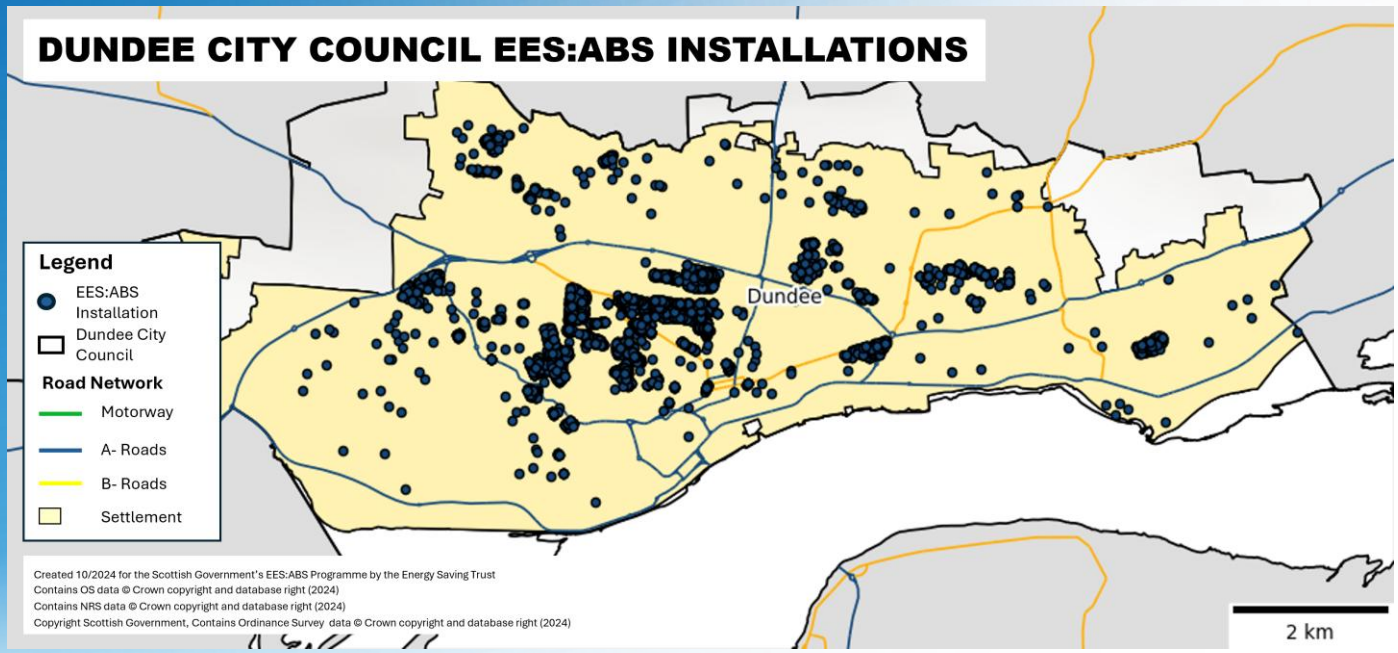
Dundee City Council
EES: ABS Case Study

Energy Saving Trust
September 2024



Overview

The Scottish Government's EES: ABS* team requested case studies to compare the available EES: ABS install data, alongside other energy efficiency related characteristics, with three goals in mind:

- To provide a more detailed breakdown of the installed measures data to date.
- To allow greater comparison between the different local authorities as well as across the duration of the EES: ABS programme.
- To provide a series of illustrations that the Scottish Government or local authorities can use to promote the work achieved under the EES: ABS programme.

This presentation contains the case study and illustration set for reported Dundee City Council EES: ABS activity to date (Sept 2024).**

*Note: *Energy Efficient Scotland: Area Based Schemes*
***Some data gaps may exist – to be submitted by the local authority.*

Dundee City EES: ABS dataset

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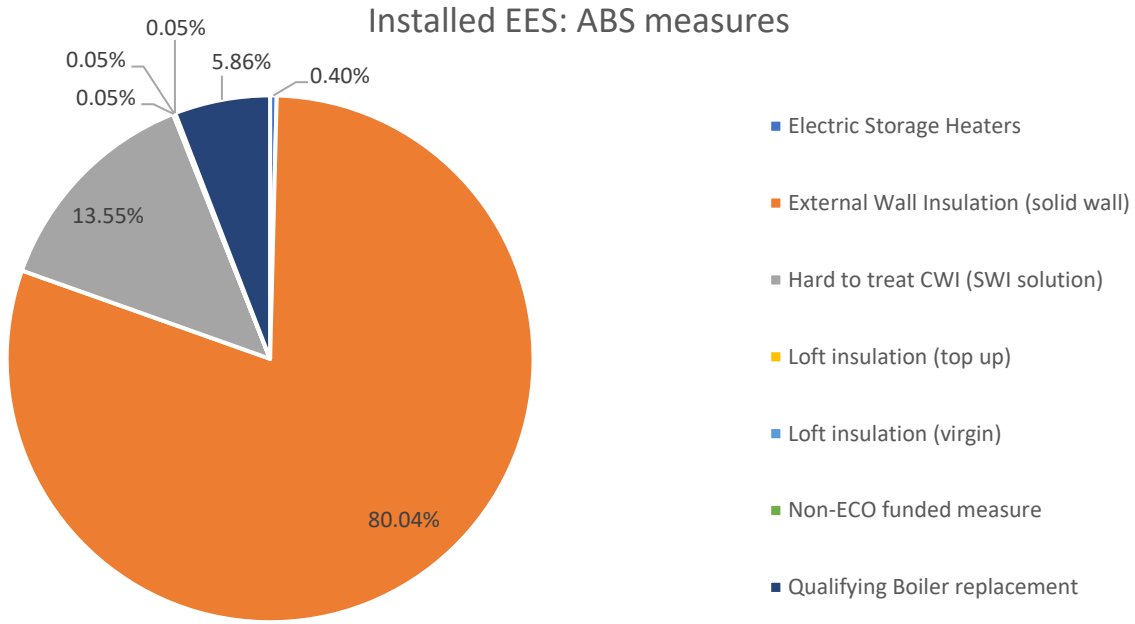
Financial Year	Number of records*	% of records
2013/14	489	9.76
2014/15	704	14.05
2015/16	1,064	21.23
2016/17	550	10.97
2017/18	692	13.81
2018/19	694	13.85
2019/20	545	10.87
2020/21	274	5.47
2021/22	0	0
2022/23	0	0
2023/24[1]	*0*	0
Total Installs	***5,012***	**100.00**

Reference numbers	Number of records	% of records
With pre-installation EPC	4,184	79.98
With post-installation EPC	1,813	34.66
With pre and post-installation EPC	1,804	34.49
With GDAR	0	0
With measure reference number	0	0

The Dundee City Council has contributed 3.97% of the total EES: ABS installs across Scotland reported to date (Sept 2024).

**Published at https://www.gov.scot/publications/area-based-schemes-annual-final-measures-reports/.*
GDAR – Green Deal Advice Report Number

Installed Measures I



Dundee Council has offered a variety of measures as part of their EES: ABS programme. Of the 3,977 measures reported, nearly 94% were for wall insulation including external wall insulation for solid wall (80.04%) and hard to treat cavity wall (SWI solution) (13.55%). Qualifying boiler replacements (5.86%) and electric storage heaters (0.40%) were also recorded.

There were two Non-ECO funded measures during the programme, recorded as 'Medical emergency'.

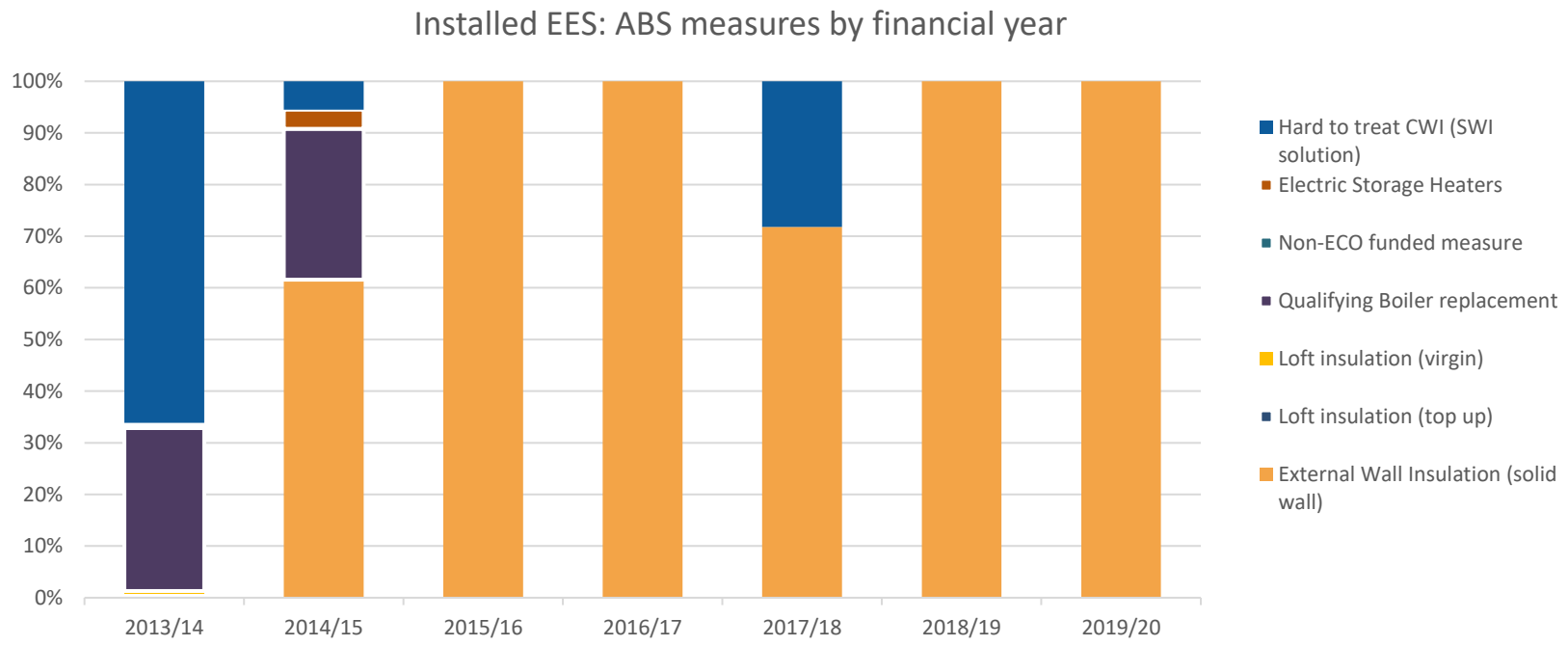
Installed Measures II

Measure Name	Number of records*	% of records
External Wall Insulation (solid wall)	3,183	80.04
Hard to treat CWI (SWI solution)	539	13.55
Qualifying Boiler replacement	233	5.86
Electric Storage Heaters	16	0.40
Loft insulation (top up)	2	0.05
Loft insulation (virgin)	2	0.05
Non-ECO funded measure	2	0.05
Total Installs	**3,977**	**100.00**

Non-ECO funded measures	Number of records	% of records
Medical emergency	2	100.00
Total Installs	**2**	**100.00**

As reported to Energy Saving Trust. Some data gaps may exist – to be submitted by the local authority.

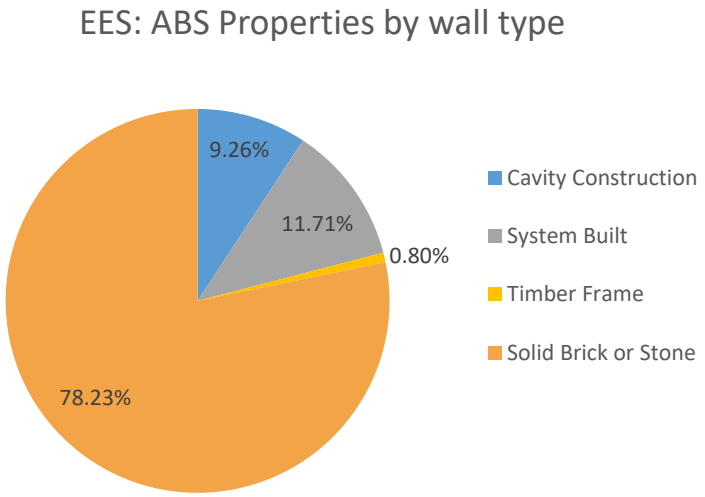
Installed Measures by Financial year

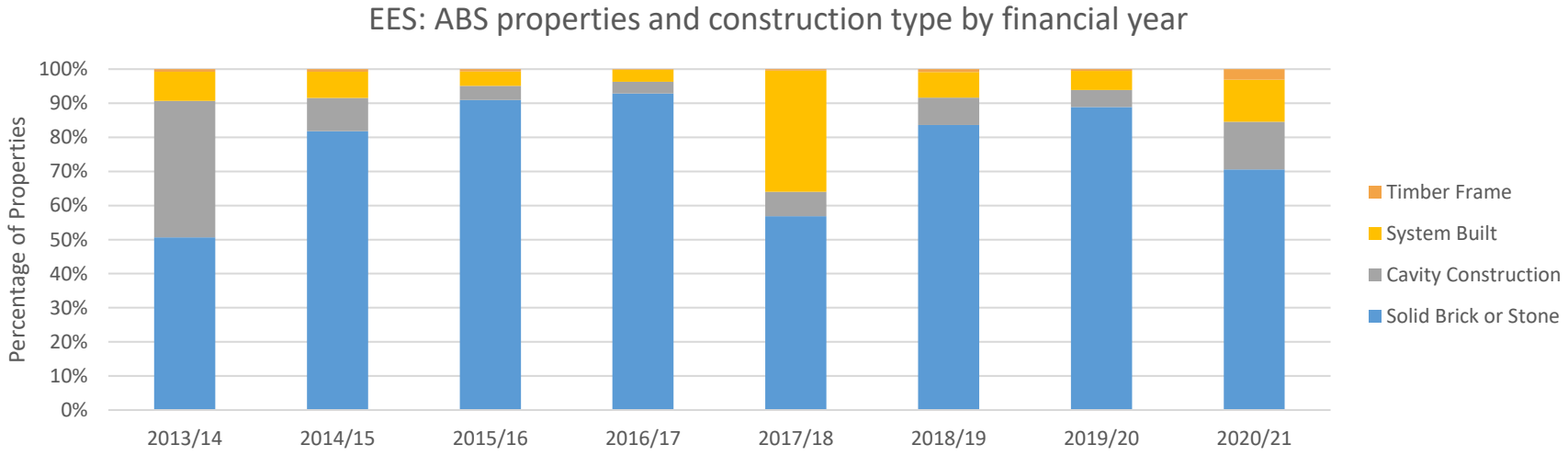


The Dundee City Council has been primarily focused on providing external wall insulation for solid walls with some hard-to-treat CWI and boiler replacements in the early years of the programme.

Wall Type

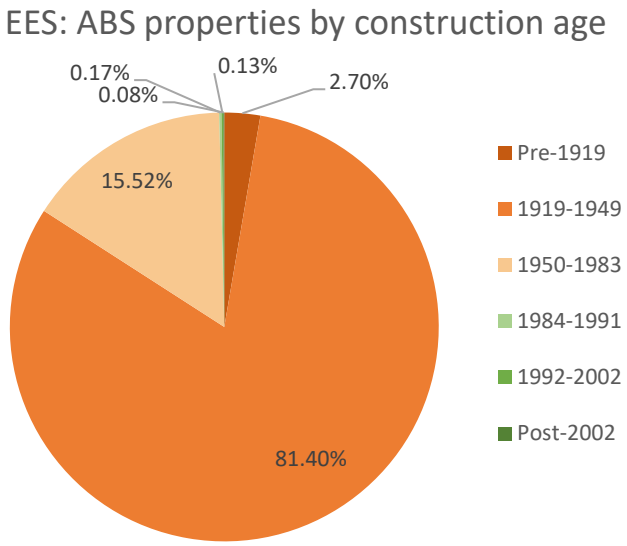
The participating properties have a variety of wall types, solid brick or stone at 78.23%, system built 11.71%, cavity construction 9.6 and timber frame 0.80%. Below you can see the division of these wall types throughout the years.

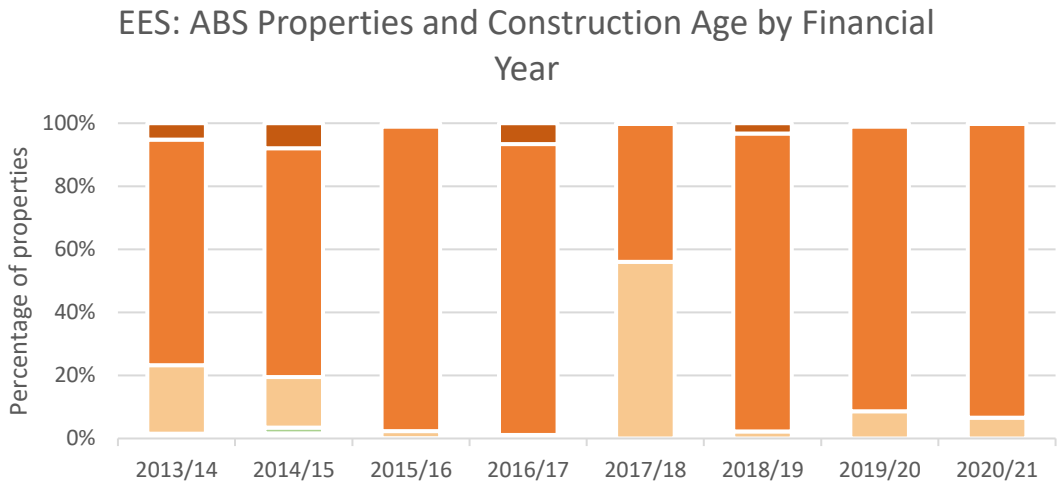




Wall type is taken from EST's Home Analytics dataset which is a combination of EPC and modelled data.

Construction Age

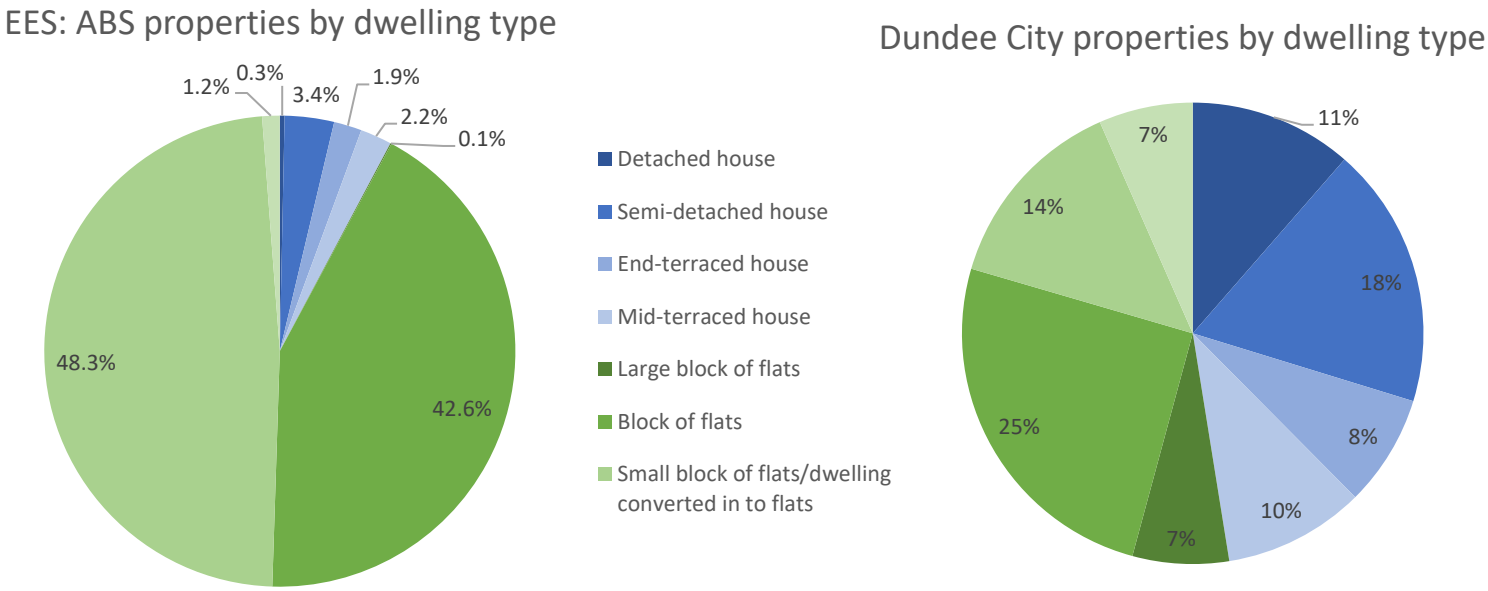




Most participating properties were constructed between 1919 and 1949 (81.40%). 15.52% of the properties were constructed between 1950 and 1983 and 2.70% were pre-1919. 112 of the older pre-1919 properties are traditional solid brick or stone built and just one property is timber frame. Of all the properties built between 1919 and 1949, 11.7% are cavity construction, 49.2% solid brick or stone, 10% system built and 29% timber frame.

Note: Construction age is taken from EST's Home Analytics dataset which is a combination of EPC and modelled data.

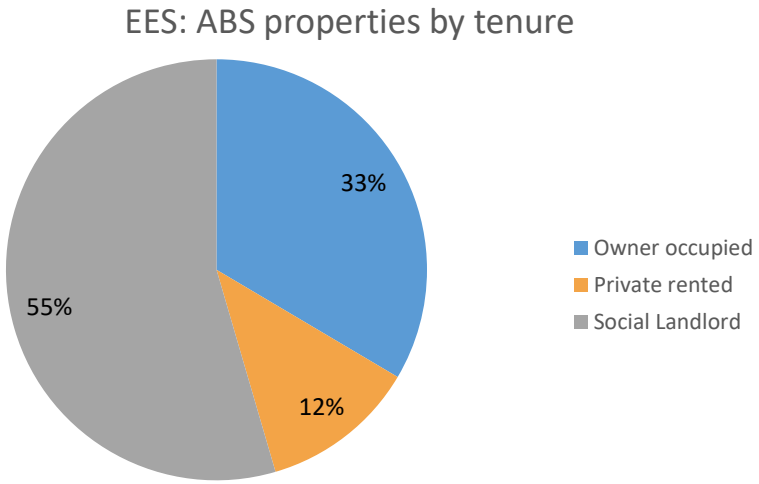
Dwelling Type



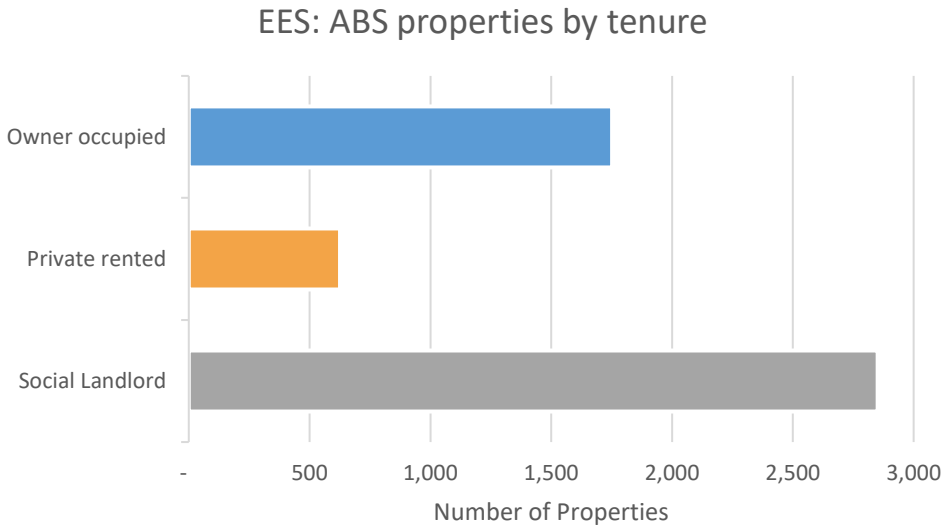
Throughout the programme the most consistent focus has been treating flats (92.2%). Within Dundee City Council, 52.3% of general dwelling types consists of different types of flats, and these have been strongly represented in the programme. A total of 7.8% of the work treated houses, which results in an under-representation of houses as these account for 47.4% of the council's dwelling types as a whole.

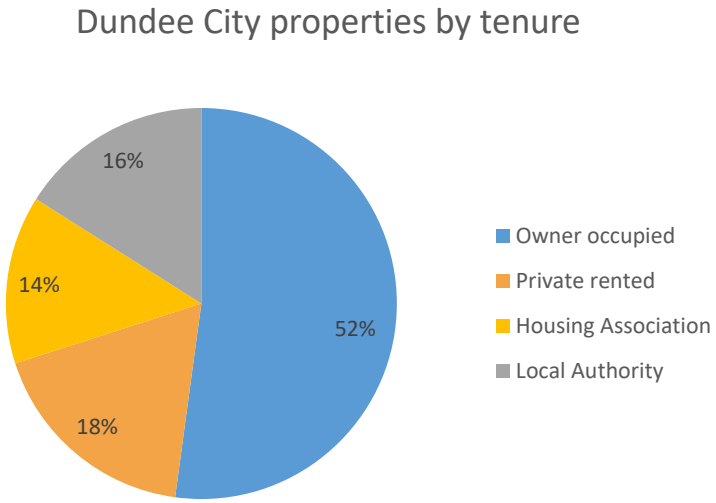
Note: Dwelling type is taken from EST's Home Analytics dataset which is a combination of EPC and modelled data.

Property Tenure

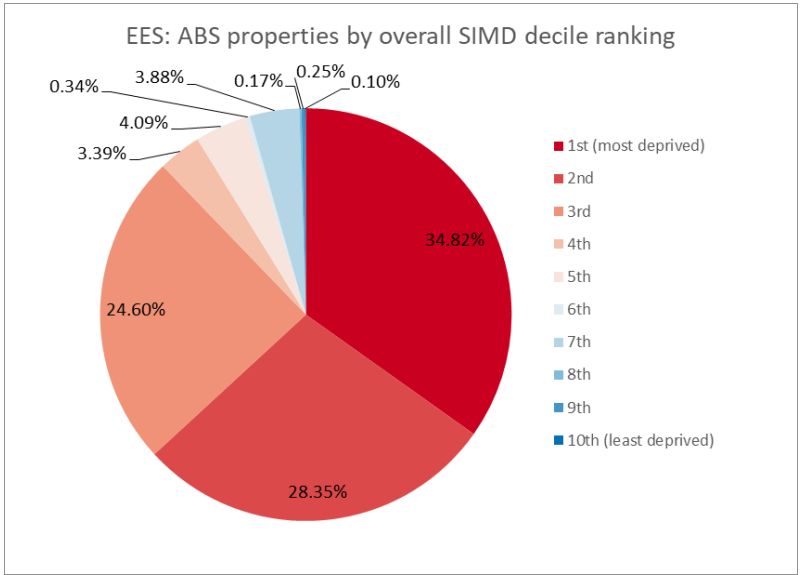


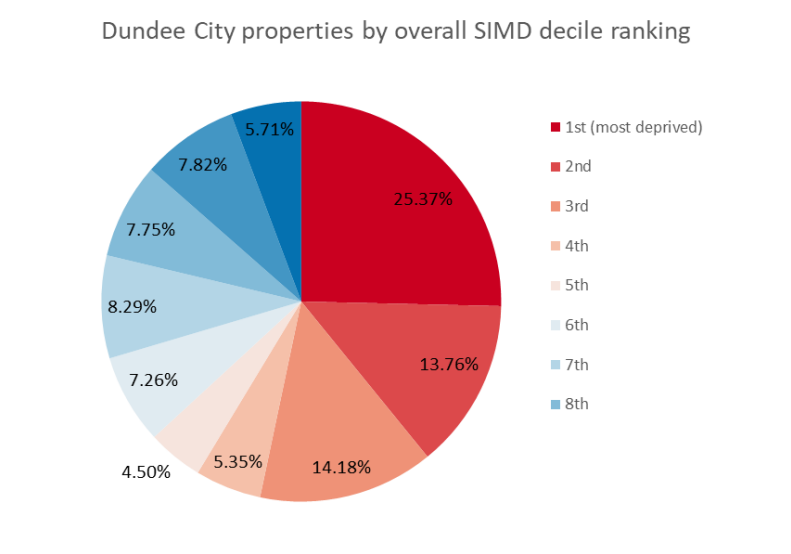
The Dundee City council targets mixed tenure property types to include all tenure types in the programme within the allocated area. Many ex-council right-to-buy properties have been included in the owner-occupied tenure.





Scottish Index of Multiple Deprivation (SIMD) I



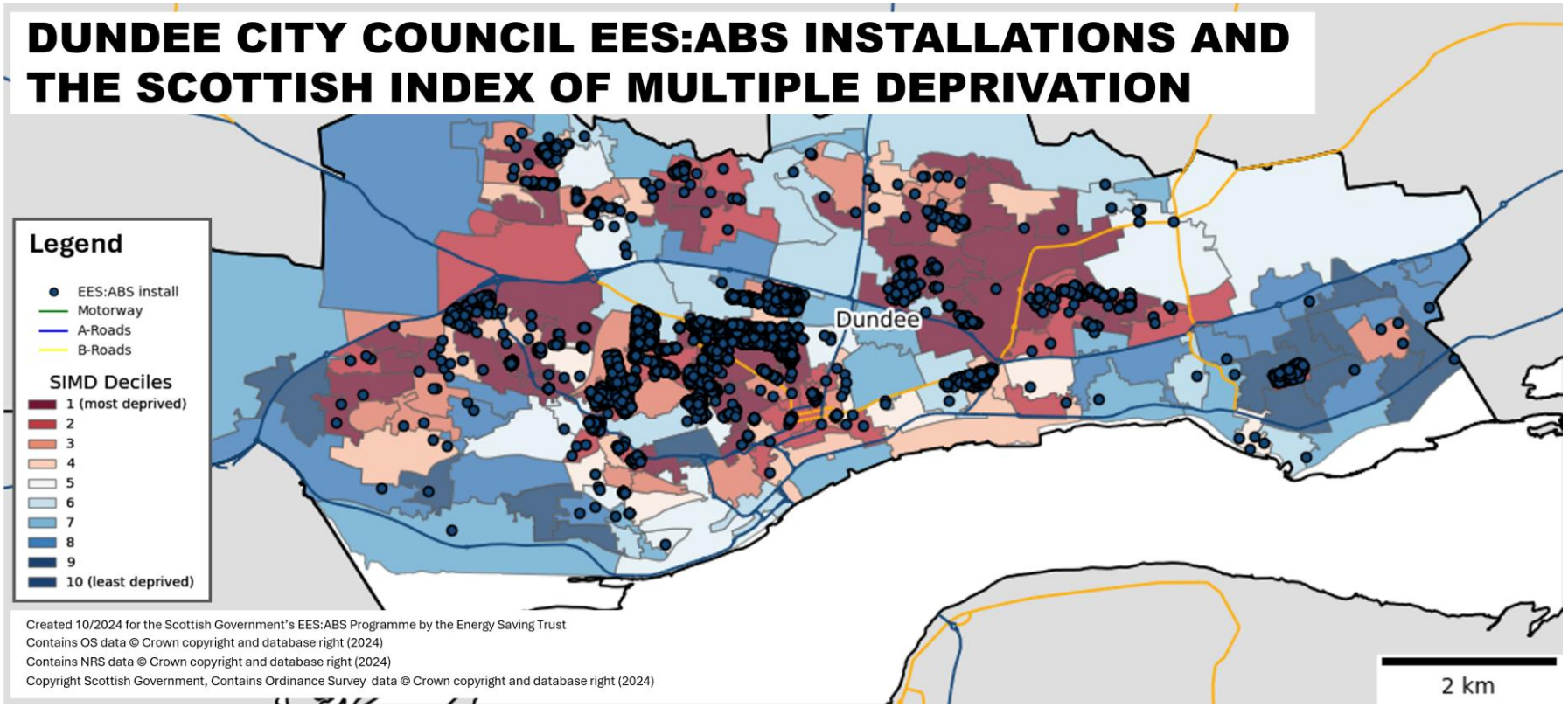


Comparison of these two illustrations shows the correlation between the overall SIMD ranking of Dundee City properties and of those targeted in the EES: ABS programme. A total of 95.26% of all participating properties are in the most deprived areas of the council and can be found within the five lowest SIMD ranks as seen in the top chart.

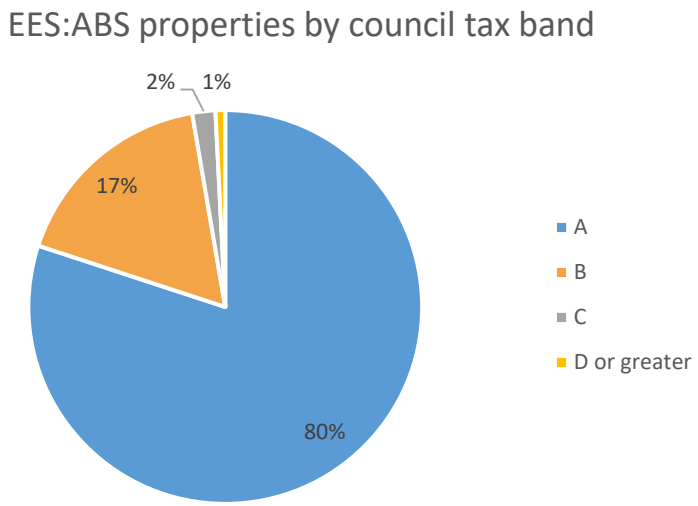
It is good to note that the SIMD can be a slightly problematic indicator for rural settings as each data zone contains between 500 and 1000 properties. Rural populations are very dispersed, so this means that very large catchments are created in order to reach the required range. Larger areas are more likely to group deprived and non-deprived households together and this results in rural SIMD rankings shifting towards the median. Whilst the programme is most likely helping deprived areas, the SIMD ranking can be a slightly inaccurate method to fully test this hypothesis.

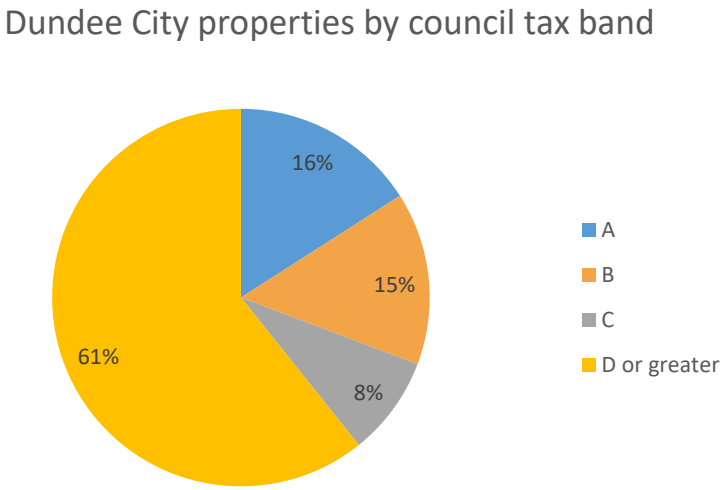
Note: For more information see next slide for the EES: ABS Installs by SIMD map.

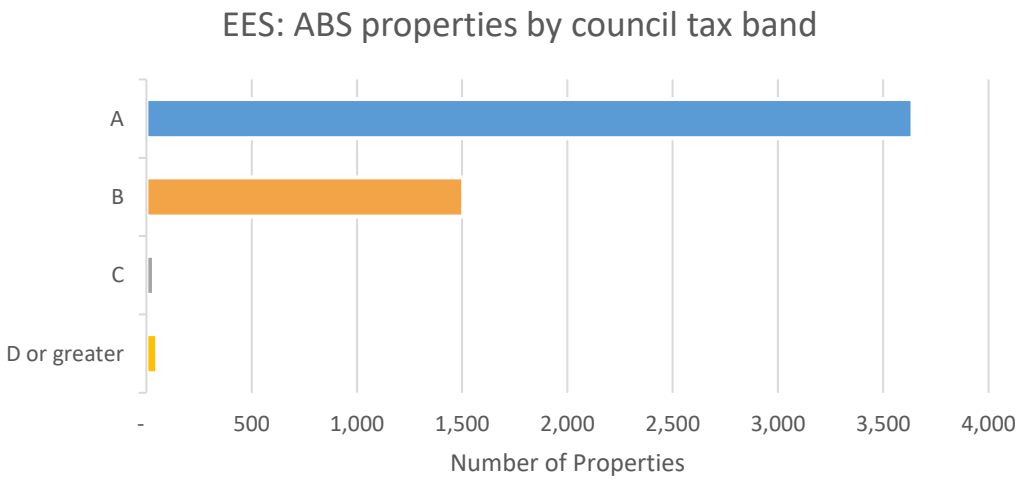
Scottish Index of Multiple Deprivation (SIMD) II



EES: ABS Installs by Council Tax Band



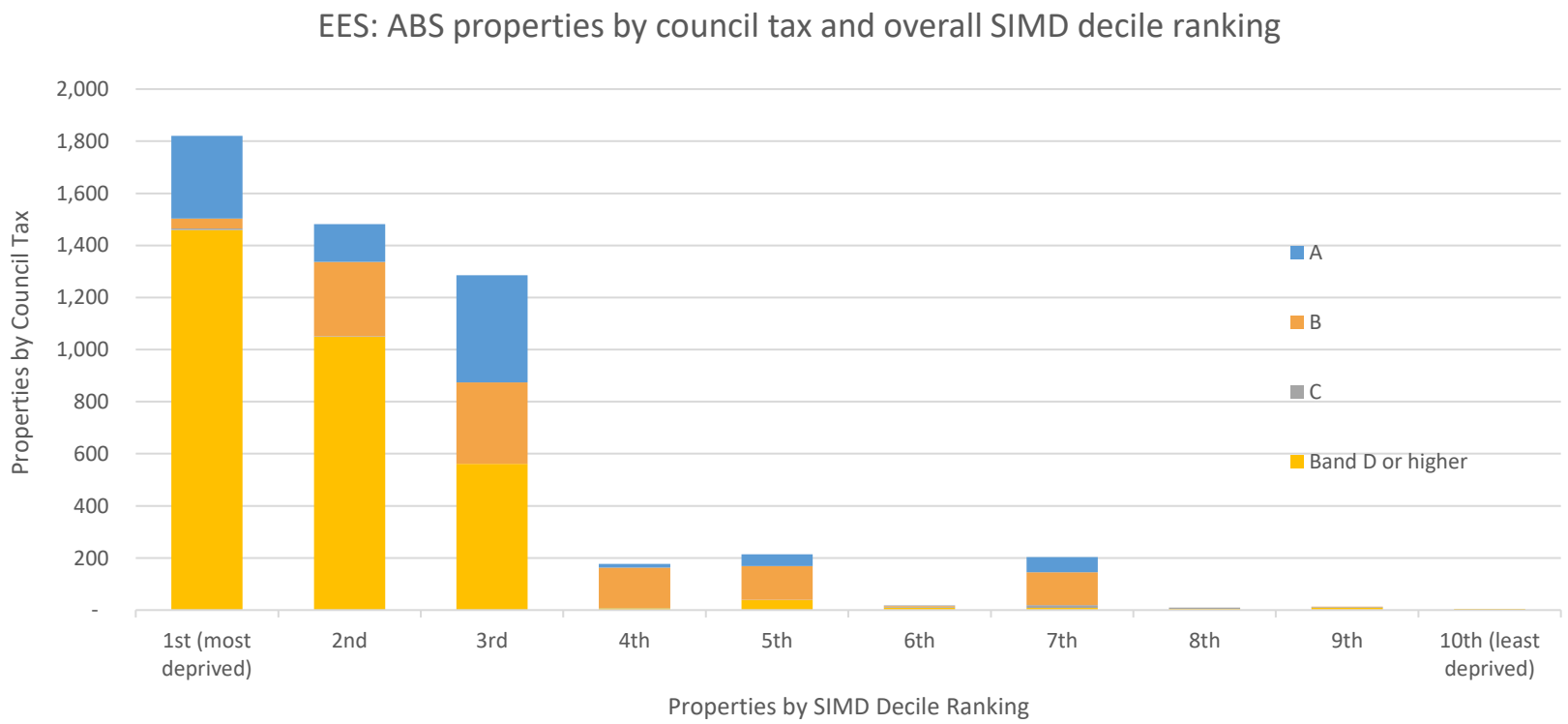




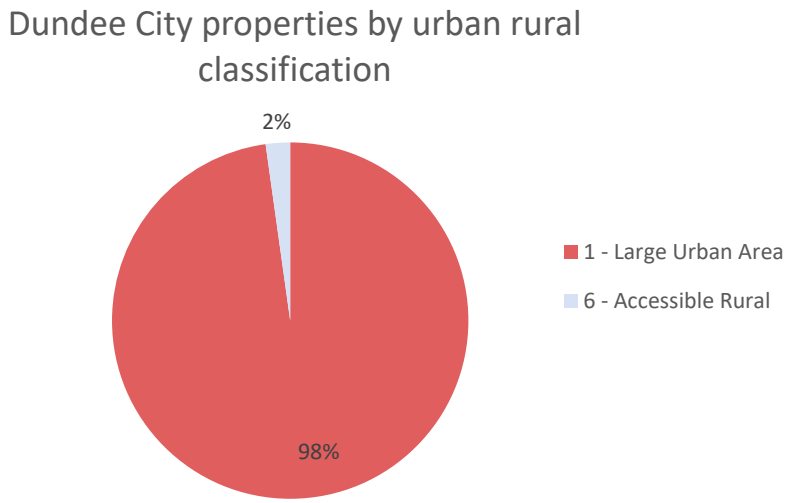
Dundee City EES: ABS programme specifically targets A, B and C council tax banded properties and 99% of the properties in the programme fall into this category as shown in the charts. While 1% of the treated properties are band D or greater.

EES: ABS Installs by Council Tax Band and SIMD

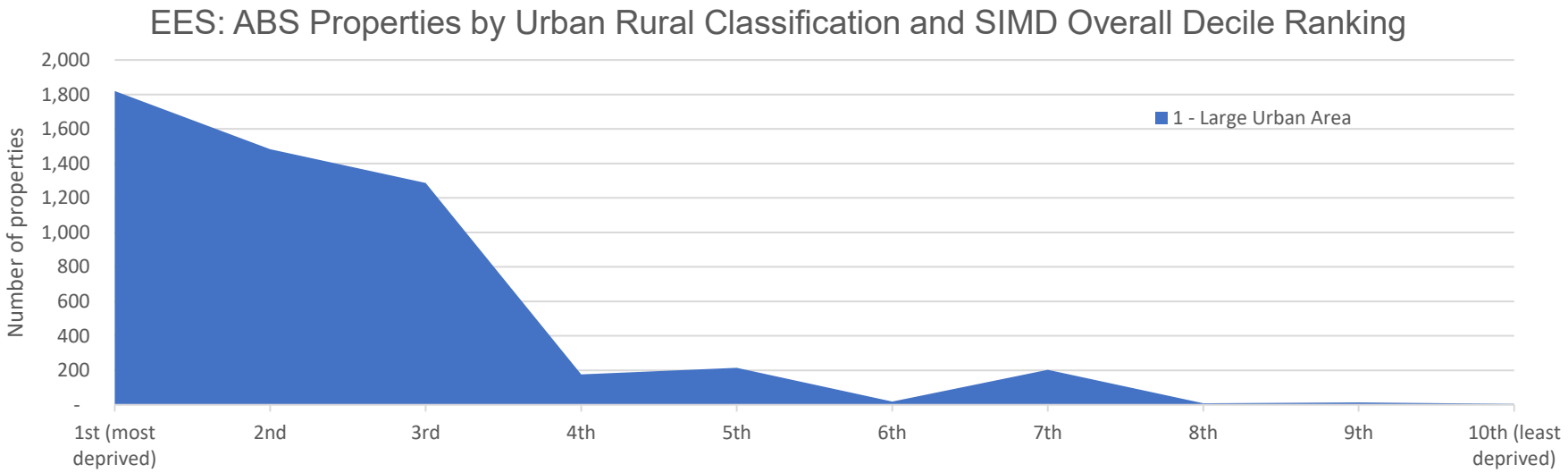
This illustration examines the property council tax bands against the SIMD ranking of the areas involved. Nearly 95.3% of all are located within the five most SIMD deprived areas as seen below.



Urban Rural Classification I



All the properties that participated in the Dundee City Council's EES: ABS programme, fall under the large urban area classification. As a whole, the council's area consists of two different urban rural classifications, which are large urban area and accessible rural. The bottom graph illustrates how nearly all participating properties fall in the five most deprived SIMD areas.



Note: For more information see next slide for the EES: ABS Installs by Urban Rural Classification map.

Urban Rural Classification II

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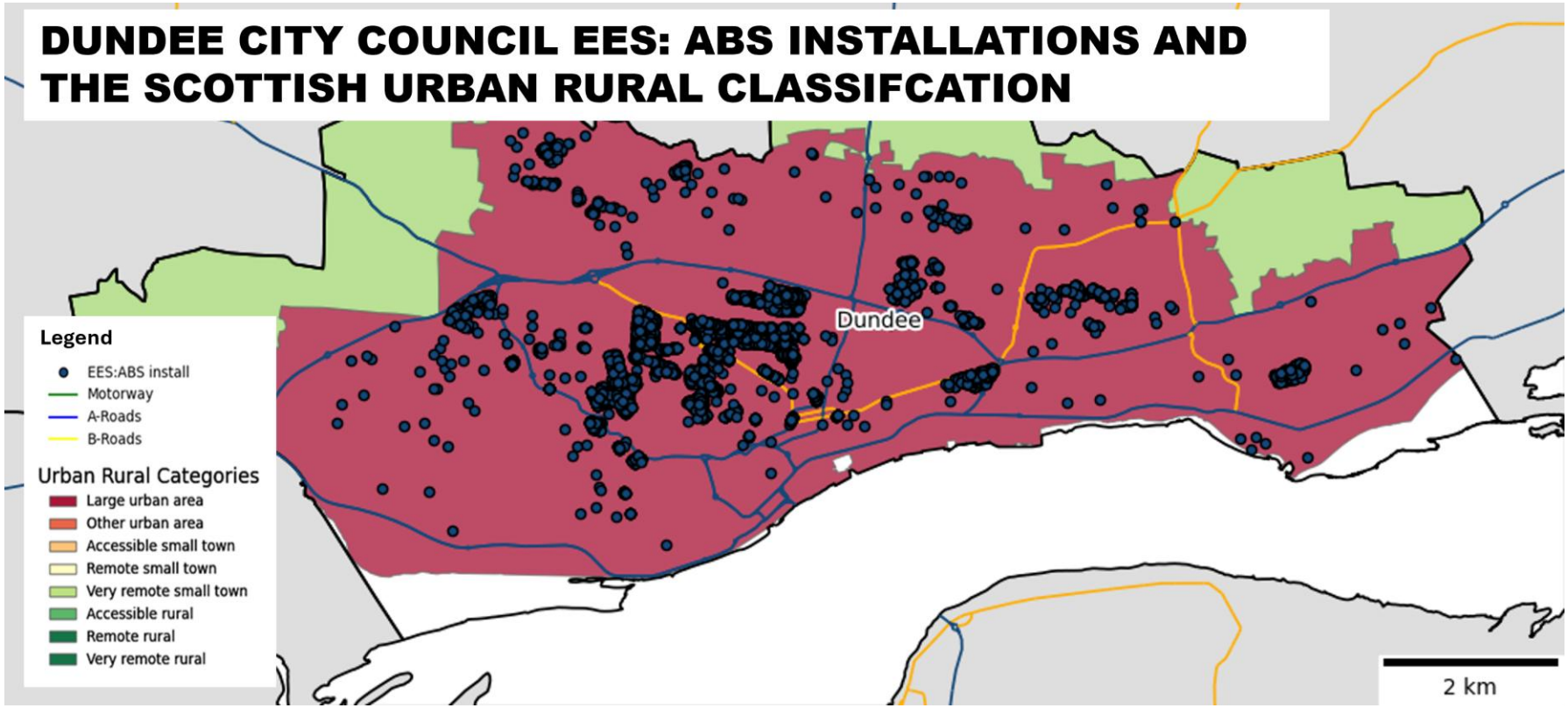
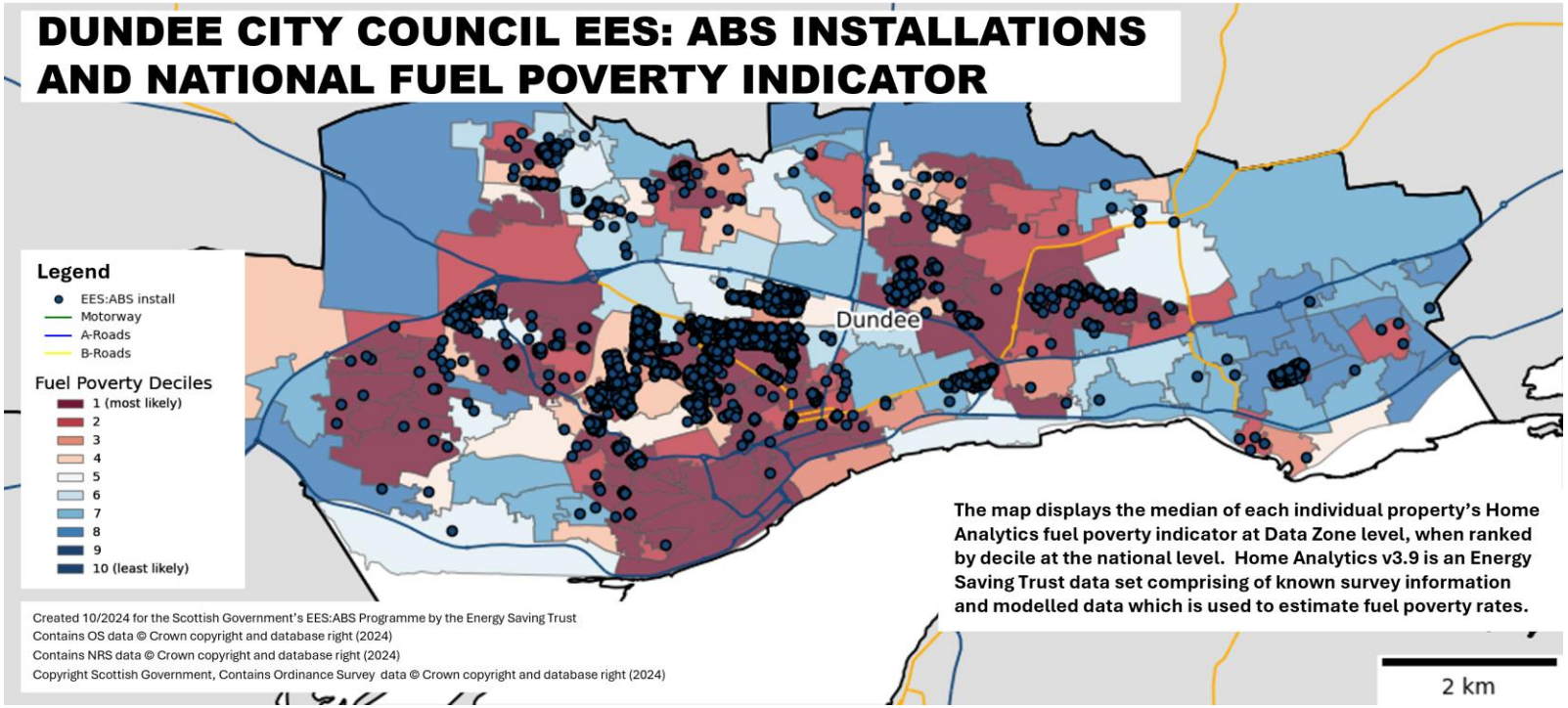
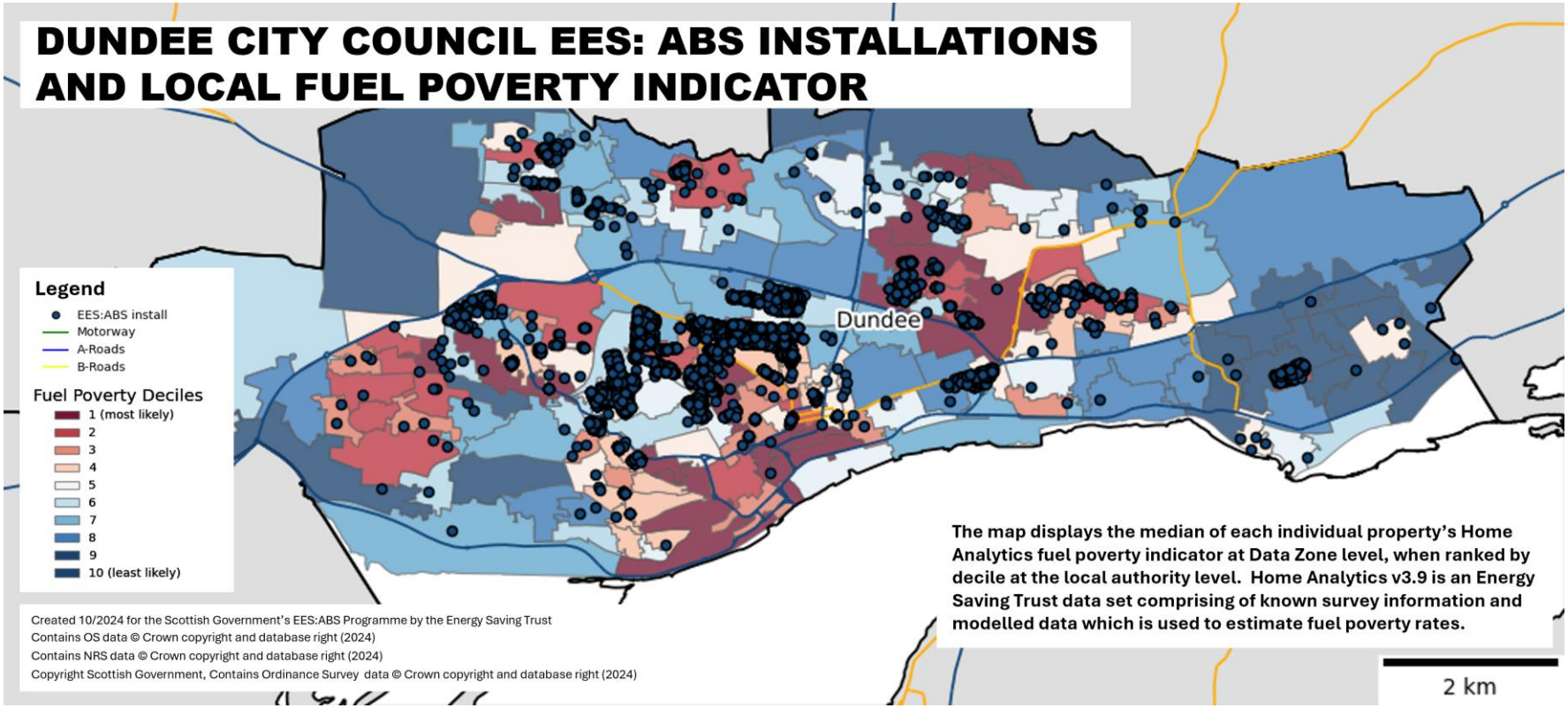


National Scottish Fuel Poverty Indicator



Here we can see the state of fuel poverty in Dundee City Council compared to the rest of Scotland. The blue areas have the lowest fuel poverty rates on a national scale when fuel poverty by data zone is ranked for all local authorities in the country. According to the Scottish Housing Condition Survey (SHCS) the average fuel poverty rate in the Dundee City Council area is around 35% of all homes. This is 4 percent higher than the Scottish national average (31%) and places Dundee City as 21st of all 32 local authorities in the country. The prevalence of less efficient heating systems (such as electric heating) contribute to the average or lower SAP score for many of the households in the area.

Dundee City Fuel Poverty Indicator I

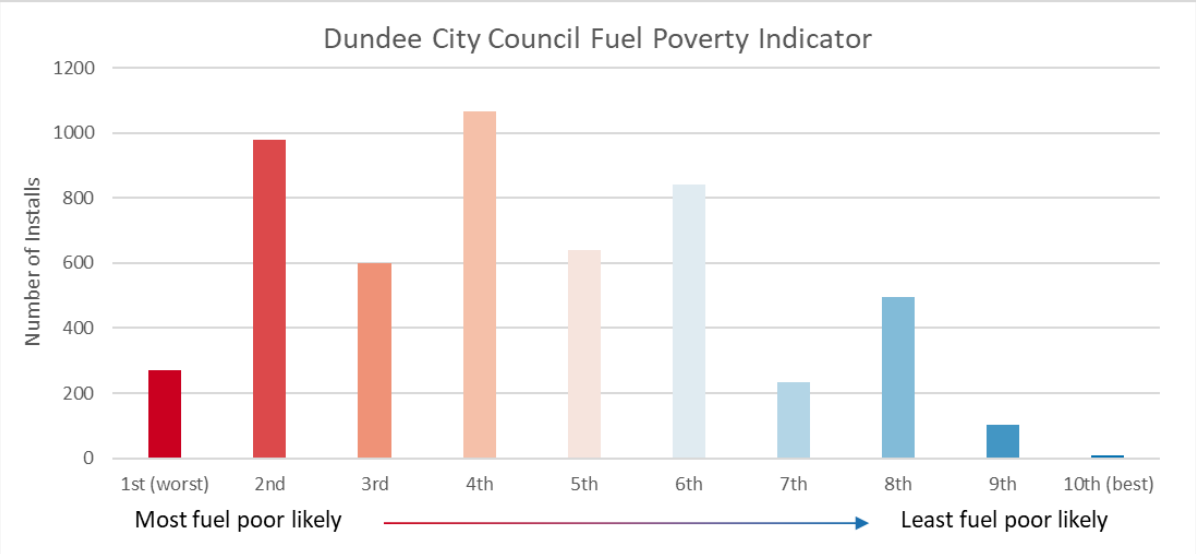


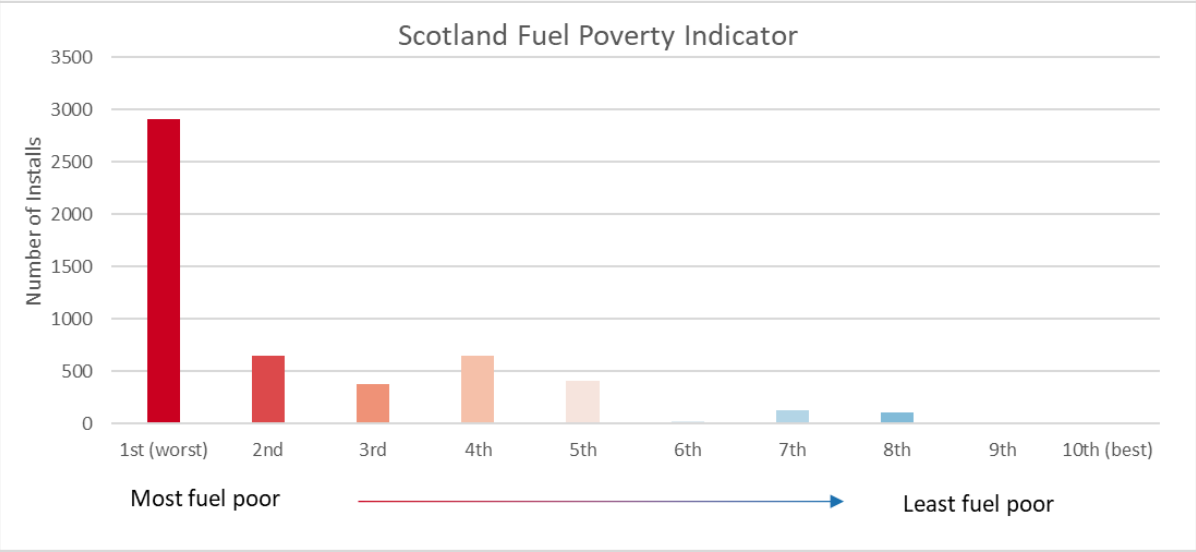
This map demonstrates the probability of fuel poverty by data zone ranked on a local authority level for Dundee City Council only. The highest fuel poverty areas within the council are shown here in red colour. The fuel poverty indicator used here is a snapshot of the situation and in some cases the past work completed by energy efficiency programmes, such as EES:ABS, will be contributing to the lower fuel poverty rates at present.

Dundee City Fuel Poverty Indicator II

67.90% of all HEEPS: ABS installs took place within the five most fuel poor ranked data zones as seen in the top illustration. This chart is examining the local authority specific fuel poverty indicator for the Dundee City Council.

When examined on a national scale of Scotland, 95.18% of participating properties fit within the five most fuel poor ranks when compared to the national figures.

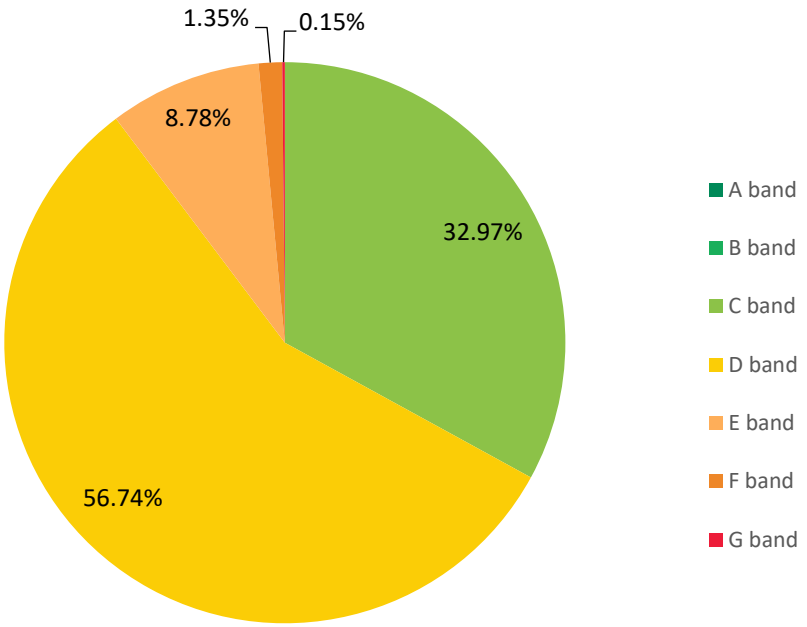




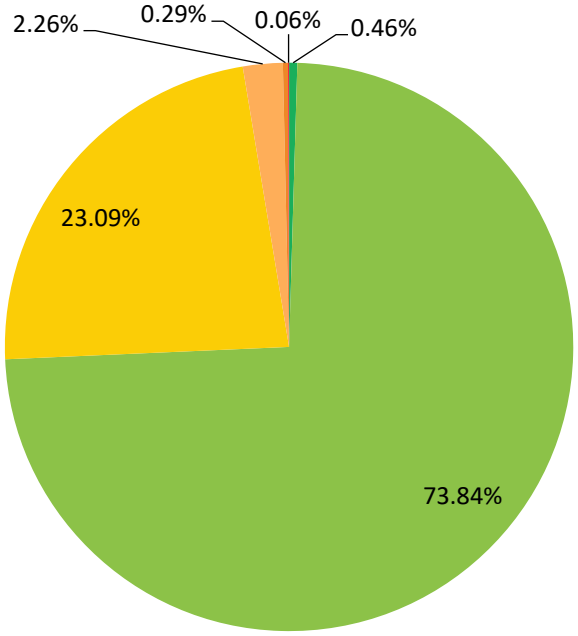
Note: Decile ranked average fuel poverty indicator by data zone for: Dundee City (top) and Scotland (bottom)

EES: ABS SAP Band Analysis I

EES: ABS properties by pre-installation EPC banding



EES: ABS properties by post-installation EPC banding

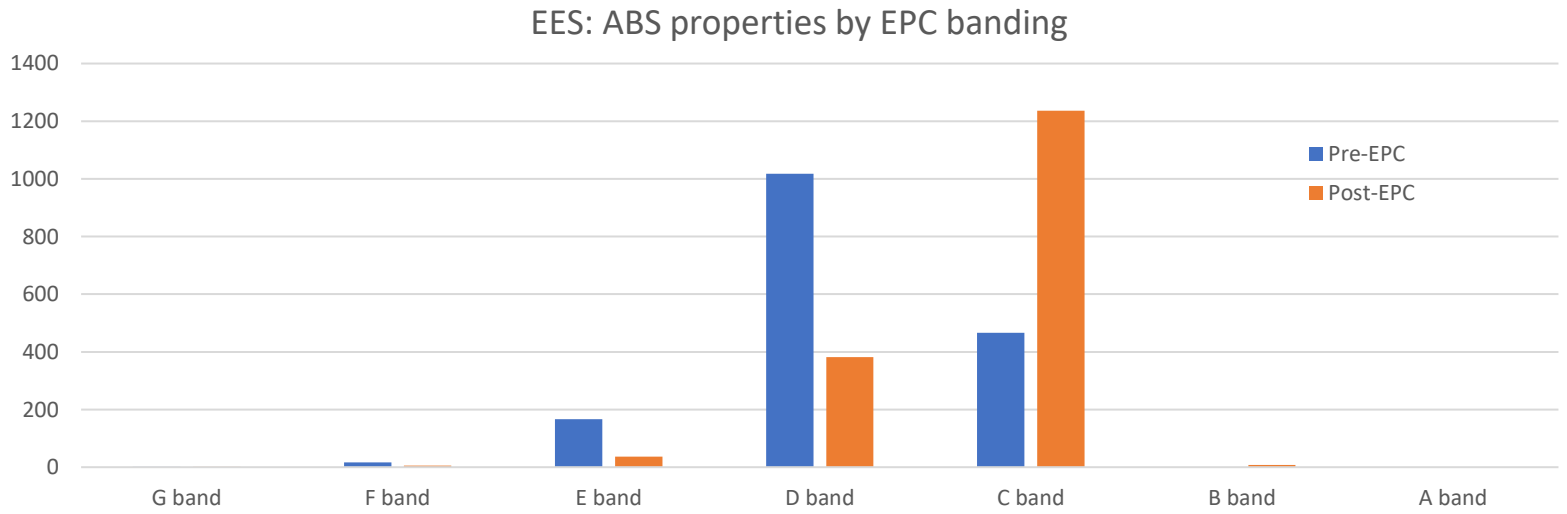


A valid pre-installation EPC was provided for 3,997 properties participating in the programme. 67.03% of these were within the national band D average or lower. A total of 1,724 participants had a valid post-installation EPC regardless of the validity of the pre-EPC. After the completion of the installs, most of these properties (97.39%) are in the D band or above.

EES: ABS SAP Band Analysis II

Out of the 3,997 properties with valid pre-EPCs, a total of 1,669 had a valid pre and post-installation EPC and could be used for further analysis. More than half of these 1,683 properties had a starting SAP band of D (60.99%) and the rest were split between band C (27.92%) and bands E, F and G (11.08%).

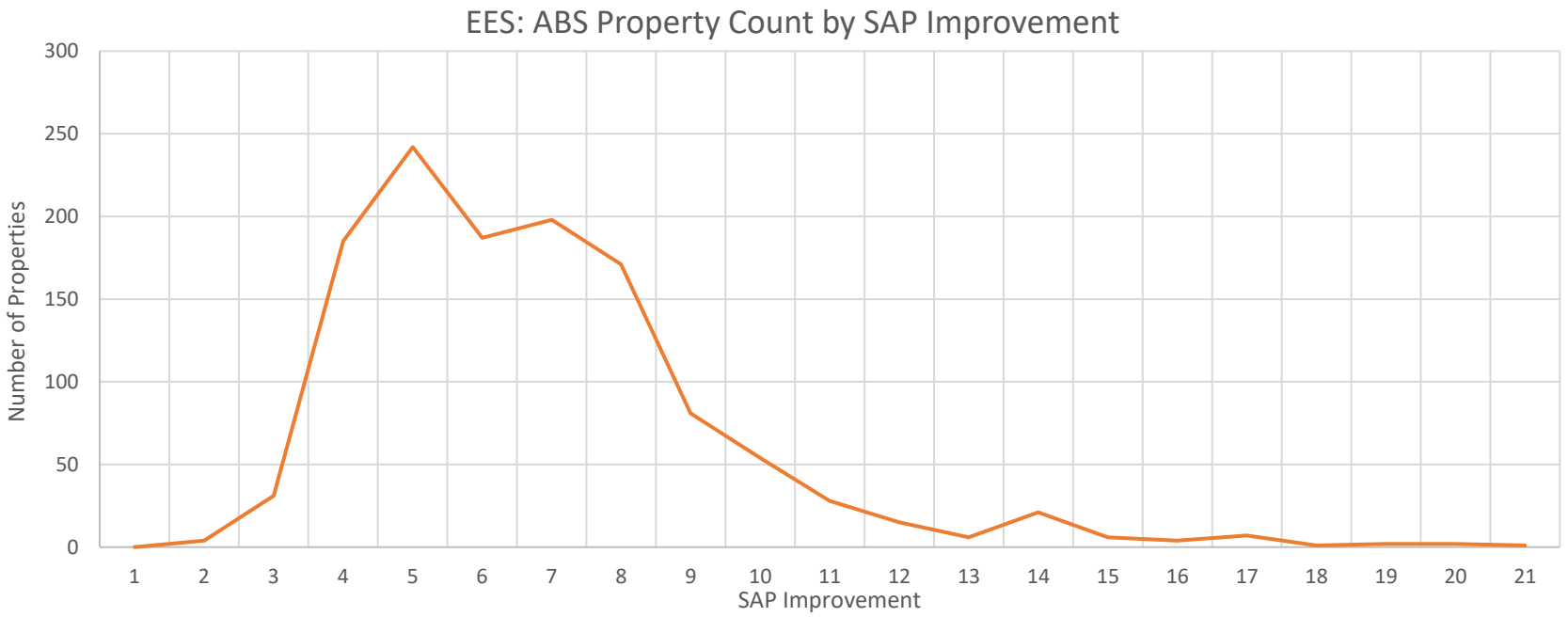
The Post-EPC's show that after the completion of installs, 74.06% reached band C and 22.89% reached band D. Eight properties (0.48%) also moved up to band B. Only 2.58% have a post-installation EPC band of E, F or G, despite of the impact of the HEEPS: ABS treatment.



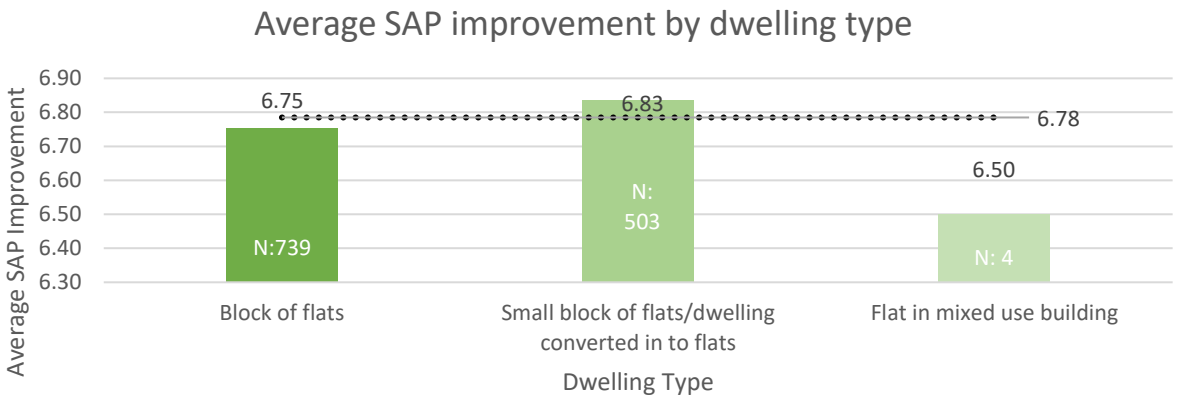
Note: It is possible for the same property to appear in this chart more than once if it received multiple measures across two or more financial years and a distinct pre-installation EPC was carried out before each installation.

EES: ABS SAP Band Analysis III

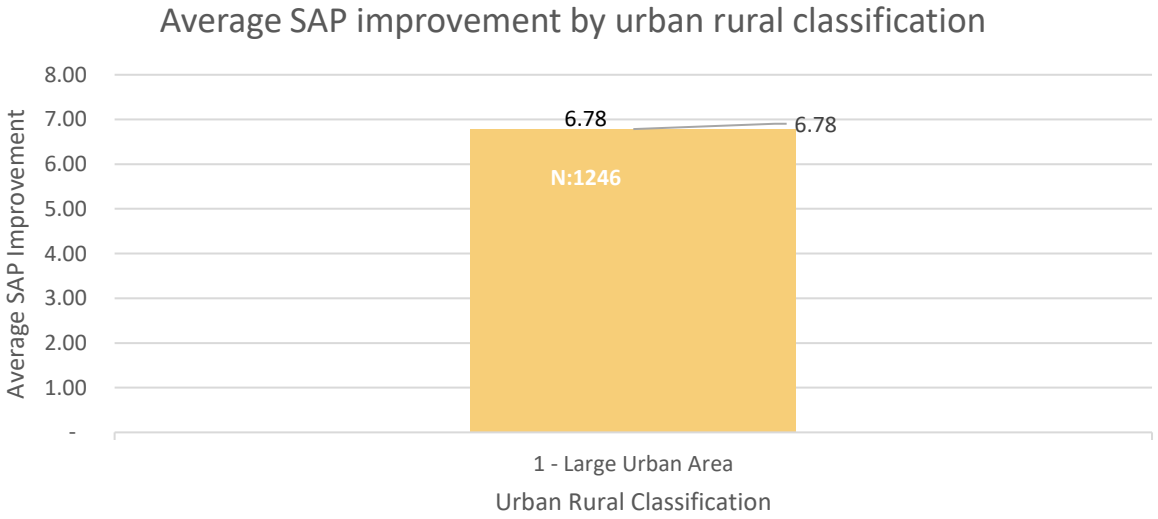
The most common outcome of the EES: ABS programme within the Dundee City Council was for a property to increase in SAP score for around 4 to 9 points (85.4% of properties where the EPC's were valid to use for further analysis). The larger SAP increases (15 to 21 points) included in this case study were due to installation of external wall insulation for solid walls.



EES: ABS SAP Band Analysis IV



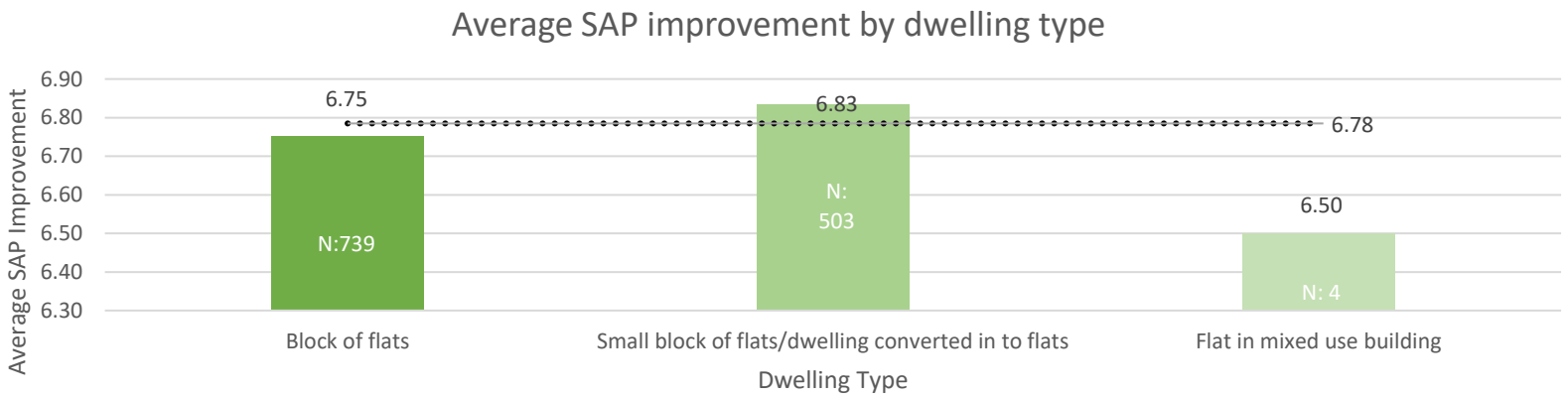
The average SAP improvement for all dwelling types is 6.78. Small block of flats/dwelling converted into flats benefitted from the biggest increase with a typical 6.83-point improvement, followed by block of flats with a 6.75-point uplift.



The average SAP improvement for all urban classifications where data was available for further analysis, has been 6.78. The biggest sample size is for other urban area (N:1246) where the average improvement was 6.78.

Note: Dwelling type is taken from EST's Home Analytics dataset.

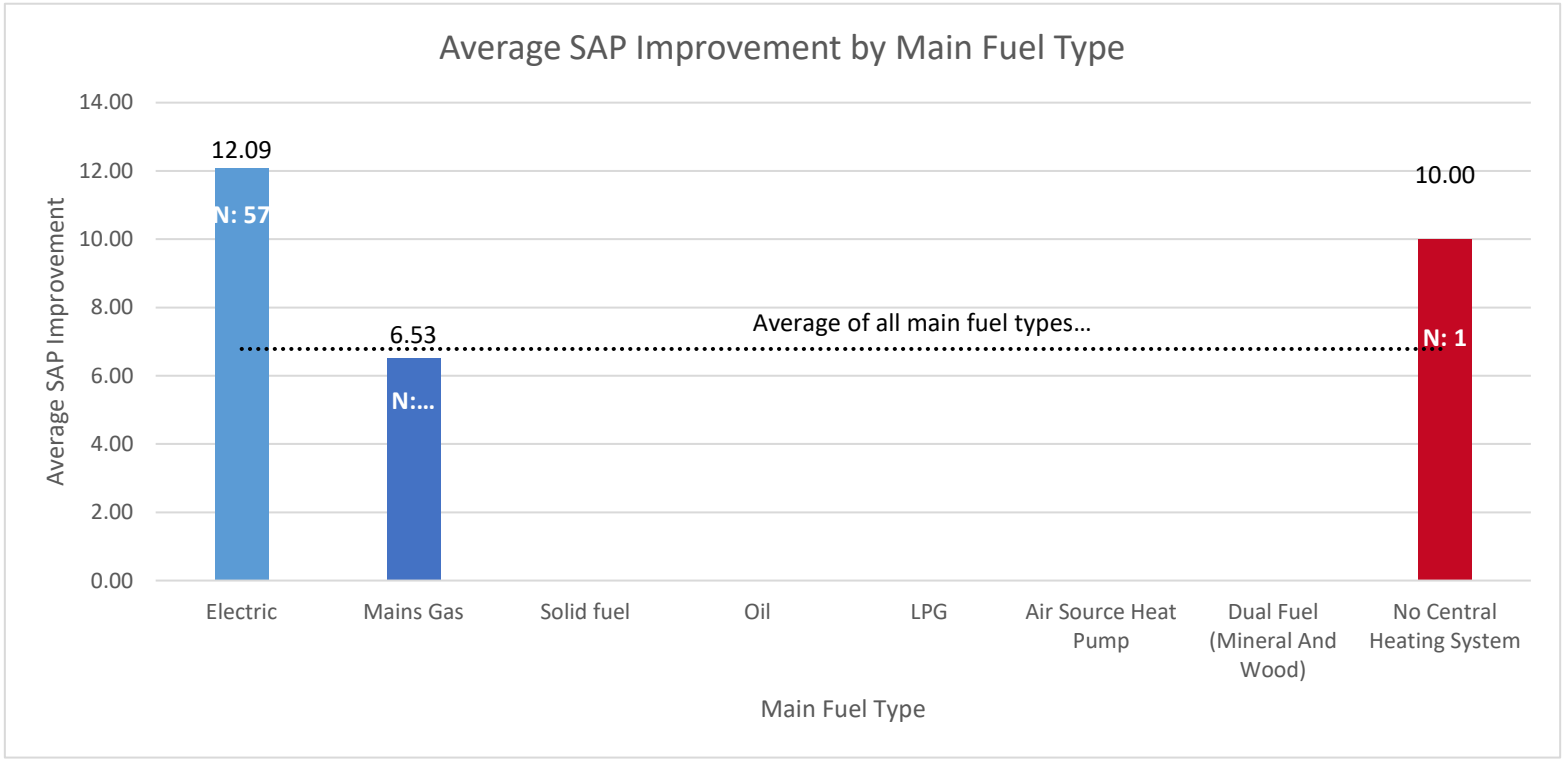
EES: ABS SAP Band Analysis V



The average SAP improvement for all dwelling types is 6.78. Small block of flats/dwelling converted into flats benefitted from the biggest increase with a typical 6.83-point improvement, followed by block of flats with a 6.75-point uplift.

Note: Dwelling type is taken from EST's Home Analytics dataset which is a combination of EPC and modelled data.

EES: ABS SAP Band and Main Fuel Type



The average SAP improvement for all main fuel types was 6.78. The biggest sample size available was for mains gas properties where the average improvement was 6.53. Properties with electric heating improved by their SAP rating by 12.09 on average, and 10 where no CHS was in place already. However, the sample sizes for this were very low (1 record only).

Conclusions and notes

Overall, The Dundee City Council's EES: ABS programme achieves several points:

- The main property type was a flat (92.21%) and constructed between 1919 and 1949 (81.40% of all properties) with solid brick or stone construction.
- A variety of measures have been included in the programme since outset and the last 2 years of the programme (2018/19 & 2019/20) focused exclusively on external wall insulation.
- Nearly 95% of the participating properties can be found within the five most deprived SIMD areas.
- Just over 67% of the properties with a valid EPC had a starting band D or lower and over 97% reached band D or above post-installation.
- The programme had a positive impact on the participating properties as a whole and most increased their SAP score by 4 to 9 or more points.

Sources

Variable	Source	Notes
HEEPS: ABS Measure, Address and Tenure	Local Authority	Held on behalf of the Scottish Government's EES: ABS programme by EST.
Dwelling Type, Construction Age, Council Tax Band, Fuel Poverty Probability	Home Analytics	Combination of EPC and modelled data created by EST. Typically not for publication.
Main heating fuel type, EPC SAP scores and SAP bands	Scottish EPC register	Obtained by cross referencing EPC Report Reference Numbers provided by the local authority with Scottish EPC register extracts
Scottish Housing Condition Survey	Scottish Government	Available online. SHCS 2017-19 used.
SIMD	Scottish Government	Available online. SIMD 2020 used.
Urban Rural Classification	Scottish Government	Available online. 8-Fold classification (2020) used.

Special thanks to Heather McQuillan, the Home Energy Strategy Officer in the Dundee City Council, for providing insight and assistance towards the completion of this case study.

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