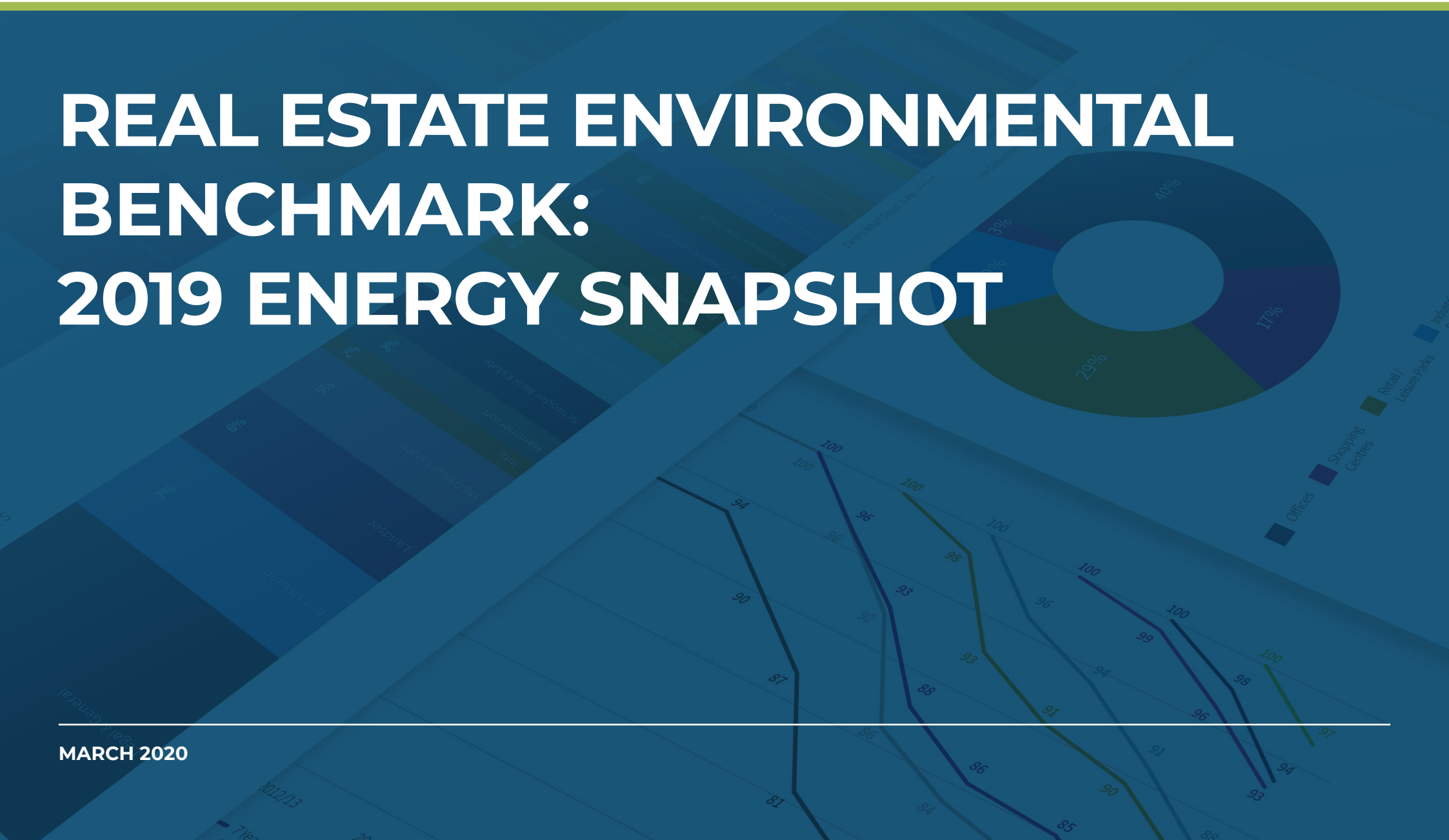
BBP | BETTER BUILDINGS PARTNERSHIP

REAL ESTATE ENVIRONMENTAL BENCHMARK: 2019 ENERGY SNAPSHOT



MARCH 2020

Introduction

Each year, BBP members submit data on their managed UK commercial real estate portfolios into the Real Estate Environmental Benchmark (REEB). To date, the REEB dataset contains 1,784 unique properties that have been submitted over the past nine years.

With no other initiative operating at such a scale, it provides a valuable insight into the energy performance trends of commercial properties in the UK. It also plays an important role in helping commercial property owners to understand how their portfolios compare to industry peers and track performance alongside a net zero carbon trajectory.

With the initiative now in its ninth year, this report provides a summary of the 2018/19 results and a retrospective assessment of how BBP members' portfolios have performed over time. The key highlights include:

- **Data Coverage:** The dataset continues to grow with an 8% increase in floor area in the past year, and a 160% increase since 2010/11.
- **Data Quality:** The introduction of a new data validations process has continued to improve data integrity, with 2018/19 having the second lowest error per property rate.
- **Performance Improvements:** The energy intensity of properties submitted into REEB continues to improve year-on-year, achieving a 25% improvement over the past 9 years. However the rate of improvement is slowing, with energy efficiency improving by only 1% in 2018/19.

KEY FACTS

31
BBP MEMBERS SUBMITTING DATA

1,038
PROPERTIES

11.7M
M² OF FLOOR AREA

1,649
GWH ENERGY CONSUMPTION

3.3%
IMPROVEMENT IN LIKE-FOR-LIKE ENERGY CONSUMPTION

Comparing your own properties

A major output of the REEB project is to produce operational energy benchmarks for the wider industry, which allow other organisations to compare how their own properties are performing. The latest 2019 Benchmarks can be found here.

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The Dataset

Chart 1. REEB Property Profile

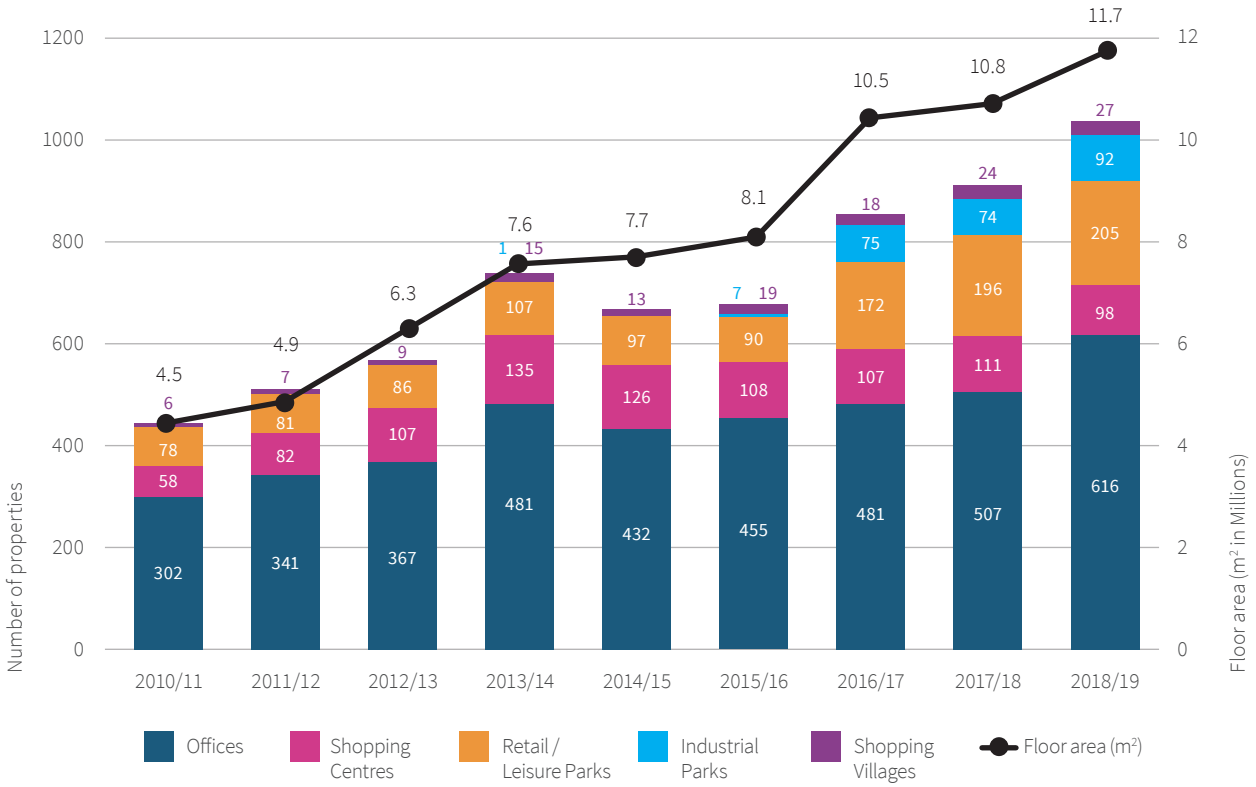

Chart 2. 2018/19 Floor Area Breakdown

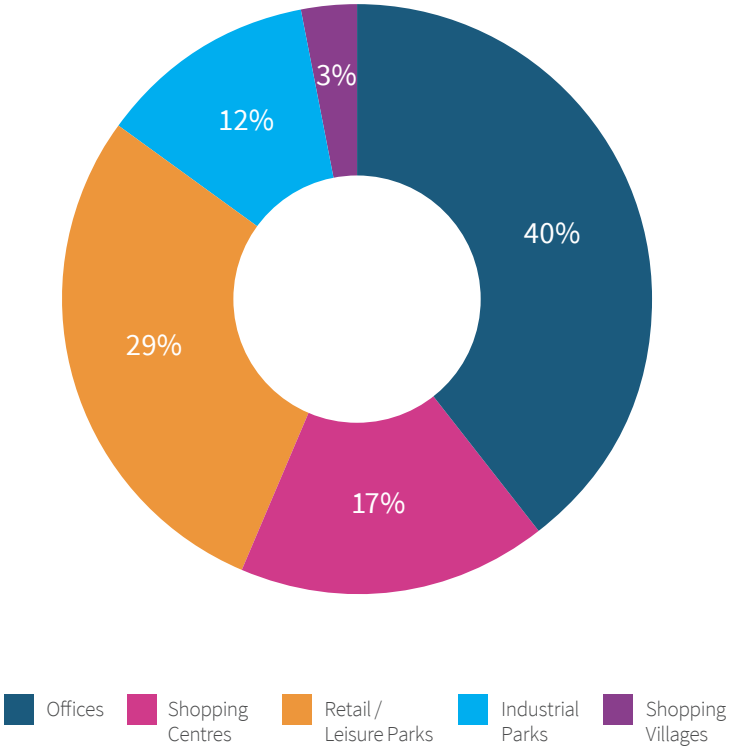

Chart 1 shows the size of the REEB dataset over time, by both the number of properties broken down by property type and by floor area. Chart 2 provides a breakdown of the 2018/19 floor area by property type.

The REEB dataset continues to grow over time. In the past year, property numbers have increased by 14% and floor area by 8%. The new properties represent a combination of new BBP members submitting data for the first time, as well as newly purchased and/or refurbished properties entering the dataset. In addition to this, two new property types have been added to the dataset that contribute to this increase: Shopping Villages and Industrial Parks.

THE REEB DATASET IS GROWING; THE TOTAL NUMBER OF PROPERTIES HAS INCREASED BY 134% AND THE FLOOR AREA BY 160% SINCE 2010/11

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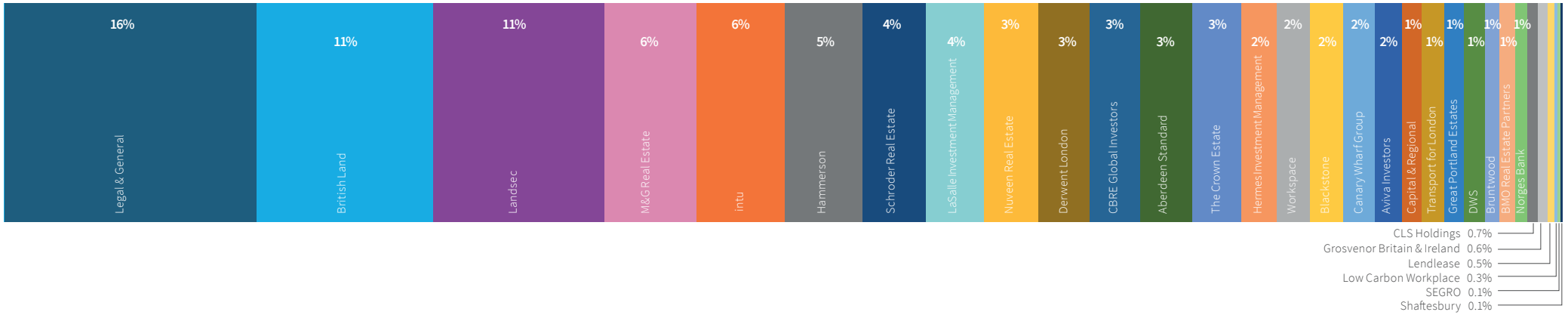
Chart 3: 2018/19 Dataset Breakdown by BBP Member

Share of floor area



Share of property numbers

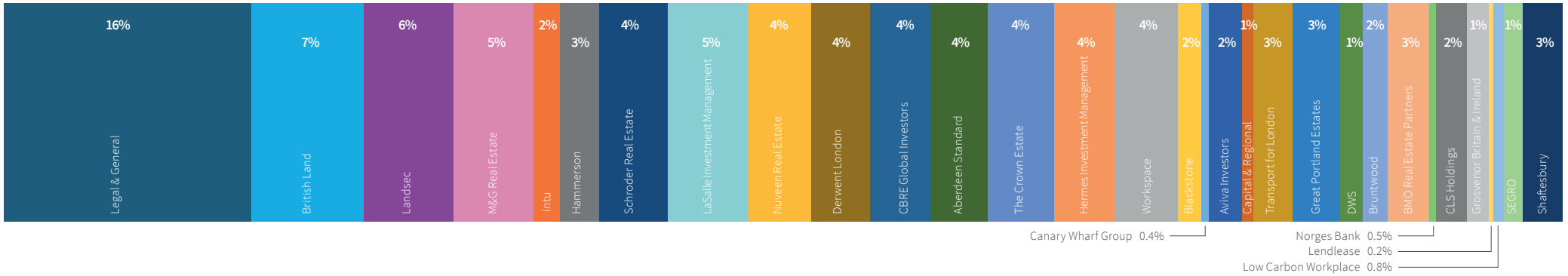


Chart 3 provides a breakdown of the 2018/19 dataset by individual BBP member. The upper row provides a breakdown of the total floor area by member, whilst the lower row provides a breakdown of the total number of properties for the corresponding member.

The chart highlights that not all members are equal in terms of their respective contributions to the dataset. Five of the 31 members account for half of the floor area submitted in 2018/19. In contrast, eight members account for 50% of the dataset by property numbers.

IN 2018/19, 31 BBP MEMBERS SUBMITTED THEIR PORTFOLIO TO REEB, REPRESENTING 97% OF THE MEMBERSHIP

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Energy Trends

Chart 4: Absolute Consumption

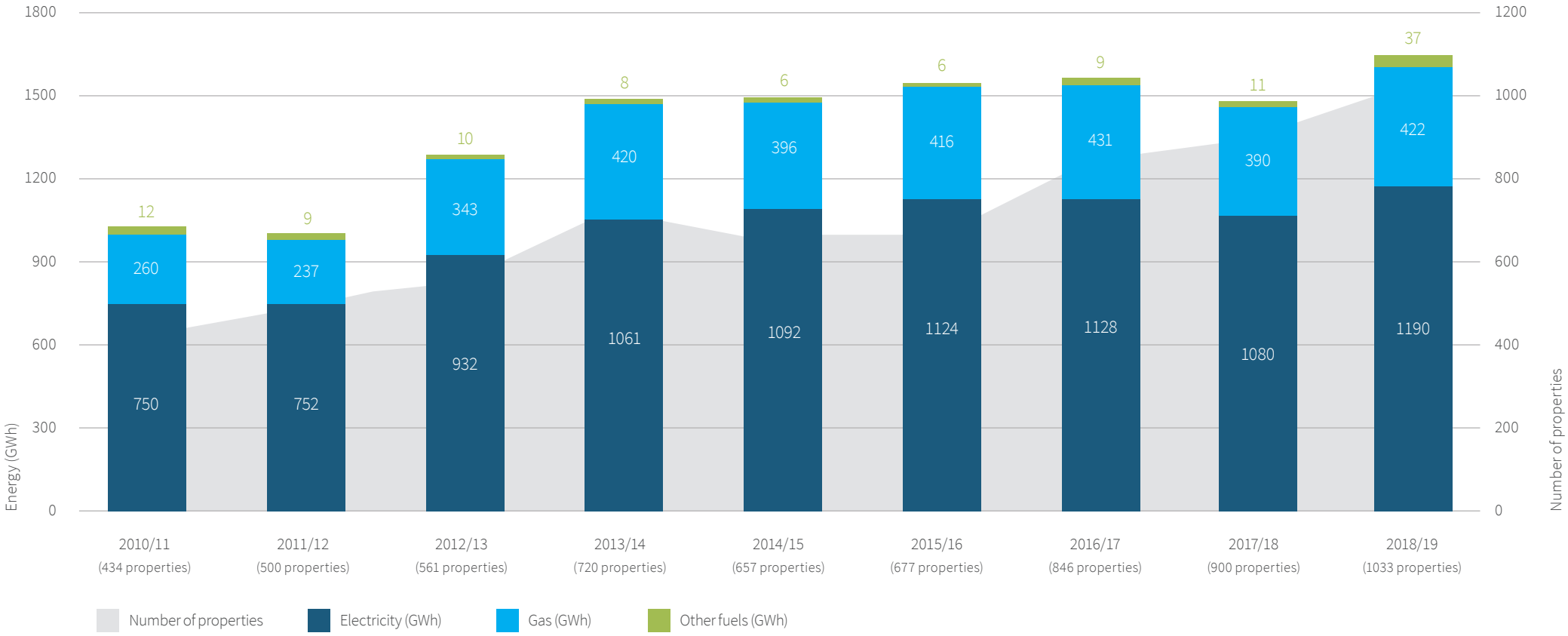

Chart 4 shows the total energy consumption of the REEB dataset in GWh over time, broken down by fuel type. The 'Other fuels' here represents consumption related to district heating and cooling, LPG, wood pellets, diesel and fuel oils .

Absolute consumption changes each year based on a number of factors including the number of properties in the dataset and the respective activities occurring on-site.

Chart 5: 2018/19 Energy Breakdown by Member

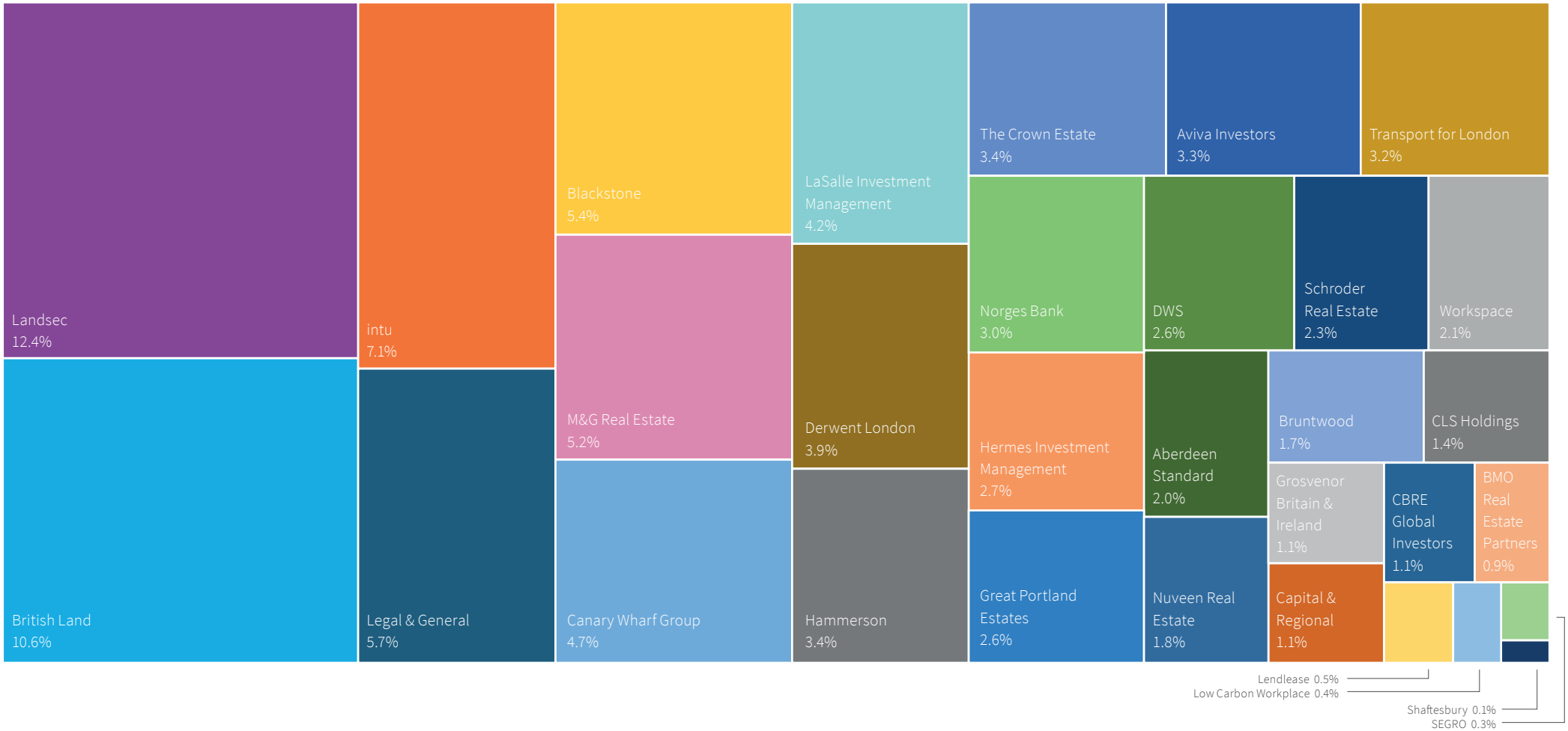

Chart 5 presents the breakdown of total energy consumption of the 2018/19 dataset by individual BBP member.

25% OF MEMBERS ACCOUNT FOR OVER 50% OF THE 2018/19 ENERGY CONSUMPTION.

Chart 6: Like-for-Like Energy Savings Over Time

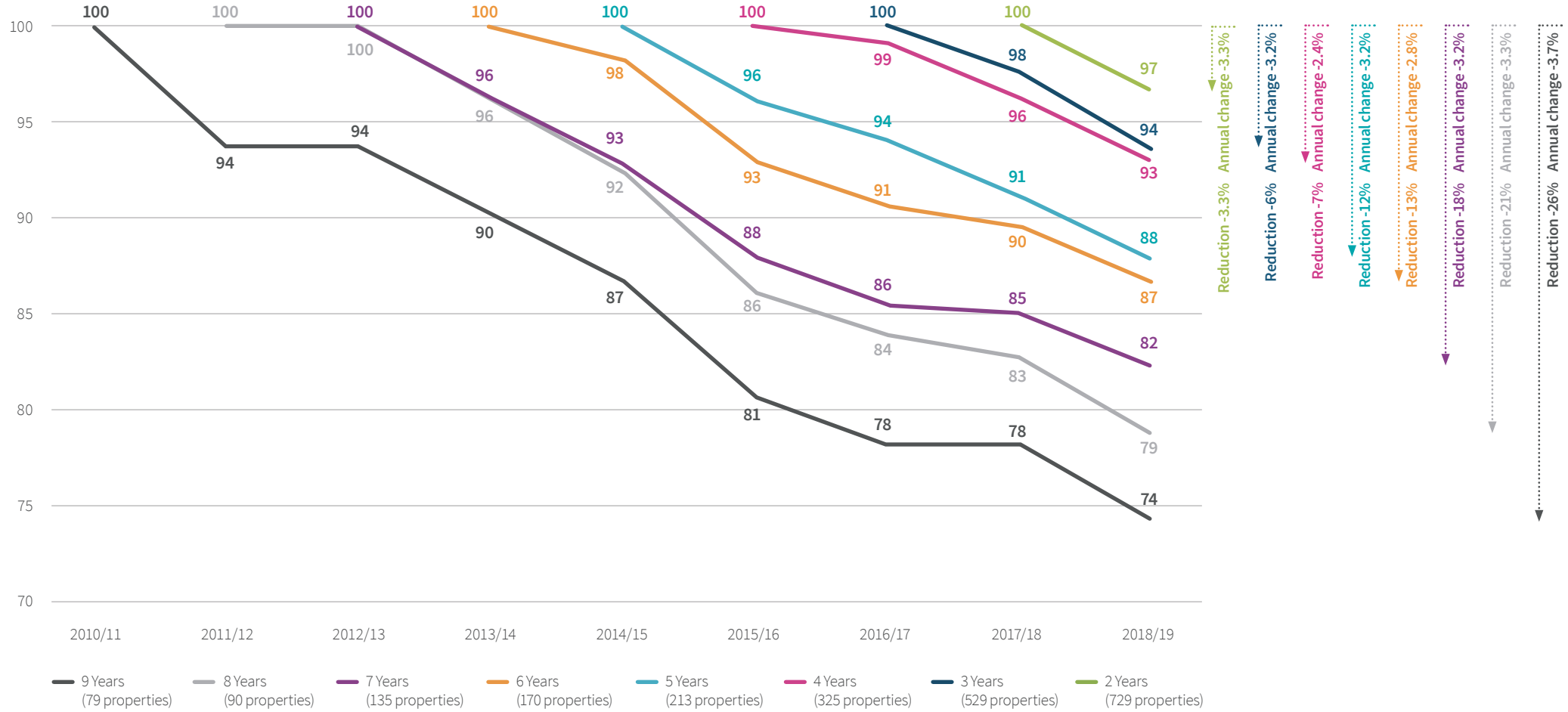

Chart 6 shows the like-for-like energy performance of properties over time. Each line represents a consistent set of properties starting at a different base year and the percentage change in energy consumption tracked each year from that baseline. Figures on the right show the total percentage energy reduction and the annualised rate of reduction per year for the corresponding period.

Each consistent set of properties have made like-for-like energy reductions, demonstrating the action members have taken to drive energy reductions across their portfolios. The properties that have been within the REEB dataset the longest have also achieved the greatest like-for-like savings.

79 SITES THAT HAVE REMAINED CONSISTENT WITHIN THE DATASET SINCE 2010/11, HAVE SEEN AN OVERALL ENERGY REDUCTION OF 26%, EQUATING TO AN ANNUALISED RATE OF REDUCTION OF 3.7%.

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Chart 7: Like-for-Like Energy Savings

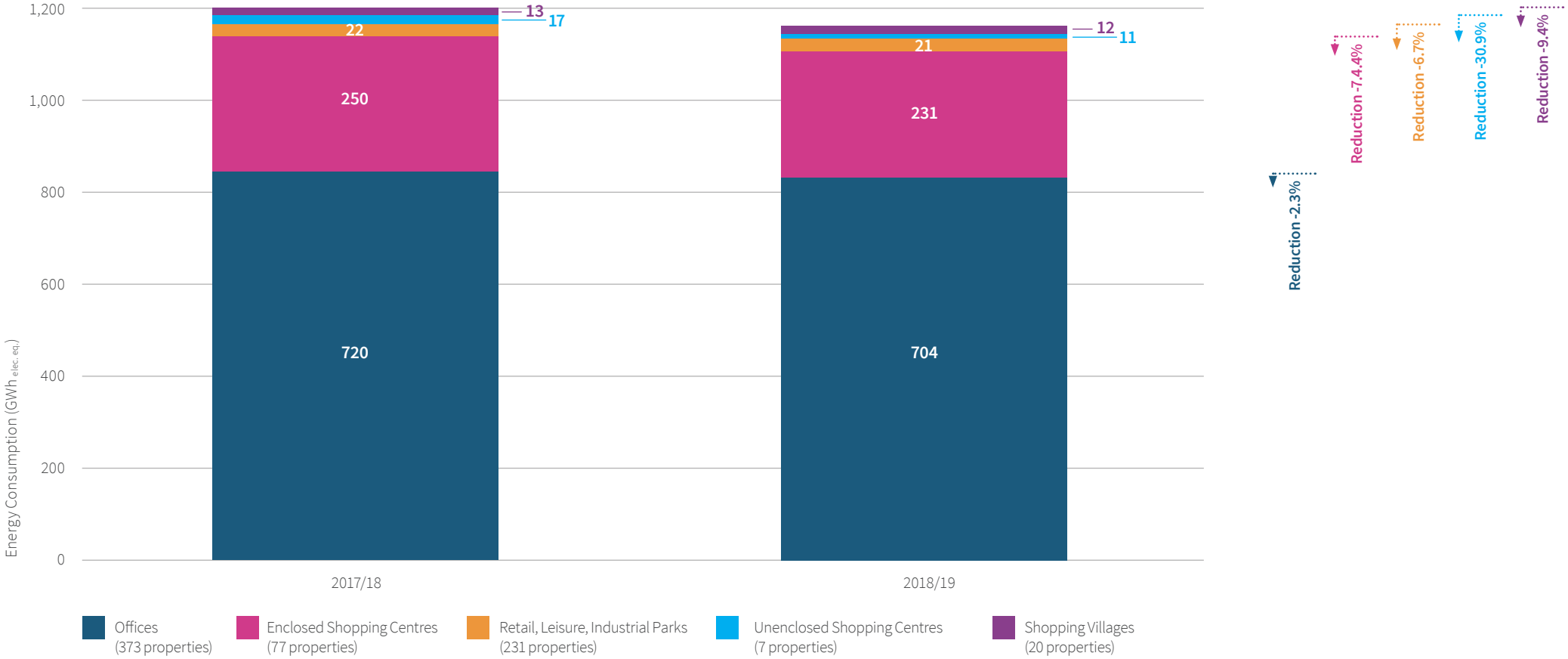


Chart 7 shows the change in like-for-like energy consumption of 729 properties that remained consistent over the past two reporting years. The change in energy consumption is further broken down by property type.

Comparing properties on a like-for-like basis removes the impact of portfolio churn and provides a fair comparison of a consistent set of properties between years. All property types achieved reductions in energy use to a combined total of 3.3%. Such savings were achieved by a combination of energy conservation measures and engagement with occupiers to reduce energy consumption.

Whilst Offices achieved the lowest energy reduction as a percentage, in absolute terms, the energy saved was the greatest due to the fact that offices account for 70% of the energy consumption within the dataset.

THE 729 PROPERTIES THAT REMAINED CONSISTENT WITHIN THE REEB DATABASE OVER THE LAST TWO YEARS REDUCED IN OVERALL ENERGY CONSUMPTION BY 3.3%

Chart 8: Indexed Energy Intensity Trend

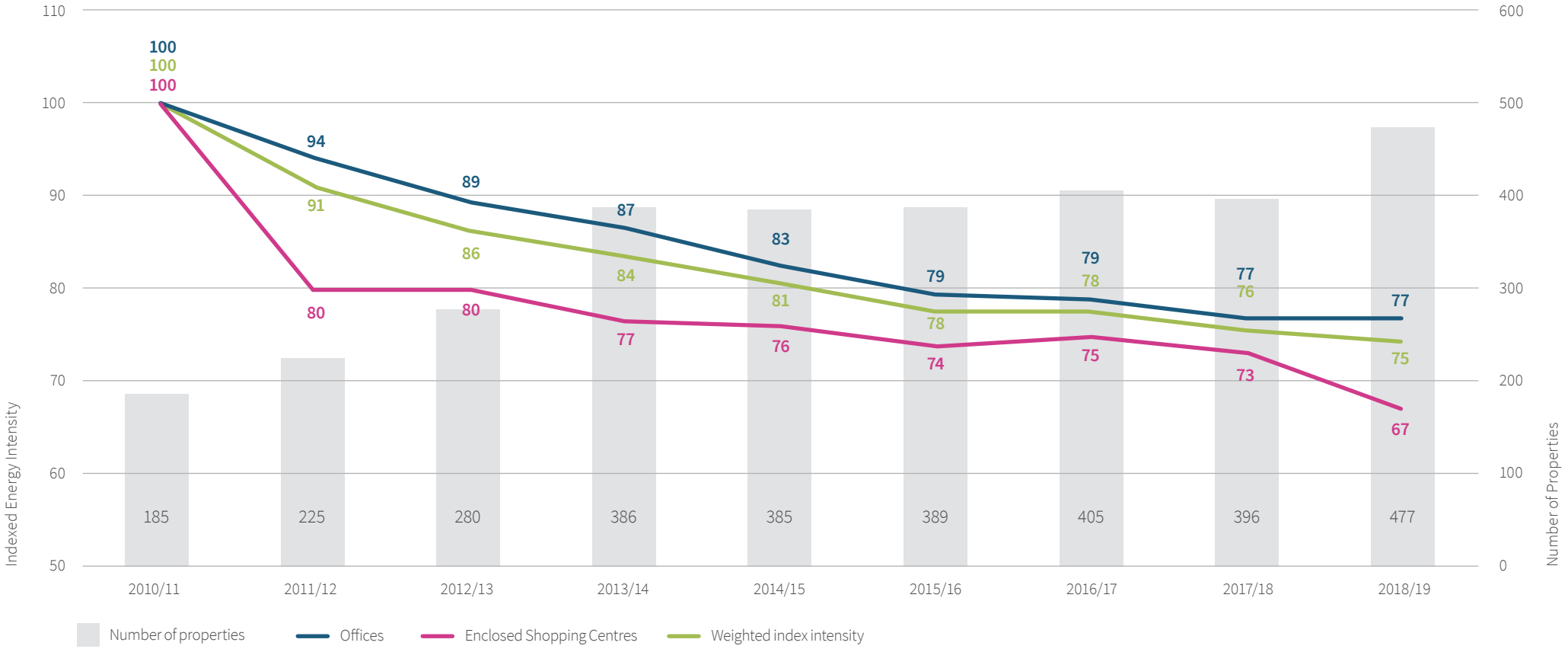
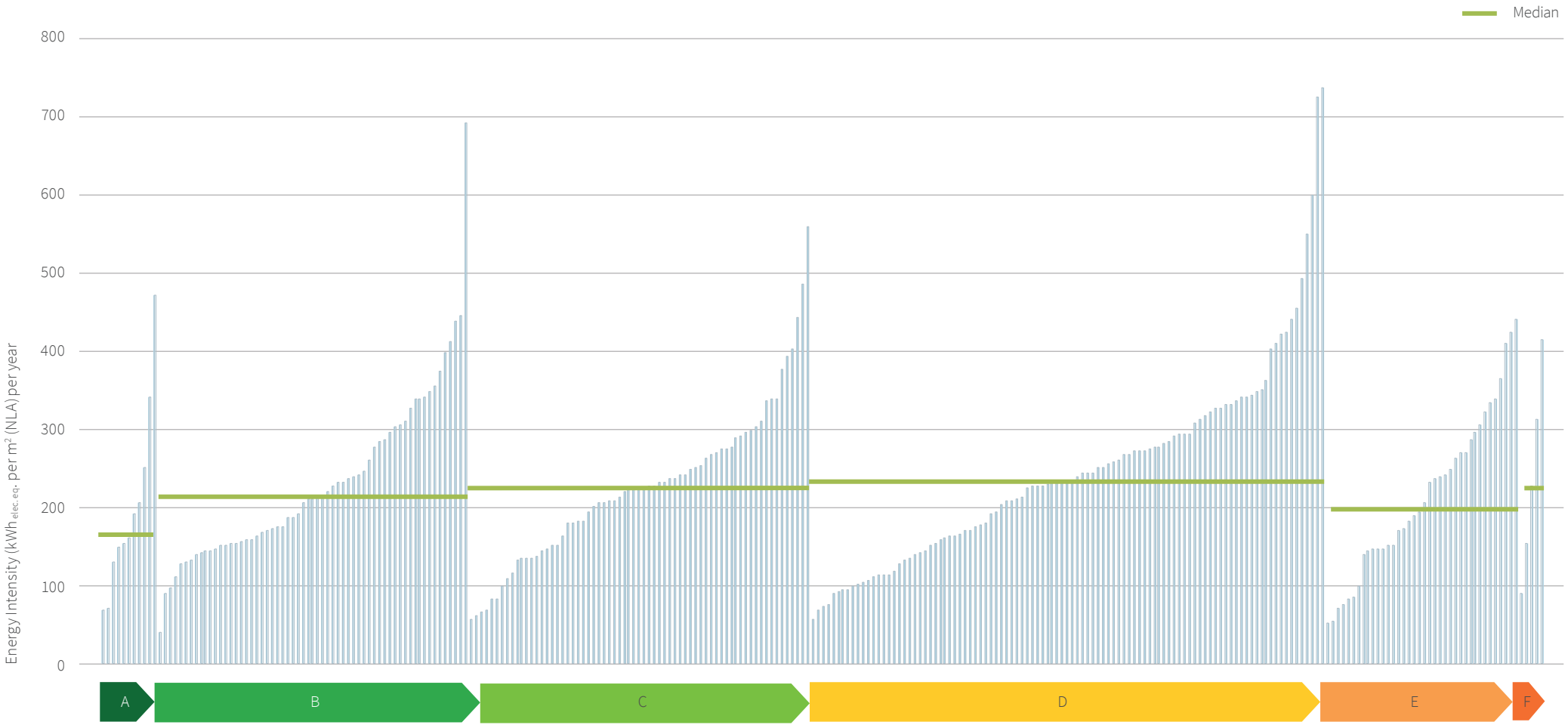


Chart 8 shows the change in energy intensity of BBP Members' Office and Shopping Centre portfolios as they stood each year. The dynamic nature of commercial real estate portfolios presents a challenge to reporting performance over time. Starting at a baseline of 100, the chart tracks how the energy intensity of annually submitted properties changes over time, in relation to the baseline year. An indexing approach is used, as it allows multiple property types to be combined together into one simple performance metric.

Performance is separated out for Offices and Shopping Centres, which are the largest energy consumers in the dataset. The energy intensity of Offices has remained static in the last year and improved by 23% since 2010/11. The energy intensity of Shopping Centres has improved by 6% in the past year and 33% in the last 9 years. Both of these property types are combined based on the proportion of the energy consumption they represent to create a weighted intensity figure , with a 1% improvement in the last year and a 25% improvement over the last 9 years.

BBP MEMBERS ARE DEMONSTRATING CONTINUOUS IMPROVEMENTS IN ENERGY EFFECIENCY OVER TIME. OVER THE LAST 9 YEARS THE COMBINED ENERGY INENSITY FOR OFFICES AND ENCLOSED SHOPPING CENTRES HAS REDUCED AT AN AVERAGE RATE OF 3.6% PER YEAR.

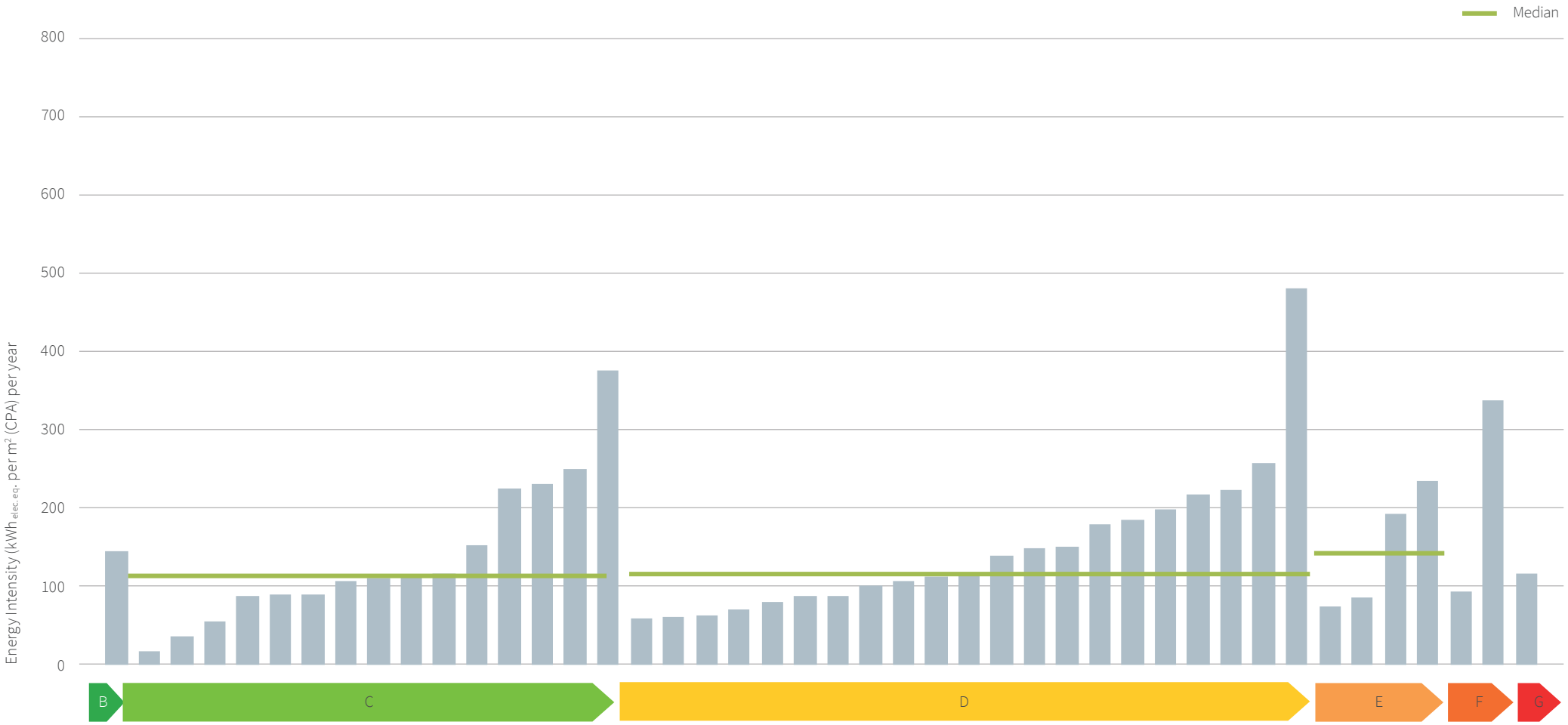
Chart 9: Office Energy Intensity by EPC Rating 2018/19



Charts 9 and 10 compare the energy intensities from Offices and Enclosed Shopping Centres, respectively, with the EPC ratings for those properties. Each grey bar represents a single Office/ Enclosed Shopping Centre's energy intensity over the course of a year. They are then grouped by their EPC rating. The green horizontal line represents the median value of the energy intensities for that EPC group.

When looking at the relationship between EPC ratings and operational energy intensity, the data shows no correlation between how efficiently a building uses energy and its EPC rating, thus indicating that EPCs are not an indicator of operational energy use and a continuous ratcheting up of design ratings will not be an adequate policy tool to achieve the UK Government's energy reduction targets.

Chart 10: Enclosed Shopping Centre Energy Intensity by EPC Rating 2018/19



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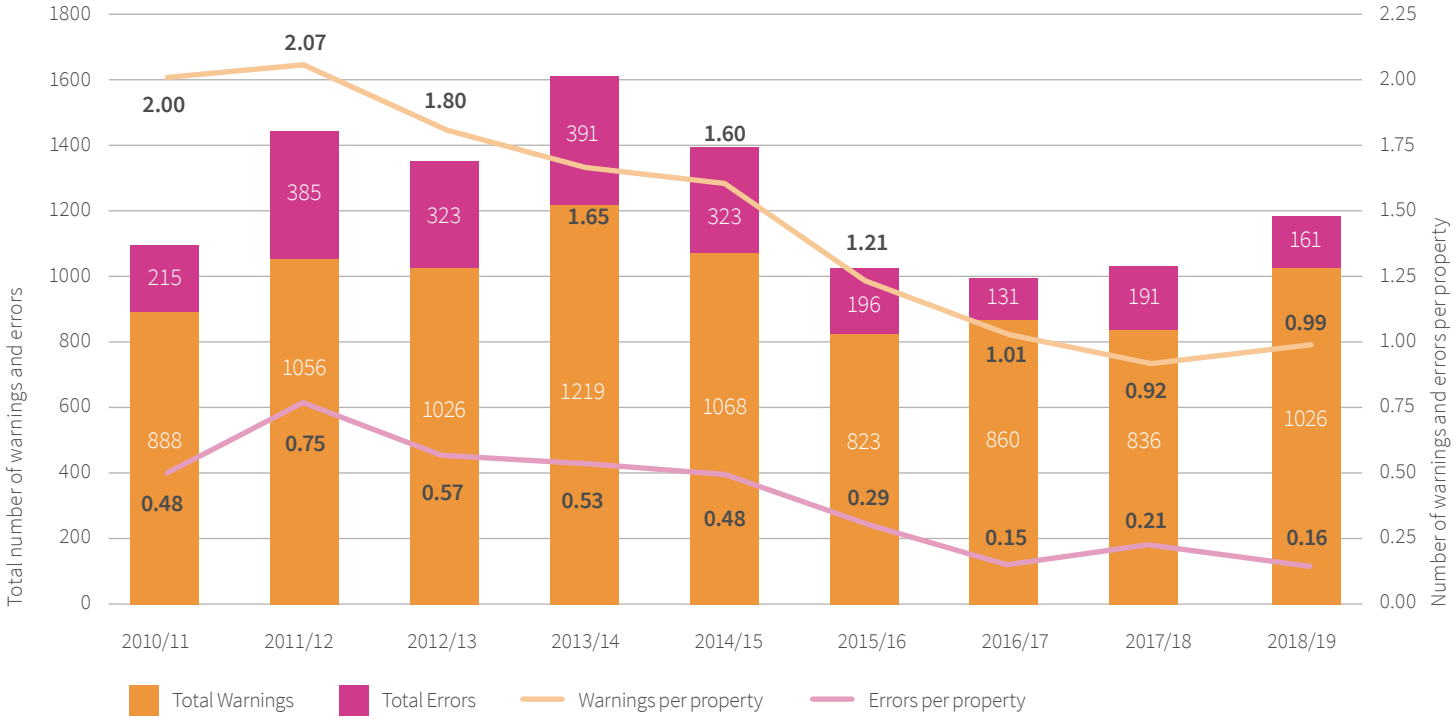
Data Quality

Chart 11: Data Quality Over Time



2018/19 TOP 5 ERRORS

- SIGNIFICANT LfL WATER CONSUMPTION CHANGE
- SIGNIFICANT LfL ENERGY CONSUMPTION CHANGE
- ESTIMATED WATER DATA
- ENERGY INTENSITY THRESHOLD BREACH
- WATER CONSUMPTION SAME AS PREVIOUS YEAR

2018/19 TOP 5 WARNINGS

- BLANK EPC RATING
- BLANK FTE OR WORKSTATION
- BLANK WATER CONSUMPTION
- BLANK NAME OF MRF FACILITY
- BLANK OPERATING HOURS

Data integrity and transparency are important aspects of any benchmarking and data analysis process. Efforts are made to ensure that the information provided in this report is presented in a clear, concise and transparent way. On comparing the results from this report to previous years, readers may note changes within some historic figures. There are a number of reasons why this occurs:

- New properties that entered the dataset in 2018/19 provided multiple years of data, impacting historic performance
- Between each year's data collection, efforts are made by participants to identify any data inaccuracies and correct these where relevant.
- New data quality checks implemented in 2018/19 were retrospectively applied to historic data, resulting in an increased number of property exclusions for previous years. Chart 11 shows the total number of data errors and warnings triggered within a given year (See Methodology Notes for further details). It should be noted that the total number of errors and warnings does not directly correlate to the number of property exclusion, as individual properties may have multiple errors and warnings. However, the average number of errors and warnings triggered per property has decreased over time as data quality has improved.
- Shopping Villages and Industrial Parks were added as new categories this year. As a result, a small number of Retail Parks were reclassified as Shopping Villages. These changes were applied to the historic dataset for consistency.

Methodology Notes

Data Quality

Properties included within the REEB analysis must meet strict data quality controls. The criteria for excluding properties are:

- Properties with missing data that is vital to the analysis.
- Properties that show abnormal changes between years and data anomalies that cannot be explained or confirmed by the data provider.
- Energy intensity thresholds are used to identify properties where data may be have been submitted incorrectly. The thresholds are set out in the table 1 below. Properties that trigger threshold flags, and remain unexplained, are removed from all energy intensity analyses.

Table 1 REEB data quality energy intensity thresholds

Property Type	Lower Threshold ($kWh_{elec\text{-}eq}/m^2$/year)	Higher Threshold ($kWh_{elec\text{-}eq}/m^2$/year)
Office (Non-Air Conditioned)	30	600
Office (Air Conditioned)	50	1000
Enclosed Shopping Centre (Non-Air Conditioned)	30	600
Enclosed Shopping Centre (Air Conditioned)	30	600
Unenclosed Shopping Centre	0.4	400
Shopping Village	-	150
Retail, Leisure and Industrial Park	-	50

Offices

Definition: A property with a single tenant or multiple tenants used to conduct commercial business activities.

Floor Area: Net Lettable Area (NLA), all lettable or rentable office space (excluding car parks) in the property. This should also include vacant space.

Scope of Data Collection: Energy consumption relates to whole building but excludes any mixed-use elements such as retail spaces and gyms. It is recognised that whole building energy intensity using NLA as the denominator is, to an extent, a mismatch between numerator and denominator (using Net Lettable Area as opposed to Gross Internal Area) but this is the most consistently available and accurate denominator from participants.

Additionally, the following rules are applied:

- **Absolute Consumption and Like-for-Like Analysis:** Only properties that remain consistent in their energy scope, and where occupancy rates do not change by 25% or more, are included.
- **Energy Intensity Analysis:** Only Offices where whole building energy performance data is provided, and where occupancy rates are at least 75%, are included. Where offices include dealing floors and data centres, energy consumption relating to these uses are removed from the analysis where sub-metered data and floor area is provided.

Enclosed Shopping Centres

Definition: An enclosed retail property that includes a central common mall area and adjoining retail units. The retail units typically do not have any independent access and are accessed through the common mall area. Such properties are typically not accessible to the public after closing hours.

Floor Area: Common Parts Area (CPA), the area within a retail destination that is typically referred to as the 'mall' area. It is the area controlled by the landlord and includes the mall area, circulation areas, staircase, escalators, lifts fully enclosed service areas and storage areas.

Scope of Data Collection: Energy consumption relates to common parts area. It excludes all retail units and car park energy consumption.

Unenclosed Shopping Centres

Definition: A partially open retail property that includes a central common mall area. The common mall area is not fully sealed, e.g. there is a roof but open entrances, and therefore accessible to the public after store closing hours.

Floor Area: Common Parts Area (CPA), area within a retail destination that is typically referred to as the 'mall' area. It is the area controlled by the landlord and includes the mall area, circulation areas including external walkways, staircases, escalators, lifts, enclosed service and storage areas and courts that may be semi-covered or open.

Scope of Data Collection: Energy consumption relates to the common parts area and excludes all retail units and car parks. Energy consumption constitutes artificial lighting associated with common parts and may or may not have no centralised heating or ventilation.

Shopping Village

Definition: A shopping destination characterised by rows of shops/retail units that are accessed via open pedestrianised streets and are located within well landscaped areas. The car park, where present, is generally located on an adjoining site, but a small amount of car parking may exist around the shops as well.

Floor Area: Includes the Common Parts Area and the Open-Air Car Park. The common part constitutes the external landscaped areas, pedestrianised streets and service yards that fall within the site boundary. The Open-Air Car Park Spaces are calculated using the car park numbers multiplied by $25m^2$ (based on REVO Guidance Note 76 – Construction Costs of Shopping Centre Car Parks).

Scope of Data Collection: Energy consumption is mainly associated with the lighting of external areas, service yards, open-air car parks external landscaped area and walkways. Multi-storey car parks are not included.

Retail and Leisure Park

Retail Park Definition: An out-of-town, open-air retail facility that comprises mainly medium and large-scale specialist retailers. It is characterised by mostly free-standing properties, with ample on-site parking located in front of the stores and/ or around the site at ground level.

Leisure Park Definition: An out-of-town, open-air leisure facility, that may also include some retail units. Similar in nature to a Retail Park, but includes facilities such as bowling, cinemas etc. It is characterised by mostly freestanding, with ample on-site parking located in front of the stores and/or around the site at ground level.

Floor Area: The denominator used is the number of car park spaces, which is then converted into area. Each car park space represents $25m^2$ (based on REVO Guidance Note 76 – Construction Costs of Shopping Centre Car Parks).
As a denominator, it is recognised that car parking spaces may not be the most accurate numerator. However, in the absence of a more suitable denominator that is consistently available and accurately recorded by participants, this is seen as the best alternative.

Scope of Data Collection: Energy consumption is mainly associated with the lighting of an open-air car park, service yard and any external landscaped areas. Multi-storey car parks are not included.

Industrial Park

Definition: A site that contains multiple, free-standing office or logistics buildings grouped together. On-site parking is typically located in front of each building and/or around the site. Landscaped areas may also exist within the site.

Floor Area: External area, given as Gross Plot Area minus Building Footprint.

Scope of Data Collection: Energy consumption is mainly associated with the lighting of an open-air car park, service yard and any external landscaped areas. Multi-storey car parks are not included.

Adjustments

Electricity equivalent ($kWh_{elec\text{-}eq}$) = kWh of electricity equivalent. Electricity 'equivalence' is calculated using the ratio of carbon intensities between each fuel and electricity. It combines into kWh of electricity equivalent, measuring the amount of electricity used and adding an equivalent amount to account for any other fuels used. Electricity = 1, fuels = 0.4 and thermals = 0.5.

Fuels and thermal energy consumption for heating is not adjusted for weather or operating hours.

REEB 2019 Participants

Acknowledgements

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Better Buildings Partnership
1 Fore Street, London, EC2Y 9DT

info@betterbuildingspartnership.co.uk
www.betterbuildingspartnership.co.uk

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