

Construct Zero Performance Framework Dashboard



CLC 6th Performance Assessment Q2 2023

Background

The Construction Leadership Council (CLC) is leading the sector's response to the Net Zero challenge, through the Construct Zero change programme.

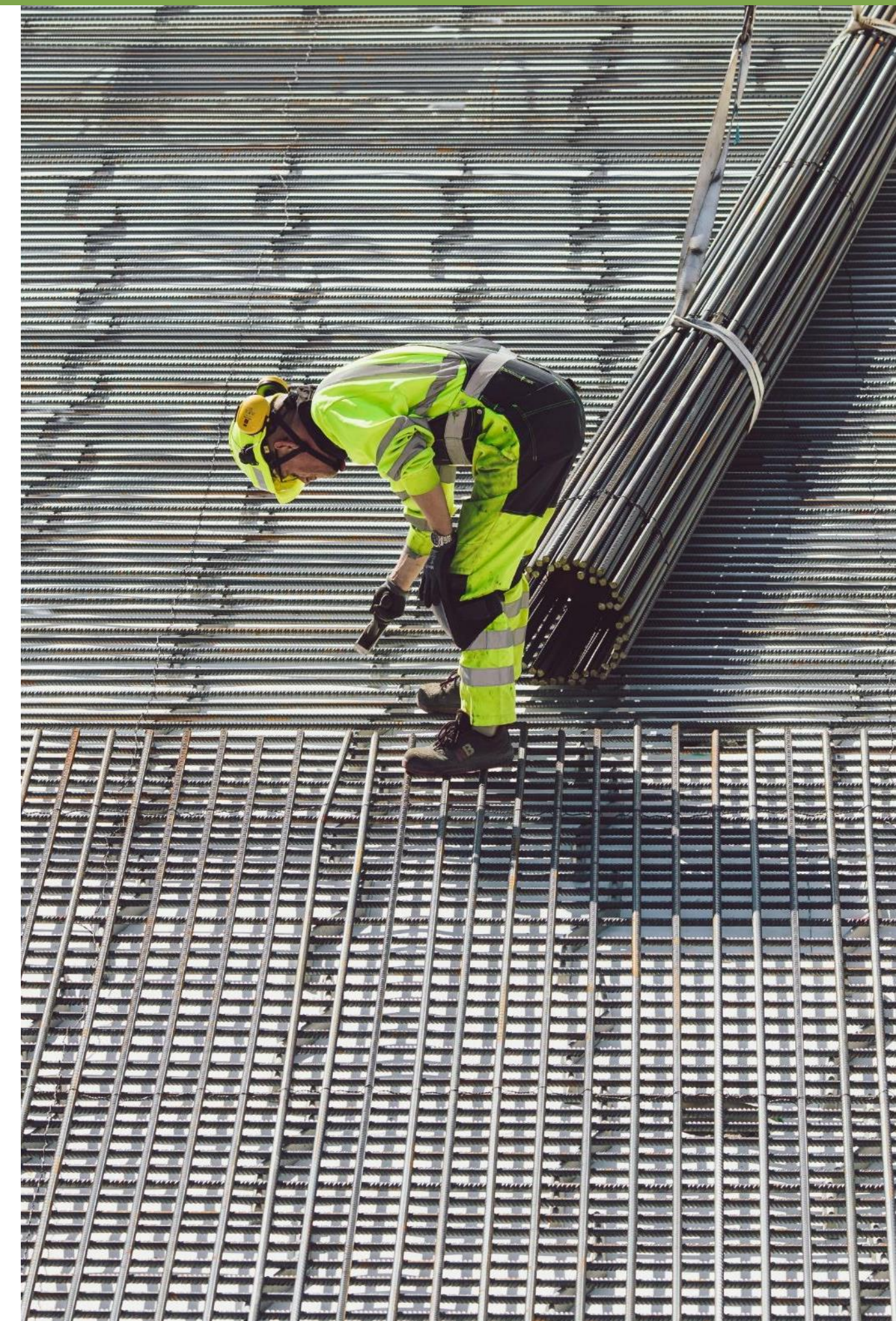
Building on the success of the sector's collaborations during COVID, the CLC has engaged the industry to develop the Performance Framework, which sets out how the sector will commit to, and measure its progress towards, Net Zero.

What is Performance Framework?

The Performance Framework has been developed to provide the CLC with a sector level dashboard on our progress towards Net Zero aimed at motivating businesses to action and to help those outside the sector understand our progress.

We collate data for the dashboard on a quarterly basis albeit not every metric will be available quarterly. The data itself will be drawn from sources which already aggregate it, known as data point owners.

The Performance Framework is very closely aligned with Government policy and draws on emerging thinking on carbon measurement and assessment, as such it will evolve over time and we will no doubt update and improve the metrics.



Executive Summary

For the first time, in this quarterly update, we have the data quality and completeness to assess progress on each of the 9 priorities against the 6th carbon budget targets. In a sector that runs on programmes, KPIs and performance assessments we are anticipating this will be a useful tool to focus the efforts of Government, the CLC Board, Trade Associations and our wider network to take action.

Transport

In June, we launched the Zero Diesel sites roadmap, setting out a path for the sector to reduce its reliance on zero diesel on sites by 78% by 2035. We are now in the implementation phase and working with key client groups to encourage them to sign up with collective dates, targeting Developers, New Home Builders and Infrastructure Clients to commit to a date this year. As industry, our focus needs to be on action with initiatives such as a fuel saving tournament planned. On electric vehicle transition, we are seeing the market share for 2022 hold steady, but it's not increasing in new sales. This is perhaps an early indicator we need to be aware of, in terms of business confidence in electric vehicles. The CLC is currently scoping a sprint project to support industry in this space.

Although an upward trend on productivity remains, we are yet to see the effects of infrastructure delays on these figures and expect to see this hampering industry efforts. This is the priority most at risk due to the uncertainty in the pipeline from both environment decisions and planning challenges. Through COVID-19, we were one of the only sectors to improve our productivity, delivering improvements of over 14% in our productivity against a 5-year average. We have also collectively invested £2.67 billion in R&D over the last 5 years, a 5-fold increase on the previous 10 years. If we are to continue this level of investment and realise the significant productivity benefits still ahead, business confidence needs to be restored as a matter of urgency.



Executive Summary

Buildings

The domestic retrofit market shows encouraging signs, particularly with the launch of the PAS 2035 Business accreditation scheme, which has already approved 67 businesses. However, one area of concern is the small increase in the number of retrofit co-ordinators trained, standing at 650 (noting the target of 30,000 by 2028). To address this, the National Retrofit Hub is expected to play a key role in accelerating these figures.

Meanwhile, significant progress has been made in scaling up heat pump capacity for decarbonisation of heat, with almost 5000 installers trained against our target of 30,000 by 2030. Nevertheless, the Department for Energy Security and Net Zero faces complex decisions regarding policy interventions, such as the use of hydrogen heating for heat in homes, which could potentially accelerate the overall decarbonisation of heating from the current 15% up to the required 50% by 2035.

With the adoption of the future homes and buildings standards on track through the planning process, we can anticipate a natural reduction in energy demand installed every time a building is modified or a new one delivered. This trend is already evident in the increasing number of Energy Performance Certificates (EPC's) at C and above. The development of the Net Zero Carbon Buildings Standard will play a vital role in supporting planning officers and investors in making consistent decisions and setting the required benchmarks.



Executive Summary

Construction Activity

The recent update to PAS 2080 is putting in place the tools for clients and businesses to understand how to focus their decarbonisation efforts. The Builders Merchants Federation initiative to measure Environmental Product Declaration (EPD) rollout across the products they supply is commendable and we anticipate the data to be available in the coming months.

The role of our design professionals in designing out carbon is proving to be a challenging area as it heavily relies on the maturity of the data from rest of the sector and an end to end process to consistently understand and measure carbon. To address this, industry groups are collaborating to establish a sector wide suite of benchmarks over the next couple of years for both operational and embodied carbon across all asset types.

Our collective efforts in this endeavour is a joint effort between industry and Government, aimed at decarbonising our product supply chain. The Government is leading the development of Carbon Capture and Storage technology with commendable progress against targets. In contrast, industry has less visibility on progress as focus is towards getting benchmarks agreed for the key product lines of concrete, steel and timber. While anecdotal evidence indicates ongoing effort to decarbonise, we are unable to quantify the rate of progress at this stage.



Executive Summary

We are entering a phase where Net Zero will be at the centre of the political agenda and perhaps for the first time, we have the data to understand and articulate our contribution as the construction sector. Whilst that's not solving the problem, we can at least quantify the scale of the challenge and use our knowledge to direct the efforts of the industry and Government to ensure we are doing enough fast enough to meet Net Zero by 2050.



Richard Robinson

Deputy Co-Chair of the
Construction Leadership Council



Hannah Vickers

Programme Director of
Construct Zero Programme



Ministerial Foreword



Nusrat Ghani

Minister of State at the Department for Business and Trade and Minister of State responsible for the Investment Security Unit at the Cabinet Office



Department for
Business & Trade

As Co-Chair of the Construction Leadership Council, I'm pleased to welcome you to 'Construct Zero Performance Framework: Progress Update Report 6'. This report sets out the sector's latest progress towards Net Zero, against a set of 31 metrics the Construction Leadership Council is using to track the sector's collective progress to Net Zero.

I recently launched the Zero Diesel Route Map, setting a path for how the construction sector will aim to reduce its use of diesel on sites by 78% by 2035. Over the coming months, we will be speaking to clients including across the infrastructure and developers' markets, as well as housebuilders and Government projects. Their agreement to establish a collective date to phase out diesel on their sites will be important to ensure the route-map is successful.

Measuring the impacts of net zero is crucial. Today, for the first time, we are publishing a carbon intensity benchmark on concrete, as part of our aim of improving the metrics and information included in the Performance Framework, and making this a comprehensive and useful report for the construction and built environment sector.

In relation to the priority objective of decarbonising heat, we are making progress in scaling heat pump capacity, with almost 6,000 installers trained against the Construction Industry Training Board's target of 30,000 by 2030. However, we know there are challenges ahead, echoed in the Independent Committee for Climate Change's recent progress report. Whilst the Committee recognise CO2nstruct Zero's leadership role in accelerating the sector's transition to Net Zero, its independent report makes clear there is still much to be done to ensure the buildings sector reaches zero emissions by 2050. We will continue to work closely with the Committee to support their work in addressing those concerns.

Ministerial Foreword



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Minister of State at the Department for Business and Trade and Minister of State responsible for the Investment Security Unit at the Cabinet Office



Department for
Business & Trade

We need to pick up the pace in two areas the report highlighted as concerns. Firstly, on trained retrofit co-ordinators, we will be working with the National Retrofit Hub to identify how the current numbers can be accelerated, building on the recent launch of the PAS 2035 Business Accreditation Scheme, which has seen 67 businesses already approved. Secondly, we will be working with the Heat Pump Association to look at ways we can accelerate the numbers of individuals trained as Heat Pump installers.

We also know enhancing the energy performance of new and existing buildings through higher operational energy efficiency standards and better building energy performance is a key aspect of the bigger drive to Net Zero. Government will consult on further details in this space, through the Future Building Standard and Future Home Standard later this year, prior to publishing a technical specification, allowing both standards to be legally effective from 2025 onwards.

It's clear we have made progress. However, challenges remain. By working in partnership with our growing network of over 220 companies, we will continue to learn from each other, and lead the sector's progress to Net Zero.

I would like to thank each of you for your support and look forward to continuing to work with you.



TRANSPORT



BUILDINGS



CONSTRUCTION ACTIVITY

- 1. Accelerating the shift of the construction workforce to zero emission vehicles and onsite plant**
- 2. Optimise the use of Modern Methods of Construction and improved onsite logistics, in doing so reducing waste and transport to sites**
- 3. Championing developments and infrastructure investments that enable low carbon modes of transport**
- 4. Work with Government to deliver retrofitting to improve energy efficiency of the existing housing stock**
- 5. Scale up industry capability to deliver low carbon heat solutions in buildings, supporting heat pump deployment, trials of hydrogen heating systems and heat networks**
- 6. Enhancing the energy performance of new and existing buildings through higher operational energy efficiency standards and better building energy performance**
- 7. Implementing carbon measurement, to support our construction projects in making quantifiable decisions to remove carbon**
- 8. Designing out carbon, developing the capability of our designers and construction professionals to design in line with circular economy - shifting commercial models to reward measurable carbon reductions**
- 9. Support development of innovative low carbon materials, as well as advancing low carbon solutions for manufacturing processes and distribution**

78%
of diesel plant to be eliminated from construction sites by 2035

Close the productivity gap
between construction and economy average output per worker by 2035

Eliminate waste
Eliminate all but hazardous C&D waste entering landfill by 2040

Connect public/active transport
From 2025, planning applications from the sector must connect to public / active transport and include EV charging where parking is provided.

27 million homes
Working with Government deliver retrofitting to 27M homes by 2040

11.13 million homes
11.13M homes to reach EPC C by 2035

Low carbon heating
All new buildings will be designed with low carbon heating solutions from 2025.

50% of all housing
stock connected to low carbon heat sources (heat networks, heat pumps & PV) by 2035

Minimise energy demand
From 2025 we will deliver new homes and buildings which will minimise energy demand and reduce emissions in operation by 75% (dwellings) and at least 27% (commercial buildings) compared to current standards

25% reduction in heat demand
Heat demand in buildings needs to fall by over 25% from 2019 to 2035

Carbon data provided to our clients
Every client of the sector will be provided carbon data by 2030 to make informed lower carbon choices

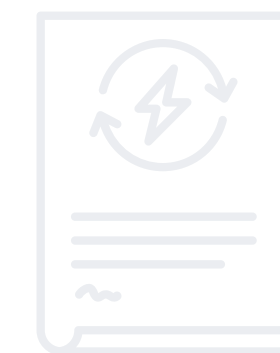
Becoming Net Zero
From 2022, we will give all our clients the chance to become net zero by offering alternative low carbon design options and advice to clients, even if not scoped

66% reduction in emissions
By 2035 we will have reduced construction product emissions down by 66% from 2018

RAG STATUS

GREEN – ON TRACK

AMBER – MORE WORK NEEDED



Case Study: Bradfords Building Supplies - Employee Retrofit Scheme

Bradfords has rolled out a scheme to offer employees a free home energy assessment. In partnership with local domestic retrofit experts Target CO2 (which offers a range of services to help homeowners and landlords reduce their energy consumption via heating and insulation measures), Bradfords has offered in-person home energy surveys to all interested homeowning employees.

The Target CO2 team assessed employees' homes, providing them with an end-to-end retrofit plan, including an up-to-date EPC, a ventilation guide and condition report. In addition, employees receive guidance on recommended solutions and products with an indication of increased energy efficiency reduction in carbon emissions, subject to those measures being installed.

The recent introduction of the Minimum Energy Efficiency Standards (MEES) regulations and expanding government funding schemes for low-carbon heating supports Bradfords customers – from trades to DIYers – to meet these changing regulatory requirements.

With all employees attending the retrofit assessments as they are conducted, they can easily identify with the examples in the retrofit plan, together with the products and scenarios they experience. This makes it more relatable when discussing retrofit with colleagues and customers. The participating Bradfords employees are expected to share their learning with colleagues to help build Bradfords' capability to provide a quality solution for retrofit enquiries across the Southwest.

Feedback so far has been overwhelmingly positive, with employees noting the relative ease of some of Target CO2's recommendations, such as installing thermostatic radiator valves or addressing ventilation gaps, as well as the potential for larger scale projects to install additional insulation, heat-pumps or solar panels.



Case Study: Keltbray - Site decarbonization through electrification

Keltbray identified that to decarbonise construction projects, it is key that a mains power connection is made available. It's Business Champion established a utilities team to support this and support their clients in reducing emissions and achieving net-zero.

The team managed to swap out fuel generators with TBS (Temporary Building Supply) that supplies electric power directly from the mains on several major construction sites in London. This allowed Keltbray to save around 980,000 litres of diesel which reduced carbon emissions by 2466 tCO₂e, circa 10% reduction of its Scope 1 emissions.

Where electricity supply is not available and they have to rely on generators, this could vary from load on demand generators to hybrid systems, where they rely on battery technology to power the baseload and only use the generators on peak demands. New analysis of site data from 12 Keltbray construction projects has revealed major savings since the business introduced Aggreko's battery technologies to decarbonise its power usage and reduce running costs. These include:

- Savings of more than 200 tonnes of carbon over a year
- Alongside 75,000 litres of fuel equating to over £100,000

Achieving 100% battery power meant that everything on site, even back up power, was powered by battery, avoiding the need for diesel on site. A recent phase of the project involved the removal of asbestos residue and concrete repairs using battery powered hush pods to power all necessary electrical equipment. The benefits of using only battery power and eliminating red diesel on site, includes:

- Reduced fuel costs.
- Reduced emissions.
- Improved local air quality.
- Reduced noise and vibration levels.



Case Study: The Environment Agency

- Carbon Analytics, Integrating sustainability BIM

The Bridgwater Tidal Barrier scheme is a £100m Environment Agency scheme to protect 13,000 homes and businesses from tidal flooding. Atkins, the detailed designer of the scheme, were awarded funding from the Environment Agency's Net Zero Carbon Innovation Pathway Fund 2022/23 to implement their BIM Analytics, Carbon workflow on the tidal barrier design. The scheme has an ambitious goal to reduce embodied carbon by 45% compared to the Strategic Outline Stage design, so measuring the carbon is key.

Carbon is normally measured using Excel-based tools, like the Environment Agency's Carbon Calculator tool and the Institution of Structural Engineers' (IStructE's) tool, which are useful for complex designs that may have multiple elements or composite materials.

Atkins saw an opportunity to use their developing technology, BIM Analytics – Carbon, on the BTB Scheme, using the data generated during design to conduct fast and accurate carbon assessments in real time as the design was being developed.

Building information modelling has the ability to:

- Analyse and accurately report embodied carbon with real-time carbon visualisations through data.
- Provide an audit trail of carbon changes through a comments log.
- Provide learning and testing for the integration of carbon data within the Environment Agency's Data Requirements Library and Environment Agency Carbon Calculator tool.

The scheme is currently on track to achieve a 50% carbon saving (approx. 8000tCO₂e) for the tidal barrier structure on the BTB scheme.



Construct Zero Performance Framework Dashboard



Construction
Leadership
Council



Department for
Business & Trade

ConstructZERO

The Construction Industry's Zero carbon change programme



Priority 1

GREEN – ON TRACK

Transport

Accelerating the shift of the construction workforce to zero emission vehicles and onsite plant.

Performance framework target

78% of diesel plant to eliminated from construction sites by 2035.



TRANSPORT

- 1** Performance framework metric
Annual increase in non-diesel plant in use from plant hire firms
- 2** Performance framework metric
Every construction or client business over 250 staff to trial one zero diesel site by end of 2023
- 3** Performance framework metric
Phase out diesel generators on site by 2025 (target 500 firms signed up by 2025)
- 4** Performance framework metric
Plant operator training launched in 2023
- 5** Performance framework metric
Annual increase in electric vans in – new registrations of battery electric vans

Data: Under Collection

Data: Expected in Q4

Data: Expected in Q3

ON TRACK

5.2%
Market share
YTD 2022 - 6085
YTD 2023 - 7028
943 more than this time last year
Data: SMMT

Priority 2

AMBER – MORE WORK NEEDED

Transport

Optimise the use of Modern Methods of Construction and improved onsite logistics, in doing so reducing waste and transport to sites.

Performance framework target

Close the productivity gap between Construction and economy average output per worker by 2035 Eliminate all but hazardous C&D waste entering landfill by 2040.

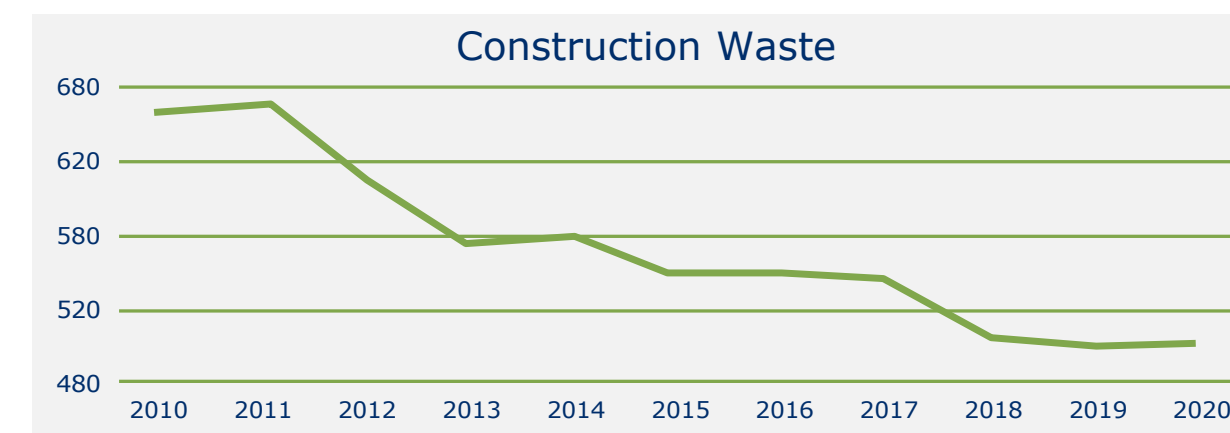


TRANSPORT

6

Performance framework metric

Annual reduction in construction and demolition waste and excavation waste tonnes/£m output

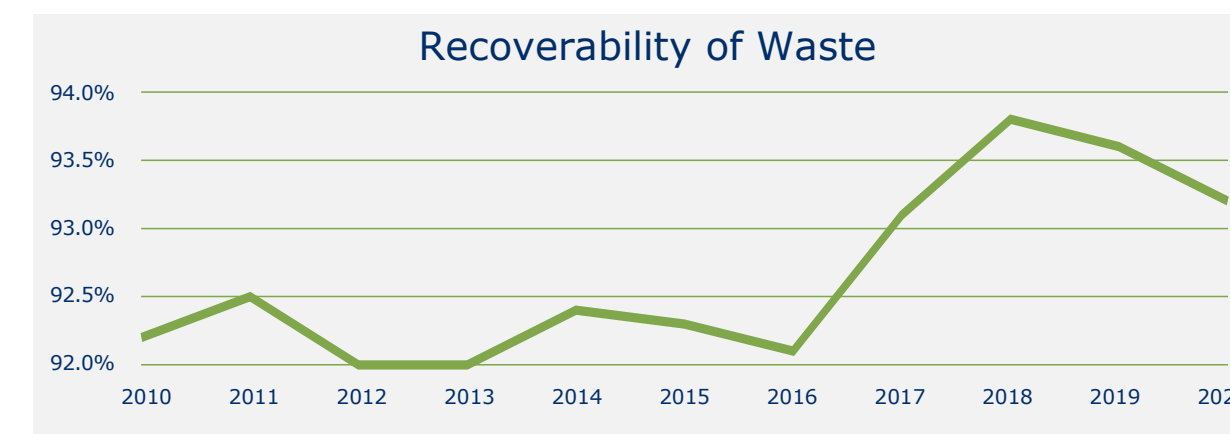


Source: gov.uk / ONS

7

Performance framework metric

Target recoverability of Construction and demolition waste to increase to 95%.



Source: gov.uk / ONS

8

Performance framework metric

Demolition waste reused and recycled

Data: Under Collection

Priority 2

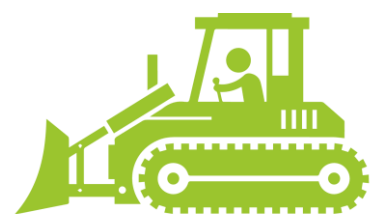
AMBER – MORE WORK NEEDED

Transport

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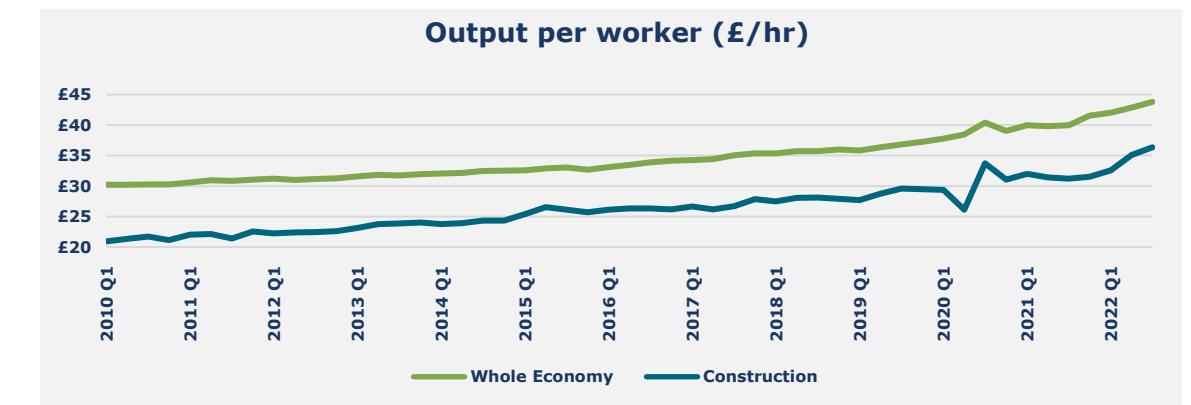


TRANSPORT

9 Performance framework metric
Measure industry onsite productivity output/FTE

10 Performance framework metric
Increase % of pre-manufactured value across sector year on year

11 Performance framework metric
New stat from Construction Productivity Taskforce



Source: ONS



Data: Under Collection

Priority 3

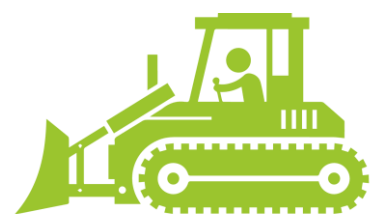
GREEN – ON TRACK

Transport

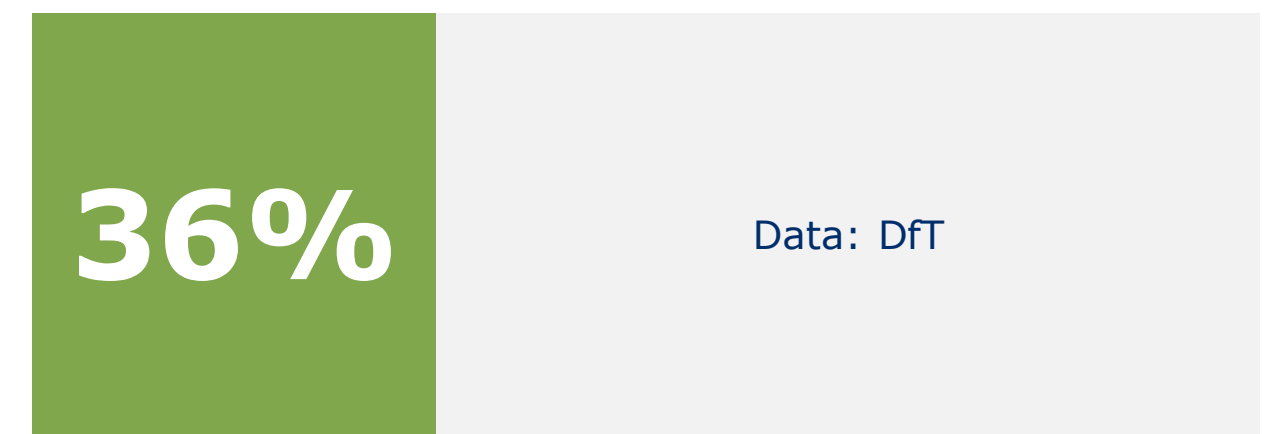
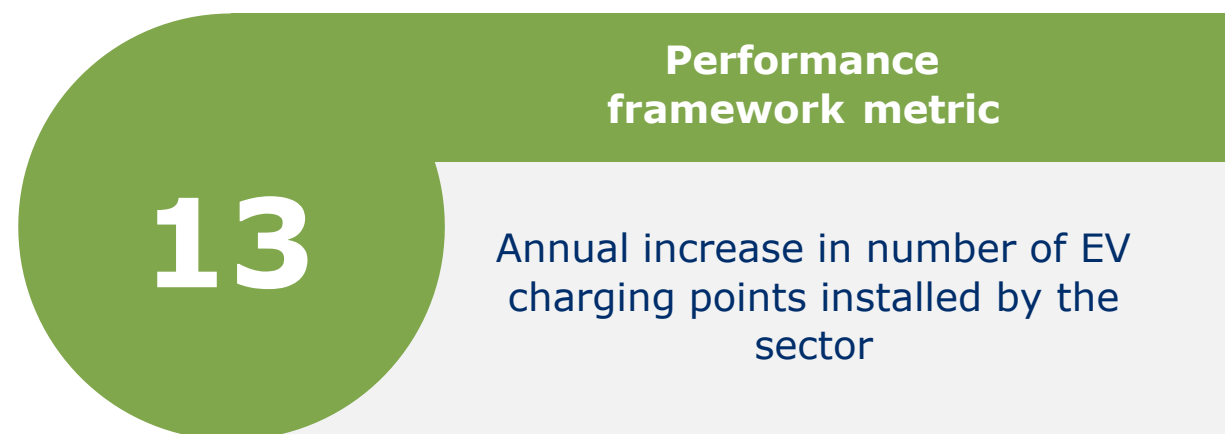
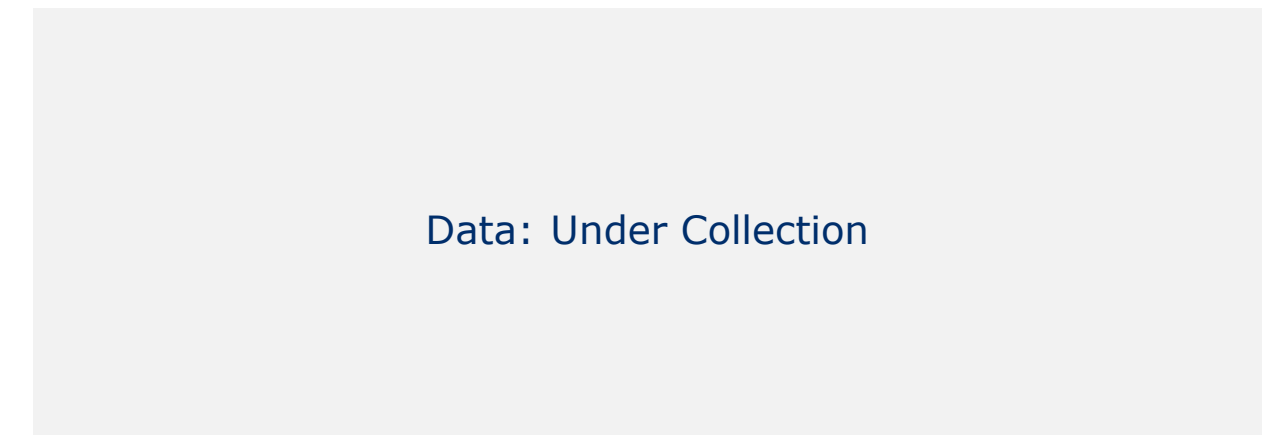
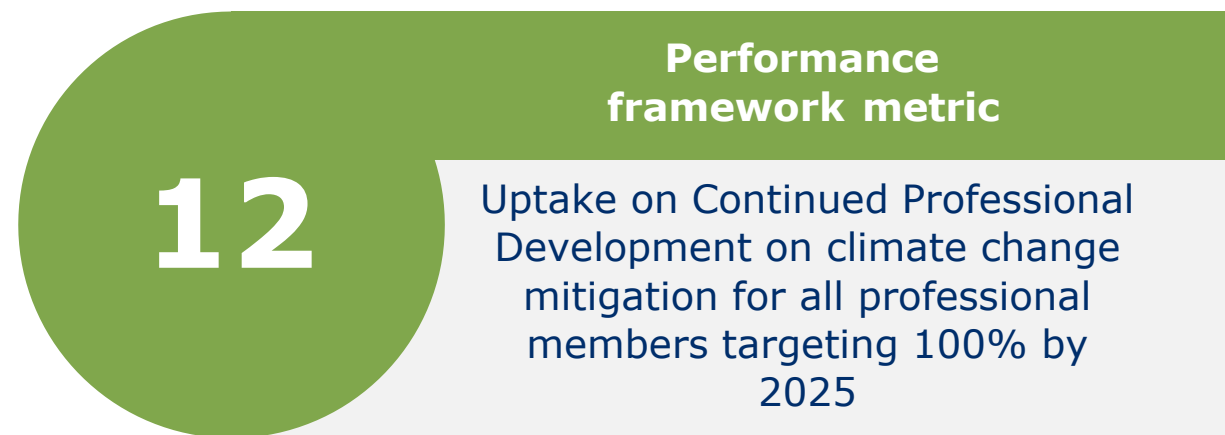
Championing developments and infrastructure investments that both enable connectivity with low carbon modes of transport and design to incorporate readiness for zero emission vehicles.

Performance framework target

From 2025, planning applications from the sector must connect public / active transport and include EV charging where parking is provided.



TRANSPORT



Priority 4

AMBER – MORE WORK NEEDED

Buildings

Work with Government to deliver retrofitting to improve energy efficiency of the existing housing stock.

Performance framework target

Working with Government deliver retrofitting to 27 million homes by 2040.



BUILDINGS

14 Performance framework metric

Deliver retrofitting to 855,000 homes by 2024, 12,300,000 homes by 2030, and 27,300,000 homes by 2040.

15 Performance framework metric

Establish industry 'quality scheme' routes and licensing consistent with PAS2035 and target annual increase in number of businesses registered

16 Performance framework metric

Number Trustmark Retrofit Coordinators targeting 30,000 by 2028

17 Performance framework metric

Annual reduction in average energy requirements for new dwellings and existing (EPC based), increased % of EPC C to 100% by 2035

Data: Under Collection

67 Scheme launched in Q1 2023

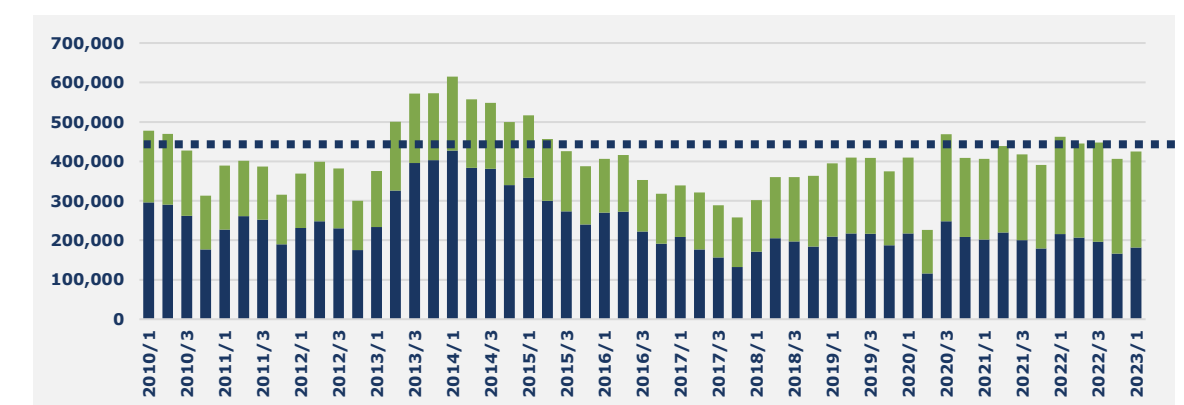
Businesses registered to date in 2023

2022 Target 1000

650

Data: Trustmark

Total 30k



Priority 5

GREEN – ON TRACK

Buildings

Scale up industry capability to deliver **low carbon heat solutions in buildings**, supporting heat pump deployment, trials of hydrogen heating systems and heat networks.

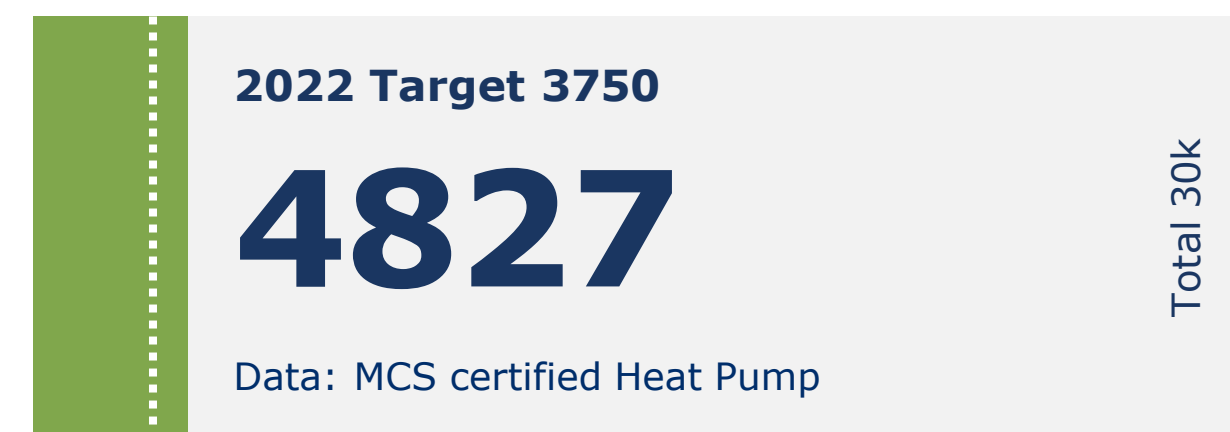
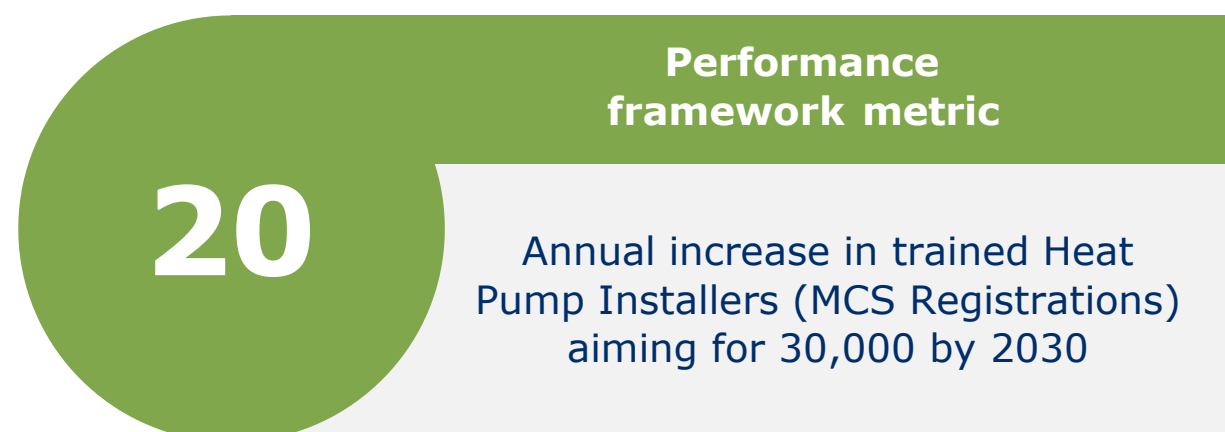
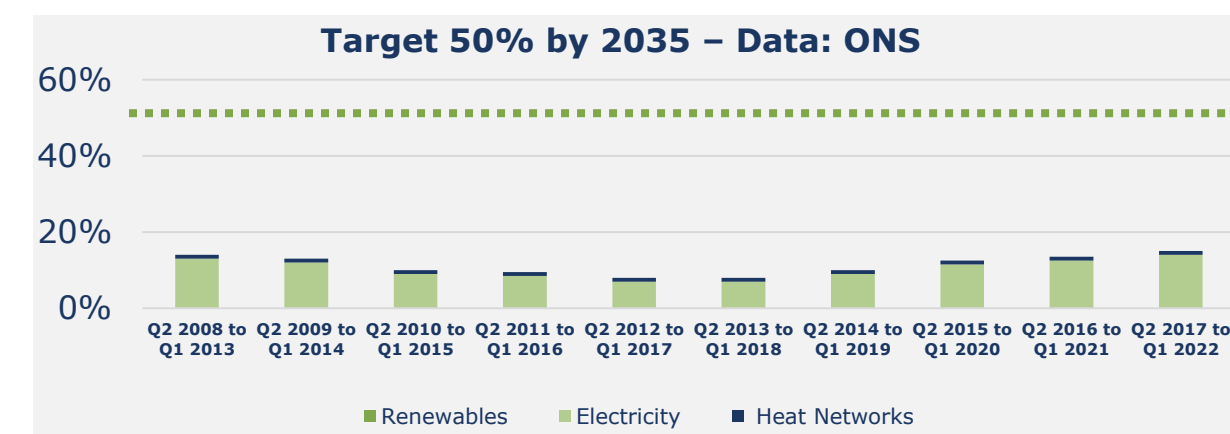
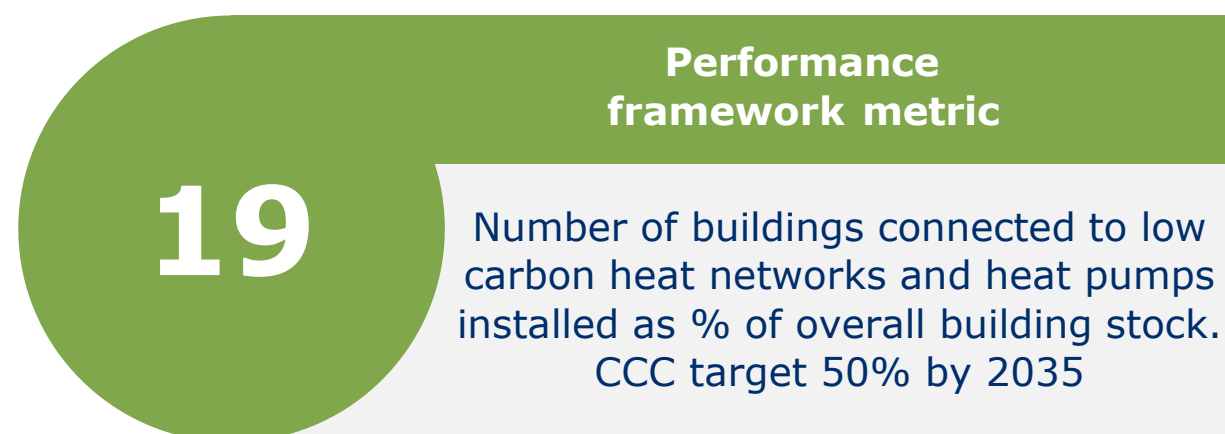
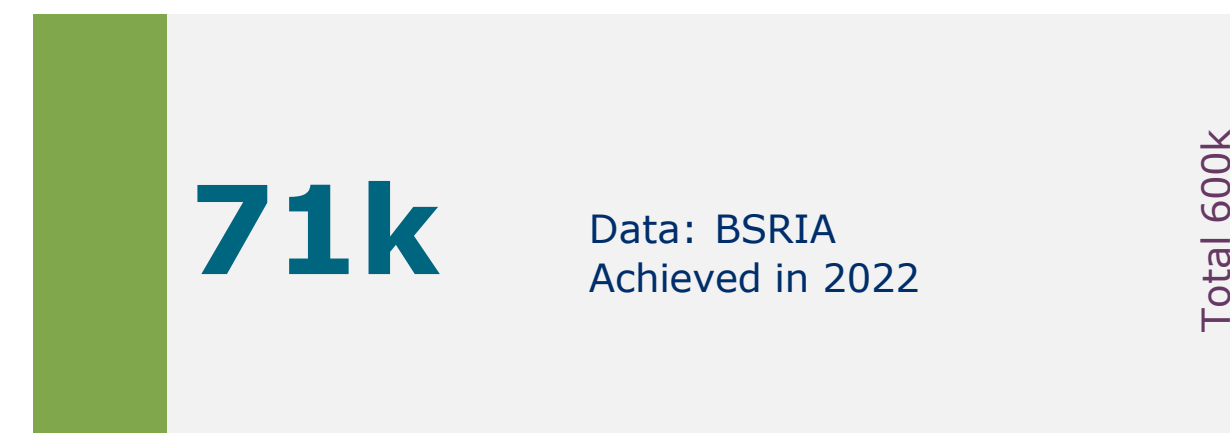
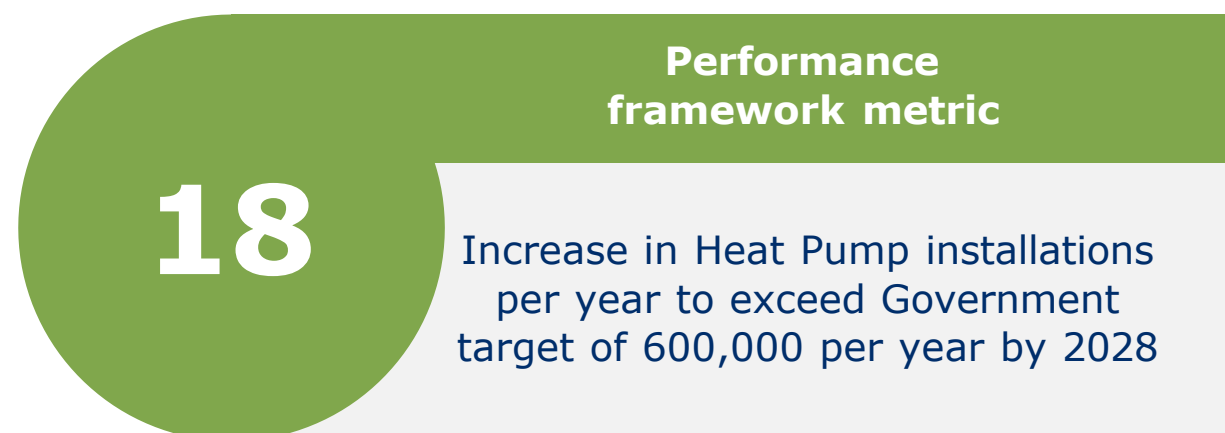
Performance framework target

From 2025, all new buildings will be designed with low carbon heating solutions.

50% of all housing stock connected to low carbon heat sources (heat networks, heat pumps & PV) by 2035 (CCC target).



BUILDINGS



Priority 6

GREEN – ON TRACK

Buildings

Enhancing the **energy performance** of **new and existing buildings** through higher operational efficiency standards and better building energy performance.

Performance framework target

From 2025, we will deliver new homes and buildings which will minimise energy demand and reduce emissions in operation by 75% (dwellings) and at least 27% (commercial buildings) compared to current standards.



BUILDINGS

21

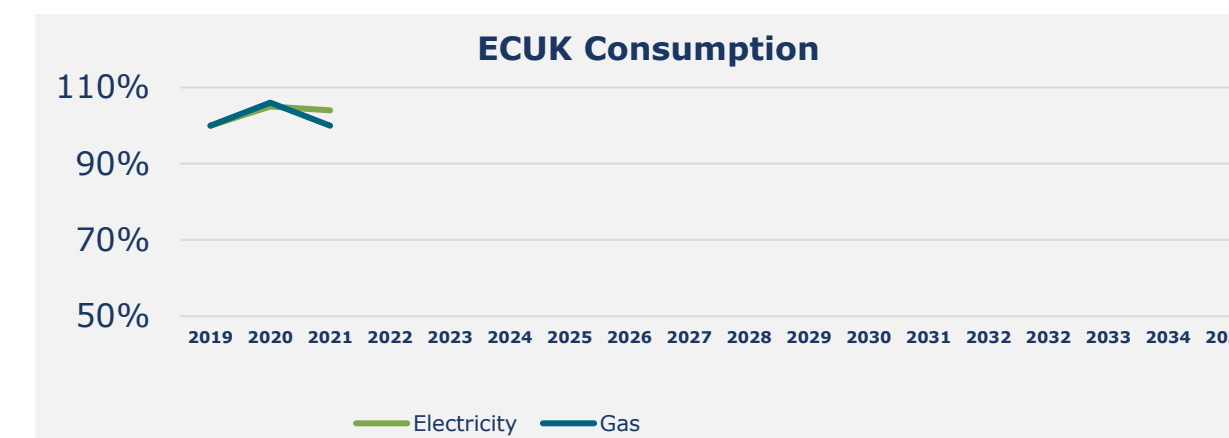
Performance framework metric

Annual reduction in actual energy usage in Buildings (EUK based). Heat demand in buildings needs to fall by over 25% from 2019 to 2035 in the CCC pathway.

22

Performance framework metric

Milestone on commercial buildings standard & future homes standards (date TBC)



Source: gov.uk

ON TRACK

Priority 7

AMBER – MORE WORK NEEDED

Construction

Implementing carbon measurement, to support our construction projects in making quantifiable decisions to remove carbon.

Performance framework target

Every client of the sector will be provided carbon data by 2030 to make informed lower carbon choices.



CONSTRUCTION
ACTIVITY

23

Performance
framework metric

Uptake on Continued Professional Development on climate change mitigation for all professional members targeting 100% by 2025

Data: New Metric Under Collection

24

Performance
framework metric

40% of product portfolios to have EPDs by 2025 with 100% by 2030, targeting a baseline and annual updates from 2025

Data: Expected Autumn 2023

25

Performance
framework metric

Every business or client over 250 staff in infrastructure to achieve PAS 2080 accreditation, monitor % coverage, target 100% by 2025

10

Accredited

Priority 8

AMBER – MORE WORK NEEDED

Construction

Become world leaders in designing out carbon, developing the capability of our designers and construction professionals to design in line with circular economy - shifting commercial models to reward measurable carbon reductions.

Performance framework target

From 2022, we will give all our clients the chance to become net zero by offering alternative low carbon design options and advice to clients, even if not scoped.



CONSTRUCTION
ACTIVITY

26

Performance
framework metric

Uptake on Continued Professional Development on climate change mitigation for all professional members targeting 100% by 2025

Data: New Metric Under Collection

27

Performance
framework metric

Commercial models to reward low carbon, new metric TBC

Data: New Metric Under Collection

28

Performance
framework metric

Building type benchmarks on embodied carbon

2024

Offices
Education
Industry
Retail
Hotels
Healthcare
Linear Infrastructure

2025

Homes

Priority 9

AMBER – MORE WORK NEEDED

Construction

Support development of innovative low carbon materials, as well as advancing low carbon solutions for manufacturing production processes and distribution.

Performance framework target

By 2035 we will have reduced construction product emissions down by 66% from 2018.



CONSTRUCTION
ACTIVITY

29 **Performance framework metric**

Work with Government to have CCUS operational on 2 clusters by 2028

30 **Performance framework metric**

Energy consumption - Establish 2018 baseline and target annual reduction in energy used in production kWh/Tonne for key product lines. CCC target is 47%

31 **Performance framework metric**

CO2 emissions intensity. Establish 2018 baseline and target annual reduction in embodied carbon CO2/Tonne for key product lines.

By 2035 we will have reduced construction product emissions down by 66% from 2018

Phase 1:
On target with HyNet and the East Coast Cluster selected as sites

Phase 2:
Process underway

	2017	2018 baseline	2019	2020	2021	2022	2023	2035 Target
Steel*								
Concrete	146.2	145.3	145.4	147.6				49.402
Timber*								

	2017	2018 baseline	2019	2020	2021	2022	2023	2035 Target
Steel*	-	-	-	-	-	-	-	-
Concrete	81.2	80.2	79	80.9	-	-	-	42.506
Timber*	-	-	-	-	-	-	-	-

*Steel and timber figures are still being collected

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ConstructZERO

The Construction Industry's Zero carbon change programme