification (or higher)	3%	28%
Pre-payment meter for electricity	15%	12%
Households in poverty (income below 60% of national median)	41%	19%
Eligible for Cold Weather Payments	19%	14%
Eligible for Energy Company Obligation	6%	15%
Eligible for Warm Home Discount Scheme	32%	17%
Eligible for Winter Fuel Payments	83%	33%
Rural Population	30%	22%

Figure 8: Income decile distribution of Archetype B4

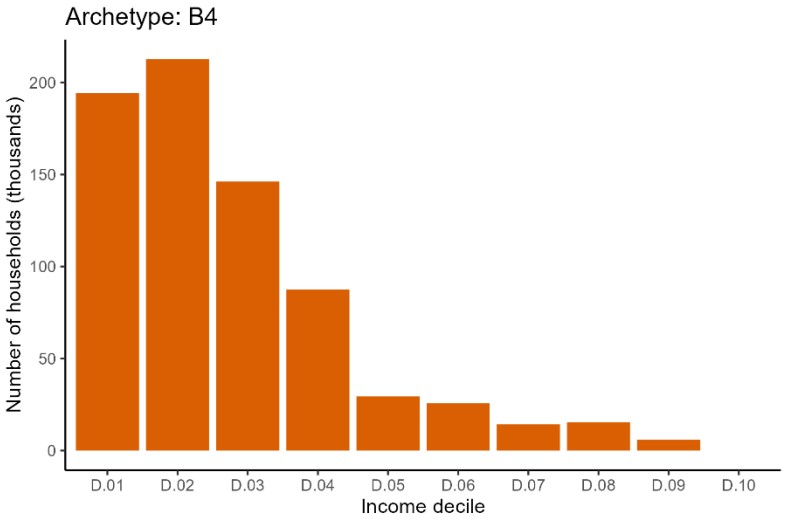
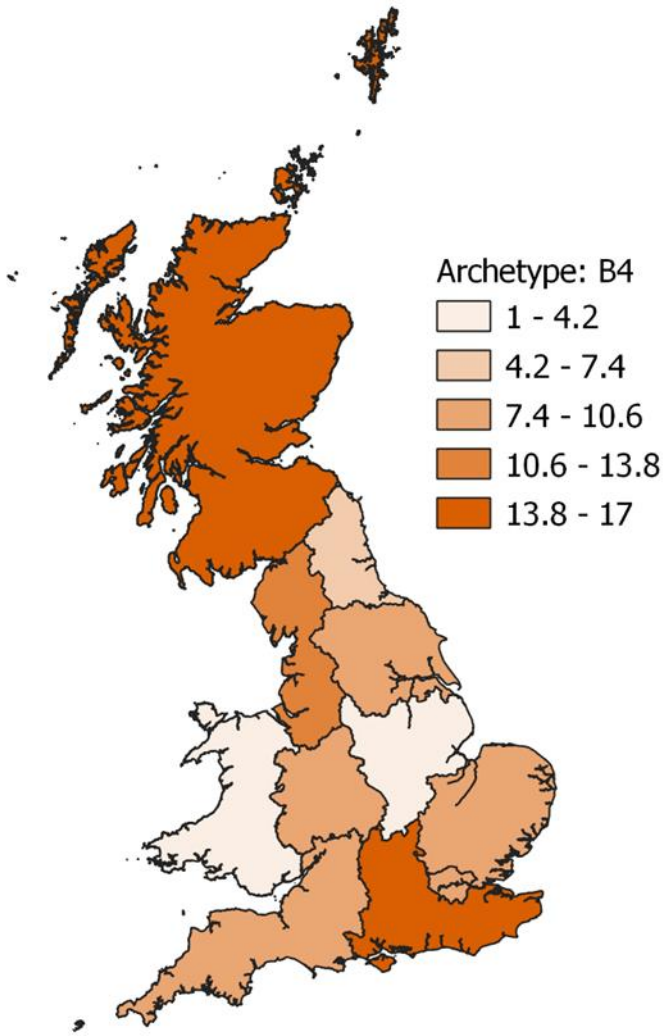


Figure 9: Percentage of the population of each English region and devolved nation of Great Britain in Archetype B4



6.5. Archetype B5

6.5.1. B5 headline statistics

Archetype B5: Key statistics		GB-wide statistics
Number of households	465,288	26,982,631
Average net income	£20,671	£37,883
Households on disability benefits	99%	12%
Average electricity consumption (kWh)	6,597	3,955
Average gas consumption (kWh)	-	13,697

Key words: low income; electric/solid fuel/LPG heating; 45+ years old; retired/unoccupied; disability benefits; high electricity consumption.

6.5.2. B5 summary description

Households in Archetype B5 are in the second lowest income decile. They use Electricity and Other types of fuels (i.e. LPG and solid fuel) for their heating and contain a large mixture of tenures and dwelling types. The occupants are retired/unoccupied 45+ years old couples or single adults. 99% of the households are on disability benefits, 51% being mobility disability, 25% dexterity, and 23% being a mobility disability. They have a large range of EPC ratings from A through to G, and do not consider themselves early adopters of new technologies.

Despite being only single adults or couples, they have very high electricity consumption relative to the GB average. This is likely because some houses are on electric heating, and because of their disabled status - meaning many may have at home medical equipment that consumes a lot of energy. Around half of the households are eligible for the Warm Home Discount Scheme and Winter Fuel Payments.

Half of these households are in rural areas. Greater percentages of this archetype are found in the South West of England and Scotland.

6.5.3. B5 summary profile

Archetype B5: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	0%	3%
	25-34	3%	14%
	35-44	7%	17%
	45-54	18%	19%
	55-64	28%	18%
	65-74	17%	15%
	75+	26%	14%
Main tenure	housing-association	18%	8%
	local-authority	21%	8%
	owner-occupied	38%	66%
	private-rented	22%	17%
Household composition	couple	39%	34%
	couple and children	4%	20%
	multiple adults	5%	9%
	multiple adults with children	2%	4%
	single adult (man)	23%	13%
	single adult (woman)	24%	15%
	single parent (man)	0%	0%
	single parent (woman)	3%	4%
Number of children in household	0	92%	72%
	1	4%	12%
	2+	4%	16%

Economic status of head of household	full-time employee	11%	44%
	part-time employee	6%	10%
	retired/ unoccupied over min national insurance (ni) age	41%	26%
	self-employed	4%	8%
	unemployed	2%	2%
	retired/ unoccupied - under min ni age	36%	10%
Main heating fuel of dwelling	electricity/Other (Solid fuel/LPG)		

Variable	Archetype	GB average
Internet in home	79%	94%
Early adopters	19%	67%
Has a degree qualification (or higher)	19%	28%
Pre-payment meter for electricity	23%	12%
Households in poverty (income below 60% of national median)	44%	19%
Eligible for Cold Weather Payments	19%	14%
Eligible for Energy Company Obligation	20%	15%
Eligible for Warm Home Discount Scheme	53%	17%
Eligible for Winter Fuel Payments	47%	33%
Rural Population	49%	22%

Figure 10: Income decile distribution of Archetype B5

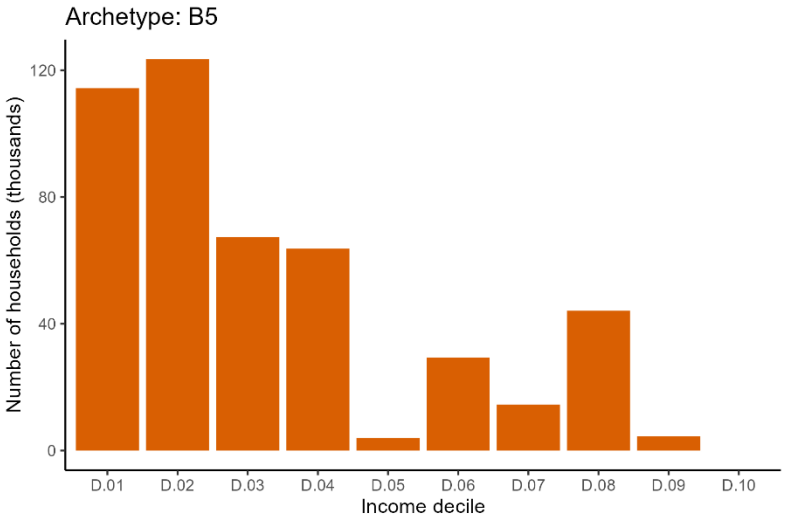
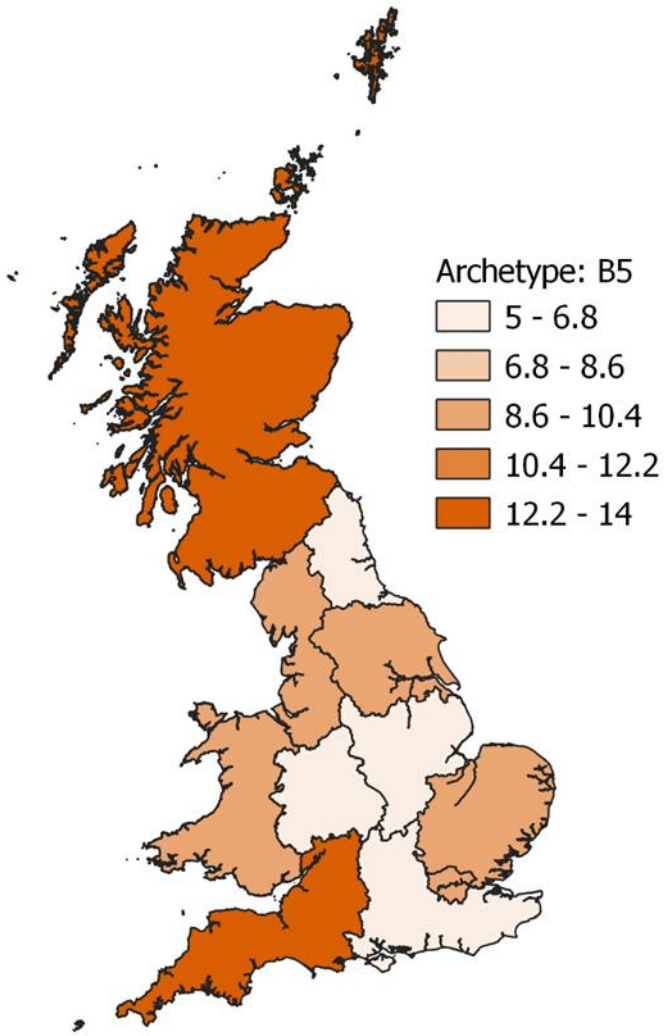


Figure 11: Percentage of the population of each English region and devolved nation of Great Britain in Archetype B5



6.6. Archetype B6

6.6.1. B6 headline statistics

Archetype B6: Key statistics		GB-wide statistics
Number of households	920,172	26,982,631
Average net income	£21,996	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	3,028	3,955
Average gas consumption (kWh)	10,525	13,697

Key words: low income; mains gas; private rented/local authority; 45-74 years old; low gas consumption; early adopters.

6.6.2. B6 summary description

Households in Archetype B6 are at the upper end of the second income decile with incomes still ~ £16'000 less than the GB average. The households are semi-detached or terraced which are either privately rented or occupied through the local authority. The occupants of these households are couples or single adults that are a mixture of different economic status' and are between the ages of 45 and 74 years old.

These households are on mains gas and are below the GB average for both gas and electricity consumption. This could be because a majority of the dwellings have no more than 5 rooms in total. They are not on disability benefits and have less than average levels of the reported disability types. 68% of occupants in these households consider themselves early adopters, which is almost exactly the GB average, and over half have never switched energy tariff. Archetype B6 tend to meet the GB average levels of discount scheme eligibility.

The highest percentages of these households are found in Yorkshire and the Humber, the North West of England and the East of England.

6.6.3. B6 summary profile

Archetype B6: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	10%	3%
	25-34	10%	14%
	35-44	8%	17%
	45-54	18%	19%
	55-64	18%	18%
	65-74	27%	15%
	75+	10%	14%
Main tenure	housing-association	12%	8%
	local-authority	37%	8%
	owner-occupied	1%	66%
	private-rented	49%	17%
Household composition	couple	38%	34%
	couple and children	0%	20%
	multiple adults	14%	9%
	multiple adults with children	0%	4%
	single adult (man)	19%	13%
	single adult (woman)	28%	15%
	single parent (man)	0%	0%
	single parent (woman)	1%	4%
Number of children in household	0	99%	72%
	1	1%	12%

	2+	0%	16%
Economic status of head of household	full-time employee	24%	44%
	part-time employee	16%	10%
	retired/ unoccupied over min national insurance (ni) age	29%	26%
	self-employed	14%	8%
	unemployed	5%	2%
	retired/ unoccupied - under min ni age	12%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	95%	94%
Early adopters	68%	67%
Has a degree qualification (or higher)	16%	28%
Pre-payment meter for electricity	34%	12%
Households in poverty (income below 60% of national median)	41%	19%
Eligible for Cold Weather Payments	12%	14%
Eligible for Energy Company Obligation	1%	15%
Eligible for Warm Home Discount Scheme	28%	17%
Eligible for Winter Fuel Payments	37%	33%
Rural Population	13%	22%

Figure 12: Income decile distribution of Archetype B6

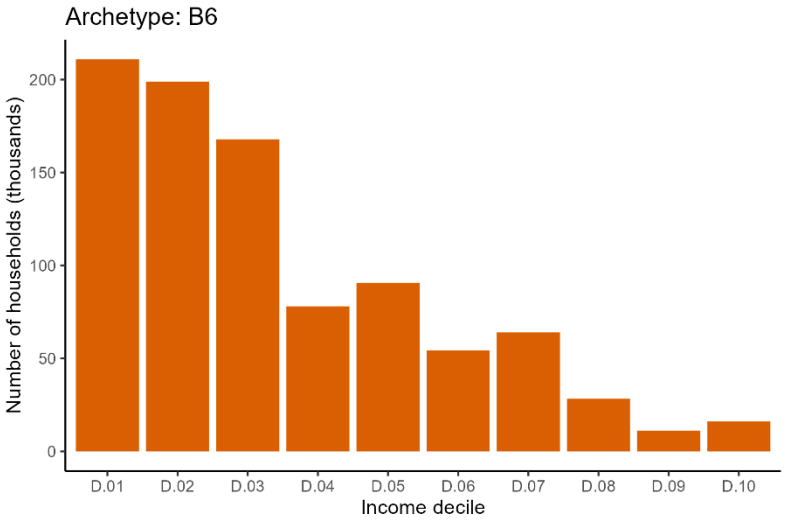
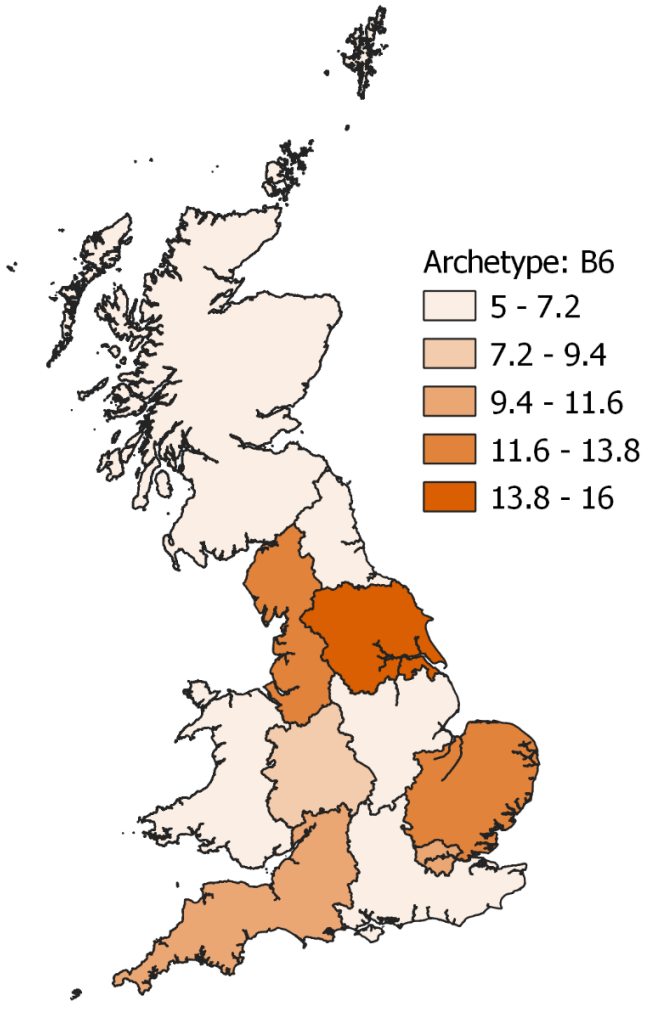


Figure 13: Percentage of the population of each English region and devolved nation of Great Britain in Archetype B6



6.7. Archetype C7

6.7.1. C7 headline statistics

Archetype C7: Key statistics		GB-wide statistics
Number of households	659,595	26,982,631
Average net income	£26,122	£37,883
Households on disability benefits	1%	12%
Average electricity consumption (kWh)	3,649	3,955
Average gas consumption (kWh)	13,119	13,697

Key words: lower-middle income; mains gas; purpose-built flats; housing association/local authority; full-time/part-time employed/ 25-54 years old; early adopters; high proportion BAME.

6.7.2. C7 summary description

These households are on mains gas, are lower-middle income earners, and consume gas and electricity at levels similar to the GB average. The occupants are the lowest income households that also have children, with 52% having one child, and 48% having two or more children occupying the dwelling. The parents are in full-time or part-time employment, between the ages of 25 and 54. They live in local authority or housing association purpose-built flats. The flats are small, with 58% of them having a total of only four rooms. Archetype C7 have the second highest prevalence of BAME households (28%) and are found in highest concentrations in London and in Scotland.

These households are early adopters, but 76% of households have never switched tariff. 51% of the households are eligible for the Warm Home Discount Scheme, but they have low eligibility for all other schemes.

6.7.3. C7 summary profile

Archetype C7: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	6%	3%
	25-34	32%	14%
	35-44	36%	17%
	45-54	23%	19%
	55-64	3%	18%
	65-74	1%	15%
	75+	0%	14%
Main tenure	housing-association	47%	8%
	local-authority	26%	8%
	owner-occupied	6%	66%
	private-rented	21%	17%
Household composition	couple	0%	34%
	couple and children	64%	20%
	multiple adults	0%	9%
	multiple adults with children	5%	4%
	single adult (man)	0%	13%
	single adult (woman)	0%	15%
	single parent (man)	2%	0%
	single parent (woman)	28%	4%
Number of children in household	0	0%	72%
	1	52%	12%
	2+	48%	16%

Economic status of head of household	full-time employee	41%	44%
	part-time employee	27%	10%
	retired/ unoccupied over min national insurance (ni) age	1%	26%
	self-employed	10%	8%
	unemployed	4%	2%
	retired/ unoccupied - under min ni age	16%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	98%	94%
Early adopters	99%	67%
Has a degree qualification (or higher)	24%	28%
Pre-payment meter for electricity	41%	12%
Households in poverty (income below 60% of national median)	50%	19%
Eligible for Cold Weather Payments	14%	14%
Eligible for Energy Company Obligation	0%	15%
Eligible for Warm Home Discount Scheme	51%	17%
Eligible for Winter Fuel Payments	2%	33%
Rural Population	8%	22%

Figure 14: Income decile distribution of Archetype C7

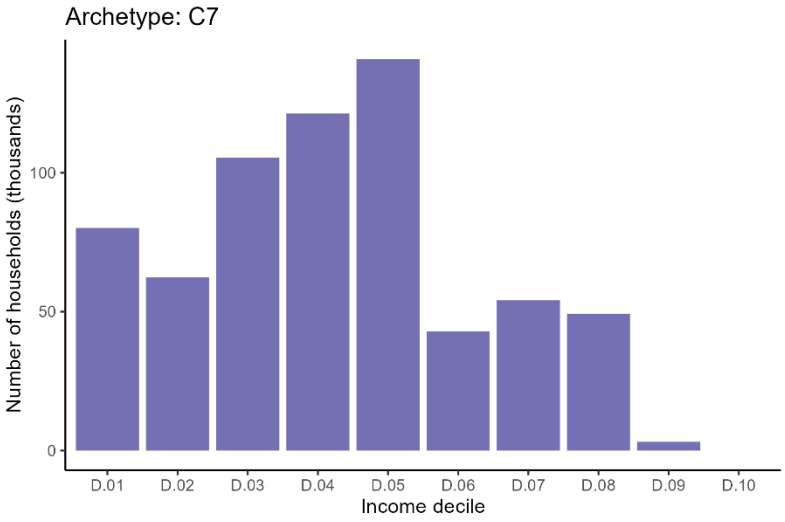
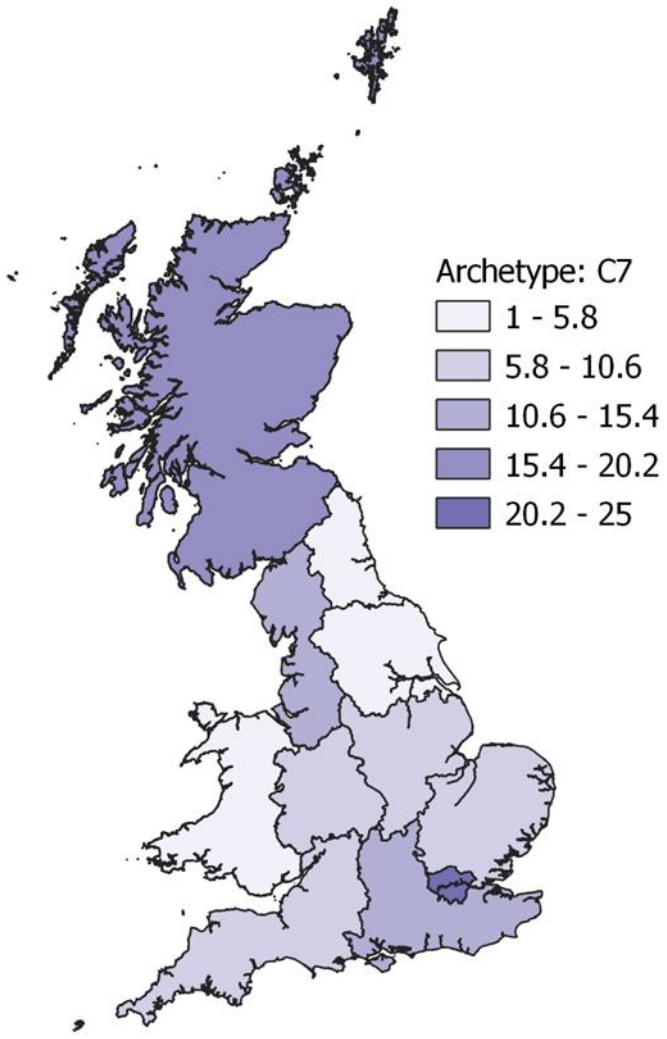


Figure 15: Percentage of the population of each English region and devolved nation of Great Britain in Archetype C7



6.8. Archetype C8

6.8.1. C8 headline statistics

Archetype C8: Key statistics		GB-wide statistics
Number of households	228,477	26,982,631
Average net income	£27,815	£37,883
Households on disability benefits	11%	12%
Average electricity consumption (kWh)	5,587	3,955
Average gas consumption (kWh)	-	13,697

Key words: lower middle-income; electric heating; purpose-built flat; private rented/local authority; full-time/part-time employed; 1 child; 25-54; early adopters; high proportion BAME.

6.8.2. C8 summary description

The archetype C8 consists of lower-middle income households with occupants who are single child families, with parents who are 25–54 year-old in full-time or part-time employment. They occupy purpose-built flats that are either privately rented or are from the local authority. This is the archetype with highest percentage of BAME households (34%).

This is an off gas archetype that use electricity as their main heating fuel. Because of this, they have greater than average electricity consumption. 66% of C8 households use an electric immersion system to heat their hot water.

Archetype C8 are not on disability benefits, but 45% of them are considered to be below the poverty line. 56% are eligible for the Warm Home Discount Scheme but are well below the average GB eligibility for Energy Company Obligation and Winter Fuel Payments schemes.

C8 households are found in the greatest percentages in London and South East England.

6.8.3. C8 summary profile

Archetype C8: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	3%	3%
	25-34	33%	14%
	35-44	32%	17%
	45-54	29%	19%
	55-64	3%	18%
	65-74	0%	15%
	75+	0%	14%
Main tenure	housing-association	19%	8%
	local-authority	26%	8%
	owner-occupied	16%	66%
	private-rented	39%	17%
Household composition	couple	0%	34%
	couple and children	62%	20%
	multiple adults	0%	9%
	multiple adults with children	5%	4%
	single adult (man)	3%	13%
	single adult (woman)	0%	15%
	single parent (man)	5%	0%
	single parent (woman)	25%	4%
Number of children in household	0	3%	72%
	1	91%	12%
	2+	6%	16%

Economic status of head of household	full-time employee	42%	44%
	part-time employee	29%	10%
	retired/ unoccupied over min national insurance (ni) age	0%	26%
	self-employed	9%	8%
	unemployed	2%	2%
	retired/ unoccupied - under min ni age	18%	10%
Main heating fuel of dwelling	electricity		

Variable	Archetype	GB average
Internet in home	100%	94%
Early adopters	97%	67%
Has a degree qualification (or higher)	29%	28%
Pre-payment meter for electricity	31%	12%
Households in poverty (income below 60% of national median)	45%	19%
Eligible for Cold Weather Payments	18%	14%
Eligible for Energy Company Obligation	2%	15%
Eligible for Warm Home Discount Scheme	56%	17%
Eligible for Winter Fuel Payments	3%	33%
Rural Population	12%	22%

Figure 16: Income decile distribution of Archetype C8

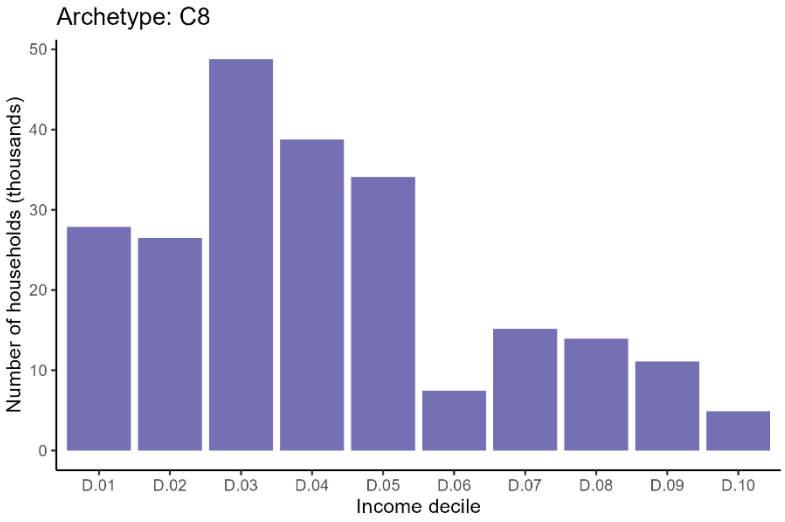
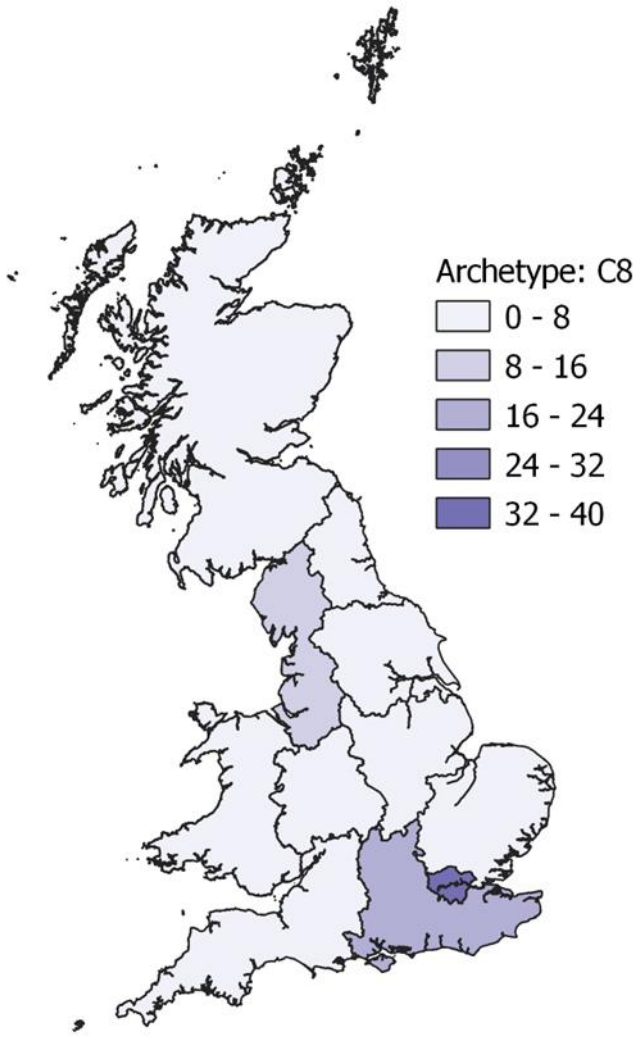


Figure 17: Percentage of the population of each English region and devolved nation of Great Britain in Archetype C8



6.9. Archetype C9

6.9.1. C9 headline statistics

Archetype C9: Key statistics		GB-wide statistics
Number of households	3,408,514	26,982,631
Average net income	£29,196	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	3,337	3,955
Average gas consumption (kWh)	13,685	13,697

Key words: lower-middle income; couples/single adult woman; retired; 65+ years old; owner occupied semi-detached/terraced dwellings; average energy consumption; WFP eligible.

6.9.2. C9 summary description

Archetype C9 contains lower-middle income retiree that are 65+ years old and are either couples or contain single adult women. 98% of these own their own homes, which tend to be semi-detached or terraced dwellings. They do not receive disability benefits and have relatively low levels of scheme eligibility apart from Winter Fuel Payments, for which 70% of households in C9 meet the criteria.

This archetype has mains gas as their main heating fuel and have very average electricity and gas consumption. Only 33% consider themselves to be early adopters, 100% say that they engage with the energy market, which is backed up by the fact that 87% have switched energy tariff.

C9 households are found in higher concentrations can be found in the South East and North West of England.

6.9.3. C9 summary profile

Archetype C9: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	0%	3%
	25-34	2%	14%
	35-44	3%	17%
	45-54	7%	19%
	55-64	25%	18%
	65-74	33%	15%
	75+	30%	14%
Main tenure	housing-association	0%	8%
	local-authority	0%	8%
	owner-occupied	98%	66%
	private-rented	1%	17%
Household composition	couple	47%	34%
	couple and children	0%	20%
	multiple adults	10%	9%
	multiple adults with children	0%	4%
	single adult (man)	15%	13%
	single adult (woman)	28%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	100%	72%
	1	0%	12%
	2+	0%	16%

Economic status of head of household	full-time employee	2%	44%
	part-time employee	15%	10%
	retired/ unoccupied over min national insurance (ni) age	56%	26%
	self-employed	14%	8%
	unemployed	2%	2%
	retired/ unoccupied - under min ni age	12%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	99%	94%
Early adopters	33%	67%
Has a degree qualification (or higher)	18%	28%
Pre-payment meter for electricity	3%	12%
Households in poverty (income below 60% of national median)	23%	19%
Eligible for Cold Weather Payments	3%	14%
Eligible for Energy Company Obligation	4%	15%
Eligible for Warm Home Discount Scheme	4%	17%
Eligible for Winter Fuel Payments	70%	33%
Rural Population	15%	22%

Figure 18: Income decile distribution of Archetype C9

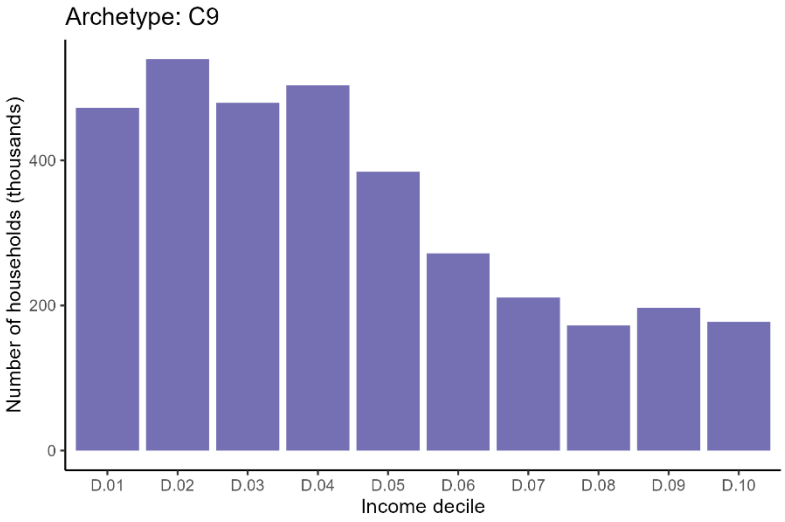
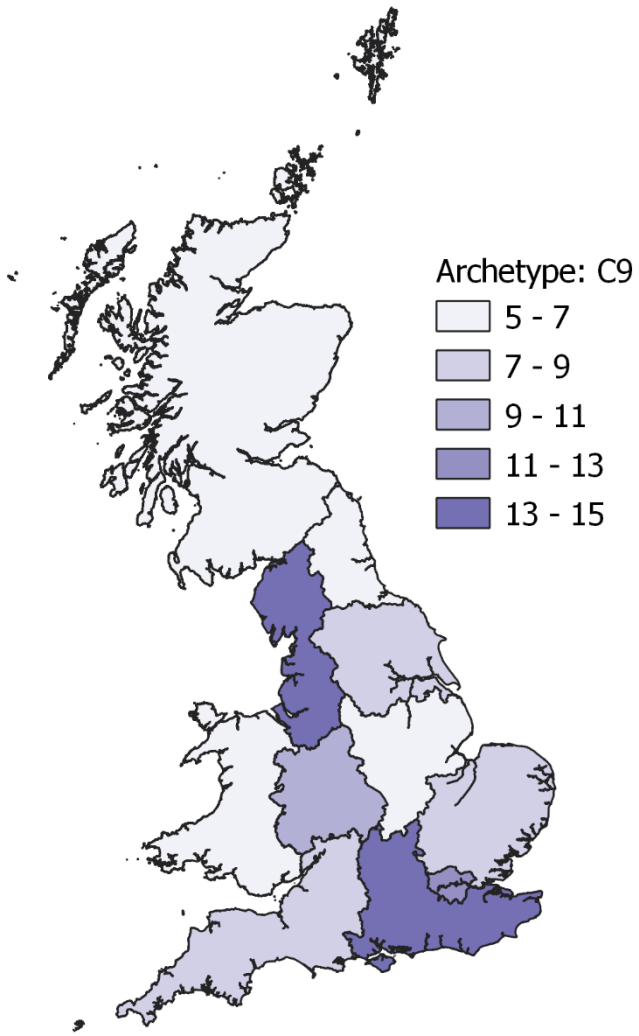


Figure 19: Percentage of the population of each English region and devolved nation of Great Britain in Archetype C9



6.10. Archetype D10

6.10.1. D10 headline statistics

Archetype D10: Key statistics		GB-wide statistics
Number of households	1,163,946	26,982,631
Average net income	£29,307	£37,883
Households on disability benefits	100%	12%
Average electricity consumption (kWh)	3,881	3,955
Average gas consumption (kWh)	13,981	13,697

Key words: lower-middle income; mains gas; disability benefits; mobility & dexterity disability; retired/unoccupied; owner occupier; semi-detached/terraced; 55+ years old; not early adopters; CWP & WFP eligible.

6.10.2. D10 summary description

Households in the archetype D10 are in the 4th income decile. They rely on mains gas for heating their semi-detached and terraced homes that they own. They are a couple or multiple adults without children. They are retired and unoccupied over the age of 55. 100% of them are on disability benefits – 56% of which are mobility disabilities, and 30% are dexterity disability. D10 also has one of the highest occurrences of wheelchair users at 14%.

D10 households have greater than GB average eligibility for all government schemes, with 100% eligible for Cold Weather Payments. They have very average electricity and gas consumption despite likely spending a lot of time of home due to their unoccupied status. They are generally not early adopters, but 82% have switched energy tariff in the past.

Archetype D10 is mostly evenly distributed across GB, but there are slightly higher concentrations of these households in the Yorkshire and the Humber, the North East and North West of England.

6.10.3. D10 summary profile

Archetype D10: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	0%	3%
	25-34	1%	14%
	35-44	1%	17%
	45-54	16%	19%
	55-64	26%	18%
	65-74	25%	15%
	75+	30%	14%
Main tenure	housing-association	4%	8%
	local-authority	6%	8%
	owner-occupied	87%	66%
	private-rented	3%	17%
Household composition	couple	56%	34%
	couple and children	0%	20%
	multiple adults	19%	9%
	multiple adults with children	0%	4%
	single adult (man)	7%	13%
	single adult (woman)	18%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	100%	72%
	1	0%	12%
	2+	0%	16%

Economic status of head of household	full-time employee	13%	44%
	part-time employee	9%	10%
	retired/ unoccupied over min national insurance (ni) age	55%	26%
	self-employed	3%	8%
	unemployed	2%	2%
	retired/ unoccupied - under min ni age	18%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	91%	94%
Early adopters	35%	67%
Has a degree qualification (or higher)	11%	28%
Pre-payment meter for electricity	9%	12%
Households in poverty (income below 60% of national median)	24%	19%
Eligible for Cold Weather Payments	100%	14%
Eligible for Energy Company Obligation	28%	15%
Eligible for Warm Home Discount Scheme	38%	17%
Eligible for Winter Fuel Payments	61%	33%
Rural Population	19%	22%

Figure 20: Income decile distribution of Archetype D10

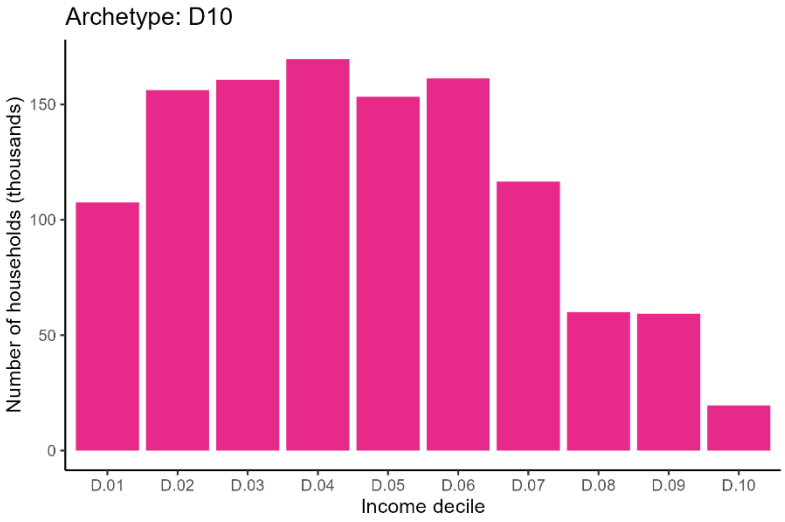
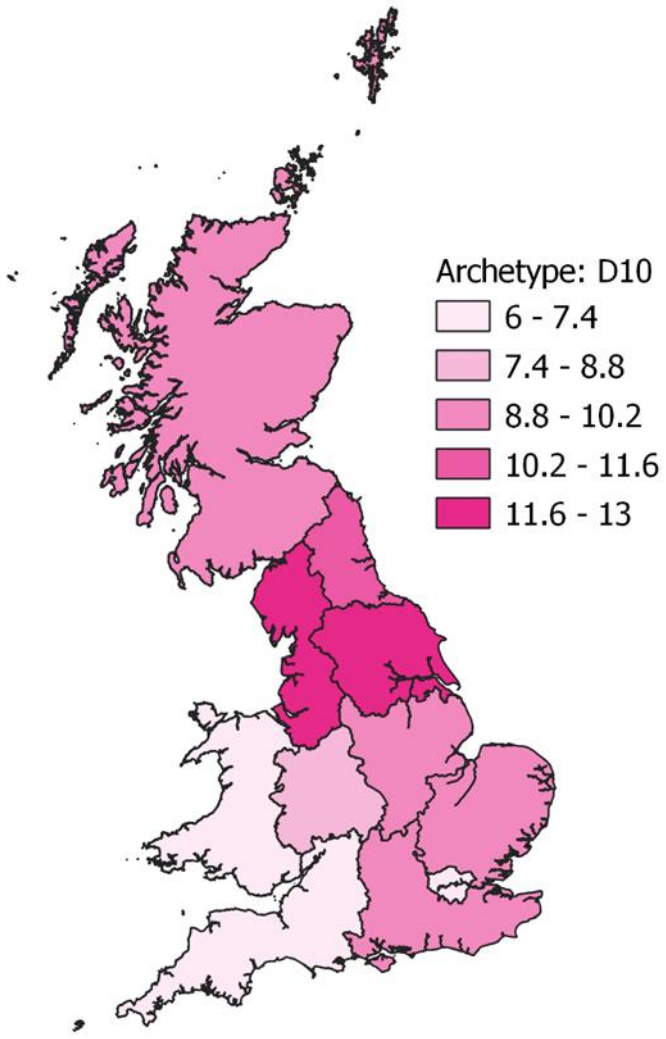


Figure 21: Percentage of the population of each English region and devolved nation of Great Britain in Archetype D10



6.11. Archetype D11

6.11.1. D11 headline statistics

Archetype D11: Key statistics		GB-wide statistics
Number of households	1,197,075	26,982,631
Average net income	£34,219	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	2,482	3,955
Average gas consumption (kWh)	8,782	13,697

Key words: lower-middle income; low energy consumption; good EPC rating; purpose-built flats; full-time employed; 25-74 years old; early adopters; urban; low scheme eligibility.

6.11.2. D11 summary description

Archetype D11 households are middle-income single adults and couples without children who are 25-74 years old in full-time employment. They privately rent or own purpose-built flats in urban areas with a mains gas supply and good EPC ratings of A-C, this, along with them likely being out all day due to being in full-time employment, has caused D10 to have the lowest electricity and gas consumption of all archetypes.

A majority of D10 households are early adopters. 31% are educated to degree level. They have very low scheme eligibility. This archetype is found in the highest concentration in London and Scotland.

6.11.3. D11 summary profile

Archetype D11: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	4%	3%
	25-34	21%	14%
	35-44	17%	17%
	45-54	21%	19%
	55-64	16%	18%
	65-74	13%	15%
	75+	8%	14%
Main tenure	housing-association	11%	8%
	local-authority	13%	8%
	owner-occupied	56%	66%
	private-rented	21%	17%
Household composition	couple	39%	34%
	couple and children	4%	20%
	multiple adults	5%	9%
	multiple adults with children	0%	4%
	single adult (man)	31%	13%
	single adult (woman)	21%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	96%	72%
	1	3%	12%
	2+	1%	16%

Economic status of head of household	full-time employee	61%	44%
	part-time employee	8%	10%
	retired/ unoccupied over min national insurance (ni) age	19%	26%
	self-employed	9%	8%
	unemployed	0%	2%
	retired/ unoccupied - under min ni age	3%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	100%	94%
Early adopters	77%	67%
Has a degree qualification (or higher)	31%	28%
Pre-payment meter for electricity	16%	12%
Households in poverty (income below 60% of national median)	9%	19%
Eligible for Cold Weather Payments	2%	14%
Eligible for Energy Company Obligation	0%	15%
Eligible for Warm Home Discount Scheme	5%	17%
Eligible for Winter Fuel Payments	23%	33%
Rural Population	6%	22%

Figure 22: Income decile distribution of Archetype D11

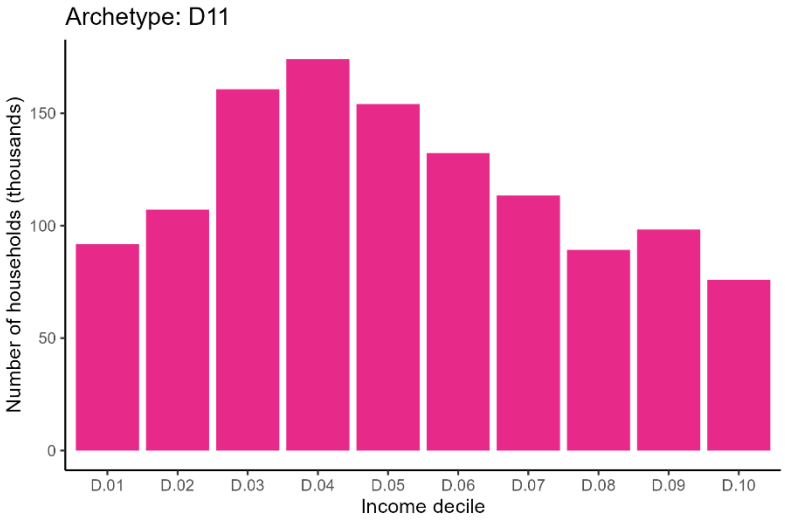
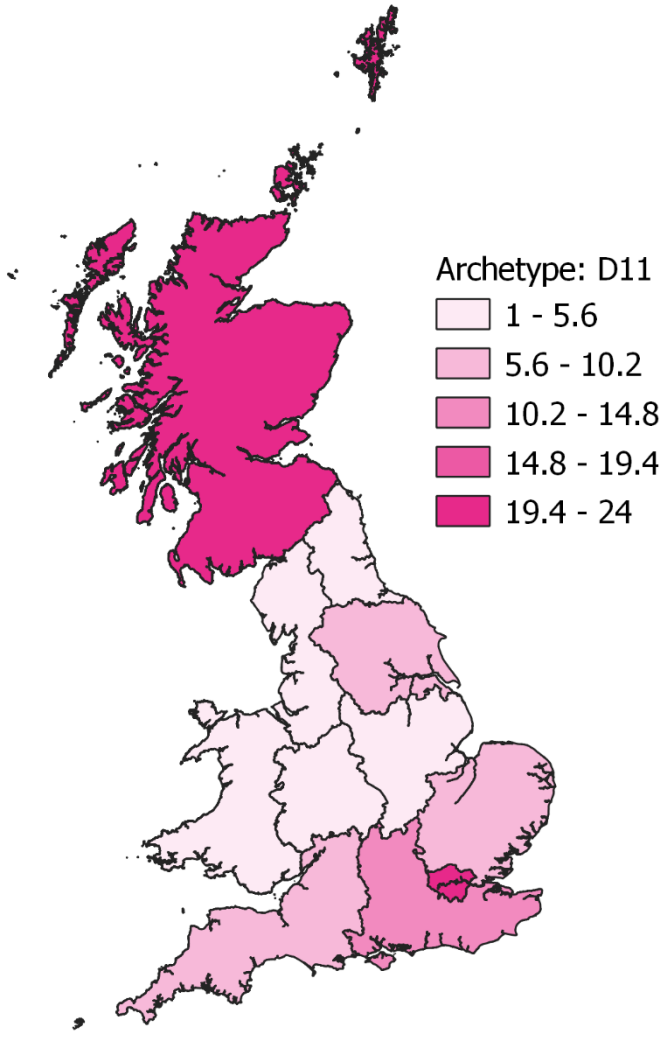


Figure 23: Percentage of the population of each English region and devolved nation of Great Britain in Archetype D11



6.12. Archetype D12

6.12.1. D12 headline statistics

Archetype D12: Key statistics		GB-wide statistics
Number of households	1,457,829	26,982,631
Average net income	£34,760	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	3,952	3,955
Average gas consumption (kWh)	16,065	13,697

Key words: lower-middle income; retired 65+; owner occupied; large, detached dwellings; couples; high gas consumption; not early adopters; eligible for WFP; suburbanites.

6.12.2. D12 summary description

D12 are middle income retired couples that are 65+ years old. They own their homes, which are large detached sub-urban dwellings that have up to 10 rooms and 3-4 bedrooms. They have one of the highest levels of gas consumption, likely because to their detached homes have many rooms and are likely quite large rooms relative to other dwelling types. However, they have average electricity consumption – due to the homes being under-occupied. 56% of these households have a condensing boiler, which is different to most other mains-gas archetypes that used condensing-combination boilers.

100% of these households are eligible for Winter Fuel Payments, but only 1% of the households are eligible for any other scheme.

They are not early adopters, but 100% engage in the energy market and have switched tariff.

6.12.3. D12 summary profile

Archetype D12: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	0%	3%
	25-34	0%	14%
	35-44	0%	17%
	45-54	0%	19%
	55-64	0%	18%
	65-74	55%	15%
	75+	45%	14%
Main tenure	housing-association	0%	8%
	local-authority	0%	8%
	owner-occupied	100%	66%
	private-rented	0%	17%
Household composition	couple	67%	34%
	couple and children	0%	20%
	multiple adults	5%	9%
	multiple adults with children	0%	4%
	single adult (man)	8%	13%
	single adult (woman)	20%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	100%	72%
	1	0%	12%
	2+	0%	16%

Economic status of head of household	full-time employee	0%	44%
	part-time employee	0%	10%
	retired/ unoccupied over min national insurance (ni) age	100%	26%
	self-employed	0%	8%
	unemployed	0%	2%
	retired/ unoccupied - under min ni age	0%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	99%	94%
Early adopters	0%	67%
Has a degree qualification (or higher)	10%	28%
Pre-payment meter for electricity	0%	12%
Households in poverty (income below 60% of national median)	8%	19%
Eligible for Cold Weather Payments	1%	14%
Eligible for Energy Company Obligation	1%	15%
Eligible for Warm Home Discount Scheme	1%	17%
Eligible for Winter Fuel Payments	100%	33%
Rural Population	29%	22%

Figure 24: Income decile distribution of Archetype D12

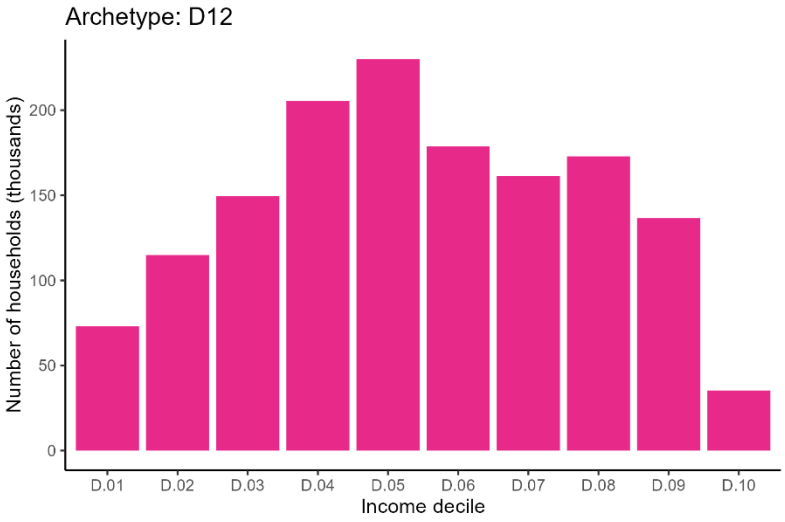
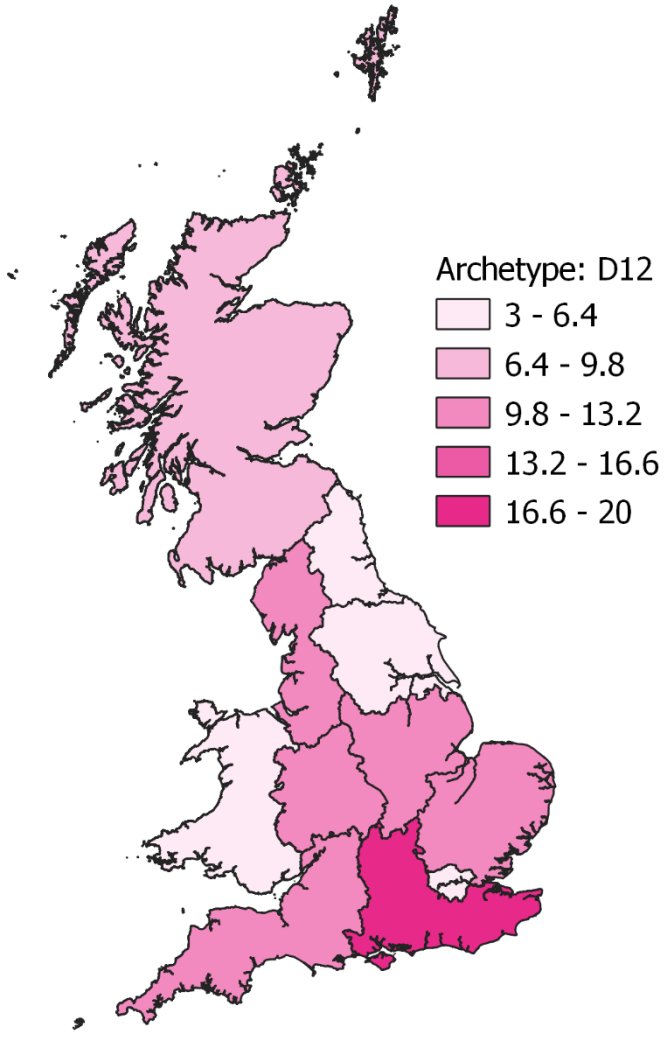


Figure 25: Percentage of the population of each English region and devolved nation of Great Britain in Archetype D12



6.13. Archetype E13

6.13.1. E13 headline statistics

Archetype E13: Key statistics		GB-wide statistics
Number of households	690,892	26,982,631
Average net income	£34,782	£37,883
Households on disability benefits	99%	12%
Average electricity consumption (kWh)	5,075	3,955
Average gas consumption (kWh)	16,722	13,697

Key words: middle income; <35-54 year old unoccupied/retirees; 1+ children; disability benefits; early adopters; high energy consumption; CWP & WHDS eligible; prepayment meter; hard-pressed living.

6.13.2. E13 summary description

Households in Archetype E13 are middle income earners, close to the GB average. They are terraced or semi-detached dwellings that use mains gas as their main heating source. E13 is quite a broad archetype, which encompasses all of the different tenure categories, they are families with one or more children, most with two adults and children and some that are 3+ adults with children. The age range for the head of the households is 35-54, and they are in either full time employment or are retired/unoccupied and below the age of 55. A high proportion are not working because 99% of households receive disability benefits – this may explain why some households have more than two adults given a carer could be present. There is a fairly even spread of the different disability types among this archetype.

Archetype E13 has the second highest gas consumption due to the unoccupied status of one of the adults meaning that they are home during the day, and the presence of children in the household. Electricity consumption is also around 25% higher than the GB average. These households are early adopters of technologies. 36% and 37% of households are on prepayment meters for electricity and gas, respectively.

14% and 11% of the households in the North West and Yorkshire and the Humber, respectively, are in Archetype E13, which are among some of the highest percentages for those regions.

6.13.3. E13 summary profile

Archetype E13: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	2%	3%
	25-34	13%	14%
	35-44	38%	17%
	45-54	36%	19%
	55-64	8%	18%
	65-74	1%	15%
	75+	2%	14%
Main tenure	housing-association	21%	8%
	local-authority	30%	8%
	owner-occupied	30%	66%
	private-rented	20%	17%
Household composition	couple	0%	34%
	couple and children	48%	20%
	multiple adults	0%	9%
	multiple adults with children	29%	4%
	single adult (man)	0%	13%
	single adult (woman)	0%	15%
	single parent (man)	1%	0%
	single parent (woman)	21%	4%
Number of children in household	0	0%	72%
	1	44%	12%

	2+	56%	16%
Economic status of head of household	full-time employee	31%	44%
	part-time employee	20%	10%
	retired/ unoccupied over min national insurance (ni) age	3%	26%
	self-employed	5%	8%
	unemployed	4%	2%
	retired/ unoccupied - under min ni age	38%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	99%	94%
Early adopters	97%	67%
Has a degree qualification (or higher)	19%	28%
Pre-payment meter for electricity	36%	12%
Households in poverty (income below 60% of national median)	40%	19%
Eligible for Cold Weather Payments	99%	14%
Eligible for Energy Company Obligation	23%	15%
Eligible for Warm Home Discount Scheme	66%	17%
Eligible for Winter Fuel Payments	3%	33%
Rural Population	16%	22%

Figure 26: Income decile distribution of Archetype E13

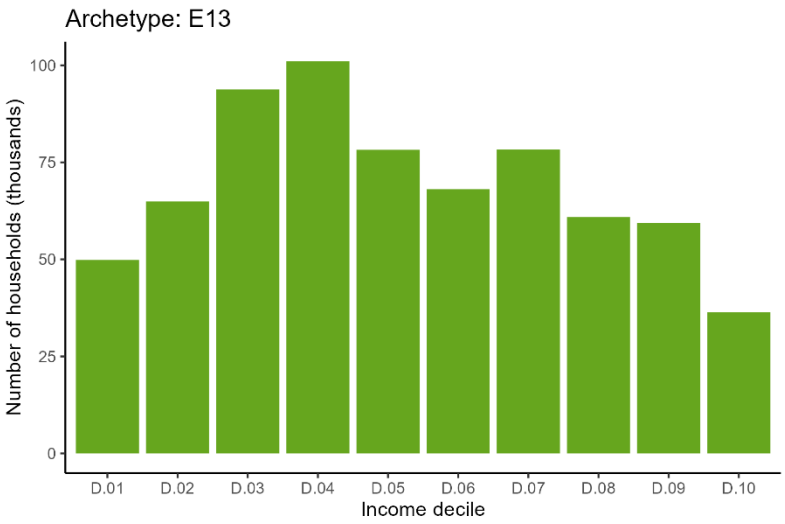
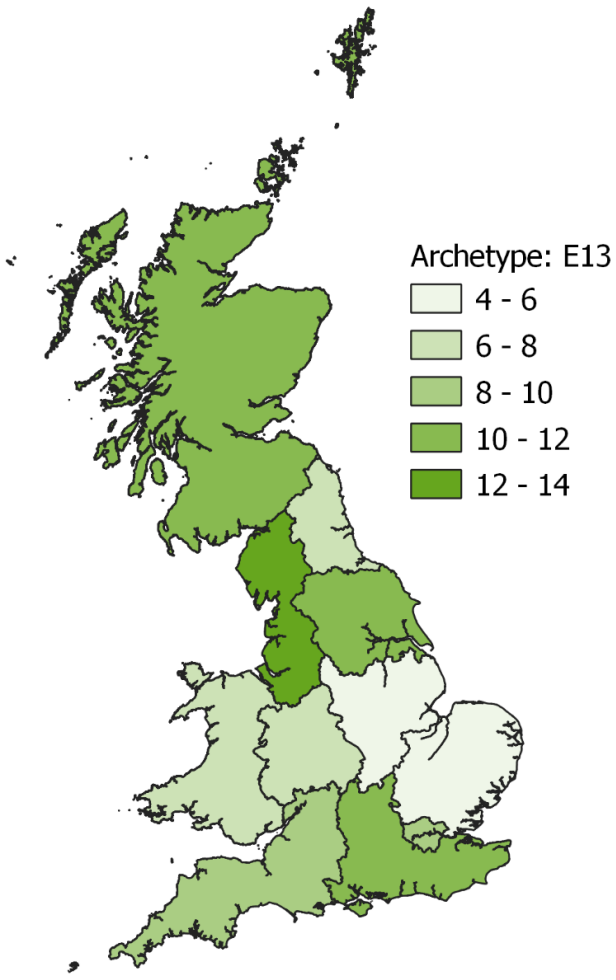


Figure 27: Percentage of the population of each English region and devolved nation of Great Britain in Archetype E13



6.14. Archetype E14

6.14.1. E14 headline statistics

Archetype E14: Key statistics		GB-wide statistics
Number of households	1,178,684	26,982,631
Average net income	£37,015	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	4,070	3,955
Average gas consumption (kWh)	14,606	13,697

Key words: middle income earners; 2+ children; 25-54 year olds; full-time/part-time employed; private-rented/owner occupied; urban; early adopters.

6.14.2. E14 summary description

Households in archetype E14 have the most average income, with net income being just £700 less than the GB average. They are in full-time or part-time employment. The households contain large families (2+ children) with the parents being between 25 and 54 years old. The households are predominantly owner-occupied/private rented terraced/semi-detached housing, with a mains gas supply and an EPC rating of D.

The households have fairly average electricity consumption, and slightly higher than average gas consumption, which is fairly unexpected given that they are large families and that their dwellings have EPC rating of only D. 26% of these households are education up to a degree level. 99% are early adopters, while 60% have never switched energy tariff.

6.14.3. E14 summary profile

Archetype E14: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	2%	3%
	25-34	33%	14%
	35-44	42%	17%
	45-54	18%	19%
	55-64	3%	18%
	65-74	1%	15%
	75+	1%	14%
Main tenure	housing-association	4%	8%
	local-authority	17%	8%
	owner-occupied	26%	66%
	private-rented	53%	17%
Household composition	couple	0%	34%
	couple and children	69%	20%
	multiple adults	0%	9%
	multiple adults with children	7%	4%
	single adult (man)	0%	13%
	single adult (woman)	0%	15%
	single parent (man)	2%	0%
	single parent (woman)	22%	4%
Number of children in household	0	0%	72%
	1	0%	12%

	2+	100%	16%
Economic status of head of household	full-time employee	42%	44%
	part-time employee	27%	10%
	retired/ unoccupied over min national insurance (ni) age	1%	26%
	self-employed	18%	8%
	unemployed	1%	2%
	retired/ unoccupied - under min ni age	10%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	100%	94%
Early adopters	99%	67%
Has a degree qualification (or higher)	26%	28%
Pre-payment meter for electricity	28%	12%
Households in poverty (income below 60% of national median)	37%	19%
Eligible for Cold Weather Payments	13%	14%
Eligible for Energy Company Obligation	23%	15%
Eligible for Warm Home Discount Scheme	39%	17%
Eligible for Winter Fuel Payments	2%	33%
Rural Population	17%	22%

Figure 28: Income decile distribution of Archetype E14

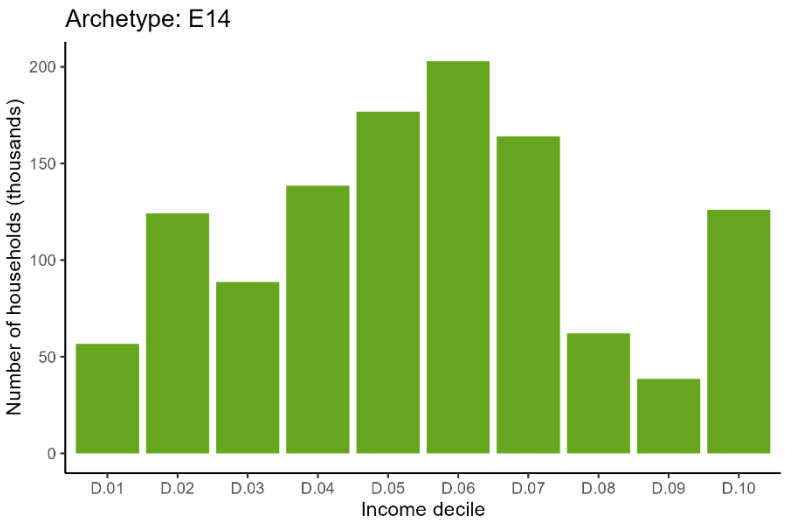
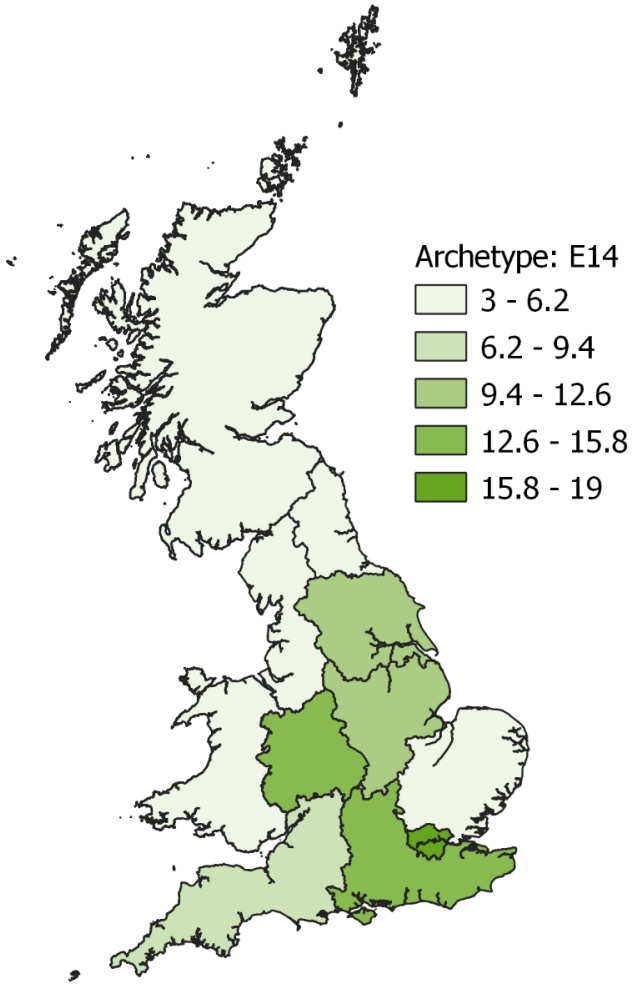


Figure 29: Percentage of the population of each English region and devolved nation of Great Britain in Archetype E14



6.15. Archetype F15

6.15.1. F15 headline statistics

Archetype F15: Key statistics		GB-wide statistics
Number of households	323,433	26,982,631
Average net income	£38,893	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	6,883	3,955
Average gas consumption (kWh)	-	13,697

Key words: middle income; other/electric heating fuel; 2+ children; full-time/self-employed; 25-54 year olds; early adopters; high electricity consumption.

6.15.2. F15 summary description

F15 households are middle-income earners. They are off-gas households, who use 'other' heating fuels and electricity to heat their homes. Contained within this 'other' category are 56% of households who's main heating fuel is unknown, meaning there is some uncertainty here. 36% use electricity to heat their homes. This had led to F15 having the second highest electricity consumption of all the archetypes.

The occupants are large families (2+ children), with the parents being 25-54 years old and in full time employment or are self-employed. They occupy terraced/semi-detached houses or purpose-built flats that are either privately owned or rented. These dwellings span the whole range of EPC ratings, from A through to G. 41% of the households have been educated to a degree level or higher which is above the GB average, and they are early adopters of new technologies.

The highest percentages of archetype F15 occur in London, the East of England and in Scotland.

6.15.3. F15 summary profile

Archetype F15: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	0%	3%
	25-34	22%	14%
	35-44	53%	17%
	45-54	25%	19%
	55-64	0%	18%
	65-74	0%	15%
	75+	0%	14%
Main tenure	housing-association	16%	8%
	local-authority	0%	8%
	owner-occupied	41%	66%
	private-rented	43%	17%
Household composition	couple	0%	34%
	couple and children	66%	20%
	multiple adults	5%	9%
	multiple adults with children	8%	4%
	single adult (man)	1%	13%
	single adult (woman)	0%	15%
	single parent (man)	4%	0%
	single parent (woman)	15%	4%
Number of children in household	0	6%	72%
	1	1%	12%
	2+	93%	16%

Economic status of head of household	full-time employee	50%	44%
	part-time employee	10%	10%
	retired/ unoccupied over min national insurance (ni) age	0%	26%
	self-employed	24%	8%
	unemployed	7%	2%
	retired/ unoccupied - under min ni age	8%	10%
Main heating fuel of dwelling	Other (solid fuel/LPG)		

Variable	Archetype	GB average
Internet in home	97%	94%
Early adopters	99%	67%
Has a degree qualification (or higher)	41%	28%
Pre-payment meter for electricity	24%	12%
Households in poverty (income below 60% of national median)	23%	19%
Eligible for Cold Weather Payments	6%	14%
Eligible for Energy Company Obligation	37%	15%
Eligible for Warm Home Discount Scheme	26%	17%
Eligible for Winter Fuel Payments	0%	33%
Rural Population	35%	22%

Figure 30: Income decile distribution of Archetype F15

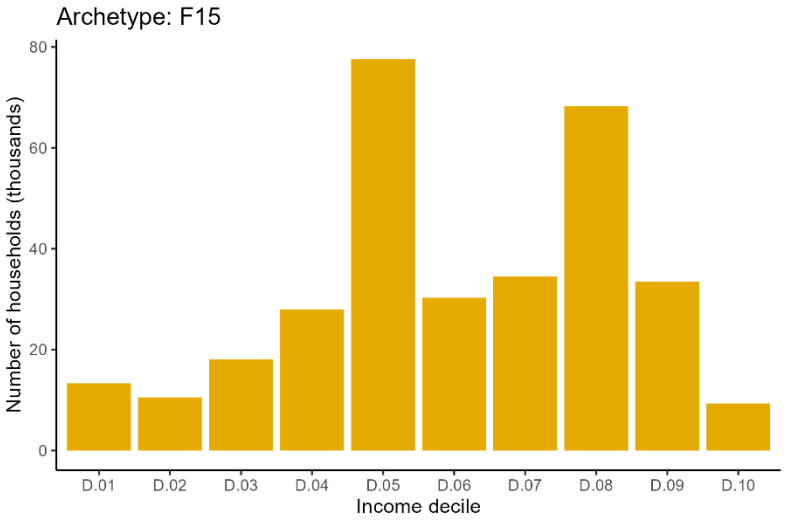
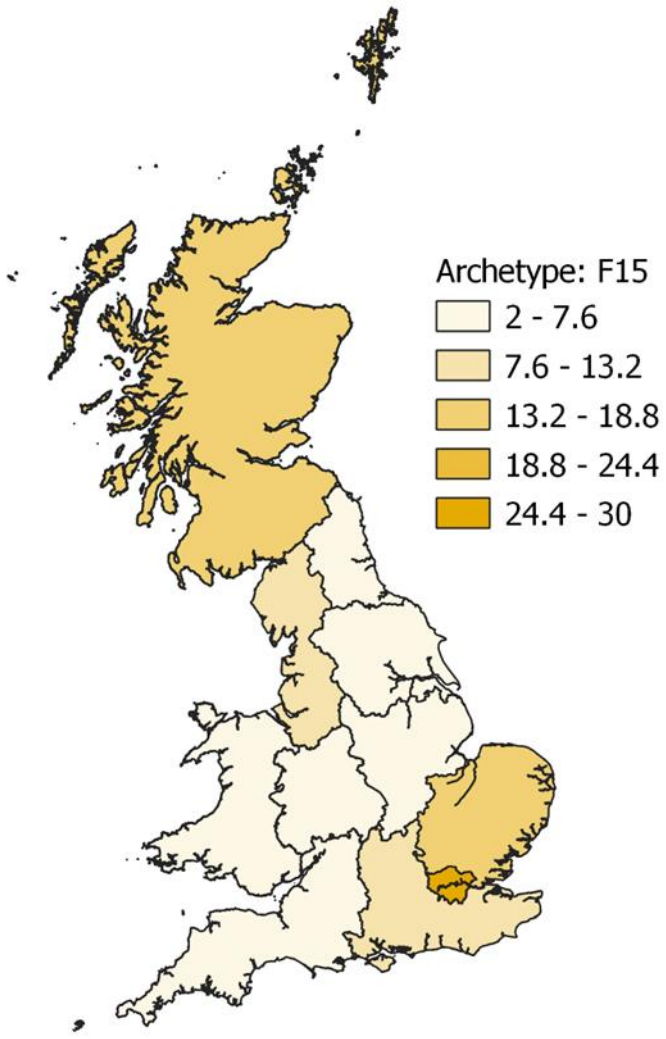


Figure 31: Percentage of the population of each English region and devolved nation of Great Britain in Archetype F15



6.16. Archetype F16

6.16.1. F16 headline statistics

Archetype F16: Key statistics		GB-wide statistics
Number of households	989,639	26,982,631
Average net income	£40,868	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	4,317	3,955
Average gas consumption (kWh)	-	13,697

Key words: middle income; electric heating; has degree or higher; purpose-built flats; 16-34 year olds; good EPC rating; full-time employed; couple/single adult man; early adopters; have degree.

6.16.2. F16 summary description

Archetype F16 households are middle income, young professional single males or couples. They are the youngest archetype, with 14% of the head of household representatives being between 16 and 24 years old, and 43% being between 25 and 34. They are full-time employees, 58% have a degree or higher level of education, and are privately renting or that own urban purpose-built flats in urban areas. The flats have good EPC ratings of A-C, so these are likely young professionals living in modern apartment buildings. The dwellings use electricity for their heating fuel. Despite this, their electricity consumption is close to the GB average, likely due to them working away from home and the good EPC ratings.

The geographic distribution of Archetype F16 is highly concentrated in London and in the South East of London, with low level of occurrence across all other regions.

6.16.3. F16 summary profile

Archetype F16: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	14%	3%
	25-34	43%	14%
	35-44	14%	17%
	45-54	14%	19%
	55-64	8%	18%
	65-74	4%	15%
	75+	2%	14%
Main tenure	housing-association	9%	8%
	local-authority	7%	8%
	owner-occupied	27%	66%
	private-rented	56%	17%
Household composition	couple	43%	34%
	couple and children	3%	20%
	multiple adults	10%	9%
	multiple adults with children	0%	4%
	single adult (man)	26%	13%
	single adult (woman)	18%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	97%	72%
	1	2%	12%
	2+	1%	16%

Economic status of head of household	full-time employee	86%	44%
	part-time employee	4%	10%
	retired/ unoccupied over min national insurance (ni) age	4%	26%
	self-employed	2%	8%
	unemployed	1%	2%
	retired/ unoccupied - under min ni age	2%	10%
Main heating fuel of dwelling	electricity		

Variable	Archetype	GB average
Internet in home	97%	94%
Early adopters	89%	67%
Has a degree qualification (or higher)	58%	28%
Pre-payment meter for electricity	9%	12%
Households in poverty (income below 60% of national median)	8%	19%
Eligible for Cold Weather Payments	1%	14%
Eligible for Energy Company Obligation	2%	15%
Eligible for Warm Home Discount Scheme	6%	17%
Eligible for Winter Fuel Payments	7%	33%
Rural Population	10%	22%

Figure 32: Income decile distribution of Archetype F16

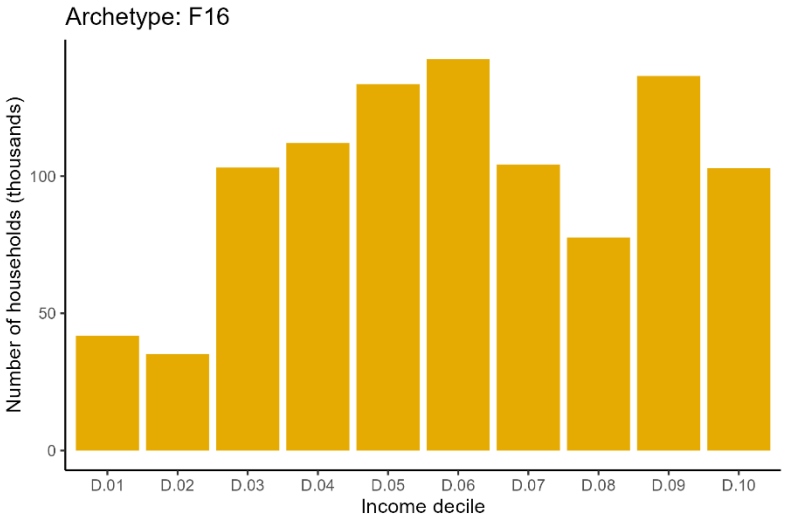
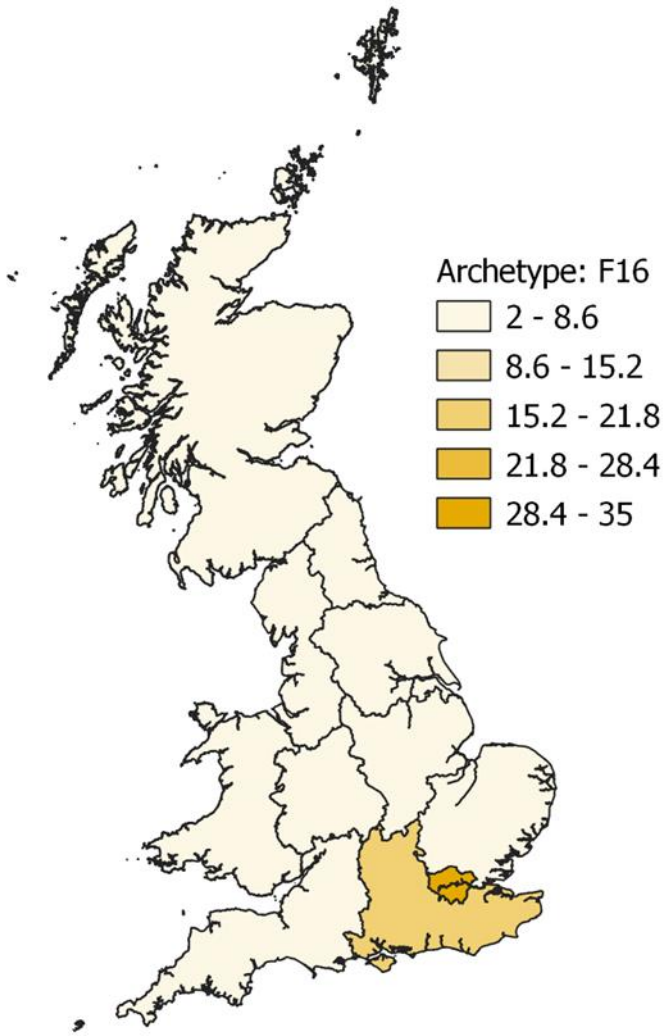


Figure 33: Percentage of the population of each English region and devolved nation of Great Britain in Archetype F16



6.17. Archetype G17

6.17.1. G17 headline statistics

Archetype G17: Key statistics		GB-wide statistics
Number of households	163,166	26,982,631
Average net income	£41,996	£37,883
Households on disability benefits	4%	12%
Average electricity consumption (kWh)	5,901	3,955
Average gas consumption (kWh)	-	13,697

Key words: upper middle income; oil/other heating system; unconventional housing; owner occupied; self-employed; couple/single adult; 45+ year olds; rural; unknown EPC rating.

6.17.2. G17 summary description

Archetype G17 households are classified as upper-middle income earners, with net incomes that are £4,000 greater than the GB average. Their gross income is, however, about the same as the GB average. Other archetypes in the upper deciles have a difference in net and gross income between £9,000 - £15,000, but the difference for G17 is only £2,590. This archetype is mostly found in Wales.

G17 is an off-gas archetype than mostly uses oil and bulk LPG as their main heating type. They are couples anywhere from 45 years old and older, self-employed and own their own homes. Their main dwelling type is classified as other, and 80% of these homes are in rural areas, so their homes are likely things such as converted churches, barns, houseboats, or caravans/recreational vehicles. Because of this, the EPC ratings of the dwellings are also unknown, and they have no mains gas supply.

They have very high electricity consumption, and the highest unmetered fuels consumption (66,374 kWh) which is 2x greater than the second highest archetype. Archetype G17 has the joint highest percentage of households using renewable systems (9%) as their main heating type. These homes are evenly distributed across GB, but the highest occurrences are in Wales.

6.17.3. G17 summary profile

Archetype G17: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	0%	3%
	25-34	0%	14%
	35-44	9%	17%
	45-54	28%	19%
	55-64	32%	18%
	65-74	14%	15%
	75+	17%	14%
Main tenure	housing-association	0%	8%
	local-authority	0%	8%
	owner-occupied	94%	66%
	private-rented	6%	17%
Household composition	couple	46%	34%
	couple and children	18%	20%
	multiple adults	4%	9%
	multiple adults with children	7%	4%
	single adult (man)	10%	13%
	single adult (woman)	14%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	74%	72%
	1	5%	12%
	2+	21%	16%

Economic status of head of household	full-time employee	4%	44%
	part-time employee	14%	10%
	retired/ unoccupied over min national insurance (ni) age	20%	26%
	self-employed	53%	8%
	unemployed	3%	2%
	retired/ unoccupied - under min ni age	6%	10%
Main heating fuel of dwelling	oil/other (solid fuel/LPG)		

Variable	Archetype	GB average
Internet in home	95%	94%
Early adopters	45%	67%
Has a degree qualification (or higher)	25%	28%
Pre-payment meter for electricity	6%	12%
Households in poverty (income below 60% of national median)	22%	19%
Eligible for Cold Weather Payments	4%	14%
Eligible for Energy Company Obligation	0%	15%
Eligible for Warm Home Discount Scheme	0%	17%
Eligible for Winter Fuel Payments	37%	33%
Rural Population	80%	22%

Figure 34: Income decile distribution of Archetype G17

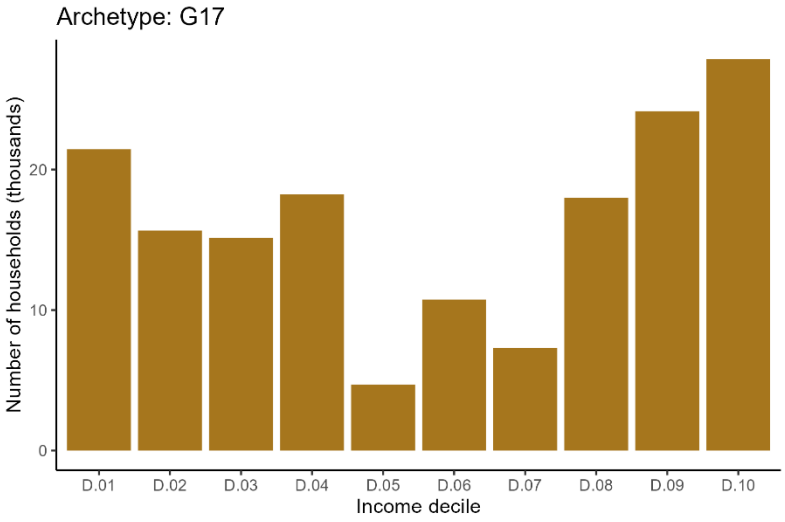
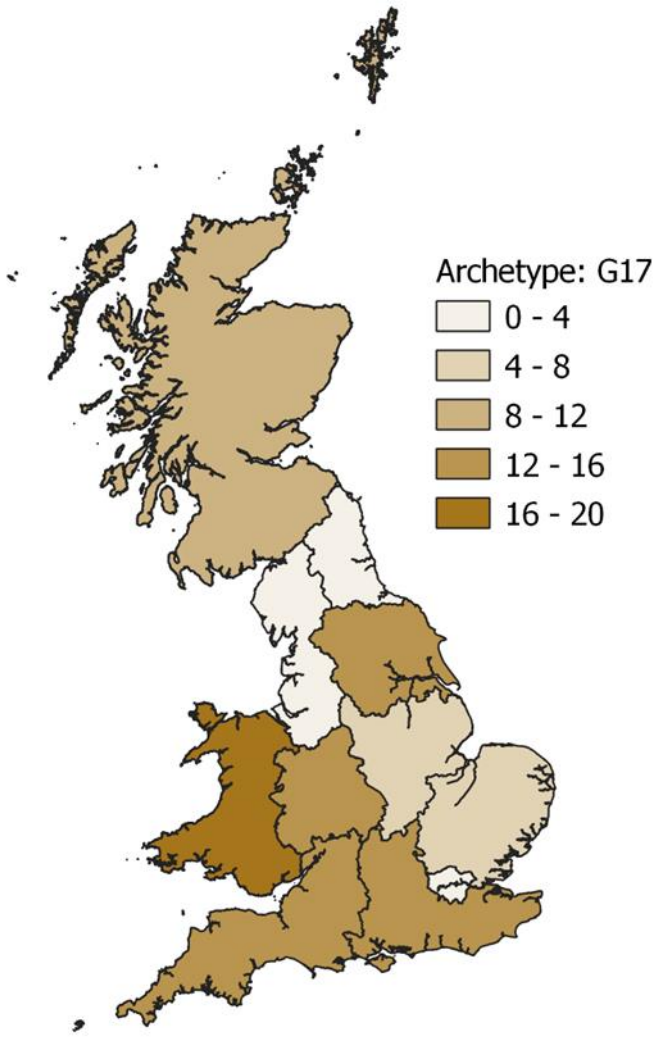


Figure 35: Percentage of the population of each English region and devolved nation of Great Britain in Archetype G17



6.18. Archetype G18

6.18.1. G18 headline statistics

Archetype G18: Key statistics		GB-wide statistics
Number of households	667,836	26,982,631
Average net income	£42,160	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	5,294	3,955
Average gas consumption (kWh)	-	13,697

Key words: upper middle income; other heating fuel; owner occupied; full-time employed/retired 65+; low scheme eligibility.

6.18.2. G18 summary description

Households in archetype G18 are upper-middle income earners. 51% are rural households with EPC ratings of D and use 'other' main heating fuels – of which 22% use bulk LPG, 15% use solid fuel and 9% of which use renewables. These dwellings are owner-occupied detached or semi-detached with no children and the occupiers are 45+ year old couples in full-time employment or 65+ years old and in retirement. They are not early adopters and not on disability benefits, and generally have low scheme eligibility aside from Winter Fuel Payments for which 44% of households are eligible.

The highest occurrences of these households are in the South East and North West of England.

6.18.3. G18 summary profile

Archetype G18: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	11%	3%
	25-34	9%	14%
	35-44	4%	17%
	45-54	19%	19%
	55-64	16%	18%
	65-74	29%	15%
	75+	13%	14%
Main tenure	housing-association	0%	8%
	local-authority	1%	8%
	owner-occupied	78%	66%
	private-rented	21%	17%
Household composition	couple	42%	34%
	couple and children	3%	20%
	multiple adults	23%	9%
	multiple adults with children	0%	4%
	single adult (man)	16%	13%
	single adult (woman)	16%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	97%	72%
	1	2%	12%
	2+	0%	16%

Economic status of head of household	full-time employee	35%	44%
	part-time employee	12%	10%
	retired/ unoccupied over min national insurance (ni) age	33%	26%
	self-employed	10%	8%
	unemployed	1%	2%
	retired/ unoccupied - under min ni age	9%	10%
Main heating fuel of dwelling	other (solid fuel/LPG)		

Variable	Archetype	GB average
Internet in home	93%	94%
Early adopters	53%	67%
Has a degree qualification (or higher)	31%	28%
Pre-payment meter for electricity	8%	12%
Households in poverty (income below 60% of national median)	12%	19%
Eligible for Cold Weather Payments	2%	14%
Eligible for Energy Company Obligation	3%	15%
Eligible for Warm Home Discount Scheme	3%	17%
Eligible for Winter Fuel Payments	45%	33%
Rural Population	51%	22%

Figure 36: Income decile distribution of Archetype G18

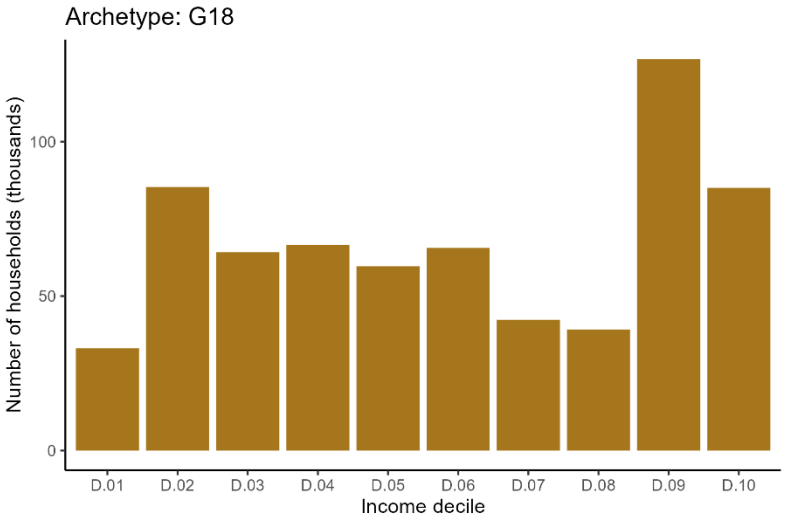
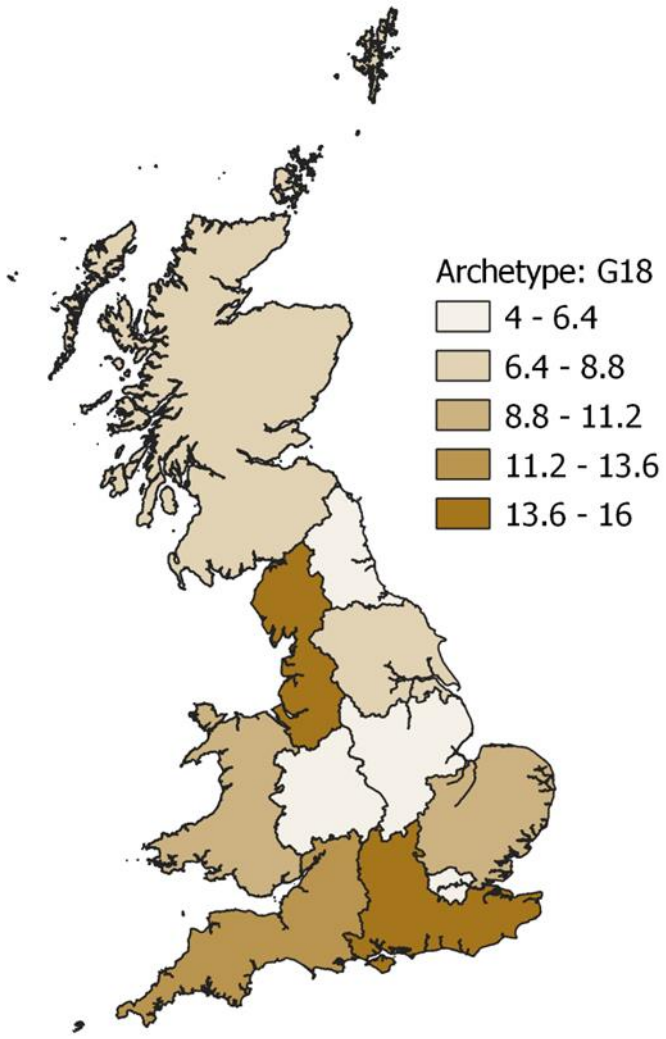


Figure 37: Percentage of the population of each English region and devolved nation of Great Britain in Archetype G18



6.19. Archetype H19

6.19.1. H19 headline statistics

Archetype H19: Key statistics		GB-wide statistics
Number of households	675,712	26,982,631
Average net income	£44,376	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	4,907	3,955
Average gas consumption (kWh)	-	13,697

Key words: upper-middle income; oil heating fuel; retired 65+/full-time employed; poor EPC rating; rural; owner-occupied; detached/semi-detached; WFP eligible.

6.19.2. H19 summary description

Households in archetype H19 are upper-middle income couples with no children. These couples are anywhere from 45 years old and older. Some are retired 65+years old, others are in full-time employment. They own their own homes which are detached or semi-detached, 96% of which are in rural areas.

Households in H19 have higher than average electricity consumption and use oil as their main heating type. They have poor EPC ratings of D-G and have relatively high consumption of unmetered fuels (oil) because of this.

While 99% have engaged with the energy market, 60% are not early adopters and 60% have never switched energy tariff. 57% of households are eligible for Winter Fuel Payments.

They are found in many regions across GB, with highest percentages of households found in Scotland, Wales, and the South West and South East of England.

6.19.3. H19 summary profile

Archetype H19: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	0%	3%
	25-34	1%	14%
	35-44	5%	17%
	45-54	18%	19%
	55-64	26%	18%
	65-74	24%	15%
	75+	27%	14%
Main tenure	housing-association	2%	8%
	local-authority	0%	8%
	owner-occupied	91%	66%
	private-rented	7%	17%
Household composition	couple	61%	34%
	couple and children	0%	20%
	multiple adults	13%	9%
	multiple adults with children	0%	4%
	single adult (man)	10%	13%
	single adult (woman)	17%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	100%	72%
	1	0%	12%
	2+	0%	16%

Economic status of head of household	full-time employee	28%	44%
	part-time employee	11%	10%
	retired/ unoccupied over min national insurance (ni) age	39%	26%
	self-employed	16%	8%
	unemployed	0%	2%
	retired/ unoccupied - under min ni age	6%	10%
Main heating fuel of dwelling	oil		

Variable	Archetype	GB average
Internet in home	95%	94%
Early adopters	40%	67%
Has a degree qualification (or higher)	26%	28%
Pre-payment meter for electricity	1%	12%
Households in poverty (income below 60% of national median)	11%	19%
Eligible for Cold Weather Payments	0%	14%
Eligible for Energy Company Obligation	3%	15%
Eligible for Warm Home Discount Scheme	2%	17%
Eligible for Winter Fuel Payments	57%	33%
Rural Population	96%	22%

Figure 38: Income decile distribution of Archetype H19

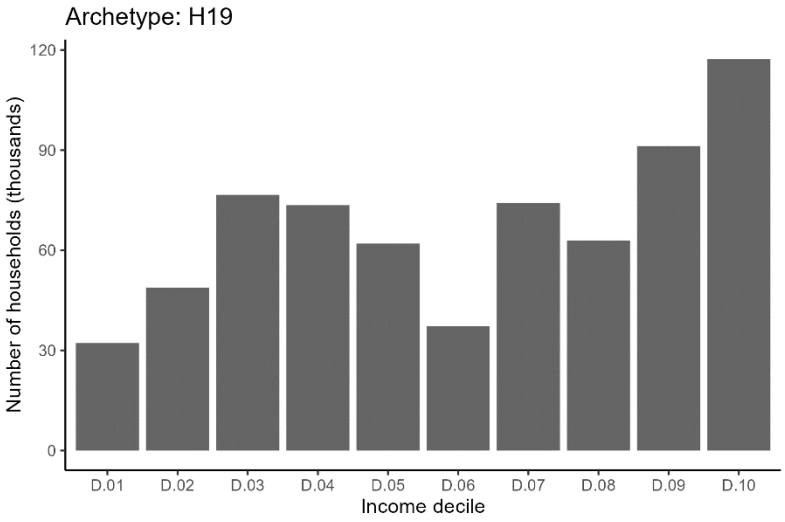
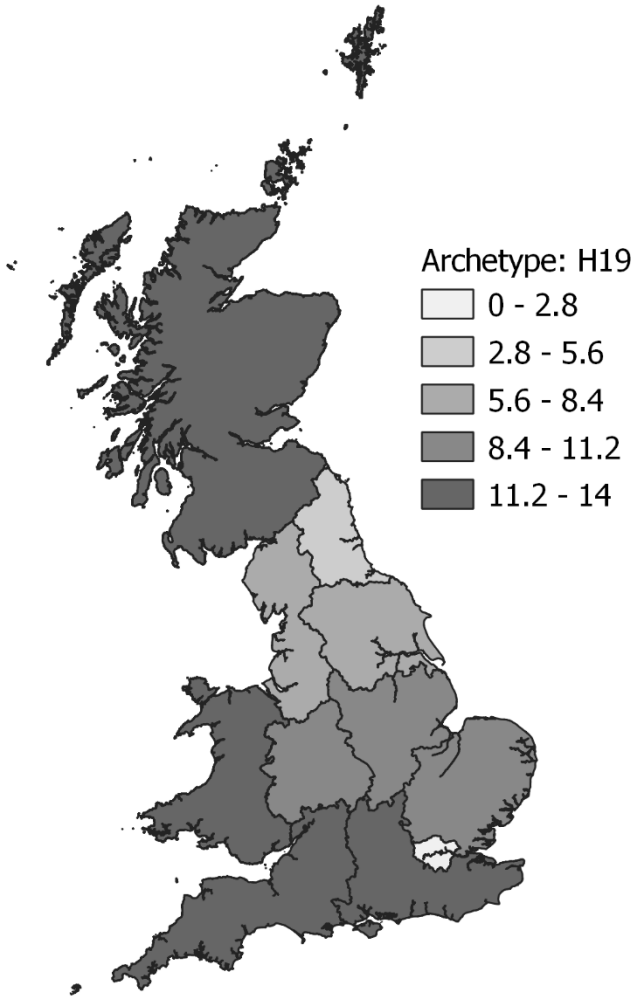


Figure 39: Percentage of the population of each English region and devolved nation of Great Britain in Archetype H19



6.20. Archetype H20

6.20.1. H20 headline statistics

Archetype H20: Key statistics		GB-wide statistics
Number of households	3,540,270	26,982,631
Average net income	£47,649	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	3,143	3,955
Average gas consumption (kWh)	11,677	13,697

Key words: upper-middle income; mains gas; early adopters; 25-54 years old; full-time employed; below average consumption.

6.20.2. H20 summary description

Archetype H20 households are high-income mains gas households with no children and a large disposable income. They are the most common archetype, with 3.5 million households across GB. They are mix of couples, single adults and multiple adults that are in full-time employment and either privately rent or own their semi-detached/terraced dwellings. They are between the ages of 25 and 64, living in mostly urban areas.

The households have a mains gas supply and have slightly below average gas consumption and below average electricity consumption despite having relatively poor EPC ratings of D. They are early adopters, 38% have a degree or higher, and they have some of the lowest levels of scheme eligibility across all of the archetypes.

Households in archetype H20 have the largest disposable income, with difference between their net income and total expenditure being £11,608.

6.20.3. H20 summary profile

Archetype H20: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	4%	3%
	25-34	25%	14%
	35-44	16%	17%
	45-54	25%	19%
	55-64	24%	18%
	65-74	4%	15%
	75+	1%	14%
Main tenure	housing-association	0%	8%
	local-authority	0%	8%
	owner-occupied	73%	66%
	private-rented	27%	17%
Household composition	couple	54%	34%
	couple and children	0%	20%
	multiple adults	19%	9%
	multiple adults with children	0%	4%
	single adult (man)	16%	13%
	single adult (woman)	11%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	100%	72%
	1	0%	12%
	2+	0%	16%

Economic status of head of household	full-time employee	93%	44%
	part-time employee	3%	10%
	retired/ unoccupied over min national insurance (ni) age	1%	26%
	self-employed	2%	8%
	unemployed	0%	2%
	retired/ unoccupied - under min ni age	1%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	99%	94%
Early adopters	98%	67%
Has a degree qualification (or higher)	38%	28%
Pre-payment meter for electricity	6%	12%
Households in poverty (income below 60% of national median)	1%	19%
Eligible for Cold Weather Payments	1%	14%
Eligible for Energy Company Obligation	2%	15%
Eligible for Warm Home Discount Scheme	2%	17%
Eligible for Winter Fuel Payments	7%	33%
Rural Population	14%	22%

Figure 40: Income decile distribution of Archetype H20

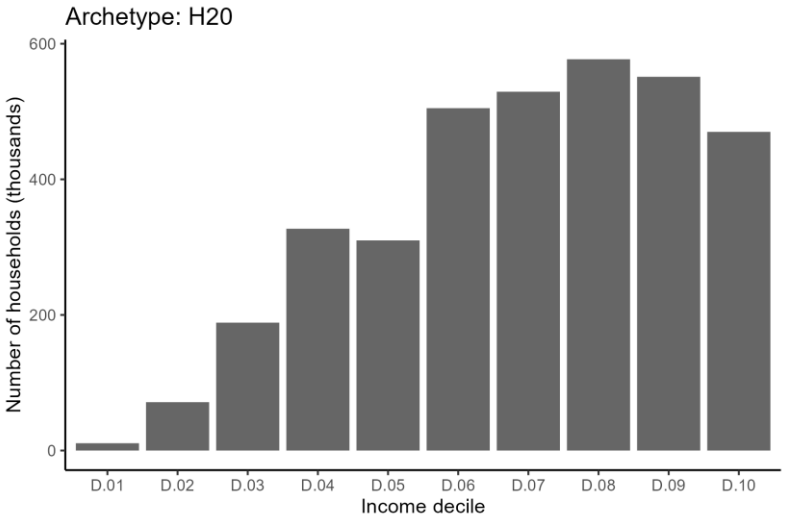
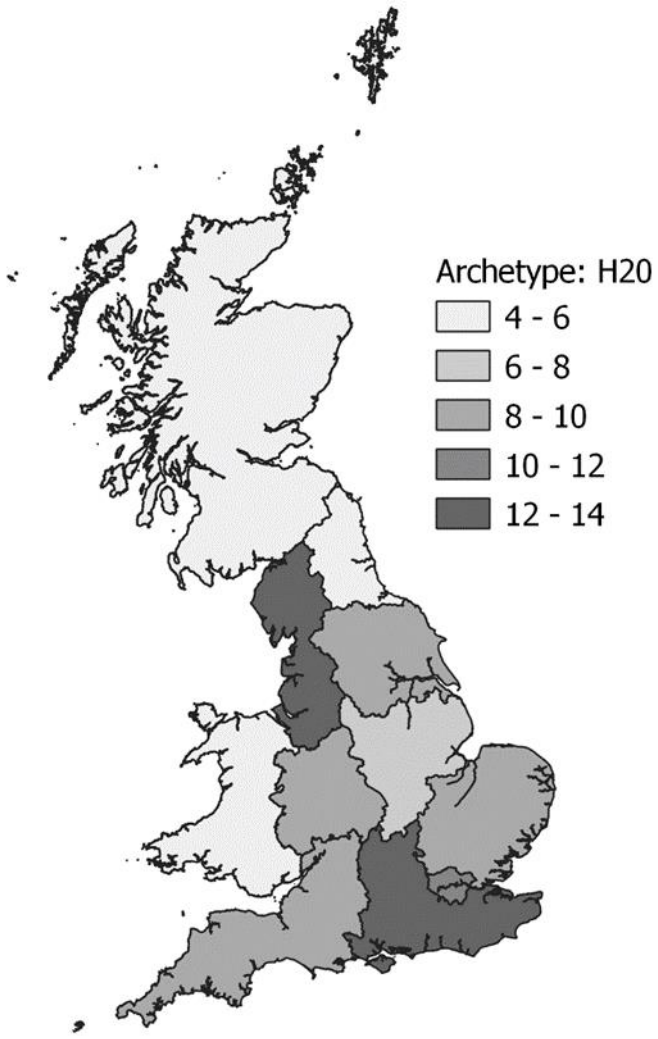


Figure 41: Percentage of the population of each English region and devolved nation of Great Britain in Archetype H20



6.21. Archetype I21

6.21.1. I21 headline statistics

Archetype I21: Key statistics		GB-wide statistics
Number of households	2,210,494	26,982,631
Average net income	£49,052	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	4,070	3,955
Average gas consumption (kWh)	15,461	13,697

Key words: high income; mains gas; 1 child; full-time employed; 25-54 years old; early adopters; owner-occupied/private rented; semi-detached/terraced; high ECO eligibility.

6.21.2. I21 summary description

Archetype I21 consists of high-income one child families. The parents are between 25 and 54 years old and are in full-time employment. The homes are owner-occupied or private rented semi-detached or terraced buildings, with a mains gas supply and greater than average gas consumption. They are not classed as vulnerable consumers, yet 55% qualify for the Energy Company Obligation Scheme due to the presence of children in the dwellings.

100% of these occupiers consider themselves early adopters, and 100% also do not receive disability benefits. Archetype I21 is largely fairly evenly distributed across GB excluding Wales and the North East of England.

6.21.3. I21 summary profile

Archetype I21: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	2%	3%
	25-34	29%	14%
	35-44	29%	17%
	45-54	31%	19%
	55-64	9%	18%
	65-74	1%	15%
	75+	0%	14%
Main tenure	housing-association	2%	8%
	local-authority	5%	8%
	owner-occupied	73%	66%
	private-rented	20%	17%
Household composition	couple	0%	34%
	couple and children	71%	20%
	multiple adults	0%	9%
	multiple adults with children	17%	4%
	single adult (man)	0%	13%
	single adult (woman)	0%	15%
	single parent (man)	1%	0%
	single parent (woman)	11%	4%
Number of children in household	0	0%	72%
	1	100%	12%
	2+	0%	16%

Economic status of head of household	full-time employee	73%	44%
	part-time employee	12%	10%
	retired/ unoccupied over min national insurance (ni) age	0%	26%
	self-employed	10%	8%
	unemployed	0%	2%
	retired/ unoccupied - under min ni age	3%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	100%	94%
Early adopters	100%	67%
Has a degree qualification (or higher)	38%	28%
Pre-payment meter for electricity	11%	12%
Households in poverty (income below 60% of national median)	9%	19%
Eligible for Cold Weather Payments	2%	14%
Eligible for Energy Company Obligation	55%	15%
Eligible for Warm Home Discount Scheme	13%	17%
Eligible for Winter Fuel Payments	1%	33%
Rural Population	19%	22%

Figure 42: Income decile distribution of Archetype I21

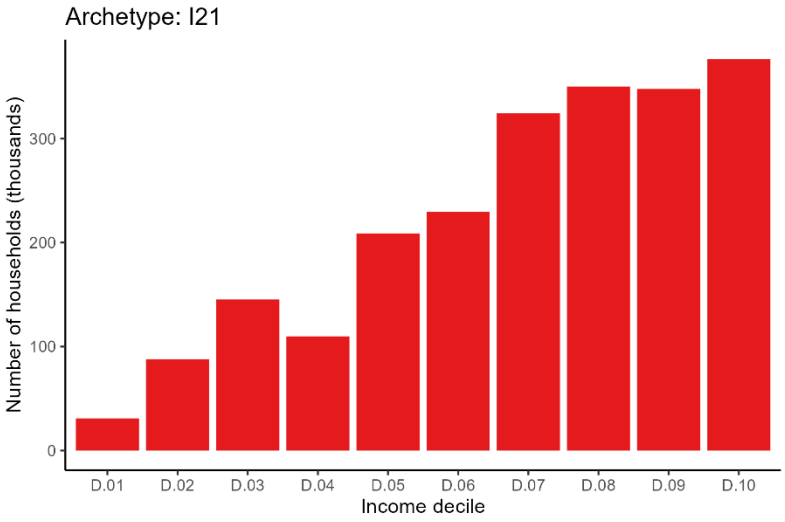
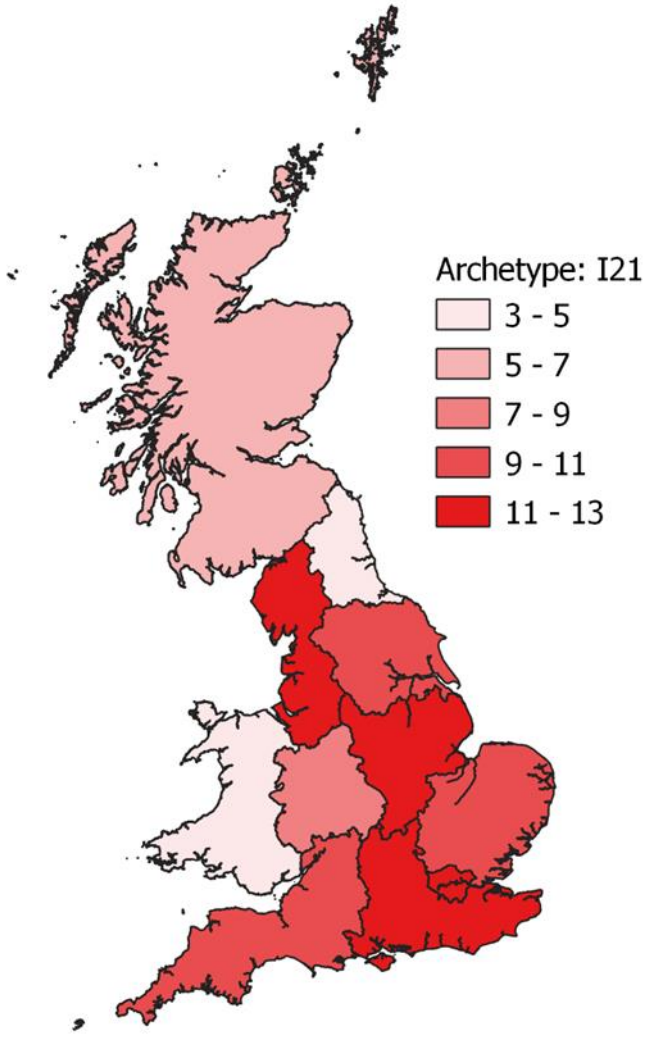


Figure 43: Percentage of the population of each English region and devolved nation of Great Britain in Archetype I21



6.22. Archetype I22

6.22.1. I22 headline statistics

Archetype I22: Key statistics		GB-wide statistics
Number of households	1,792,593	26,982,631
Average net income	£55,535	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	4,684	3,955
Average gas consumption (kWh)	18,530	13,697

Key words: high income; no children; mains gas; highest gas consumption; 45-64 years old; full-time employed; early adopters; has degree or higher.

6.22.2. I22 summary description

Archetype I22 is very similar to I21 apart from they have no children. However they do not have a disposable income as large as I21. They are high income earners in full-time employment and own their own homes. 97% of these homes are detached and 100% of them use mains gas as their main heating fuel.

I22 has the highest annual gas consumption of all the archetypes. This greater gas consumption is because the detached households are large, with 70% of the households in Archetype I22 having between 7 and 10 rooms and 3-5 bedrooms.

40% of these households have a degree or higher qualification and they are early adopters of new technology. The greatest occurrence of this archetype is found in the South East of England, with a relatively even distribution across GB outside of the South East.

6.22.3. I22 summary profile

Archetype I22: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	0%	3%
	25-34	7%	14%
	35-44	6%	17%
	45-54	22%	19%
	55-64	51%	18%
	65-74	12%	15%
	75+	1%	14%
Main tenure	housing-association	0%	8%
	local-authority	0%	8%
	owner-occupied	95%	66%
	private-rented	4%	17%
Household composition	couple	61%	34%
	couple and children	0%	20%
	multiple adults	21%	9%
	multiple adults with children	0%	4%
	single adult (man)	10%	13%
	single adult (woman)	8%	15%
	single parent (man)	0%	0%
	single parent (woman)	0%	4%
Number of children in household	0	100%	72%
	1	0%	12%
	2+	0%	16%

Economic status of head of household	Full-time employee	55%	44%
	Part-time employee	15%	10%
	Retired/ unoccupied over min National Insurance (NI) age	0%	26%
	Self-employed	16%	8%
	Unemployed	1%	2%
	Retired/ unoccupied - under min NI age	13%	10%
Main heating fuel of dwelling	Mains gas		

Variable	Archetype	GB average
Internet in home	100%	94%
Early adopters	93%	67%
Has a degree qualification (or higher)	40%	28%
Pre-payment meter for electricity	0%	12%
Households in poverty (income below 60% of national median)	1%	19%
Eligible for Cold Weather Payments	0%	14%
Eligible for Energy Company Obligation	2%	15%
Eligible for Warm Home Discount Scheme	1%	17%
Eligible for Winter Fuel Payments	21%	33%
Rural Population	28%	22%

Figure 44: Income decile distribution of Archetype I22

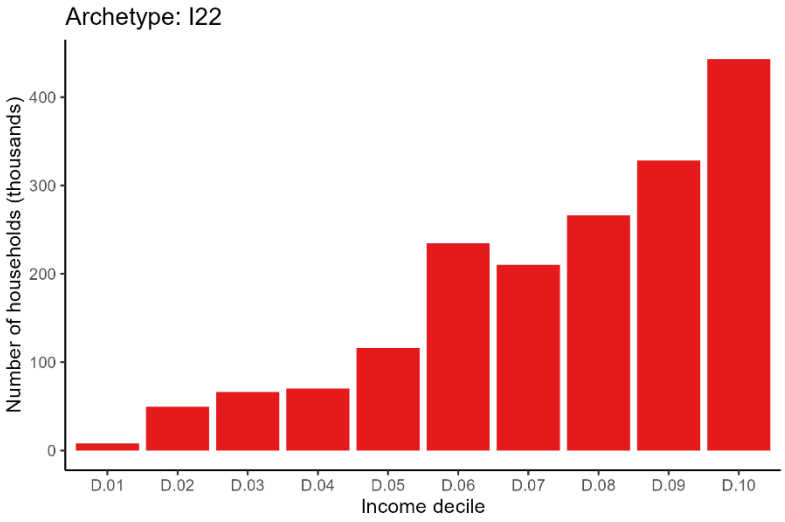
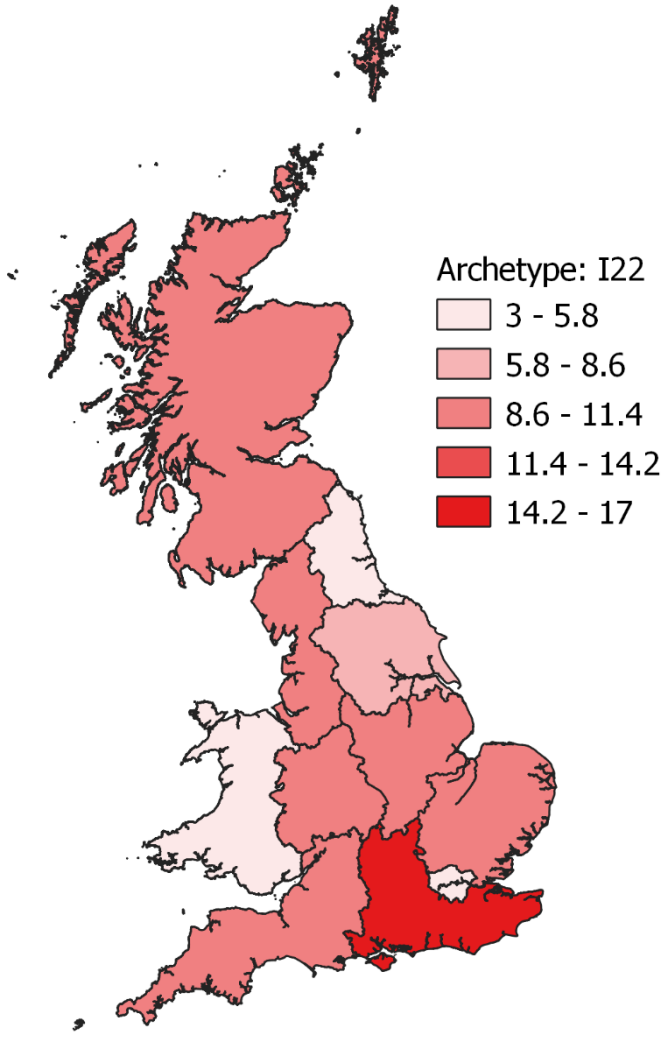


Figure 45: Percentage of the population of each English region and devolved nation of Great Britain in Archetype I22



6.23. Archetype J23

6.23.1. J23 headline statistics

Archetype J23: Key statistics		GB-wide statistics
Number of households	1,956,103	26,982,631
Average net income	£59,239	£37,883
Households on disability benefits	0%	12%
Average electricity consumption (kWh)	4,532	3,955
Average gas consumption (kWh)	16,330	13,697

Key words: high income; mains gas; 2+ children; 35-54 years old; full-time employed; owner-occupied; semi-detached/terraced; early adopters; urban.

6.23.2. J23 summary description

Archetype J23 is the second highest earning group across GB with an average gross income of £71,977. They are large families with 2+ children, with the parents between 35 and 54 years old, in full-time employment, who own their own detached or semi-detached homes that use mains gas as their heating fuel. They are early adopters of new technologies and are not on disability benefits. J23 households are well educated, with 55% having a degree or higher – which is the second highest value across the archetypes.

Due to these households receiving child benefit, 67% of this archetype are eligible for the Energy Company Obligation Scheme. Because of their high income, it is likely that these households are also paying the High Income Child Benefit Charge.

They have slightly above average electricity usage, but the second highest gas consumption of all the archetypes. Similarly to I22, this high consumption is due to the 60% of houses that are made up of 7-10 rooms. The households in J23 are found in highest percentages in the South East and North West of England.

6.23.3. J23 summary profile

Archetype J23: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	0%	3%
	25-34	11%	14%
	35-44	53%	17%
	45-54	31%	19%
	55-64	5%	18%
	65-74	0%	15%
	75+	0%	14%
Main tenure	housing-association	0%	8%
	local-authority	0%	8%
	owner-occupied	99%	66%
	private-rented	1%	17%
Household composition	couple	0%	34%
	couple and children	88%	20%
	multiple adults	0%	9%
	multiple adults with children	11%	4%
	single adult (man)	0%	13%
	single adult (woman)	0%	15%
	single parent (man)	0%	0%
	single parent (woman)	2%	4%
Number of children in household	0	0%	72%
	1	0%	12%

	2+	100%	16%
Economic status of head of household	Full-time employee	89%	44%
	Part-time employee	4%	10%
	retired/ unoccupied over min national insurance (ni) age	0%	26%
	self-employed	5%	8%
	unemployed	1%	2%
	retired/ unoccupied - under min ni age	0%	10%
Main heating fuel of dwelling	mains gas		

Variable	Archetype	GB average
Internet in home	99%	94%
Early adopters	100%	67%
Has a degree qualification (or higher)	55%	28%
Pre-payment meter for electricity	1%	12%
Households in poverty (income below 60% of national median)	2%	19%
Eligible for Cold Weather Payments	0%	14%
Eligible for Energy Company Obligation	67%	15%
Eligible for Warm Home Discount Scheme	3%	17%
Eligible for Winter Fuel Payments	1%	33%
Rural Population	17%	22%

Figure 46: Income decile distribution of Archetype J23

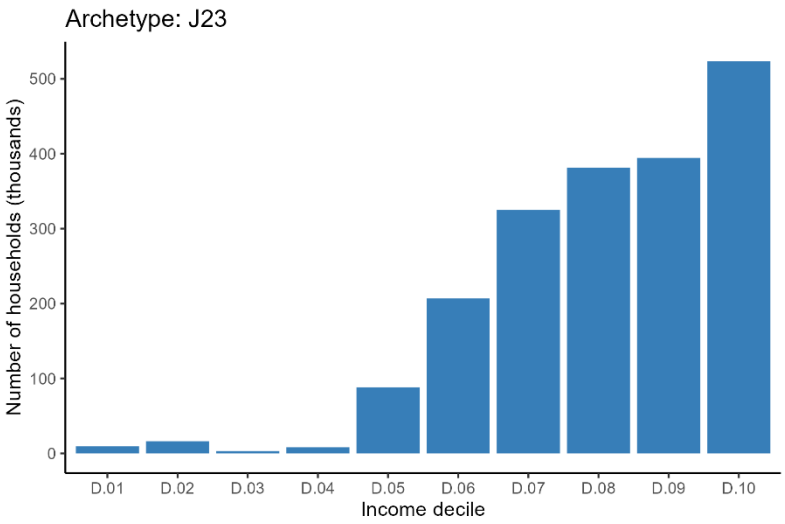
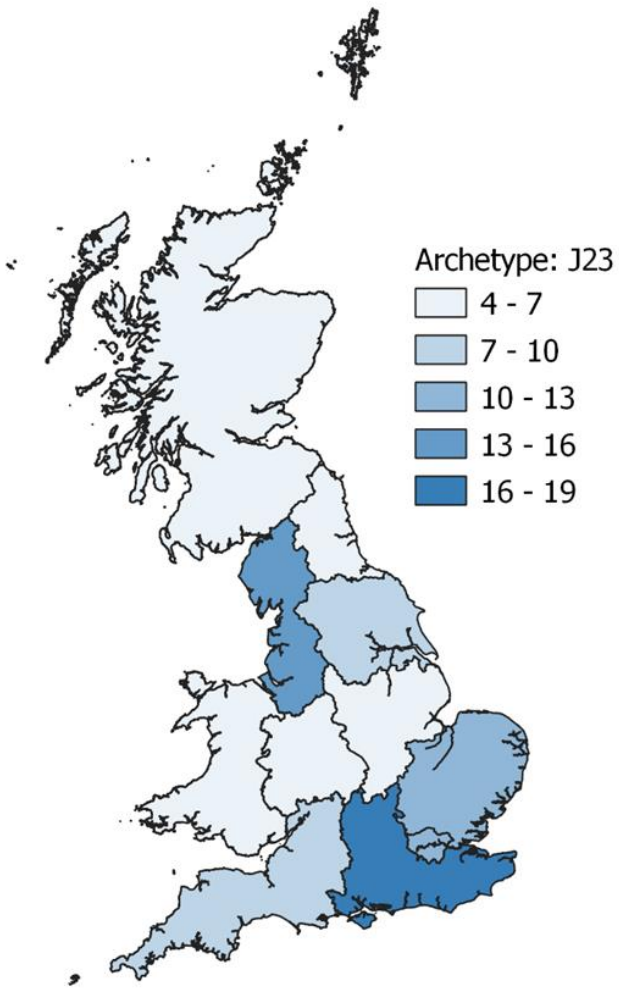


Figure 47: Percentage of the population of each English region and devolved nation of Great Britain in Archetype J23



6.24. Archetype J24

6.24.1. J24 headline statistics

Archetype J24: Key statistics		GB-wide statistics
Number of households	231,658	26,982,631
Average net income	£62,859	£37,883
Households on disability benefits	8%	12%
Average electricity consumption (kWh)	7,523	3,955
Average gas consumption (kWh)	-	13,697

Key words: highest earners; 1+ children; oil heating; highest electricity consumption; rural; full-time employed; owner occupied; poor EPC rating; early adopters.

6.24.2. J24 summary description

J24 is the highest earning archetype, with an average gross income of £44,938. These households are families with one or more children, with parents in full-time employment and aged between 35 and 54. Most own their own homes which are detached or semi-detached buildings, 97% of which are in rural settings.

This archetype also contains the largest homes compared to all other archetype, with 75% of them having between 7 and 10 rooms, which is likely why they also have the highest electricity consumption of all households at 7,523 kWh per year. These rural dwellings have poor EPC ratings of E-G, and are heating mainly by oil, meaning they are likely old buildings.

73% of the dwellings qualify for the Energy Company Obligation scheme, due to the low EPC ratings and because these households receive child benefits. Due to their high income, it is likely that these households are also paying the High Income Child Benefit Charge. These homes are mainly distributed in Eastern England, South East England, Wales and Scotland.

6.24.3. J24 summary profile

Archetype J24: Profile			
Variable	Categories	Archetype profile	GB profile
Age profile (head of household)	16-24	0%	3%
	25-34	12%	14%
	35-44	35%	17%
	45-54	35%	19%
	55-64	14%	18%
	65-74	4%	15%
	75+	0%	14%
Main tenure	housing-association	0%	8%
	local-authority	0%	8%
	owner-occupied	90%	66%
	private-rented	10%	17%
Household composition	couple	0%	34%
	couple and children	74%	20%
	multiple adults	0%	9%
	multiple adults with children	23%	4%
	single adult (man)	0%	13%
	single adult (woman)	0%	15%
	single parent (man)	0%	0%
	single parent (woman)	2%	4%
Number of children in household	0	0%	72%
	1	45%	12%
	2+	54%	16%

Economic status of head of household	full-time employee	75%	44%
	part-time employee	5%	10%
	retired/ unoccupied over min national insurance (ni) age	3%	26%
	self-employed	13%	8%
	unemployed	0%	2%
	retired/ unoccupied - under min ni age	4%	10%
Main heating fuel of dwelling	oil		

Variable	Archetype	GB average
Internet in home	97%	94%
Early adopters	96%	67%
Has a degree qualification (or higher)	37%	28%
Pre-payment meter for electricity	1%	12%
Households in poverty (income below 60% of national median)	2%	73%
Eligible for Cold Weather Payments	8%	14%
Eligible for Energy Company Obligation	73%	15%
Eligible for Warm Home Discount Scheme	5%	17%
Eligible for Winter Fuel Payments	4%	33%
Rural Population	97%	22%

Figure 48: Income decile distribution of Archetype J24

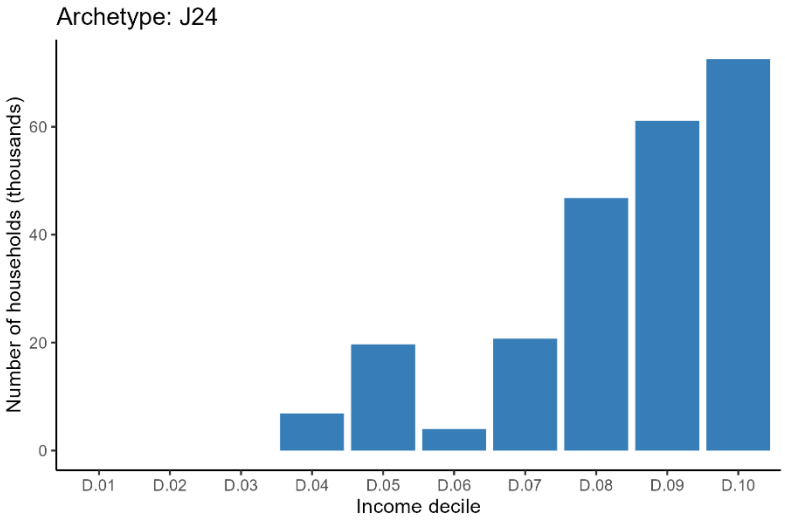
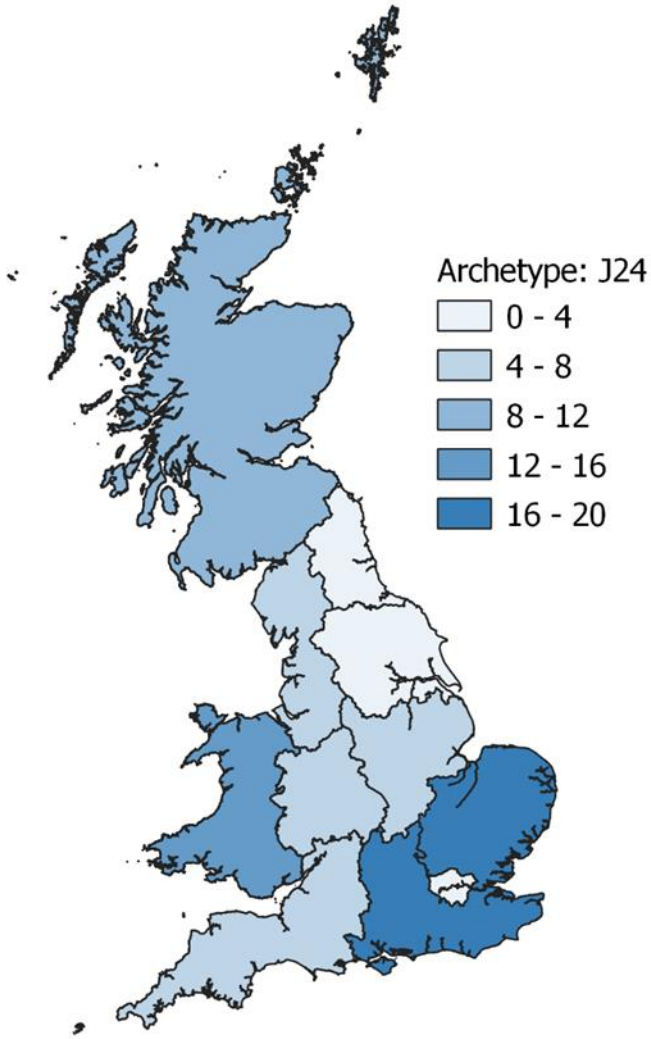


Figure 49: Percentage of the population of each English region and devolved nation of Great Britain in Archetype J24



Appendix A: Ofgem archetype update 2024: Detailed Methodology

A1. Datasets

A1.1. Core LCF dataset overview

The Living Costs and Food (LCF) Survey 2019-2020[1] formed the core of the energy consumer dataset that was used to segment the population of Great Britain into distinct energy consumer archetypes. The LCF is an annual survey of ~5000 households across England, Scotland, and Wales. The households surveyed are representative of region, age group, and sex. The LCF is a well-suited dataset for producing energy consumer archetypes as it contains detailed information on household expenditure, household characteristics, and socio-demographic characteristics of the inhabitants.

The LCF Survey from 2019-2020 contained 5050 households that were used to produce the archetypes. Newer versions of the LCF survey are available; however, due to the COVID-19 pandemic they are substantially different to the versions of the LCF that were conducted pre-pandemic and to the versions that will be released from the 2022 financial year onwards. Some data critical to the archetype was missing from the latest versions of the LCF, including category of dwelling (terraced, detached, semi-detached etc.), education of inhabitants, and health of inhabitants. We therefore decided to use the LCF 2019-2020 on the basis that: 1. This dataset will match future publications of the LCF, so the archetypes can be updated more easily, and 2. the consumption behaviours of consumers in 2019-2020 better match those of current consumption behaviours compared to pandemic behaviours.

A1.2. English Housing Survey dataset (special license and standard)

The English Housing (EHS) Survey 2019-2020[2] was used to supplement the core LCF dataset with energy efficiency characteristics of the dwellings. The EHS is a national survey of housing circumstances and the condition and energy efficiency of housing in England. The survey contains data from 7,474 interview respondents and 5,288 physical surveys of dwellings. Although this data covers only England whereas the core LCF consumer dataset covered Great Britain, the EHS was only used to model the EPC ratings of dwellings based on characteristics common to the EHS and LCF. Therefore, it was assumed that the same relationship between these characteristics and the EPC rating of a dwelling are consistent across England, Scotland and Wales, and thus the EPC rating of dwellings in Scotland and Wales can also be predicted using a model that was trained on data from England only. Further details of the model are described in the 'Linking to the EHS' section. In addition, the special-license access version of

the English Housing Survey 2019-2020[3] was used to supplement the archetype descriptions by providing more detailed disability types (e.g. vision, mobility etc.) and information on communal heating.

A1.3. Ofgem Consumer Engagement Survey 2020

To incorporate characteristics describing the engagement of consumers with the energy market (i.e. tariff switching behaviours, willingness to uptake new technologies, and general engagement with the energy market) the Ofgem Consumer Engagement (OCE) Survey 2020[4] was used to model engagement behaviours and predict them in the core LCF data. Further details of this model are described in the 'Linking to Ofgem Consumer Engagement Survey' section of this report. The OCE 2020 was conducted between September and November of 2020 covering 4,608 regionally representative households across Great Britain. The OCE survey is an annual survey and is expected to continue in the future, and therefore the archetypes can be updated as newer versions of this dataset are released.

A2. Creating the energy consumer dataset

A2.1. Variables extracted from Living Costs and Food Survey

The core of the energy consumer dataset is comprised of variables (Table 1) in the following categories taken from the LCF:

- benefits received
- connectivity and communications
- demographics
- energy expenditure
- health
- housing
- transport and travel

Table 1. A list of variables under the different categories taken from the LCF.

Benefits	Connectivity and communications	Demographics	Energy	Health	Housing	Transport and travel
Employment and Support Allowance	Internet access	Household size	Heating fuel	Long-term health condition	Dwelling type	Cars/vans owned

Jobseekers Allowance	Computer access	Number of adults	Gas method of payment	Impact of health condition	Tenure	Petrol expenditure
Incapacity Benefit		Number of children	Electric method of payment		Length of residence	Air travel expenditure
Severe Disablement		Age of occupants	Gas expenditure		No. of rooms	
Disability Living Allowance		Sex of HRP	Electricity expenditure			
Invalid Care		Mortgage/rent amount	Other fuels expenditure			
Statutory Sick Pay		Income	Water heating system			
Industrial Injury		Total expenditure	Type of boiler			
War Disablement Pension		Poverty Line	Presence of smart meter			
Working Tax Credit		Household composition				
Housing Benefit		OECD equivalised income deciles				
Child Benefit		Economic status				
Universal Credit						
Pension Credit						
Income Support						

Economic status categories were defined as full-time employment, part-time employment, self-employed, unemployed, retired or unoccupied and over the minimum national insurance age (>= 65 years old), and retired or unoccupied and under the minimum national insurance age (< 65 years old).

For the energy consumer dataset, some households had incomplete information regarding fuel expenditures, which is crucial for estimating fuel consumption. To address this, a random forest[5] algorithm was employed to predict the missing fuel expenditures based on a set of relevant predictive variables. A random forest model is an ensemble learning technique in machine learning that combines multiple decision trees to make predictions. By aggregating the predictions of each tree through averaging, the random forest model achieves improved accuracy, robustness against noise, and reduced overfitting compared to a single decision tree.

The selection of variables used in the random forest model for each fuel type underwent an iterative process, and the most effective combination of predictors was determined by evaluating the performance of the models. For gas, oil/paraffin, combined LPG, and solid fuel costs, the optimal predictions were achieved by considering variables such as electricity expenditure, dwelling type, number of bedrooms, tenure, household composition, age of the household representative, total expenditure, and method of payment for electricity. When imputing missing electricity expenditures, the same set of predictors was utilized, but with gas expenditure replacing electricity expenditure as one of the predictive variables.

A2.2. Linking to the EHS

The English Housing Survey 2020 was used to develop a model to predict the EPC rating of households in the LCF. Variables that were common to both the EHS and LCF, and that contained information that could potentially predict the EPC rating, were extracted and restructured so that survey responses in the two datasets were aligned. A random forest model was then developed on the EHS data. The selection of variables used in the random forest model was an iterative process, and the most effective combination of predictors was determined by evaluating the performance of the models. The best predictors of EPC rating were a combination of tenure, fuel type, dwelling type, income deciles, employment status and heating system.

A2.3. Linking to Ofgem Consumer Engagement Survey

The LCF dataset was enriched with data on consumer engagement with the energy market by leveraging behavioural models developed on the OCE 2020 dataset and applying those models to predict behaviours for LCF households. To ensure alignment between the two datasets, variables that were shared between the OCE and LCF, and contained information relevant to predicting energy market engagement behaviours, were extracted and restructured.

Three key metrics were utilised in this analysis to measure overall energy market engagement. Firstly, the "tariff switch" metric indicated whether a household had ever switched energy tariffs. Secondly, the "early adopters" metric captured whether the occupants of a household tended to adopt new technologies early on. Lastly, the "energy market engagement" metric evaluated whether a household had actively participated in the energy market within the past 12 months.

The "energy market engagement" metric encompassed activities such as comparing energy tariff deals, communicating with energy suppliers, switching tariffs, and installing new heating systems.

Using an iterative process, three Generalized Linear Models[6] (GLMs) were developed based on the OCE data to predict these engagement metrics. The selection of variables used in the GLM models for each engagement metric underwent an iterative process, and the most effective combination of predictors was determined by evaluating the performance of the models. The resulting best predictive variables included the age of the household representative, tenure, economic status, number of children, annual fuel spend, disability benefits, method of payment, and internet access.

A2.4. Scheme eligibility

To further supplement the energy consumer dataset, we assessed households' eligibility for specific discount schemes based on predefined criteria. This is a new feature included for this update of the archetypes. Information on households' eligibility for the Energy Company Obligation[7], Winter Fuel Payments[8], Cold Weather Payments[9], and Warm Home Discount Scheme[10] were included. These schemes' criteria consider factors such as receiving specific benefits, meeting income thresholds, having a household representative above a certain age, possessing a certain EPC rating, maintaining a specific tenure, and having children below the age of five.

A2.5. Deriving energy consumption from expenditure

The second stage involved estimating total annual energy consumption for each household based on their reported expenditure. In order to conduct this calculation, the latest available fuel price statistics and datasets were accessed. These included BEIS Quarterly Energy Prices[11] for electricity and mains gas broken down by standing charge and method of payment (Direct Debit, standard credit, and prepayment meter), and Sutherland tables[12] for unmetered fuels (including coal, LPG, oil, and biomass fuels). This allowed the conversion of fuel expenditure into annual energy consumption totals for electricity, mains gas, oil, LPG, solid fuels, and biomass, based on the reported expenditure of each household. The fuel price statistics included tariff and standing charge variation by different regions and devolved nations across Great Britain which were mapped to different households based on geographical information in the energy consumer data set.

Once these initial fuel consumption values were estimated, a final verification process of the derived numbers was conducted using national statistics sources on total domestic energy consumption by fuel types, which were sourced from the Digest of United Kingdom Energy Statistics (DUKES)[13]. The verification process ensured that the average energy consumption for

each separate fuel in the data set matched national statistics. The following equation was used to correct the consumption values per fuel type:

$$HHCc = HHC \times \left(\frac{GB\ average\ domestic\ fuel\ consumption\ from\ DUKES}{GB\ average\ LCF\ derived\ fuel\ consumption\ \times National\ weight\ for\ fuel\ type}\right)$$

Where HHC is the total LCF derived annual fuel consumption for a household, and HHCc is the corrected total LCF derived annual fuel consumption for a household. The expression inside the parentheses is a conversion factor to scale the LCF derived consumption to DUKES reported levels. All consumption values are reported in kWh.

A3. Segmentation

A3.1. Cluster analysis

The energy consumer data set was then segmented into distinct groups or energy consumer archetypes using a hierarchical cluster analysis. The analysis was performed using R software and the *hclust* package[14] using a variety of fields in the data set to segment the population, including socio-economic and demographic information, dwelling characteristics (e.g. energy efficiency details), energy consumption data, and energy engagement behaviour.

The specific segmentation approach used was Ward's hierarchical clustering method[15]. This is an agglomerative clustering algorithm that starts with each datapoint as a separate cluster, then iteratively merges similar clusters together until a specified number of clusters is reached. The clustering was performed on a Gower distance matrix, which is a distance measure that can manage both categorical and continuous variables simultaneously, making it suitable for the mixed data in the energy consumer dataset. The Gower distance for categorical variables is calculated based on the proportion of dissimilarities between data points, considering the mismatch or match of categories. The Gower distance for continuous variables is calculated based on their normalized differences between data points.

This approach was selected because it allows for both categorical and numerical fields to be included in the segmentation and is a method that produces dense clusters of similar sizes (i.e. similar number of households), with fewer outliers. It also allows for different predictive variables to be allocated different weightings to enhance or diminish how significant these are in separating out the clusters. Two cluster analyses were performed, one on households with mains gas, and one on those without. This was necessary in order to keep the average gas and electricity fuel consumptions for each archetype at realistic levels, otherwise the off-gas households would skew the average gas consumption towards zero in archetypes that contained both off and on-gas households.

An iterative process was used to derive consumer archetypes, which included adding in or removing different variables in the underlying data set and applying different weightings to the variables in the clustering function. In a cluster analysis, weightings are used to control the impact of each variable in defining the archetypes, so that variables with a high weighting have a greater chance of contributing strongly to the differences between the archetypes. Whereas for a variable with a low weighting, it is more likely that each archetype will contain a mixture of the categories of that variable, so that variable contributes less to the differences between archetypes. Ultimately, this allows us to further tailor the archetypes by fine-tuning the clustering process to align with Ofgem's uses of the archetypes. The different variables included in the segmentation and their weightings used to derive this final set of archetypes are provided below in Table 2. The weightings were decided based on feedback from Ofgem and the importance of certain variables in providing information that feeds into the use cases of the archetypes – mainly in determining how policies impact vulnerable consumers.

Table 2: Weightings used for each clustering variable in the gas and off-gas cluster analyses.

Clustering Variable	Gas clustering weights	Off gas clustering weights
Income	6	6
Disability benefit	5	5
Number of children	5	5
Main heating fuel	0	4
Number of rooms	4	4
Dwelling type	3	3
Elec consumption (kWh)	3	3
Gas consumption (kWh)	3	0
HRP economic status	3	3
Internet access	3	3
Tenure	3	3
EPC rating	2	2
Electric or hybrid vehicle ownership	2	2

Engagement in energy market	2	2
Elec method of payment	1	1
Gas method of payment	1	1
Computer access	1	1
HRP age (banded)	1	1
Rurality	1	1
Tariff switcher	1	1
Total expenditure	1	1

To enhance the robustness of the clustering, we checked numeric variables for collinearity, and removed any variables that were not providing new information (for example, number of rooms and number of bedrooms are highly correlated as they are describing the same underlying property of a household – its size – and so only one of these variables needs to be kept for clustering). This is an essential step as the underlying characteristic would have the combined weightings of the collinear variables, making it more important than desired in the clustering.

The number of archetypes produced was determined through the requirement from Ofgem of having more archetypes than the previous set (13), allowing more varied and detailed descriptions of consumers. We then assessed the optimal number of clusters that are both statistically valid and meet this need for more archetypes. To assess the optimal number of archetypes, we compared the level of variation within clusters to the variation between clusters with the '*betadisper*' function from the vegan package[16] and conducted a Tukey's Honestly Significant Difference (HSD)[14] test to perform post hoc pairwise comparisons to determine if there are significant differences between the clusters. Finally, we visually assessed the dendrogram produced by the clustering algorithm to ensure that the clusters were reasonably separated.

This method produced 24 distinct archetypes, nine of which are off gas households, and fifteen are on gas households. The archetypes were grouped by income decile, with Group A containing archetypes in the lowest income decile, and Group J containing archetypes in the highest income decile. This is a change to the previous set of consumer archetypes used by Ofgem which were not grouped by income decile and therefore did not allow straightforward analysis of policy impacts on higher or lower income households.

A4. Linking to EHS special license data

More disability types and information on communal heating were added to the archetype profiles by linking the archetypes to the special license access version of the EHS. The special license version of the EHS contains more detailed information on disability types (vision, hearing, mobility, dexterity, learning difficulties, memory, wheelchair users). This linking required a different approach to the one we used to predict EPC rating from the EHS pre-clustering because we found no meaningful way to predict different disability types in the LCF based on the information available. Instead, a Gradient Boosting Machine (GBM)[17] was developed to predict the archetype assignment of each household in the energy consumer dataset using only clustering variables common to the EHS. The model was then used to predict the archetype of each household in the EHS with an accuracy of 91%. Using the EHS survey weightings, the number and percentage of households across GB in each archetype that had the different disability types and had communal heating could then be calculated.

A5. Summarising archetype characteristics

The clustering method assigned each household in the energy consumer dataset to one of the 24 archetypes. Summaries of every variable in the energy consumer dataset could then be produced for each archetype. Weightings from the LCF survey were used to scale the number of houses in each archetype up to a GB representative value. We were then able to calculate the number of households in each archetype and in each Government Office Region. The mean of each continuous variable (e.g. income, expenditure, fuel consumption) was taken to estimate average values for each archetype. The percentage and total number of houses for each category within each categorical variable was also calculated for each archetype (e.g. for the categorical variable dwelling type, 218014 houses in archetype A1 (which is 28% of the total) are semi-detached).

Average gas consumption, electricity consumption, and average income for each of the income deciles and the OECD equivalised income deciles were also calculated for each archetype. OECD equivalised income deciles are based off income that is adjusted for household size and composition to allow for comparisons of incomes between households of different sizes and compositions.

All statistics relating to the summarising and descriptions of the archetypes are in the data tables provided with this report. The data tables consist of separate excel sheets that show:

- headline statistics that present the variables that more strongly define the archetypes.
- the distribution of the archetype at government office level (percentage and total number of households)
- the percentage and total number of households with different disabilities in each archetype

- the percentage and total number of households eligible for Cold Weather Payments, the Energy Company Obligation scheme, the Warm Home Discount Scheme, and for Winter Fuel Payments in each archetype
- the percentage and total number of households, the average gas and electricity consumption, and the average income in each income quantile/decile and OECD equivalised income quantile/decile per archetype
- the percentage and total number of households of every categorical variable, and averages of every continuous variable, in the energy consumer data for each archetype

A6. References:

1. Office for National Statistics, Department for Environment, Food and Rural Affairs. (2022). Living Costs and Food Survey, 2019-2020. [data collection]. 2nd Edition. UK Data Service. SN: 8803, https://doi.org/10.5255/UKDA-SN-8803-2
2. Ministry of Housing, Communities and Local Government. (2023). English Housing Survey, 2020: Housing Stock Data. [data collection]. UK Data Service. SN: 9058, https://doi.org/10.5255/UKDA-SN-9058-1
3. Ministry of Housing, Communities and Local Government. (2022). English Housing Survey, 2019-2020: Household Data: Special Licence Access. [data collection]. UK Data Service. SN: 8921, https://doi.org/10.5255/UKDA-SN-8921-1
4. Office of Gas and Electricity Markets (Ofgem). Ofgem Consumer Engagement Survey 2020. https://www.ofgem.gov.uk/publications/consumer-survey-2020-update-consumer-engagement-energy
5. Breiman, L. Random Forests. Machine Learning 45, 5–32 (2001). https://doi.org/10.1023/A:1010933404324
6. Faraway, J.J. (2010). Generalized Linear Models. International Encyclopedia of Education (Third Edition), 178-183. https://doi.org/10.1016/B978-0-08-044894-7.01331-2
7. Energy Company Obligation (ECO). Ofgem. https://www.ofgem.gov.uk/environmental-and-social-schemes/energy-company-obligation-eco
8. Winter Fuel Payments. GOV.UK. https://www.gov.uk/winter-fuel-payment
9. Cold Weather Payments. GOV.UK. https://www.gov.uk/cold-weather-payment
10. Warm Home Discount Scheme. GOV.UK. https://www.gov.uk/the-warm-home-discount-scheme
11. Department for Business, Energy and Industrial Strategy (BEIS). (2020). BEIS Quarterly Energy Prices [Report], https://www.gov.uk/government/collections/quarterly-energy-prices
12. Sutherland Tables. https://www.sutherlandtables.co.uk/
13. Department for Business, Energy & Industrial Strategy. (2020). Digest of United Kingdom Energy Statistics. https://www.gov.uk/government/statistics/digest-of-uk-energy-statistics-dukes-2020
14. R Core Team (2021). stats: The R Stats Package. R package version 4.1.0. https://www.r-project.org/
15. Ward, A.J. (1963). Hierarchical grouping to optimize an objective function. Journal of the American Statistical Association, 58(301), 236-244. https://doi.org/10.1080/01621459.1963.10500845
16. Oksanen, J., Blanchet, F.G., Friendly, M., et al. (2020). vegan: Community Ecology Package. R package version 2.5-7. https://CRAN.R-project.org/package=vegan
17. Ridgeway, G. (2021). gbm: Generalized Boosted Regression Models. R package version 2.1.9. https://CRAN.R-project.org/package=gbm