

New Build Heating & Hot Water Costs

Version control

Date	Version number	Approved by	Description/revisions made
06/02/19	1.0	Rob Honeyman (Ecuity)	-
25/04/19	2.0	Rob Honeyman (Ecuity)	Updated carbon emission factor, fuel prices and ASHP efficiencies

Introduction

- This document shows the annual and weekly heating costs of different technologies in new build homes
- Heating costs are produced for different housing types built by different property developers
- Various parameters are used to model heating costs including:
 - Fuel cost
 - Energy demand
 - Energy consumption
 - Efficiency of technology
 - Carbon intensity of fuel source
- LPG is compared against various fuel sources including electricity, gas and oil
- LPG weekly costs are compared against a social households weekly income to see if the household would be in fuel poverty if it were to use LPG as a heating source.

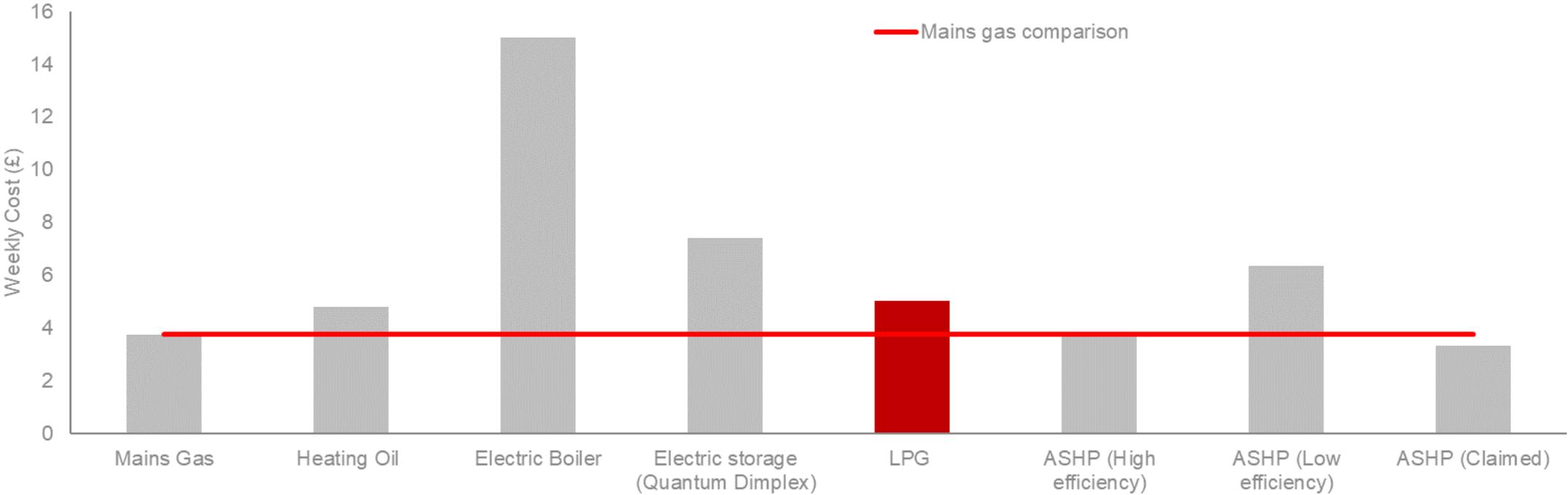
2 Bed Flat (G/F) – Persimmon (Charles Church)

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
Persimmon (Charles Church) - 2 bed - Flat (G/F)									
Mains Gas			4.17	0.184	4,301	0.92	4,675	195.04	3.75
Heating Oil	50.06	9.80	5.11	0.245	4,301	0.88	4,887	249.66	4.80
Electric Boiler			18.16	0.283	4,301	1.00	4,301	780.96	15.02
Electric storage (Quantum Dimplex)			8.96	0.283	4,301	1.00	4,301	385.36	7.41
LPG	39.55	7.08	5.59	0.214	4,301	0.92	4,675	261.15	5.02
ASHP (High efficiency)			18.16	0.283	4,301	3.90	1,103	200.25	3.85
ASHP (Low efficiency)			18.16	0.283	4,301	2.36	1,822	330.92	6.36
ASHP (Claimed)			18.16	0.283	4,301	4.50	956	173.55	3.34

Running cost information based on housetype:

- 2 Bed Flat (G/F), Persimmon (Charles Church) – ‘Brockridge Paddocks’, Twyning, Gloucestershire, GL20 6DE
- Total floor area (ground + first floor) = 54.4m²

2 Bed Flat (G/F) – Persimmon (Charles Church)



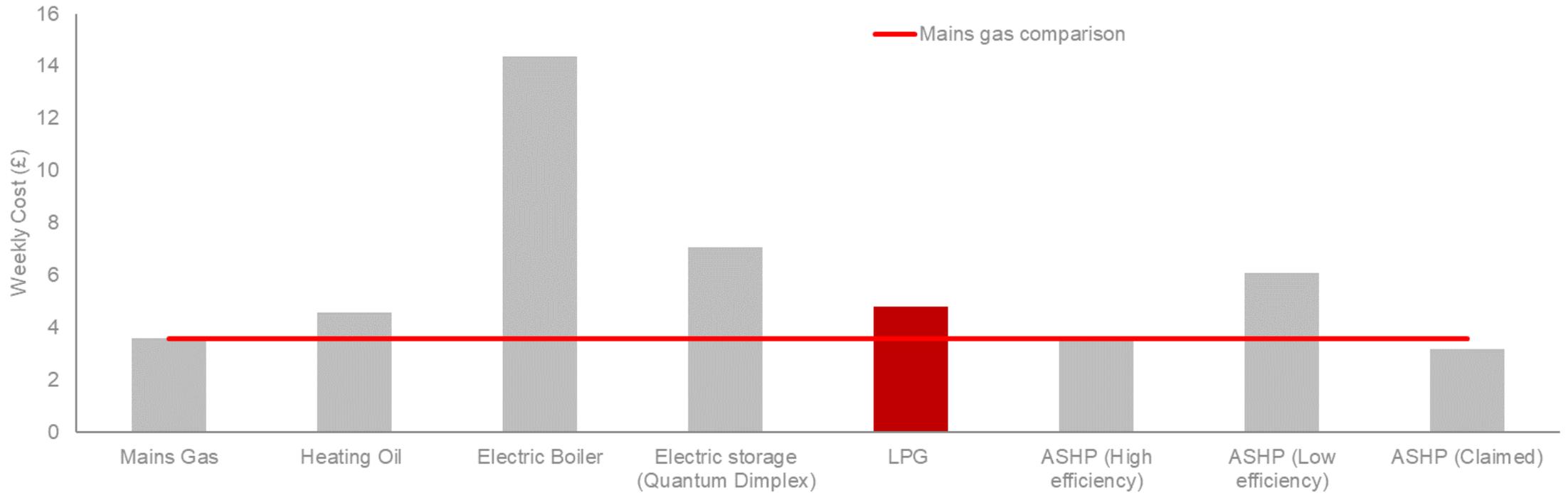
2 Bed Flat (F/F) – Persimmon (Charles Church)

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
Persimmon (Charles Church) - 2 bed - Flat (1st floor)									
Mains Gas			4.17	0.184	4,112	0.92	4,470	186.48	3.59
Heating Oil	50.06	9.80	5.11	0.245	4,112	0.88	4,673	238.70	4.59
Electric Boiler			18.16	0.283	4,112	1.00	4,112	746.70	14.36
Electric storage (Quantum Dimplex)			8.96	0.283	4,112	1.00	4,112	368.45	7.09
LPG	39.55	7.08	5.59	0.214	4,112	0.92	4,470	249.69	4.80
ASHP (High efficiency)			18.16	0.283	4,112	3.90	1,054	191.46	3.68
ASHP (Low efficiency)			18.16	0.283	4,112	2.36	1,742	316.40	6.08
ASHP (Claimed)			18.16	0.283	4,112	4.50	914	165.93	3.19

Running cost information based on housetype:

- 2 Bed Flat (1st floor), Persimmon (Charles Church) – ‘Brockridge Paddocks’, Twynning, Gloucestershire, GL20 6DE
- Total floor area (ground + first floor) = 54.4m²

2 Bed Flat (F/F) – Persimmon (Charles Church)



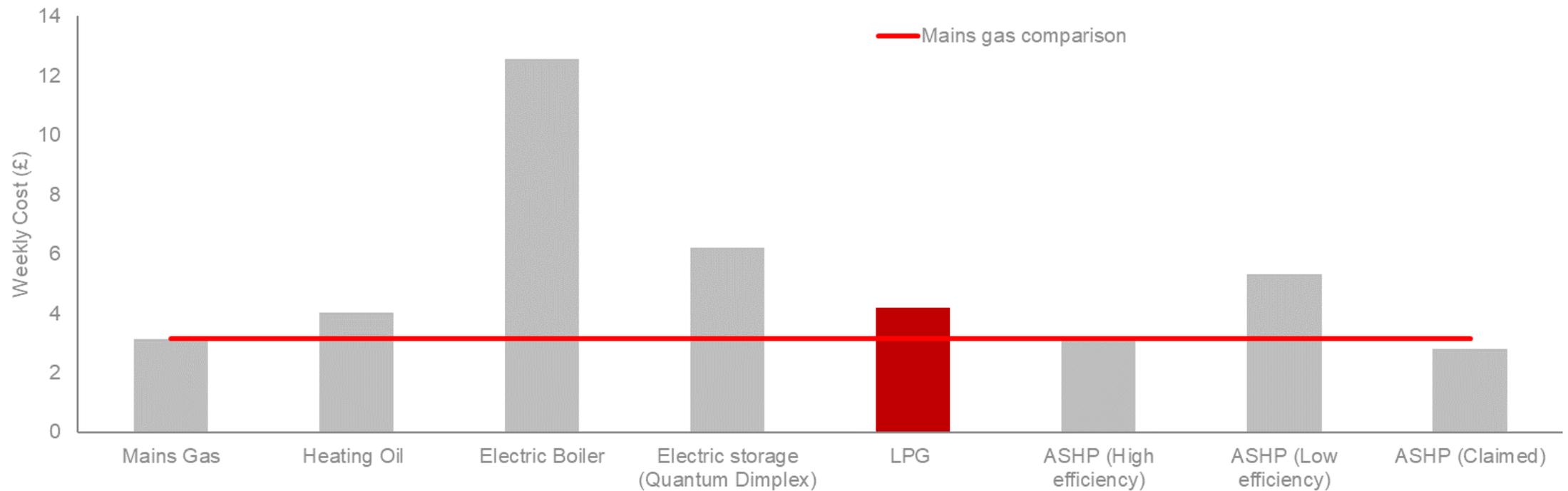
2 Bed Mid-terrace Home – Bellway Homes

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
Bellway Homes - 2 bed - mid terrace - The Ash									
Mains Gas			4.17	0.184	3,596	0.92	3,909	163.08	3.14
Heating Oil	50.06	9.80	5.11	0.245	3,596	0.88	4,087	208.75	4.01
Electric Boiler			18.16	0.283	3,596	1.00	3,596	653.00	12.56
Electric storage (Quantum Dimplex)			8.96	0.283	3,596	1.00	3,596	322.22	6.20
LPG	39.55	7.08	5.59	0.214	3,596	0.92	3,909	218.36	4.20
ASHP (High efficiency)			18.16	0.283	3,596	3.90	922	167.44	3.22
ASHP (Low efficiency)			18.16	0.283	3,596	2.36	1,524	276.69	5.32
ASHP (Claimed)			18.16	0.283	3,596	4.50	799	145.11	2.79

Running cost information based on housetype:

- **'The Ash'** – 2 bed Mid-terrace Home, Bellway Homes – 'Showfields', Haydon Bridge, Northumberland, NE47 6DG
- Total floor area (ground + first floor) = 58.48m²

2 Bed Mid-terrace – Bellway Homes



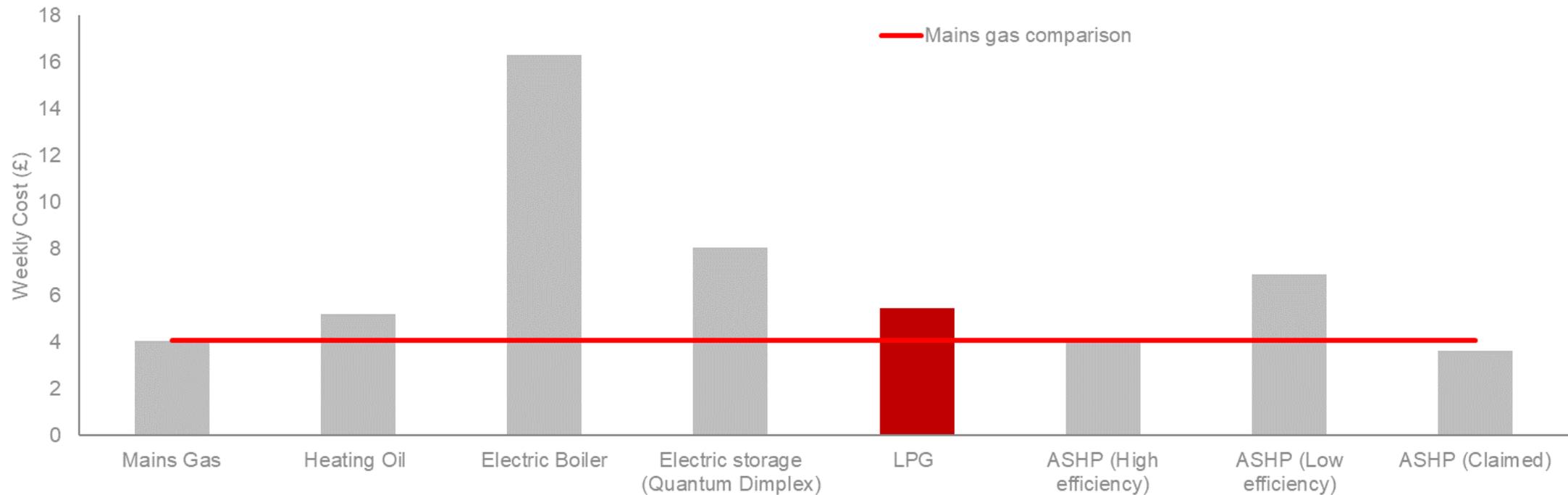
2 Bed Semi-detached – Persimmon (Charles Church)

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
Persimmon (Charles Church) - 2 bed - semi-detached - Trafalgar									
Mains Gas			4.17	0.184	4,669	0.92	5,075	211.71	4.07
Heating Oil	50.06	9.80	5.11	0.245	4,669	0.88	5,305	271.00	5.21
Electric Boiler			18.16	0.283	4,669	1.00	4,669	847.74	16.30
Electric storage (Quantum Dimplex)			8.96	0.283	4,669	1.00	4,669	418.31	8.04
LPG	39.55	7.08	5.59	0.214	4,669	0.92	5,075	283.48	5.45
ASHP (High efficiency)			18.16	0.283	4,669	3.90	1,197	217.37	4.18
ASHP (Low efficiency)			18.16	0.283	4,669	2.36	1,978	359.21	6.91
ASHP (Claimed)			18.16	0.283	4,669	4.50	1,037	188.39	3.62

Running cost information based on:

- **'Trafalgar', 2 Bed Semi-detached Home, Persimmon (Charles Church), – 'Brockridge Paddocks', Twyning, Gloucestershire, GL20 6DE**
- **Total floor area (ground + first floor) = 63.29m²**

2 Bed Semi-detached – Persimmon (Charles Church)



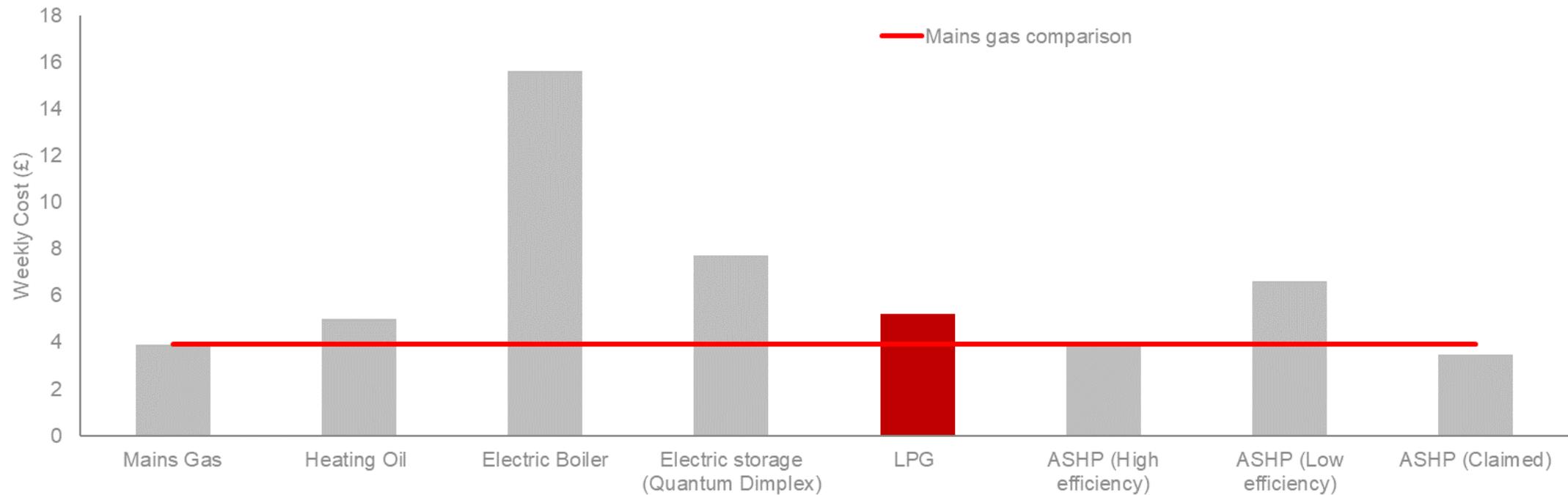
3 Bed Semi-detached Home – Taylor Wimpey

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
Taylor Wimpey - 3 bed - semi-detached - The Gosford									
Mains Gas			4.17	0.184	4,478	0.92	4,867	203.05	3.90
Heating Oil	50.06	9.80	5.11	0.245	4,478	0.88	5,088	259.91	5.00
Electric Boiler			18.16	0.283	4,478	1.00	4,478	813.04	15.64
Electric storage (Quantum Dimplex)			8.96	0.283	4,478	1.00	4,478	401.19	7.72
LPG	39.55	7.08	5.59	0.214	4,478	0.92	4,867	271.87	5.23
ASHP (High efficiency)			18.16	0.283	4,478	3.90	1,148	208.47	4.01
ASHP (Low efficiency)			18.16	0.283	4,478	2.36	1,897	344.51	6.63
ASHP (Claimed)			18.16	0.283	4,478	4.50	995	180.67	3.47

Running cost information based on:

- **'The Gosford'**, 3 Bed Semi-detached Home, Taylor Wimpey – **'The Lees'**, Sellindge, Kent, TN25 6JD
- Total floor area (ground + first floor) = 80.46m²

3 Bed Semi-detached – Taylor Wimpey



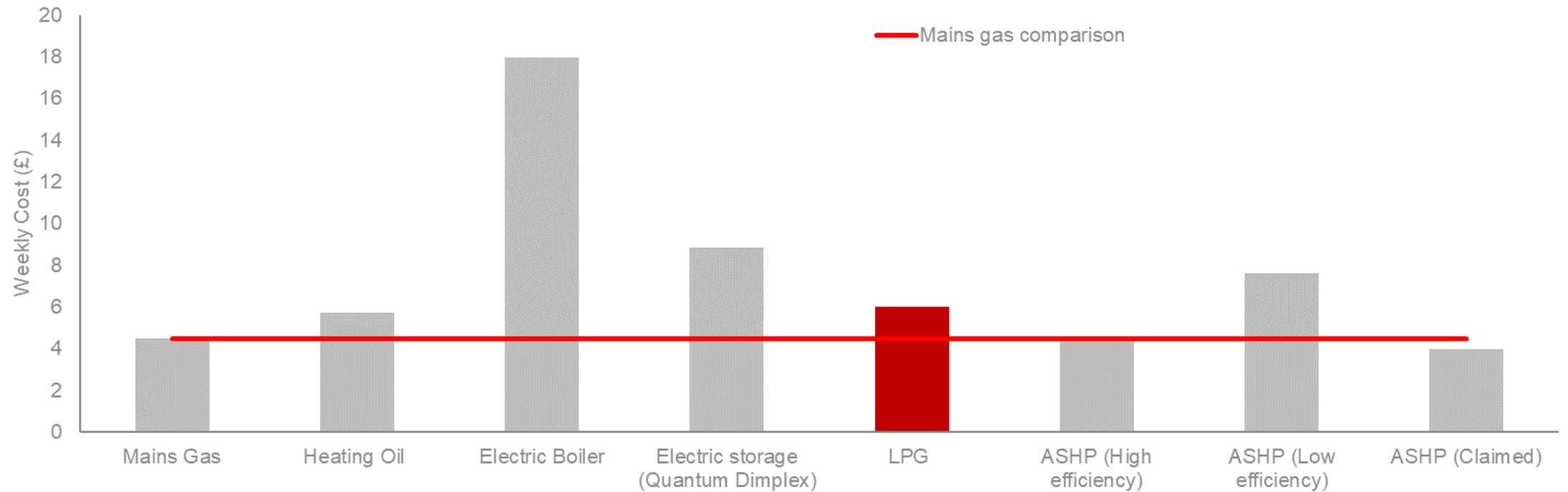
3 Bed Semi-detached Home – Bellway Homes

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
Bellway Homes - 3 bed - semi-detached - The Chestnut									
Mains Gas			4.17	0.184	5,143	0.92	5,590	233.21	4.48
Heating Oil	50.06	9.80	5.11	0.245	5,143	0.88	5,844	298.51	5.74
Electric Boiler			18.16	0.283	5,143	1.00	5,143	933.80	17.96
Electric storage (Quantum Dimplex)			8.96	0.283	5,143	1.00	5,143	460.78	8.86
LPG	39.55	7.08	5.59	0.214	5,143	0.92	5,590	312.25	6.00
ASHP (High efficiency)			18.16	0.283	5,143	3.90	1,319	239.44	4.60
ASHP (Low efficiency)			18.16	0.283	5,143	2.36	2,179	395.68	7.61
ASHP (Claimed)			18.16	0.283	5,143	4.50	1,143	207.51	3.99

Running cost information based on:

- **'The Chestnut'**, 3 Bed Semi-detached Home, Bellway Homes – **'Showfields'**, Haydon Bridge, Northumberland, NE47 6DG
- Total floor area (ground + first floor) = 84.12m²

3 Bed Semi-detached – Bellway Homes



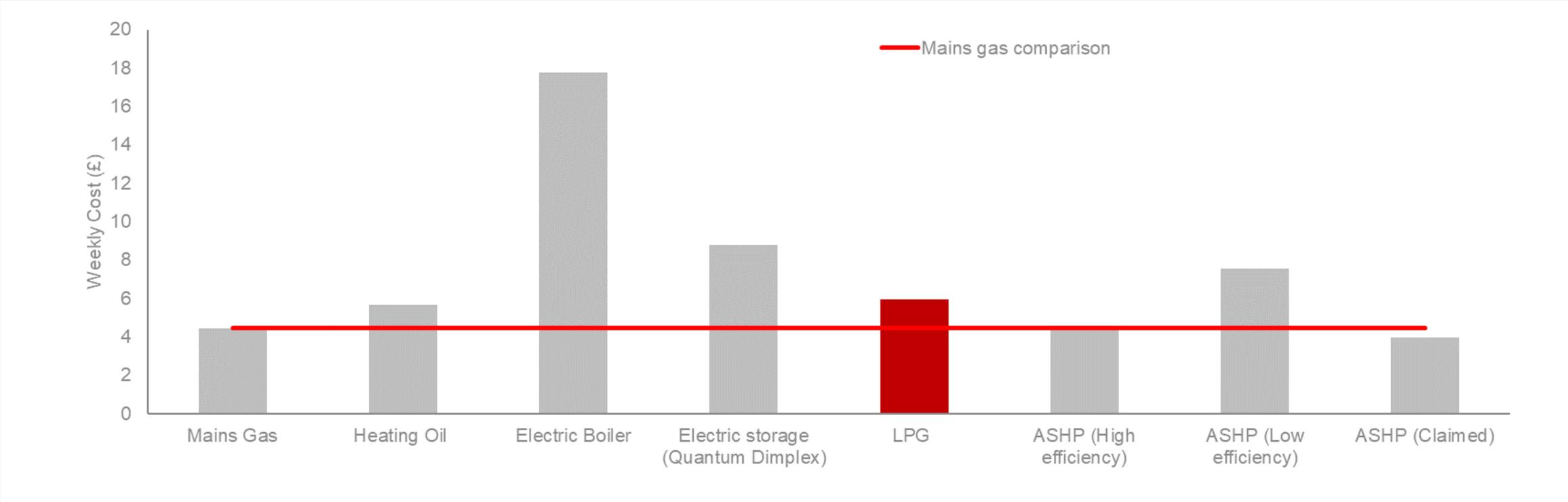
3 Bed Detached Home – Taylor Wimpey

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
Taylor Wimpey - 3 bed - detached - The Easdale									
Mains Gas			4.17	0.184	5,091	0.92	5,534	230.87	4.44
Heating Oil	50.06	9.80	5.11	0.245	5,091	0.88	5,785	295.52	5.68
Electric Boiler			18.16	0.283	5,091	1.00	5,091	924.44	17.78
Electric storage (Quantum Dimplex)			8.96	0.283	5,091	1.00	5,091	456.16	8.77
LPG	39.55	7.08	5.59	0.214	5,091	0.92	5,534	309.12	5.94
ASHP (High efficiency)			18.16	0.283	5,091	3.90	1,305	237.04	4.56
ASHP (Low efficiency)			18.16	0.283	5,091	2.36	2,157	391.71	7.53
ASHP (Claimed)			18.16	0.283	5,091	4.50	1,131	205.43	3.95

Running cost information based on:

- **'The Easdale'**, 3 Bed Detached Home, Taylor Wimpey – **'The Lees'**, Sellindge, Kent, TN25 6JD
- Total floor area (ground + first floor) = 86.52m²

3 Bed Detached Home – Taylor Wimpey



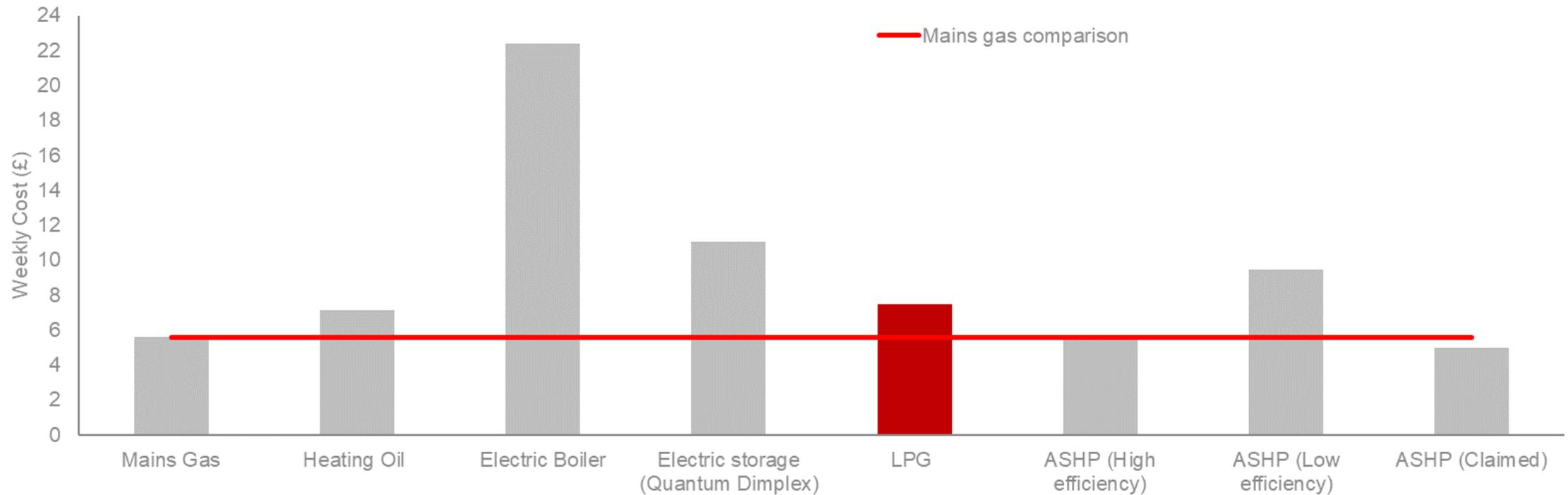
4 Bed Detached Home – Anwyl Homes

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
Anwyl Homes - 4 bed - detached - The Abersoch									
Mains Gas			4.17	0.184	6,413	0.92	6,970	290.81	5.59
Heating Oil	50.06	9.80	5.11	0.245	6,413	0.88	7,287	372.24	7.16
Electric Boiler			18.16	0.283	6,413	1.00	6,413	1,164.44	22.39
Electric storage (Quantum Dimplex)			8.96	0.283	6,413	1.00	6,413	574.59	11.05
LPG	39.55	7.08	5.59	0.214	6,413	0.92	6,970	389.38	7.49
ASHP (High efficiency)			18.16	0.283	6,413	3.90	1,644	298.58	5.74
ASHP (Low efficiency)			18.16	0.283	6,413	2.36	2,717	493.41	9.49
ASHP (Claimed)			18.16	0.283	6,413	4.50	1,425	258.77	4.98

Running cost information based on housetype:

- **'The Abersoch'**, 4 Bed Detached Home, Anwyl Homes – **'Heathfields'**, Audlem, Cheshire, CW3 0HZ
- Total floor area (ground + first floor) = 99.96m²

4 Bed Detached Home – Anwyl Homes



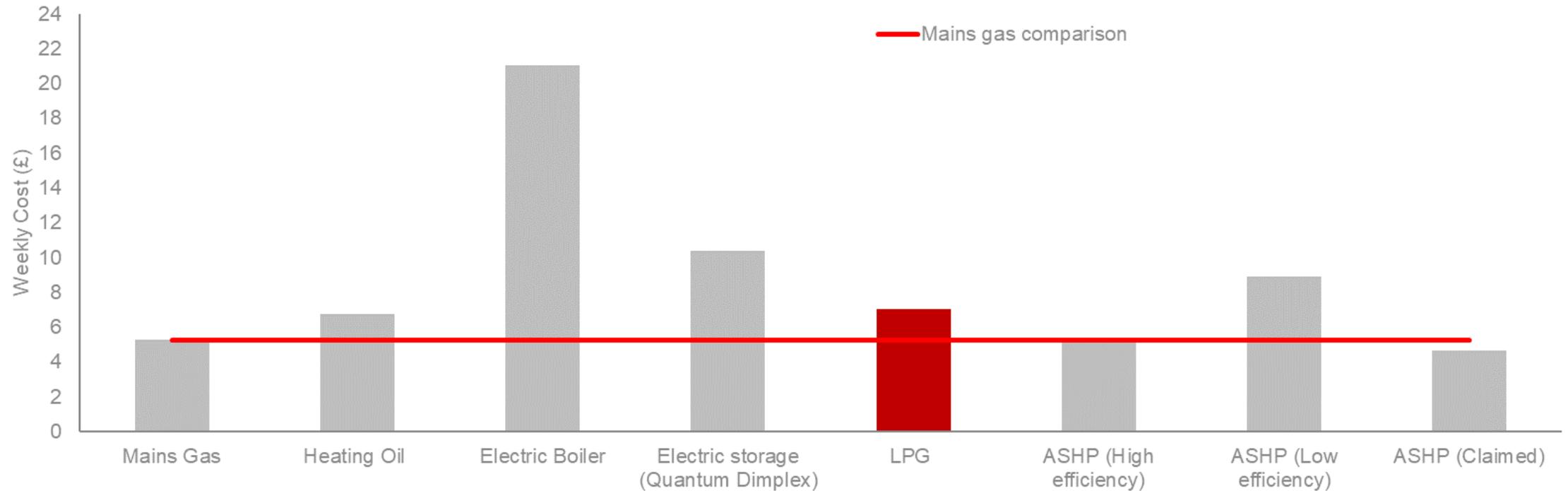
4 Bed Detached Home – Bellway Homes

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
Bellway homes - 4 bed - detached - The Laurel									
Mains Gas			4.17	0.184	6,033	0.92	6,558	273.61	5.26
Heating Oil	50.06	9.80	5.11	0.245	6,033	0.88	6,856	350.23	6.74
Electric Boiler			18.16	0.283	6,033	1.00	6,033	1,095.57	21.07
Electric storage (Quantum Dimplex)			8.96	0.283	6,033	1.00	6,033	540.60	10.40
LPG	39.55	7.08	5.59	0.214	6,033	0.92	6,558	366.35	7.05
ASHP (High efficiency)			18.16	0.283	6,033	3.90	1,547	280.92	5.40
ASHP (Low efficiency)			18.16	0.283	6,033	2.36	2,557	464.23	8.93
ASHP (Claimed)			18.16	0.283	6,033	4.50	1,341	243.46	4.68

Running cost information based on housetype:

- **'The Laurel'** – 4 Bed Detached Home, Bellway Homes – *'Showfields'*, Haydon Bridge, Northumberland, NE47 6DG
- Total floor area (ground + first floor) = 100.4m²

4 Bed Detached Home – Bellway Homes



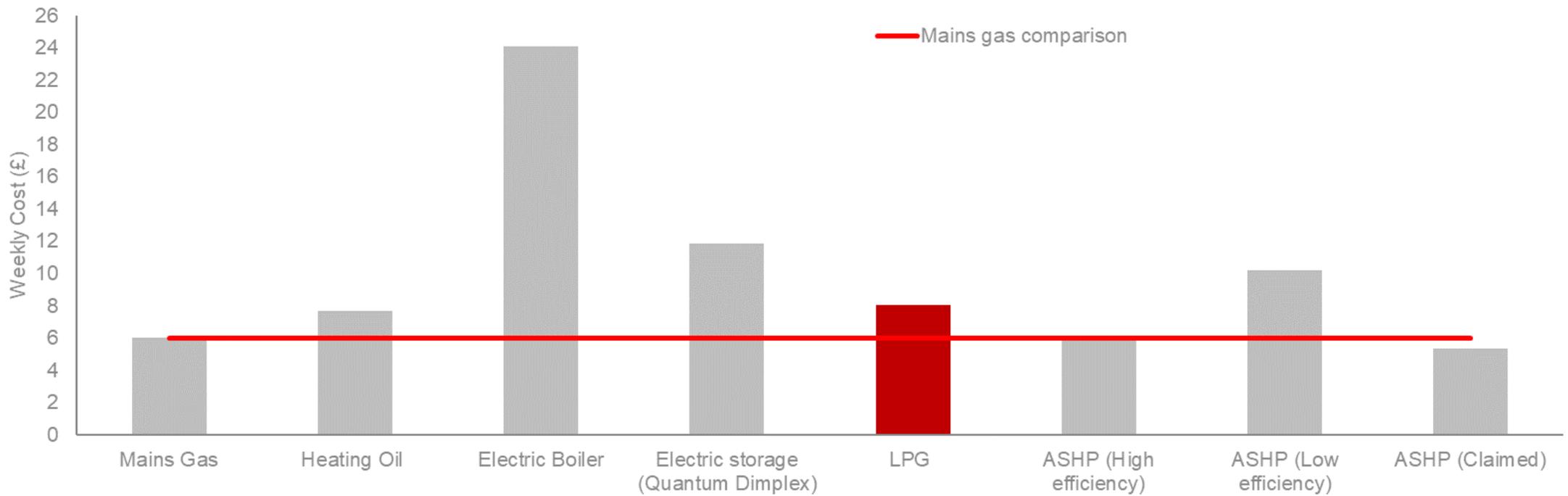
4 Bed Detached Home – Anwyl Homes

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
Anwyl Homes - 4 bed - detached - The Bala									
Mains Gas			4.17	0.184	6,892	0.92	7,492	312.56	6.01
Heating Oil	50.06	9.80	5.11	0.245	6,892	0.88	7,832	400.09	7.69
Electric Boiler			18.16	0.283	6,892	1.00	6,892	1,251.54	24.07
Electric storage (Quantum Dimplex)			8.96	0.283	6,892	1.00	6,892	617.56	11.88
LPG	39.55	7.08	5.59	0.214	6,892	0.92	7,492	418.50	8.05
ASHP (High efficiency)			18.16	0.283	6,892	3.90	1,767	320.91	6.17
ASHP (Low efficiency)			18.16	0.283	6,892	2.36	2,921	530.31	10.20
ASHP (Claimed)			18.16	0.283	6,892	4.50	1,532	278.12	5.35

Running cost information based on housetype:

- **'The Bala'**, 4 Bed Detached Home, Anwyl Homes – **'Heathfields'**, Audlem, Cheshire, CW3 0HZ
- Total floor area (ground + first floor) = 115m²

4 Bed Detached Home – Anwyl Homes



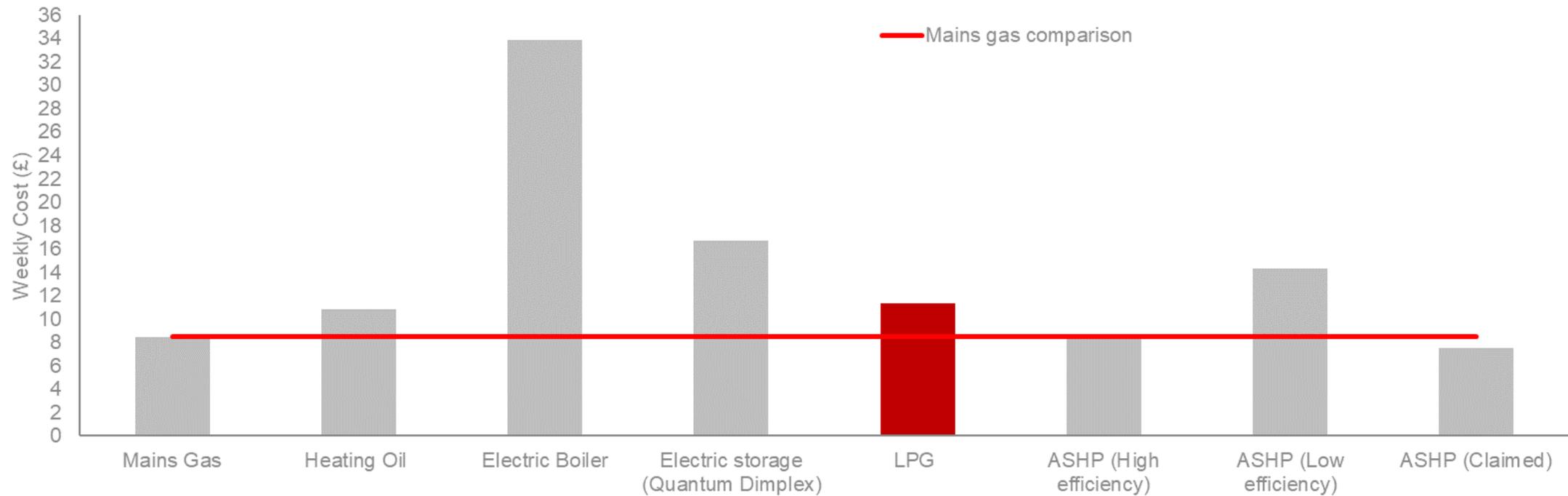
5 Bed Detached Home – BDW (David Wilson)

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
BDW (David Wilson) - 5 bed - detached - Henley									
Mains Gas			4.17	0.184	9,707	0.92	10,551	440.19	8.47
Heating Oil	50.06	9.80	5.11	0.245	9,707	0.88	11,031	563.46	10.84
Electric Boiler			18.16	0.283	9,707	1.00	9,707	1,762.59	33.90
Electric storage (Quantum Dimplex)			8.96	0.283	9,707	1.00	9,707	869.73	16.73
LPG	39.55	7.08	5.59	0.214	9,707	0.92	10,551	589.39	11.33
ASHP (High efficiency)			18.16	0.283	9,707	3.90	2,489	451.95	8.69
ASHP (Low efficiency)			18.16	0.283	9,707	2.36	4,113	746.86	14.36
ASHP (Claimed)			18.16	0.283	9,707	4.50	2,157	391.69	7.53

Running cost information based on housetype:

- **'Henley'**, 5 Bed Detached Home, BDW (David Wilson) – *'Doveridge Park'*, Doveridge, Ashbourne, Derbyshire, DE6 5LW
- Total floor area (ground + first floor) = 182.41m²

5 Bed Detached Home – BDW (David Wilson)



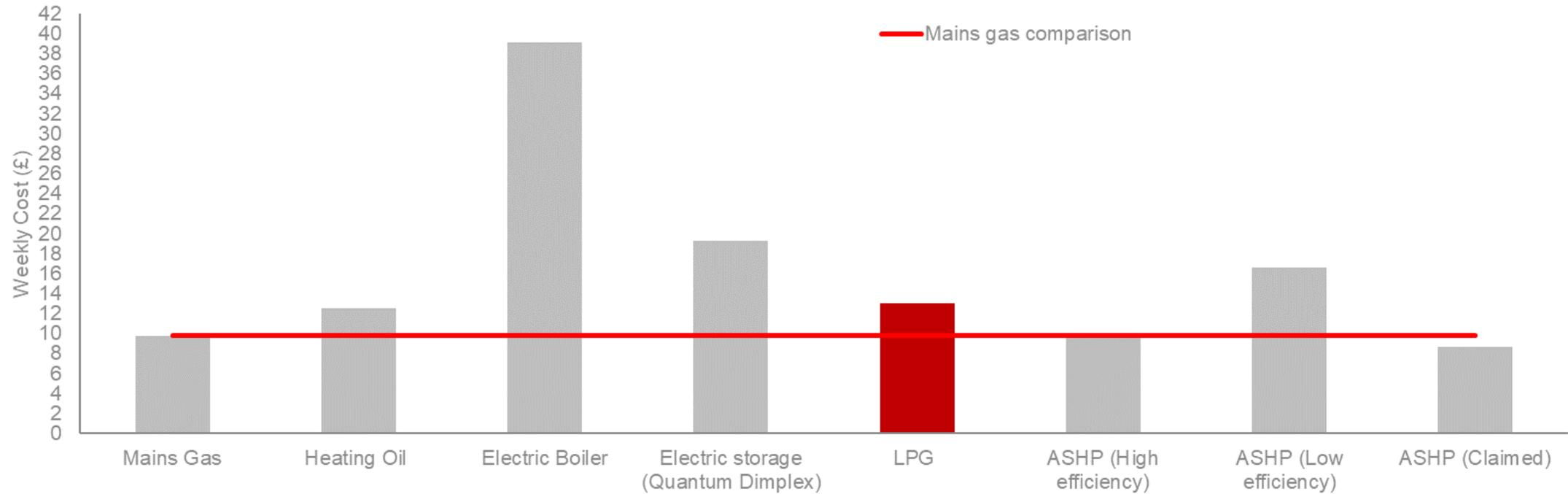
5 Bed Detached Home – BDW (David Wilson)

Fuel Type	Cost (ppLitre)	kWh/litre	Cost (p/kWh)	CO2 Emissions (CO2/kWh)	Heating & Hot Water Demand (kWh/year)	System Efficiency	Fuel Consumption (kWh/year)	Cost (£/Year)	Cost (£/week)
BDW (David Wilson) - 5 bed - detached - Moorecroft									
Mains Gas			4.17	0.184	11,193	0.92	12,166	507.57	9.76
Heating Oil	50.06	9.80	5.11	0.245	11,193	0.88	12,719	649.71	12.49
Electric Boiler			18.16	0.283	11,193	1.00	11,193	2,032.42	39.08
Electric storage (Quantum Dimplex)			8.96	0.283	11,193	1.00	11,193	1,002.88	19.29
LPG	39.55	7.08	5.59	0.214	11,193	0.92	12,166	679.62	13.07
ASHP (High efficiency)			18.16	0.283	11,193	3.90	2,870	521.13	10.02
ASHP (Low efficiency)			18.16	0.283	11,193	2.36	4,743	861.19	16.56
ASHP (Claimed)			18.16	0.283	11,193	4.50	2,487	451.65	8.69

Running cost information based on housetype:

- **'Moorecroft'**, 5 Bed Detached Home, BDW (David Wilson) – *'Doveridge Park'*, Doveridge, Ashbourne, Derbyshire, DE6 5LW
- Total floor area (ground + first floor) = 226.31m²

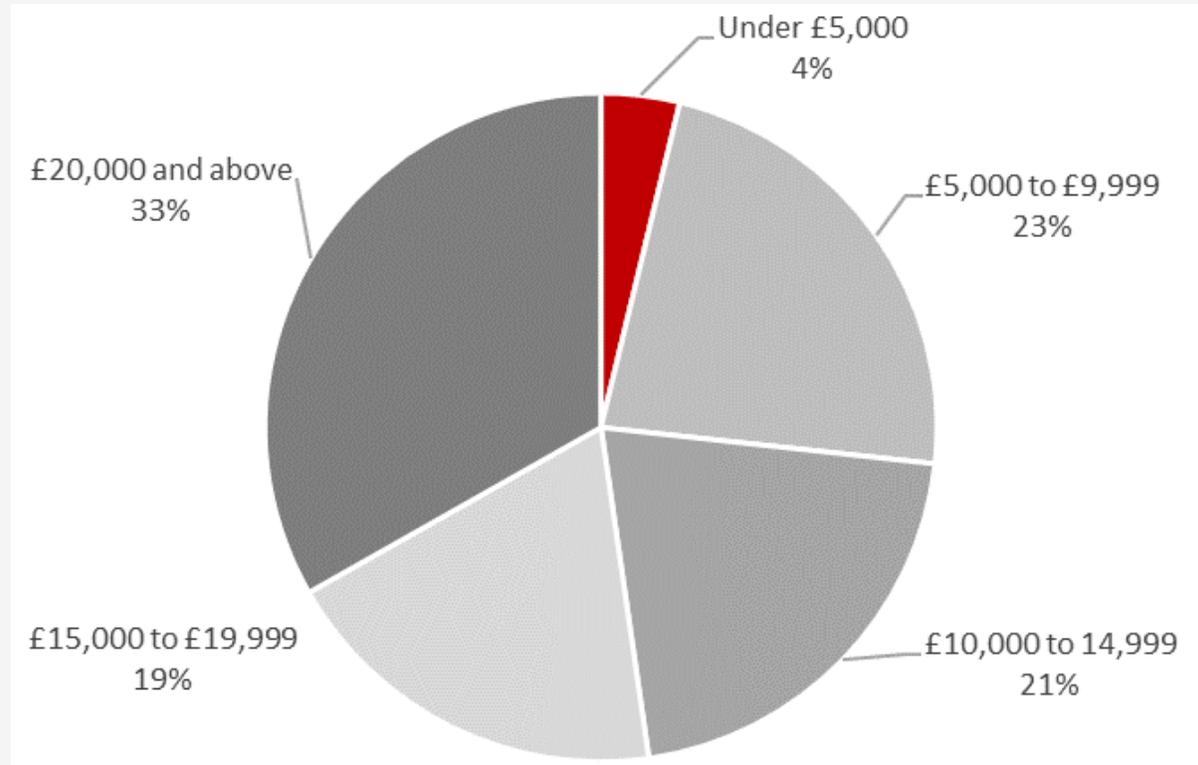
5 Bed Detached Home – BDW (David Wilson)



Fuel Poverty & Social Housing

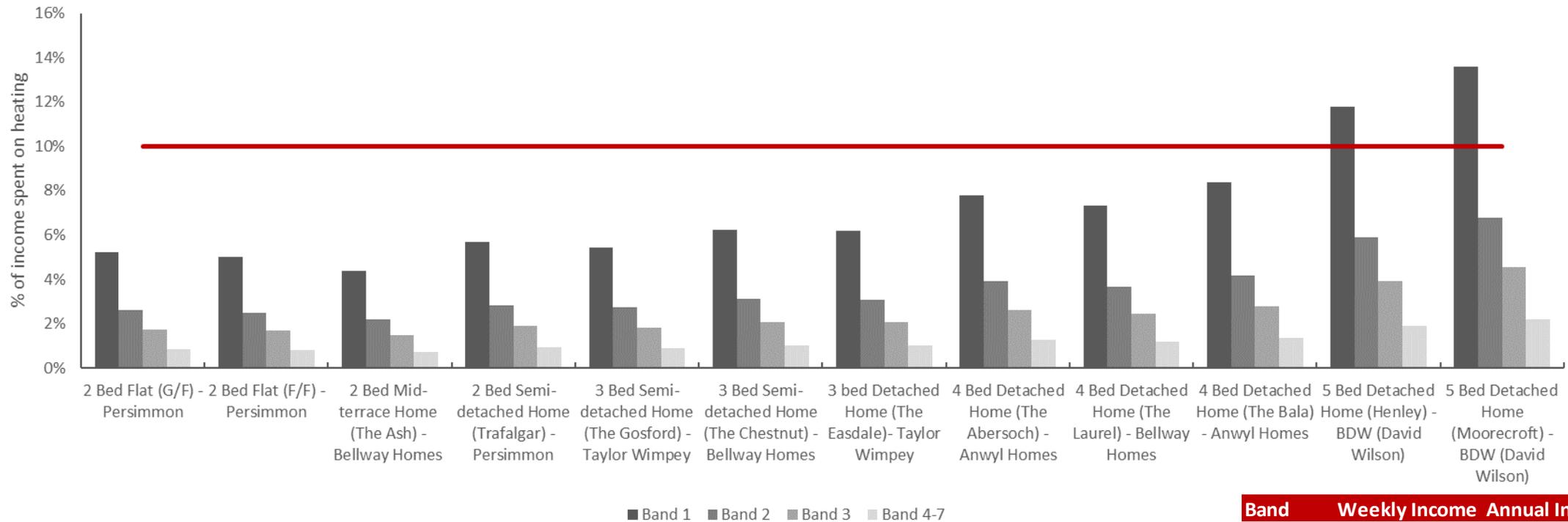
- A household is considered to be fuel poor if: they have required fuel costs that are above average (national median level); and, were they to spend that amount, they would be left with a residual income below the official poverty line (60% of median UK household income). ([BEIS 2018](#))
- One measure of fuel poverty is the **10% definition**:
*“a household is considered to be fuel poor if **they are required to spend more than 10% of their income on fuel**, so as to maintain an adequate standard of warmth”.* (BEIS 2018)
- Therefore, in order to be a viable fuel source for social housing tenants, the weekly cost of heating with LPG must not represent over 10% of a tenants weekly income.
- Other definitions include the **Low-Income High Cost (LIHC)** – a dual indicator, which allows measurement of both the level (number of households) and depth (fuel poverty gap) of fuel poverty.
- For simplification purposes, we consider the 10% definition.

Social Housing Tenant Income



- Two-thirds (67%) of social household tenants have a gross annual income below £20,000
- This equates to having a weekly of below £385
- 4% of households in social housing have an annual income of less than £5000 (<£96 per week)

LPG Heating Costs - % of Social Housing Tenant Income

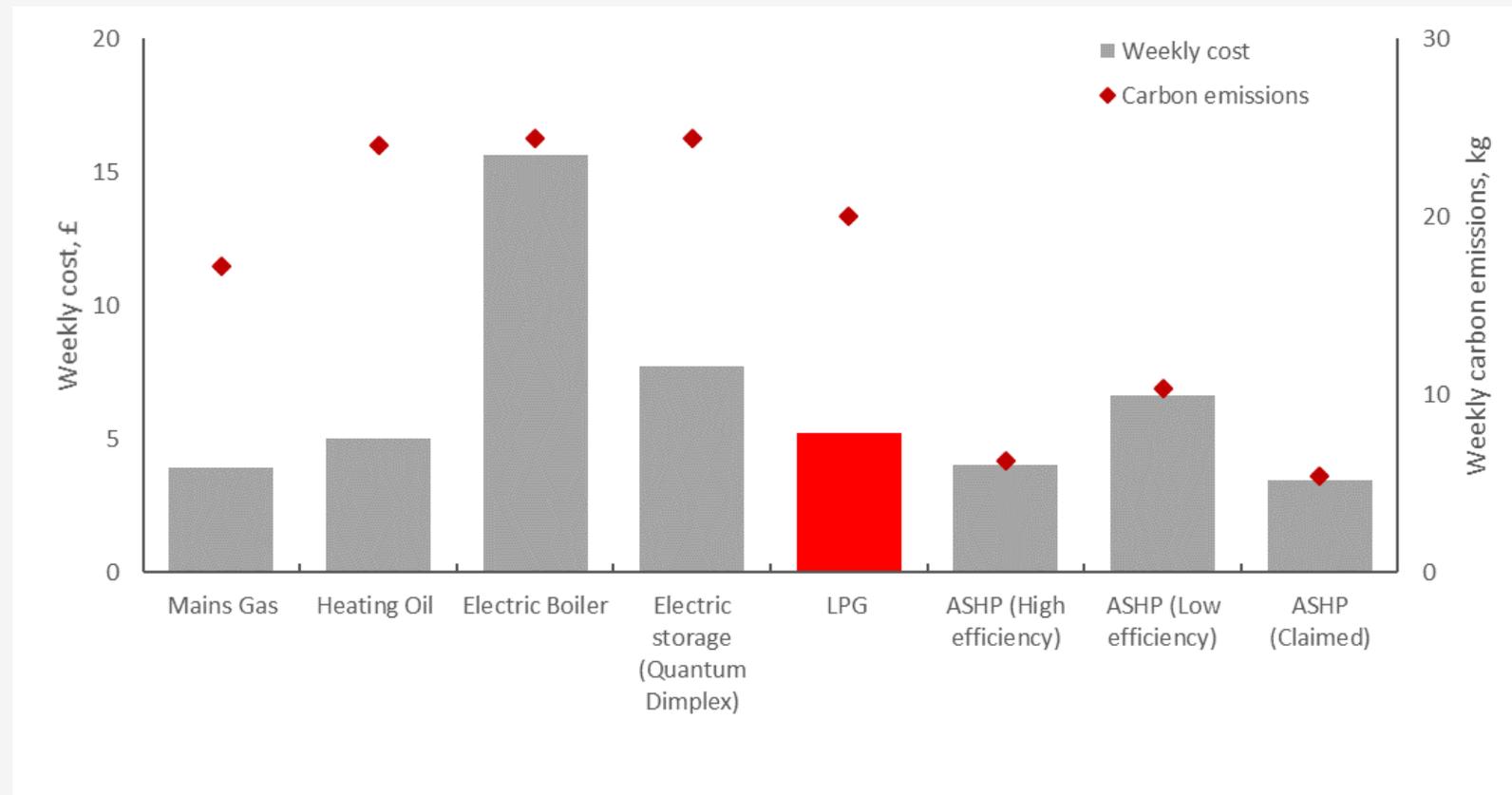


Band	Weekly Income	Annual Income
Band 0	£0 to £96	Under £5,000
Band 1	£96 to £192	£5,000 to £9,999
Band 2	£192 to £288	£10,000 to 14,999
Band 3	£288 to £385	£15,000 to £19,999
Band 4-7	£385 and above	£20,000 and above

- LPG heating represents less than 10% of weekly income for all house types considered, except for households with living in a 5-bed detached home with an annual income less than £9,999.



Carbon emissions produced by each heating technology



- The weekly heating costs and amount of CO₂ produced are shown for a new build Taylor Wimpey 3-bed semi-detached house (The Gosford)
- The bars show the **weekly costs (left axis)** while the markers above the bars show the amount of **carbon produced (right axis)**

Assumptions

Total heating demand

- Actual SAP reports are used which give the hot water and space heating demand for various new build properties built by different property developers.
- The total floor area is also used which is the sum of the ground floor area + first floor area.

ASHP efficiencies

- Three values for the efficiency of an ASHP are quoted – low, high and claimed.
- The high efficiency is taken from BEIS's monthly RHI deployment statistics. The low efficiency value is taken from the report on RHPP by UCL and DECC.
- Efficiency value is taken from a Samsung brochure on ASHPs

Tariff calculation for Electric storage heater (Quantum Dimplex)

- We assume households using a Quantum Dimplex storage heater consume 90% of their energy use during off-peak hours. The remaining 10% is done in peak hours.
- BEIS reports that Economy 7 variable tariffs in the UK were 17.4p/kWh in the day and 7.9p/kWh in the night. Fixed costs for standing charges were £78.43/year. These figures were based on a consumption of 6,000kWh/year. The fixed cost (£78.43/year) was divided by total consumption (6,000kWh) to give fixed costs per kWh. This was then added to the variable costs to give a total tariff (variable + fixed)
- A total tariff was calculated to include fixed costs. Updated tariffs - 18.7p/kWh in the day (peak time) and 7.9/kWh in the night (off-peak)
- Since 90% of energy consumption is done in off-peak hours, the tariffs are adjusted to reflect this - $90\% * 7.9p$ and $10\% * 18.7p$. This gives a weighted tariff of 8.96p/kWh.

References & Links

Item	Source	Document name	Link/URL	Reference
Total heating demand	Calor/SAP	SAP worksheet: New dwelling design stage	-	Page 9 and 10 - sum of space heating demand (211) and water heating (219)
Total floor area	Calor/SAP	SAP worksheet: New dwelling design stage	-	Page 1 – total floor area (ground floor + first floor area)
Fuel prices (electricity and mains gas)	BEIS	Data tables 1-19 supporting the toolkit and the guidance 2017	https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal	Tables 4-8 (Domestic Central Prices in 2018)
LPG price	Calor	-	-	-
Heating oil price	NottsEnergy	Price of heating oil in the UK	https://nottenergy.com/our-services/resources/energy-cost-comparison/	Kerosene (fuel price per litre)
System efficiencies	Ofgem	ECO3 Deemed Scores Methodology	https://www.ofgem.gov.uk/system/files/docs/2018/07/eco3_deemed_scores_methodology_document_200718.pdf	Page 19 – Replacement heating assumptions (after)

References & Links

Item	Source	Document name	Link/URL	Reference
ASHP efficiency (High efficiency)	BEIS	RHI deployment data	https://www.gov.uk/government/statistics/rhi-monthly-deployment-data-february-2019	Tab 2.12 (Max value for new installations only)
ASHP efficiency (Low efficiency)	BEIS/UCL	Analysis of data from heat pumps installed via the renewable heat incentive premium payment (RHPP) scheme to the Department of Energy and Climate Change (DECC)	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/606778/DECC_RHPP_160112_Detailed_analysis_report_v5.3.pdf	Page 10
ASHP efficiency (claimed)	Samsung	EHS Technical Data Book: EHS Mono for Europe	https://www.samsung.com/common/files/techinfo/AE160JXYDGH/EU/EHS%20IDU%20and%20ODU%20Mono%20for%20Europe_50Hz_Ver1_4_TDB.pdf	Page 6 (SCOP at 35 degrees for 5kW system). Efficiencies for 5kW-16kW at 4.5COP, minimal variation.
Carbon intensities	BEIS	Greenhouse gas reportings: conversion factors 2018	https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2018	UK electricity tab (F23) and fuels tab. Intensities measured in kgCO ₂ /kWh (gross)
Social housing income		FA3551 (S521): gross annual income of household reference person and partner by type of letting	https://www.gov.uk/government/statistical-data-sets/social-and-private-renters	Tab 2016-17

References & Links

Item	Source	Document name	Link/URL	Reference
Energy consumption (heat & hot water)	BEIS	Energy Consumption in the UK (2018 update)	https://www.gov.uk/government/collections/energy-consumption-in-the-uk	Tab 1.04
Economy 7 tariffs	BEIS	Average variable unit costs and fixed costs for electricity for UK regions	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/743761/table_224.xls	Tab '2017 Economy 7 Electricity' United Kingdom values (N21, O21 and P21)