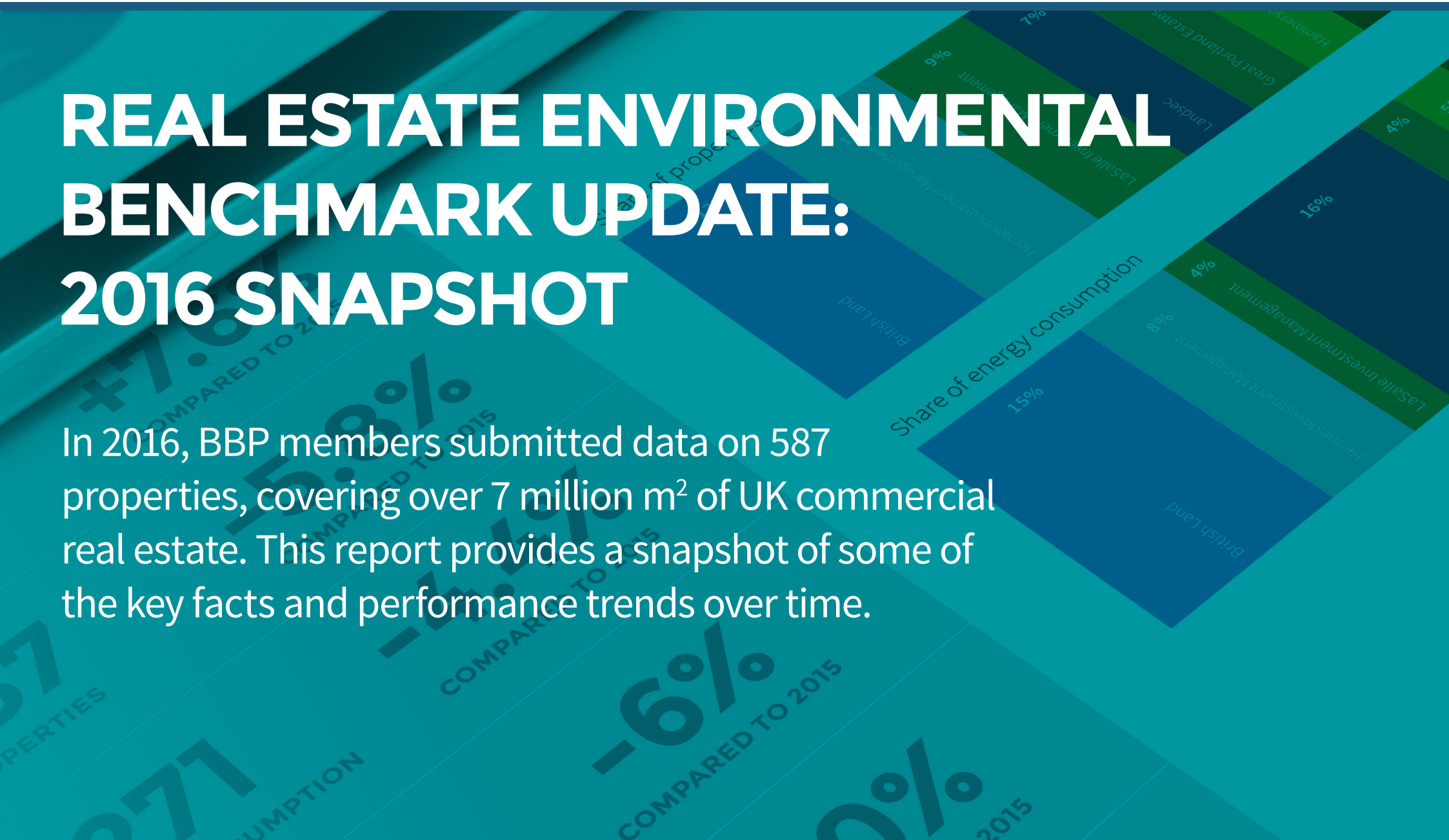
BBP | BETTER BUILDINGS PARTNERSHIP

REAL ESTATE ENVIRONMENTAL BENCHMARK UPDATE: 2016 SNAPSHOT



In 2016, BBP members submitted data on 587 properties, covering over 7 million m^2 of UK commercial real estate. This report provides a snapshot of some of the key facts and performance trends over time.

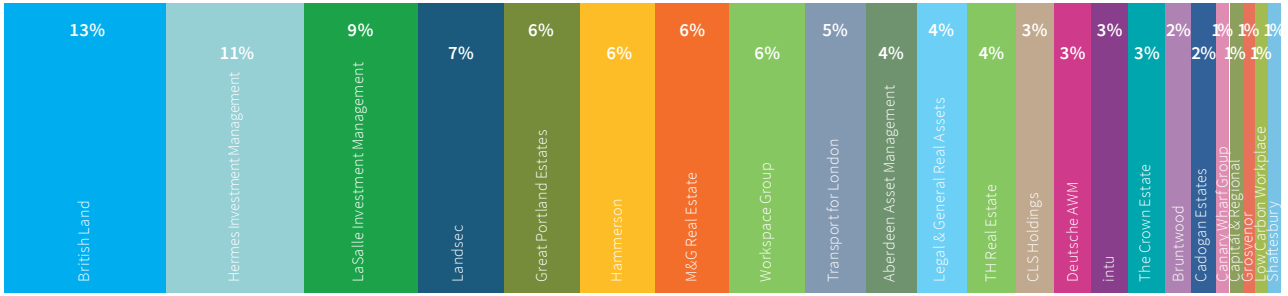
The 2016 data set

KEY FACTS

7M M² OF FLOOR AREA	**+7.6%** COMPARED TO 2015
587 PROPERTIES	**-5.8%** COMPARED TO 2015
1,271 GWH ENERGY CONSUMPTION	**-4.4%** COMPARED TO 2015
£120M ENERGY SPEND	**-6%** COMPARED TO 2015
171 NEW PROPERTIES	**+125%** COMPARED TO 2015
863 GWH LIKE-FOR-LIKE ENERGY CONSUMPTION	**-3.8%** COMPARED TO 2015

Chart 1. Data Set Breakdown by BBP Member

Share of properties



Share of energy consumption

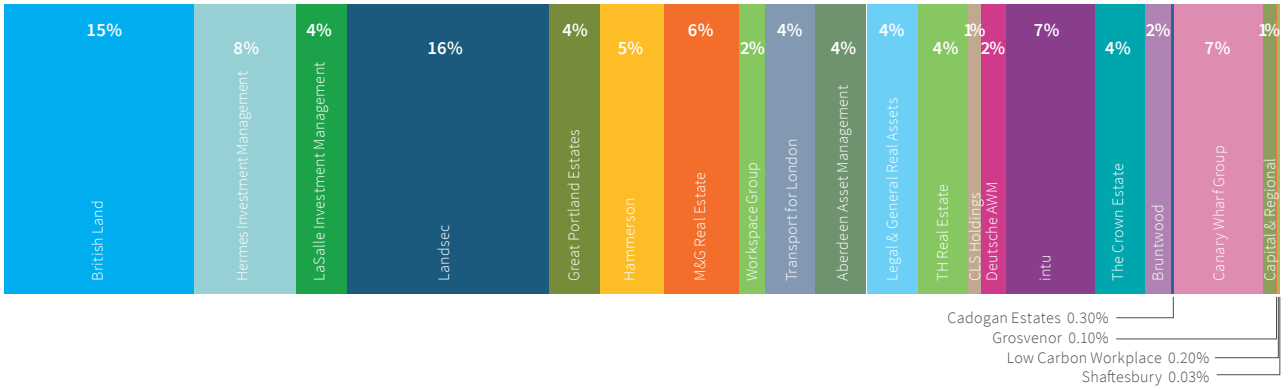


Chart 1 shows the contribution of individual members to the REEB data set. The upper row indicates the proportion of properties by number, submitted by each member, whilst the lower row highlights the proportion of the total energy consumption those properties represent. Energy consumption of the properties will naturally vary due to their size and use.

IN 2016 A TOTAL OF 23 BBP MEMBERS SUBMITTED THEIR PORTFOLIOS INTO THE REAL ESTATE ENVIRONMENTAL BENCHMARK

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Chart 2. REEB Property Profile

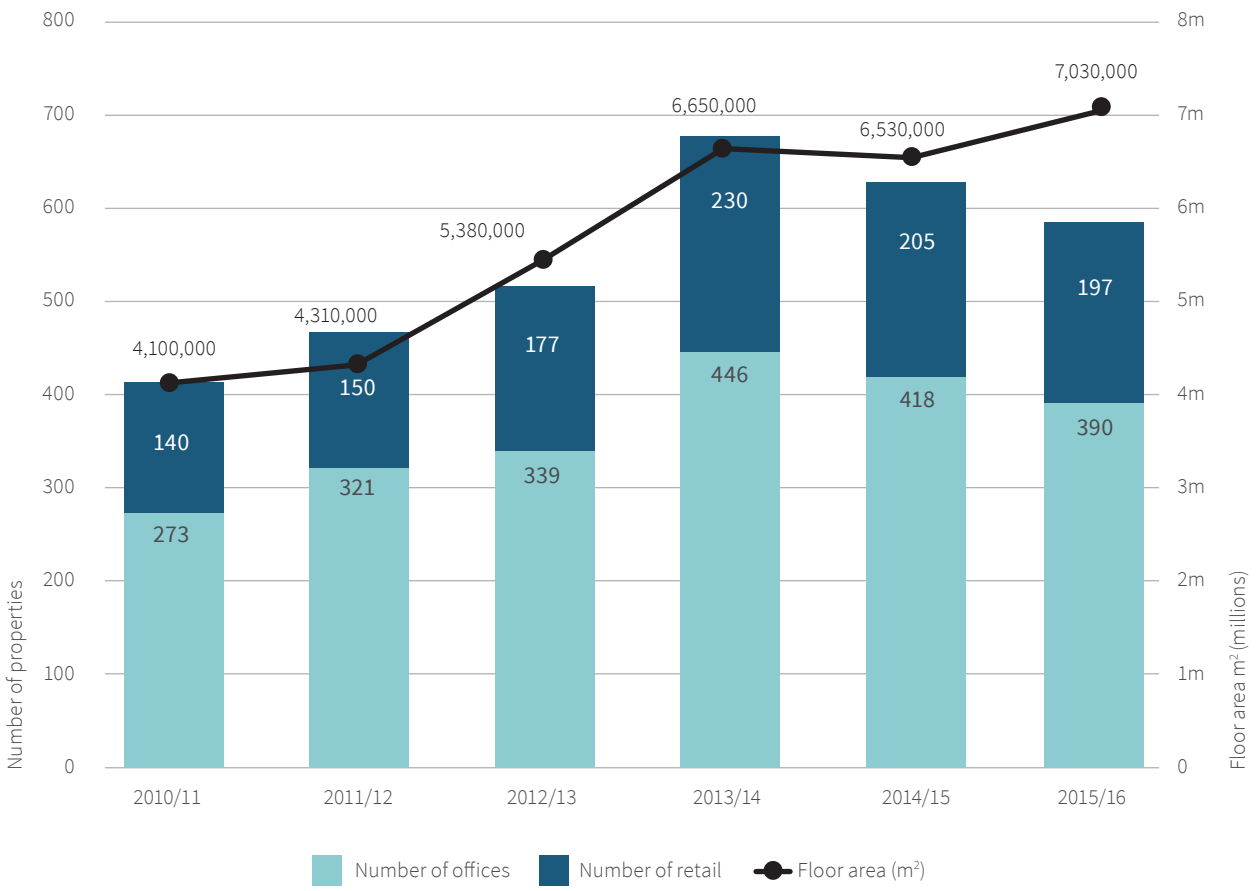
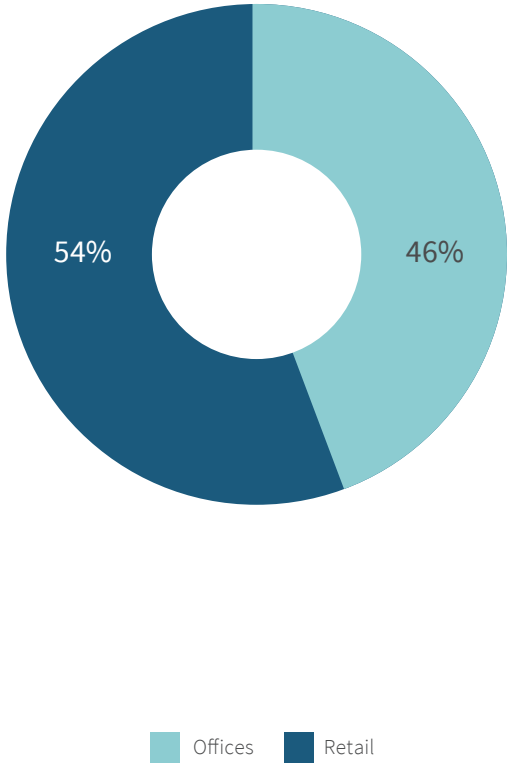


Chart 3. Floor Area



Charts 2 and 3 show the size of the REEB data set in terms of the number of properties and floor area over time. Whilst property numbers have reduced over the last two years, floor area has continued to increase.

In 2016, the floor area of properties in the REEB data set increased by 7.6%, whilst the total number of properties decreased by 5.8%. There was also significant portfolio churn with 32% of the properties leaving the data set between 2014/15 and 2015/16. This highlights that in the last two data collection periods, smaller properties have been sold and removed from the data set, whilst larger properties have been purchased and are now included within the data set.

IN THE PAST YEAR THE TOTAL FLOOR AREA INCREASED BY 7.6%, BUT THE TOTAL NUMBER OF PROPERTIES DECREASED BY 5.8%

Trends over time

CHANGES SINCE 2011

+71%
M² OF FLOOR AREA

+42%
PROPERTIES

145 GWH
ENERGY SAVED

£16M
ENERGY SAVINGS

25%
IMPROVEMENT IN ENERGY EFFICIENCY

3.1%
ANNUALISED LIKE-FOR-LIKE REDUCTION

Chart 4. Indexed Energy Intensity Trend

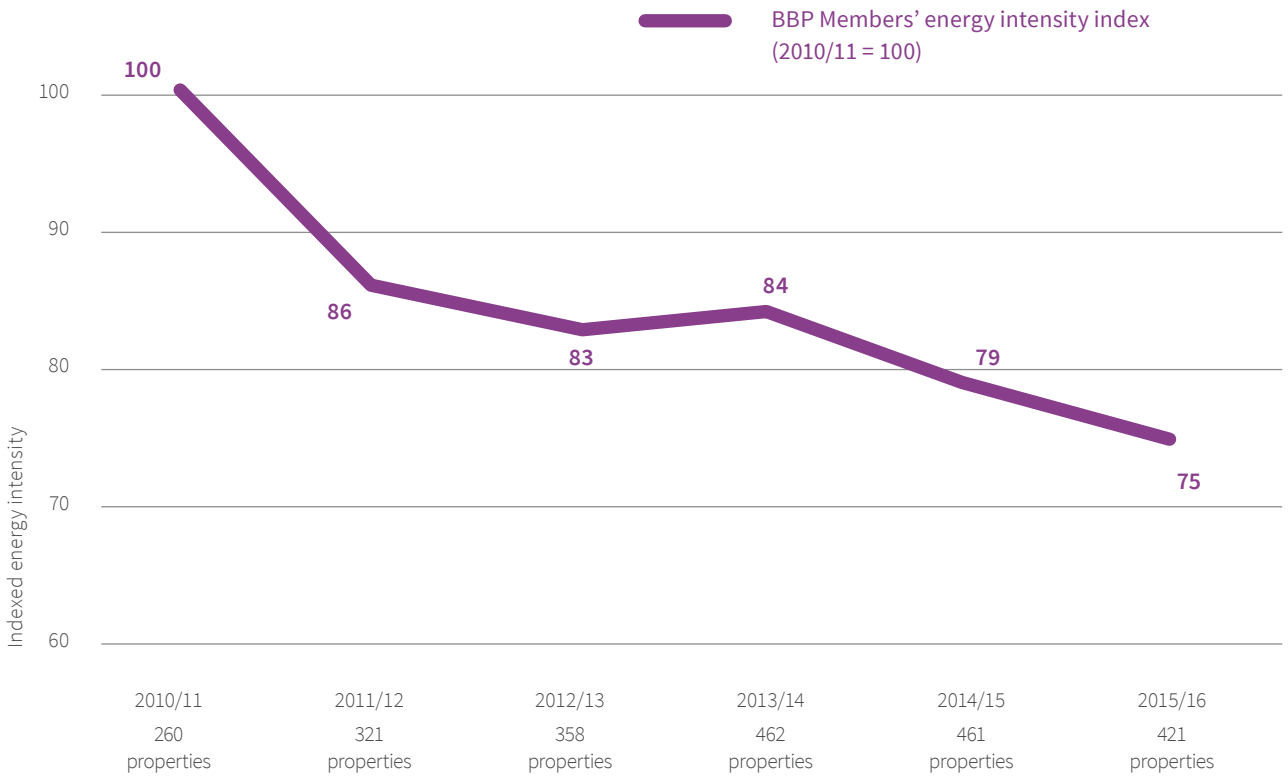


Chart 4 shows the combined indexed energy intensity of BBP Members' office and shopping centre portfolios, as it stood each year. The efficiency of these properties has steadily improved over time, with a 3.8% improvement in the last year and a total improvement of 25% over the last 5 years.

BBP MEMBERS ARE DEMONSTRATING CONTINUOUS IMPROVEMENTS IN ENERGY EFFICIENCY OVER TIME

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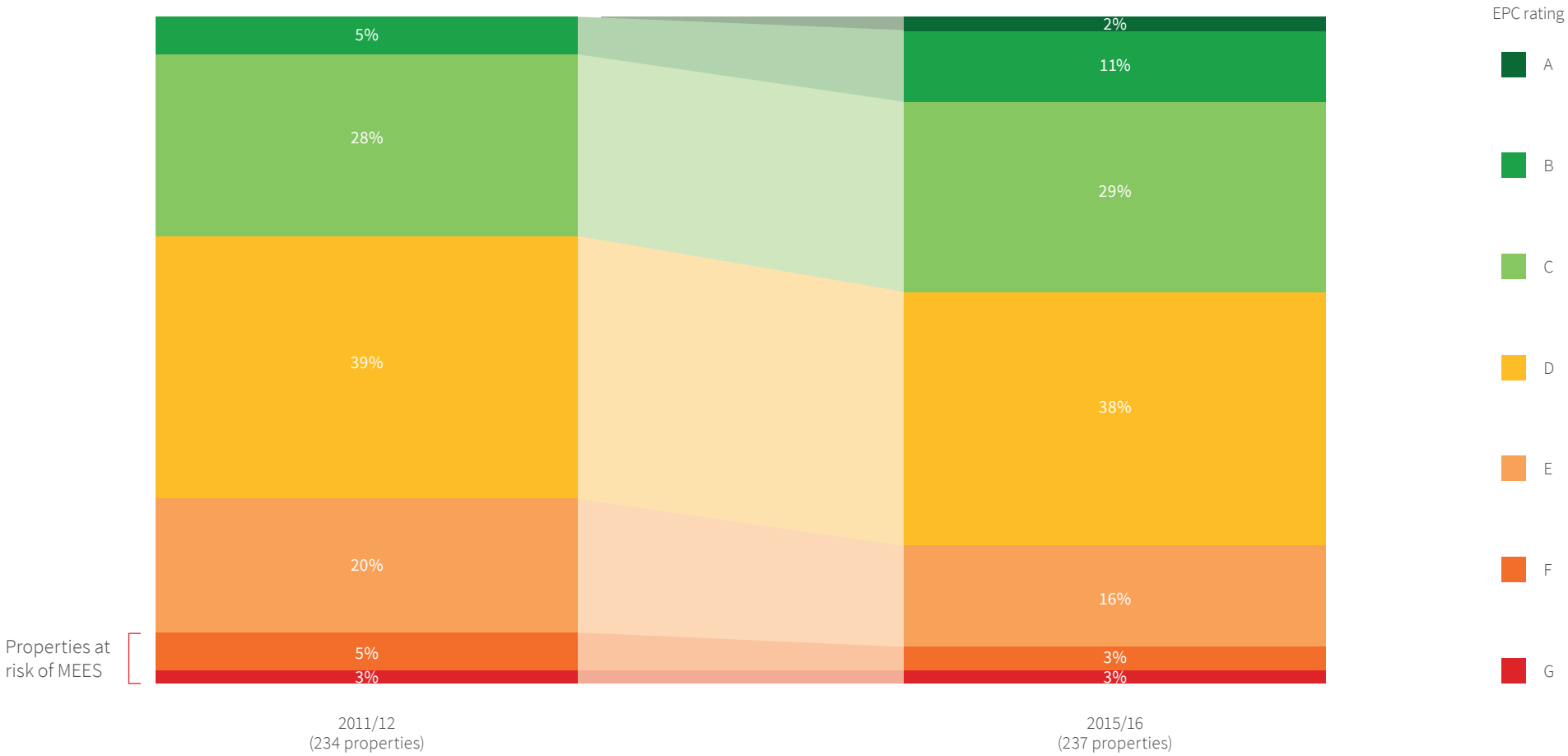
Chart 5. MEES Risk for Offices



In 2015/16, 61% of the offices provided their EPC ratings. Based on these, the chart shows risks associated with Minimum Energy Efficiency Standards (MEES) across the REEB portfolio by categorising the number of offices by EPC rating. This is then compared to historic results submitted in 2011/12.

When comparing 2011/12 to 2015/16, the proportion of F&G rated offices within the REEB portfolio has reduced from 8% to 6%. There is also a general shift of properties towards the higher ratings, with 13% achieving A & B ratings in 2015/16 compared with 5% in 2011/12. This is to be expected given that the regulations come into force in April 2018.

BBP members have indicated that this shift can be attributed to a number of factors. These include:

- Re-commissioning EPC assessments to provide more accurate ratings.
- Carrying out works to improve the ratings of poorly performing offices.
- Implementing disposal strategies that take into account MEES risk.
- Factoring in MEES risk within acquisition due-diligence to ensure that higher risk properties are either, not considered, or the capital costs of improvements are included within investment appraisals.

Chart 6. Like-for-Like Energy Savings

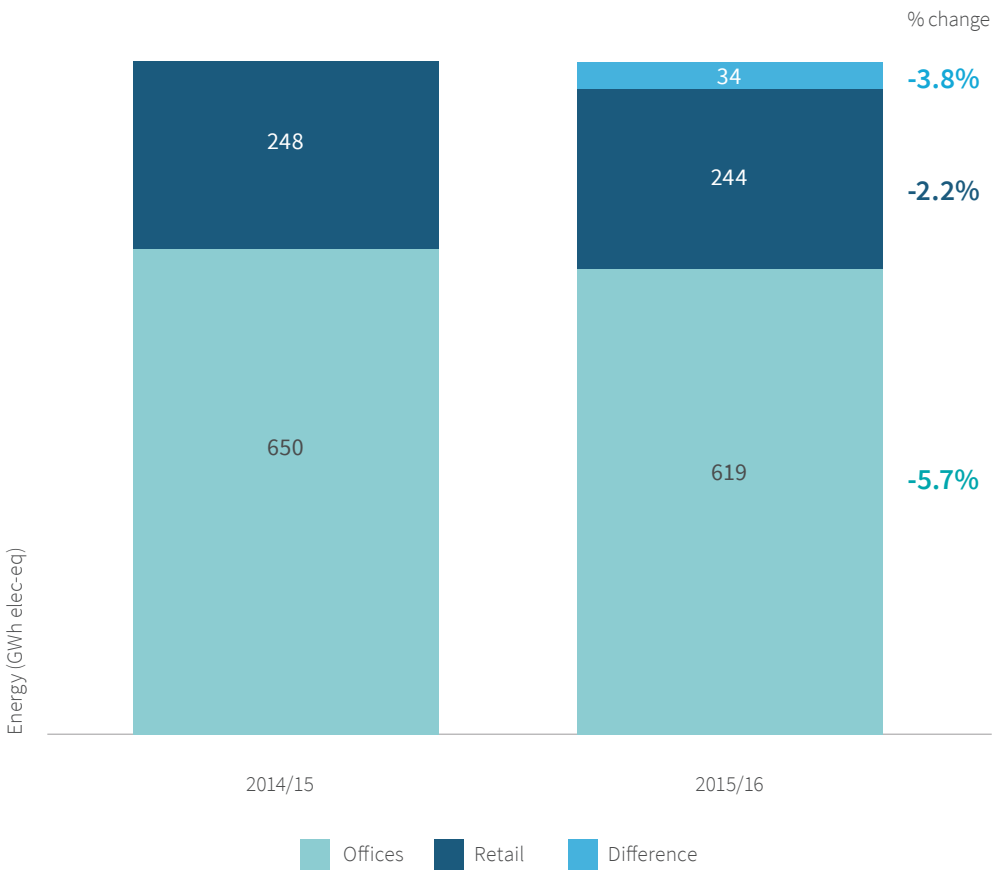


Chart 7. Like-for-Like Energy Savings Over Time

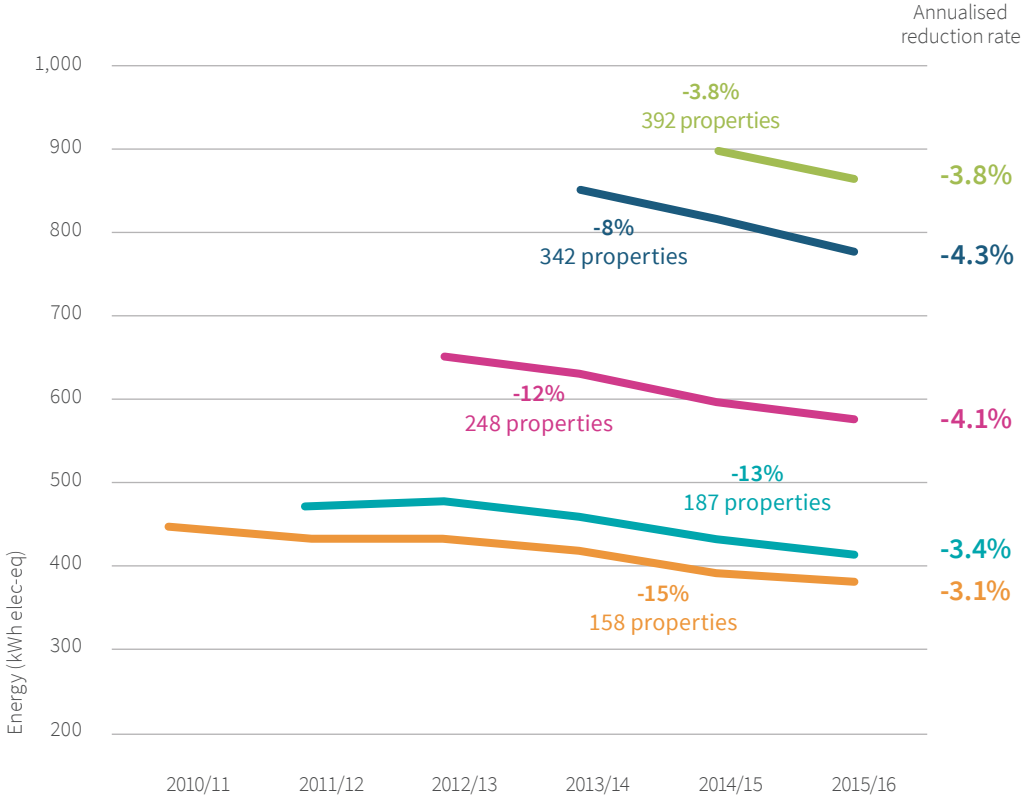


Chart 6 reports the absolute energy usage for a consistent set of properties across two reporting years. In 2015/2016, 392 properties were compared and the figures include aggregated data for all office and retail properties.

For these 392 properties, energy consumption reduced overall by an impressive 3.8%, with offices achieving a 5.7% reduction and retail a 2.2% reduction across the two reporting years. Such savings are achieved through a combination of efficient management practices, undertaking energy conservation measures and engaging with occupiers on the opportunities and benefits of reducing energy consumption.

Chart 7 shows the performance of like-for-like properties over time. Each line represents a consistent set of properties starting at a different base year. Figures on the right show the annualised rates of reduction per year, while those over the lines show the overall reduction for the corresponding period.

Of the 158 properties included in the data set since 2010/11, there has been a 15% reduction in energy use, equating to an annualised reduction rate of 3.1%.

Chart 8. Like-for-Like Energy Cost Savings

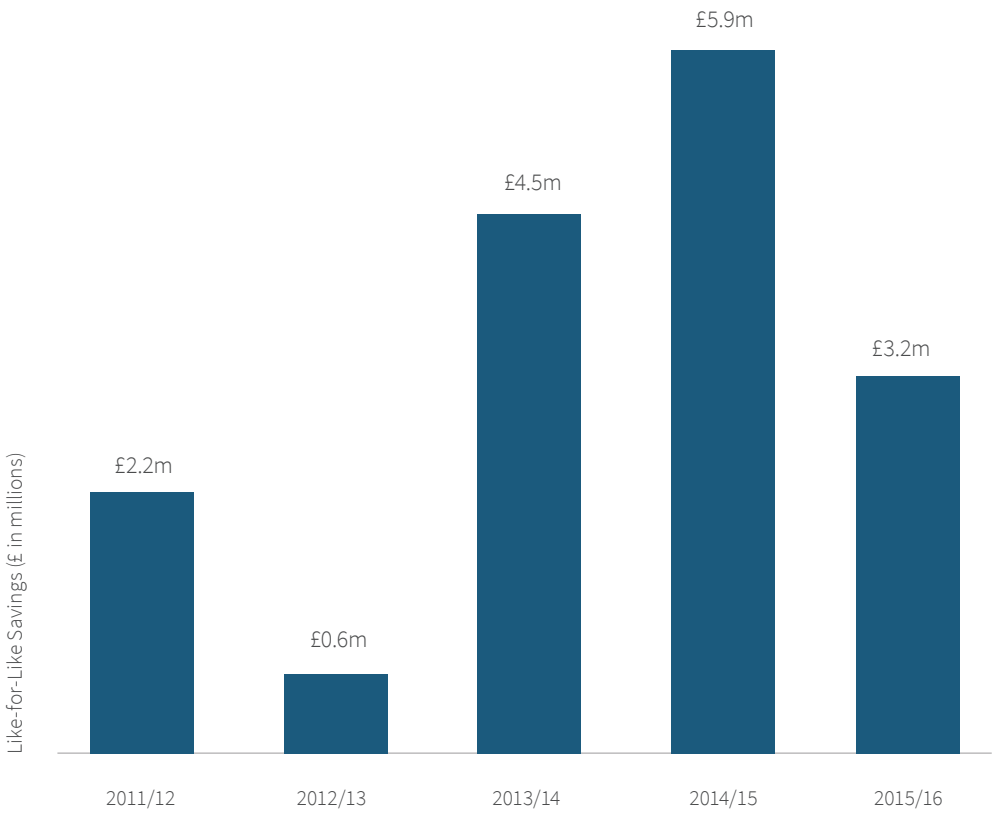


Chart 8 shows the energy cost savings made by members over time for their like-for-like properties submitted into REEB. Each bar represents the savings made between consistent sets of buildings over two consecutive years. In 2015/ 16, an overall £3.2m savings were made across 392 properties. These savings represent reduction in total utility costs due to a combination of energy efficiency measures and management practices.

Chart 9. Absolute Energy Consumption

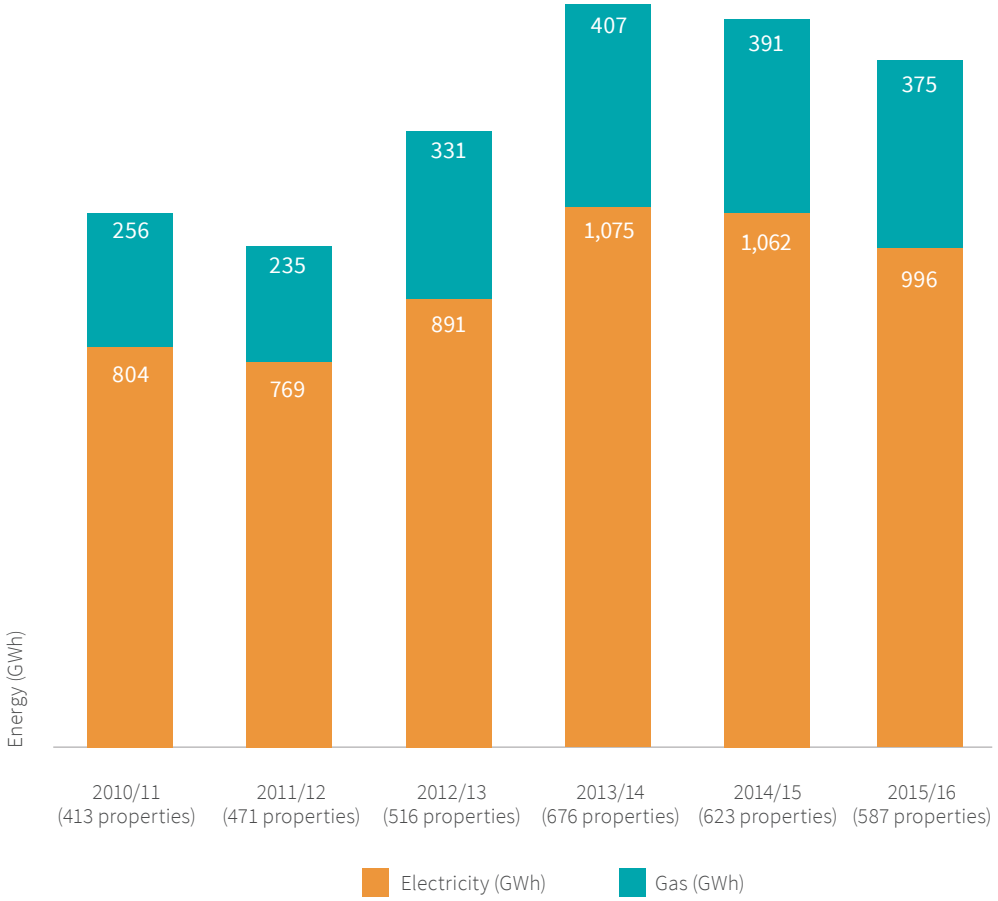


Chart 9 shows the unadjusted electricity and gas consumption of the REEB data set in GWh over time. Energy consumption changes each year as a result of the number of properties within the data set and the floor area that they represent. The pattern of energy consumption seen overtime mirrors that seen for property numbers within Chart 2.

Methodology notes

The Data Set

In 2015/16 over 600 properties were submitted by BBP members. Only 587 were included in the REEB data set to ensure data quality. The criteria for excluding properties are:

- Properties with missing data that is vital to the analysis.
- Properties that show abnormal changes between years or data anomalies that cannot be explained or confirmed by the BBP Member.

Electricity Equivalent (ele-eq) KPI

In Charts 1, 4, 7, 6 and 9, energy is represented as electricity equivalent. Electricity 'equivalence' is calculated to reflect the approximate thermodynamic differences between electricity, fuels and heat. The ratio for fuels is the same as the ratio of Climate Change Levy rates for gas and electricity from 01 April 2019. The kWh of electricity equivalent metric can be applied over time and across different regions, facilitating historical and international comparisons of energy efficiency.

The conversion factors used for kWh elec-eq are: Electricity = 1, fuels = 0.4 and thermals = 0.5.

Energy Costs

Energy savings calculations are based on the following tariff rates:

2015/2016
Gas: 3p/ kWh
Electricity: 11p/ kWh

2010/2011 to 2014/2015
Gas: 3p/ kWh
Electricity: 10p/ kWh

Calculating Indexed Intensity Trends (Chart 4):

An indexing approach is used to enable property owners to assess performance for an ever changing portfolio over time. By taking the average energy intensity of the portfolio from a baseline year of 2010/11 and selecting a starting value, in this case 100, the percentage change in energy efficiency can be tracked over time. This can illustrate, regardless of portfolio churn, comparable energy efficiency performance across whole portfolios.

In calculating the energy intensity, the following normalisations and adjustments are applied:

Appropriate floor areas to calculate energy intensity: The following floor areas are used for the energy intensity calculations.

- Offices: Net Lettable Area (NLA)
- Enclosed shopping centre: Common Parts Area (CPA)

Weather adjustment: Weather-driven consumption has been taken into account by adjusting natural gas consumption to the UK 20 year degree-day average. It is assumed that 10% of natural gas consumption is for hot water, which is not significantly affected by weather, and is thus not adjusted using degree-days.

Hours of operation: For energy intensity performance, extended opening hours that are atypical of the sample set, have been taken account of by normalising all energy consumption at all properties to the survey norm for effective operating hours.

The effective property operating hours are defined as: 1 x Core Hours per week + 0.2 x Additional Hours per week.

It is assumed that the survey norm for the energy requirement of additional hours is one fifth of core hours. This is based on an analysis of best practice and half-hourly electricity demand profiles. The norms for offices are 60 core hours and 30 additional hours per week. The norms for shopping centers are 72 core and 18 additional hours per week.

Whole building data and vacancy rates: Only offices where whole building energy performance data is provided and occupancy rates are at least 75% are included when calculating energy intensity performance.

Data quality: Buildings with energy intensity below the following threshold cut-off levels are excluded from energy intensity calculations:

- Naturally ventilated offices this is 30 kWh elec-eq /m^2/yr
- Air-conditioned offices this is 50 kWh elec-eq /m^2/yr
- Enclosed air-conditioned shopping centres this is 30 kWh elec-eq /m^2/yr
- Enclosed non air-conditioned shopping centres this is 40 kWh elec-eq /m^2/yr

REEB 2016 participants

Acknowledgements

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