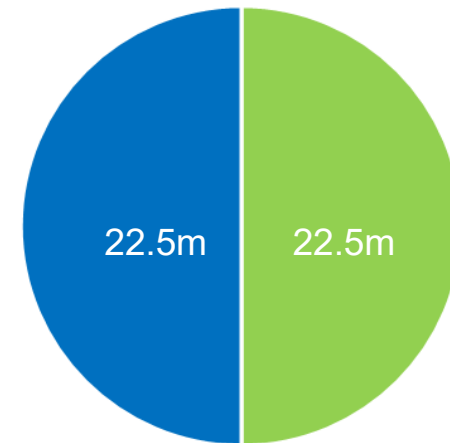
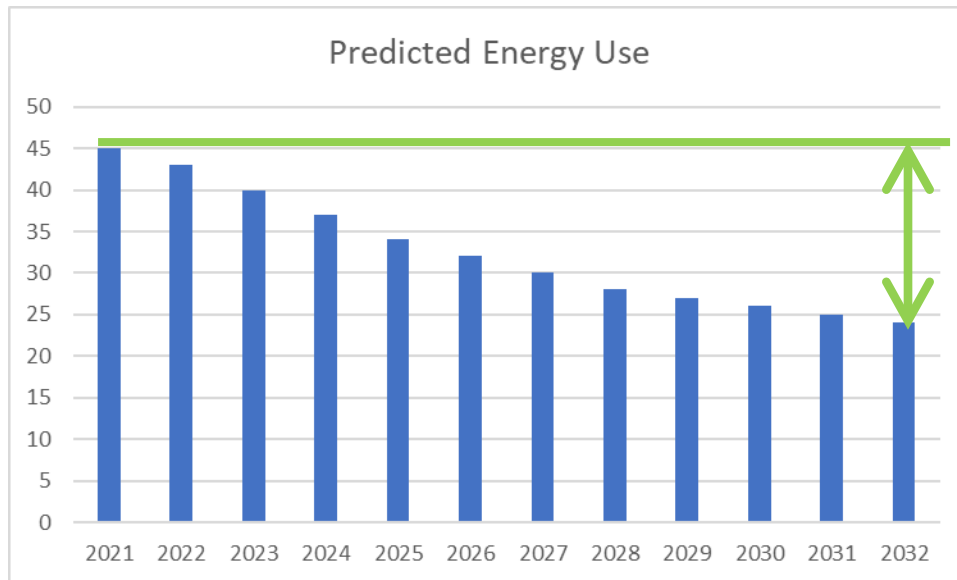


# Decarbonising the Estate

## Report to Scrutiny

# Carbon Reduction Strategic plan



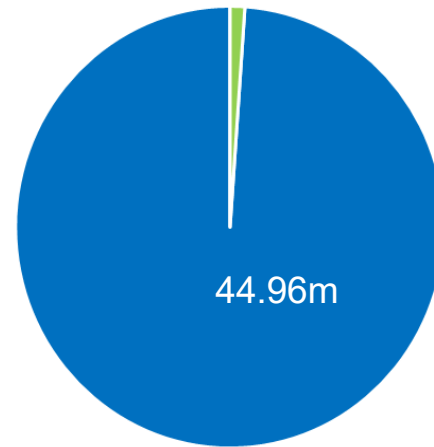
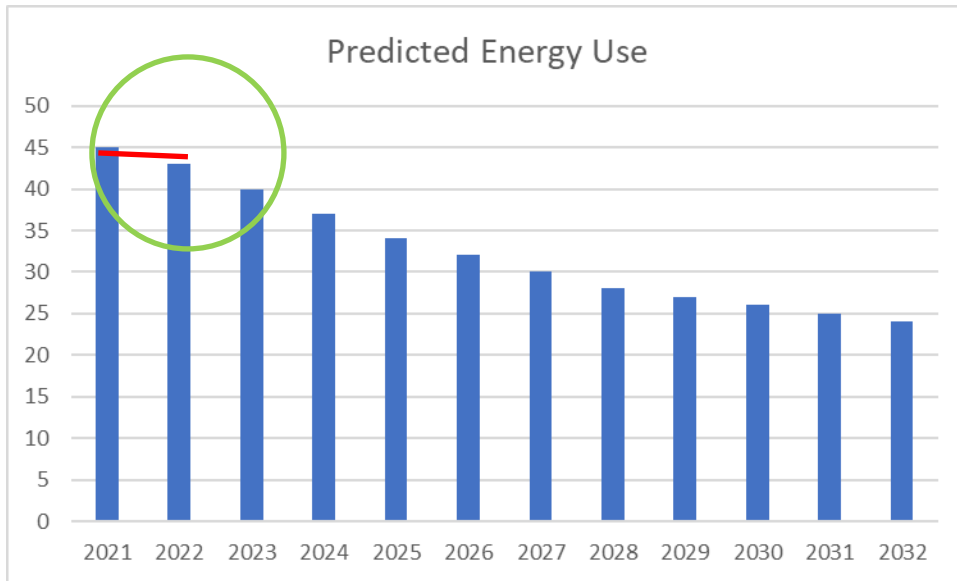
## Reducing energy use by priority measures

- Planning to reduce energy consumption by 50%
- Improve Energy Efficiency of buildings
- Switch to alternative fuels

**-50%**

**22.5 million kWh**  
**4400 tCO<sub>2</sub>e**

# Energy Use: 2022



|           | kWh        | tonnesCO2e |
|-----------|------------|------------|
| 2020-2021 | 45,169,293 | 9,171      |
| 2021-2022 | 44,963,103 | 8,861      |

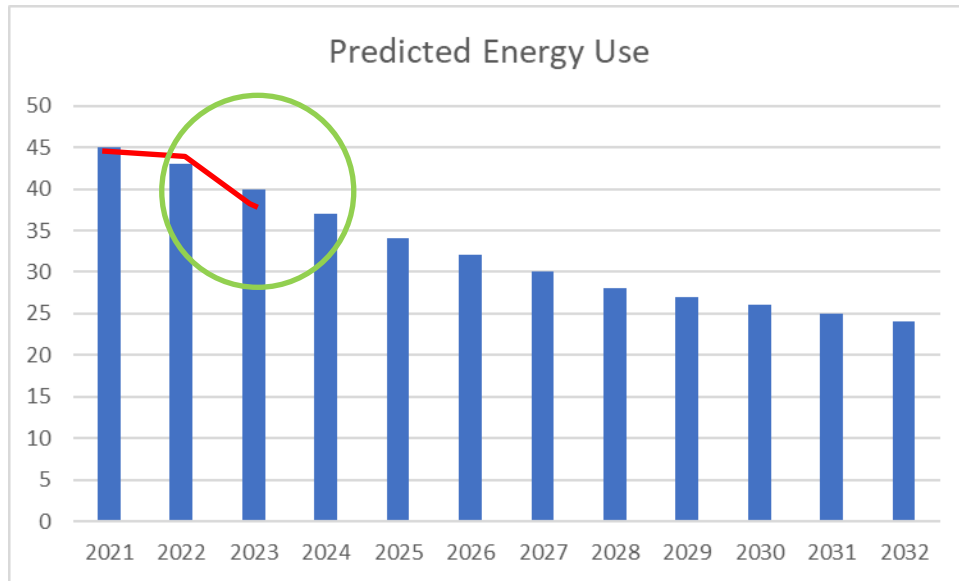
**-0.5%**

**200k kWh saved**

Small reduction

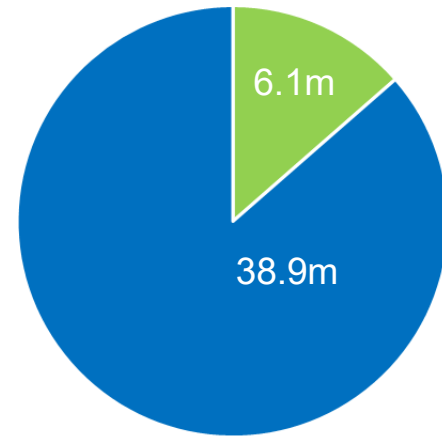
Last year we reported a small reduction in energy consumption and proposed targets / project plans

# Energy Use: 2023



|           | kWh        | tonnesCO2e |
|-----------|------------|------------|
| 2020-2021 | 45,169,293 | 9,171      |
| 2021-2022 | 44,963,103 | 8,861      |
| 2022-2023 | 38,860,609 | 7,475      |

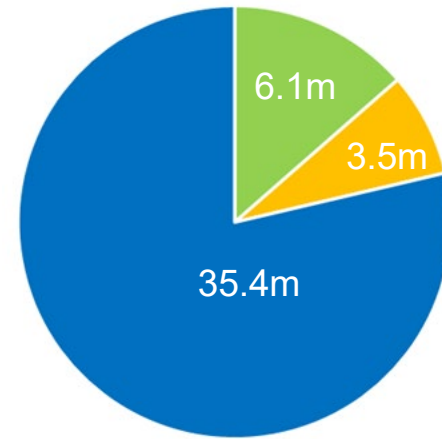
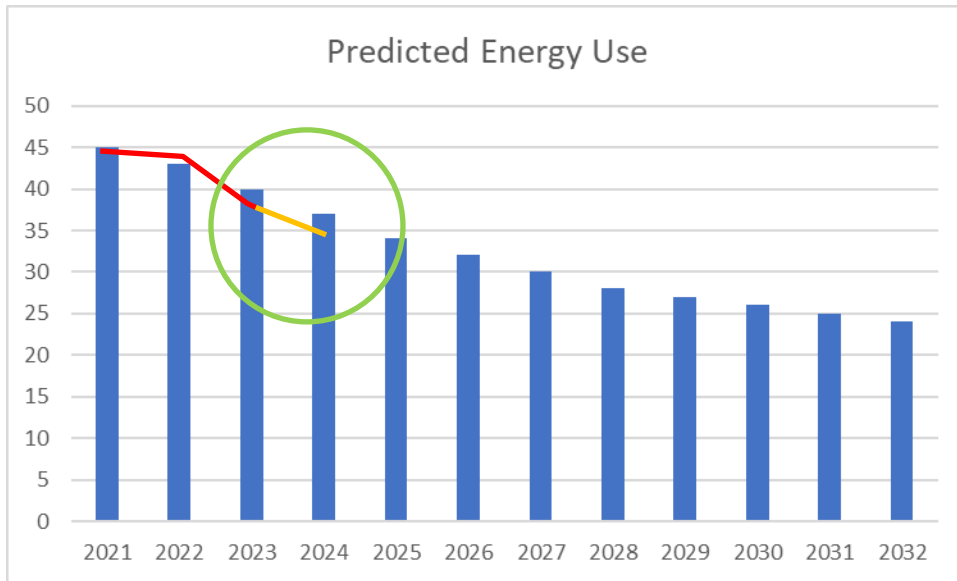
This year we can report a large reduction in energy consumption.



**-14%**

**6.1 million kWh saved  
1400 tCO2e**

# Energy Use: predicted



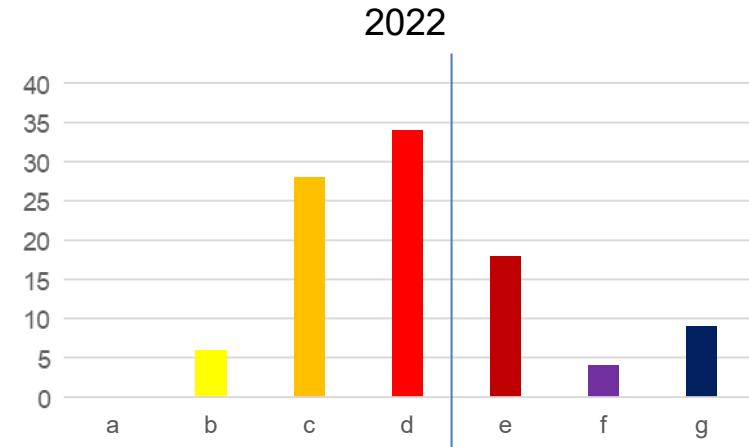
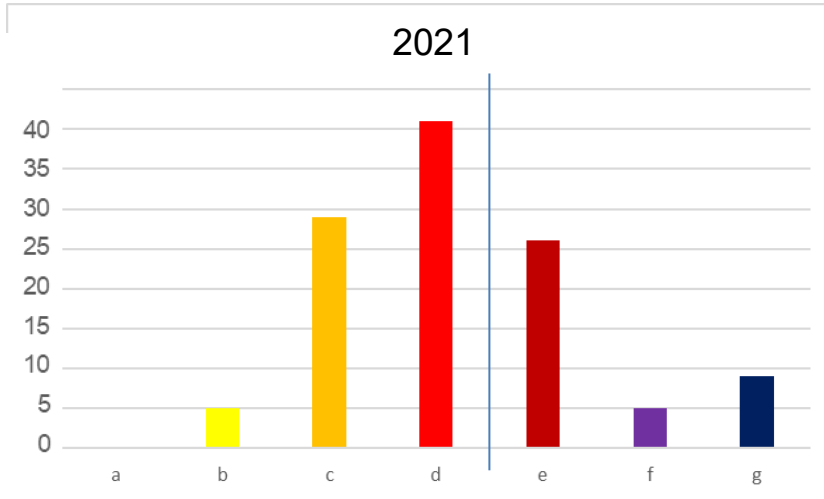
|           | kWh        | tonnesCO2e |
|-----------|------------|------------|
| 2020-2021 | 45,169,293 | 9,171      |
| 2021-2022 | 44,963,103 | 8,861      |
| 2022-2023 | 38,860,609 | 7,475      |

**-22%**

**9.6 m kWh min saving  
1900 tCO2e**

Next year we anticipate report a further guaranteed reduction

# Progress –Energy Efficiency of buildings



DEC ratings A-G

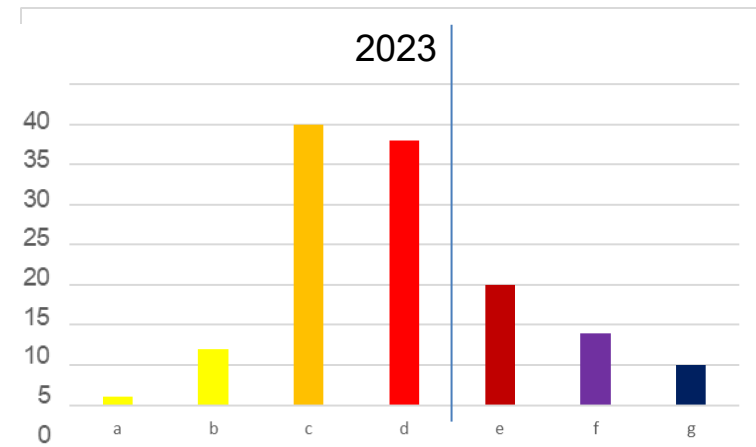
Buildings are rated A to G from good to poor

The CIBSE benchmark is the thin blue line

Improved ratings should show by the profile shifting to towards the left

Improving efficiency is indicated

The 2023 saving by Energy Management / retrofits is 1 million kWh



# Progress – Fuel Use

2032 IDEAL TARGET  
FUEL SPLIT



2032 REALISTIC TARGET  
FUEL SPLIT

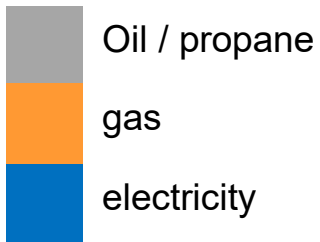


Plan to shift towards clean, renewables

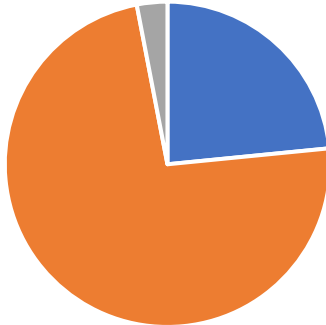
By 2032 Energy should be primarily 'Green' with low carbon emissions  
Fossil fuels should be progressively replaced

Residual Emissions to be offset by renewable energy generation

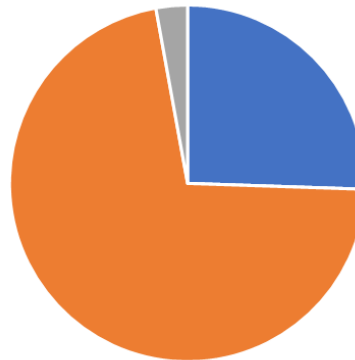
KEY



2021

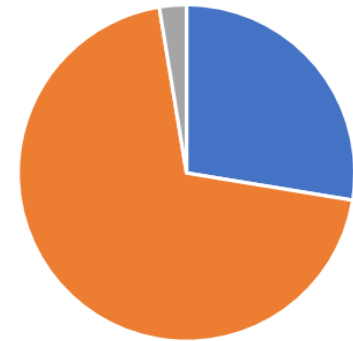


2022

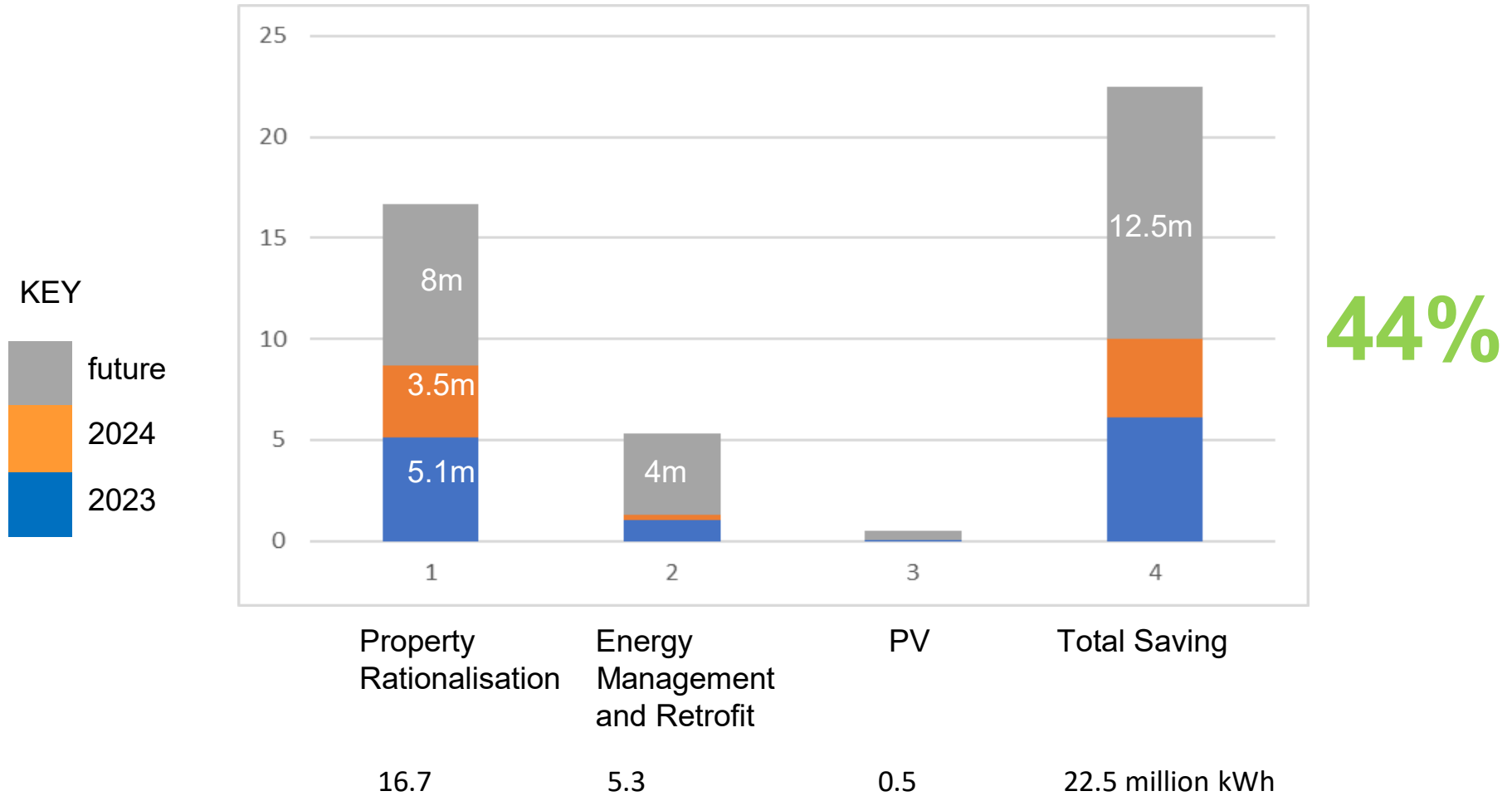


PROGRESS

2023

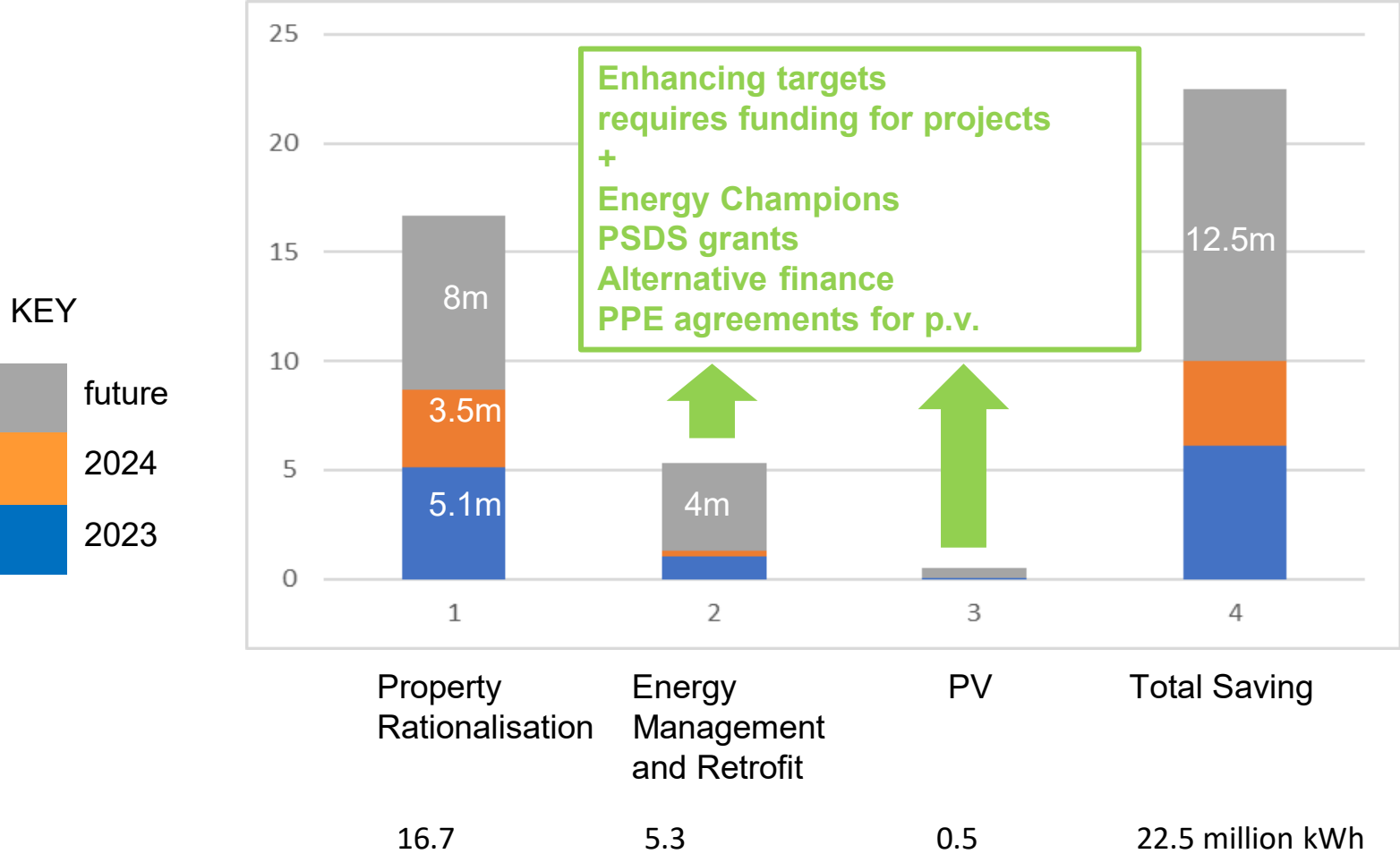


# Progress: towards savings targets





# Progress: Future Initiatives



# Progress – Annual Project Plans

|    |                                       | pv              |                 |                 |           | EM             |                |                |                | retrofit          |                   |                         |       |
|----|---------------------------------------|-----------------|-----------------|-----------------|-----------|----------------|----------------|----------------|----------------|-------------------|-------------------|-------------------------|-------|
|    |                                       | annual save kwh | annual save kwh | annual save kwh | total kwh | project cost £ | project cost £ | project cost £ | project cost £ | annual benefit pv | annual benefit EM | annual benefit Retrofit |       |
| 1  | Bolsover Adult Education Centre       | 1037-01         |                 | 12038           | 540       | 12578          | 0              | 36000          | 36000          | 72000             |                   | 2528                    | 113   |
| 2  | Newbold Library                       | 1098-01         | 6400            | 2,030           | 220       | 8650           | 34560          | 27000          | 36000          | 97560             | 1984              | 426                     | 46    |
| 3  | Ripley Library                        | 1591-01         |                 | 5,722           | 1100      | 6822           | 0              | 27000          | 36000          | 63000             |                   | 1202                    | 231   |
| 4  | New Bassett House HOP                 | 1604-01         | 16000           | 34200           | 3200      | 53400          | 86400          | 0              | 0              | 86400             | 4960              |                         | 672   |
| 5  | Briar Close House HOP                 | 1608-01         | 24000           | 32400           | 1900      | 58300          | 129600         | 0              | 0              | 129600            | 7440              |                         | 399   |
| 6  | Grange HOP,                           | 1621-01         | 16000           | 30000           | 14495     | 60495          | 86400          | 27000          | 54000          | 167400            | 4960              | 6300                    | 3044  |
| 7  | Rowthorne HOP                         | 1637-01         | 16000           | 27600           | 3800      | 47400          | 86400          | 0              | 0              | 86400             | 4960              |                         | 798   |
| 8  | Thomas College HOP                    | 1643-01         | 24000           | 24000           | 10040     | 58040          | 129600         | 27000          | 54000          | 210600            | 7440              | 5040                    | 2108  |
| 9  | Whitestones HOP                       | 1647-01         | 40000           | 38200           | 14800     | 93000          | 216000         | 27000          | 54000          | 297000            | 12400             | 8022                    | 3108  |
| 10 | Brimington Hostel                     | 1687-01         | 8000            | 17000           | 17436     | 42436          | 43200          | 36000          | 54000          | 133200            | 2480              | 3570                    | 3662  |
| 11 | Charnos Family Support Centre         | 1716-01         | 12000           | 4664            | 343       | 17007          | 64800          | 36000          | 36000          | 136800            | 3720              | 979                     | 72    |
| 12 | Alfreton Library                      | 1842-01         | 6400            | 6,325           | 728       | 13453          | 34560          | 27000          | 36000          | 97560             | 1984              | 1328                    | 153   |
| 13 | Ilkeston Library                      | 1872-01         | 3200            | 7,245           | 817       | 11262          | 17280          | 27000          | 36000          | 80280             | 992               | 1521                    | 172   |
| 14 | Staveley Library                      | 1889-01         |                 | 4,719           | 350       | 5069           | 0              | 27000          | 36000          | 63000             |                   |                         |       |
| 15 | Eckington Library                     | 1891-01         | 6400            | 3,979           | 459       | 10838          | 34560          | 27000          | 36000          | 97560             | 1984              | 836                     | 96    |
| 16 | Chesterfield Library                  | 2444-01         | 0               | 430,000         | 330900    | 760900         | 0              | 90000          | 180000         | 270000            |                   | 90300                   | 69489 |
| 17 | County Hall                           | 2642-00         | 24000           | 239,830         | 20000     | 283830         | 129600         | 54000          | 180000         | 363600            | 7440              | 50364                   | 4200  |
| 18 | Chesterfield Support Network          | 2725-01         | 16000           | 7847            | 600       | 24447          | 86400          | 36000          | 54000          | 176400            | 4960              | 1648                    | 126   |
| 19 | Petersham Centre                      | 2754-01         | 8000            | 21363           | 2826      | 32189          | 43200          | 36000          | 54000          | 133200            | 2480              | 4486                    | 593   |
| 20 | Castle Court HOP                      | 2777-01         | 40000           | 30000           | 13391     | 83391          | 216000         | 27000          | 54000          | 297000            | 12400             | 6300                    | 2812  |
| 21 | Lea Green Centre                      | 2778-01         | 9600            | 51274           | 3608      | 64482          | 51840          | 90000          | 180000         | 321840            | 2976              | 10768                   | 758   |
| 22 | White Hall Centre                     | 2781-01         |                 | 26976           | 1879      | 28855          | 0              | 90000          | 180000         | 270000            |                   | 5665                    | 395   |
| 23 | NE Derbys Area Social Services Office | 2847-01         | 8000            | 9700            | 969       | 18669          | 43200          | 36000          | 54000          | 133200            | 2480              | 2037                    | 203   |
| 24 | Hasland Resource Centre               | 3167-01         | 16000           | 3941            | 432       | 20373          | 86400          | 36000          | 54000          | 176400            | 4960              | 828                     | 91    |
| 25 | Hunloke Centre                        | 3374-01         | 8000            | 12650           | 7846      | 28496          | 43200          | 36000          | 90000          | 169200            |                   |                         |       |
| 26 | Swadincote Learning Centre            | 3461-01         | 8000            | 8483            | 527       | 17010          | 43200          | 36000          | 36000          | 115200            | 2480              | 1781                    | 111   |
| 27 | Shand House                           | 3535-01         | 32000           | 42,909          | 11300     | 86209          | 172800         | 54000          | 90000          | 316800            | 9920              | 9011                    | 2373  |
| 28 | Alice's View Children's Centre        | 3539-01         | 20800           | 7383            | 70850     | 98833          | 112320         | 36000          | 360000         | 508320            | 6448              | 1550                    | 14837 |
| 29 | Outlook Centre                        | 3598-01         | 16000           | 11124           | 1075      | 28199          | 86400          | 36000          | 54000          | 176400            | 4960              | 2336                    | 226   |

**12<sub>yr</sub>**  
**Payback**  
**Business Case**

Submit proposed annual project programmes with Business Case support  
The target buildings have been asset challenged  
Proposed projects are for p.v. installation, Energy Management system, retrofits.

# Progress – Annual Project Plans

|    |                                       | pv              | EM              | retrofit        | total  | pv             | EM             | retrofit       | total          | pv                | EM                | retrofit                |       |
|----|---------------------------------------|-----------------|-----------------|-----------------|--------|----------------|----------------|----------------|----------------|-------------------|-------------------|-------------------------|-------|
|    |                                       | annual save kwh | annual save kwh | annual save kwh | kwh    | project cost £ | project cost £ | project cost £ | project cost £ | annual benefit pv | annual benefit EM | annual benefit Retrofit |       |
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| 6  | Grange HOP,                           | 1621-01         | 16000           | 30000           | 14495  | 60495          | 86400          | 27000          | 54000          | 167400            | 4960              | 6300                    | 3044  |
| 7  | Rowthorne HOP                         | 1637-01         | 16000           | 27600           | 3800   | 47400          | 86400          | 0              | 0              | 86400             | 4960              |                         | 798   |
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| 9  | Whitestones HOP                       | 1647-01         | 40000           | 38200           | 14800  | 93000          | 216000         | 27000          | 54000          | 297000            | 12400             | 8022                    | 3108  |
| 10 | Brimington Hostel                     | 1687-01         | 8000            | 17000           | 17436  | 42436          | 43200          | 36000          | 54000          | 133200            | 2480              | 3570                    | 3662  |
| 11 | Charnos Family Support Centre         | 1716-01         | 12000           | 4664            | 343    | 17007          | 64800          | 36000          | 36000          | 136800            | 3720              | 979                     | 72    |
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| 15 | Eckington Library                     | 1891-01         | 6400            | 3,979           | 459    | 10838          | 34560          | 27000          | 36000          | 97560             | 1984              | 836                     | 96    |
| 16 | Chesterfield Library                  | 2444-01         | 0               | 430,000         | 330900 | 760900         | 0              | 90000          | 180000         | 270000            |                   | 90300                   | 69489 |
| 17 | County Hall                           | 2642-00         | 24000           | 239,830         | 20000  | 283830         | 129600         | 54000          | 180000         | 363600            | 7440              | 50364                   | 4200  |
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| 22 | White Hall Centre                     | 2781-01         |                 | 26976           | 1879   | 28855          | 0              | 90000          | 180000         | 270000            |                   | 5665                    | 395   |
| 23 | NE Derbys Area Social Services Office | 2847-01         | 8000            | 9700            | 969    | 18669          | 43200          | 36000          | 54000          | 133200            | 2480              | 2037                    | 203   |
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| 28 | Alice's View Children's Centre        | 3539-01         | 20800           | 7383            | 70650  | 98833          | 112320         | 36000          | 360000         | 508320            | 6448              | 1550                    | 14837 |
| 29 | Outlook Centre                        | 3598-01         | 16000           | 11124           | 1075   | 28199          | 86400          | 36000          | 54000          | 176400            | 4960              | 2336                    | 226   |

**12<sub>yr</sub>**  
**Payback**  
**Business Case**



## RISK

No current allocation of project funding due to current financial pressures

## MITIGATION

Investigate alternative funding options

Request use of capital receipts to fund p.v. programme

# Offsetting Measures

Offsetting of residual energy use by renewable energy generation

Project: Williamthorpe Solar Farm

3.2 million kWh output.

Allocated capital funding in Feb 2023

Recommend planning submission  
early March 2024



